GÜHRING

HERRAMIENTAS DE TALADRAR

PRECISIÓN

Dr. Jörg Gühring

Presidente de la gerencia

Oliver Gühring

Gerente de ventas y marketing

7000

Colaboradores
Mundialmente

3500

Colaboradores
en Alemania

Programa interno de
formación y especialización

Transmisión internacional de
conocimientos mediante programas de
intercambio para colaboradores

GÜHRING

Dietmar Pfränger

Gerente investigación y desarrollo, logística, técnica y producción

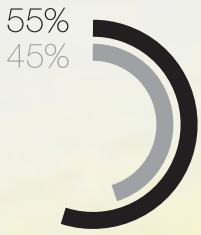
Bernd Schatz

Gerente administración y finanzas

Segmento principal
Herramientas

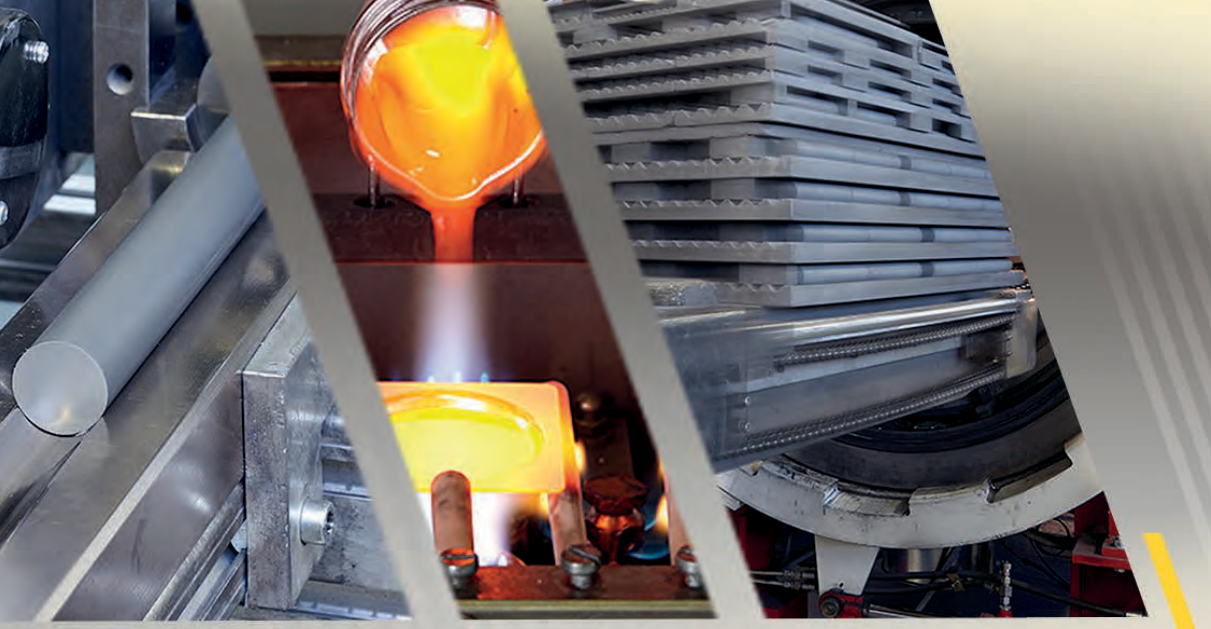
90000
Artículos estándar

4000
Tipos de herramientas



■ Herramientas estándar
■ Herramientas especiales

GÜHRING



MATERIALES DE CORTE

Producción de metal duro propia

Coordinación óptima de todos los parámetros de herramienta mediante sectores de I&D propios

APARATOS Y FABRICACIÓN DE MAQUINARIA

Fabricación propia de maquinaria y desarrollo propio de aparatos

GEOMETRÍAS

I&D propios para el desarrollo de las herramientas

RECUBRIMIENTOS

Hornos propios de recubrimiento y desarrollo de capas

Todo de una sola mano – amplio y global

Con una red global de centros de producción Gühring desarrolla y produce herramientas de precisión para todos los mercados importantes. Usuarios de la industria del automóvil, de la aeronáutica o industria espacial y de la industria de la maquinaria, apuestan por las herramientas que marcan el camino y que se producen en todo el mundo según los estándares de calidad y al máximo nivel.

48
FILIALES

MÀS DE 70
CENTROS DE PRODUCCIÓN Y SERVICIO

CANADA 1
Gühring Corp.
sales@guhring.com
www.guhring.com

USA 2
BROOKFIELD
Gühring Inc.
sales@guhring.com
www.guhring.com

USA 3
NEW HUDSON
Gühring Inc.
sales@guhring.com
www.guhring.com

MEXICO 4
Gühring Mexicana S.A. de C.V.
guhring.mexicana@guhring.com
www.guhring.com.mx

BRAZIL 5
Gühring Brasil
Ferramentas Ltda
vendas@guhring.com.br
www.guhring.com.br

SOUTH AFRICA 6
Gühring Cutting Tools (Pty) Ltd
info@guhring.co.za
www.guhring.co.za

SWEDEN 7
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info@guehring.se
www.guehring.se

GREAT BRITAIN 8
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info@guhring.co.uk
www.guhring.co.uk

NETHERLANDS 9
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www.guhring.nl

BELGIUM 10
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G.&H.Präzisionswerkzeuge GmbH
mario.jung@guehring.de
www.guehring.de

ALBSTADT 13
HEADQUARTER
Gühring KG
info@guehring.de
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ALBSTADT 14
FACTORY 2
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ONSTMETTINGEN
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SIGMARINGEN 16
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LEVERKUSEN 18
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EISENACH 20
SL Werkzeug KG
info@guehring.de
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GEISLINGEN 21
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www.guehring.de

MINDELHEIM 22
Gühring KG
info@guehring.de
www.guehring.de

NUREMBERG 23
Hoffelder Gühring
Cutting Tools
info@hoffelder-guehring.de
www.hoffelder-guehring.de

REGENSBURG 24
Gühring KG
info@guehring.de
www.guehring.de

GÜHRING

Con tecnologías innovadoras Gühring realiza deseos específicos para sus clientes desde el desarrollo de procesos hasta la aplicación en serie de herramientas de precisión – de manera flexible, a tiempo y global. Para este fin trabajan los expertos internacionalmente, asesorando al cliente. De esta forma están disponibles mundialmente y de una sola mano, producción, servicio y asesoramiento.

- Producción de metal duro propia
- Recubrimientos propios
- Fabricación de maquinaria propia
- Estándar de calidad máximo a nivel mundial

GÜHRING

Más variedad
PARA SU FABRICACIÓN

Nuestra variedad de brocas alcanza desde micro-brocas de diámetro 0,05mm hasta longitudes especiales de 180mm y desde HSS hasta VHM. 50.000 artículos para cualquier aplicación.

METAL DURO BROCAS RATIO

desde página 3

SISTEMA DE TALADRADO CON PLACAS INTERCAMBI HT 800

desde página 123

HSS/HSCO BROCAS ESPIRALES

- con mango cilíndrico
- con cono morse

desde página 175, 435

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BROCAS PARA AGUJEROS PROFUNDOS

- brocas cañón de uno y dos labios
- espiralizadas

desde página 515

MICROBROCAS
METAL DURO + HSSE

desde página 645

BROCAS DE PUNTEAR NC & BROCAS DE CENTRAR

desde página 665

BROCAS ESCALONADAS & BROCAS ESCARIADORAS

desde página 711

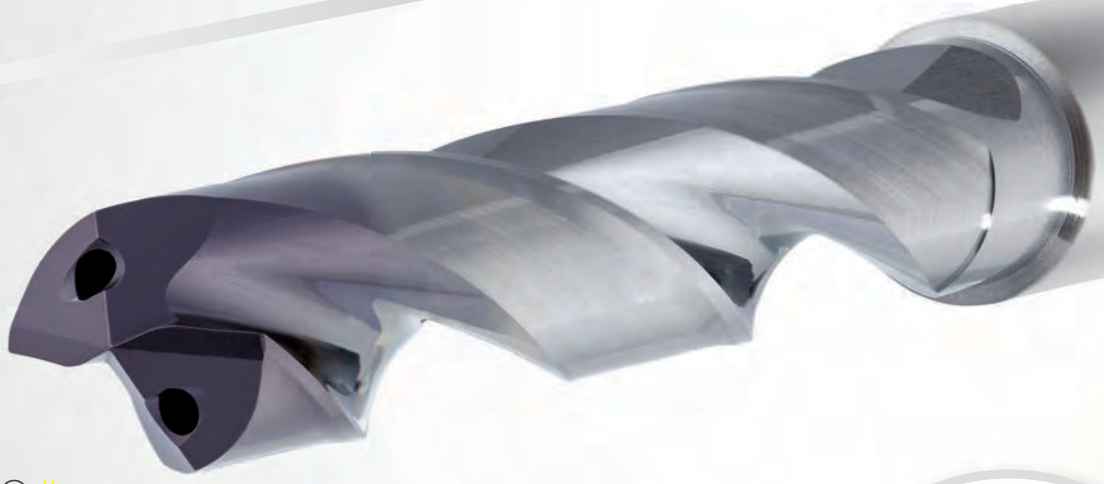
GÜHRING

Novedades

Con cada novedad Gühring marca nuevos retos en lo que se refiere a investigación, desarrollo y producción de herramientas. Perfección en el mecanizado-ese es nuestro reto.

CALIDAD PREMIUM
PARA EL MECANIZADO DEL ACERO

NEW



//RATIO//

RT 100 S

// micro-geometría optimizada para acero
// altos parámetros de corte
// alto rendimiento constante

→ desde página 59, 96

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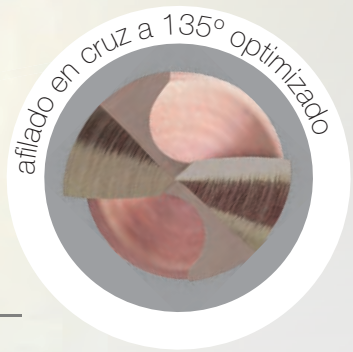
NEW

AeroX

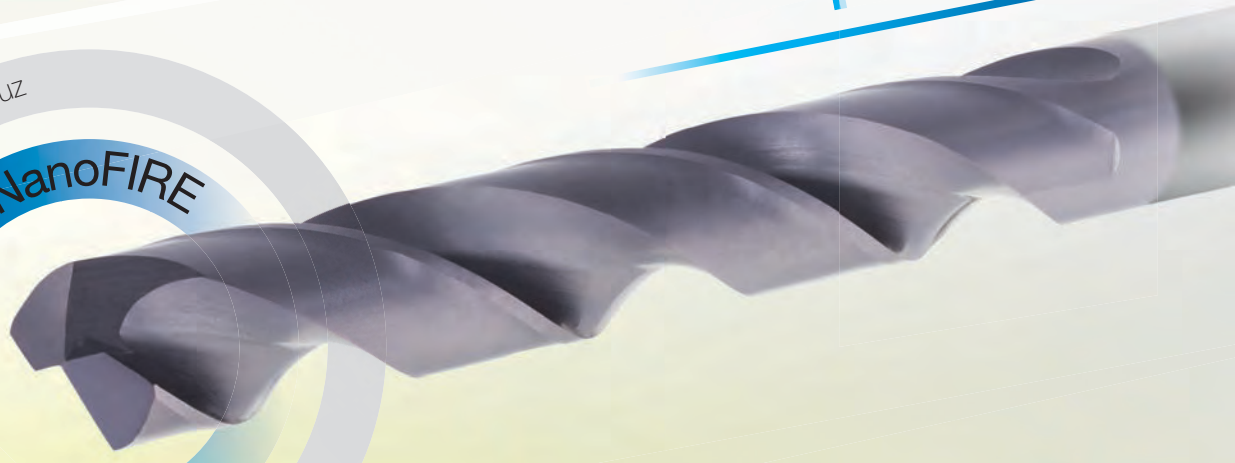
// Brocas espirales HSCO8 para trabajos de montaje en materiales generales o más aleados, titanio y aluminio.
// Taladrado rápido gracias al afilado en cruz 135º optimizado.

→ desde página 313

NÚCLEO DE LA BROCA OPTIMIZADA.
Núcleo muy reducido y progresivo para mas estabilidad de broca con generación de mínimas fuerzas



NEW



Para una gran resistencia térmica y al desgaste

M42 nanoFire

// Máximo rendimiento especialmente en aceros más aleados, aceros más duros y aleaciones especiales.
// Versión robusta gracias a núcleo estable. Afilado en cruz 135º

→ desde página 317

GÜHRING

NEW

Brocas HSS con canal de refrigeración

// Para el mecanizado de bigas de acero también en condiciones poco estables.
// Refrigeración óptima tanto axial como radial.
// Mínima creación de rebaba

→ desde página 499

Vaciado de núcleo

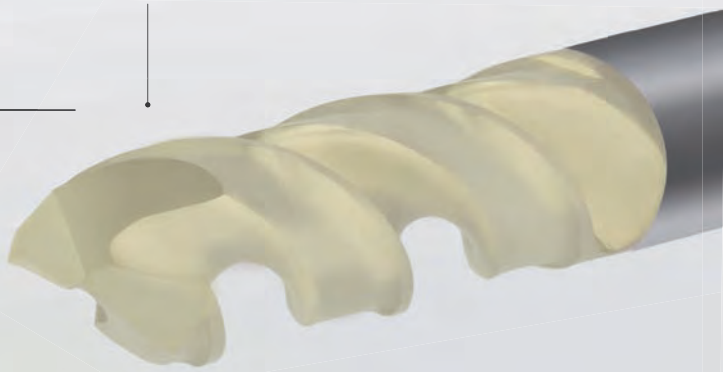
NEW

Recubrimiento **SIRIUS**
para máximos rendimientos especialmente en inoxidable

Brocas espiralizadas
VA-HSCO-Sirius

// Mayor rendimiento gracias a la gran resistencia al desgaste del recubrimiento Sirius en combinación con el afilado en cruz 135° optimizado

→ desde página 231



NEW

Recubrimiento NanoFIRE

Para máxima resistencia térmica y al desgaste

Brocas de puntear HSCO-NC

con recubrimientos NanoFire

// Punteado preciso con mayores valores de corte y mayor vida útil.
// Máximo rendimiento mediante recubrimiento NanoFire

→ desde página 705

NEW

Patines guía EB800 y plaquitas

con recubrimiento novedoso

// Adaptación óptima al material a mecanizar gracias a los distintos recubrimientos

→ desde página 556

GÜHRING

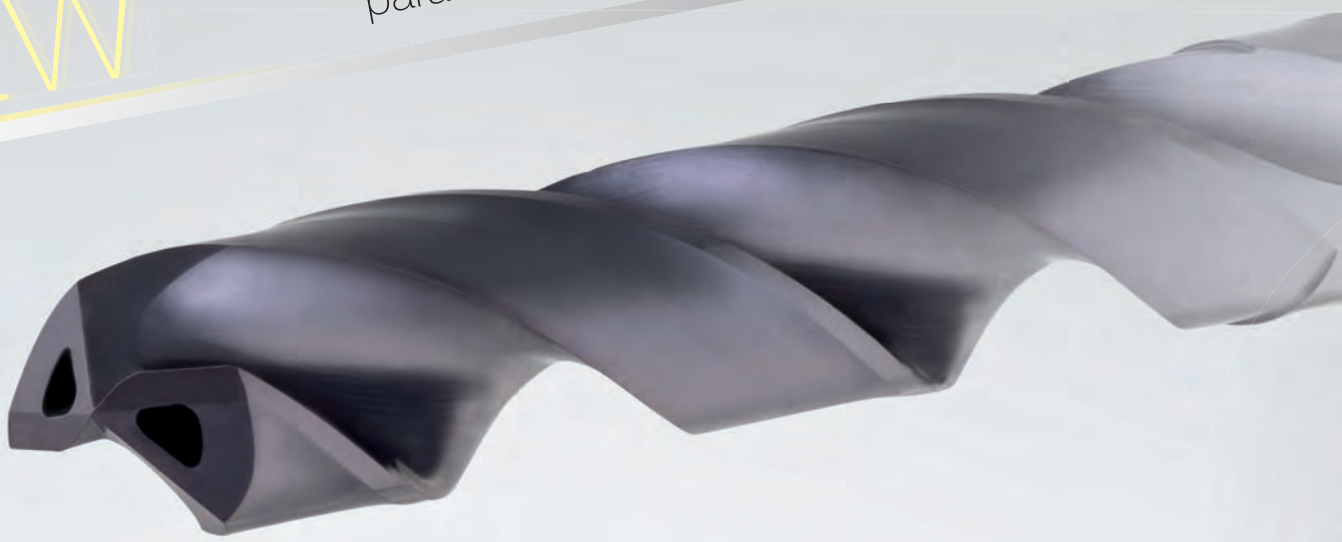
Innovaciones

Materiales modernas exijen procesos de mecanizdo vanguardistas. Con investigaciones pioneras y conceptos llenos de ideas Gühring se asegura el liderazgo en la tecnología de herramientas de arranque de viruta

NEW

DISEÑO INNOVATIVO
para una refrigeración eficiente

NEW



RT 100 Trigon®

// Velocidad de caudal optimizada.
// Muy apropiada para el mecanizdo de aceros inoxidables, titanio y aleaciones especiales.
// Mayor volúmen de refrigerante

→ desde página 813

GÜHRING

NEW

TALADRADO RENTABLE
de materiales de aluminio

ALUMINIUM
N

RT 100 AL

// Campo completo de materiales desde aleaciones tenaces de aluminio hasta aleaciones de fundición de aluminio.
// Brocas especiales para diámetro 3mm hasta 20mm y profundidades hasta 12xd.
// Refrigeración convencional y MMS

→ desde página 815

NEW

NEW

RT 100 Tipo C

// Especialmente adecuado para el mecanizado de aceros de viruta larga.
// Perfecto desalojo de viruta con velocidades de corte bajas.
// Forma de ranuras y geometría de los cortes muy adaptada a las necesidades de mecanizado

→ desde página 814

GÜHRING

R&D

MATERIALES DE UNIÓN DE FIBRAS.

Soluciones de herramienta para fibras muy abrasivas

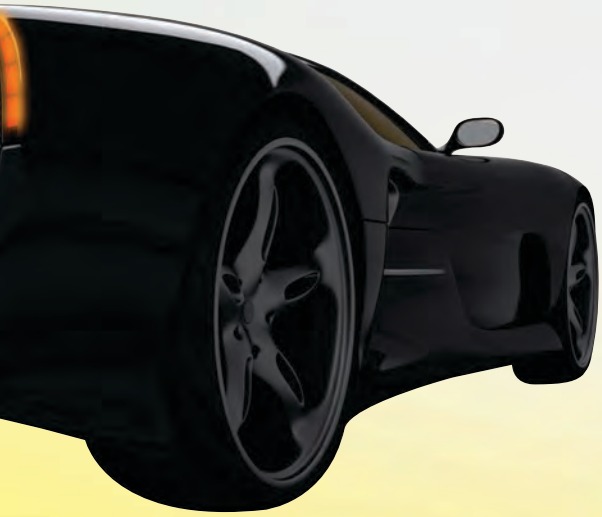
DESBASTE DE FVK

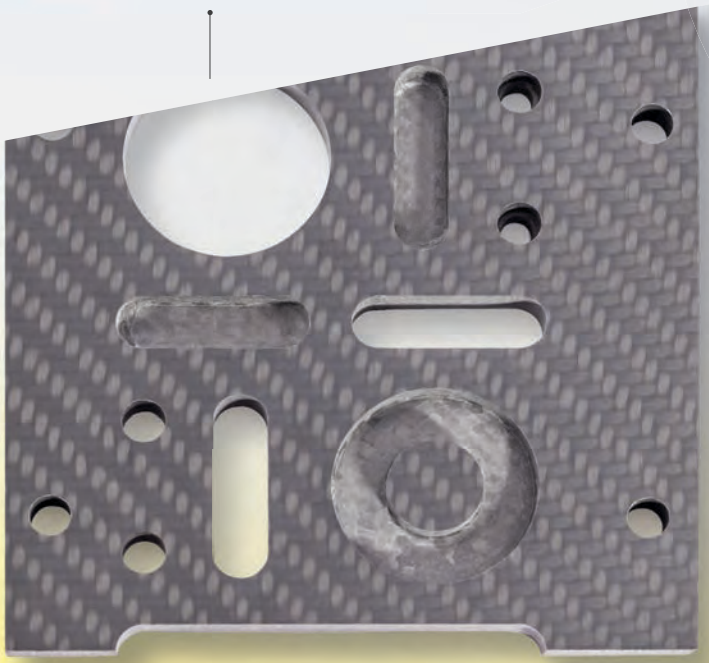
Herramientas optimizadas para el mecanizado de materiales reforzados con fibra de vidrio (GFK) y fibra de carbono.

// Piezas sin restos de fibra
// Superficies libres de delaminación
// Sin dañar la pieza por “peelup” o “pushout”
// Evitar desgarros de fibras “pullouts” en la pieza
// Creación mínima de rebabas
// Evitar daños térmicos

→ desde página 816

TALADRADO **FVK**
con una calidad óptima



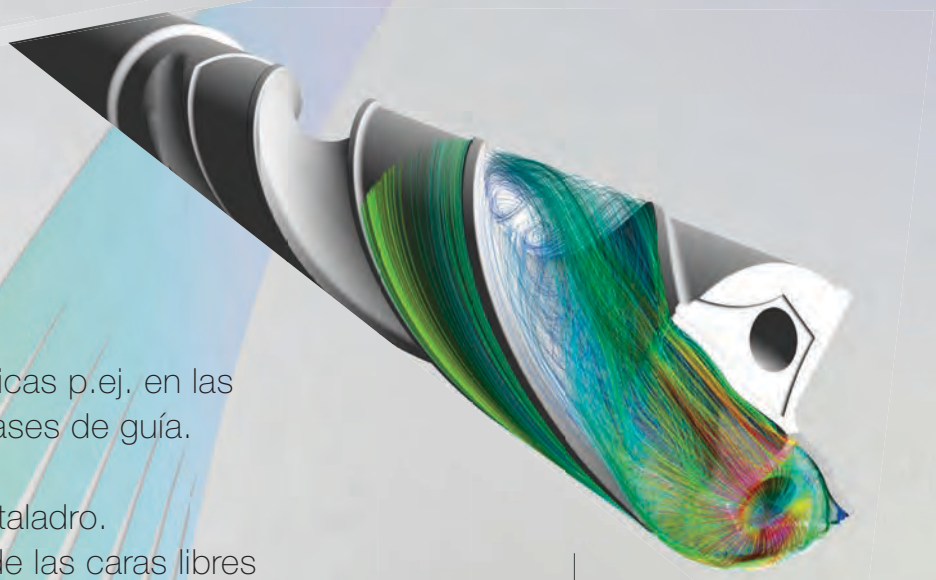


GÜHRING

EW

CARAS LIBRES ESTRUCTURADAS POR LASER

Rendimiento optimo gracias al guiado del refrigerante



// Reducción de fatigas térmicas p.ej. en las esquinas de los cortes y fases de guía.
// Lubrificación mejorada.
// Aumento de la calidad de taladro.
// Mayor libertad de diseño de las caras libres gracias al laser.

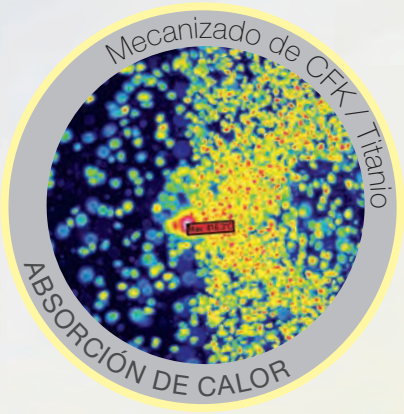
→ desde página 819

Simulación con Computational Fluid Dynamics (CFD)

NEW

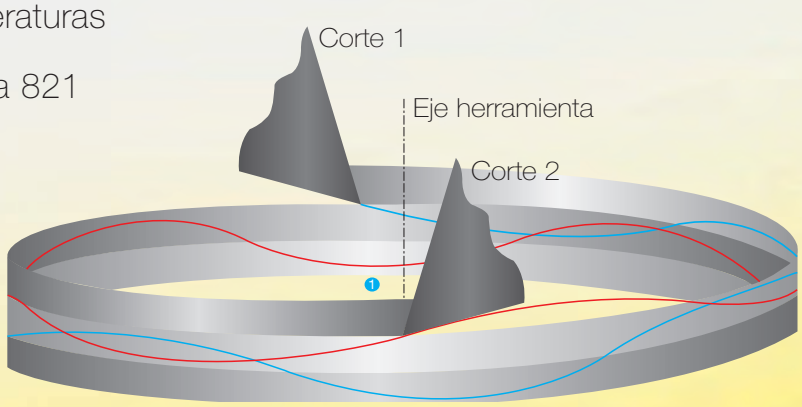
MECANIZADO CON APOYO DE OSCILACIÓN

Optimización del proceso por movimiento superpuesto



// Mejor creación y rotura de la viruta
// Mejor desalojo de la viruta
// Reducción de soldaduras de material en los cortes
// Mejora del rendimiento de la herramienta
// Menores fuerzas de trabajo y menores temperaturas

→ desde página 821



GÜHRING

REAFILAR, RECUBRIR, DECAPAR, MODIFICACIONES DE HERRAMIENTAS, SERIES CORTAS

PARA UD IN SITU

Servicio de reafilado y recubrimiento

GÜHRING

P 335

G 11

28 47 46

Herramientas especiales según deseos del cliente-esto – es el secreto del éxito de Gühring

Resolvemos los deseos de nuestros clientes con **perfección en el mecanizado**. Desde el desarrollo del proceso hasta la aplicación específica de las herramientas de precisión apoyado por las **ideas** de Gühring y la **tecnología innovadora** de los **expertos**.

GUHRING
Planta de producción Treuen

GÜHRING

SÍDLO

TREUEN

GÜHRING

PICTOGRAMAS
EN UN VISTAZO

Código ISO

P	Acero, acero alta aleación
M	Acero inoxidable
K	Fundición gris, fund. perlítica y fund. maleable
N	Aluminio y otros metales no ferríticos
S	Aleaciones especiales, super-especiales y de Ti
H	Acero endurecido y fundición dura

En las páginas de precios y programa encontrará para cada herramienta recomendaciones de aplicación por grupos

● muy adecuado

○ adecuado con limitaciones

Pictogramas

Material de corte	HSS	HSS-E	HSCO	M42	HSS-E-PM				
	acero rápido								
	HM		VHM						
	metal duro integral grano fino (HM-UF)								
Profundidad	1xD	1,5xD	3xD	4xD	5xD	7xD	8xD	10xD	....
Ø-Tolerancia	m7	h5	h6	h7	h8	0/-0,004	....		
Forma del mango	HA	HB	HE		Cyl		MK		
	según DIN 6535				cilíndricamente		CM		
Dirección de corte	R			L			N		
	derecha			izquierda			neutral		
Refrigeración interna									
	con RI			sin RI					
Forma	A	B	R	....					
Ángulo de punta	90°	118°	120°	130°	135°	140°	150°	....	
Vaciado de punta									
Norma	DIN 333	DIN 338	DIN 340	DIN 345	DIN 1869	DIN 6537 K	DIN 6537 L	DIN 6539	....
	según DIN								
	WN								
	según norma Gühring								
Tipo	EB 100	GT 100	HT 800 WP	H	N	RT 100 T	RT 100 U	W	....

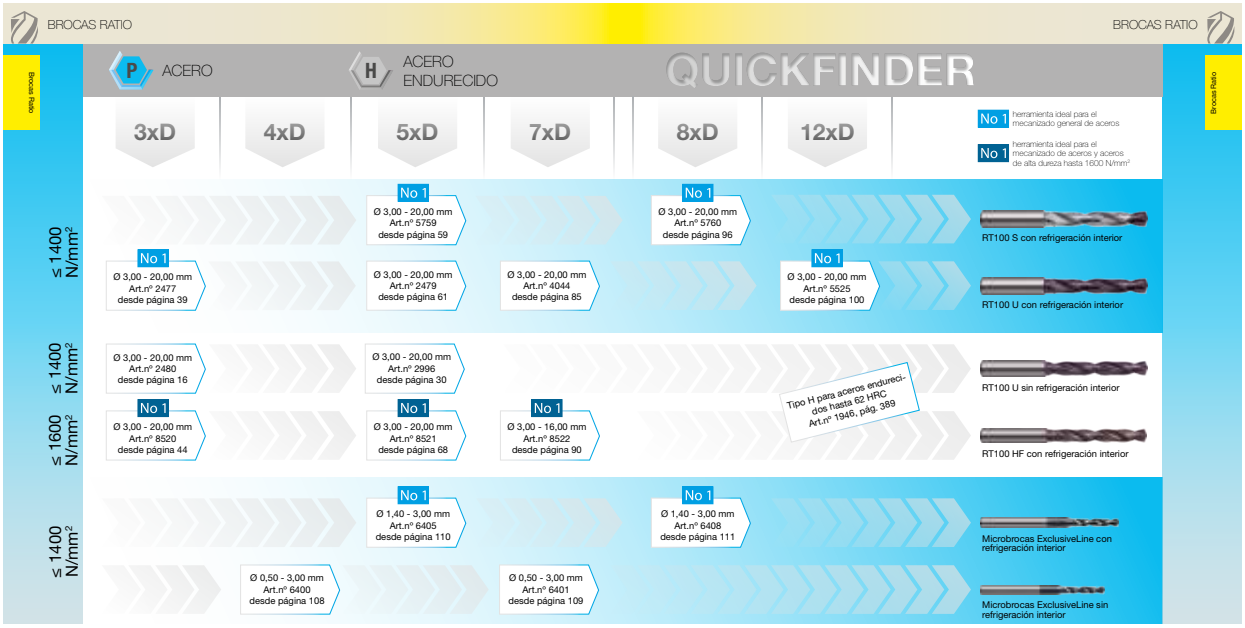
Revestimiento

blancas	marrón dorado	FIRE/nanoFIRE	Signum
vaporizado	TiAlN	TiCN	niquelado
nitrurada	TiAlN SuperA	TiN	MolyGlide
facetas nitruradas	TiAlN nanoA	Sirius	Carbo

FÁCIL SELECCIÓN DE HERRAMIENTA

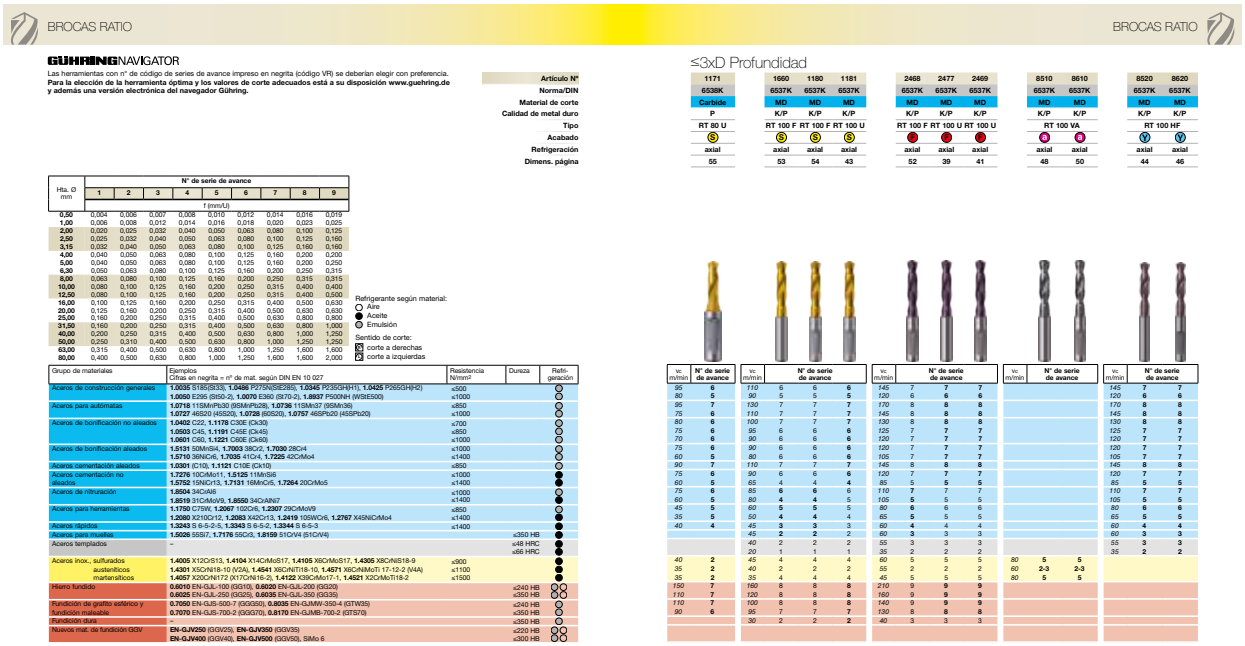
QUICKFINDER

Rápido y sin complicaciones de la aplicación a la herramienta ideal



NAVIGATOR

El programa completo en una tabla-condiciones de corte incluidas



BROCAS RATIO — BROCAS RATIO

GÜHRINGNAVIGATOR

Las herramientas con nº de código de series de avance impreso en negrita (código VR) se deberían elegir con preferencia.
Para la elección de la herramienta óptima y los valores de corte adecuados está a su disposición www.guehring.de y además una versión electrónica del navegador Gühring.

≤3xD Profundidad

Artículo Nº	1171	1660	1180	1181	2468	2477	2469	8510	8610	8520	8620
Norma/DIN	6538K	6537K	6537K	6537K	6537K	6537K	6537K	6537K	6537K	6537K	6537K
Material de corte	Carbide	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD
Calidad de metal duro	P	K/P	K/P	K/P	K/P	K/P	K/P	K/P	K/P	K/P	K/P
Tipo	RT 80 U	RT 100 F	RT 100 F	RT 100 U	RT 100 F	RT 100 U	RT 100 U	RT 100 VA		RT 100 HF	
Acabado	S	S	S	S	P	P	P	R	R	V	V
Refrigeración	axial	axial	axial	axial	axial	axial	axial	axial	axial	axial	axial
Dimens. página	55	53	54	43	52	39	41	48	50	44	46

Hta. Ø mm	N° de serie de avance 1	2	3	4	5	6	7	8	9
	f (mm/U)								
0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
20,00	0,125	0,160	0,200	0,252	0,315	0,400	0,500	0,630	0,630
25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
50,00	0,250	0,310	0,400	0,500	0,630	0,800	1,000	1,250	1,250
63,00	0,315	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600
80,00	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600	2,000

Refrigerante según material:
- ○ Aire
- ● Aceite
- ◐ Emulsión

Sentido de corte:
- ⊗ corte a derechas
- ⊘ corte a izquierdas

Grupo de materiales	Ejemplos Cifras en negrita = nº de mat. según DIN EN 10 027	Resistencia N/mm²	Dureza	Refrigeración
Aceros de construcción generales	**1.0035** S185(S33), **1.0486** P275N(StE285), **1.0345** P235GH(H1), **1.0425** P265GH(H2)	≤500		○
	1.0050 E295 (St50-2), **1.0070** E360 (St70-2), **1.8937** P500NH (WStE500)	≤1000		○
Aceros para autómatas	**1.0718** 11SMnPb30 (9SMnPb28), **1.0736** 11SMn37 (9SMn36)	≤850		○
	1.0727 46S20 (45S20), **1.0728** (60S20), **1.0757** 46SPb20 (45SPb20)	≤1000		○
Aceros de bonificación no aleados	**1.0402** C22, **1.1178** C30E (Ck30)	≤700		○
	1.0503 C45, **1.1191** C45E (Ck45)	≤850		○
	1.0601 C60, **1.1221** C60E (Ck60)	≤1000		○
Aceros de bonificación aleados	**1.5131** 50MnSi4, **1.7003** 38Cr2, **1.7030** 28Cr4	≤1000		○
	1.5710 36NiCr6, **1.7035** 41Cr4, **1.7225** 42CrMo4	≤1400		○
Aceros cementación aleados	**1.0301** (C10), **1.1121** C10E (Ck10)	≤850		○
Aceros cementación no aleados	**1.7276** 10CrMo11, **1.5125** 11MnSi5	≤1000		●
	1.5752 15NiCr13, **1.7131** 16MnCr5, **1.7264** 20CrMo5	≤1400		●
Aceros de nitruración	**1.8504** 34CrAl6	≤1000		●
	1.8519 31CrMoV9, **1.8550** 34CrAlNi7	≤1400		●
Aceros para herramientas	**1.1750** C75W, **1.2067** 102Cr6, **1.2307** 29CrMoV9	≤850		○
	1.2080 X210Cr12, **1.2083** X42Cr13, **1.2419** 105WCr6, **1.2767** X45NiCrMo4	≤1400		●
Aceros rápidos	**1.3243** S 6-5-2-5, **1.3343** S 6-5-2, **1.3344** S 6-5-3	≤1400		●
Aceros para moldes	**1.5026** 55Si7, **1.7176** 55Cr3, **1.8159** 51CrV4 (51CrV4)		≤350 HB	●
Aceros templados	–		≤48 HRC	●
			≤66 HRC	●
Aceros inox., sulfurados	**1.4005** X12CrS13, **1.4104** X14CrMoS17, **1.4105** X6CrMoS17, **1.4305** X8CrNiS18-9	≤900		●
austeníticos	**1.4301** X5CrNi18-10 (V2A), **1.4541** X6CrNiTi18-10, **1.4571** X6CrNiMoTi 17-12-2 (V4A)	≤1100		●
martensíticos	**1.4057** X20CrNi172 (X17CrNi16-2), **1.4122** X39CrMo17-1, **1.4521** X2CrMoTi18-2	≤1500		●
Hierro fundido	**0.6010** EN-GJL-100 (GG10), **0.6020** EN-GJL-200 (GG20)		≤240 HB	○○
	0.6025 EN-GJL-250 (GG25), **0.6035** EN-GJL-350 (GG35)		≤350 HB	○○
Fundición de grafito esférico y fundición maleable	**0.7050** EN-GJS-500-7 (GGG50), **0.8035** EN-GJMW-350-4 (GTW35)		≤240 HB	○
	0.7070 EN-GJS-700-2 (GGG70), **0.8170** EN-GJMB-700-2 (GTS70)		≤350 HB	○
Fundición dura	–		≤350 HB	○
Nuevos mat. de fundición GGV	**EN-GJV250** (GGV25), **EN-GJV350** (GGV35)		≤220 HB	○○
	EN-GJV400 (GGV40), **EN-GJV500** (GGV50), SiMo 6		≤300 HB	○○

Vc m/min	N° de serie de avance																							
95	6	110	6	6	6	145	7	7	7							145	7	7
80	5	90	5	5	5	120	6	6	6							120	6	6
95	7	130	7	7	7	170	8	8	8							170	8	8
75	6	110	7	7	7	145	8	8	8							145	8	8
80	6	100	7	7	7	130	8	8	8							130	8	8
75	6	95	6	6	6	125	7	7	7							125	7	7
70	6	90	6	6	6	120	7	7	7							120	7	7
75	6	90	6	6	6	120	7	7	7							120	7	7
60	5	80	6	6	6	105	7	7	7							105	7	7
90	7	110	7	7	7	145	8	8	8							145	8	8
75	6	90	6	6	6	120	7	7	7							120	7	7
60	5	65	4	4	4	85	5	5	5							85	5	5
75	6	85	6	6	6	110	7	7	7							110	7	7
60	5	80	4	4	5	105	5	5	5							105	5	5
45	5	60	5	5	5	80	6	6	6							80	6	6
35	5	50	4	4	4	65	5	5	5							65	5	5
40	4	45	3	3	3	60	4	4	4							60	4	4
		45	2	2	2	60	3	3	3							60	3	3
		40	2	2	2	55	3	3	3							55	3	3
		20	1	1	1	35	2	2	2							35	2	2
40	2	45	4	4	4	60	5	5	5									
35	2	40	2	2	2	55	2	2	2	80	5	5						
35	2	35	4	4	4	45	5	5	5	60	2-3	2-3						
150	7	160	8	8	8	210	9	9	9	80	5	5						
110	7	120	8	8	8	160	9	9	9									
110	7	100	8	8	8	140	9	9	9									
90	6	95	7	7	7	130	8	8	8									
		30	2	2	2	40	3	3	3									

SELECCIONAR Y PEDIR

PÁGINA DE PRODUCTO

Todos los datos en un vistazo

Brocas Ratio con refrigeración interior

3xD | RT 100 U | DIN 6537 K | 140° | m7

Material de corte	**Metal duro**
Acabado	S
Forma del mango	HE

P	●	vaciado de punta ≥Ø 3,300 • afilado plano • forma recta del corte principal • geometría de corte optimizada
M	○	
K	●	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • fundición • bronce, latón • aleaciones de AlSi altamente aleables
S	○	
H	○	

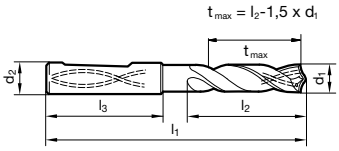
GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 750

Recomendación de aplicación:

● muy adecuado

○ adecuado con limitaciones



Artículo Nº **1181**

1 Artículo Nº

2 Diámetro nominal

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
3,300		6,000	62,000	20,000	36,000
3,400		6,000	62,000	20,000	36,000
4,000		6,000	66,000	24,000	36,000
5,000		6,000	66,000	28,000	36,000
5,500		6,000	66,000	28,000	36,000
5,600		6,000	66,000	28,000	36,000
5,800		6,000	66,000	28,000	36,000
6,000		6,000	66,000	28,000	36,000
6,100		8,000	79,000	34,000	36,000
6,200		8,000	79,000	34,000	36,000
6,300		8,000	79,000	34,000	36,000
6,400		8,000	79,000	34,000	36,000
6,600		8,000	79,000	34,000	36,000
6,800		8,000	79,000	34,000	36,000
7,000		8,000	79,000	34,000	36,000
7,100		8,000	79,000	41,000	36,000
7,140	9/32	8,000	79,000	41,000	36,000
7,400		8,000	79,000	41,000	36,000
7,500		8,000	79,000	41,000	36,000
7,540	19/64	8,000	79,000	41,000	36,000
7,800		8,000	79,000	41,000	36,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
10,500		12,000	102,000	55,000	45,000
10,600		12,000	102,000	55,000	45,000
10,700		12,000	102,000	55,000	45,000
10,800		12,000	102,000	55,000	45,000
11,000		12,000	102,000	55,000	45,000
11,300		12,000	102,000	55,000	45,000
11,500		12,000	102,000	55,000	45,000
11,510	29/64	12,000	102,000	55,000	45,000
11,910	15/32	12,000	102,000	55,000	45,000
12,000		12,000	102,000	55,000	45,000
12,100		14,000	107,000	60,000	45,000
12,300	31/64	14,000	107,000	60,000	45,000
12,500		14,000	107,000	60,000	45,000
12,700	1/2	14,000	107,000	60,000	45,000
12,900		14,000	107,000	60,000	45,000
13,000		14,000	107,000	60,000	45,000
13,500		14,000	107,000	60,000	45,000
13,890	35/64	14,000	107,000	60,000	45,000
14,000		14,000	107,000	60,000	45,000
14,500		16,000	115,000	65,000	48,000
14,680	37/64	16,000	115,000	65,000	48,000

Por favor indíque siempre en su pedido **el nº de artículo y el diámetro nominal,** p.ej. Brocas Ratio con refrigeración interior para diámetro nominal 5,5 = **1181 5,500**

Los precios los encontrará en nuestra lista de precios.

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Brocas Ratio

P M K N Quickfinder por tipos de material ..... desde página 4
Índice ..... desde página 12
Programa ..... desde página 16

Sistema de taladrado con placas intercambiales T800

Índice ..... desde página 124
Programa ..... desde página 128

Brocas espirales, cilíndricos

Índice ..... desde página 176
P M K N Quickfinder por tipos de material ..... desde página 184
Programa ..... desde página 192

Brocas espirales, CM

Índice ..... desde página 436
P M K N Quickfinder por tipos de material ..... desde página 440
Programa ..... desde página 448

Brocas para agujeros profundos

Índice ..... desde página 516
Programa ..... desde página 523

Microbrocas

Índice ..... desde página 646
Programa ..... desde página 649

Brocas de centrar / Brocas de puntear NC

Índice ..... desde página 666
Programa ..... desde página 668

Brocas escalonadas / Brocas escariadoras

Índice ..... desde página 712
Programa ..... desde página 714

GÜHRINGNAVIGATOR ..... desde página 749

Parte técnica

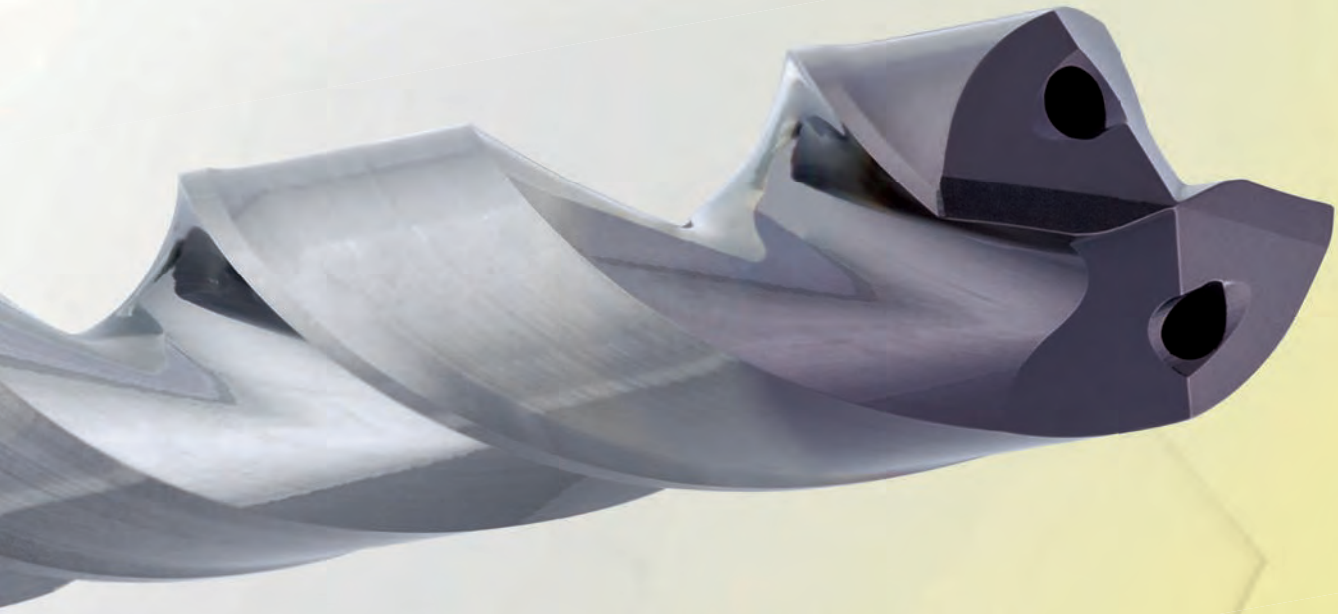
..... desde página 811

Índice de números de artículo

..... desde página 871

BROCAS RATIO

Ratio®



P ACERO / H ACERO ENDURECIDO

	3xD	4xD	5xD	7xD
≤ 1400 N/mm²			No 1 Ø 3,00 - 20,00 mm Art.nº 5759 desde página 59	
≤ 1400 N/mm²	No 1 Ø 3,00 - 20,00 mm Art.nº 2477 desde página 39		Ø 3,00 - 20,00 mm Art.nº 2479 desde página 61	Ø 3,00 - 20,00 mm Art.nº 4044 desde página 85
≤ 1400 N/mm²	Ø 3,00 - 20,00 mm Art.nº 2480 desde página 16		Ø 3,00 - 20,00 mm Art.nº 2996 desde página 30	
≤ 1600 N/mm²	No 1 Ø 3,00 - 20,00 mm Art.nº 8520 desde página 44		No 1 Ø 3,00 - 20,00 mm Art.nº 8521 desde página 68	No 1 Ø 3,00 - 16,00 mm Art.nº 8522 desde página 90
≤ 1400 N/mm²			No 1 Ø 1,40 - 3,00 mm Art.nº 6405 desde página 110	
≤ 1400 N/mm²		Ø 0,50 - 3,00 mm Art.nº 6400 desde página 108		Ø 0,50 - 3,00 mm Art.nº 6401 desde página 109

	15xD	20xD	25xD	30xD
≤ 1400 N/mm²	No 1 Ø 1,40 - 3,00 mm Art.nº 6412 desde página 112			
≤ 1400 N/mm²	No 1 Ø 3,00 - 14,00 mm Art.nº 6509 desde página 102	No 1 Ø 3,00 - 14,00 mm Art.nº 6511 desde página 104	No 1 Ø 3,00 - 12,00 mm Art.nº 6512 desde página 105	No 1 Ø 3,00 - 10,00 mm Art.nº 6513 desde página 106

QUICKFINDER

8xD

12xD

No 1 herramienta ideal para el mecanizado general de aceros

No 1 herramienta ideal para el mecanizado de aceros y aceros de alta dureza hasta 1600 N/mm²

No 1
Ø 3,00 - 20,00 mm
Art.nº 5760
desde página 96

RT100 S con refrigeración interior

No 1
Ø 3,00 - 20,00 mm
Art.nº 5525
desde página 100

RT100 U con refrigeración interior

RT100 U sin refrigeración interior

Tipo H para aceros endurecidos hasta 62 HRC
Art.nº 1946, pág. 389

RT100 HF con refrigeración interior

No 1
Ø 1,40 - 3,00 mm
Art.nº 6408
desde página 111

Microbrocas ExclusiveLine con refrigeración interior

Microbrocas ExclusiveLine sin refrigeración interior

40xD

Microbrocas ExclusiveLine con refrigeración interior

No 1
Ø 3,00 - 8,00 mm
Art.nº 6514
desde página 107

RT 100 T

M ACERO INOXIDABLE

S TITANIO & ALEACIONES ESPECIALES

3xD

No 1 No 1
Ø 3,00 - 20,00 mm
Art.nº 8510
desde página 48

No 1
Ø 3,00 - 20,00 mm
Art.nº 8520
desde página 44

S
Ø 3,50 - 20,00 mm
Art.nº 2468
desde página 52

4xD

5xD

No 1 No 1
Ø 3,00 - 20,00 mm
Art.nº 8511
desde página 72

No 1
Ø 3,00 - 20,00 mm
Art.nº 8521
desde página 68

S
Ø 3,00 - 20,00 mm
Art.nº 2478
desde página 76

No 1 No 1
Ø 1,40 - 3,00 mm
Art.nº 6405
desde página 110

7xD

No 1
Ø 3,00 - 16,00 mm
Art.nº 8522
desde página 90

15xD

No 1 No 1
Ø 1,40 - 3,00 mm
Art.nº 6412
desde página 112

No 1 No 1
Ø 3,00 - 14,00 mm
Art.nº 6509
desde página 102

20xD

No 1 No 1
Ø 3,00 - 14,00 mm
Art.nº 6511
desde página 104

25xD

No 1 No 1
Ø 3,00 - 12,00 mm
Art.nº 6512
desde página 105

30xD

No 1 No 1
Ø 3,00 - 10,00 mm
Art.nº 6513
desde página 106

QUICKFINDER

8xD

No 1 herramienta ideal para acero inoxidable

No 1 herramienta ideal para aleaciones especiales/aleaciones de titanio

RT100 VA

RT100 HF con refrigeración interior

RT100 F con refrigeración interior

No 1 No 1

Ø 1,40 - 3,00 mm
Art.nº 6408
desde página 111

Microbrocas ExclusiveLine con refrigeración interior

40xD

Microbrocas ExclusiveLine con refrigeración interior

No 1 No 1

Ø 3,00 - 8,00 mm
Art.nº 6514
desde página 107

RT 100 T

K FUNDICIÓN

3xD	4xD	5xD	7xD
		No 1 Ø 3,00 - 20,00 mm Art.nº 6501 desde página 82	No 1 Ø 4,00 - 20,00 mm Art.nº 6502 desde página 91
No 1 Ø 3,00 - 20,00 mm Art.nº 2477 desde página 39		Ø 3,00 - 20,00 mm Art.nº 2479 desde página 61	Ø 3,00 - 20,00 mm Art.nº 4044 desde página 85
Ø 3,00 - 20,00 mm Art.nº 2480 desde página 16		Ø 3,00 - 20,00 mm Art.nº 2996 desde página 30	
	No 1 Ø 3,00 - 20,00 mm Art.nº 768 desde página 56		Ø 3,00 - 20,00 mm Art.nº 769 desde página 93
		No 1 Ø 1,40 - 3,00 mm Art.nº 6405 desde página 110	
	Ø 0,50 - 3,00 mm Art.nº 6400 desde página 108		Ø 0,50 - 3,00 mm Art.nº 6401 desde página 109

15xD	20xD	25xD	30xD
No 1 Ø 1,40 - 3,00 mm Art.nº 6412 desde página 112			
No 1 Ø 3,00 - 14,00 mm Art.nº 6509 desde página 102	No 1 Ø 3,00 - 14,00 mm Art.nº 6511 desde página 104	No 1 Ø 3,00 - 12,00 mm Art.nº 6512 desde página 105	No 1 Ø 3,00 - 10,00 mm Art.nº 6513 desde página 106
Ø 5,00 - 14,00 mm Art.nº 773 desde página 103			

QUICKFINDER

8xD | 10xD | 12xD

No 1 herramienta ideal

RT 100 R

No 1
Ø 3,00 - 20,00 mm
Art.nº 5525
desde página 100

RT100 U con refrigeración interior

RT100 U sin refrigeración interior

No 1
Ø 3,00 - 20,00 mm
Art.nº 770
desde página 98

RT100 GG fundición

No 1
Ø 1,40 - 3,00 mm
Art.nº 6408
desde página 111

Microbrocas ExclusiveLine con refrigeración interior

Microbrocas ExclusiveLine sin refrigeración interior

40xD

Microbrocas ExclusiveLine con refrigeración interior

No 1
Ø 3,00 - 8,00 mm
Art.nº 6514
desde página 107

RT 100 T

RT 150 GN

N ALUMINIO, NE, PLÁSTICOS

4xD	5xD	7xD	8xD
No 1 Ø 3,00 - 20,00 mm Art.nº 6068 desde página 58		No 1 Ø 3,00 - 19,50 mm Art.nº 6069 desde página 94	
	Ø 3,00 - 20,00 mm Art.nº 2713 desde página 113		
No 1 Ø 3,00 - 20,00 mm*			
	No 1 Ø 1,40 - 3,00 mm Art.nº 6405 desde página 110		No 1 Ø 1,40 - 3,00 mm Art.nº 6408 desde página 111

15xD	20xD	25xD	30xD
No 1 Ø 5,00 - 14,00 mm Art.nº 773 desde página 103			
No 1 Ø 3,00 - max. 14,00 mm*			
No 1 Ø 1,40 - 3,00 mm Art.nº 6412 desde página 112			

*herramientas especiales sobre oferta

QUICKFINDER

10xD

No 1 herramienta ideal

No 1

Ø 3,00 - 19,50 mm
Art.nº 6070
desde página 99

RT150 GG

FT 200 G con refrigeración interior

RT100 AL

Microbrocas ExclusiveLine con refrigeración interior

RT 150 GN

Brocas para Kevlar
Art.nº 1149
pág. 431

RT 100 T Aluminio

Tipo N para aluminio y plásticos
Art.nº 732 pág. 319

Microbrocas ExclusiveLine con refrigeración interior

Brocas Ratio sin refrigeración interior

P	M	K	N	S	H	Presentación de herramientas	Profundidad	Forma del mango	Tipo	Norma	Material de corte	Acabado	d1/mm	Artículo Nº	Cond. de corte pág.	Página
●	○	●	○	○	○		3xD	HA	RT 100 U	DIN 6537 K	VHM	F	3,000 - 20,000	2480	752	16
●	○	●	○	○	○		3xD	HE	RT 100 U	DIN 6537 K	VHM	F	3,100 - 20,000	2472	752	18
●	○	●	○	○	○		3xD	Cyl	RT 100 U	DIN 6539	VHM	F	3,000 - 15,500	2473	752	20
●	○	●	○	○	○		3xD	HE	RT 100 U	DIN 6537 K	VHM	S	3,000 - 20,000	1184	752	21
●	○	●	○	○	○		3xD	Cyl	RT 100 U	DIN 6539	VHM	S	3,000 - 16,000	1242	752	23
●				●	○		3xD	HA	RT 100 HF	DIN 6537 K	VHM	Y	3,000 - 20,000	8524	752	25
○	○	○	○	●	○		3xD	HA	RT 100 F	DIN 6537 K	VHM	F	3,700 - 12,000	2475	752	27
○	●	○	○	○	○		3xD	Cyl	RT 100 F	DIN 6539	VHM	S	3,000 - 14,000	1702	752	28
●	○	●	○	○	○		5xD	HA	RT 100 U	DIN 6537 L	VHM	F	3,000 - 20,000	2996	756	30
●	○	●	○	○	○		5xD	HE	RT 100 U	DIN 6537 L	VHM	F	3,100 - 20,000	2719	756	32
●	○	●	○	○	○		5xD	Cyl	RT 100 U	WN	VHM	F	5,000 - 14,000	2474	756	34
●	○	●	○	○	○		5xD	HA	RT 100 U	DIN 6537 L	VHM	S	3,300 - 12,000	2717	756	35
●	○	●	○	○	○		5xD	Cyl	RT 100 U	WN	VHM	S	5,000 - 16,000	1243	756	36
○	○	○	○	●	○		5xD	HA	RT 100 F	DIN 6537 L	VHM	F	3,000 - 15,000	2712	756	38

Brocas Ratio con refrigeración interior

P	M	K	N	S	H	Presentación de herramientas	Profundidad	Forma del mango	Tipo	Norma	Material de corte	Acabado	d1/mm	Artículo Nº	Cond. de corte pág.	Página
●	○	●	○	○	○		3xD	HA	RT 100 U	DIN 6537 K	VHM	F	3,000 - 20,000	2477	750	39
●	○	●	○	○	○		3xD	HE	RT 100 U	DIN 6537 K	VHM	F	3,000 - 20,000	2469	750	41
●	○	●	○	○	○		3xD	HE	RT 100 U	DIN 6537 K	VHM	S	3,300 - 19,500	1181	750	43
●				●	○		3xD	HA	RT 100 HF	DIN 6537 K	VHM	Y	3,000 - 20,000	8520	750	44
●				●	○		3xD	HE	RT 100 HF	DIN 6537 K	VHM	Y	3,000 - 20,000	8620	750	46
	●			●			3xD	HA	RT 100 VA	DIN 6537 K	VHM	a	3,000 - 20,000	8510	750	48
	●			●			3xD	HE	RT 100 VA	DIN 6537 K	VHM	a	3,000 - 20,000	8610	750	50
○	○	○	○	●	○		3xD	HE	RT 100 F	DIN 6537 K	VHM	F	3,500 - 20,000	2468	750	52
○	○	○	○	●	○		3xD	HA	RT 100 F	DIN 6537 K	VHM	S	3,100 - 22,000	1660	750	53

Brocas Ratio con refrigeración interior

P	M	K	N	S	H	Presentación de herramientas	Profundidad	Forma del mango	Tipo	Norma	Material de corte	Acabado	d1/mm	Artículo Nº	Cond. de corte	Página pág.
○	○	○	○	●	○		3xD	HE	RT 100 F	DIN 6537 K	VHM	S	4,000 - 25,000	1180	750	54
●	○	○	○				3xD	HE	RT 80 U	DIN 6538 K	HM	S	9,500 - 25,500	1171	750	55
		●	○				4xD	HA	RT 150 GG	WN	VHM	○	3,000 - 20,000	768	752	56
		○	●				4xD	HA	RT 150 GG	WN	VHM	○	3,000 - 20,000	6068	752	58
●	○	○	○	○	○		5xD	HA	RT 100 S	DIN 6537 L	VHM	F	3,000 - 20,000	5759	754	59
●	○	●	○	○	○		5xD	HA	RT 100 U	DIN 6537 L	VHM	F	3,000 - 20,000	2479	754	61
●	○	●	○	○	○		5xD	HE	RT 100 U	DIN 6537 L	VHM	F	3,300 - 20,000	2471	754	63
●	○	●	○	○	○		5xD	HA	RT 100 U	DIN 6537 L	VHM	S	3,000 - 19,500	1663	754	65
●	○	●	○	○	○		5xD	HE	RT 100 U	DIN 6537 L	VHM	S	3,300 - 20,000	1183	754	66
●				●	○		5xD	HA	RT 100 HF	DIN 6537 L	VHM	Y	3,000 - 20,000	8521	756	68
●				●	○		5xD	HE	RT 100 HF	DIN 6537 L	VHM	Y	3,000 - 20,000	8621	756	70
	●			●			5xD	HA	RT 100 VA	DIN 6537 L	VHM	a	3,000 - 20,000	8511	756	72
	●			●			5xD	HE	RT 100 VA	DIN 6537 L	VHM	a	3,000 - 20,000	8611	756	74
○	○	○	○	●	○		5xD	HA	RT 100 F	DIN 6537 L	VHM	F	3,000 - 20,000	2478	754	76
○	○	○	○	●	○		5xD	HE	RT 100 F	DIN 6537 L	VHM	F	3,000 - 20,000	2470	754	77
○	○	○	○	●	○		5xD	HA	RT 100 F	DIN 6537 L	VHM	S	3,000 - 23,500	1662	754	78
○	○	○	○	●	○		5xD	HE	RT 100 F	DIN 6537 L	VHM	S	3,000 - 25,000	1182	754	80
		●					5xD	HA	RT 100 R	DIN 6537 L	VHM	F	3,000 - 20,000	6501	754	82
●	○	○	○				5xD	HE	RT 80 U	DIN 6538 M	HM	S	9,800 - 25,500	1172	754	84
●	○	●	○	○	○		7xD	HA	RT 100 U	WN	VHM	F	3,000 - 20,000	4044	758	85
●	○	●	○	○	○		7xD	HE	RT 100 U	WN	VHM	F	3,000 - 19,500	4045	758	87
●	○	●	○	○	○		7xD	HA	RT 100 U	WN	VHM	S	3,000 - 19,500	2711	758	89
●				●	○		7xD	HA	RT 100 HF	WN	VHM	Y	3,000 - 16,000	8522	758	90
		●					7xD	HA	RT 100 R	WN	VHM	F	4,000 - 20,000	6502	758	91

Brocas Ratio con refrigeración interior

P	M	K	N	S	H	Presentación de herramientas	Profundidad	Forma del mango	Tipo	Norma	Material de corte	Acabado	d1/mm	Artículo Nº	Cond. de corte pág.	Página
		●	○				7xD	HA	RT 150 GG	WN	VHM	○	3,000 - 20,000	769	758	93
		○	●				7xD	HA	RT 150 GG	WN	VHM	○	3,000 - 19,500	6069	758	94
●	○	○	○				7xD	HE	RT 80 U	DIN 6538 L	HM	S	9,600 - 25,000	1173	758	95
●	○	○	○	○	○		8xD	HA	RT 100 S	WN	VHM	F	3,000 - 20,000	5760	758	96
		●	○				10xD	HA	RT 150 GG	WN	VHM	○	3,000 - 20,000	770	758	98
		○	●				10xD	HA	RT 150 GG	WN	VHM	○	3,000 - 19,500	6070	758	99
●	○	●	○	○	○		12xD	HA	RT 100 U	WN	VHM	F	3,000 - 20,000	5525	758	100
●	●	●	○	○	○		15xD	HA	RT 100 T	WN	VHM	A	3,000 - 14,000	6509	760	102
		●	●				15xD	HA	RT 150 GN	WN	VHM	○	5,000 - 14,000	773	760	103
●	●	●	○	○	○		20xD	HA	RT 100 T	WN	VHM	A	3,000 - 14,000	6511	760	104
●	●	●	○	○	○		25xD	HA	RT 100 T	WN	VHM	A	3,000 - 12,000	6512	760	105
●	●	●	○	○	○		30xD	HA	RT 100 T	WN	VHM	A	3,000 - 10,000	6513	760	106
●	●	●	○	○	○		40xD	HA	RT 100 T	WN	VHM	A	3,000 - 8,000	6514	760	107

Microbrocas ExclusiveLine sin refrigeración interior

●	●	●	○	○			4xD	Cyl	N	WN	VHM	A	0,500 - 3,000	6400	796	108
●	●	●	○	○			7xD	Cyl	N	WN	VHM	A	0,500 - 3,000	6401	796	109

Microbrocas ExclusiveLine con refrigeración interior

●	●	●	○	○			5xD	Cyl	N	WN	VHM	A	1,400 - 3,000	6405	796	110
●	●	●	○	○			8xD	Cyl	N	WN	VHM	A	1,400 - 3,000	6408	796	111
●	●	●	○	○			15xD	Cyl	N	WN	VHM	A	1,400 - 3,000	6412	796	112

Brocas Ratio, 3 cortes

		●	●				5xD	HA	FT 200 G	DIN 6537 L	VHM	○	3,000 - 20,000	2713	762	113
○		○	○				5xD	Cyl	GS 200 U	DIN 6539	VHM	S	3,000 - 14,400	611	762	114
○		○	○				5xD	Cyl	GS 200 U	DIN 6539	VHM	○	3,000 - 20,000	731	762	115
		○	○				5xD	Cyl	GS 200 G	DIN 6539	VHM	○	3,570 - 12,500	745	762	116

P	M	K	N	S	H	Presentación de herramientas	Profundidad	Forma del mango	Tipo	Norma	Material de corte	Acabado	d1/mm	Artículo Nº	Cond. de corte pág.	Página
Brocas Ratio, 3 cortes																
		○	○				5xD	Cyl	GS 200 G	DIN 6539	VHM	○	3,000 - 20,000	1025	762	117
○		○	○				5xD	Cyl	GS 200 F	DIN 6539	VHM	S	3,000 - 11,000	1027	762	119
Brocas Ratio escalonadas, 3 cortes																
		○	○				3xD	Cyl	GS 200 G	WN	VHM	○	3,400 - 20,000	1032		120

Brocas Ratio sin refrigeración interior

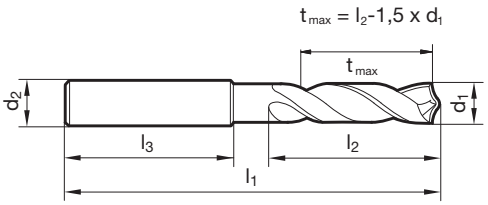
3xD | RT 100 U | DIN 6537 K | 140° | m7

Material de corte	**Metal duro**
Acabado	F
Forma del mango	HA

P	•	vaciado de punta ≥Ø 3,000 • afilado plano • forma recta del corte principal • geometría de corte optimizada
M	○	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • fundición • bronce, latón • aleaciones de AlSi altamente aleables
S	○	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 752



Artículo Nº **2480**

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
3,000		6,000	62,000	20,000	36,000
3,100		6,000	62,000	20,000	36,000
3,200		6,000	62,000	20,000	36,000
3,250		6,000	62,000	20,000	36,000
3,300		6,000	62,000	20,000	36,000
3,400		6,000	62,000	20,000	36,000
3,500		6,000	62,000	20,000	36,000
3,570	9/64	6,000	62,000	20,000	36,000
3,600		6,000	62,000	20,000	36,000
3,700		6,000	62,000	20,000	36,000
3,800		6,000	66,000	24,000	36,000
3,900		6,000	66,000	24,000	36,000
4,000		6,000	66,000	24,000	36,000
4,100		6,000	66,000	24,000	36,000
4,200		6,000	66,000	24,000	36,000
4,300		6,000	66,000	24,000	36,000
4,400		6,000	66,000	24,000	36,000
4,500		6,000	66,000	24,000	36,000
4,600		6,000	66,000	24,000	36,000
4,650		6,000	66,000	24,000	36,000
4,760	3/16	6,000	66,000	28,000	36,000
4,800		6,000	66,000	28,000	36,000
4,900		6,000	66,000	28,000	36,000
5,000		6,000	66,000	28,000	36,000
5,100		6,000	66,000	28,000	36,000
5,160	13/64	6,000	66,000	28,000	36,000
5,200		6,000	66,000	28,000	36,000
5,300		6,000	66,000	28,000	36,000
5,400		6,000	66,000	28,000	36,000
5,500		6,000	66,000	28,000	36,000
5,550		6,000	66,000	28,000	36,000
5,560	7/32	6,000	66,000	28,000	36,000
5,600		6,000	66,000	28,000	36,000
5,650		6,000	66,000	28,000	36,000
5,700		6,000	66,000	28,000	36,000
5,800		6,000	66,000	28,000	36,000
5,900		6,000	66,000	28,000	36,000
6,000		6,000	66,000	28,000	36,000
6,100		8,000	79,000	34,000	36,000
6,200		8,000	79,000	34,000	36,000
6,350	1/4	8,000	79,000	34,000	36,000
6,400		8,000	79,000	34,000	36,000

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
6,500		8,000	79,000	34,000	36,000
6,600		8,000	79,000	34,000	36,000
6,700		8,000	79,000	34,000	36,000
6,750	17/64	8,000	79,000	34,000	36,000
6,800		8,000	79,000	34,000	36,000
6,900		8,000	79,000	34,000	36,000
7,000		8,000	79,000	34,000	36,000
7,200		8,000	79,000	41,000	36,000
7,300		8,000	79,000	41,000	36,000
7,500		8,000	79,000	41,000	36,000
7,700		8,000	79,000	41,000	36,000
7,900		8,000	79,000	41,000	36,000
7,940	5/16	8,000	79,000	41,000	36,000
8,000		8,000	79,000	41,000	36,000
8,100		10,000	89,000	47,000	40,000
8,200		10,000	89,000	47,000	40,000
8,330	21/64	10,000	89,000	47,000	40,000
8,400		10,000	89,000	47,000	40,000
8,500		10,000	89,000	47,000	40,000
8,700		10,000	89,000	47,000	40,000
8,800		10,000	89,000	47,000	40,000
8,900		10,000	89,000	47,000	40,000
9,250		10,000	89,000	47,000	40,000
9,400		10,000	89,000	47,000	40,000
9,500		10,000	89,000	47,000	40,000
9,700		10,000	89,000	47,000	40,000
9,800		10,000	89,000	47,000	40,000
9,900		10,000	89,000	47,000	40,000
10,000		10,000	89,000	47,000	40,000
10,100		12,000	102,000	55,000	45,000
10,200		12,000	102,000	55,000	45,000
10,320	13/32	12,000	102,000	55,000	45,000
10,400		12,000	102,000	55,000	45,000
10,500		12,000	102,000	55,000	45,000
10,700		12,000	102,000	55,000	45,000
10,800		12,000	102,000	55,000	45,000
10,900		12,000	102,000	55,000	45,000
11,000		12,000	102,000	55,000	45,000
11,110	7/16	12,000	102,000	55,000	45,000
11,500		12,000	102,000	55,000	45,000
11,600		12,000	102,000	55,000	45,000
11,800		12,000	102,000	55,000	45,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
11,910	15/32	12,000	102,000	55,000	45,000
12,000		12,000	102,000	55,000	45,000
12,100		14,000	107,000	60,000	45,000
12,200		14,000	107,000	60,000	45,000
12,500		14,000	107,000	60,000	45,000
12,700	1/2	14,000	107,000	60,000	45,000
12,800		14,000	107,000	60,000	45,000
13,000		14,000	107,000	60,000	45,000
13,100	33/64	14,000	107,000	60,000	45,000
13,500		14,000	107,000	60,000	45,000
14,000		14,000	107,000	60,000	45,000
14,200		16,000	115,000	65,000	48,000
14,290	9/16	16,000	115,000	65,000	48,000
14,400		16,000	115,000	65,000	48,000
14,500		16,000	115,000	65,000	48,000
14,700		16,000	115,000	65,000	48,000
14,800		16,000	115,000	65,000	48,000
15,000		16,000	115,000	65,000	48,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
15,100		16,000	115,000	65,000	48,000
15,200		16,000	115,000	65,000	48,000
15,300		16,000	115,000	65,000	48,000
15,500		16,000	115,000	65,000	48,000
15,600		16,000	115,000	65,000	48,000
15,700		16,000	115,000	65,000	48,000
16,000		16,000	115,000	65,000	48,000
16,500		18,000	123,000	73,000	48,000
17,000		18,000	123,000	73,000	48,000
17,500		18,000	123,000	73,000	48,000
18,000		18,000	123,000	73,000	48,000
18,500		20,000	131,000	79,000	50,000
19,000		20,000	131,000	79,000	50,000
19,500		20,000	131,000	79,000	50,000
20,000		20,000	131,000	79,000	50,000

Brocas Ratio sin refrigeración interior

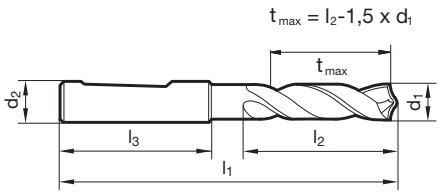
3xD | RT 100 U | DIN 6537 K | 140° | m7

Material de corte	**Metal duro**
Acabado	F
Forma del mango	HE

P	•	vaciado de punta ≥Ø 3,100 • afilado plano • forma recta del corte principal • geometría de corte optimizada
M	○	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • fundición • bronce, latón • aleaciones de AlSi altamente aleables
S	○	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 752



Artículo Nº **2472**

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
3,100		6,000	62,000	20,000	36,000
3,200		6,000	62,000	20,000	36,000
3,500		6,000	62,000	20,000	36,000
3,600		6,000	62,000	20,000	36,000
3,700		6,000	62,000	20,000	36,000
3,900		6,000	66,000	24,000	36,000
4,000		6,000	66,000	24,000	36,000
4,200		6,000	66,000	24,000	36,000
4,500		6,000	66,000	24,000	36,000
4,600		6,000	66,000	24,000	36,000
4,900		6,000	66,000	28,000	36,000
5,000		6,000	66,000	28,000	36,000
5,100		6,000	66,000	28,000	36,000
5,200		6,000	66,000	28,000	36,000
5,300		6,000	66,000	28,000	36,000
5,400		6,000	66,000	28,000	36,000
5,500		6,000	66,000	28,000	36,000
5,800		6,000	66,000	28,000	36,000
5,900		6,000	66,000	28,000	36,000
6,000		6,000	66,000	28,000	36,000
6,100		8,000	79,000	34,000	36,000
6,500		8,000	79,000	34,000	36,000
6,600		8,000	79,000	34,000	36,000
6,800		8,000	79,000	34,000	36,000
7,000		8,000	79,000	34,000	36,000
7,100		8,000	79,000	41,000	36,000
7,200		8,000	79,000	41,000	36,000
7,300		8,000	79,000	41,000	36,000
7,500		8,000	79,000	41,000	36,000
7,700		8,000	79,000	41,000	36,000
7,900		8,000	79,000	41,000	36,000
8,000		8,000	79,000	41,000	36,000
8,100		10,000	89,000	47,000	40,000
8,200		10,000	89,000	47,000	40,000
8,300		10,000	89,000	47,000	40,000
8,500		10,000	89,000	47,000	40,000
8,600		10,000	89,000	47,000	40,000
8,700		10,000	89,000	47,000	40,000
8,900		10,000	89,000	47,000	40,000
9,000		10,000	89,000	47,000	40,000
9,100		10,000	89,000	47,000	40,000
9,200		10,000	89,000	47,000	40,000

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
9,250		10,000	89,000	47,000	40,000
9,400		10,000	89,000	47,000	40,000
9,500		10,000	89,000	47,000	40,000
9,800		10,000	89,000	47,000	40,000
10,000		10,000	89,000	47,000	40,000
10,100		12,000	102,000	55,000	45,000
10,200		12,000	102,000	55,000	45,000
10,300		12,000	102,000	55,000	45,000
10,320	13/32	12,000	102,000	55,000	45,000
10,400		12,000	102,000	55,000	45,000
10,500		12,000	102,000	55,000	45,000
10,600		12,000	102,000	55,000	45,000
10,700		12,000	102,000	55,000	45,000
10,800		12,000	102,000	55,000	45,000
10,900		12,000	102,000	55,000	45,000
11,000		12,000	102,000	55,000	45,000
11,110	7/16	12,000	102,000	55,000	45,000
11,200		12,000	102,000	55,000	45,000
11,300		12,000	102,000	55,000	45,000
11,500		12,000	102,000	55,000	45,000
11,800		12,000	102,000	55,000	45,000
11,910	15/32	12,000	102,000	55,000	45,000
12,000		12,000	102,000	55,000	45,000
12,100		14,000	107,000	60,000	45,000
12,200		14,000	107,000	60,000	45,000
12,500		14,000	107,000	60,000	45,000
12,600		14,000	107,000	60,000	45,000
12,700	1/2	14,000	107,000	60,000	45,000
13,000		14,000	107,000	60,000	45,000
13,300		14,000	107,000	60,000	45,000
13,500		14,000	107,000	60,000	45,000
14,000		14,000	107,000	60,000	45,000
14,200		16,000	115,000	65,000	48,000
14,290	9/16	16,000	115,000	65,000	48,000
14,500		16,000	115,000	65,000	48,000
14,700		16,000	115,000	65,000	48,000
15,000		16,000	115,000	65,000	48,000
15,200		16,000	115,000	65,000	48,000
15,500		16,000	115,000	65,000	48,000
15,700		16,000	115,000	65,000	48,000
15,800		16,000	115,000	65,000	48,000
16,200		18,000	123,000	73,000	48,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
16,300		18,000	123,000	73,000	48,000
16,500		18,000	123,000	73,000	48,000
17,000		18,000	123,000	73,000	48,000
17,500		18,000	123,000	73,000	48,000
18,000		18,000	123,000	73,000	48,000
18,300		20,000	131,000	79,000	50,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
18,500		20,000	131,000	79,000	50,000
19,000		20,000	131,000	79,000	50,000
19,500		20,000	131,000	79,000	50,000
20,000		20,000	131,000	79,000	50,000

Brocas Ratio sin refrigeración interior

3xD | RT 100 U | DIN 6539 | 140° | m7

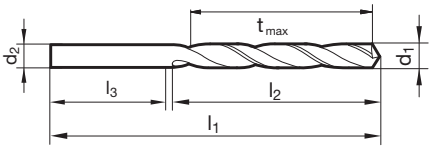
Material de corte	**Metal duro**
Acabado	F
Forma del mango	cil.

P	•	vaciado de punta ≥Ø 3,000 • afilado plano • forma recta del corte principal • geometría de corte optimizada
M	○	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • fundición • bronce, latón • aleaciones de AlSi altamente aleables
S	○	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 752

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **2473**

d1 mm	d1 inch	d2 mm	l1 mm	l2 mm	l3 mm
3,000		3,000	46,000	16,000	30,000
3,200		3,200	49,000	18,000	31,000
3,300		3,300	49,000	18,000	31,000
3,500		3,500	52,000	20,000	32,000
3,800		3,800	55,000	22,000	33,000
3,900		3,900	55,000	22,000	33,000
4,000		4,000	55,000	22,000	33,000
4,200		4,200	55,000	22,000	33,000
4,500		4,500	58,000	24,000	34,000
4,600		4,600	58,000	24,000	34,000
4,900		4,900	62,000	26,000	36,000
5,000		5,000	62,000	26,000	36,000
5,200		5,200	62,000	26,000	36,000
5,500		5,500	66,000	28,000	38,000
5,800		5,800	66,000	28,000	38,000
6,000		6,000	66,000	28,000	38,000
6,100		6,100	70,000	31,000	39,000
6,200		6,200	70,000	31,000	39,000

d1 mm	d1 inch	d2 mm	l1 mm	l2 mm	l3 mm
6,400		6,400	70,000	31,000	39,000
7,000		7,000	74,000	34,000	40,000
7,400		7,400	74,000	34,000	40,000
8,100		8,100	79,000	37,000	42,000
8,500		8,500	79,000	37,000	42,000
8,800		8,800	84,000	40,000	44,000
9,100		9,100	84,000	40,000	44,000
9,400		9,400	84,000	40,000	44,000
10,000		10,000	89,000	43,000	46,000
10,200		10,200	89,000	43,000	46,000
10,500		10,500	89,000	43,000	46,000
11,500		11,500	95,000	47,000	48,000
11,800		11,800	95,000	47,000	48,000
12,000		12,000	102,000	51,000	51,000
12,500		12,500	102,000	51,000	51,000
14,000		14,000	107,000	54,000	53,000
15,500		15,500	115,000	58,000	57,000

Brocas Ratio sin refrigeración interior

3xD | RT 100 U | DIN 6537 K | 140° | m7

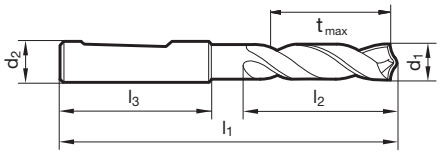
Material de corte	**Metal duro**
Acabado	S
Forma del mango	HE

P	•	vaciado de punta ≥Ø 3,000 • afilado plano • forma recta del corte principal • geometría de corte optimizada
M	○	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • fundición • bronce, latón • aleaciones de AlSi altamente aleables
S	○	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 752

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **1184**

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
3,000		6,000	62,000	20,000	36,000
3,100		6,000	62,000	20,000	36,000
3,200		6,000	62,000	20,000	36,000
3,300		6,000	62,000	20,000	36,000
3,400		6,000	62,000	20,000	36,000
3,500		6,000	62,000	20,000	36,000
3,570	9/64	6,000	62,000	20,000	36,000
3,600		6,000	62,000	20,000	36,000
3,700		6,000	62,000	20,000	36,000
3,800		6,000	66,000	24,000	36,000
3,900		6,000	66,000	24,000	36,000
3,970	5/32	6,000	66,000	24,000	36,000
4,000		6,000	66,000	24,000	36,000
4,100		6,000	66,000	24,000	36,000
4,200		6,000	66,000	24,000	36,000
4,400		6,000	66,000	24,000	36,000
4,500		6,000	66,000	24,000	36,000
4,600		6,000	66,000	24,000	36,000
4,700		6,000	66,000	24,000	36,000
4,760	3/16	6,000	66,000	28,000	36,000
4,800		6,000	66,000	28,000	36,000
4,900		6,000	66,000	28,000	36,000
5,000		6,000	66,000	28,000	36,000
5,100		6,000	66,000	28,000	36,000
5,160	13/64	6,000	66,000	28,000	36,000
5,200		6,000	66,000	28,000	36,000
5,300		6,000	66,000	28,000	36,000
5,400		6,000	66,000	28,000	36,000
5,500		6,000	66,000	28,000	36,000
5,560	7/32	6,000	66,000	28,000	36,000
5,600		6,000	66,000	28,000	36,000
5,700		6,000	66,000	28,000	36,000
5,900		6,000	66,000	28,000	36,000
5,950	15/64	6,000	66,000	28,000	36,000
6,000		6,000	66,000	28,000	36,000
6,100		8,000	79,000	34,000	36,000
6,200		8,000	79,000	34,000	36,000
6,300		8,000	79,000	34,000	36,000
6,350	1/4	8,000	79,000	34,000	36,000
6,400		8,000	79,000	34,000	36,000
6,500		8,000	79,000	34,000	36,000
6,600		8,000	79,000	34,000	36,000

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
6,700		8,000	79,000	34,000	36,000
6,750	17/64	8,000	79,000	34,000	36,000
6,800		8,000	79,000	34,000	36,000
7,000		8,000	79,000	34,000	36,000
7,140	9/32	8,000	79,000	41,000	36,000
7,200		8,000	79,000	41,000	36,000
7,300		8,000	79,000	41,000	36,000
7,400		8,000	79,000	41,000	36,000
7,500		8,000	79,000	41,000	36,000
7,540	19/64	8,000	79,000	41,000	36,000
7,600		8,000	79,000	41,000	36,000
7,700		8,000	79,000	41,000	36,000
7,900		8,000	79,000	41,000	36,000
7,940	5/16	8,000	79,000	41,000	36,000
8,000		8,000	79,000	41,000	36,000
8,100		10,000	89,000	47,000	40,000
8,200		10,000	89,000	47,000	40,000
8,300		10,000	89,000	47,000	40,000
8,330	21/64	10,000	89,000	47,000	40,000
8,400		10,000	89,000	47,000	40,000
8,500		10,000	89,000	47,000	40,000
8,700		10,000	89,000	47,000	40,000
8,800		10,000	89,000	47,000	40,000
8,900		10,000	89,000	47,000	40,000
9,000		10,000	89,000	47,000	40,000
9,100		10,000	89,000	47,000	40,000
9,200		10,000	89,000	47,000	40,000
9,300		10,000	89,000	47,000	40,000
9,400		10,000	89,000	47,000	40,000
9,500		10,000	89,000	47,000	40,000
9,520	3/8	10,000	89,000	47,000	40,000
9,600		10,000	89,000	47,000	40,000
9,700		10,000	89,000	47,000	40,000
9,800		10,000	89,000	47,000	40,000
9,900		10,000	89,000	47,000	40,000
9,920	25/64	10,000	89,000	47,000	40,000
10,000		10,000	89,000	47,000	40,000
10,100		12,000	102,000	55,000	45,000
10,200		12,000	102,000	55,000	45,000
10,300		12,000	102,000	55,000	45,000
10,320	13/32	12,000	102,000	55,000	45,000
10,500		12,000	102,000	55,000	45,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
10,600		12,000	102,000	55,000	45,000
10,720	27/64	12,000	102,000	55,000	45,000
10,800		12,000	102,000	55,000	45,000
11,000		12,000	102,000	55,000	45,000
11,100		12,000	102,000	55,000	45,000
11,110	7/16	12,000	102,000	55,000	45,000
11,200		12,000	102,000	55,000	45,000
11,400		12,000	102,000	55,000	45,000
11,500		12,000	102,000	55,000	45,000
11,600		12,000	102,000	55,000	45,000
11,700		12,000	102,000	55,000	45,000
11,800		12,000	102,000	55,000	45,000
11,910	15/32	12,000	102,000	55,000	45,000
12,000		12,000	102,000	55,000	45,000
12,100		14,000	107,000	60,000	45,000
12,200		14,000	107,000	60,000	45,000
12,300	31/64	14,000	107,000	60,000	45,000
12,400		14,000	107,000	60,000	45,000
12,700	1/2	14,000	107,000	60,000	45,000
13,000		14,000	107,000	60,000	45,000
13,100	33/64	14,000	107,000	60,000	45,000
13,200		14,000	107,000	60,000	45,000
13,300		14,000	107,000	60,000	45,000
13,400		14,000	107,000	60,000	45,000
13,500		14,000	107,000	60,000	45,000
13,800		14,000	107,000	60,000	45,000
13,890	35/64	14,000	107,000	60,000	45,000
14,000		14,000	107,000	60,000	45,000
14,200		16,000	115,000	65,000	48,000
14,290	9/16	16,000	115,000	65,000	48,000
14,300		16,000	115,000	65,000	48,000
14,400		16,000	115,000	65,000	48,000
14,700		16,000	115,000	65,000	48,000
14,800		16,000	115,000	65,000	48,000
15,000		16,000	115,000	65,000	48,000
15,100		16,000	115,000	65,000	48,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
15,200		16,000	115,000	65,000	48,000
15,480	39/64	16,000	115,000	65,000	48,000
15,700		16,000	115,000	65,000	48,000
15,800		16,000	115,000	65,000	48,000
15,870	5/8	16,000	115,000	65,000	48,000
15,900		16,000	115,000	65,000	48,000
16,000		16,000	115,000	65,000	48,000
16,100		18,000	123,000	73,000	48,000
16,270	41/64	18,000	123,000	73,000	48,000
16,300		18,000	123,000	73,000	48,000
16,500		18,000	123,000	73,000	48,000
16,800		18,000	123,000	73,000	48,000
17,000		18,000	123,000	73,000	48,000
17,300		18,000	123,000	73,000	48,000
17,460	11/16	18,000	123,000	73,000	48,000
17,500		18,000	123,000	73,000	48,000
17,700		18,000	123,000	73,000	48,000
17,860	45/64	18,000	123,000	73,000	48,000
18,000		18,000	123,000	73,000	48,000
18,100		20,000	131,000	79,000	50,000
18,300		20,000	131,000	79,000	50,000
18,500		20,000	131,000	79,000	50,000
18,650	47/64	20,000	131,000	79,000	50,000
19,000		20,000	131,000	79,000	50,000
19,050	3/4	20,000	131,000	79,000	50,000
19,200		20,000	131,000	79,000	50,000
19,500		20,000	131,000	79,000	50,000
19,600		20,000	131,000	79,000	50,000
20,000		20,000	131,000	79,000	50,000

Brocas Ratio sin refrigeración interior

3xD | RT 100 U | DIN 6539 | 140° | m7

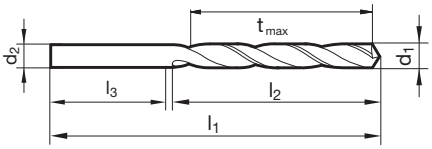
Material de corte	**Metal duro**
Acabado	S
Forma del mango	cil.

P	•	vaciado de punta ≥Ø 3,000 • afilado plano • forma recta del corte principal • geometría de corte optimizada
M	○	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • fundición • bronce, latón • aleaciones de AlSi altamente aleables
S	○	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 752

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **1242**

d1 mm	d1 inch	d2 mm	l1 mm	l2 mm	l3 mm
3,000		3,000	46,000	16,000	30,000
3,100		3,100	49,000	18,000	31,000
3,170	1/8	3,170	49,000	18,000	31,000
3,200		3,200	49,000	18,000	31,000
3,300		3,300	49,000	18,000	31,000
3,400		3,400	52,000	20,000	32,000
3,500		3,500	52,000	20,000	32,000
3,570	9/64	3,570	52,000	20,000	32,000
3,600		3,600	52,000	20,000	32,000
3,700		3,700	52,000	20,000	32,000
3,800		3,800	55,000	22,000	33,000
3,900		3,900	55,000	22,000	33,000
3,970	5/32	3,970	55,000	22,000	33,000
4,000		4,000	55,000	22,000	33,000
4,100		4,100	55,000	22,000	33,000
4,200		4,200	55,000	22,000	33,000
4,300		4,300	58,000	24,000	34,000
4,370	11/64	4,370	58,000	24,000	34,000
4,400		4,400	58,000	24,000	34,000
4,500		4,500	58,000	24,000	34,000
4,600		4,600	58,000	24,000	34,000
4,700		4,700	58,000	24,000	34,000
4,760	3/16	4,760	62,000	26,000	36,000
4,800		4,800	62,000	26,000	36,000
4,900		4,900	62,000	26,000	36,000
5,000		5,000	62,000	26,000	36,000
5,100		5,100	62,000	26,000	36,000
5,160	13/64	5,160	62,000	26,000	36,000
5,200		5,200	62,000	26,000	36,000
5,300		5,300	62,000	26,000	36,000
5,400		5,400	66,000	28,000	38,000
5,500		5,500	66,000	28,000	38,000
5,560	7/32	5,560	66,000	28,000	38,000
5,600		5,600	66,000	28,000	38,000
5,700		5,700	66,000	28,000	38,000
5,800		5,800	66,000	28,000	38,000
5,900		5,900	66,000	28,000	38,000
5,950	15/64	5,950	66,000	28,000	38,000
6,000		6,000	66,000	28,000	38,000
6,100		6,100	70,000	31,000	39,000
6,200		6,200	70,000	31,000	39,000
6,300		6,300	70,000	31,000	39,000

d1 mm	d1 inch	d2 mm	l1 mm	l2 mm	l3 mm
6,350	1/4	6,350	70,000	31,000	39,000
6,400		6,400	70,000	31,000	39,000
6,500		6,500	70,000	31,000	39,000
6,600		6,600	70,000	31,000	39,000
6,700		6,700	70,000	31,000	39,000
6,750	17/64	6,750	74,000	34,000	40,000
6,800		6,800	74,000	34,000	40,000
6,900		6,900	74,000	34,000	40,000
7,000		7,000	74,000	34,000	40,000
7,100		7,100	74,000	34,000	40,000
7,140	9/32	7,140	74,000	34,000	40,000
7,200		7,200	74,000	34,000	40,000
7,300		7,300	74,000	34,000	40,000
7,400		7,400	74,000	34,000	40,000
7,500		7,500	74,000	34,000	40,000
7,540	19/64	7,540	79,000	37,000	42,000
7,600		7,600	79,000	37,000	42,000
7,700		7,700	79,000	37,000	42,000
7,800		7,800	79,000	37,000	42,000
7,900		7,900	79,000	37,000	42,000
7,940	5/16	7,940	79,000	37,000	42,000
8,000		8,000	79,000	37,000	42,000
8,100		8,100	79,000	37,000	42,000
8,200		8,200	79,000	37,000	42,000
8,300		8,300	79,000	37,000	42,000
8,330	21/64	8,330	79,000	37,000	42,000
8,400		8,400	79,000	37,000	42,000
8,500		8,500	79,000	37,000	42,000
8,600		8,600	84,000	40,000	44,000
8,700		8,700	84,000	40,000	44,000
8,730	11/32	8,730	84,000	40,000	44,000
8,800		8,800	84,000	40,000	44,000
8,900		8,900	84,000	40,000	44,000
9,000		9,000	84,000	40,000	44,000
9,100		9,100	84,000	40,000	44,000
9,130	23/64	9,130	84,000	40,000	44,000
9,200		9,200	84,000	40,000	44,000
9,300		9,300	84,000	40,000	44,000
9,400		9,400	84,000	40,000	44,000
9,500		9,500	84,000	40,000	44,000
9,520	3/8	9,520	89,000	43,000	46,000
9,600		9,600	89,000	43,000	46,000

d1		d2	l1	l2	l3
mm	inch	mm	mm	mm	mm
9,700		9,700	89,000	43,000	46,000
9,800		9,800	89,000	43,000	46,000
9,900		9,900	89,000	43,000	46,000
9,920	25/64	9,920	89,000	43,000	46,000
10,000		10,000	89,000	43,000	46,000
10,100		10,100	89,000	43,000	46,000
10,200		10,200	89,000	43,000	46,000
10,300		10,300	89,000	43,000	46,000
10,320	13/32	10,320	89,000	43,000	46,000
10,400		10,400	89,000	43,000	46,000
10,500		10,500	89,000	43,000	46,000
10,600		10,600	89,000	43,000	46,000
10,700		10,700	95,000	47,000	48,000
10,720	27/64	10,720	95,000	47,000	48,000
10,800		10,800	95,000	47,000	48,000
10,900		10,900	95,000	47,000	48,000
11,000		11,000	95,000	47,000	48,000
11,100		11,100	95,000	47,000	48,000
11,110	7/16	11,110	95,000	47,000	48,000
11,200		11,200	95,000	47,000	48,000
11,300		11,300	95,000	47,000	48,000
11,400		11,400	95,000	47,000	48,000
11,500		11,500	95,000	47,000	48,000
11,510	29/64	11,510	95,000	47,000	48,000

d1		d2	l1	l2	l3
mm	inch	mm	mm	mm	mm
11,600		11,600	95,000	47,000	48,000
11,800		11,800	95,000	47,000	48,000
11,900		11,900	102,000	51,000	51,000
11,910	15/32	11,910	102,000	51,000	51,000
12,000		12,000	102,000	51,000	51,000
12,500		12,500	102,000	51,000	51,000
12,700	1/2	12,700	102,000	51,000	51,000
13,000		13,000	102,000	51,000	51,000
13,500		13,500	107,000	54,000	53,000
14,000		14,000	107,000	54,000	53,000
14,500		14,500	111,000	56,000	55,000
15,000		15,000	111,000	56,000	55,000
15,500		15,500	115,000	58,000	57,000
16,000		16,000	115,000	58,000	57,000

Brocas Ratio sin refrigeración interior

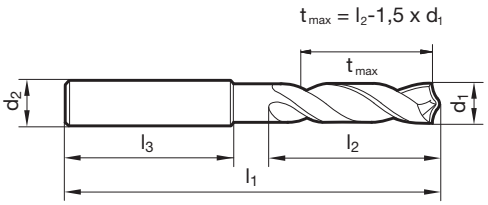
3xD | RT 100 HF | DIN 6537 K | 140° | m7

Material de corte	**Metal duro**
Acabado	Y
Forma del mango	HA

P	•	vaciado de punta ≥Ø 3,000 • entrada cónica • forma del corte principal ligeramente cóncava • geometría de corte optimizada
M		
K		
N		aceros aleados y templados hasta a 1600 N/mm² • Inconel, Hastelloy, Monel • titanio y aleaciones de titanio
S	•	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 752



Artículo Nº **8524**

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
3,000		6,000	62,000	20,000	36,000
3,100		6,000	62,000	20,000	36,000
3,170	1/8	6,000	62,000	20,000	36,000
3,200		6,000	62,000	20,000	36,000
3,250		6,000	62,000	20,000	36,000
3,300		6,000	62,000	20,000	36,000
3,400		6,000	62,000	20,000	36,000
3,500		6,000	62,000	20,000	36,000
3,570	9/64	6,000	62,000	20,000	36,000
3,600		6,000	62,000	20,000	36,000
3,700		6,000	62,000	20,000	36,000
3,800		6,000	66,000	24,000	36,000
3,900		6,000	66,000	24,000	36,000
3,970	5/32	6,000	66,000	24,000	36,000
4,000		6,000	66,000	24,000	36,000
4,100		6,000	66,000	24,000	36,000
4,200		6,000	66,000	24,000	36,000
4,300		6,000	66,000	24,000	36,000
4,370	11/64	6,000	66,000	24,000	36,000
4,400		6,000	66,000	24,000	36,000
4,500		6,000	66,000	24,000	36,000
4,600		6,000	66,000	24,000	36,000
4,650		6,000	66,000	24,000	36,000
4,700		6,000	66,000	24,000	36,000
4,760	3/16	6,000	66,000	28,000	36,000
4,800		6,000	66,000	28,000	36,000
4,900		6,000	66,000	28,000	36,000
5,000		6,000	66,000	28,000	36,000
5,100		6,000	66,000	28,000	36,000
5,160	13/64	6,000	66,000	28,000	36,000
5,200		6,000	66,000	28,000	36,000
5,300		6,000	66,000	28,000	36,000
5,400		6,000	66,000	28,000	36,000
5,500		6,000	66,000	28,000	36,000
5,550		6,000	66,000	28,000	36,000
5,560	7/32	6,000	66,000	28,000	36,000
5,600		6,000	66,000	28,000	36,000
5,700		6,000	66,000	28,000	36,000
5,800		6,000	66,000	28,000	36,000
5,900		6,000	66,000	28,000	36,000
5,950	15/64	6,000	66,000	28,000	36,000
6,000		6,000	66,000	28,000	36,000

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
6,100		8,000	79,000	34,000	36,000
6,200		8,000	79,000	34,000	36,000
6,300		8,000	79,000	34,000	36,000
6,350	1/4	8,000	79,000	34,000	36,000
6,400		8,000	79,000	34,000	36,000
6,500		8,000	79,000	34,000	36,000
6,600		8,000	79,000	34,000	36,000
6,700		8,000	79,000	34,000	36,000
6,750	17/64	8,000	79,000	34,000	36,000
6,800		8,000	79,000	34,000	36,000
6,900		8,000	79,000	34,000	36,000
7,000		8,000	79,000	34,000	36,000
7,100		8,000	79,000	41,000	36,000
7,140	9/32	8,000	79,000	41,000	36,000
7,200		8,000	79,000	41,000	36,000
7,300		8,000	79,000	41,000	36,000
7,400		8,000	79,000	41,000	36,000
7,500		8,000	79,000	41,000	36,000
7,540	19/64	8,000	79,000	41,000	36,000
7,600		8,000	79,000	41,000	36,000
7,700		8,000	79,000	41,000	36,000
7,800		8,000	79,000	41,000	36,000
7,900		8,000	79,000	41,000	36,000
7,940	5/16	8,000	79,000	41,000	36,000
8,000		8,000	79,000	41,000	36,000
8,100		10,000	89,000	47,000	40,000
8,200		10,000	89,000	47,000	40,000
8,300		10,000	89,000	47,000	40,000
8,330	21/64	10,000	89,000	47,000	40,000
8,400		10,000	89,000	47,000	40,000
8,500		10,000	89,000	47,000	40,000
8,600		10,000	89,000	47,000	40,000
8,700		10,000	89,000	47,000	40,000
8,730	11/32	10,000	89,000	47,000	40,000
8,800		10,000	89,000	47,000	40,000
8,900		10,000	89,000	47,000	40,000
9,000		10,000	89,000	47,000	40,000
9,100		10,000	89,000	47,000	40,000
9,130	23/64	10,000	89,000	47,000	40,000
9,200		10,000	89,000	47,000	40,000
9,250		10,000	89,000	47,000	40,000
9,300		10,000	89,000	47,000	40,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
9,400		10,000	89,000	47,000	40,000
9,500		10,000	89,000	47,000	40,000
9,520	3/8	10,000	89,000	47,000	40,000
9,600		10,000	89,000	47,000	40,000
9,700		10,000	89,000	47,000	40,000
9,800		10,000	89,000	47,000	40,000
9,900		10,000	89,000	47,000	40,000
9,920	25/64	10,000	89,000	47,000	40,000
10,000		10,000	89,000	47,000	40,000
10,100		12,000	102,000	55,000	45,000
10,200		12,000	102,000	55,000	45,000
10,300		12,000	102,000	55,000	45,000
10,320	13/32	12,000	102,000	55,000	45,000
10,400		12,000	102,000	55,000	45,000
10,500		12,000	102,000	55,000	45,000
10,600		12,000	102,000	55,000	45,000
10,700		12,000	102,000	55,000	45,000
10,800		12,000	102,000	55,000	45,000
10,900		12,000	102,000	55,000	45,000
11,000		12,000	102,000	55,000	45,000
11,100		12,000	102,000	55,000	45,000
11,110	7/16	12,000	102,000	55,000	45,000
11,200		12,000	102,000	55,000	45,000
11,300		12,000	102,000	55,000	45,000
11,400		12,000	102,000	55,000	45,000
11,500		12,000	102,000	55,000	45,000
11,600		12,000	102,000	55,000	45,000
11,700		12,000	102,000	55,000	45,000
11,800		12,000	102,000	55,000	45,000
11,900		12,000	102,000	55,000	45,000
11,910	15/32	12,000	102,000	55,000	45,000
12,000		12,000	102,000	55,000	45,000
12,200		14,000	107,000	60,000	45,000
12,500		14,000	107,000	60,000	45,000
12,700	1/2	14,000	107,000	60,000	45,000
12,800		14,000	107,000	60,000	45,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
13,000		14,000	107,000	60,000	45,000
13,300		14,000	107,000	60,000	45,000
13,500		14,000	107,000	60,000	45,000
13,700		14,000	107,000	60,000	45,000
14,000		14,000	107,000	60,000	45,000
14,200		16,000	115,000	65,000	48,000
14,290	9/16	16,000	115,000	65,000	48,000
14,300		16,000	115,000	65,000	48,000
14,500		16,000	115,000	65,000	48,000
14,700		16,000	115,000	65,000	48,000
15,000		16,000	115,000	65,000	48,000
15,200		16,000	115,000	65,000	48,000
15,300		16,000	115,000	65,000	48,000
15,500		16,000	115,000	65,000	48,000
15,700		16,000	115,000	65,000	48,000
16,000		16,000	115,000	65,000	48,000
16,300		18,000	123,000	73,000	48,000
16,500		18,000	123,000	73,000	48,000
16,900		18,000	123,000	73,000	48,000
17,000		18,000	123,000	73,000	48,000
17,300		18,000	123,000	73,000	48,000
17,500		18,000	123,000	73,000	48,000
18,000		18,000	123,000	73,000	48,000
18,500		20,000	131,000	79,000	50,000
18,900		20,000	131,000	79,000	50,000
19,000		20,000	131,000	79,000	50,000
19,050	3/4	20,000	131,000	79,000	50,000
19,300		20,000	131,000	79,000	50,000
19,500		20,000	131,000	79,000	50,000
20,000		20,000	131,000	79,000	50,000

Brocas Ratio sin refrigeración interior

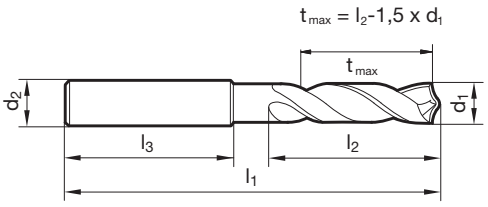
3xD | RT 100 F | DIN 6537 K | 140° | m7

Material de corte	**Metal duro**
Acabado	F
Forma del mango	HA

P	○	vaciado de punta ≥Ø 5,000 • entrada cónica • forma cóncava del corte principal • geometría de corte optimizada • corte agresivo
M	○	
K	○	
N	○	aceros altamente aleados • aceros inoxidables y resistentes al ácido y al calor • Inconel, Hastelloy, Monel • latón, bronce • aluminio y sus aleaciones • magnesio y sus aleaciones • titanio y aleaciones de titanio • metales sinterizados
S	●	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 752



Artículo Nº **2475**

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
3,700		6,000	62,000	20,000	36,000
4,650		6,000	66,000	24,000	36,000
5,000		6,000	66,000	28,000	36,000
5,500		6,000	66,000	28,000	36,000
6,000		6,000	66,000	28,000	36,000
6,500		8,000	79,000	34,000	36,000
6,800		8,000	79,000	34,000	36,000
7,000		8,000	79,000	34,000	36,000
8,000		8,000	79,000	41,000	36,000
8,500		10,000	89,000	47,000	40,000
9,000		10,000	89,000	47,000	40,000
9,300		10,000	89,000	47,000	40,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
10,000		10,000	89,000	47,000	40,000
10,500		12,000	102,000	55,000	45,000
11,200		12,000	102,000	55,000	45,000
12,000		12,000	102,000	55,000	45,000

Brocas Ratio sin refrigeración interior

3xD | RT 100 F | DIN 6539 | 140° | m7

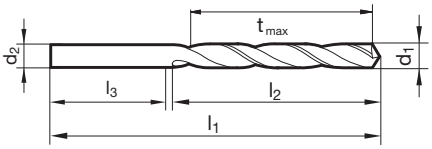
Material de corte	**Metal duro**
Acabado	S
Forma del mango	cil.

P	○	vaciado de punta ≥Ø 3,000 • entrada cónica • forma cóncava del corte principal • geometría de corte optimizada • corte agresivo
M	●	
K	○	
N	○	aceros inoxidables y resistentes al ácido y al calor • Inconel, Hastelloy, Monel • latón, bronce • aluminio y sus aleaciones • magnesio y sus aleaciones • titanio y aleaciones de titanio • metales sinterizados • aceros altamente aleados
S	○	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 752

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **1702**

d1 mm	d1 inch	d2 mm	l1 mm	l2 mm	l3 mm
3,000		3,000	46,000	16,000	30,000
3,100		3,100	49,000	18,000	31,000
3,170	1/8	3,170	49,000	18,000	31,000
3,200		3,200	49,000	18,000	31,000
3,300		3,300	49,000	18,000	31,000
3,400		3,400	52,000	20,000	32,000
3,500		3,500	52,000	20,000	32,000
3,570	9/64	3,570	52,000	20,000	32,000
3,600		3,600	52,000	20,000	32,000
3,700		3,700	52,000	20,000	32,000
3,800		3,800	55,000	22,000	33,000
3,900		3,900	55,000	22,000	33,000
3,970	5/32	3,970	55,000	22,000	33,000
4,000		4,000	55,000	22,000	33,000
4,100		4,100	55,000	22,000	33,000
4,200		4,200	55,000	22,000	33,000
4,300		4,300	58,000	24,000	34,000
4,370	11/64	4,370	58,000	24,000	34,000
4,400		4,400	58,000	24,000	34,000
4,500		4,500	58,000	24,000	34,000
4,600		4,600	58,000	24,000	34,000
4,700		4,700	58,000	24,000	34,000
4,760	3/16	4,760	62,000	26,000	36,000
4,800		4,800	62,000	26,000	36,000
4,900		4,900	62,000	26,000	36,000
5,000		5,000	62,000	26,000	36,000
5,100		5,100	62,000	26,000	36,000
5,160	13/64	5,160	62,000	26,000	36,000
5,200		5,200	62,000	26,000	36,000
5,300		5,300	62,000	26,000	36,000
5,400		5,400	66,000	28,000	38,000
5,500		5,500	66,000	28,000	38,000
5,560	7/32	5,560	66,000	28,000	38,000
5,600		5,600	66,000	28,000	38,000
5,700		5,700	66,000	28,000	38,000
5,800		5,800	66,000	28,000	38,000
5,950	15/64	5,950	66,000	28,000	38,000
6,000		6,000	66,000	28,000	38,000
6,100		6,100	70,000	31,000	39,000
6,200		6,200	70,000	31,000	39,000
6,300		6,300	70,000	31,000	39,000
6,350	1/4	6,350	70,000	31,000	39,000

d1 mm	d1 inch	d2 mm	l1 mm	l2 mm	l3 mm
6,400		6,400	70,000	31,000	39,000
6,500		6,500	70,000	31,000	39,000
6,600		6,600	70,000	31,000	39,000
6,700		6,700	70,000	31,000	39,000
6,750	17/64	6,750	74,000	34,000	40,000
6,800		6,800	74,000	34,000	40,000
6,900		6,900	74,000	34,000	40,000
7,000		7,000	74,000	34,000	40,000
7,100		7,100	74,000	34,000	40,000
7,140	9/32	7,140	74,000	34,000	40,000
7,200		7,200	74,000	34,000	40,000
7,300		7,300	74,000	34,000	40,000
7,400		7,400	74,000	34,000	40,000
7,540	19/64	7,540	79,000	37,000	42,000
7,600		7,600	79,000	37,000	42,000
7,700		7,700	79,000	37,000	42,000
7,800		7,800	79,000	37,000	42,000
7,900		7,900	79,000	37,000	42,000
7,940	5/16	7,940	79,000	37,000	42,000
8,000		8,000	79,000	37,000	42,000
8,100		8,100	79,000	37,000	42,000
8,200		8,200	79,000	37,000	42,000
8,300		8,300	79,000	37,000	42,000
8,330	21/64	8,330	79,000	37,000	42,000
8,400		8,400	79,000	37,000	42,000
8,500		8,500	79,000	37,000	42,000
8,600		8,600	84,000	40,000	44,000
8,700		8,700	84,000	40,000	44,000
8,730	11/32	8,730	84,000	40,000	44,000
8,800		8,800	84,000	40,000	44,000
8,900		8,900	84,000	40,000	44,000
9,000		9,000	84,000	40,000	44,000
9,100		9,100	84,000	40,000	44,000
9,130	23/64	9,130	84,000	40,000	44,000
9,400		9,400	84,000	40,000	44,000
9,500		9,500	84,000	40,000	44,000
9,520	3/8	9,520	89,000	43,000	46,000
9,600		9,600	89,000	43,000	46,000
9,700		9,700	89,000	43,000	46,000
9,800		9,800	89,000	43,000	46,000
9,900		9,900	89,000	43,000	46,000
9,920	25/64	9,920	89,000	43,000	46,000

d1		d2	l1	l2	l3
mm	inch	mm	mm	mm	mm
10,000		10,000	89,000	43,000	46,000
10,200		10,200	89,000	43,000	46,000
10,300		10,300	89,000	43,000	46,000
10,320	13/32	10,320	89,000	43,000	46,000
10,720	27/64	10,720	95,000	47,000	48,000
11,000		11,000	95,000	47,000	48,000
11,110	7/16	11,110	95,000	47,000	48,000
11,300		11,300	95,000	47,000	48,000
11,500		11,500	95,000	47,000	48,000
11,510	29/64	11,510	95,000	47,000	48,000
11,910	15/32	11,910	102,000	51,000	51,000
12,000		12,000	102,000	51,000	51,000

d1		d2	l1	l2	l3
mm	inch	mm	mm	mm	mm
12,300	31/64	12,300	102,000	51,000	51,000
12,500		12,500	102,000	51,000	51,000
12,700	1/2	12,700	102,000	51,000	51,000
13,000		13,000	102,000	51,000	51,000
13,500		13,500	107,000	54,000	53,000
14,000		14,000	107,000	54,000	53,000

Brocas Ratio sin refrigeración interior

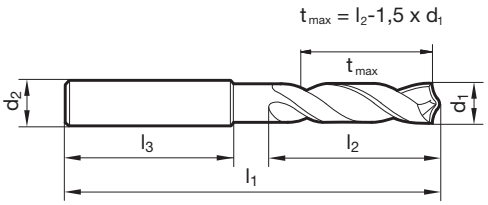
5xD | RT 100 U | DIN 6537 L | 140° | m7

Material de corte	**Metal duro**
Acabado	F
Forma del mango	HA

P	•	vaciado de punta ≥Ø 3,000 • afilado plano • forma recta del corte principal • geometría de corte optimizada
M	○	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • fundición • bronce, latón • aleaciones de AlSi altamente aleables
S	○	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 756



Artículo Nº **2996**

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
3,000		6,000	66,000	28,000	36,000
3,100		6,000	66,000	28,000	36,000
3,200		6,000	66,000	28,000	36,000
3,250		6,000	66,000	28,000	36,000
3,300		6,000	66,000	28,000	36,000
3,400		6,000	66,000	28,000	36,000
3,500		6,000	66,000	28,000	36,000
3,570	9/64	6,000	66,000	28,000	36,000
3,600		6,000	66,000	28,000	36,000
3,700		6,000	66,000	28,000	36,000
3,800		6,000	74,000	36,000	36,000
3,900		6,000	74,000	36,000	36,000
4,000		6,000	74,000	36,000	36,000
4,100		6,000	74,000	36,000	36,000
4,200		6,000	74,000	36,000	36,000
4,300		6,000	74,000	36,000	36,000
4,400		6,000	74,000	36,000	36,000
4,500		6,000	74,000	36,000	36,000
4,650		6,000	74,000	36,000	36,000
4,700		6,000	74,000	36,000	36,000
4,800		6,000	82,000	44,000	36,000
4,900		6,000	82,000	44,000	36,000
5,000		6,000	82,000	44,000	36,000
5,100		6,000	82,000	44,000	36,000
5,200		6,000	82,000	44,000	36,000
5,300		6,000	82,000	44,000	36,000
5,400		6,000	82,000	44,000	36,000
5,500		6,000	82,000	44,000	36,000
5,600		6,000	82,000	44,000	36,000
5,800		6,000	82,000	44,000	36,000
5,900		6,000	82,000	44,000	36,000
6,000		6,000	82,000	44,000	36,000
6,100		8,000	91,000	53,000	36,000
6,200		8,000	91,000	53,000	36,000
6,300		8,000	91,000	53,000	36,000
6,350	1/4	8,000	91,000	53,000	36,000
6,400		8,000	91,000	53,000	36,000
6,500		8,000	91,000	53,000	36,000
6,600		8,000	91,000	53,000	36,000
6,700		8,000	91,000	53,000	36,000
6,800		8,000	91,000	53,000	36,000
6,900		8,000	91,000	53,000	36,000

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
7,000		8,000	91,000	53,000	36,000
7,100		8,000	91,000	53,000	36,000
7,140	9/32	8,000	91,000	53,000	36,000
7,200		8,000	91,000	53,000	36,000
7,300		8,000	91,000	53,000	36,000
7,500		8,000	91,000	53,000	36,000
7,600		8,000	91,000	53,000	36,000
7,700		8,000	91,000	53,000	36,000
7,800		8,000	91,000	53,000	36,000
7,900		8,000	91,000	53,000	36,000
7,940	5/16	8,000	91,000	53,000	36,000
8,000		8,000	91,000	53,000	36,000
8,100		10,000	103,000	61,000	40,000
8,200		10,000	103,000	61,000	40,000
8,400		10,000	103,000	61,000	40,000
8,500		10,000	103,000	61,000	40,000
8,700		10,000	103,000	61,000	40,000
8,800		10,000	103,000	61,000	40,000
9,000		10,000	103,000	61,000	40,000
9,200		10,000	103,000	61,000	40,000
9,250		10,000	103,000	61,000	40,000
9,500		10,000	103,000	61,000	40,000
9,520	3/8	10,000	103,000	61,000	40,000
9,700		10,000	103,000	61,000	40,000
9,800		10,000	103,000	61,000	40,000
10,000		10,000	103,000	61,000	40,000
10,100		12,000	118,000	71,000	45,000
10,200		12,000	118,000	71,000	45,000
10,300		12,000	118,000	71,000	45,000
10,320	13/32	12,000	118,000	71,000	45,000
10,500		12,000	118,000	71,000	45,000
10,700		12,000	118,000	71,000	45,000
10,800		12,000	118,000	71,000	45,000
10,900		12,000	118,000	71,000	45,000
11,000		12,000	118,000	71,000	45,000
11,100		12,000	118,000	71,000	45,000
11,110	7/16	12,000	118,000	71,000	45,000
11,500		12,000	118,000	71,000	45,000
11,600		12,000	118,000	71,000	45,000
11,700		12,000	118,000	71,000	45,000
11,800		12,000	118,000	71,000	45,000
11,910	15/32	12,000	118,000	71,000	45,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
12,000		12,000	118,000	71,000	45,000
12,100		14,000	124,000	77,000	45,000
12,200		14,000	124,000	77,000	45,000
12,400		14,000	124,000	77,000	45,000
12,500		14,000	124,000	77,000	45,000
12,600		14,000	124,000	77,000	45,000
12,700	1/2	14,000	124,000	77,000	45,000
12,800		14,000	124,000	77,000	45,000
13,100	33/64	14,000	124,000	77,000	45,000
13,300		14,000	124,000	77,000	45,000
13,500		14,000	124,000	77,000	45,000
13,700		14,000	124,000	77,000	45,000
14,000		14,000	124,000	77,000	45,000
14,200		16,000	133,000	83,000	48,000
14,290	9/16	16,000	133,000	83,000	48,000
14,300		16,000	133,000	83,000	48,000
14,400		16,000	133,000	83,000	48,000
14,500		16,000	133,000	83,000	48,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
14,700		16,000	133,000	83,000	48,000
14,800		16,000	133,000	83,000	48,000
15,100		16,000	133,000	83,000	48,000
15,200		16,000	133,000	83,000	48,000
15,300		16,000	133,000	83,000	48,000
15,500		16,000	133,000	83,000	48,000
15,600		16,000	133,000	83,000	48,000
15,700		16,000	133,000	83,000	48,000
15,800		16,000	133,000	83,000	48,000
16,000		16,000	133,000	83,000	48,000
16,500		18,000	143,000	93,000	48,000
17,000		18,000	143,000	93,000	48,000
17,500		18,000	143,000	93,000	48,000
18,000		18,000	143,000	93,000	48,000
18,500		20,000	153,000	101,000	50,000
19,000		20,000	153,000	101,000	50,000
19,500		20,000	153,000	101,000	50,000
20,000		20,000	153,000	101,000	50,000

Brocas Ratio sin refrigeración interior

5xD | RT 100 U | DIN 6537 L | 140° | m7

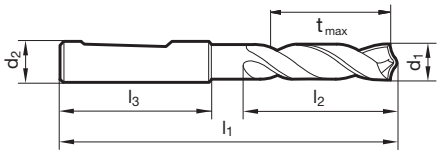
Material de corte	**Metal duro**
Acabado	F
Forma del mango	HE

P	•	vaciado de punta ≥Ø 3,100 • afilado plano • forma recta del corte principal • geometría de corte optimizada
M	○	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • fundición • bronce, latón • aleaciones de AlSi altamente aleables
S	○	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 756

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **2719**

d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
3,100		6,000	66,000	28,000	36,000
3,200		6,000	66,000	28,000	36,000
3,500		6,000	66,000	28,000	36,000
3,600		6,000	66,000	28,000	36,000
3,700		6,000	66,000	28,000	36,000
3,800		6,000	74,000	36,000	36,000
3,900		6,000	74,000	36,000	36,000
4,000		6,000	74,000	36,000	36,000
4,100		6,000	74,000	36,000	36,000
4,200		6,000	74,000	36,000	36,000
4,400		6,000	74,000	36,000	36,000
4,500		6,000	74,000	36,000	36,000
4,600		6,000	74,000	36,000	36,000
4,700		6,000	74,000	36,000	36,000
4,800		6,000	82,000	44,000	36,000
4,900		6,000	82,000	44,000	36,000
5,000		6,000	82,000	44,000	36,000
5,160	13/64	6,000	82,000	44,000	36,000
5,200		6,000	82,000	44,000	36,000
5,300		6,000	82,000	44,000	36,000
5,400		6,000	82,000	44,000	36,000
5,500		6,000	82,000	44,000	36,000
5,550		6,000	82,000	44,000	36,000
5,600		6,000	82,000	44,000	36,000
5,700		6,000	82,000	44,000	36,000
5,900		6,000	82,000	44,000	36,000
6,000		6,000	82,000	44,000	36,000
6,100		8,000	91,000	53,000	36,000
6,200		8,000	91,000	53,000	36,000
6,300		8,000	91,000	53,000	36,000
6,400		8,000	91,000	53,000	36,000
6,500		8,000	91,000	53,000	36,000
6,600		8,000	91,000	53,000	36,000
6,700		8,000	91,000	53,000	36,000
6,800		8,000	91,000	53,000	36,000
7,000		8,000	91,000	53,000	36,000
7,100		8,000	91,000	53,000	36,000
7,200		8,000	91,000	53,000	36,000
7,300		8,000	91,000	53,000	36,000
7,500		8,000	91,000	53,000	36,000
7,600		8,000	91,000	53,000	36,000
7,700		8,000	91,000	53,000	36,000

d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
7,800		8,000	91,000	53,000	36,000
7,900		8,000	91,000	53,000	36,000
8,000		8,000	91,000	53,000	36,000
8,100		10,000	103,000	61,000	40,000
8,200		10,000	103,000	61,000	40,000
8,300		10,000	103,000	61,000	40,000
8,400		10,000	103,000	61,000	40,000
8,500		10,000	103,000	61,000	40,000
8,600		10,000	103,000	61,000	40,000
8,700		10,000	103,000	61,000	40,000
8,900		10,000	103,000	61,000	40,000
9,000		10,000	103,000	61,000	40,000
9,100		10,000	103,000	61,000	40,000
9,200		10,000	103,000	61,000	40,000
9,250		10,000	103,000	61,000	40,000
9,400		10,000	103,000	61,000	40,000
9,500		10,000	103,000	61,000	40,000
9,600		10,000	103,000	61,000	40,000
9,700		10,000	103,000	61,000	40,000
9,900		10,000	103,000	61,000	40,000
10,100		12,000	118,000	71,000	45,000
10,320	13/32	12,000	118,000	71,000	45,000
10,400		12,000	118,000	71,000	45,000
10,500		12,000	118,000	71,000	45,000
10,600		12,000	118,000	71,000	45,000
10,700		12,000	118,000	71,000	45,000
10,800		12,000	118,000	71,000	45,000
10,900		12,000	118,000	71,000	45,000
11,100		12,000	118,000	71,000	45,000
11,110	7/16	12,000	118,000	71,000	45,000
11,200		12,000	118,000	71,000	45,000
11,300		12,000	118,000	71,000	45,000
11,400		12,000	118,000	71,000	45,000
11,500		12,000	118,000	71,000	45,000
11,600		12,000	118,000	71,000	45,000
11,700		12,000	118,000	71,000	45,000
11,800		12,000	118,000	71,000	45,000
11,900		12,000	118,000	71,000	45,000
11,910	15/32	12,000	118,000	71,000	45,000
12,200		14,000	124,000	77,000	45,000
12,500		14,000	124,000	77,000	45,000
12,700	1/2	14,000	124,000	77,000	45,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
13,500		14,000	124,000	77,000	45,000
13,700		14,000	124,000	77,000	45,000
14,000		14,000	124,000	77,000	45,000
14,200		16,000	133,000	83,000	48,000
14,290	9/16	16,000	133,000	83,000	48,000
14,500		16,000	133,000	83,000	48,000
14,700		16,000	133,000	83,000	48,000
15,200		16,000	133,000	83,000	48,000
15,500		16,000	133,000	83,000	48,000
15,700		16,000	133,000	83,000	48,000
16,500		18,000	143,000	93,000	48,000
17,000		18,000	143,000	93,000	48,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
17,500		18,000	143,000	93,000	48,000
18,000		18,000	143,000	93,000	48,000
18,500		20,000	153,000	101,000	50,000
19,000		20,000	153,000	101,000	50,000
19,500		20,000	153,000	101,000	50,000
20,000		20,000	153,000	101,000	50,000

Brocas Ratio sin refrigeración interior

5xD | RT 100 U | WN | 140° | m7

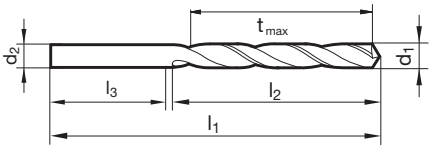
Material de corte	**Metal duro**
Acabado	F
Forma del mango	cil.

P	•	vaciado de punta ≥Ø 5,000 • afilado plano • forma recta del corte principal • geometría de corte optimizada
M	○	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • fundición • bronce, latón • aleaciones de AlSi altamente aleables
S	○	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 756

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **2474**

d1 mm	d1 inch	d2 mm	l1 mm	l2 mm	l3 mm
5,000		5,000	73,000	34,000	39,000
5,400		5,400	76,000	38,000	38,000
5,500		5,500	76,000	38,000	38,000
5,600		5,600	81,000	41,000	40,000
5,700		5,700	81,000	41,000	40,000
6,200		6,200	81,000	41,000	40,000
6,400		6,400	81,000	41,000	40,000
6,500		6,500	81,000	41,000	40,000
6,600		6,600	83,000	43,000	40,000
6,800		6,800	83,000	43,000	40,000
7,100		7,100	87,000	45,000	42,000
7,200		7,200	87,000	45,000	42,000
7,400		7,400	87,000	45,000	42,000
7,700		7,700	90,000	48,000	42,000
8,000		8,000	90,000	48,000	42,000
8,100		8,100	96,000	53,000	43,000
8,500		8,500	96,000	53,000	43,000
8,700		8,700	98,000	55,000	43,000

d1 mm	d1 inch	d2 mm	l1 mm	l2 mm	l3 mm
9,000		9,000	98,000	55,000	43,000
9,200		9,200	102,000	58,000	44,000
9,300		9,300	102,000	58,000	44,000
9,700		9,700	105,000	60,000	45,000
9,800		9,800	105,000	60,000	45,000
10,200		10,200	112,000	66,000	46,000
10,300		10,300	112,000	66,000	46,000
10,400		10,400	112,000	66,000	46,000
10,500		10,500	112,000	66,000	46,000
10,600		10,600	114,000	68,000	46,000
10,800		10,800	114,000	68,000	46,000
10,900		10,900	114,000	68,000	46,000
11,000		11,000	114,000	68,000	46,000
11,600		11,600	121,000	73,000	48,000
11,800		11,800	121,000	73,000	48,000
13,000		13,000	137,000	78,000	59,000
14,000		14,000	147,000	86,000	61,000

Brocas Ratio sin refrigeración interior

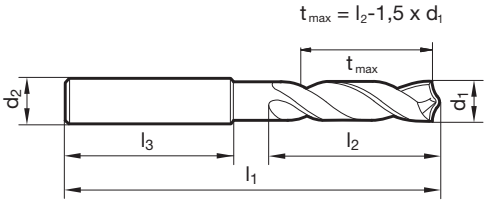
5xD | RT 100 U | DIN 6537 L | 140° | m7

Material de corte	**Metal duro**
Acabado	S
Forma del mango	HA

P	•	vaciado de punta ≥Ø 3,300 • afilado plano • forma recta del corte principal • geometría de corte optimizada
M	○	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • fundición • bronce, latón • aleaciones de AlSi altamente aleables
S	○	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 756



Artículo Nº **2717**

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
3,300		6,000	66,000	28,000	36,000
3,500		6,000	66,000	28,000	36,000
5,000		6,000	82,000	44,000	36,000
5,500		6,000	82,000	44,000	36,000
6,800		8,000	91,000	53,000	36,000
7,500		8,000	91,000	53,000	36,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
8,000		8,000	91,000	53,000	36,000
8,500		10,000	103,000	61,000	40,000
10,200		12,000	118,000	71,000	45,000
11,000		12,000	118,000	71,000	45,000
11,200		12,000	118,000	71,000	45,000
12,000		12,000	118,000	71,000	45,000

Brocas Ratio sin refrigeración interior

5xD | RT 100 U | WN | 140° | m7

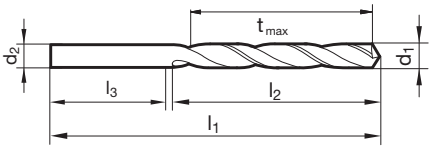
Material de corte	**Metal duro**
Acabado	S
Forma del mango	cil.

P	•	vaciado de punta ≥Ø 5,000 • afilado plano • forma recta del corte principal • geometría de corte optimizada
M	○	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • fundición • bronce, latón • aleaciones de AlSi altamente aleables
S	○	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 756

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **1243**

d1 mm	d1 inch	d2 mm	l1 mm	l2 mm	l3 mm
5,000		5,000	73,000	34,000	39,000
5,100		5,100	76,000	38,000	38,000
5,160	13/64	5,160	76,000	38,000	38,000
5,200		5,200	76,000	38,000	38,000
5,300		5,300	76,000	38,000	38,000
5,400		5,400	76,000	38,000	38,000
5,500		5,500	76,000	38,000	38,000
5,560	7/32	5,560	81,000	41,000	40,000
5,600		5,600	81,000	41,000	40,000
5,700		5,700	81,000	41,000	40,000
5,800		5,800	81,000	41,000	40,000
5,900		5,900	81,000	41,000	40,000
5,950	15/64	5,950	81,000	41,000	40,000
6,000		6,000	81,000	41,000	40,000
6,100		6,100	81,000	41,000	40,000
6,200		6,200	81,000	41,000	40,000
6,300		6,300	81,000	41,000	40,000
6,350	1/4	6,350	81,000	41,000	40,000
6,400		6,400	81,000	41,000	40,000
6,500		6,500	81,000	41,000	40,000
6,600		6,600	83,000	43,000	40,000
6,700		6,700	83,000	43,000	40,000
6,750	17/64	6,750	83,000	43,000	40,000
6,800		6,800	83,000	43,000	40,000
6,900		6,900	83,000	43,000	40,000
7,000		7,000	83,000	43,000	40,000
7,100		7,100	87,000	45,000	42,000
7,140	9/32	7,140	87,000	45,000	42,000
7,200		7,200	87,000	45,000	42,000
7,300		7,300	87,000	45,000	42,000
7,400		7,400	87,000	45,000	42,000
7,500		7,500	87,000	45,000	42,000
7,540	19/64	7,540	90,000	48,000	42,000
7,600		7,600	90,000	48,000	42,000
7,700		7,700	90,000	48,000	42,000
7,800		7,800	90,000	48,000	42,000
7,900		7,900	90,000	48,000	42,000
7,940	5/16	7,940	90,000	48,000	42,000
8,000		8,000	90,000	48,000	42,000
8,100		8,100	96,000	53,000	43,000
8,200		8,200	96,000	53,000	43,000
8,300		8,300	96,000	53,000	43,000

d1 mm	d1 inch	d2 mm	l1 mm	l2 mm	l3 mm
8,330	21/64	8,330	96,000	53,000	43,000
8,400		8,400	96,000	53,000	43,000
8,500		8,500	96,000	53,000	43,000
8,600		8,600	98,000	55,000	43,000
8,700		8,700	98,000	55,000	43,000
8,730	11/32	8,730	98,000	55,000	43,000
8,800		8,800	98,000	55,000	43,000
8,900		8,900	98,000	55,000	43,000
9,000		9,000	98,000	55,000	43,000
9,100		9,100	102,000	58,000	44,000
9,130	23/64	9,130	102,000	58,000	44,000
9,200		9,200	102,000	58,000	44,000
9,300		9,300	102,000	58,000	44,000
9,500		9,500	102,000	58,000	44,000
9,520	3/8	9,520	105,000	60,000	45,000
9,600		9,600	105,000	60,000	45,000
9,700		9,700	105,000	60,000	45,000
9,800		9,800	105,000	60,000	45,000
9,900		9,900	105,000	60,000	45,000
9,920	25/64	9,920	105,000	60,000	45,000
10,000		10,000	105,000	60,000	45,000
10,100		10,100	112,000	66,000	46,000
10,200		10,200	112,000	66,000	46,000
10,300		10,300	112,000	66,000	46,000
10,320	13/32	10,320	112,000	66,000	46,000
10,400		10,400	112,000	66,000	46,000
10,500		10,500	112,000	66,000	46,000
10,600		10,600	114,000	68,000	46,000
10,700		10,700	114,000	68,000	46,000
10,720	27/64	10,720	114,000	68,000	46,000
10,800		10,800	114,000	68,000	46,000
10,900		10,900	114,000	68,000	46,000
11,000		11,000	114,000	68,000	46,000
11,100		11,100	118,000	71,000	47,000
11,110	7/16	11,110	118,000	71,000	47,000
11,400		11,400	118,000	71,000	47,000
11,500		11,500	118,000	71,000	47,000
11,600		11,600	121,000	73,000	48,000
11,700		11,700	121,000	73,000	48,000
11,800		11,800	121,000	73,000	48,000
11,900		11,900	121,000	73,000	48,000
11,910	15/32	11,910	121,000	73,000	48,000

d1		d2	l1	l2	l3
mm	inch	mm	mm	mm	mm
12,000		12,000	121,000	73,000	48,000
12,500		12,500	135,000	76,000	59,000
12,700	1/2	12,700	137,000	78,000	59,000
13,000		13,000	137,000	78,000	59,000
13,500		13,500	144,000	84,000	60,000
14,000		14,000	147,000	86,000	61,000

d1		d2	l1	l2	l3
mm	inch	mm	mm	mm	mm
14,500		14,500	151,000	89,000	62,000
15,000		15,000	153,000	91,000	62,000
15,500		15,500	157,000	94,000	63,000
16,000		16,000	160,000	96,000	64,000

Brocas Ratio sin refrigeración interior

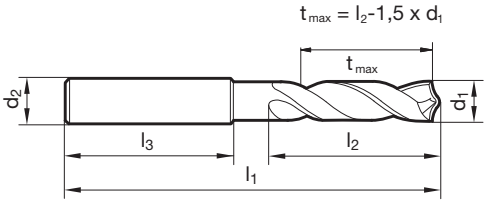
5xD | RT 100 F | DIN 6537 L | 140° | m7

Material de corte	**Metal duro**
Acabado	F
Forma del mango	HA

P	○	vaciado de punta ≥Ø 3,000 • entrada cónica • forma cóncava del corte principal • geometría de corte optimizada • corte agresivo
M	○	
K	○	
N	○	aceros altamente aleados • aceros inoxidables y resistentes al ácido y al calor • Inconel, Hastelloy, Monel • latón, bronce • aluminio y sus aleaciones • magnesio y sus aleaciones • titanio y aleaciones de titanio • metales sinterizados
S	●	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 756



Artículo Nº	**2712**

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
3,000		6,000	66,000	28,000	36,000
3,300		6,000	66,000	28,000	36,000
3,500		6,000	66,000	28,000	36,000
4,000		6,000	74,000	36,000	36,000
4,500		6,000	74,000	36,000	36,000
5,000		6,000	82,000	44,000	36,000
6,800		8,000	91,000	53,000	36,000
7,000		8,000	91,000	53,000	36,000
7,500		8,000	91,000	53,000	36,000
8,000		8,000	91,000	53,000	36,000
10,000		10,000	103,000	61,000	40,000
10,200		12,000	118,000	71,000	45,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
10,500		12,000	118,000	71,000	45,000
12,000		12,000	118,000	71,000	45,000
15,000		16,000	133,000	83,000	48,000

Brocas Ratio con refrigeración interior

3xD | RT 100 U | DIN 6537 K | 140° | m7

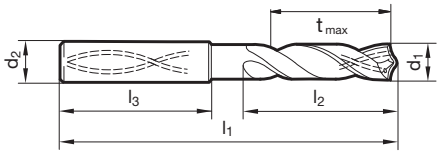
Material de corte	**Metal duro**
Acabado	F
Forma del mango	HA

P	•	vaciado de punta ≥Ø 3,000 • afilado plano • forma recta del corte principal • geometría de corte optimizada
M	○	
K	•	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • fundición • bronce, latón • aleaciones de AlSi altamente aleables
N	○	
S	○	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 750

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **2477**

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
3,000		6,000	62,000	20,000	36,000
3,100		6,000	62,000	20,000	36,000
3,170	1/8	6,000	62,000	20,000	36,000
3,200		6,000	62,000	20,000	36,000
3,250		6,000	62,000	20,000	36,000
3,300		6,000	62,000	20,000	36,000
3,400		6,000	62,000	20,000	36,000
3,500		6,000	62,000	20,000	36,000
3,570	9/64	6,000	62,000	20,000	36,000
3,600		6,000	62,000	20,000	36,000
3,700		6,000	62,000	20,000	36,000
3,800		6,000	66,000	24,000	36,000
3,900		6,000	66,000	24,000	36,000
3,970	5/32	6,000	66,000	24,000	36,000
4,000		6,000	66,000	24,000	36,000
4,040		6,000	66,000	24,000	36,000
4,100		6,000	66,000	24,000	36,000
4,200		6,000	66,000	24,000	36,000
4,300		6,000	66,000	24,000	36,000
4,370	11/64	6,000	66,000	24,000	36,000
4,400		6,000	66,000	24,000	36,000
4,450		6,000	66,000	24,000	36,000
4,500		6,000	66,000	24,000	36,000
4,600		6,000	66,000	24,000	36,000
4,650		6,000	66,000	24,000	36,000
4,700		6,000	66,000	24,000	36,000
4,760	3/16	6,000	66,000	28,000	36,000
4,800		6,000	66,000	28,000	36,000
4,900		6,000	66,000	28,000	36,000
5,000		6,000	66,000	28,000	36,000
5,100		6,000	66,000	28,000	36,000
5,110		6,000	66,000	28,000	36,000
5,160	13/64	6,000	66,000	28,000	36,000
5,200		6,000	66,000	28,000	36,000
5,300		6,000	66,000	28,000	36,000
5,400		6,000	66,000	28,000	36,000
5,410		6,000	66,000	28,000	36,000
5,500		6,000	66,000	28,000	36,000
5,550		6,000	66,000	28,000	36,000
5,560	7/32	6,000	66,000	28,000	36,000
5,600		6,000	66,000	28,000	36,000
5,650		6,000	66,000	28,000	36,000

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
5,700		6,000	66,000	28,000	36,000
5,750		6,000	66,000	28,000	36,000
5,800		6,000	66,000	28,000	36,000
5,900		6,000	66,000	28,000	36,000
5,950	15/64	6,000	66,000	28,000	36,000
6,000		6,000	66,000	28,000	36,000
6,100		8,000	79,000	34,000	36,000
6,200		8,000	79,000	34,000	36,000
6,300		8,000	79,000	34,000	36,000
6,350	1/4	8,000	79,000	34,000	36,000
6,400		8,000	79,000	34,000	36,000
6,500		8,000	79,000	34,000	36,000
6,530		8,000	79,000	34,000	36,000
6,600		8,000	79,000	34,000	36,000
6,700		8,000	79,000	34,000	36,000
6,750	17/64	8,000	79,000	34,000	36,000
6,800		8,000	79,000	34,000	36,000
6,900		8,000	79,000	34,000	36,000
7,000		8,000	79,000	34,000	36,000
7,100		8,000	79,000	41,000	36,000
7,140	9/32	8,000	79,000	41,000	36,000
7,200		8,000	79,000	41,000	36,000
7,300		8,000	79,000	41,000	36,000
7,400		8,000	79,000	41,000	36,000
7,450		8,000	79,000	41,000	36,000
7,500		8,000	79,000	41,000	36,000
7,540	19/64	8,000	79,000	41,000	36,000
7,550		8,000	79,000	41,000	36,000
7,600		8,000	79,000	41,000	36,000
7,650		8,000	79,000	41,000	36,000
7,700		8,000	79,000	41,000	36,000
7,800		8,000	79,000	41,000	36,000
7,900		8,000	79,000	41,000	36,000
7,940	5/16	8,000	79,000	41,000	36,000
8,000		8,000	79,000	41,000	36,000
8,100		10,000	89,000	47,000	40,000
8,200		10,000	89,000	47,000	40,000
8,300		10,000	89,000	47,000	40,000
8,330	21/64	10,000	89,000	47,000	40,000
8,400		10,000	89,000	47,000	40,000
8,500		10,000	89,000	47,000	40,000
8,550		10,000	89,000	47,000	40,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
8,600		10,000	89,000	47,000	40,000
8,700		10,000	89,000	47,000	40,000
8,730	11/32	10,000	89,000	47,000	40,000
8,800		10,000	89,000	47,000	40,000
8,900		10,000	89,000	47,000	40,000
9,000		10,000	89,000	47,000	40,000
9,050		10,000	89,000	47,000	40,000
9,100		10,000	89,000	47,000	40,000
9,130	23/64	10,000	89,000	47,000	40,000
9,200		10,000	89,000	47,000	40,000
9,250		10,000	89,000	47,000	40,000
9,300		10,000	89,000	47,000	40,000
9,340		10,000	89,000	47,000	40,000
9,400		10,000	89,000	47,000	40,000
9,500		10,000	89,000	47,000	40,000
9,520	3/8	10,000	89,000	47,000	40,000
9,550		10,000	89,000	47,000	40,000
9,600		10,000	89,000	47,000	40,000
9,700		10,000	89,000	47,000	40,000
9,800		10,000	89,000	47,000	40,000
9,900		10,000	89,000	47,000	40,000
9,920	25/64	10,000	89,000	47,000	40,000
10,000		10,000	89,000	15,000	40,000
10,100		12,000	102,000	55,000	45,000
10,200		12,000	102,000	55,000	45,000
10,300		12,000	102,000	55,000	45,000
10,320	13/32	12,000	102,000	55,000	45,000
10,400		12,000	102,000	55,000	45,000
10,500		12,000	102,000	55,000	45,000
10,600		12,000	102,000	55,000	45,000
10,700		12,000	102,000	55,000	45,000
10,720	27/64	12,000	102,000	55,000	45,000
10,800		12,000	102,000	55,000	45,000
10,900		12,000	102,000	55,000	45,000
11,000		12,000	102,000	55,000	45,000
11,100		12,000	102,000	55,000	45,000
11,110	7/16	12,000	102,000	55,000	45,000
11,200		12,000	102,000	55,000	45,000
11,300		12,000	102,000	55,000	45,000
11,400		12,000	102,000	55,000	45,000
11,500		12,000	102,000	55,000	45,000
11,510	29/64	12,000	102,000	55,000	45,000
11,600		12,000	102,000	55,000	45,000
11,700		12,000	102,000	55,000	45,000
11,800		12,000	102,000	55,000	45,000
11,900		12,000	102,000	55,000	45,000
11,910	15/32	12,000	102,000	55,000	45,000
12,000		12,000	102,000	55,000	45,000
12,100		14,000	107,000	60,000	45,000
12,200		14,000	107,000	60,000	45,000
12,300	31/64	14,000	107,000	60,000	45,000
12,400		14,000	107,000	60,000	45,000
12,500		14,000	107,000	60,000	45,000
12,600		14,000	107,000	60,000	45,000
12,700	1/2	14,000	107,000	60,000	45,000
12,800		14,000	107,000	60,000	45,000
12,900		14,000	107,000	60,000	45,000
13,000		14,000	107,000	60,000	45,000
13,200		14,000	107,000	60,000	45,000
13,300		14,000	107,000	60,000	45,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
13,490	17/32	14,000	107,000	60,000	45,000
13,500		14,000	107,000	60,000	45,000
13,550		14,000	107,000	60,000	45,000
13,700		14,000	107,000	60,000	45,000
13,890	35/64	14,000	107,000	60,000	45,000
13,900		14,000	107,000	60,000	45,000
14,000		14,000	107,000	60,000	45,000
14,200		16,000	115,000	65,000	48,000
14,290	9/16	16,000	115,000	65,000	48,000
14,300		16,000	115,000	65,000	48,000
14,500		16,000	115,000	65,000	48,000
14,680	37/64	16,000	115,000	65,000	48,000
14,700		16,000	115,000	65,000	48,000
14,900		16,000	115,000	65,000	48,000
15,000		16,000	115,000	65,000	48,000
15,080	19/32	16,000	115,000	65,000	48,000
15,100		16,000	115,000	65,000	48,000
15,300		16,000	115,000	65,000	48,000
15,480	39/64	16,000	115,000	65,000	48,000
15,500		16,000	115,000	65,000	48,000
15,700		16,000	115,000	65,000	48,000
15,800		16,000	115,000	65,000	48,000
15,870	5/8	16,000	115,000	65,000	48,000
15,900		16,000	115,000	65,000	48,000
16,000		16,000	115,000	65,000	48,000
16,270	41/64	18,000	123,000	73,000	48,000
16,500		18,000	123,000	73,000	48,000
16,670	21/32	18,000	123,000	73,000	48,000
16,700		18,000	123,000	73,000	48,000
16,900		18,000	123,000	73,000	48,000
17,000		18,000	123,000	73,000	48,000
17,070	43/64	18,000	123,000	73,000	48,000
17,300		18,000	123,000	73,000	48,000
17,460	11/16	18,000	123,000	73,000	48,000
17,500		18,000	123,000	73,000	48,000
17,700		18,000	123,000	73,000	48,000
17,860	45/64	18,000	123,000	73,000	48,000
17,900		18,000	123,000	73,000	48,000
18,000		18,000	123,000	73,000	48,000
18,260	23/32	20,000	131,000	79,000	50,000
18,300		20,000	131,000	79,000	50,000
18,500		20,000	131,000	79,000	50,000
18,700		20,000	131,000	79,000	50,000
19,000		20,000	131,000	79,000	50,000
19,050	3/4	20,000	131,000	79,000	50,000
19,250		20,000	131,000	79,000	50,000
19,446		20,000	131,000	79,000	50,000
19,500		20,000	131,000	79,000	50,000
19,700		20,000	131,000	79,000	50,000
19,840	25/32	20,000	131,000	79,000	50,000
19,900		20,000	131,000	79,000	50,000
20,000		20,000	131,000	79,000	50,000

Brocas Ratio con refrigeración interior

3xD | RT 100 U | DIN 6537 K | 140° | m7

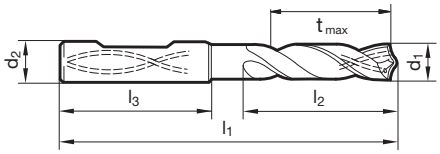
Material de corte	**Metal duro**
Acabado	F
Forma del mango	HE

P	•	vaciado de punta ≥Ø 3,000 • afilado plano • forma recta del corte principal • geometría de corte optimizada
M	○	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • fundición • bronce, latón • aleaciones de AlSi altamente aleables
S	○	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 750

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **2469**

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
3,000		6,000	62,000	20,000	36,000
3,200		6,000	62,000	20,000	36,000
3,250		6,000	62,000	20,000	36,000
3,300		6,000	62,000	20,000	36,000
3,400		6,000	62,000	20,000	36,000
3,500		6,000	62,000	20,000	36,000
3,800		6,000	66,000	24,000	36,000
3,970	5/32	6,000	66,000	24,000	36,000
4,000		6,000	66,000	24,000	36,000
4,100		6,000	66,000	24,000	36,000
4,200		6,000	66,000	24,000	36,000
4,300		6,000	66,000	24,000	36,000
4,370	11/64	6,000	66,000	24,000	36,000
4,400		6,000	66,000	24,000	36,000
4,450		6,000	66,000	24,000	36,000
4,500		6,000	66,000	24,000	36,000
4,700		6,000	66,000	24,000	36,000
4,800		6,000	66,000	28,000	36,000
5,000		6,000	66,000	28,000	36,000
5,100		6,000	66,000	28,000	36,000
5,300		6,000	66,000	28,000	36,000
5,500		6,000	66,000	28,000	36,000
5,600		6,000	66,000	28,000	36,000
5,650		6,000	66,000	28,000	36,000
5,750		6,000	66,000	28,000	36,000
5,800		6,000	66,000	28,000	36,000
6,100		8,000	79,000	34,000	36,000
6,200		8,000	79,000	34,000	36,000
6,500		8,000	79,000	34,000	36,000
6,600		8,000	79,000	34,000	36,000
6,700		8,000	79,000	34,000	36,000
6,800		8,000	79,000	34,000	36,000
7,000		8,000	79,000	34,000	36,000
7,100		8,000	79,000	41,000	36,000
7,200		8,000	79,000	41,000	36,000
7,450		8,000	79,000	41,000	36,000
7,500		8,000	79,000	41,000	36,000
7,650		8,000	79,000	41,000	36,000
8,000		8,000	79,000	41,000	36,000
8,200		10,000	89,000	47,000	40,000
8,400		10,000	89,000	47,000	40,000
8,500		10,000	89,000	47,000	40,000

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
8,550		10,000	89,000	47,000	40,000
8,600		10,000	89,000	47,000	40,000
8,700		10,000	89,000	47,000	40,000
8,800		10,000	89,000	47,000	40,000
9,000		10,000	89,000	47,000	40,000
9,050		10,000	89,000	47,000	40,000
9,200		10,000	89,000	47,000	40,000
9,250		10,000	89,000	47,000	40,000
9,300		10,000	89,000	47,000	40,000
9,500		10,000	89,000	47,000	40,000
9,550		10,000	89,000	47,000	40,000
9,600		10,000	89,000	47,000	40,000
9,800		10,000	89,000	47,000	40,000
10,100		12,000	102,000	55,000	45,000
10,200		12,000	102,000	55,000	45,000
10,300		12,000	102,000	55,000	45,000
10,400		12,000	102,000	55,000	45,000
10,500		12,000	102,000	55,000	45,000
10,700		12,000	102,000	55,000	45,000
10,900		12,000	102,000	55,000	45,000
11,000		12,000	102,000	55,000	45,000
11,110	7/16	12,000	102,000	55,000	45,000
11,300		12,000	102,000	55,000	45,000
11,400		12,000	102,000	55,000	45,000
11,500		12,000	102,000	55,000	45,000
11,550		12,000	102,000	55,000	45,000
11,600		12,000	102,000	55,000	45,000
11,700		12,000	102,000	55,000	45,000
11,800		12,000	102,000	55,000	45,000
11,900		12,000	102,000	55,000	45,000
11,910	15/32	12,000	102,000	55,000	45,000
12,000		12,000	102,000	55,000	45,000
12,100		14,000	107,000	60,000	45,000
12,200		14,000	107,000	60,000	45,000
12,500		14,000	107,000	60,000	45,000
12,700	1/2	14,000	107,000	60,000	45,000
13,000		14,000	107,000	60,000	45,000
13,100	33/64	14,000	107,000	60,000	45,000
13,300		14,000	107,000	60,000	45,000
13,400		14,000	107,000	60,000	45,000
13,500		14,000	107,000	60,000	45,000
13,550		14,000	107,000	60,000	45,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
13,700		14,000	107,000	60,000	45,000
14,200		16,000	115,000	65,000	48,000
14,290	9/16	16,000	115,000	65,000	48,000
14,500		16,000	115,000	65,000	48,000
14,800		16,000	115,000	65,000	48,000
15,000		16,000	115,000	65,000	48,000
15,100		16,000	115,000	65,000	48,000
15,200		16,000	115,000	65,000	48,000
15,300		16,000	115,000	65,000	48,000
15,500		16,000	115,000	65,000	48,000
15,550		16,000	115,000	65,000	48,000
15,600		16,000	115,000	65,000	48,000
15,700		16,000	115,000	65,000	48,000
15,900		16,000	115,000	65,000	48,000
16,000		16,000	115,000	65,000	48,000
16,100		18,000	123,000	73,000	48,000
16,200		18,000	123,000	73,000	48,000
16,500		18,000	123,000	73,000	48,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
16,900		18,000	123,000	73,000	48,000
17,000		18,000	123,000	73,000	48,000
17,300		18,000	123,000	73,000	48,000
17,500		18,000	123,000	73,000	48,000
17,550		18,000	123,000	73,000	48,000
17,900		18,000	123,000	73,000	48,000
18,000		18,000	123,000	73,000	48,000
18,300		20,000	131,000	79,000	50,000
18,500		20,000	131,000	79,000	50,000
18,900		20,000	131,000	79,000	50,000
19,000		20,000	131,000	79,000	50,000
19,300		20,000	131,000	79,000	50,000
19,500		20,000	131,000	79,000	50,000
19,550		20,000	131,000	79,000	50,000
19,900		20,000	131,000	79,000	50,000
20,000		20,000	131,000	79,000	50,000

Brocas Ratio con refrigeración interior

3xD | RT 100 U | DIN 6537 K | 140° | m7

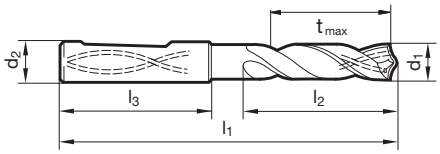
Material de corte	**Metal duro**
Acabado	S
Forma del mango	HE

P	•	vaciado de punta ≥Ø 3,300 • afilado plano • forma recta del corte principal • geometría de corte optimizada
M	○	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • fundición • bronce, latón • aleaciones de AlSi altamente aleables
S	○	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 750

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **1181**

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
3,300		6,000	62,000	20,000	36,000
3,400		6,000	62,000	20,000	36,000
4,000		6,000	66,000	24,000	36,000
5,000		6,000	66,000	28,000	36,000
5,500		6,000	66,000	28,000	36,000
5,600		6,000	66,000	28,000	36,000
5,800		6,000	66,000	28,000	36,000
6,000		6,000	66,000	28,000	36,000
6,100		8,000	79,000	34,000	36,000
6,200		8,000	79,000	34,000	36,000
6,300		8,000	79,000	34,000	36,000
6,400		8,000	79,000	34,000	36,000
6,600		8,000	79,000	34,000	36,000
6,800		8,000	79,000	34,000	36,000
7,000		8,000	79,000	34,000	36,000
7,100		8,000	79,000	41,000	36,000
7,140	9/32	8,000	79,000	41,000	36,000
7,400		8,000	79,000	41,000	36,000
7,500		8,000	79,000	41,000	36,000
7,540	19/64	8,000	79,000	41,000	36,000
7,800		8,000	79,000	41,000	36,000
7,940	5/16	8,000	79,000	41,000	36,000
8,000		8,000	79,000	41,000	36,000
8,100		10,000	89,000	47,000	40,000
8,200		10,000	89,000	47,000	40,000
8,400		10,000	89,000	47,000	40,000
8,500		10,000	89,000	47,000	40,000
8,700		10,000	89,000	47,000	40,000
8,800		10,000	89,000	47,000	40,000
9,000		10,000	89,000	47,000	40,000
9,200		10,000	89,000	47,000	40,000
9,700		10,000	89,000	47,000	40,000
9,800		10,000	89,000	47,000	40,000
10,000		10,000	89,000	47,000	40,000
10,200		12,000	102,000	55,000	45,000
10,300		12,000	102,000	55,000	45,000

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
10,500		12,000	102,000	55,000	45,000
10,600		12,000	102,000	55,000	45,000
10,700		12,000	102,000	55,000	45,000
10,800		12,000	102,000	55,000	45,000
11,000		12,000	102,000	55,000	45,000
11,300		12,000	102,000	55,000	45,000
11,500		12,000	102,000	55,000	45,000
11,510	29/64	12,000	102,000	55,000	45,000
11,910	15/32	12,000	102,000	55,000	45,000
12,000		12,000	102,000	55,000	45,000
12,100		14,000	107,000	60,000	45,000
12,300	31/64	14,000	107,000	60,000	45,000
12,500		14,000	107,000	60,000	45,000
12,700	1/2	14,000	107,000	60,000	45,000
12,900		14,000	107,000	60,000	45,000
13,000		14,000	107,000	60,000	45,000
13,500		14,000	107,000	60,000	45,000
13,890	35/64	14,000	107,000	60,000	45,000
14,000		14,000	107,000	60,000	45,000
14,500		16,000	115,000	65,000	48,000
14,680	37/64	16,000	115,000	65,000	48,000
14,900		16,000	115,000	65,000	48,000
15,000		16,000	115,000	65,000	48,000
15,480	39/64	16,000	115,000	65,000	48,000
15,500		16,000	115,000	65,000	48,000
16,100		18,000	123,000	73,000	48,000
16,200		18,000	123,000	73,000	48,000
16,500		18,000	123,000	73,000	48,000
17,000		18,000	123,000	73,000	48,000
17,500		18,000	123,000	73,000	48,000
17,700		18,000	123,000	73,000	48,000
18,000		18,000	123,000	73,000	48,000
18,700		20,000	131,000	79,000	50,000
19,000		20,000	131,000	79,000	50,000
19,500		20,000	131,000	79,000	50,000

Brocas Ratio con refrigeración interior

3xD | RT 100 HF | DIN 6537 K | 140° | m7

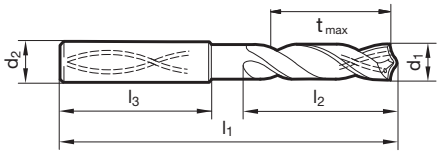
Material de corte	**Metal duro**
Acabado	Y
Forma del mango	HA

P	•	vaciado de punta ≥Ø 3,000 • entrada cónica • forma del corte principal ligeramente cóncava • geometría de corte optimizada
M		
K		
N		aceros aleados y templados hasta a 1600 N/mm² • Inconel, Hastelloy, Monel • titanio y aleaciones de titanio
S	•	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 750

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **8520**

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
3,000		6,000	62,000	20,000	36,000
3,100		6,000	62,000	20,000	36,000
3,170	1/8	6,000	62,000	20,000	36,000
3,200		6,000	62,000	20,000	36,000
3,250		6,000	62,000	20,000	36,000
3,300		6,000	62,000	20,000	36,000
3,400		6,000	62,000	20,000	36,000
3,500		6,000	62,000	20,000	36,000
3,570	9/64	6,000	62,000	20,000	36,000
3,600		6,000	62,000	20,000	36,000
3,700		6,000	62,000	20,000	36,000
3,800		6,000	66,000	24,000	36,000
3,900		6,000	66,000	24,000	36,000
3,970	5/32	6,000	66,000	24,000	36,000
4,000		6,000	66,000	24,000	36,000
4,100		6,000	66,000	24,000	36,000
4,200		6,000	66,000	24,000	36,000
4,300		6,000	66,000	24,000	36,000
4,370	11/64	6,000	66,000	24,000	36,000
4,400		6,000	66,000	24,000	36,000
4,500		6,000	66,000	24,000	36,000
4,600		6,000	66,000	24,000	36,000
4,650		6,000	66,000	24,000	36,000
4,700		6,000	66,000	24,000	36,000
4,760	3/16	6,000	66,000	28,000	36,000
4,800		6,000	66,000	28,000	36,000
4,900		6,000	66,000	28,000	36,000
5,000		6,000	66,000	28,000	36,000
5,100		6,000	66,000	28,000	36,000
5,160	13/64	6,000	66,000	28,000	36,000
5,200		6,000	66,000	28,000	36,000
5,300		6,000	66,000	28,000	36,000
5,400		6,000	66,000	28,000	36,000
5,500		6,000	66,000	28,000	36,000
5,550		6,000	66,000	28,000	36,000
5,560	7/32	6,000	66,000	28,000	36,000
5,600		6,000	66,000	28,000	36,000
5,700		6,000	66,000	28,000	36,000
5,800		6,000	66,000	28,000	36,000
5,900		6,000	66,000	28,000	36,000
5,950	15/64	6,000	66,000	28,000	36,000
6,000		6,000	66,000	28,000	36,000

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
6,100		8,000	79,000	34,000	36,000
6,200		8,000	79,000	34,000	36,000
6,300		8,000	79,000	34,000	36,000
6,350	1/4	8,000	79,000	34,000	36,000
6,400		8,000	79,000	34,000	36,000
6,500		8,000	79,000	34,000	36,000
6,600		8,000	79,000	34,000	36,000
6,700		8,000	79,000	34,000	36,000
6,750	17/64	8,000	79,000	34,000	36,000
6,800		8,000	79,000	34,000	36,000
6,900		8,000	79,000	34,000	36,000
7,000		8,000	79,000	34,000	36,000
7,100		8,000	79,000	41,000	36,000
7,140	9/32	8,000	79,000	41,000	36,000
7,200		8,000	79,000	41,000	36,000
7,300		8,000	79,000	41,000	36,000
7,400		8,000	79,000	41,000	36,000
7,500		8,000	79,000	41,000	36,000
7,540	19/64	8,000	79,000	41,000	36,000
7,600		8,000	79,000	41,000	36,000
7,700		8,000	79,000	41,000	36,000
7,800		8,000	79,000	41,000	36,000
7,900		8,000	79,000	41,000	36,000
7,940	5/16	8,000	79,000	41,000	36,000
8,000		8,000	79,000	41,000	36,000
8,100		10,000	89,000	47,000	40,000
8,200		10,000	89,000	47,000	40,000
8,300		10,000	89,000	47,000	40,000
8,330	21/64	10,000	89,000	47,000	40,000
8,400		10,000	89,000	47,000	40,000
8,500		10,000	89,000	47,000	40,000
8,600		10,000	89,000	47,000	40,000
8,700		10,000	89,000	47,000	40,000
8,730	11/32	10,000	89,000	47,000	40,000
8,800		10,000	89,000	47,000	40,000
8,900		10,000	89,000	47,000	40,000
9,000		10,000	89,000	47,000	40,000
9,100		10,000	89,000	47,000	40,000
9,130	23/64	10,000	89,000	47,000	40,000
9,200		10,000	89,000	47,000	40,000
9,250		10,000	89,000	47,000	40,000
9,300		10,000	89,000	47,000	40,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
9,400		10,000	89,000	47,000	40,000
9,500		10,000	89,000	47,000	40,000
9,520	3/8	10,000	89,000	47,000	40,000
9,600		10,000	89,000	47,000	40,000
9,700		10,000	89,000	47,000	40,000
9,800		10,000	89,000	47,000	40,000
9,900		10,000	89,000	47,000	40,000
9,920	25/64	10,000	89,000	47,000	40,000
10,000		10,000	89,000	47,000	40,000
10,100		12,000	102,000	55,000	45,000
10,200		12,000	102,000	55,000	45,000
10,300		12,000	102,000	55,000	45,000
10,320	13/32	12,000	102,000	55,000	45,000
10,400		12,000	102,000	55,000	45,000
10,500		12,000	102,000	55,000	45,000
10,600		12,000	102,000	55,000	45,000
10,700		12,000	102,000	55,000	45,000
10,720	27/64	12,000	102,000	55,000	45,000
10,800		12,000	102,000	55,000	45,000
10,900		12,000	102,000	55,000	45,000
11,000		12,000	102,000	55,000	45,000
11,100		12,000	102,000	55,000	45,000
11,110	7/16	12,000	102,000	55,000	45,000
11,200		12,000	102,000	55,000	45,000
11,300		12,000	102,000	55,000	45,000
11,400		12,000	102,000	55,000	45,000
11,500		12,000	102,000	55,000	45,000
11,600		12,000	102,000	55,000	45,000
11,700		12,000	102,000	55,000	45,000
11,800		12,000	102,000	55,000	45,000
11,900		12,000	102,000	55,000	45,000
11,910	15/32	12,000	102,000	55,000	45,000
12,000		12,000	102,000	55,000	45,000
12,200		14,000	107,000	60,000	45,000
12,300	31/64	14,000	107,000	60,000	45,000
12,500		14,000	107,000	60,000	45,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
12,700	1/2	14,000	107,000	60,000	45,000
12,800		14,000	107,000	60,000	45,000
13,000		14,000	107,000	60,000	45,000
13,300		14,000	107,000	60,000	45,000
13,490	17/32	14,000	107,000	60,000	45,000
13,500		14,000	107,000	60,000	45,000
13,700		14,000	107,000	60,000	45,000
14,000		14,000	107,000	60,000	45,000
14,200		16,000	115,000	65,000	48,000
14,290	9/16	16,000	115,000	65,000	48,000
14,300		16,000	115,000	65,000	48,000
14,500		16,000	115,000	65,000	48,000
14,700		16,000	115,000	65,000	48,000
15,000		16,000	115,000	65,000	48,000
15,200		16,000	115,000	65,000	48,000
15,300		16,000	115,000	65,000	48,000
15,500		16,000	115,000	65,000	48,000
15,700		16,000	115,000	65,000	48,000
16,000		16,000	115,000	65,000	48,000
16,300		18,000	123,000	73,000	48,000
16,500		18,000	123,000	73,000	48,000
16,900		18,000	123,000	73,000	48,000
17,000		18,000	123,000	73,000	48,000
17,300		18,000	123,000	73,000	48,000
17,500		18,000	123,000	73,000	48,000
18,000		18,000	123,000	73,000	48,000
18,500		20,000	131,000	79,000	50,000
18,900		20,000	131,000	79,000	50,000
19,000		20,000	131,000	79,000	50,000
19,050	3/4	20,000	131,000	79,000	50,000
19,300		20,000	131,000	79,000	50,000
19,500		20,000	131,000	79,000	50,000
20,000		20,000	131,000	79,000	50,000

Brocas Ratio con refrigeración interior

3xD | RT 100 HF | DIN 6537 K | 140° | m7

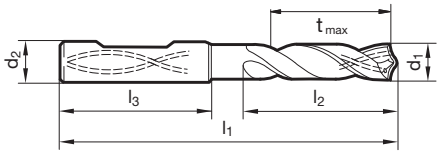
Material de corte	**Metal duro**
Acabado	Y
Forma del mango	HE

P	•	vaciado de punta ≥Ø 3,000 • entrada cónica • forma del corte principal ligeramente cóncava • geometría de corte optimizada
M		
K		
N		aceros aleados y templados hasta a 1600 N/mm² • Inconel, Hastelloy, Monel • titanio y aleaciones de titanio
S	•	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 750

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **8620**

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
3,000		6,000	62,000	20,000	36,000
3,100		6,000	62,000	20,000	36,000
3,170	1/8	6,000	62,000	20,000	36,000
3,200		6,000	62,000	20,000	36,000
3,250		6,000	62,000	20,000	36,000
3,300		6,000	62,000	20,000	36,000
3,400		6,000	62,000	20,000	36,000
3,500		6,000	62,000	20,000	36,000
3,570	9/64	6,000	62,000	20,000	36,000
3,600		6,000	62,000	20,000	36,000
3,700		6,000	62,000	20,000	36,000
3,800		6,000	66,000	24,000	36,000
3,900		6,000	66,000	24,000	36,000
3,970	5/32	6,000	66,000	24,000	36,000
4,000		6,000	66,000	24,000	36,000
4,100		6,000	66,000	24,000	36,000
4,200		6,000	66,000	24,000	36,000
4,300		6,000	66,000	24,000	36,000
4,370	11/64	6,000	66,000	24,000	36,000
4,400		6,000	66,000	24,000	36,000
4,500		6,000	66,000	24,000	36,000
4,600		6,000	66,000	24,000	36,000
4,650		6,000	66,000	24,000	36,000
4,700		6,000	66,000	24,000	36,000
4,760	3/16	6,000	66,000	28,000	36,000
4,800		6,000	66,000	28,000	36,000
4,900		6,000	66,000	28,000	36,000
5,000		6,000	66,000	28,000	36,000
5,100		6,000	66,000	28,000	36,000
5,160	13/64	6,000	66,000	28,000	36,000
5,200		6,000	66,000	28,000	36,000
5,300		6,000	66,000	28,000	36,000
5,400		6,000	66,000	28,000	36,000
5,500		6,000	66,000	28,000	36,000
5,550		6,000	66,000	28,000	36,000
5,560	7/32	6,000	66,000	28,000	36,000
5,600		6,000	66,000	28,000	36,000
5,700		6,000	66,000	28,000	36,000
5,800		6,000	66,000	28,000	36,000
5,900		6,000	66,000	28,000	36,000
5,950	15/64	6,000	66,000	28,000	36,000
6,000		6,000	66,000	28,000	36,000

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
6,100		8,000	79,000	34,000	36,000
6,200		8,000	79,000	34,000	36,000
6,300		8,000	79,000	34,000	36,000
6,350	1/4	8,000	79,000	34,000	36,000
6,400		8,000	79,000	34,000	36,000
6,500		8,000	79,000	34,000	36,000
6,600		8,000	79,000	34,000	36,000
6,700		8,000	79,000	34,000	36,000
6,750	17/64	8,000	79,000	34,000	36,000
6,800		8,000	79,000	34,000	36,000
6,900		8,000	79,000	34,000	36,000
7,000		8,000	79,000	34,000	36,000
7,100		8,000	79,000	41,000	36,000
7,140	9/32	8,000	79,000	41,000	36,000
7,200		8,000	79,000	41,000	36,000
7,300		8,000	79,000	41,000	36,000
7,400		8,000	79,000	41,000	36,000
7,500		8,000	79,000	41,000	36,000
7,540	19/64	8,000	79,000	41,000	36,000
7,600		8,000	79,000	41,000	36,000
7,700		8,000	79,000	41,000	36,000
7,800		8,000	79,000	41,000	36,000
7,900		8,000	79,000	41,000	36,000
7,940	5/16	8,000	79,000	41,000	36,000
8,000		8,000	79,000	41,000	36,000
8,100		10,000	89,000	47,000	40,000
8,200		10,000	89,000	47,000	40,000
8,300		10,000	89,000	47,000	40,000
8,330	21/64	10,000	89,000	47,000	40,000
8,400		10,000	89,000	47,000	40,000
8,500		10,000	89,000	47,000	40,000
8,600		10,000	89,000	47,000	40,000
8,700		10,000	89,000	47,000	40,000
8,730	11/32	10,000	89,000	47,000	40,000
8,800		10,000	89,000	47,000	40,000
8,900		10,000	89,000	47,000	40,000
9,000		10,000	89,000	47,000	40,000
9,100		10,000	89,000	47,000	40,000
9,130	23/64	10,000	89,000	47,000	40,000
9,200		10,000	89,000	47,000	40,000
9,250		10,000	89,000	47,000	40,000
9,300		10,000	89,000	47,000	40,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
9,400		10,000	89,000	47,000	40,000
9,500		10,000	89,000	47,000	40,000
9,520	3/8	10,000	89,000	47,000	40,000
9,600		10,000	89,000	47,000	40,000
9,700		10,000	89,000	47,000	40,000
9,800		10,000	89,000	47,000	40,000
9,900		10,000	89,000	47,000	40,000
9,920	25/64	10,000	89,000	47,000	40,000
10,000		10,000	89,000	47,000	40,000
10,100		12,000	102,000	55,000	45,000
10,200		12,000	102,000	55,000	45,000
10,300		12,000	102,000	55,000	45,000
10,320	13/32	12,000	102,000	55,000	45,000
10,400		12,000	102,000	55,000	45,000
10,500		12,000	102,000	55,000	45,000
10,600		12,000	102,000	55,000	45,000
10,700		12,000	102,000	55,000	45,000
10,800		12,000	102,000	55,000	45,000
10,900		12,000	102,000	55,000	45,000
11,000		12,000	102,000	55,000	45,000
11,100		12,000	102,000	55,000	45,000
11,110	7/16	12,000	102,000	55,000	45,000
11,200		12,000	102,000	55,000	45,000
11,300		12,000	102,000	55,000	45,000
11,400		12,000	102,000	55,000	45,000
11,500		12,000	102,000	55,000	45,000
11,600		12,000	102,000	55,000	45,000
11,700		12,000	102,000	55,000	45,000
11,800		12,000	102,000	55,000	45,000
11,900		12,000	102,000	55,000	45,000
11,910	15/32	12,000	102,000	55,000	45,000
12,000		12,000	102,000	55,000	45,000
12,200		14,000	107,000	60,000	45,000
12,500		14,000	107,000	60,000	45,000
12,700	1/2	14,000	107,000	60,000	45,000
12,800		14,000	107,000	60,000	45,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
13,000		14,000	107,000	60,000	45,000
13,300		14,000	107,000	60,000	45,000
13,500		14,000	107,000	60,000	45,000
13,700		14,000	107,000	60,000	45,000
14,000		14,000	107,000	60,000	45,000
14,200		16,000	115,000	65,000	48,000
14,290	9/16	16,000	115,000	65,000	48,000
14,300		16,000	115,000	65,000	48,000
14,500		16,000	115,000	65,000	48,000
14,700		16,000	115,000	65,000	48,000
15,000		16,000	115,000	65,000	48,000
15,200		16,000	115,000	65,000	48,000
15,300		16,000	115,000	65,000	48,000
15,500		16,000	115,000	65,000	48,000
15,700		16,000	115,000	65,000	48,000
16,000		16,000	115,000	65,000	48,000
16,300		18,000	123,000	73,000	48,000
16,500		18,000	123,000	73,000	48,000
16,900		18,000	123,000	73,000	48,000
17,000		18,000	123,000	73,000	48,000
17,300		18,000	123,000	73,000	48,000
17,500		18,000	123,000	73,000	48,000
18,000		18,000	123,000	73,000	48,000
18,500		20,000	131,000	79,000	50,000
18,900		20,000	131,000	79,000	50,000
19,000		20,000	131,000	79,000	50,000
19,050	3/4	20,000	131,000	79,000	50,000
19,300		20,000	131,000	79,000	50,000
19,500		20,000	131,000	79,000	50,000
20,000		20,000	131,000	79,000	50,000

Brocas Ratio con refrigeración interior

3xD | RT 100 VA | DIN 6537 K | 140° | m7

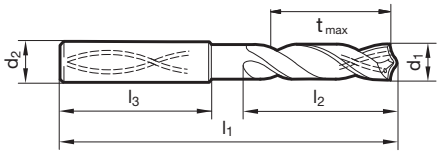
Material de corte	**Metal duro**
Acabado	a
Forma del mango	HA

P		vaciado de punta ≥Ø 3,000 • afilado plano • forma recta del corte principal • geometría de corte optimizada
M	•	
K		
N		aceros inoxidables y resistentes al ácido y al calor • titanio y aleaciones de titanio • Inconel, Hastelloy, Monel
S	•	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 750

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **8510**

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
3,000		6,000	62,000	20,000	36,000
3,100		6,000	62,000	20,000	36,000
3,170	1/8	6,000	62,000	20,000	36,000
3,200		6,000	62,000	20,000	36,000
3,250		6,000	62,000	20,000	36,000
3,300		6,000	62,000	20,000	36,000
3,400		6,000	62,000	20,000	36,000
3,500		6,000	62,000	20,000	36,000
3,570	9/64	6,000	62,000	20,000	36,000
3,600		6,000	62,000	20,000	36,000
3,700		6,000	62,000	20,000	36,000
3,800		6,000	66,000	24,000	36,000
3,900		6,000	66,000	24,000	36,000
3,970	5/32	6,000	66,000	24,000	36,000
4,000		6,000	66,000	24,000	36,000
4,100		6,000	66,000	24,000	36,000
4,200		6,000	66,000	24,000	36,000
4,300		6,000	66,000	24,000	36,000
4,370	11/64	6,000	66,000	24,000	36,000
4,400		6,000	66,000	24,000	36,000
4,500		6,000	66,000	24,000	36,000
4,600		6,000	66,000	24,000	36,000
4,650		6,000	66,000	24,000	36,000
4,700		6,000	66,000	24,000	36,000
4,760	3/16	6,000	66,000	28,000	36,000
4,800		6,000	66,000	28,000	36,000
4,900		6,000	66,000	28,000	36,000
5,000		6,000	66,000	28,000	36,000
5,100		6,000	66,000	28,000	36,000
5,160	13/64	6,000	66,000	28,000	36,000
5,200		6,000	66,000	28,000	36,000
5,300		6,000	66,000	28,000	36,000
5,400		6,000	66,000	28,000	36,000
5,500		6,000	66,000	28,000	36,000
5,550		6,000	66,000	28,000	36,000
5,560	7/32	6,000	66,000	28,000	36,000
5,600		6,000	66,000	28,000	36,000
5,700		6,000	66,000	28,000	36,000
5,800		6,000	66,000	28,000	36,000
5,900		6,000	66,000	28,000	36,000
5,950	15/64	6,000	66,000	28,000	36,000
6,000		6,000	66,000	28,000	36,000

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
6,100		8,000	79,000	34,000	36,000
6,200		8,000	79,000	34,000	36,000
6,300		8,000	79,000	34,000	36,000
6,350	1/4	8,000	79,000	34,000	36,000
6,400		8,000	79,000	34,000	36,000
6,500		8,000	79,000	34,000	36,000
6,600		8,000	79,000	34,000	36,000
6,700		8,000	79,000	34,000	36,000
6,750	17/64	8,000	79,000	34,000	36,000
6,800		8,000	79,000	34,000	36,000
6,900		8,000	79,000	34,000	36,000
7,000		8,000	79,000	34,000	36,000
7,100		8,000	79,000	41,000	36,000
7,140	9/32	8,000	79,000	41,000	36,000
7,200		8,000	79,000	41,000	36,000
7,300		8,000	79,000	41,000	36,000
7,400		8,000	79,000	41,000	36,000
7,500		8,000	79,000	41,000	36,000
7,540	19/64	8,000	79,000	41,000	36,000
7,600		8,000	79,000	41,000	36,000
7,700		8,000	79,000	41,000	36,000
7,800		8,000	79,000	41,000	36,000
7,900		8,000	79,000	41,000	36,000
7,940	5/16	8,000	79,000	41,000	36,000
8,000		8,000	79,000	41,000	36,000
8,100		10,000	89,000	47,000	40,000
8,200		10,000	89,000	47,000	40,000
8,300		10,000	89,000	47,000	40,000
8,330	21/64	10,000	89,000	47,000	40,000
8,400		10,000	89,000	47,000	40,000
8,500		10,000	89,000	47,000	40,000
8,600		10,000	89,000	47,000	40,000
8,700		10,000	89,000	47,000	40,000
8,730	11/32	10,000	89,000	47,000	40,000
8,800		10,000	89,000	47,000	40,000
8,900		10,000	89,000	47,000	40,000
9,000		10,000	89,000	47,000	40,000
9,100		10,000	89,000	47,000	40,000
9,130	23/64	10,000	89,000	47,000	40,000
9,200		10,000	89,000	47,000	40,000
9,250		10,000	89,000	47,000	40,000
9,300		10,000	89,000	47,000	40,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
9,400		10,000	89,000	47,000	40,000
9,500		10,000	89,000	47,000	40,000
9,520	3/8	10,000	89,000	47,000	40,000
9,600		10,000	89,000	47,000	40,000
9,700		10,000	89,000	47,000	40,000
9,800		10,000	89,000	47,000	40,000
9,900		10,000	89,000	47,000	40,000
9,920	25/64	10,000	89,000	47,000	40,000
10,000		10,000	89,000	47,000	40,000
10,100		12,000	102,000	55,000	45,000
10,200		12,000	102,000	55,000	45,000
10,300		12,000	102,000	55,000	45,000
10,320	13/32	12,000	102,000	55,000	45,000
10,400		12,000	102,000	55,000	45,000
10,500		12,000	102,000	55,000	45,000
10,600		12,000	102,000	55,000	45,000
10,700		12,000	102,000	55,000	45,000
10,800		12,000	102,000	55,000	45,000
10,900		12,000	102,000	55,000	45,000
11,000		12,000	102,000	55,000	45,000
11,100		12,000	102,000	55,000	45,000
11,110	7/16	12,000	102,000	55,000	45,000
11,200		12,000	102,000	55,000	45,000
11,300		12,000	102,000	55,000	45,000
11,400		12,000	102,000	55,000	45,000
11,500		12,000	102,000	55,000	45,000
11,600		12,000	102,000	55,000	45,000
11,700		12,000	102,000	55,000	45,000
11,800		12,000	102,000	55,000	45,000
11,900		12,000	102,000	55,000	45,000
11,910	15/32	12,000	102,000	55,000	45,000
12,000		12,000	102,000	55,000	45,000
12,200		14,000	107,000	60,000	45,000
12,500		14,000	107,000	60,000	45,000
12,700	1/2	14,000	107,000	60,000	45,000
12,800		14,000	107,000	60,000	45,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
13,000		14,000	107,000	60,000	45,000
13,300		14,000	107,000	60,000	45,000
13,500		14,000	107,000	60,000	45,000
13,700		14,000	107,000	60,000	45,000
14,000		14,000	107,000	60,000	45,000
14,200		16,000	115,000	65,000	48,000
14,290	9/16	16,000	115,000	65,000	48,000
14,300		16,000	115,000	65,000	48,000
14,500		16,000	115,000	65,000	48,000
14,700		16,000	115,000	65,000	48,000
15,000		16,000	115,000	65,000	48,000
15,200		16,000	115,000	65,000	48,000
15,300		16,000	115,000	65,000	48,000
15,500		16,000	115,000	65,000	48,000
15,700		16,000	115,000	65,000	48,000
16,000		16,000	115,000	65,000	48,000
16,300		18,000	123,000	73,000	48,000
16,500		18,000	123,000	73,000	48,000
16,900		18,000	123,000	73,000	48,000
17,000		18,000	123,000	73,000	48,000
17,300		18,000	123,000	73,000	48,000
17,500		18,000	123,000	73,000	48,000
18,000		18,000	123,000	73,000	48,000
18,500		20,000	131,000	79,000	50,000
18,900		20,000	131,000	79,000	50,000
19,000		20,000	131,000	79,000	50,000
19,050	3/4	20,000	131,000	79,000	50,000
19,300		20,000	131,000	79,000	50,000
19,500		20,000	131,000	79,000	50,000
20,000		20,000	131,000	79,000	50,000

Brocas Ratio con refrigeración interior

3xD | RT 100 VA | DIN 6537 K | 140° | m7

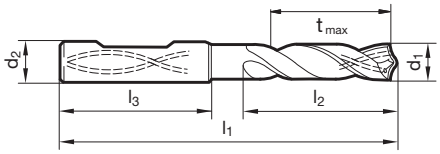
Material de corte	**Metal duro**
Acabado	a
Forma del mango	HE

P		vaciado de punta ≥Ø 3,000 • afilado plano • forma recta del corte principal • geometría de corte optimizada
M	•	
K		
N		aceros inoxidables y resistentes al ácido y al calor • titanio y aleaciones de titanio • Inconel, Hastelloy, Monel
S	•	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 750

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **8610**

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
3,000		6,000	62,000	20,000	36,000
3,100		6,000	62,000	20,000	36,000
3,170	1/8	6,000	62,000	20,000	36,000
3,200		6,000	62,000	20,000	36,000
3,250		6,000	62,000	20,000	36,000
3,300		6,000	62,000	20,000	36,000
3,400		6,000	62,000	20,000	36,000
3,500		6,000	62,000	20,000	36,000
3,570	9/64	6,000	62,000	20,000	36,000
3,600		6,000	62,000	20,000	36,000
3,700		6,000	62,000	20,000	36,000
3,800		6,000	66,000	24,000	36,000
3,900		6,000	66,000	24,000	36,000
3,970	5/32	6,000	66,000	24,000	36,000
4,000		6,000	66,000	24,000	36,000
4,100		6,000	66,000	24,000	36,000
4,200		6,000	66,000	24,000	36,000
4,300		6,000	66,000	24,000	36,000
4,370	11/64	6,000	66,000	24,000	36,000
4,400		6,000	66,000	24,000	36,000
4,500		6,000	66,000	24,000	36,000
4,600		6,000	66,000	24,000	36,000
4,650		6,000	66,000	24,000	36,000
4,700		6,000	66,000	24,000	36,000
4,760	3/16	6,000	66,000	28,000	36,000
4,800		6,000	66,000	28,000	36,000
4,900		6,000	66,000	28,000	36,000
5,000		6,000	66,000	28,000	36,000
5,100		6,000	66,000	28,000	36,000
5,160	13/64	6,000	66,000	28,000	36,000
5,200		6,000	66,000	28,000	36,000
5,300		6,000	66,000	28,000	36,000
5,400		6,000	66,000	28,000	36,000
5,500		6,000	66,000	28,000	36,000
5,550		6,000	66,000	28,000	36,000
5,560	7/32	6,000	66,000	28,000	36,000
5,600		6,000	66,000	28,000	36,000
5,700		6,000	66,000	28,000	36,000
5,800		6,000	66,000	28,000	36,000
5,900		6,000	66,000	28,000	36,000
5,950	15/64	6,000	66,000	28,000	36,000
6,000		6,000	66,000	28,000	36,000

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
6,100		8,000	79,000	34,000	36,000
6,200		8,000	79,000	34,000	36,000
6,300		8,000	79,000	34,000	36,000
6,350	1/4	8,000	79,000	34,000	36,000
6,400		8,000	79,000	34,000	36,000
6,500		8,000	79,000	34,000	36,000
6,600		8,000	79,000	34,000	36,000
6,700		8,000	79,000	34,000	36,000
6,750	17/64	8,000	79,000	34,000	36,000
6,800		8,000	79,000	34,000	36,000
6,900		8,000	79,000	34,000	36,000
7,000		8,000	79,000	34,000	36,000
7,100		8,000	79,000	41,000	36,000
7,140	9/32	8,000	79,000	41,000	36,000
7,200		8,000	79,000	41,000	36,000
7,300		8,000	79,000	41,000	36,000
7,400		8,000	79,000	41,000	36,000
7,500		8,000	79,000	41,000	36,000
7,540	19/64	8,000	79,000	41,000	36,000
7,600		8,000	79,000	41,000	36,000
7,700		8,000	79,000	41,000	36,000
7,800		8,000	79,000	41,000	36,000
7,900		8,000	79,000	41,000	36,000
7,940	5/16	8,000	79,000	41,000	36,000
8,000		8,000	79,000	41,000	36,000
8,100		10,000	89,000	47,000	40,000
8,200		10,000	89,000	47,000	40,000
8,300		10,000	89,000	47,000	40,000
8,330	21/64	10,000	89,000	47,000	40,000
8,400		10,000	89,000	47,000	40,000
8,500		10,000	89,000	47,000	40,000
8,600		10,000	89,000	47,000	40,000
8,700		10,000	89,000	47,000	40,000
8,730	11/32	10,000	89,000	47,000	40,000
8,800		10,000	89,000	47,000	40,000
8,900		10,000	89,000	47,000	40,000
9,000		10,000	89,000	47,000	40,000
9,100		10,000	89,000	47,000	40,000
9,130	23/64	10,000	89,000	47,000	40,000
9,200		10,000	89,000	47,000	40,000
9,250		10,000	89,000	47,000	40,000
9,300		10,000	89,000	47,000	40,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
9,400		10,000	89,000	47,000	40,000
9,500		10,000	89,000	47,000	40,000
9,520	3/8	10,000	89,000	47,000	40,000
9,600		10,000	89,000	47,000	40,000
9,700		10,000	89,000	47,000	40,000
9,800		10,000	89,000	47,000	40,000
9,900		10,000	89,000	47,000	40,000
9,920	25/64	10,000	89,000	47,000	40,000
10,000		10,000	89,000	47,000	40,000
10,100		12,000	102,000	55,000	45,000
10,200		12,000	102,000	55,000	45,000
10,300		12,000	102,000	55,000	45,000
10,320	13/32	12,000	102,000	55,000	45,000
10,400		12,000	102,000	55,000	45,000
10,500		12,000	102,000	55,000	45,000
10,600		12,000	102,000	55,000	45,000
10,700		12,000	102,000	55,000	45,000
10,800		12,000	102,000	55,000	45,000
10,900		12,000	102,000	55,000	45,000
11,000		12,000	102,000	55,000	45,000
11,100		12,000	102,000	55,000	45,000
11,110	7/16	12,000	102,000	55,000	45,000
11,200		12,000	102,000	55,000	45,000
11,300		12,000	102,000	55,000	45,000
11,400		12,000	102,000	55,000	45,000
11,500		12,000	102,000	55,000	45,000
11,600		12,000	102,000	55,000	45,000
11,700		12,000	102,000	55,000	45,000
11,800		12,000	102,000	55,000	45,000
11,900		12,000	102,000	55,000	45,000
11,910	15/32	12,000	102,000	55,000	45,000
12,000		12,000	102,000	55,000	45,000
12,200		14,000	107,000	60,000	45,000
12,500		14,000	107,000	60,000	45,000
12,700	1/2	14,000	107,000	60,000	45,000
12,800		14,000	107,000	60,000	45,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
13,000		14,000	107,000	60,000	45,000
13,300		14,000	107,000	60,000	45,000
13,500		14,000	107,000	60,000	45,000
13,700		14,000	107,000	60,000	45,000
14,000		14,000	107,000	60,000	45,000
14,200		16,000	115,000	65,000	48,000
14,290	9/16	16,000	115,000	65,000	48,000
14,300		16,000	115,000	65,000	48,000
14,500		16,000	115,000	65,000	48,000
14,700		16,000	115,000	65,000	48,000
15,000		16,000	115,000	65,000	48,000
15,200		16,000	115,000	65,000	48,000
15,300		16,000	115,000	65,000	48,000
15,500		16,000	115,000	65,000	48,000
15,700		16,000	115,000	65,000	48,000
16,000		16,000	115,000	65,000	48,000
16,300		18,000	123,000	73,000	48,000
16,500		18,000	123,000	73,000	48,000
16,900		18,000	123,000	73,000	48,000
17,000		18,000	123,000	73,000	48,000
17,300		18,000	123,000	73,000	48,000
17,500		18,000	123,000	73,000	48,000
18,000		18,000	123,000	73,000	48,000
18,500		20,000	131,000	79,000	50,000
18,900		20,000	131,000	79,000	50,000
19,000		20,000	131,000	79,000	50,000
19,050	3/4	20,000	131,000	79,000	50,000
19,300		20,000	131,000	79,000	50,000
19,500		20,000	131,000	79,000	50,000
20,000		20,000	131,000	79,000	50,000

Brocas Ratio con refrigeración interior

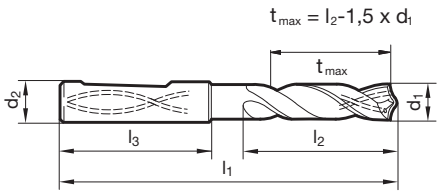
3xD | RT 100 F | DIN 6537 K | 140° | m7

Material de corte	**Metal duro**
Acabado	F
Forma del mango	HE

P	○	vaciado de punta ≥Ø 3,000 • entrada cónica • forma cóncava del corte principal • geometría de corte optimizada • corte agresivo
M	○	
K	○	
N	○	aceros altamente aleados • aceros inoxidables y resistentes al ácido y al calor • Inconel, Hastelloy, Monel • latón, bronce • aluminio y sus aleaciones • magnesio y sus aleaciones • titanio y aleaciones de titanio • metales sinterizados
S	●	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 750



Artículo Nº **2468**

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
3,500		6,000	62,000	20,000	36,000
3,700		6,000	62,000	20,000	36,000
3,800		6,000	66,000	24,000	36,000
4,000		6,000	66,000	24,000	36,000
4,200		6,000	66,000	24,000	36,000
4,500		6,000	66,000	24,000	36,000
5,000		6,000	66,000	28,000	36,000
5,200		6,000	66,000	28,000	36,000
5,500		6,000	66,000	28,000	36,000
5,800		6,000	66,000	28,000	36,000
6,000		6,000	66,000	28,000	36,000
6,300		8,000	79,000	34,000	36,000
6,800		8,000	79,000	34,000	36,000
6,900		8,000	79,000	34,000	36,000
7,000		8,000	79,000	34,000	36,000
7,500		8,000	79,000	41,000	36,000
8,000		8,000	79,000	41,000	36,000
8,100		10,000	89,000	47,000	40,000
8,200		10,000	89,000	47,000	40,000
8,300		10,000	89,000	47,000	40,000
8,500		10,000	89,000	47,000	40,000
8,600		10,000	89,000	47,000	40,000
9,000		10,000	89,000	47,000	40,000
9,500		10,000	89,000	47,000	40,000
10,000		10,000	89,000	47,000	40,000
10,100		12,000	102,000	55,000	45,000
10,200		12,000	102,000	55,000	45,000
10,300		12,000	102,000	55,000	45,000
10,400		12,000	102,000	55,000	45,000
10,500		12,000	102,000	55,000	45,000

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
10,800		12,000	102,000	55,000	45,000
11,000		12,000	102,000	55,000	45,000
11,300		12,000	102,000	55,000	45,000
11,500		12,000	102,000	55,000	45,000
11,800		12,000	102,000	55,000	45,000
12,000		12,000	102,000	55,000	45,000
12,200		14,000	107,000	60,000	45,000
12,300	31/64	14,000	107,000	60,000	45,000
12,500		14,000	107,000	60,000	45,000
12,700	1/2	14,000	107,000	60,000	45,000
13,000		14,000	107,000	60,000	45,000
13,500		14,000	107,000	60,000	45,000
14,000		14,000	107,000	60,000	45,000
14,500		16,000	115,000	65,000	48,000
15,000		16,000	115,000	65,000	48,000
15,500		16,000	115,000	65,000	48,000
16,000		16,000	115,000	65,000	48,000
16,500		18,000	123,000	73,000	48,000
17,000		18,000	123,000	73,000	48,000
17,500		18,000	123,000	73,000	48,000
18,000		18,000	123,000	73,000	48,000
20,000		20,000	131,000	79,000	50,000

Brocas Ratio con refrigeración interior

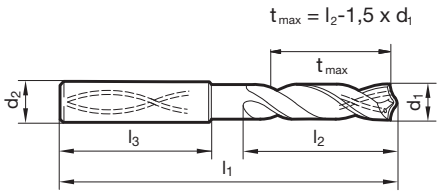
3xD | RT 100 F | DIN 6537 K | 140° | m7

Material de corte	**Metal duro**
Acabado	S
Forma del mango	HA

P	○	vaciado de punta ≥Ø 3,000 • entrada cónica • forma cóncava del corte principal • geometría de corte optimizada • corte agresivo
M	○	
K	○	
N	○	aceros altamente aleados • aceros inoxidables y resistentes al ácido y al calor • Inconel, Hastelloy, Monel • latón, bronce • aluminio y sus aleaciones • magnesio y sus aleaciones • titanio y aleaciones de titanio • metales sinterizados
S	●	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 750



Artículo Nº **1660**

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
3,100		6,000	62,000	20,000	36,000
4,000		6,000	66,000	24,000	36,000
4,100		6,000	66,000	24,000	36,000
4,200		6,000	66,000	24,000	36,000
4,300		6,000	66,000	24,000	36,000
4,700		6,000	66,000	24,000	36,000
5,000		6,000	66,000	28,000	36,000
5,300		6,000	66,000	28,000	36,000
5,400		6,000	66,000	28,000	36,000
5,500		6,000	66,000	28,000	36,000
5,600		6,000	66,000	28,000	36,000
6,000		6,000	66,000	28,000	36,000
6,100		8,000	79,000	34,000	36,000
6,200		8,000	79,000	34,000	36,000
6,500		8,000	79,000	34,000	36,000
6,700		8,000	79,000	34,000	36,000
6,800		8,000	79,000	34,000	36,000
7,000		8,000	79,000	34,000	36,000
7,400		8,000	79,000	41,000	36,000
7,500		8,000	79,000	41,000	36,000
7,600		8,000	79,000	41,000	36,000
7,800		8,000	79,000	41,000	36,000
8,000		8,000	79,000	41,000	36,000
8,100		10,000	89,000	47,000	40,000
8,300		10,000	89,000	47,000	40,000
8,400		10,000	89,000	47,000	40,000
8,500		10,000	89,000	47,000	40,000
8,800		10,000	89,000	47,000	40,000
9,000		10,000	89,000	47,000	40,000
9,200		10,000	89,000	47,000	40,000

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
9,500		10,000	89,000	47,000	40,000
9,700		10,000	89,000	47,000	40,000
9,800		10,000	89,000	47,000	40,000
10,000		10,000	89,000	47,000	40,000
10,200		12,000	102,000	55,000	45,000
10,320	13/32	12,000	102,000	55,000	45,000
10,500		12,000	102,000	55,000	45,000
10,700		12,000	102,000	55,000	45,000
11,000		12,000	102,000	55,000	45,000
11,200		12,000	102,000	55,000	45,000
11,500		12,000	102,000	55,000	45,000
11,800		12,000	102,000	55,000	45,000
12,000		12,000	102,000	55,000	45,000
12,500		14,000	107,000	60,000	45,000
13,000		14,000	107,000	60,000	45,000
13,100	33/64	14,000	107,000	60,000	45,000
13,200		14,000	107,000	60,000	45,000
13,500		14,000	107,000	60,000	45,000
14,000		14,000	107,000	60,000	45,000
15,000		16,000	115,000	65,000	48,000
15,500		16,000	115,000	65,000	48,000
16,500		18,000	123,000	73,000	48,000
19,600		20,000	131,000	79,000	50,000
20,500		25,000	146,000	84,000	56,000
21,500		25,000	146,000	84,000	56,000
22,000		25,000	146,000	84,000	56,000

Brocas Ratio con refrigeración interior

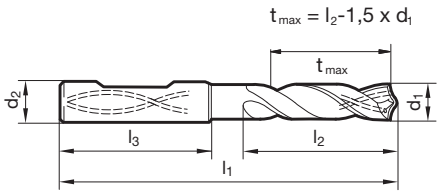
3xD | RT 100 F | DIN 6537 K | 140° | m7

Material de corte	**Metal duro**
Acabado	S
Forma del mango	HE

P	○	vaciado de punta ≥Ø 3,000 • entrada cónica • forma cóncava del corte principal • geometría de corte optimizada • corte agresivo
M	○	
K	○	
N	○	aceros altamente aleados • aceros inoxidables y resistentes al ácido y al calor • Inconel, Hastelloy, Monel • latón, bronce • aluminio y sus aleaciones • magnesio y sus aleaciones • titanio y aleaciones de titanio • metales sinterizados
S	●	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 750



Artículo Nº **1180**

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
4,000		6,000	66,000	24,000	36,000
4,100		6,000	66,000	24,000	36,000
4,200		6,000	66,000	24,000	36,000
4,300		6,000	66,000	24,000	36,000
4,500		6,000	66,000	24,000	36,000
5,000		6,000	66,000	28,000	36,000
5,200		6,000	66,000	28,000	36,000
5,300		6,000	66,000	28,000	36,000
5,400		6,000	66,000	28,000	36,000
5,500		6,000	66,000	28,000	36,000
5,800		6,000	66,000	28,000	36,000
5,950	15/64	6,000	66,000	28,000	36,000
6,000		6,000	66,000	28,000	36,000
6,200		8,000	79,000	34,000	36,000
6,300		8,000	79,000	34,000	36,000
6,500		8,000	79,000	34,000	36,000
6,600		8,000	79,000	34,000	36,000
6,800		8,000	79,000	34,000	36,000
7,000		8,000	79,000	34,000	36,000
7,140	9/32	8,000	79,000	41,000	36,000
7,300		8,000	79,000	41,000	36,000
7,600		8,000	79,000	41,000	36,000
7,800		8,000	79,000	41,000	36,000
8,000		8,000	79,000	41,000	36,000
8,100		10,000	89,000	47,000	40,000
8,200		10,000	89,000	47,000	40,000
8,330	21/64	10,000	89,000	47,000	40,000
8,400		10,000	89,000	47,000	40,000
8,500		10,000	89,000	47,000	40,000
8,800		10,000	89,000	47,000	40,000
9,200		10,000	89,000	47,000	40,000
9,500		10,000	89,000	47,000	40,000
9,600		10,000	89,000	47,000	40,000
9,700		10,000	89,000	47,000	40,000
9,800		10,000	89,000	47,000	40,000
10,000		10,000	89,000	47,000	40,000
10,100		12,000	102,000	55,000	45,000
10,200		12,000	102,000	55,000	45,000
10,300		12,000	102,000	55,000	45,000
10,320	13/32	12,000	102,000	55,000	45,000
10,400		12,000	102,000	55,000	45,000
10,500		12,000	102,000	55,000	45,000

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
10,720	27/64	12,000	102,000	55,000	45,000
10,800		12,000	102,000	55,000	45,000
11,000		12,000	102,000	55,000	45,000
11,100		12,000	102,000	55,000	45,000
11,200		12,000	102,000	55,000	45,000
11,400		12,000	102,000	55,000	45,000
11,500		12,000	102,000	55,000	45,000
11,510	29/64	12,000	102,000	55,000	45,000
11,800		12,000	102,000	55,000	45,000
11,910	15/32	12,000	102,000	55,000	45,000
12,000		12,000	102,000	55,000	45,000
12,200		14,000	107,000	60,000	45,000
12,300	31/64	14,000	107,000	60,000	45,000
12,600		14,000	107,000	60,000	45,000
13,000		14,000	107,000	60,000	45,000
13,500		14,000	107,000	60,000	45,000
14,000		14,000	107,000	60,000	45,000
14,290	9/16	16,000	115,000	65,000	48,000
14,500		16,000	115,000	65,000	48,000
15,000		16,000	115,000	65,000	48,000
15,500		16,000	115,000	65,000	48,000
16,000		16,000	115,000	65,000	48,000
16,500		18,000	123,000	73,000	48,000
17,500		18,000	123,000	73,000	48,000
18,000		18,000	123,000	73,000	48,000
18,500		20,000	131,000	79,000	50,000
19,000		20,000	131,000	79,000	50,000
19,450	49/64	20,000	131,000	79,000	50,000
20,000		20,000	131,000	79,000	50,000
20,500		25,000	146,000	84,000	56,000
21,000		25,000	146,000	84,000	56,000
22,000		25,000	146,000	84,000	56,000
22,500		25,000	153,000	91,000	56,000
23,000		25,000	153,000	91,000	56,000
24,000		25,000	153,000	91,000	56,000
25,000	63/64	25,000	153,000	91,000	56,000

Brocas Ratio con refrigeración interior

3xD | RT 80 U | DIN 6538 K | 140° | h7

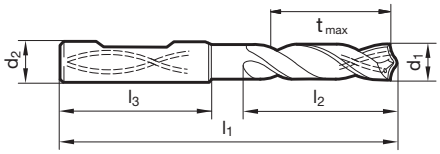
Material de corte	Carbide
Acabado	S
Forma del mango	HE

P	•	vaciado de punta ≥Ø 9,500 • entrada cónica • portaherr. HSS con plaquita HM soldada • amortigua oscilaciones y golpes
M	○	
K	○	
N	○	aceros no aleados y de baja aleación • fundición gris,fundición de grafito • latón, bronce, plásticos y grafitos
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 750

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **1171**

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
9,500		16,000	103,000	51,000	48,000
9,700		16,000	103,000	51,000	48,000
9,800		16,000	103,000	51,000	48,000
9,900		16,000	103,000	51,000	48,000
10,000		16,000	103,000	51,000	48,000
10,100		16,000	103,000	51,000	48,000
10,200		16,000	103,000	51,000	48,000
10,400		16,000	103,000	51,000	48,000
10,500		16,000	103,000	51,000	48,000
10,600		16,000	103,000	51,000	48,000
10,700		16,000	103,000	51,000	48,000
10,800		16,000	103,000	51,000	48,000
10,900		16,000	103,000	51,000	48,000
11,000		16,000	103,000	51,000	48,000
11,200		16,000	103,000	51,000	48,000
11,500		16,000	103,000	51,000	48,000
11,600		16,000	103,000	51,000	48,000
11,700		16,000	103,000	51,000	48,000
12,000		16,000	103,000	51,000	48,000
12,100		16,000	111,000	59,000	48,000
12,200		16,000	111,000	59,000	48,000
12,300	31/64	16,000	111,000	59,000	48,000
12,400		16,000	111,000	59,000	48,000
12,500		16,000	111,000	59,000	48,000
12,600		16,000	111,000	59,000	48,000
12,700	1/2	16,000	111,000	59,000	48,000
13,000		16,000	111,000	59,000	48,000
13,500		16,000	111,000	59,000	48,000
13,700		16,000	111,000	59,000	48,000
13,800		16,000	111,000	59,000	48,000
14,000		16,000	111,000	59,000	48,000
14,200		20,000	122,000	68,000	50,000
14,400		20,000	122,000	68,000	50,000
14,600		20,000	122,000	68,000	50,000
14,700		20,000	122,000	68,000	50,000
15,000		20,000	122,000	68,000	50,000

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
15,100		20,000	122,000	68,000	50,000
15,500		20,000	122,000	68,000	50,000
15,600		20,000	122,000	68,000	50,000
15,700		20,000	122,000	68,000	50,000
15,800		20,000	122,000	68,000	50,000
16,000		20,000	122,000	68,000	50,000
16,200		20,000	130,000	76,000	50,000
16,500		20,000	130,000	76,000	50,000
16,700		20,000	130,000	76,000	50,000
17,000		20,000	130,000	76,000	50,000
17,300		20,000	130,000	76,000	50,000
17,500		20,000	130,000	76,000	50,000
17,700		20,000	130,000	76,000	50,000
17,800		20,000	130,000	76,000	50,000
17,860	45/64	20,000	130,000	76,000	50,000
18,000		20,000	130,000	76,000	50,000
18,500		25,000	144,000	84,000	56,000
19,000		25,000	144,000	84,000	56,000
19,500		25,000	144,000	84,000	56,000
19,600		25,000	144,000	84,000	56,000
19,700		25,000	144,000	84,000	56,000
20,000		25,000	144,000	84,000	56,000
20,500		25,000	153,000	93,000	56,000
21,000		25,000	153,000	93,000	56,000
21,500		25,000	153,000	93,000	56,000
22,000		25,000	153,000	93,000	56,000
22,220	7/8	25,000	161,000	101,000	56,000
22,500		25,000	161,000	101,000	56,000
23,000		25,000	161,000	101,000	56,000
23,500		25,000	161,000	101,000	56,000
24,000		25,000	161,000	101,000	56,000
24,500		32,000	174,000	110,000	60,000
25,000	63/64	32,000	174,000	110,000	60,000
25,500		32,000	174,000	110,000	60,000

Brocas Ratio con refrigeración interior

4xD | RT 150 GG | WN | 120° | m7

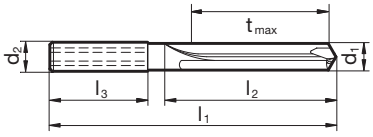
Material de corte	**Metal duro**
Acabado	◯
Forma del mango	HA

P		vaciado de punta ≥Ø 3,000 • entrada cónica • tolerancias en diámetro estrechas • cal. superficial del taladro muy buena • vigilar presión del refrigerante
M		
K	•	
N	○	fundición gris, fundición maleable, fundición esferica
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 752

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **768**

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
3,000		6,000	66,000	24,000	36,000
3,100		6,000	66,000	24,000	36,000
3,200		6,000	66,000	24,000	36,000
3,300		6,000	66,000	24,000	36,000
3,400		6,000	66,000	24,000	36,000
3,500		6,000	66,000	24,000	36,000
3,600		6,000	66,000	24,000	36,000
3,700		6,000	66,000	24,000	36,000
3,800		6,000	74,000	30,000	36,000
3,900		6,000	74,000	30,000	36,000
4,000		6,000	74,000	30,000	36,000
4,100		6,000	74,000	30,000	36,000
4,200		6,000	74,000	30,000	36,000
4,300		6,000	74,000	30,000	36,000
4,400		6,000	74,000	30,000	36,000
4,500		6,000	74,000	30,000	36,000
4,600		6,000	74,000	30,000	36,000
4,700		6,000	74,000	30,000	36,000
4,800		6,000	74,000	36,000	36,000
4,900		6,000	74,000	36,000	36,000
5,000		6,000	74,000	36,000	36,000
5,100		6,000	74,000	36,000	36,000
5,160	13/64	6,000	74,000	36,000	36,000
5,200		6,000	74,000	36,000	36,000
5,300		6,000	74,000	36,000	36,000
5,400		6,000	74,000	36,000	36,000
5,500		6,000	74,000	36,000	36,000
5,560	7/32	6,000	74,000	36,000	36,000
5,600		6,000	74,000	36,000	36,000
5,700		6,000	74,000	36,000	36,000
5,800		6,000	74,000	36,000	36,000
5,900		6,000	74,000	36,000	36,000
5,950	15/64	6,000	74,000	36,000	36,000
6,000		6,000	74,000	36,000	36,000
6,100		8,000	91,000	53,000	36,000
6,200		8,000	91,000	53,000	36,000
6,300		8,000	91,000	53,000	36,000
6,350	1/4	8,000	91,000	53,000	36,000
6,400		8,000	91,000	53,000	36,000
6,500		8,000	91,000	53,000	36,000
6,600		8,000	91,000	53,000	36,000
6,700		8,000	91,000	53,000	36,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
6,750	17/64	8,000	91,000	53,000	36,000
6,800		8,000	91,000	53,000	36,000
6,900		8,000	91,000	53,000	36,000
7,000		8,000	91,000	53,000	36,000
7,100		8,000	91,000	53,000	36,000
7,140	9/32	8,000	91,000	53,000	36,000
7,200		8,000	91,000	53,000	36,000
7,300		8,000	91,000	53,000	36,000
7,400		8,000	91,000	53,000	36,000
7,500		8,000	91,000	53,000	36,000
7,540	19/64	8,000	91,000	53,000	36,000
7,600		8,000	91,000	53,000	36,000
7,700		8,000	91,000	53,000	36,000
7,800		8,000	91,000	53,000	36,000
7,900		8,000	91,000	53,000	36,000
7,940	5/16	8,000	91,000	53,000	36,000
8,000		8,000	91,000	53,000	36,000
8,100		10,000	103,000	61,000	40,000
8,200		10,000	103,000	61,000	40,000
8,300		10,000	103,000	61,000	40,000
8,330	21/64	10,000	103,000	61,000	40,000
8,400		10,000	103,000	61,000	40,000
8,500		10,000	103,000	61,000	40,000
8,600		10,000	103,000	61,000	40,000
8,700		10,000	103,000	61,000	40,000
8,730	11/32	10,000	103,000	61,000	40,000
8,800		10,000	103,000	61,000	40,000
8,900		10,000	103,000	61,000	40,000
9,000		10,000	103,000	61,000	40,000
9,100		10,000	103,000	61,000	40,000
9,130	23/64	10,000	103,000	61,000	40,000
9,200		10,000	103,000	61,000	40,000
9,300		10,000	103,000	61,000	40,000
9,400		10,000	103,000	61,000	40,000
9,500		10,000	103,000	61,000	40,000
9,520	3/8	10,000	103,000	61,000	40,000
9,600		10,000	103,000	61,000	40,000
9,700		10,000	103,000	61,000	40,000
9,800		10,000	103,000	61,000	40,000
9,900		10,000	103,000	61,000	40,000
9,920	25/64	10,000	103,000	61,000	40,000
10,000		10,000	103,000	61,000	40,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
10,200		12,000	118,000	71,000	45,000
10,320	13/32	12,000	118,000	71,000	45,000
10,500		12,000	118,000	71,000	45,000
10,720	27/64	12,000	118,000	71,000	45,000
11,000		12,000	118,000	71,000	45,000
11,110	7/16	12,000	118,000	71,000	45,000
11,200		12,000	118,000	71,000	45,000
11,500		12,000	118,000	71,000	45,000
11,510	29/64	12,000	118,000	71,000	45,000
11,910	15/32	12,000	118,000	71,000	45,000
12,000		12,000	118,000	71,000	45,000
12,300	31/64	14,000	124,000	74,000	45,000
12,500		14,000	124,000	74,000	45,000
12,700	1/2	14,000	124,000	74,000	45,000
13,000		14,000	124,000	74,000	45,000
13,500		14,000	124,000	74,000	45,000
14,000		14,000	124,000	74,000	45,000
14,500		16,000	133,000	83,000	48,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
15,000		16,000	133,000	83,000	48,000
15,500		16,000	133,000	83,000	48,000
16,000		16,000	133,000	83,000	48,000
16,500		18,000	143,000	93,000	48,000
17,000		18,000	143,000	93,000	48,000
17,500		18,000	143,000	93,000	48,000
18,000		18,000	143,000	93,000	48,000
18,500		20,000	153,000	101,000	50,000
19,000		20,000	153,000	101,000	50,000
20,000		20,000	153,000	101,000	50,000

Brocas Ratio con refrigeración interior

4xD | RT 150 GG | WN | 130° | m7

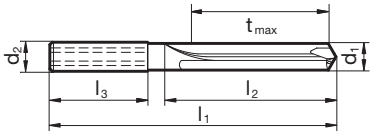
Material de corte	**Metal duro**
Acabado	◯
Forma del mango	HA

P		vaciado de punta ≥Ø 3,000 • afilado plano • tolerancias en diámetro estrechas • cal. superficial del taladro muy buena • vigilar presión óptima del refrigerante
M		
K	○	
N	•	aluminio y sus aleaciones • aluminios con alto porcentaje de Si
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 752

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **6068**

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
3,000		6,000	66,000	24,000	36,000
3,200		6,000	66,000	24,000	36,000
3,300		6,000	66,000	24,000	36,000
3,500		6,000	66,000	24,000	36,000
3,800		6,000	74,000	30,000	36,000
3,900		6,000	74,000	30,000	36,000
4,000		6,000	74,000	30,000	36,000
4,200		6,000	74,000	30,000	36,000
5,000		6,000	74,000	36,000	36,000
5,300		6,000	74,000	36,000	36,000
5,400		6,000	74,000	36,000	36,000
5,500		6,000	74,000	36,000	36,000
5,800		6,000	74,000	36,000	36,000
6,000		6,000	74,000	36,000	36,000
6,100		8,000	91,000	53,000	36,000
6,350	1/4	8,000	91,000	53,000	36,000
6,400		8,000	91,000	53,000	36,000
6,800		8,000	91,000	53,000	36,000
7,000		8,000	91,000	53,000	36,000
7,100		8,000	91,000	53,000	36,000
7,300		8,000	91,000	53,000	36,000
7,800		8,000	91,000	53,000	36,000
8,100		10,000	103,000	61,000	40,000
8,300		10,000	103,000	61,000	40,000
8,500		10,000	103,000	61,000	40,000
8,700		10,000	103,000	61,000	40,000
8,730	11/32	10,000	103,000	61,000	40,000
9,000		10,000	103,000	61,000	40,000
9,200		10,000	103,000	61,000	40,000
9,700		10,000	103,000	61,000	40,000

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
10,000		10,000	103,000	61,000	40,000
10,200		12,000	118,000	71,000	45,000
10,500		12,000	118,000	71,000	45,000
10,720	27/64	12,000	118,000	71,000	45,000
11,000		12,000	118,000	71,000	45,000
11,110	7/16	12,000	118,000	71,000	45,000
11,500		12,000	118,000	71,000	45,000
12,000		12,000	118,000	71,000	45,000
12,300	31/64	14,000	124,000	74,000	45,000
12,500		14,000	124,000	74,000	45,000
12,700	1/2	14,000	124,000	74,000	45,000
13,000		14,000	124,000	74,000	45,000
13,500		14,000	124,000	74,000	45,000
14,000		14,000	124,000	74,000	45,000
15,000		16,000	133,000	83,000	48,000
16,000		16,000	133,000	83,000	48,000
16,500		18,000	143,000	93,000	48,000
17,000		18,000	143,000	93,000	48,000
17,500		18,000	143,000	93,000	48,000
18,000		18,000	143,000	93,000	48,000
18,500		20,000	153,000	101,000	50,000
19,500		20,000	153,000	101,000	50,000
20,000		20,000	153,000	101,000	50,000

Brocas Ratio con refrigeración interior

5xD | RT 100 S | DIN 6537 L | 140° | m7

Material de corte	**Metal duro**
Acabado	F
Forma del mango	HA

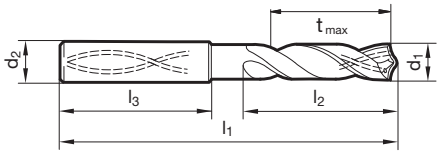
NEW

P	•	afilado plano • forma recta del corte principal • geometría de corte optimizada • máximo rendimiento
M	○	
K	○	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros (aleados/no aleados) hasta 1400 N/mm²
S	○	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 754

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **5759**

d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
3,000		6,000	66,000	28,000	36,000
3,100		6,000	66,000	28,000	36,000
3,170	1/8	6,000	66,000	28,000	36,000
3,200		6,000	66,000	28,000	36,000
3,250		6,000	66,000	28,000	36,000
3,300		6,000	66,000	28,000	36,000
3,400		6,000	66,000	28,000	36,000
3,500		6,000	66,000	28,000	36,000
3,570	9/64	6,000	66,000	28,000	36,000
3,600		6,000	66,000	28,000	36,000
3,700		6,000	66,000	28,000	36,000
3,800		6,000	74,000	36,000	36,000
3,900		6,000	74,000	36,000	36,000
3,970	5/32	6,000	74,000	36,000	36,000
4,000		6,000	74,000	36,000	36,000
4,040		6,000	74,000	36,000	36,000
4,100		6,000	74,000	36,000	36,000
4,200		6,000	74,000	36,000	36,000
4,300		6,000	74,000	36,000	36,000
4,370	11/64	6,000	74,000	36,000	36,000
4,400		6,000	74,000	36,000	36,000
4,500		6,000	74,000	36,000	36,000
4,600		6,000	74,000	36,000	36,000
4,650		6,000	74,000	36,000	36,000
4,700		6,000	74,000	36,000	36,000
4,760	3/16	6,000	82,000	44,000	36,000
4,800		6,000	82,000	44,000	36,000
4,900		6,000	82,000	44,000	36,000
5,000		6,000	82,000	44,000	36,000
5,100		6,000	82,000	44,000	36,000
5,110		6,000	82,000	44,000	36,000
5,160	13/64	6,000	82,000	44,000	36,000
5,200		6,000	82,000	44,000	36,000
5,300		6,000	82,000	44,000	36,000
5,400		6,000	82,000	44,000	36,000
5,410		6,000	82,000	44,000	36,000
5,500		6,000	82,000	44,000	36,000
5,550		6,000	82,000	44,000	36,000
5,560	7/32	6,000	82,000	44,000	36,000
5,600		6,000	82,000	44,000	36,000
5,650		6,000	82,000	44,000	36,000
5,700		6,000	82,000	44,000	36,000

d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
5,800		6,000	82,000	44,000	36,000
5,900		6,000	82,000	44,000	36,000
5,950	15/64	6,000	82,000	44,000	36,000
6,000		6,000	82,000	44,000	36,000
6,100		8,000	91,000	53,000	36,000
6,200		8,000	91,000	53,000	36,000
6,300		8,000	91,000	53,000	36,000
6,350	1/4	8,000	91,000	53,000	36,000
6,400		8,000	91,000	53,000	36,000
6,500		8,000	91,000	53,000	36,000
6,530		8,000	91,000	53,000	36,000
6,600		8,000	91,000	53,000	36,000
6,700		8,000	91,000	53,000	36,000
6,750	17/64	8,000	91,000	53,000	36,000
6,800		8,000	91,000	53,000	36,000
6,900		8,000	91,000	53,000	36,000
7,000		8,000	91,000	53,000	36,000
7,100		8,000	91,000	53,000	36,000
7,140	9/32	8,000	91,000	53,000	36,000
7,200		8,000	91,000	53,000	36,000
7,300		8,000	91,000	53,000	36,000
7,400		8,000	91,000	53,000	36,000
7,500		8,000	91,000	53,000	36,000
7,540	19/64	8,000	91,000	53,000	36,000
7,550		8,000	91,000	53,000	36,000
7,600		8,000	91,000	53,000	36,000
7,650		8,000	91,000	53,000	36,000
7,700		8,000	91,000	53,000	36,000
7,800		8,000	91,000	53,000	36,000
7,900		8,000	91,000	53,000	36,000
7,940	5/16	8,000	91,000	53,000	36,000
8,000		8,000	91,000	53,000	36,000
8,100		10,000	103,000	61,000	40,000
8,200		10,000	103,000	61,000	40,000
8,300		10,000	103,000	61,000	40,000
8,330	21/64	10,000	103,000	61,000	40,000
8,400		10,000	103,000	61,000	40,000
8,500		10,000	103,000	61,000	40,000
8,600		10,000	103,000	61,000	40,000
8,700		10,000	103,000	61,000	40,000
8,730	11/32	10,000	103,000	61,000	40,000
8,800		10,000	103,000	61,000	40,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
8,900		10,000	103,000	61,000	40,000
9,000		10,000	103,000	61,000	40,000
9,100		10,000	103,000	61,000	40,000
9,130	23/64	10,000	103,000	61,000	40,000
9,200		10,000	103,000	61,000	40,000
9,250		10,000	103,000	61,000	40,000
9,300		10,000	103,000	61,000	40,000
9,340		10,000	103,000	61,000	40,000
9,400		10,000	103,000	61,000	40,000
9,500		10,000	103,000	61,000	40,000
9,520	3/8	10,000	103,000	61,000	40,000
9,550		10,000	103,000	61,000	40,000
9,600		10,000	103,000	61,000	40,000
9,700		10,000	103,000	61,000	40,000
9,800		10,000	103,000	61,000	40,000
9,900		10,000	103,000	61,000	40,000
9,920	25/64	10,000	103,000	61,000	40,000
10,000		10,000	103,000	61,000	40,000
10,100		12,000	118,000	71,000	45,000
10,200		12,000	118,000	71,000	45,000
10,300		12,000	118,000	71,000	45,000
10,320	13/32	12,000	118,000	71,000	45,000
10,400		12,000	118,000	71,000	45,000
10,500		12,000	118,000	71,000	45,000
10,600		12,000	118,000	71,000	45,000
10,700		12,000	118,000	71,000	45,000
10,720		12,000	118,000	71,000	45,000
10,800		12,000	118,000	71,000	45,000
10,900		12,000	118,000	71,000	45,000
11,000		12,000	118,000	71,000	45,000
11,100		12,000	118,000	71,000	45,000
11,110	7/16	12,000	118,000	71,000	45,000
11,200		12,000	118,000	71,000	45,000
11,300		12,000	118,000	71,000	45,000
11,400		12,000	118,000	71,000	45,000
11,500		12,000	118,000	71,000	45,000
11,510		12,000	118,000	71,000	45,000
11,550		12,000	118,000	71,000	45,000
11,600		12,000	118,000	71,000	45,000
11,700		12,000	118,000	71,000	45,000
11,800		12,000	118,000	71,000	45,000
11,900		12,000	118,000	71,000	45,000
11,910	15/32	12,000	118,000	71,000	45,000
12,000		12,000	118,000	71,000	45,000
12,100		14,000	124,000	77,000	45,000
12,200		14,000	124,000	77,000	45,000
12,300		14,000	124,000	77,000	45,000
12,400		14,000	124,000	77,000	45,000
12,500		14,000	124,000	77,000	45,000
12,600		14,000	124,000	77,000	45,000
12,700	1/2	14,000	124,000	77,000	45,000
12,800		14,000	124,000	77,000	45,000
12,900		14,000	124,000	77,000	45,000
13,000		14,000	124,000	77,000	45,000
13,100		14,000	124,000	77,000	45,000
13,200		14,000	124,000	77,000	45,000
13,300		14,000	124,000	77,000	45,000
13,400		14,000	124,000	77,000	45,000
13,490		14,000	124,000	77,000	45,000
13,500		14,000	124,000	77,000	45,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
13,600		14,000	124,000	77,000	45,000
13,700		14,000	124,000	77,000	45,000
13,800		14,000	124,000	77,000	45,000
13,890		14,000	124,000	77,000	45,000
13,900		14,000	124,000	77,000	45,000
14,000		14,000	124,000	77,000	45,000
14,100		16,000	133,000	83,000	48,000
14,200		16,000	133,000	83,000	48,000
14,290	9/16	16,000	133,000	83,000	48,000
14,400		16,000	133,000	83,000	48,000
14,500		16,000	133,000	83,000	48,000
14,600		16,000	133,000	83,000	48,000
14,680		16,000	133,000	83,000	48,000
14,700		16,000	133,000	83,000	48,000
14,800		16,000	133,000	83,000	48,000
14,900		16,000	133,000	83,000	48,000
15,000		16,000	133,000	83,000	48,000
15,080		16,000	133,000	83,000	48,000
15,100		16,000	133,000	83,000	48,000
15,200		16,000	133,000	83,000	48,000
15,300		16,000	133,000	83,000	48,000
15,400		16,000	133,000	83,000	48,000
15,480		16,000	133,000	83,000	48,000
15,500		16,000	133,000	83,000	48,000
15,550		16,000	133,000	83,000	48,000
15,600		16,000	133,000	83,000	48,000
15,700		16,000	133,000	83,000	48,000
15,800		16,000	133,000	83,000	48,000
15,870		16,000	133,000	83,000	48,000
15,900		16,000	133,000	83,000	48,000
16,000		16,000	133,000	83,000	48,000
16,270		18,000	143,000	93,000	48,000
16,500		18,000	143,000	93,000	48,000
16,670		18,000	143,000	93,000	48,000
16,700		18,000	143,000	93,000	48,000
16,900		18,000	143,000	93,000	48,000
17,000		18,000	143,000	93,000	48,000
17,070		18,000	143,000	93,000	48,000
17,460		18,000	143,000	93,000	48,000
17,500		18,000	143,000	93,000	48,000
17,550		18,000	143,000	93,000	48,000
17,700		18,000	143,000	93,000	48,000
17,860		18,000	143,000	93,000	48,000
18,000		18,000	143,000	93,000	48,000
18,260		20,000	153,000	101,000	50,000
18,500		20,000	153,000	101,000	50,000
18,700		20,000	153,000	101,000	50,000
18,900		20,000	153,000	101,000	50,000
19,000		20,000	153,000	101,000	50,000
19,050	3/4	20,000	153,000	101,000	50,000
19,250		20,000	153,000	101,000	50,000
19,300		20,000	153,000	101,000	50,000
19,446		20,000	153,000	101,000	50,000
19,500		20,000	153,000	101,000	50,000
19,550		20,000	153,000	101,000	50,000
19,700		20,000	153,000	101,000	50,000
19,840		20,000	153,000	101,000	50,000
20,000		20,000	153,000	101,000	50,000

Brocas Ratio con refrigeración interior

5xD | RT 100 U | DIN 6537 L | 140° | m7

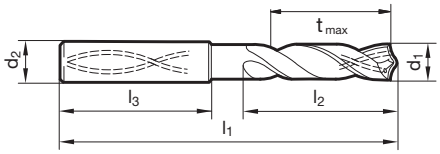
Material de corte	**Metal duro**
Acabado	F
Forma del mango	HA

P	•	vaciado de punta ≥Ø 3,000 • afilado plano • forma recta del corte principal • geometría de corte optimizada
M	○	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • fundición • bronce, latón • aleaciones de AlSi altamente aleables
S	○	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 754

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **2479**

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
3,000		6,000	66,000	28,000	36,000
3,100		6,000	66,000	28,000	36,000
3,170	1/8	6,000	66,000	28,000	36,000
3,200		6,000	66,000	28,000	36,000
3,250		6,000	66,000	28,000	36,000
3,300		6,000	66,000	28,000	36,000
3,400		6,000	66,000	28,000	36,000
3,500		6,000	66,000	28,000	36,000
3,570	9/64	6,000	66,000	28,000	36,000
3,600		6,000	66,000	28,000	36,000
3,700		6,000	66,000	28,000	36,000
3,800		6,000	74,000	36,000	36,000
3,900		6,000	74,000	36,000	36,000
3,970	5/32	6,000	74,000	36,000	36,000
4,000		6,000	74,000	36,000	36,000
4,040		6,000	74,000	36,000	36,000
4,100		6,000	74,000	36,000	36,000
4,200		6,000	74,000	36,000	36,000
4,300		6,000	74,000	36,000	36,000
4,370	11/64	6,000	74,000	36,000	36,000
4,400		6,000	74,000	36,000	36,000
4,500		6,000	74,000	36,000	36,000
4,600		6,000	74,000	36,000	36,000
4,650		6,000	74,000	36,000	36,000
4,700		6,000	74,000	36,000	36,000
4,760	3/16	6,000	82,000	44,000	36,000
4,800		6,000	82,000	44,000	36,000
4,900		6,000	82,000	44,000	36,000
5,000		6,000	82,000	44,000	36,000
5,100		6,000	82,000	44,000	36,000
5,110		6,000	82,000	44,000	36,000
5,160	13/64	6,000	82,000	44,000	36,000
5,200		6,000	82,000	44,000	36,000
5,300		6,000	82,000	44,000	36,000
5,400		6,000	82,000	44,000	36,000
5,410		6,000	82,000	44,000	36,000
5,500		6,000	82,000	44,000	36,000
5,550		6,000	82,000	44,000	36,000
5,560	7/32	6,000	82,000	44,000	36,000
5,600		6,000	82,000	44,000	36,000
5,650		6,000	82,000	44,000	36,000
5,700		6,000	82,000	44,000	36,000

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
5,800		6,000	82,000	44,000	36,000
5,900		6,000	82,000	44,000	36,000
5,950	15/64	6,000	82,000	44,000	36,000
6,000		6,000	82,000	44,000	36,000
6,100		8,000	91,000	53,000	36,000
6,200		8,000	91,000	53,000	36,000
6,300		8,000	91,000	53,000	36,000
6,350	1/4	8,000	91,000	53,000	36,000
6,400		8,000	91,000	53,000	36,000
6,500		8,000	91,000	53,000	36,000
6,530		8,000	91,000	53,000	36,000
6,600		8,000	91,000	53,000	36,000
6,700		8,000	91,000	53,000	36,000
6,750	17/64	8,000	91,000	53,000	36,000
6,800		8,000	91,000	53,000	36,000
6,900		8,000	91,000	53,000	36,000
7,000		8,000	91,000	53,000	36,000
7,100		8,000	91,000	53,000	36,000
7,140	9/32	8,000	91,000	53,000	36,000
7,200		8,000	91,000	53,000	36,000
7,300		8,000	91,000	53,000	36,000
7,400		8,000	91,000	53,000	36,000
7,500		8,000	91,000	53,000	36,000
7,540	19/64	8,000	91,000	53,000	36,000
7,550		8,000	91,000	53,000	36,000
7,600		8,000	91,000	53,000	36,000
7,650		8,000	91,000	53,000	36,000
7,700		8,000	91,000	53,000	36,000
7,800		8,000	91,000	53,000	36,000
7,900		8,000	91,000	53,000	36,000
7,940	5/16	8,000	91,000	53,000	36,000
8,000		8,000	91,000	53,000	36,000
8,100		10,000	103,000	61,000	40,000
8,200		10,000	103,000	61,000	40,000
8,300		10,000	103,000	61,000	40,000
8,330	21/64	10,000	103,000	61,000	40,000
8,400		10,000	103,000	61,000	40,000
8,500		10,000	103,000	61,000	40,000
8,600		10,000	103,000	61,000	40,000
8,700		10,000	103,000	61,000	40,000
8,730	11/32	10,000	103,000	61,000	40,000
8,800		10,000	103,000	61,000	40,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
8,900		10,000	103,000	61,000	40,000
9,000		10,000	103,000	61,000	40,000
9,100		10,000	103,000	61,000	40,000
9,130	23/64	10,000	103,000	61,000	40,000
9,200		10,000	103,000	61,000	40,000
9,250		10,000	103,000	61,000	40,000
9,300		10,000	103,000	61,000	40,000
9,340		10,000	103,000	61,000	40,000
9,400		10,000	103,000	61,000	40,000
9,500		10,000	103,000	61,000	40,000
9,520	3/8	10,000	103,000	61,000	40,000
9,550		10,000	103,000	61,000	40,000
9,600		10,000	103,000	61,000	40,000
9,700		10,000	103,000	61,000	40,000
9,800		10,000	103,000	61,000	40,000
9,900		10,000	103,000	61,000	40,000
9,920	25/64	10,000	103,000	61,000	40,000
10,000		10,000	103,000	61,000	40,000
10,100		12,000	118,000	71,000	45,000
10,200		12,000	118,000	71,000	45,000
10,300		12,000	118,000	71,000	45,000
10,320	13/32	12,000	118,000	71,000	45,000
10,400		12,000	118,000	71,000	45,000
10,500		12,000	118,000	71,000	45,000
10,600		12,000	118,000	71,000	45,000
10,700		12,000	118,000	71,000	45,000
10,720	27/64	12,000	118,000	71,000	45,000
10,800		12,000	118,000	71,000	45,000
10,900		12,000	118,000	71,000	45,000
11,000		12,000	118,000	71,000	45,000
11,100		12,000	118,000	71,000	45,000
11,110	7/16	12,000	118,000	71,000	45,000
11,200		12,000	118,000	71,000	45,000
11,300		12,000	118,000	71,000	45,000
11,400		12,000	118,000	71,000	45,000
11,500		12,000	118,000	71,000	45,000
11,510	29/64	12,000	118,000	71,000	45,000
11,550		12,000	118,000	71,000	45,000
11,600		12,000	118,000	71,000	45,000
11,700		12,000	118,000	71,000	45,000
11,800		12,000	118,000	71,000	45,000
11,900		12,000	118,000	71,000	45,000
11,910	15/32	12,000	118,000	71,000	45,000
12,000		12,000	118,000	71,000	45,000
12,100		14,000	124,000	77,000	45,000
12,200		14,000	124,000	77,000	45,000
12,300	31/64	14,000	124,000	77,000	45,000
12,400		14,000	124,000	77,000	45,000
12,500		14,000	124,000	77,000	45,000
12,600		14,000	124,000	77,000	45,000
12,700	1/2	14,000	124,000	77,000	45,000
12,800		14,000	124,000	77,000	45,000
13,000		14,000	124,000	77,000	45,000
13,100	33/64	14,000	124,000	77,000	45,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
13,200		14,000	124,000	77,000	45,000
13,490	17/32	14,000	124,000	77,000	45,000
13,500		14,000	124,000	77,000	45,000
13,600		14,000	124,000	77,000	45,000
13,700		14,000	124,000	77,000	45,000
13,800		14,000	124,000	77,000	45,000
13,890	35/64	14,000	124,000	77,000	45,000
13,900		14,000	124,000	77,000	45,000
14,000		14,000	124,000	77,000	45,000
14,100		16,000	133,000	83,000	48,000
14,200		16,000	133,000	83,000	48,000
14,290	9/16	16,000	133,000	83,000	48,000
14,500		16,000	133,000	83,000	48,000
14,680	37/64	16,000	133,000	83,000	48,000
14,700		16,000	133,000	83,000	48,000
14,800		16,000	133,000	83,000	48,000
15,000		16,000	133,000	83,000	48,000
15,080	19/32	16,000	133,000	83,000	48,000
15,100		16,000	133,000	83,000	48,000
15,200		16,000	133,000	83,000	48,000
15,480	39/64	16,000	133,000	83,000	48,000
15,500		16,000	133,000	83,000	48,000
15,600		16,000	133,000	83,000	48,000
15,700		16,000	133,000	83,000	48,000
15,800		16,000	133,000	83,000	48,000
15,870	5/8	16,000	133,000	83,000	48,000
15,900		16,000	133,000	83,000	48,000
16,000		16,000	133,000	83,000	48,000
16,270	41/64	18,000	143,000	93,000	48,000
16,500		18,000	143,000	93,000	48,000
16,670	21/32	18,000	143,000	93,000	48,000
16,700		18,000	143,000	93,000	48,000
17,000		18,000	143,000	93,000	48,000
17,070	43/64	18,000	143,000	93,000	48,000
17,460	11/16	18,000	143,000	93,000	48,000
17,500		18,000	143,000	93,000	48,000
17,700		18,000	143,000	93,000	48,000
17,860	45/64	18,000	143,000	93,000	48,000
18,000		18,000	143,000	93,000	48,000
18,260	23/32	20,000	153,000	101,000	50,000
18,500		20,000	153,000	101,000	50,000
18,700		20,000	153,000	101,000	50,000
18,900		20,000	153,000	101,000	50,000
19,000		20,000	153,000	101,000	50,000
19,050	3/4	20,000	153,000	101,000	50,000
19,250		20,000	153,000	101,000	50,000
19,300		20,000	153,000	101,000	50,000
19,446		20,000	153,000	101,000	50,000
19,500		20,000	153,000	101,000	50,000
19,700		20,000	153,000	101,000	50,000
19,840	25/32	20,000	153,000	101,000	50,000
20,000		20,000	153,000	101,000	50,000

Brocas Ratio con refrigeración interior

5xD | RT 100 U | DIN 6537 L | 140° | m7

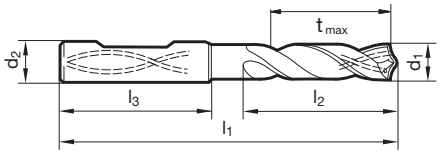
Material de corte	**Metal duro**
Acabado	F
Forma del mango	HE

P	•	vaciado de punta ≥Ø 3,300 • afilado plano • forma recta del corte principal • geometría de corte optimizada
M	○	
K	•	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • fundición • bronce, latón • aleaciones de AlSi altamente aleables
N	○	
S	○	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 754

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **2471**

d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
3,300		6,000	66,000	28,000	36,000
3,500		6,000	66,000	28,000	36,000
3,700		6,000	66,000	28,000	36,000
4,000		6,000	74,000	36,000	36,000
4,100		6,000	74,000	36,000	36,000
4,200		6,000	74,000	36,000	36,000
4,300		6,000	74,000	36,000	36,000
4,400		6,000	74,000	36,000	36,000
4,500		6,000	74,000	36,000	36,000
4,650		6,000	74,000	36,000	36,000
4,700		6,000	74,000	36,000	36,000
4,900		6,000	82,000	44,000	36,000
5,000		6,000	82,000	44,000	36,000
5,100		6,000	82,000	44,000	36,000
5,200		6,000	82,000	44,000	36,000
5,300		6,000	82,000	44,000	36,000
5,400		6,000	82,000	44,000	36,000
5,500		6,000	82,000	44,000	36,000
5,550		6,000	82,000	44,000	36,000
5,700		6,000	82,000	44,000	36,000
6,000		6,000	82,000	44,000	36,000
6,100		8,000	91,000	53,000	36,000
6,200		8,000	91,000	53,000	36,000
6,300		8,000	91,000	53,000	36,000
6,350	1/4	8,000	91,000	53,000	36,000
6,400		8,000	91,000	53,000	36,000
6,500		8,000	91,000	53,000	36,000
6,600		8,000	91,000	53,000	36,000
6,800		8,000	91,000	53,000	36,000
6,900		8,000	91,000	53,000	36,000
7,000		8,000	91,000	53,000	36,000
7,100		8,000	91,000	53,000	36,000
7,200		8,000	91,000	53,000	36,000
7,300		8,000	91,000	53,000	36,000
7,500		8,000	91,000	53,000	36,000
7,700		8,000	91,000	53,000	36,000
7,800		8,000	91,000	53,000	36,000
8,000		8,000	91,000	53,000	36,000
8,100		10,000	103,000	61,000	40,000
8,200		10,000	103,000	61,000	40,000
8,300		10,000	103,000	61,000	40,000
8,500		10,000	103,000	61,000	40,000

d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
8,600		10,000	103,000	61,000	40,000
8,900		10,000	103,000	61,000	40,000
9,000		10,000	103,000	61,000	40,000
9,130	23/64	10,000	103,000	61,000	40,000
9,200		10,000	103,000	61,000	40,000
9,250		10,000	103,000	61,000	40,000
9,500		10,000	103,000	61,000	40,000
9,700		10,000	103,000	61,000	40,000
9,800		10,000	103,000	61,000	40,000
9,900		10,000	103,000	61,000	40,000
10,000		10,000	103,000	61,000	40,000
10,100		12,000	118,000	71,000	45,000
10,200		12,000	118,000	71,000	45,000
10,300		12,000	118,000	71,000	45,000
10,400		12,000	118,000	71,000	45,000
10,500		12,000	118,000	71,000	45,000
10,600		12,000	118,000	71,000	45,000
10,800		12,000	118,000	71,000	45,000
11,000		12,000	118,000	71,000	45,000
11,100		12,000	118,000	71,000	45,000
11,300		12,000	118,000	71,000	45,000
11,400		12,000	118,000	71,000	45,000
11,500		12,000	118,000	71,000	45,000
11,600		12,000	118,000	71,000	45,000
11,700		12,000	118,000	71,000	45,000
11,800		12,000	118,000	71,000	45,000
11,900		12,000	118,000	71,000	45,000
12,000		12,000	118,000	71,000	45,000
12,100		14,000	124,000	77,000	45,000
12,200		14,000	124,000	77,000	45,000
12,300	31/64	14,000	124,000	77,000	45,000
12,400		14,000	124,000	77,000	45,000
12,500		14,000	124,000	77,000	45,000
12,700	1/2	14,000	124,000	77,000	45,000
13,000		14,000	124,000	77,000	45,000
13,500		14,000	124,000	77,000	45,000
13,800		14,000	124,000	77,000	45,000
14,000		14,000	124,000	77,000	45,000
14,100		16,000	133,000	83,000	48,000
14,200		16,000	133,000	83,000	48,000
14,500		16,000	133,000	83,000	48,000
14,700		16,000	133,000	83,000	48,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
15,000		16,000	133,000	83,000	48,000
15,200		16,000	133,000	83,000	48,000
15,500		16,000	133,000	83,000	48,000
15,800		16,000	133,000	83,000	48,000
16,500		18,000	143,000	93,000	48,000
17,000		18,000	143,000	93,000	48,000
17,300		18,000	143,000	93,000	48,000
17,500		18,000	143,000	93,000	48,000
18,000		18,000	143,000	93,000	48,000
18,200		20,000	153,000	101,000	50,000
18,500		20,000	153,000	101,000	50,000
18,600		20,000	153,000	101,000	50,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
19,000		20,000	153,000	101,000	50,000
19,050	3/4	20,000	153,000	101,000	50,000
19,500		20,000	153,000	101,000	50,000
20,000		20,000	153,000	101,000	50,000

Brocas Ratio con refrigeración interior

5xD | RT 100 U | DIN 6537 L | 140° | m7

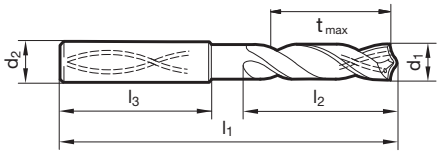
Material de corte	**Metal duro**
Acabado	S
Forma del mango	HA

P	•	vaciado de punta ≥Ø 3,000 • afilado plano • forma recta del corte principal • geometría de corte optimizada
M	○	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • fundición • bronce, latón • aleaciones de AlSi altamente aleables
S	○	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 754

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **1663**

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
3,000		6,000	66,000	28,000	36,000
3,700		6,000	66,000	28,000	36,000
4,000		6,000	74,000	36,000	36,000
4,500		6,000	74,000	36,000	36,000
4,650		6,000	74,000	36,000	36,000
4,700		6,000	74,000	36,000	36,000
4,800		6,000	82,000	44,000	36,000
5,000		6,000	82,000	44,000	36,000
5,400		6,000	82,000	44,000	36,000
5,800		6,000	82,000	44,000	36,000
6,000		6,000	82,000	44,000	36,000
6,100		8,000	91,000	53,000	36,000
6,200		8,000	91,000	53,000	36,000
6,300		8,000	91,000	53,000	36,000
6,350	1/4	8,000	91,000	53,000	36,000
6,400		8,000	91,000	53,000	36,000
6,500		8,000	91,000	53,000	36,000
6,700		8,000	91,000	53,000	36,000
6,800		8,000	91,000	53,000	36,000
7,000		8,000	91,000	53,000	36,000
7,100		8,000	91,000	53,000	36,000
7,500		8,000	91,000	53,000	36,000
7,800		8,000	91,000	53,000	36,000
8,000		8,000	91,000	53,000	36,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
8,200		10,000	103,000	61,000	40,000
8,400		10,000	103,000	61,000	40,000
8,500		10,000	103,000	61,000	40,000
8,800		10,000	103,000	61,000	40,000
9,000		10,000	103,000	61,000	40,000
9,200		10,000	103,000	61,000	40,000
9,400		10,000	103,000	61,000	40,000
9,500		10,000	103,000	61,000	40,000
10,500		12,000	118,000	71,000	45,000
11,000		12,000	118,000	71,000	45,000
11,500		12,000	118,000	71,000	45,000
11,800		12,000	118,000	71,000	45,000
12,000		12,000	118,000	71,000	45,000
13,000		14,000	124,000	77,000	45,000
14,000		14,000	124,000	77,000	45,000
14,200		16,000	133,000	83,000	48,000
14,500		16,000	133,000	83,000	48,000
15,000		16,000	133,000	83,000	48,000
15,500		16,000	133,000	83,000	48,000
16,000		16,000	133,000	83,000	48,000
17,000		18,000	143,000	93,000	48,000
17,500		18,000	143,000	93,000	48,000
19,000		20,000	153,000	101,000	50,000
19,500		20,000	153,000	101,000	50,000

Brocas Ratio con refrigeración interior

5xD | RT 100 U | DIN 6537 L | 140° | m7

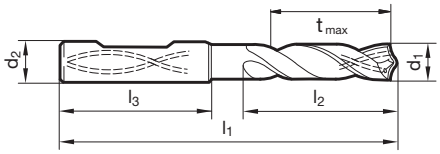
Material de corte	**Metal duro**
Acabado	S
Forma del mango	HE

P	•	vaciado de punta ≥Ø 3,300 • afilado plano • forma recta del corte principal • geometría de corte optimizada
M	○	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • fundición • bronce, latón • aleaciones de AlSi altamente aleables
S	○	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 754

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **1183**

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
3,300		6,000	66,000	28,000	36,000
4,000		6,000	74,000	36,000	36,000
4,100		6,000	74,000	36,000	36,000
4,200		6,000	74,000	36,000	36,000
4,300		6,000	74,000	36,000	36,000
4,370	11/64	6,000	74,000	36,000	36,000
4,400		6,000	74,000	36,000	36,000
4,500		6,000	74,000	36,000	36,000
4,600		6,000	74,000	36,000	36,000
4,650		6,000	74,000	36,000	36,000
4,700		6,000	74,000	36,000	36,000
4,760	3/16	6,000	82,000	44,000	36,000
4,800		6,000	82,000	44,000	36,000
4,900		6,000	82,000	44,000	36,000
5,000		6,000	82,000	44,000	36,000
5,100		6,000	82,000	44,000	36,000
5,160	13/64	6,000	82,000	44,000	36,000
5,200		6,000	82,000	44,000	36,000
5,300		6,000	82,000	44,000	36,000
5,400		6,000	82,000	44,000	36,000
5,500		6,000	82,000	44,000	36,000
5,560	7/32	6,000	82,000	44,000	36,000
5,600		6,000	82,000	44,000	36,000
5,700		6,000	82,000	44,000	36,000
5,800		6,000	82,000	44,000	36,000
5,900		6,000	82,000	44,000	36,000
5,950	15/64	6,000	82,000	44,000	36,000
6,000		6,000	82,000	44,000	36,000
6,100		8,000	91,000	53,000	36,000
6,200		8,000	91,000	53,000	36,000
6,300		8,000	91,000	53,000	36,000
6,350	1/4	8,000	91,000	53,000	36,000
6,400		8,000	91,000	53,000	36,000
6,500		8,000	91,000	53,000	36,000
6,600		8,000	91,000	53,000	36,000
6,700		8,000	91,000	53,000	36,000
6,750	17/64	8,000	91,000	53,000	36,000
6,800		8,000	91,000	53,000	36,000
6,900		8,000	91,000	53,000	36,000
7,000		8,000	91,000	53,000	36,000
7,100		8,000	91,000	53,000	36,000
7,140	9/32	8,000	91,000	53,000	36,000

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
7,200		8,000	91,000	53,000	36,000
7,300		8,000	91,000	53,000	36,000
7,400		8,000	91,000	53,000	36,000
7,500		8,000	91,000	53,000	36,000
7,540	19/64	8,000	91,000	53,000	36,000
7,600		8,000	91,000	53,000	36,000
7,700		8,000	91,000	53,000	36,000
7,800		8,000	91,000	53,000	36,000
7,900		8,000	91,000	53,000	36,000
7,940	5/16	8,000	91,000	53,000	36,000
8,000		8,000	91,000	53,000	36,000
8,100		10,000	103,000	61,000	40,000
8,200		10,000	103,000	61,000	40,000
8,300		10,000	103,000	61,000	40,000
8,330	21/64	10,000	103,000	61,000	40,000
8,400		10,000	103,000	61,000	40,000
8,500		10,000	103,000	61,000	40,000
8,600		10,000	103,000	61,000	40,000
8,700		10,000	103,000	61,000	40,000
8,730	11/32	10,000	103,000	61,000	40,000
8,800		10,000	103,000	61,000	40,000
8,900		10,000	103,000	61,000	40,000
9,000		10,000	103,000	61,000	40,000
9,100		10,000	103,000	61,000	40,000
9,130	23/64	10,000	103,000	61,000	40,000
9,200		10,000	103,000	61,000	40,000
9,300		10,000	103,000	61,000	40,000
9,400		10,000	103,000	61,000	40,000
9,500		10,000	103,000	61,000	40,000
9,520	3/8	10,000	103,000	61,000	40,000
9,600		10,000	103,000	61,000	40,000
9,700		10,000	103,000	61,000	40,000
9,800		10,000	103,000	61,000	40,000
9,900		10,000	103,000	61,000	40,000
9,920	25/64	10,000	103,000	61,000	40,000
10,000		10,000	103,000	61,000	40,000
10,100		12,000	118,000	71,000	45,000
10,200		12,000	118,000	71,000	45,000
10,300		12,000	118,000	71,000	45,000
10,320	13/32	12,000	118,000	71,000	45,000
10,400		12,000	118,000	71,000	45,000
10,500		12,000	118,000	71,000	45,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
10,600		12,000	118,000	71,000	45,000
10,700		12,000	118,000	71,000	45,000
10,720	27/64	12,000	118,000	71,000	45,000
10,800		12,000	118,000	71,000	45,000
10,900		12,000	118,000	71,000	45,000
11,000		12,000	118,000	71,000	45,000
11,100		12,000	118,000	71,000	45,000
11,110	7/16	12,000	118,000	71,000	45,000
11,200		12,000	118,000	71,000	45,000
11,300		12,000	118,000	71,000	45,000
11,400		12,000	118,000	71,000	45,000
11,500		12,000	118,000	71,000	45,000
11,510	29/64	12,000	118,000	71,000	45,000
11,600		12,000	118,000	71,000	45,000
11,700		12,000	118,000	71,000	45,000
11,800		12,000	118,000	71,000	45,000
11,900		12,000	118,000	71,000	45,000
11,910	15/32	12,000	118,000	71,000	45,000
12,000		12,000	118,000	71,000	45,000
12,100		14,000	124,000	77,000	45,000
12,200		14,000	124,000	77,000	45,000
12,300	31/64	14,000	124,000	77,000	45,000
12,400		14,000	124,000	77,000	45,000
12,500		14,000	124,000	77,000	45,000
12,600		14,000	124,000	77,000	45,000
12,700	1/2	14,000	124,000	77,000	45,000
12,800		14,000	124,000	77,000	45,000
12,900		14,000	124,000	77,000	45,000
13,000		14,000	124,000	77,000	45,000
13,100	33/64	14,000	124,000	77,000	45,000
13,200		14,000	124,000	77,000	45,000
13,300		14,000	124,000	77,000	45,000
13,400		14,000	124,000	77,000	45,000
13,500		14,000	124,000	77,000	45,000
13,600		14,000	124,000	77,000	45,000
13,700		14,000	124,000	77,000	45,000
13,800		14,000	124,000	77,000	45,000
13,890	35/64	14,000	124,000	77,000	45,000
13,900		14,000	124,000	77,000	45,000
14,000		14,000	124,000	77,000	45,000
14,100		16,000	133,000	83,000	48,000
14,200		16,000	133,000	83,000	48,000
14,290	9/16	16,000	133,000	83,000	48,000
14,300		16,000	133,000	83,000	48,000
14,400		16,000	133,000	83,000	48,000
14,500		16,000	133,000	83,000	48,000
14,600		16,000	133,000	83,000	48,000
14,680	37/64	16,000	133,000	83,000	48,000
14,700		16,000	133,000	83,000	48,000
14,800		16,000	133,000	83,000	48,000
14,900		16,000	133,000	83,000	48,000
15,000		16,000	133,000	83,000	48,000
15,100		16,000	133,000	83,000	48,000
15,200		16,000	133,000	83,000	48,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
15,300		16,000	133,000	83,000	48,000
15,400		16,000	133,000	83,000	48,000
15,480	39/64	16,000	133,000	83,000	48,000
15,500		16,000	133,000	83,000	48,000
15,800		16,000	133,000	83,000	48,000
15,870	5/8	16,000	133,000	83,000	48,000
16,000		16,000	133,000	83,000	48,000
16,100		18,000	143,000	93,000	48,000
16,200		18,000	143,000	93,000	48,000
16,270	41/64	18,000	143,000	93,000	48,000
16,400		18,000	143,000	93,000	48,000
16,500		18,000	143,000	93,000	48,000
16,600		18,000	143,000	93,000	48,000
16,700		18,000	143,000	93,000	48,000
16,800		18,000	143,000	93,000	48,000
16,900		18,000	143,000	93,000	48,000
17,000		18,000	143,000	93,000	48,000
17,070	43/64	18,000	143,000	93,000	48,000
17,200		18,000	143,000	93,000	48,000
17,300		18,000	143,000	93,000	48,000
17,400		18,000	143,000	93,000	48,000
17,500		18,000	143,000	93,000	48,000
17,600		18,000	143,000	93,000	48,000
17,700		18,000	143,000	93,000	48,000
17,800		18,000	143,000	93,000	48,000
18,000		18,000	143,000	93,000	48,000
18,100		20,000	153,000	101,000	50,000
18,200		20,000	153,000	101,000	50,000
18,300		20,000	153,000	101,000	50,000
18,400		20,000	153,000	101,000	50,000
18,500		20,000	153,000	101,000	50,000
18,600		20,000	153,000	101,000	50,000
18,650	47/64	20,000	153,000	101,000	50,000
18,700		20,000	153,000	101,000	50,000
18,800		20,000	153,000	101,000	50,000
18,900		20,000	153,000	101,000	50,000
19,000		20,000	153,000	101,000	50,000
19,050	3/4	20,000	153,000	101,000	50,000
19,300		20,000	153,000	101,000	50,000
19,500		20,000	153,000	101,000	50,000
19,700		20,000	153,000	101,000	50,000
19,800		20,000	153,000	101,000	50,000
19,900		20,000	153,000	101,000	50,000
20,000		20,000	153,000	101,000	50,000

Brocas Ratio con refrigeración interior

5xD | RT 100 HF | DIN 6537 L | 140° | m7

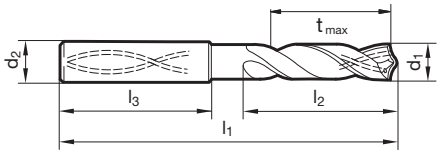
Material de corte	**Metal duro**
Acabado	Y
Forma del mango	HA

P	•	vaciado de punta ≥Ø 3,000 • entrada cónica • forma del corte principal ligeramente cóncava • geometría de corte optimizada
M		
K		
N		aceros aleados y templados hasta a 1600 N/mm² • Inconel, Hastelloy, Monel • titanio y aleaciones de titanio
S	•	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 756

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **8521**

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
3,000		6,000	66,000	28,000	36,000
3,100		6,000	66,000	28,000	36,000
3,170	1/8	6,000	66,000	28,000	36,000
3,200		6,000	66,000	28,000	36,000
3,250		6,000	66,000	28,000	36,000
3,300		6,000	66,000	28,000	36,000
3,400		6,000	66,000	28,000	36,000
3,500		6,000	66,000	28,000	36,000
3,570	9/64	6,000	66,000	28,000	36,000
3,600		6,000	66,000	28,000	36,000
3,700		6,000	66,000	28,000	36,000
3,800		6,000	74,000	36,000	36,000
3,900		6,000	74,000	36,000	36,000
3,970	5/32	6,000	74,000	36,000	36,000
4,000		6,000	74,000	36,000	36,000
4,100		6,000	74,000	36,000	36,000
4,200		6,000	74,000	36,000	36,000
4,300		6,000	74,000	36,000	36,000
4,370	11/64	6,000	74,000	36,000	36,000
4,400		6,000	74,000	36,000	36,000
4,500		6,000	74,000	36,000	36,000
4,600		6,000	74,000	36,000	36,000
4,650		6,000	74,000	36,000	36,000
4,700		6,000	74,000	36,000	36,000
4,760	3/16	6,000	82,000	44,000	36,000
4,800		6,000	82,000	44,000	36,000
4,900		6,000	82,000	44,000	36,000
5,000		6,000	82,000	44,000	36,000
5,100		6,000	82,000	44,000	36,000
5,160	13/64	6,000	82,000	44,000	36,000
5,200		6,000	82,000	44,000	36,000
5,300		6,000	82,000	44,000	36,000
5,400		6,000	82,000	44,000	36,000
5,500		6,000	82,000	44,000	36,000
5,550		6,000	82,000	44,000	36,000
5,560	7/32	6,000	82,000	44,000	36,000
5,600		6,000	82,000	44,000	36,000
5,700		6,000	82,000	44,000	36,000
5,800		6,000	82,000	44,000	36,000
5,900		6,000	82,000	44,000	36,000
5,950	15/64	6,000	82,000	44,000	36,000
6,000		6,000	82,000	44,000	36,000

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
6,100		8,000	91,000	53,000	36,000
6,200		8,000	91,000	53,000	36,000
6,300		8,000	91,000	53,000	36,000
6,350	1/4	8,000	91,000	53,000	36,000
6,400		8,000	91,000	53,000	36,000
6,500		8,000	91,000	53,000	36,000
6,600		8,000	91,000	53,000	36,000
6,700		8,000	91,000	53,000	36,000
6,750	17/64	8,000	91,000	53,000	36,000
6,800		8,000	91,000	53,000	36,000
6,900		8,000	91,000	53,000	36,000
7,000		8,000	91,000	53,000	36,000
7,100		8,000	91,000	53,000	36,000
7,140	9/32	8,000	91,000	53,000	36,000
7,200		8,000	91,000	53,000	36,000
7,300		8,000	91,000	53,000	36,000
7,400		8,000	91,000	53,000	36,000
7,500		8,000	91,000	53,000	36,000
7,540	19/64	8,000	91,000	53,000	36,000
7,600		8,000	91,000	53,000	36,000
7,700		8,000	91,000	53,000	36,000
7,800		8,000	91,000	53,000	36,000
7,900		8,000	91,000	53,000	36,000
7,940	5/16	8,000	91,000	53,000	36,000
8,000		8,000	91,000	53,000	36,000
8,100		10,000	103,000	61,000	40,000
8,200		10,000	103,000	61,000	40,000
8,300		10,000	103,000	61,000	40,000
8,330	21/64	10,000	103,000	61,000	40,000
8,400		10,000	103,000	61,000	40,000
8,500		10,000	103,000	61,000	40,000
8,600		10,000	103,000	61,000	40,000
8,700		10,000	103,000	61,000	40,000
8,730	11/32	10,000	103,000	61,000	40,000
8,800		10,000	103,000	61,000	40,000
8,900		10,000	103,000	61,000	40,000
9,000		10,000	103,000	61,000	40,000
9,100		10,000	103,000	61,000	40,000
9,130	23/64	10,000	103,000	61,000	40,000
9,200		10,000	103,000	61,000	40,000
9,250		10,000	103,000	61,000	40,000
9,300		10,000	103,000	61,000	40,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
9,400		10,000	103,000	61,000	40,000
9,500		10,000	103,000	61,000	40,000
9,520	3/8	10,000	103,000	61,000	40,000
9,600		10,000	103,000	61,000	40,000
9,700		10,000	103,000	61,000	40,000
9,800		10,000	103,000	61,000	40,000
9,900		10,000	103,000	61,000	40,000
9,920	25/64	10,000	103,000	61,000	40,000
10,000		10,000	103,000	61,000	40,000
10,100		12,000	118,000	71,000	45,000
10,200		12,000	118,000	71,000	45,000
10,300		12,000	118,000	71,000	45,000
10,320	13/32	12,000	118,000	71,000	45,000
10,400		12,000	118,000	71,000	45,000
10,500		12,000	118,000	71,000	45,000
10,600		12,000	118,000	71,000	45,000
10,700		12,000	118,000	71,000	45,000
10,720	27/64	12,000	118,000	71,000	45,000
10,800		12,000	118,000	71,000	45,000
10,900		12,000	118,000	71,000	45,000
11,000		12,000	118,000	71,000	45,000
11,100		12,000	118,000	71,000	45,000
11,110	7/16	12,000	118,000	71,000	45,000
11,200		12,000	118,000	71,000	45,000
11,300		12,000	118,000	71,000	45,000
11,400		12,000	118,000	71,000	45,000
11,500		12,000	118,000	71,000	45,000
11,510	29/64	12,000	118,000	71,000	45,000
11,600		12,000	118,000	71,000	45,000
11,700		12,000	118,000	71,000	45,000
11,800		12,000	118,000	71,000	45,000
11,900		12,000	118,000	71,000	45,000
11,910	15/32	12,000	118,000	71,000	45,000
12,000		12,000	118,000	71,000	45,000
12,200		14,000	124,000	77,000	45,000
12,500		14,000	124,000	77,000	45,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
12,700	1/2	14,000	124,000	77,000	45,000
12,800		14,000	124,000	77,000	45,000
13,000		14,000	124,000	77,000	45,000
13,300		14,000	124,000	77,000	45,000
13,500		14,000	124,000	77,000	45,000
13,700		14,000	124,000	77,000	45,000
14,000		14,000	124,000	77,000	45,000
14,200		16,000	133,000	83,000	48,000
14,290	9/16	16,000	133,000	83,000	48,000
14,300		16,000	133,000	83,000	48,000
14,500		16,000	133,000	83,000	48,000
14,700		16,000	133,000	83,000	48,000
15,000		16,000	133,000	83,000	48,000
15,200		16,000	133,000	83,000	48,000
15,300		16,000	133,000	83,000	48,000
15,500		16,000	133,000	83,000	48,000
15,700		16,000	133,000	83,000	48,000
15,870	5/8	16,000	133,000	83,000	48,000
16,000		16,000	133,000	83,000	48,000
16,300		18,000	143,000	93,000	48,000
16,500		18,000	143,000	93,000	48,000
16,900		18,000	143,000	93,000	48,000
17,000		18,000	143,000	93,000	48,000
17,300		18,000	143,000	93,000	48,000
17,500		18,000	143,000	93,000	48,000
18,000		18,000	143,000	93,000	48,000
18,500		20,000	153,000	101,000	50,000
18,900		20,000	153,000	101,000	50,000
19,000		20,000	153,000	101,000	50,000
19,050	3/4	20,000	153,000	101,000	50,000
19,300		20,000	153,000	101,000	50,000
19,500		20,000	153,000	101,000	50,000
20,000		20,000	153,000	101,000	50,000

Brocas Ratio con refrigeración interior

5xD | RT 100 HF | DIN 6537 L | 140° | m7

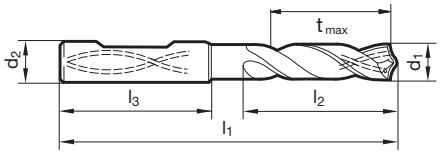
Material de corte	**Metal duro**
Acabado	Y
Forma del mango	HE

P	•	vaciado de punta ≥Ø 3,000 • entrada cónica • forma del corte principal ligeramente cóncava • geometría de corte optimizada
M		
K		
N		aceros aleados y templados hasta a 1600 N/mm² • Inconel, Hastelloy, Monel • titanio y aleaciones de titanio
S	•	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 756

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **8621**

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
3,000		6,000	66,000	28,000	36,000
3,100		6,000	66,000	28,000	36,000
3,170	1/8	6,000	66,000	28,000	36,000
3,200		6,000	66,000	28,000	36,000
3,250		6,000	66,000	28,000	36,000
3,300		6,000	66,000	28,000	36,000
3,400		6,000	66,000	28,000	36,000
3,500		6,000	66,000	28,000	36,000
3,570	9/64	6,000	66,000	28,000	36,000
3,600		6,000	66,000	28,000	36,000
3,700		6,000	66,000	28,000	36,000
3,800		6,000	74,000	36,000	36,000
3,900		6,000	74,000	36,000	36,000
3,970	5/32	6,000	74,000	36,000	36,000
4,000		6,000	74,000	36,000	36,000
4,100		6,000	74,000	36,000	36,000
4,200		6,000	74,000	36,000	36,000
4,300		6,000	74,000	36,000	36,000
4,370	11/64	6,000	74,000	36,000	36,000
4,400		6,000	74,000	36,000	36,000
4,500		6,000	74,000	36,000	36,000
4,600		6,000	74,000	36,000	36,000
4,650		6,000	74,000	36,000	36,000
4,700		6,000	74,000	36,000	36,000
4,760	3/16	6,000	82,000	44,000	36,000
4,800		6,000	82,000	44,000	36,000
4,900		6,000	82,000	44,000	36,000
5,000		6,000	82,000	44,000	36,000
5,100		6,000	82,000	44,000	36,000
5,160	13/64	6,000	82,000	44,000	36,000
5,200		6,000	82,000	44,000	36,000
5,300		6,000	82,000	44,000	36,000
5,400		6,000	82,000	44,000	36,000
5,500		6,000	82,000	44,000	36,000
5,550		6,000	82,000	44,000	36,000
5,560	7/32	6,000	82,000	44,000	36,000
5,600		6,000	82,000	44,000	36,000
5,700		6,000	82,000	44,000	36,000
5,800		6,000	82,000	44,000	36,000
5,900		6,000	82,000	44,000	36,000
5,950	15/64	6,000	82,000	44,000	36,000
6,000		6,000	82,000	44,000	36,000

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
6,100		8,000	91,000	53,000	36,000
6,200		8,000	91,000	53,000	36,000
6,300		8,000	91,000	53,000	36,000
6,350	1/4	8,000	91,000	53,000	36,000
6,400		8,000	91,000	53,000	36,000
6,500		8,000	91,000	53,000	36,000
6,600		8,000	91,000	53,000	36,000
6,700		8,000	91,000	53,000	36,000
6,750	17/64	8,000	91,000	53,000	36,000
6,800		8,000	91,000	53,000	36,000
6,900		8,000	91,000	53,000	36,000
7,000		8,000	91,000	53,000	36,000
7,100		8,000	91,000	53,000	36,000
7,140	9/32	8,000	91,000	53,000	36,000
7,200		8,000	91,000	53,000	36,000
7,300		8,000	91,000	53,000	36,000
7,400		8,000	91,000	53,000	36,000
7,500		8,000	91,000	53,000	36,000
7,540	19/64	8,000	91,000	53,000	36,000
7,600		8,000	91,000	53,000	36,000
7,700		8,000	91,000	53,000	36,000
7,800		8,000	91,000	53,000	36,000
7,900		8,000	91,000	53,000	36,000
7,940	5/16	8,000	91,000	53,000	36,000
8,000		8,000	91,000	53,000	36,000
8,100		10,000	103,000	61,000	40,000
8,200		10,000	103,000	61,000	40,000
8,300		10,000	103,000	61,000	40,000
8,330	21/64	10,000	103,000	61,000	40,000
8,400		10,000	103,000	61,000	40,000
8,500		10,000	103,000	61,000	40,000
8,600		10,000	103,000	61,000	40,000
8,700		10,000	103,000	61,000	40,000
8,730	11/32	10,000	103,000	61,000	40,000
8,800		10,000	103,000	61,000	40,000
8,900		10,000	103,000	61,000	40,000
9,000		10,000	103,000	61,000	40,000
9,100		10,000	103,000	61,000	40,000
9,130	23/64	10,000	103,000	61,000	40,000
9,200		10,000	103,000	61,000	40,000
9,250		10,000	103,000	61,000	40,000
9,300		10,000	103,000	61,000	40,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
9,400		10,000	103,000	61,000	40,000
9,500		10,000	103,000	61,000	40,000
9,520	3/8	10,000	103,000	61,000	40,000
9,600		10,000	103,000	61,000	40,000
9,700		10,000	103,000	61,000	40,000
9,800		10,000	103,000	61,000	40,000
9,900		10,000	103,000	61,000	40,000
9,920	25/64	10,000	103,000	61,000	40,000
10,000		10,000	103,000	61,000	40,000
10,100		12,000	118,000	71,000	45,000
10,200		12,000	118,000	71,000	45,000
10,300		12,000	118,000	71,000	45,000
10,320	13/32	12,000	118,000	71,000	45,000
10,400		12,000	118,000	71,000	45,000
10,500		12,000	118,000	71,000	45,000
10,600		12,000	118,000	71,000	45,000
10,700		12,000	118,000	71,000	45,000
10,800		12,000	118,000	71,000	45,000
10,900		12,000	118,000	71,000	45,000
11,000		12,000	118,000	71,000	45,000
11,100		12,000	118,000	71,000	45,000
11,110	7/16	12,000	118,000	71,000	45,000
11,200		12,000	118,000	71,000	45,000
11,300		12,000	118,000	71,000	45,000
11,400		12,000	118,000	71,000	45,000
11,500		12,000	118,000	71,000	45,000
11,600		12,000	118,000	71,000	45,000
11,700		12,000	118,000	71,000	45,000
11,800		12,000	118,000	71,000	45,000
11,900		12,000	118,000	71,000	45,000
11,910	15/32	12,000	118,000	71,000	45,000
12,000		12,000	118,000	71,000	45,000
12,200		14,000	124,000	77,000	45,000
12,500		14,000	124,000	77,000	45,000
12,700	1/2	14,000	124,000	77,000	45,000
12,800		14,000	124,000	77,000	45,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
13,000		14,000	124,000	77,000	45,000
13,300		14,000	124,000	77,000	45,000
13,500		14,000	124,000	77,000	45,000
13,700		14,000	124,000	77,000	45,000
14,000		14,000	124,000	77,000	45,000
14,200		16,000	133,000	83,000	48,000
14,290	9/16	16,000	133,000	83,000	48,000
14,300		16,000	133,000	83,000	48,000
14,500		16,000	133,000	83,000	48,000
14,700		16,000	133,000	83,000	48,000
15,000		16,000	133,000	83,000	48,000
15,200		16,000	133,000	83,000	48,000
15,300		16,000	133,000	83,000	48,000
15,500		16,000	133,000	83,000	48,000
15,700		16,000	133,000	83,000	48,000
16,000		16,000	133,000	83,000	48,000
16,300		18,000	143,000	93,000	48,000
16,500		18,000	143,000	93,000	48,000
16,900		18,000	143,000	93,000	48,000
17,000		18,000	143,000	93,000	48,000
17,300		18,000	143,000	93,000	48,000
17,500		18,000	143,000	93,000	48,000
18,000		18,000	143,000	93,000	48,000
18,500		20,000	153,000	101,000	50,000
18,900		20,000	153,000	101,000	50,000
19,000		20,000	153,000	101,000	50,000
19,050	3/4	20,000	153,000	101,000	50,000
19,300		20,000	153,000	101,000	50,000
19,500		20,000	153,000	101,000	50,000
20,000		20,000	153,000	101,000	50,000

Brocas Ratio con refrigeración interior

5xD | RT 100 VA | DIN 6537 L | 140° | m7

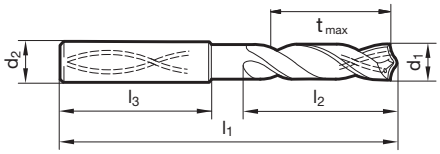
Material de corte	**Metal duro**
Acabado	a
Forma del mango	HA

P		vaciado de punta ≥Ø 3,000 • afilado plano • forma recta del corte principal • geometría de corte optimizada
M	•	
K		
N		aceros inoxidables y resistentes al ácido y al calor • titanio y aleaciones de titanio • Inconel, Hastelloy, Monel
S	•	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 756

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **8511**

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
3,000		6,000	66,000	28,000	36,000
3,100		6,000	66,000	28,000	36,000
3,170	1/8	6,000	66,000	28,000	36,000
3,200		6,000	66,000	28,000	36,000
3,250		6,000	66,000	28,000	36,000
3,300		6,000	66,000	28,000	36,000
3,400		6,000	66,000	28,000	36,000
3,500		6,000	66,000	28,000	36,000
3,570	9/64	6,000	66,000	28,000	36,000
3,600		6,000	66,000	28,000	36,000
3,700		6,000	66,000	28,000	36,000
3,800		6,000	74,000	36,000	36,000
3,900		6,000	74,000	36,000	36,000
3,970	5/32	6,000	74,000	36,000	36,000
4,000		6,000	74,000	36,000	36,000
4,100		6,000	74,000	36,000	36,000
4,200		6,000	74,000	36,000	36,000
4,300		6,000	74,000	36,000	36,000
4,370	11/64	6,000	74,000	36,000	36,000
4,400		6,000	74,000	36,000	36,000
4,500		6,000	74,000	36,000	36,000
4,600		6,000	74,000	36,000	36,000
4,650		6,000	74,000	36,000	36,000
4,700		6,000	74,000	36,000	36,000
4,760	3/16	6,000	82,000	44,000	36,000
4,800		6,000	82,000	44,000	36,000
4,900		6,000	82,000	44,000	36,000
5,000		6,000	82,000	44,000	36,000
5,100		6,000	82,000	44,000	36,000
5,160	13/64	6,000	82,000	44,000	36,000
5,200		6,000	82,000	44,000	36,000
5,300		6,000	82,000	44,000	36,000
5,400		6,000	82,000	44,000	36,000
5,500		6,000	82,000	44,000	36,000
5,550		6,000	82,000	44,000	36,000
5,560	7/32	6,000	82,000	44,000	36,000
5,600		6,000	82,000	44,000	36,000
5,700		6,000	82,000	44,000	36,000
5,800		6,000	82,000	44,000	36,000
5,900		6,000	82,000	44,000	36,000
5,950	15/64	6,000	82,000	44,000	36,000
6,000		6,000	82,000	44,000	36,000

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
6,100		8,000	91,000	53,000	36,000
6,200		8,000	91,000	53,000	36,000
6,300		8,000	91,000	53,000	36,000
6,350	1/4	8,000	91,000	53,000	36,000
6,400		8,000	91,000	53,000	36,000
6,500		8,000	91,000	53,000	36,000
6,600		8,000	91,000	53,000	36,000
6,700		8,000	91,000	53,000	36,000
6,750	17/64	8,000	91,000	53,000	36,000
6,800		8,000	91,000	53,000	36,000
6,900		8,000	91,000	53,000	36,000
7,000		8,000	91,000	53,000	36,000
7,100		8,000	91,000	53,000	36,000
7,140	9/32	8,000	91,000	53,000	36,000
7,200		8,000	91,000	53,000	36,000
7,300		8,000	91,000	53,000	36,000
7,400		8,000	91,000	53,000	36,000
7,500		8,000	91,000	53,000	36,000
7,540	19/64	8,000	91,000	53,000	36,000
7,600		8,000	91,000	53,000	36,000
7,700		8,000	91,000	53,000	36,000
7,800		8,000	91,000	53,000	36,000
7,900		8,000	91,000	53,000	36,000
7,940	5/16	8,000	91,000	53,000	36,000
8,000		8,000	91,000	53,000	36,000
8,100		10,000	103,000	61,000	40,000
8,200		10,000	103,000	61,000	40,000
8,300		10,000	103,000	61,000	40,000
8,330	21/64	10,000	103,000	61,000	40,000
8,400		10,000	103,000	61,000	40,000
8,500		10,000	103,000	61,000	40,000
8,600		10,000	103,000	61,000	40,000
8,700		10,000	103,000	61,000	40,000
8,730	11/32	10,000	103,000	61,000	40,000
8,800		10,000	103,000	61,000	40,000
8,900		10,000	103,000	61,000	40,000
9,000		10,000	103,000	61,000	40,000
9,100		10,000	103,000	61,000	40,000
9,130	23/64	10,000	103,000	61,000	40,000
9,200		10,000	103,000	61,000	40,000
9,250		10,000	103,000	61,000	40,000
9,300		10,000	103,000	61,000	40,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
9,400		10,000	103,000	61,000	40,000
9,500		10,000	103,000	61,000	40,000
9,520	3/8	10,000	103,000	61,000	40,000
9,600		10,000	103,000	61,000	40,000
9,700		10,000	103,000	61,000	40,000
9,800		10,000	103,000	61,000	40,000
9,900		10,000	103,000	61,000	40,000
9,920	25/64	10,000	103,000	61,000	40,000
10,000		10,000	103,000	61,000	40,000
10,100		12,000	118,000	71,000	45,000
10,200		12,000	118,000	71,000	45,000
10,300		12,000	118,000	71,000	45,000
10,320	13/32	12,000	118,000	71,000	45,000
10,400		12,000	118,000	71,000	45,000
10,500		12,000	118,000	71,000	45,000
10,600		12,000	118,000	71,000	45,000
10,700		12,000	118,000	71,000	45,000
10,800		12,000	118,000	71,000	45,000
10,900		12,000	118,000	71,000	45,000
11,000		12,000	118,000	71,000	45,000
11,100		12,000	118,000	71,000	45,000
11,110	7/16	12,000	118,000	71,000	45,000
11,200		12,000	118,000	71,000	45,000
11,300		12,000	118,000	71,000	45,000
11,400		12,000	118,000	71,000	45,000
11,500		12,000	118,000	71,000	45,000
11,600		12,000	118,000	71,000	45,000
11,700		12,000	118,000	71,000	45,000
11,800		12,000	118,000	71,000	45,000
11,900		12,000	118,000	71,000	45,000
11,910	15/32	12,000	118,000	71,000	45,000
12,000		12,000	118,000	71,000	45,000
12,200		14,000	124,000	77,000	45,000
12,500		14,000	124,000	77,000	45,000
12,700	1/2	14,000	124,000	77,000	45,000
12,800		14,000	124,000	77,000	45,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
13,000		14,000	124,000	77,000	45,000
13,300		14,000	124,000	77,000	45,000
13,500		14,000	124,000	77,000	45,000
13,700		14,000	124,000	77,000	45,000
14,000		14,000	124,000	77,000	45,000
14,200		16,000	133,000	83,000	48,000
14,290	9/16	16,000	133,000	83,000	48,000
14,300		16,000	133,000	83,000	48,000
14,500		16,000	133,000	83,000	48,000
14,700		16,000	133,000	83,000	48,000
15,000		16,000	133,000	83,000	48,000
15,200		16,000	133,000	83,000	48,000
15,300		16,000	133,000	83,000	48,000
15,500		16,000	133,000	83,000	48,000
15,700		16,000	133,000	83,000	48,000
16,000		16,000	133,000	83,000	48,000
16,300		18,000	143,000	93,000	48,000
16,500		18,000	143,000	93,000	48,000
16,900		18,000	143,000	93,000	48,000
17,000		18,000	143,000	93,000	48,000
17,300		18,000	143,000	93,000	48,000
17,500		18,000	143,000	93,000	48,000
18,000		18,000	143,000	93,000	48,000
18,500		20,000	153,000	101,000	50,000
18,900		20,000	153,000	101,000	50,000
19,000		20,000	153,000	101,000	50,000
19,050	3/4	20,000	153,000	101,000	50,000
19,300		20,000	153,000	101,000	50,000
19,500		20,000	153,000	101,000	50,000
20,000		20,000	153,000	101,000	50,000

Brocas Ratio con refrigeración interior

5xD | RT 100 VA | DIN 6537 L | 140° | m7

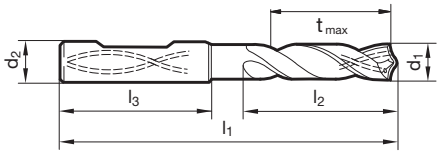
Material de corte	**Metal duro**
Acabado	a
Forma del mango	HE

P		vaciado de punta ≥Ø 3,000 • afilado plano • forma recta del corte principal • geometría de corte optimizada
M	•	
K		
N		aceros inoxidables y resistentes al ácido y al calor • titanio y aleaciones de titanio • Inconel, Hastelloy, Monel
S	•	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 756

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **8611**

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
3,000		6,000	66,000	28,000	36,000
3,100		6,000	66,000	28,000	36,000
3,170	1/8	6,000	66,000	28,000	36,000
3,200		6,000	66,000	28,000	36,000
3,250		6,000	66,000	28,000	36,000
3,300		6,000	66,000	28,000	36,000
3,400		6,000	66,000	28,000	36,000
3,500		6,000	66,000	28,000	36,000
3,570	9/64	6,000	66,000	28,000	36,000
3,600		6,000	66,000	28,000	36,000
3,700		6,000	66,000	28,000	36,000
3,800		6,000	74,000	36,000	36,000
3,900		6,000	74,000	36,000	36,000
3,970	5/32	6,000	74,000	36,000	36,000
4,000		6,000	74,000	36,000	36,000
4,100		6,000	74,000	36,000	36,000
4,200		6,000	74,000	36,000	36,000
4,300		6,000	74,000	36,000	36,000
4,370	11/64	6,000	74,000	36,000	36,000
4,400		6,000	74,000	36,000	36,000
4,500		6,000	74,000	36,000	36,000
4,600		6,000	74,000	36,000	36,000
4,650		6,000	74,000	36,000	36,000
4,700		6,000	74,000	36,000	36,000
4,760	3/16	6,000	82,000	44,000	36,000
4,800		6,000	82,000	44,000	36,000
4,900		6,000	82,000	44,000	36,000
5,000		6,000	82,000	44,000	36,000
5,100		6,000	82,000	44,000	36,000
5,160	13/64	6,000	82,000	44,000	36,000
5,200		6,000	82,000	44,000	36,000
5,300		6,000	82,000	44,000	36,000
5,400		6,000	82,000	44,000	36,000
5,500		6,000	82,000	44,000	36,000
5,550		6,000	82,000	44,000	36,000
5,560	7/32	6,000	82,000	44,000	36,000
5,600		6,000	82,000	44,000	36,000
5,700		6,000	82,000	44,000	36,000
5,800		6,000	82,000	44,000	36,000
5,900		6,000	82,000	44,000	36,000
5,950	15/64	6,000	82,000	44,000	36,000
6,000		6,000	82,000	44,000	36,000

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
6,100		8,000	91,000	53,000	36,000
6,200		8,000	91,000	53,000	36,000
6,300		8,000	91,000	53,000	36,000
6,350	1/4	8,000	91,000	53,000	36,000
6,400		8,000	91,000	53,000	36,000
6,500		8,000	91,000	53,000	36,000
6,600		8,000	91,000	53,000	36,000
6,700		8,000	91,000	53,000	36,000
6,750	17/64	8,000	91,000	53,000	36,000
6,800		8,000	91,000	53,000	36,000
6,900		8,000	91,000	53,000	36,000
7,000		8,000	91,000	53,000	36,000
7,100		8,000	91,000	53,000	36,000
7,140	9/32	8,000	91,000	53,000	36,000
7,200		8,000	91,000	53,000	36,000
7,300		8,000	91,000	53,000	36,000
7,400		8,000	91,000	53,000	36,000
7,500		8,000	91,000	53,000	36,000
7,540	19/64	8,000	91,000	53,000	36,000
7,600		8,000	91,000	53,000	36,000
7,700		8,000	91,000	53,000	36,000
7,800		8,000	91,000	53,000	36,000
7,900		8,000	91,000	53,000	36,000
7,940	5/16	8,000	91,000	53,000	36,000
8,000		8,000	91,000	53,000	36,000
8,100		10,000	103,000	61,000	40,000
8,200		10,000	103,000	61,000	40,000
8,300		10,000	103,000	61,000	40,000
8,330	21/64	10,000	103,000	61,000	40,000
8,400		10,000	103,000	61,000	40,000
8,500		10,000	103,000	61,000	40,000
8,600		10,000	103,000	61,000	40,000
8,700		10,000	103,000	61,000	40,000
8,730	11/32	10,000	103,000	61,000	40,000
8,800		10,000	103,000	61,000	40,000
8,900		10,000	103,000	61,000	40,000
9,000		10,000	103,000	61,000	40,000
9,100		10,000	103,000	61,000	40,000
9,130	23/64	10,000	103,000	61,000	40,000
9,200		10,000	103,000	61,000	40,000
9,250		10,000	103,000	61,000	40,000
9,300		10,000	103,000	61,000	40,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
9,400		10,000	103,000	61,000	40,000
9,500		10,000	103,000	61,000	40,000
9,520	3/8	10,000	103,000	61,000	40,000
9,600		10,000	103,000	61,000	40,000
9,700		10,000	103,000	61,000	40,000
9,800		10,000	103,000	61,000	40,000
9,900		10,000	103,000	61,000	40,000
9,920	25/64	10,000	103,000	61,000	40,000
10,000		10,000	103,000	61,000	40,000
10,100		12,000	118,000	71,000	45,000
10,200		12,000	118,000	71,000	45,000
10,300		12,000	118,000	71,000	45,000
10,320	13/32	12,000	118,000	71,000	45,000
10,400		12,000	118,000	71,000	45,000
10,500		12,000	118,000	71,000	45,000
10,600		12,000	118,000	71,000	45,000
10,700		12,000	118,000	71,000	45,000
10,800		12,000	118,000	71,000	45,000
10,900		12,000	118,000	71,000	45,000
11,000		12,000	118,000	71,000	45,000
11,100		12,000	118,000	71,000	45,000
11,110	7/16	12,000	118,000	71,000	45,000
11,200		12,000	118,000	71,000	45,000
11,300		12,000	118,000	71,000	45,000
11,400		12,000	118,000	71,000	45,000
11,500		12,000	118,000	71,000	45,000
11,600		12,000	118,000	71,000	45,000
11,700		12,000	118,000	71,000	45,000
11,800		12,000	118,000	71,000	45,000
11,900		12,000	118,000	71,000	45,000
11,910	15/32	12,000	118,000	71,000	45,000
12,000		12,000	118,000	71,000	45,000
12,200		14,000	124,000	77,000	45,000
12,500		14,000	124,000	77,000	45,000
12,700	1/2	14,000	124,000	77,000	45,000
12,800		14,000	124,000	77,000	45,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
13,000		14,000	124,000	77,000	45,000
13,300		14,000	124,000	77,000	45,000
13,500		14,000	124,000	77,000	45,000
13,700		14,000	124,000	77,000	45,000
14,000		14,000	124,000	77,000	45,000
14,200		16,000	133,000	83,000	48,000
14,290	9/16	16,000	133,000	83,000	48,000
14,300		16,000	133,000	83,000	48,000
14,500		16,000	133,000	83,000	48,000
14,700		16,000	133,000	83,000	48,000
15,000		16,000	133,000	83,000	48,000
15,200		16,000	133,000	83,000	48,000
15,300		16,000	133,000	83,000	48,000
15,500		16,000	133,000	83,000	48,000
15,700		16,000	133,000	83,000	48,000
16,000		16,000	133,000	83,000	48,000
16,300		18,000	143,000	93,000	48,000
16,500		18,000	143,000	93,000	48,000
16,900		18,000	143,000	93,000	48,000
17,000		18,000	143,000	93,000	48,000
17,300		18,000	143,000	93,000	48,000
17,500		18,000	143,000	93,000	48,000
18,000		18,000	143,000	93,000	48,000
18,500		20,000	153,000	101,000	50,000
18,900		20,000	153,000	101,000	50,000
19,000		20,000	153,000	101,000	50,000
19,050	3/4	20,000	153,000	101,000	50,000
19,300		20,000	153,000	101,000	50,000
19,500		20,000	153,000	101,000	50,000
20,000		20,000	153,000	101,000	50,000

Brocas Ratio con refrigeración interior

5xD | RT 100 F | DIN 6537 L | 140° | m7

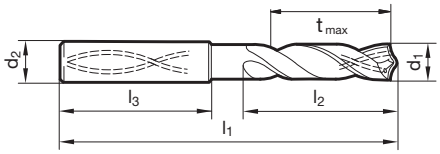
Material de corte	**Metal duro**
Acabado	F
Forma del mango	HA

P	○	vaciado de punta ≥Ø 3,000 • entrada cónica • forma cóncava del corte principal • geometría de corte optimizada • corte agresivo
M	○	
K	○	
N	○	aceros altamente aleados • aceros inoxidables y resistentes al ácido y al calor • Inconel, Hastelloy, Monel • latón, bronce • aluminio y sus aleaciones • magnesio y sus aleaciones • titanio y aleaciones de titanio • metales sinterizados
S	●	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 754

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **2478**

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
3,000		6,000	66,000	28,000	36,000
3,300		6,000	66,000	28,000	36,000
3,500		6,000	66,000	28,000	36,000
4,000		6,000	74,000	36,000	36,000
4,200		6,000	74,000	36,000	36,000
4,800		6,000	82,000	44,000	36,000
5,000		6,000	82,000	44,000	36,000
5,500		6,000	82,000	44,000	36,000
6,000		6,000	82,000	44,000	36,000
6,500		8,000	91,000	53,000	36,000
6,800		8,000	91,000	53,000	36,000
7,000		8,000	91,000	53,000	36,000
7,400		8,000	91,000	53,000	36,000
7,500		8,000	91,000	53,000	36,000
7,550		8,000	91,000	53,000	36,000
7,700		8,000	91,000	53,000	36,000
8,000		8,000	91,000	53,000	36,000
8,500		10,000	103,000	61,000	40,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
9,000		10,000	103,000	61,000	40,000
9,500		10,000	103,000	61,000	40,000
10,000		10,000	103,000	61,000	40,000
10,200		12,000	118,000	71,000	45,000
11,000		12,000	118,000	71,000	45,000
11,200		12,000	118,000	71,000	45,000
11,300		12,000	118,000	71,000	45,000
12,000		12,000	118,000	71,000	45,000
13,000		14,000	124,000	77,000	45,000
13,500		14,000	124,000	77,000	45,000
14,000		14,000	124,000	77,000	45,000
14,500		16,000	133,000	83,000	48,000
16,000		16,000	133,000	83,000	48,000
17,000		18,000	143,000	93,000	48,000
17,500		18,000	143,000	93,000	48,000
20,000		20,000	153,000	101,000	50,000

Brocas Ratio con refrigeración interior

5xD | RT 100 F | DIN 6537 L | 140° | m7

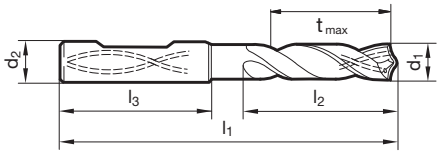
Material de corte	**Metal duro**
Acabado	F
Forma del mango	HE

P	○	vaciado de punta ≥Ø 3,000 • entrada cónica • forma cóncava del corte principal • geometría de corte optimizada • corte agresivo
M	○	
K	○	
N	○	aceros altamente aleados • aceros inoxidables y resistentes al ácido y al calor • Inconel, Hastelloy, Monel • latón, bronce • aluminio y sus aleaciones • magnesio y sus aleaciones • titanio y aleaciones de titanio • metales sinterizados
S	●	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 754

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **2470**

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
3,000		6,000	66,000	28,000	36,000
3,500		6,000	66,000	28,000	36,000
4,000		6,000	74,000	36,000	36,000
4,200		6,000	74,000	36,000	36,000
5,000		6,000	82,000	44,000	36,000
5,100		6,000	82,000	44,000	36,000
5,200		6,000	82,000	44,000	36,000
5,300		6,000	82,000	44,000	36,000
5,400		6,000	82,000	44,000	36,000
5,500		6,000	82,000	44,000	36,000
5,600		6,000	82,000	44,000	36,000
5,800		6,000	82,000	44,000	36,000
6,000		6,000	82,000	44,000	36,000
6,100		8,000	91,000	53,000	36,000
6,200		8,000	91,000	53,000	36,000
6,500		8,000	91,000	53,000	36,000
6,600		8,000	91,000	53,000	36,000
6,700		8,000	91,000	53,000	36,000
6,800		8,000	91,000	53,000	36,000
7,000		8,000	91,000	53,000	36,000
7,100		8,000	91,000	53,000	36,000
7,200		8,000	91,000	53,000	36,000
7,600		8,000	91,000	53,000	36,000
7,700		8,000	91,000	53,000	36,000
8,000		8,000	91,000	53,000	36,000
8,100		10,000	103,000	61,000	40,000
8,500		10,000	103,000	61,000	40,000
8,600		10,000	103,000	61,000	40,000
8,700		10,000	103,000	61,000	40,000
8,800		10,000	103,000	61,000	40,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
9,000		10,000	103,000	61,000	40,000
9,200		10,000	103,000	61,000	40,000
9,300		10,000	103,000	61,000	40,000
9,500		10,000	103,000	61,000	40,000
9,700		10,000	103,000	61,000	40,000
10,000		10,000	103,000	61,000	40,000
10,100		12,000	118,000	71,000	45,000
10,200		12,000	118,000	71,000	45,000
10,500		12,000	118,000	71,000	45,000
11,000		12,000	118,000	71,000	45,000
11,100		12,000	118,000	71,000	45,000
11,400		12,000	118,000	71,000	45,000
11,500		12,000	118,000	71,000	45,000
11,700		12,000	118,000	71,000	45,000
11,800		12,000	118,000	71,000	45,000
12,000		12,000	118,000	71,000	45,000
12,200		14,000	124,000	77,000	45,000
12,500		14,000	124,000	77,000	45,000
13,000		14,000	124,000	77,000	45,000
13,500		14,000	124,000	77,000	45,000
14,000		14,000	124,000	77,000	45,000
14,100		16,000	133,000	83,000	48,000
14,500		16,000	133,000	83,000	48,000
15,000		16,000	133,000	83,000	48,000
16,000		16,000	133,000	83,000	48,000
16,500		18,000	143,000	93,000	48,000
17,000		18,000	143,000	93,000	48,000
17,500		18,000	143,000	93,000	48,000
18,000		18,000	143,000	93,000	48,000
20,000		20,000	153,000	101,000	50,000

Brocas Ratio con refrigeración interior

5xD | RT 100 F | DIN 6537 L | 140° | m7

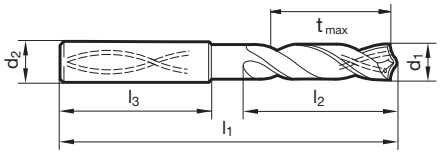
Material de corte	**Metal duro**
Acabado	S
Forma del mango	HA

P	○	vaciado de punta ≥Ø 3,000 • entrada cónica • forma cóncava del corte principal • geometría de corte optimizada • corte agresivo
M	○	
K	○	
N	○	aceros altamente aleados • aceros inoxidables y resistentes al ácido y al calor • Inconel, Hastelloy, Monel • latón, bronce • aluminio y sus aleaciones • magnesio y sus aleaciones • titanio y aleaciones de titanio • metales sinterizados
S	●	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 754

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº	**1662**

d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
3,000		6,000	66,000	28,000	36,000
3,100		6,000	66,000	28,000	36,000
3,170	1/8	6,000	66,000	28,000	36,000
3,200		6,000	66,000	28,000	36,000
3,300		6,000	66,000	28,000	36,000
3,400		6,000	66,000	28,000	36,000
3,500		6,000	66,000	28,000	36,000
3,570	9/64	6,000	66,000	28,000	36,000
3,600		6,000	66,000	28,000	36,000
3,700		6,000	66,000	28,000	36,000
3,800		6,000	74,000	36,000	36,000
3,900		6,000	74,000	36,000	36,000
3,970	5/32	6,000	74,000	36,000	36,000
4,000		6,000	74,000	36,000	36,000
4,100		6,000	74,000	36,000	36,000
4,200		6,000	74,000	36,000	36,000
4,300		6,000	74,000	36,000	36,000
4,370	11/64	6,000	74,000	36,000	36,000
4,400		6,000	74,000	36,000	36,000
4,500		6,000	74,000	36,000	36,000
4,600		6,000	74,000	36,000	36,000
4,650		6,000	74,000	36,000	36,000
4,700		6,000	74,000	36,000	36,000
4,760	3/16	6,000	82,000	44,000	36,000
4,800		6,000	82,000	44,000	36,000
4,900		6,000	82,000	44,000	36,000
5,000		6,000	82,000	44,000	36,000
5,100		6,000	82,000	44,000	36,000
5,160	13/64	6,000	82,000	44,000	36,000
5,200		6,000	82,000	44,000	36,000
5,300		6,000	82,000	44,000	36,000
5,400		6,000	82,000	44,000	36,000
5,500		6,000	82,000	44,000	36,000
5,550		6,000	82,000	44,000	36,000
5,560	7/32	6,000	82,000	44,000	36,000
5,600		6,000	82,000	44,000	36,000
5,700		6,000	82,000	44,000	36,000
5,800		6,000	82,000	44,000	36,000
5,900		6,000	82,000	44,000	36,000
5,950	15/64	6,000	82,000	44,000	36,000
6,000		6,000	82,000	44,000	36,000
6,100		8,000	91,000	53,000	36,000

d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
6,200		8,000	91,000	53,000	36,000
6,300		8,000	91,000	53,000	36,000
6,350	1/4	8,000	91,000	53,000	36,000
6,400		8,000	91,000	53,000	36,000
6,500		8,000	91,000	53,000	36,000
6,600		8,000	91,000	53,000	36,000
6,700		8,000	91,000	53,000	36,000
6,750	17/64	8,000	91,000	53,000	36,000
6,800		8,000	91,000	53,000	36,000
6,900		8,000	91,000	53,000	36,000
7,000		8,000	91,000	53,000	36,000
7,100		8,000	91,000	53,000	36,000
7,140	9/32	8,000	91,000	53,000	36,000
7,200		8,000	91,000	53,000	36,000
7,300		8,000	91,000	53,000	36,000
7,400		8,000	91,000	53,000	36,000
7,500		8,000	91,000	53,000	36,000
7,540	19/64	8,000	91,000	53,000	36,000
7,550		8,000	91,000	53,000	36,000
7,600		8,000	91,000	53,000	36,000
7,700		8,000	91,000	53,000	36,000
7,800		8,000	91,000	53,000	36,000
7,900		8,000	91,000	53,000	36,000
7,940	5/16	8,000	91,000	53,000	36,000
8,000		8,000	91,000	53,000	36,000
8,100		10,000	103,000	61,000	40,000
8,200		10,000	103,000	61,000	40,000
8,300		10,000	103,000	61,000	40,000
8,330	21/64	10,000	103,000	61,000	40,000
8,500		10,000	103,000	61,000	40,000
8,600		10,000	103,000	61,000	40,000
8,700		10,000	103,000	61,000	40,000
8,730	11/32	10,000	103,000	61,000	40,000
8,800		10,000	103,000	61,000	40,000
8,900		10,000	103,000	61,000	40,000
9,000		10,000	103,000	61,000	40,000
9,100		10,000	103,000	61,000	40,000
9,130	23/64	10,000	103,000	61,000	40,000
9,200		10,000	103,000	61,000	40,000
9,250		10,000	103,000	61,000	40,000
9,300		10,000	103,000	61,000	40,000
9,400		10,000	103,000	61,000	40,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
9,500		10,000	103,000	61,000	40,000
9,520	3/8	10,000	103,000	61,000	40,000
9,600		10,000	103,000	61,000	40,000
9,800		10,000	103,000	61,000	40,000
9,900		10,000	103,000	61,000	40,000
9,920	25/64	10,000	103,000	61,000	40,000
10,000		10,000	103,000	61,000	40,000
10,100		12,000	118,000	71,000	45,000
10,200		12,000	118,000	71,000	45,000
10,300		12,000	118,000	71,000	45,000
10,320	13/32	12,000	118,000	71,000	45,000
10,500		12,000	118,000	71,000	45,000
10,700		12,000	118,000	71,000	45,000
10,720	27/64	12,000	118,000	71,000	45,000
10,800		12,000	118,000	71,000	45,000
11,000		12,000	118,000	71,000	45,000
11,100		12,000	118,000	71,000	45,000
11,110	7/16	12,000	118,000	71,000	45,000
11,200		12,000	118,000	71,000	45,000
11,300		12,000	118,000	71,000	45,000
11,400		12,000	118,000	71,000	45,000
11,500		12,000	118,000	71,000	45,000
11,510	29/64	12,000	118,000	71,000	45,000
11,700		12,000	118,000	71,000	45,000
11,910	15/32	12,000	118,000	71,000	45,000
12,000		12,000	118,000	71,000	45,000
12,100		14,000	124,000	77,000	45,000
12,200		14,000	124,000	77,000	45,000
12,300	31/64	14,000	124,000	77,000	45,000
12,500		14,000	124,000	77,000	45,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
12,700	1/2	14,000	124,000	77,000	45,000
12,800		14,000	124,000	77,000	45,000
13,000		14,000	124,000	77,000	45,000
13,200		14,000	124,000	77,000	45,000
13,500		14,000	124,000	77,000	45,000
14,000		14,000	124,000	77,000	45,000
14,500		16,000	133,000	83,000	48,000
15,000		16,000	133,000	83,000	48,000
15,500		16,000	133,000	83,000	48,000
16,000		16,000	133,000	83,000	48,000
16,500		18,000	143,000	93,000	48,000
17,000		18,000	143,000	93,000	48,000
17,500		18,000	143,000	93,000	48,000
18,000		18,000	143,000	93,000	48,000
19,000		20,000	153,000	101,000	50,000
20,000		20,000	153,000	101,000	50,000
20,500		25,000	165,000	105,000	56,000
21,000		25,000	165,000	105,000	56,000
22,500		25,000	180,000	117,000	56,000
23,500		25,000	180,000	117,000	56,000

Brocas Ratio con refrigeración interior

5xD | RT 100 F | DIN 6537 L | 140° | m7

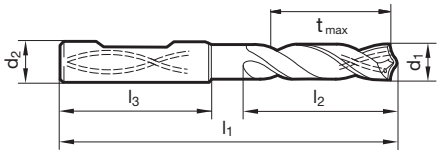
Material de corte	**Metal duro**
Acabado	S
Forma del mango	HE

P	○	vaciado de punta ≥Ø 10,100 • entrada cónica • forma cóncava del corte principal • geometría de corte optimizada • corte agresivo
M	○	
K	○	
N	○	aceros altamente aleados • aceros inoxidables y resistentes al ácido y al calor • Inconel, Hastelloy, Monel • latón, bronce • aluminio y sus aleaciones • magnesio y sus aleaciones • titanio y aleaciones de titanio • metales sinterizados
S	●	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 754

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **1182**

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
3,000		6,000	66,000	28,000	36,000
4,000		6,000	74,000	36,000	36,000
4,200		6,000	74,000	36,000	36,000
4,300		6,000	74,000	36,000	36,000
4,400		6,000	74,000	36,000	36,000
4,500		6,000	74,000	36,000	36,000
4,600		6,000	74,000	36,000	36,000
4,800		6,000	82,000	44,000	36,000
4,900		6,000	82,000	44,000	36,000
5,000		6,000	82,000	44,000	36,000
5,100		6,000	82,000	44,000	36,000
5,200		6,000	82,000	44,000	36,000
5,300		6,000	82,000	44,000	36,000
5,400		6,000	82,000	44,000	36,000
5,500		6,000	82,000	44,000	36,000
5,600		6,000	82,000	44,000	36,000
5,800		6,000	82,000	44,000	36,000
6,000		6,000	82,000	44,000	36,000
6,100		8,000	91,000	53,000	36,000
6,200		8,000	91,000	53,000	36,000
6,300		8,000	91,000	53,000	36,000
6,500		8,000	91,000	53,000	36,000
6,600		8,000	91,000	53,000	36,000
6,700		8,000	91,000	53,000	36,000
6,800		8,000	91,000	53,000	36,000
6,900		8,000	91,000	53,000	36,000
7,000		8,000	91,000	53,000	36,000
7,140	9/32	8,000	91,000	53,000	36,000
7,200		8,000	91,000	53,000	36,000
7,400		8,000	91,000	53,000	36,000
7,500		8,000	91,000	53,000	36,000
7,600		8,000	91,000	53,000	36,000
7,800		8,000	91,000	53,000	36,000
7,900		8,000	91,000	53,000	36,000
8,000		8,000	91,000	53,000	36,000
8,100		10,000	103,000	61,000	40,000
8,200		10,000	103,000	61,000	40,000
8,300		10,000	103,000	61,000	40,000
8,500		10,000	103,000	61,000	40,000
8,600		10,000	103,000	61,000	40,000
8,700		10,000	103,000	61,000	40,000
8,800		10,000	103,000	61,000	40,000

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
9,000		10,000	103,000	61,000	40,000
9,130	23/64	10,000	103,000	61,000	40,000
9,200		10,000	103,000	61,000	40,000
9,300		10,000	103,000	61,000	40,000
9,400		10,000	103,000	61,000	40,000
9,500		10,000	103,000	61,000	40,000
9,600		10,000	103,000	61,000	40,000
9,700		10,000	103,000	61,000	40,000
9,800		10,000	103,000	61,000	40,000
9,920	25/64	10,000	103,000	61,000	40,000
10,000		10,000	103,000	61,000	40,000
10,100		12,000	118,000	71,000	45,000
10,200		12,000	118,000	71,000	45,000
10,300		12,000	118,000	71,000	45,000
10,500		12,000	118,000	71,000	45,000
10,700		12,000	118,000	71,000	45,000
10,800		12,000	118,000	71,000	45,000
11,000		12,000	118,000	71,000	45,000
11,100		12,000	118,000	71,000	45,000
11,200		12,000	118,000	71,000	45,000
11,500		12,000	118,000	71,000	45,000
11,800		12,000	118,000	71,000	45,000
12,000		12,000	118,000	71,000	45,000
12,500		14,000	124,000	77,000	45,000
12,800		14,000	124,000	77,000	45,000
12,900		14,000	124,000	77,000	45,000
13,000		14,000	124,000	77,000	45,000
13,200		14,000	124,000	77,000	45,000
13,500		14,000	124,000	77,000	45,000
13,890	35/64	14,000	124,000	77,000	45,000
14,000		14,000	124,000	77,000	45,000
14,100		16,000	133,000	83,000	48,000
14,500		16,000	133,000	83,000	48,000
14,600		16,000	133,000	83,000	48,000
15,000		16,000	133,000	83,000	48,000
15,500		16,000	133,000	83,000	48,000
16,000		16,000	133,000	83,000	48,000
16,500		18,000	143,000	93,000	48,000
16,600		18,000	143,000	93,000	48,000
17,000		18,000	143,000	93,000	48,000
17,500		18,000	143,000	93,000	48,000
18,000		18,000	143,000	93,000	48,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
20,000		20,000	153,000	101,000	50,000
20,500		25,000	165,000	105,000	56,000
21,000		25,000	165,000	105,000	56,000
21,500		25,000	165,000	105,000	56,000
22,000		25,000	165,000	105,000	56,000
22,500		25,000	180,000	117,000	56,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
24,000		25,000	180,000	117,000	56,000
24,500		25,000	180,000	117,000	56,000
25,000	63/64	25,000	180,000	117,000	56,000

Brocas Ratio con refrigeración interior

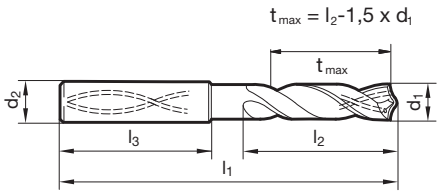
5xD | RT 100 R | DIN 6537 L | m7

Material de corte	**Metal duro**
Acabado	F
Forma del mango	HA

P		vaciado de punta ≥Ø 3,000 • afilado con radios patentado • forma recta del corte principal (mediante corrección)
M		
K	•	fundición vermicular GGV y ADI, CDI • fundición gris, fundición maleable, fundición esferica
N		
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 754



Artículo Nº	**6501**

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
3,000		6,000	66,000	28,000	36,000
3,170	1/8	6,000	66,000	28,000	36,000
3,200		6,000	66,000	28,000	36,000
3,300		6,000	66,000	28,000	36,000
3,400		6,000	66,000	28,000	36,000
3,500		6,000	66,000	28,000	36,000
3,600		6,000	66,000	28,000	36,000
3,800		6,000	74,000	36,000	36,000
4,000		6,000	74,000	36,000	36,000
4,100		6,000	74,000	36,000	36,000
4,200		6,000	74,000	36,000	36,000
4,300		6,000	74,000	36,000	36,000
4,400		6,000	74,000	36,000	36,000
4,500		6,000	74,000	36,000	36,000
4,600		6,000	74,000	36,000	36,000
4,650		6,000	74,000	36,000	36,000
4,800		6,000	82,000	44,000	36,000
5,000		6,000	82,000	44,000	36,000
5,100		6,000	82,000	44,000	36,000
5,160	13/64	6,000	82,000	44,000	36,000
5,300		6,000	82,000	44,000	36,000
5,500		6,000	82,000	44,000	36,000
5,550		6,000	82,000	44,000	36,000
5,560	7/32	6,000	82,000	44,000	36,000
5,600		6,000	82,000	44,000	36,000
5,700		6,000	82,000	44,000	36,000
5,800		6,000	82,000	44,000	36,000
5,900		6,000	82,000	44,000	36,000
6,000		6,000	82,000	44,000	36,000
6,350	1/4	8,000	91,000	53,000	36,000
6,500		8,000	91,000	53,000	36,000
6,600		8,000	91,000	53,000	36,000
6,750	17/64	8,000	91,000	53,000	36,000
6,800		8,000	91,000	53,000	36,000
6,900		8,000	91,000	53,000	36,000
7,000		8,000	91,000	53,000	36,000
7,200		8,000	91,000	53,000	36,000
7,300		8,000	91,000	53,000	36,000
7,400		8,000	91,000	53,000	36,000
7,500		8,000	91,000	53,000	36,000
7,800		8,000	91,000	53,000	36,000
7,900		8,000	91,000	53,000	36,000

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
7,940	5/16	8,000	91,000	53,000	36,000
8,000		8,000	91,000	53,000	36,000
8,100		10,000	103,000	61,000	40,000
8,200		10,000	103,000	61,000	40,000
8,300		10,000	103,000	61,000	40,000
8,330	21/64	10,000	103,000	61,000	40,000
8,500		10,000	103,000	61,000	40,000
8,600		10,000	103,000	61,000	40,000
8,700		10,000	103,000	61,000	40,000
8,800		10,000	103,000	61,000	40,000
8,900		10,000	103,000	61,000	40,000
9,000		10,000	103,000	61,000	40,000
9,100		10,000	103,000	61,000	40,000
9,200		10,000	103,000	61,000	40,000
9,250		10,000	103,000	61,000	40,000
9,300		10,000	103,000	61,000	40,000
9,400		10,000	103,000	61,000	40,000
9,500		10,000	103,000	61,000	40,000
9,520	3/8	10,000	103,000	61,000	40,000
9,600		10,000	103,000	61,000	40,000
9,700		10,000	103,000	61,000	40,000
9,800		10,000	103,000	61,000	40,000
9,900		10,000	103,000	61,000	40,000
9,920	25/64	10,000	103,000	61,000	40,000
10,000		10,000	103,000	61,000	40,000
10,100		12,000	118,000	71,000	45,000
10,200		12,000	118,000	71,000	45,000
10,400		12,000	118,000	71,000	45,000
10,500		12,000	118,000	71,000	45,000
10,600		12,000	118,000	71,000	45,000
10,700		12,000	118,000	71,000	45,000
10,720	27/64	12,000	118,000	71,000	45,000
10,800		12,000	118,000	71,000	45,000
10,900		12,000	118,000	71,000	45,000
11,000		12,000	118,000	71,000	45,000
11,100		12,000	118,000	71,000	45,000
11,110	7/16	12,000	118,000	71,000	45,000
11,200		12,000	118,000	71,000	45,000
11,300		12,000	118,000	71,000	45,000
11,500		12,000	118,000	71,000	45,000
11,600		12,000	118,000	71,000	45,000
11,700		12,000	118,000	71,000	45,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
11,800		12,000	118,000	71,000	45,000
11,900		12,000	118,000	71,000	45,000
12,000		12,000	118,000	71,000	45,000
12,100		14,000	124,000	77,000	45,000
12,200		14,000	124,000	77,000	45,000
12,500		14,000	124,000	77,000	45,000
12,700	1/2	14,000	124,000	77,000	45,000
12,800		14,000	124,000	77,000	45,000
13,000		14,000	124,000	77,000	45,000
13,100	33/64	14,000	124,000	77,000	45,000
13,300		14,000	124,000	77,000	45,000
13,400		14,000	124,000	77,000	45,000
13,500		14,000	124,000	77,000	45,000
13,700		14,000	124,000	77,000	45,000
13,900		14,000	124,000	77,000	45,000
14,000		14,000	124,000	77,000	45,000
14,200		16,000	133,000	83,000	48,000
14,290	9/16	16,000	133,000	83,000	48,000
14,300		16,000	133,000	83,000	48,000
14,400		16,000	133,000	83,000	48,000
14,500		16,000	133,000	83,000	48,000
14,600		16,000	133,000	83,000	48,000
14,700		16,000	133,000	83,000	48,000
15,000		16,000	133,000	83,000	48,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
15,100		16,000	133,000	83,000	48,000
15,300		16,000	133,000	83,000	48,000
15,400		16,000	133,000	83,000	48,000
15,500		16,000	133,000	83,000	48,000
15,600		16,000	133,000	83,000	48,000
15,700		16,000	133,000	83,000	48,000
15,800		16,000	133,000	83,000	48,000
15,870	5/8	16,000	133,000	83,000	48,000
15,900		16,000	133,000	83,000	48,000
16,000		16,000	133,000	83,000	48,000
16,500		18,000	143,000	93,000	48,000
16,670	21/32	18,000	143,000	93,000	48,000
17,000		18,000	143,000	93,000	48,000
17,500		18,000	143,000	93,000	48,000
18,000		18,000	143,000	93,000	48,000
18,500		20,000	153,000	101,000	50,000
19,000		20,000	153,000	101,000	50,000
19,500		20,000	153,000	101,000	50,000
20,000		20,000	153,000	101,000	50,000

Brocas Ratio con refrigeración interior

5xD | RT 80 U | DIN 6538 M | 140° | h7

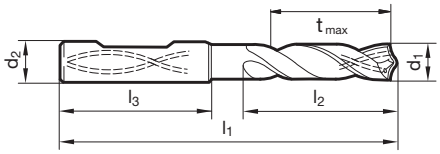
Material de corte	Carbide
Acabado	S
Forma del mango	HE

P	•	vaciado de punta ≥Ø 9,800 • entrada cónica • portaherr. HSS con plaquita HM soldada • amortigua oscilaciones y golpes
M	○	
K	○	
N	○	aceros no aleados y de baja aleación • fundición gris,fundición de grafito • latón, bronce, plásticos y grafitos
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 754

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **1172**

d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
9,800	W	16,000	127,000	75,000	48,000
10,000		16,000	127,000	75,000	48,000
10,200		16,000	127,000	75,000	48,000
10,500		16,000	127,000	75,000	48,000
10,600		16,000	127,000	75,000	48,000
10,700		16,000	127,000	75,000	48,000
10,800		16,000	127,000	75,000	48,000
11,000		16,000	127,000	75,000	48,000
11,500		16,000	127,000	75,000	48,000
11,900		16,000	127,000	75,000	48,000
12,000		16,000	127,000	75,000	48,000
12,300	31/64	16,000	139,000	87,000	48,000
12,500		16,000	139,000	87,000	48,000
12,700	1/2	16,000	139,000	87,000	48,000
12,900		16,000	139,000	87,000	48,000
13,000		16,000	139,000	87,000	48,000
13,100	33/64	16,000	139,000	87,000	48,000
13,500		16,000	139,000	87,000	48,000
13,700		16,000	139,000	87,000	48,000
13,900		16,000	139,000	87,000	48,000
14,000		16,000	139,000	87,000	48,000
14,500		20,000	154,000	100,000	50,000
14,600		20,000	154,000	100,000	50,000
15,000		20,000	154,000	100,000	50,000
15,200		20,000	154,000	100,000	50,000
15,500		20,000	154,000	100,000	50,000
15,700		20,000	154,000	100,000	50,000
16,000		20,000	154,000	100,000	50,000
16,200		20,000	166,000	112,000	50,000
16,500		20,000	166,000	112,000	50,000

d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
16,700		20,000	166,000	112,000	50,000
16,800		20,000	166,000	112,000	50,000
17,000		20,000	166,000	112,000	50,000
17,200		20,000	166,000	112,000	50,000
17,300		20,000	166,000	112,000	50,000
17,500		20,000	166,000	112,000	50,000
18,000		20,000	166,000	112,000	50,000
18,500		25,000	184,000	124,000	56,000
19,000		25,000	184,000	124,000	56,000
19,500		25,000	184,000	124,000	56,000
19,600		25,000	184,000	124,000	56,000
19,700		25,000	184,000	124,000	56,000
20,000		25,000	184,000	124,000	56,000
20,500		25,000	197,000	137,000	56,000
21,000		25,000	197,000	137,000	56,000
21,500		25,000	197,000	137,000	56,000
22,000		25,000	197,000	137,000	56,000
22,220	7/8	25,000	209,000	149,000	56,000
22,500		25,000	209,000	149,000	56,000
23,000		25,000	209,000	149,000	56,000
23,500		25,000	209,000	149,000	56,000
24,000		25,000	209,000	149,000	56,000
24,500		32,000	226,000	162,000	60,000
25,000	63/64	32,000	226,000	162,000	60,000
25,500		32,000	226,000	162,000	60,000

Brocas Ratio con refrigeración interior

7xD | RT 100 U | WN | 140° | m7

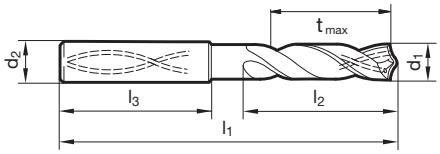
Material de corte	**Metal duro**
Acabado	F
Forma del mango	HA

P	•	vaciado de punta ≥Ø 3,000 • afilado plano • forma recta del corte principal • geometría de corte optimizada
M	○	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • fundición • bronce, latón • aleaciones de AlSi altamente aleables
S	○	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 758

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **4044**

d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
3,000		6,000	70,000	30,000	36,000
3,100		6,000	70,000	30,000	36,000
3,170	1/8	6,000	70,000	30,000	36,000
3,200		6,000	70,000	30,000	36,000
3,250		6,000	70,000	30,000	36,000
3,300		6,000	70,000	30,000	36,000
3,400		6,000	75,000	35,500	36,000
3,500		6,000	75,000	35,500	36,000
3,570	9/64	6,000	75,000	35,500	36,000
3,600		6,000	75,000	35,500	36,000
3,700		6,000	75,000	35,500	36,000
3,800		6,000	75,000	37,500	36,000
3,900		6,000	75,000	37,500	36,000
3,970	5/32	6,000	75,000	37,500	36,000
4,000		6,000	75,000	37,500	36,000
4,040		6,000	75,000	37,500	36,000
4,100		6,000	75,000	37,500	36,000
4,200		6,000	75,000	37,500	36,000
4,300		6,000	85,000	45,000	36,000
4,370	11/64	6,000	85,000	45,000	36,000
4,400		6,000	85,000	45,000	36,000
4,500		6,000	85,000	45,000	36,000
4,600		6,000	85,000	45,000	36,000
4,650		6,000	85,000	45,000	36,000
4,700		6,000	85,000	45,000	36,000
4,760	3/16	6,000	90,000	50,000	36,000
4,800		6,000	90,000	50,000	36,000
4,900		6,000	90,000	50,000	36,000
5,000		6,000	90,000	50,000	36,000
5,100		6,000	90,000	50,000	36,000
5,110		6,000	90,000	50,000	36,000
5,160	13/64	6,000	90,000	50,000	36,000
5,200		6,000	90,000	50,000	36,000
5,300		6,000	90,000	50,000	36,000
5,400		6,000	97,000	57,000	36,000
5,410		6,000	97,000	57,000	36,000
5,500		6,000	97,000	57,000	36,000
5,550		6,000	97,000	57,000	36,000
5,560	7/32	6,000	97,000	57,000	36,000
5,600		6,000	97,000	57,000	36,000
5,700		6,000	97,000	57,000	36,000
5,800		6,000	97,000	57,000	36,000

d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
5,900		6,000	97,000	57,000	36,000
5,950	15/64	6,000	97,000	57,000	36,000
6,000		6,000	97,000	57,000	36,000
6,100		8,000	106,000	66,000	36,000
6,200		8,000	106,000	66,000	36,000
6,300		8,000	106,000	66,000	36,000
6,350	1/4	8,000	106,000	66,000	36,000
6,400		8,000	106,000	66,000	36,000
6,500		8,000	106,000	66,000	36,000
6,530		8,000	106,000	66,000	36,000
6,600		8,000	106,000	66,000	36,000
6,700		8,000	106,000	66,000	36,000
6,750	17/64	8,000	106,000	66,000	36,000
6,800		8,000	106,000	66,000	36,000
6,900		8,000	116,000	76,000	36,000
7,000		8,000	116,000	76,000	36,000
7,100		8,000	116,000	76,000	36,000
7,140	9/32	8,000	116,000	76,000	36,000
7,200		8,000	116,000	76,000	36,000
7,300		8,000	116,000	76,000	36,000
7,400		8,000	116,000	76,000	36,000
7,500		8,000	116,000	76,000	36,000
7,540	19/64	8,000	116,000	76,000	36,000
7,600		8,000	116,000	76,000	36,000
7,700		8,000	116,000	76,000	36,000
7,800		8,000	116,000	76,000	36,000
7,900		8,000	116,000	76,000	36,000
7,940	5/16	8,000	116,000	76,000	36,000
8,000		8,000	116,000	76,000	36,000
8,100		10,000	131,000	87,000	40,000
8,200		10,000	131,000	87,000	40,000
8,300		10,000	131,000	87,000	40,000
8,330	21/64	10,000	131,000	87,000	40,000
8,400		10,000	131,000	87,000	40,000
8,500		10,000	131,000	87,000	40,000
8,600		10,000	131,000	87,000	40,000
8,700		10,000	131,000	87,000	40,000
8,730	11/32	10,000	131,000	87,000	40,000
8,800		10,000	131,000	87,000	40,000
8,900		10,000	131,000	87,000	40,000
9,000		10,000	131,000	87,000	40,000
9,100		10,000	139,000	95,000	40,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
9,130	23/64	10,000	139,000	95,000	40,000
9,200		10,000	139,000	95,000	40,000
9,250		10,000	139,000	95,000	40,000
9,300		10,000	139,000	95,000	40,000
9,340		10,000	139,000	95,000	40,000
9,400		10,000	139,000	95,000	40,000
9,500		10,000	139,000	95,000	40,000
9,520	3/8	10,000	139,000	95,000	40,000
9,600		10,000	139,000	95,000	40,000
9,700		10,000	139,000	95,000	40,000
9,800		10,000	139,000	95,000	40,000
9,900		10,000	139,000	95,000	40,000
9,920	25/64	10,000	139,000	95,000	40,000
10,000		10,000	139,000	95,000	40,000
10,100		12,000	155,000	106,000	45,000
10,200		12,000	155,000	106,000	45,000
10,300		12,000	155,000	106,000	45,000
10,320	13/32	12,000	155,000	106,000	45,000
10,400		12,000	155,000	106,000	45,000
10,500		12,000	155,000	106,000	45,000
10,600		12,000	155,000	106,000	45,000
10,700		12,000	155,000	106,000	45,000
10,720	27/64	12,000	155,000	106,000	45,000
10,800		12,000	155,000	106,000	45,000
10,900		12,000	155,000	106,000	45,000
11,000		12,000	155,000	106,000	45,000
11,100		12,000	163,000	114,000	45,000
11,110	7/16	12,000	163,000	114,000	45,000
11,200		12,000	163,000	114,000	45,000
11,300		12,000	163,000	114,000	45,000
11,400		12,000	163,000	114,000	45,000
11,500		12,000	163,000	114,000	45,000
11,510	29/64	12,000	163,000	114,000	45,000
11,600		12,000	163,000	114,000	45,000
11,700		12,000	163,000	114,000	45,000
11,800		12,000	163,000	114,000	45,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
11,900		12,000	163,000	114,000	45,000
11,910	15/32	12,000	163,000	114,000	45,000
12,000		12,000	163,000	114,000	45,000
12,100		14,000	182,000	133,000	45,000
12,200		14,000	182,000	133,000	45,000
12,300	31/64	14,000	182,000	133,000	45,000
12,500		14,000	182,000	133,000	45,000
12,700	1/2	14,000	182,000	133,000	45,000
13,000		14,000	182,000	133,000	45,000
13,100	33/64	14,000	182,000	133,000	45,000
13,490	17/32	14,000	182,000	133,000	45,000
13,500		14,000	182,000	133,000	45,000
13,890	35/64	14,000	182,000	133,000	45,000
14,000		14,000	182,000	133,000	45,000
14,100		16,000	204,000	152,000	48,000
14,200		16,000	204,000	152,000	48,000
14,290	9/16	16,000	204,000	152,000	48,000
14,500		16,000	204,000	152,000	48,000
15,000		16,000	204,000	152,000	48,000
15,100		16,000	204,000	152,000	48,000
15,480	39/64	16,000	204,000	152,000	48,000
15,500		16,000	204,000	152,000	48,000
15,870	5/8	16,000	204,000	152,000	48,000
16,000		16,000	204,000	152,000	48,000
16,500		18,000	223,000	171,000	48,000
16,900		18,000	223,000	171,000	48,000
17,000		18,000	223,000	171,000	48,000
17,500		18,000	223,000	171,000	48,000
18,000		18,000	223,000	171,000	48,000
18,500		20,000	244,000	190,000	50,000
18,900		20,000	244,000	190,000	50,000
19,000		20,000	244,000	190,000	50,000
19,050	3/4	20,000	244,000	190,000	50,000
19,500		20,000	244,000	190,000	50,000
20,000		20,000	244,000	190,000	50,000

Brocas Ratio con refrigeración interior

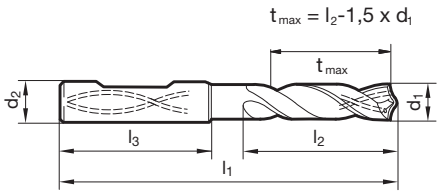
7xD | RT 100 U | WN | 140° | m7

Material de corte	**Metal duro**
Acabado	F
Forma del mango	HE

P	•	vaciado de punta ≥Ø 3,000 • afilado plano • forma recta del corte principal • geometría de corte optimizada
M	○	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • fundición • bronce, latón • aleaciones de AlSi altamente aleables
S	○	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 758



Artículo Nº **4045**

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
3,000		6,000	70,000	30,000	36,000
3,100		6,000	70,000	30,000	36,000
3,170	1/8	6,000	70,000	30,000	36,000
3,200		6,000	70,000	30,000	36,000
3,250		6,000	70,000	30,000	36,000
3,300		6,000	70,000	30,000	36,000
3,400		6,000	75,000	35,500	36,000
3,500		6,000	75,000	35,500	36,000
3,570	9/64	6,000	75,000	35,500	36,000
3,600		6,000	75,000	35,500	36,000
3,700		6,000	75,000	35,500	36,000
3,800		6,000	75,000	37,500	36,000
3,900		6,000	75,000	37,500	36,000
3,970	5/32	6,000	75,000	37,500	36,000
4,000		6,000	75,000	37,500	36,000
4,100		6,000	75,000	37,500	36,000
4,300		6,000	85,000	45,000	36,000
4,400		6,000	85,000	45,000	36,000
4,500		6,000	85,000	45,000	36,000
4,650		6,000	85,000	45,000	36,000
4,700		6,000	85,000	45,000	36,000
4,900		6,000	90,000	50,000	36,000
5,000		6,000	90,000	50,000	36,000
5,100		6,000	90,000	50,000	36,000
5,160	13/64	6,000	90,000	50,000	36,000
5,200		6,000	90,000	50,000	36,000
5,300		6,000	90,000	50,000	36,000
5,400		6,000	97,000	57,000	36,000
5,500		6,000	97,000	57,000	36,000
5,700		6,000	97,000	57,000	36,000
5,800		6,000	97,000	57,000	36,000
5,900		6,000	97,000	57,000	36,000
6,000		6,000	97,000	57,000	36,000
6,200		8,000	106,000	66,000	36,000
6,300		8,000	106,000	66,000	36,000
6,350	1/4	8,000	106,000	66,000	36,000
6,500		8,000	106,000	66,000	36,000
6,600		8,000	106,000	66,000	36,000
6,700		8,000	106,000	66,000	36,000
6,800		8,000	106,000	66,000	36,000
6,900		8,000	116,000	76,000	36,000
7,000		8,000	116,000	76,000	36,000

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
7,100		8,000	116,000	76,000	36,000
7,200		8,000	116,000	76,000	36,000
7,400		8,000	116,000	76,000	36,000
7,500		8,000	116,000	76,000	36,000
7,600		8,000	116,000	76,000	36,000
7,700		8,000	116,000	76,000	36,000
8,000		8,000	116,000	76,000	36,000
8,100		10,000	131,000	87,000	40,000
8,200		10,000	131,000	87,000	40,000
8,400		10,000	131,000	87,000	40,000
8,500		10,000	131,000	87,000	40,000
8,600		10,000	131,000	87,000	40,000
8,700		10,000	131,000	87,000	40,000
9,000		10,000	131,000	87,000	40,000
9,100		10,000	139,000	95,000	40,000
9,300		10,000	139,000	95,000	40,000
9,400		10,000	139,000	95,000	40,000
9,500		10,000	139,000	95,000	40,000
9,700		10,000	139,000	95,000	40,000
9,800		10,000	139,000	95,000	40,000
9,900		10,000	139,000	95,000	40,000
10,000		10,000	139,000	95,000	40,000
10,200		12,000	155,000	106,000	45,000
10,300		12,000	155,000	106,000	45,000
10,500		12,000	155,000	106,000	45,000
10,800		12,000	155,000	106,000	45,000
11,000		12,000	155,000	106,000	45,000
11,200		12,000	163,000	114,000	45,000
11,500		12,000	163,000	114,000	45,000
11,800		12,000	163,000	114,000	45,000
12,000		12,000	163,000	114,000	45,000
12,200		14,000	182,000	133,000	45,000
12,500		14,000	182,000	133,000	45,000
13,500		14,000	182,000	133,000	45,000
14,000		14,000	182,000	133,000	45,000
14,200		16,000	204,000	152,000	48,000
14,500		16,000	204,000	152,000	48,000
15,000		16,000	204,000	152,000	48,000
15,500		16,000	204,000	152,000	48,000
16,000		16,000	204,000	152,000	48,000
16,500		18,000	223,000	171,000	48,000
17,000		18,000	223,000	171,000	48,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
17,500		18,000	223,000	171,000	48,000
18,000		18,000	223,000	171,000	48,000
18,500		20,000	244,000	190,000	50,000
19,050	3/4	20,000	244,000	190,000	50,000
19,500		20,000	244,000	190,000	50,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm

Brocas Ratio con refrigeración interior

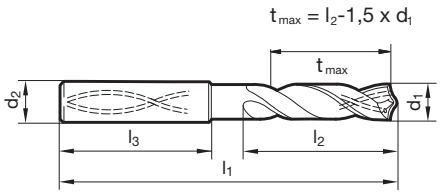
7xD | RT 100 U | WN | 140° | m7

Material de corte	**Metal duro**
Acabado	S
Forma del mango	HA

P	•	vaciado de punta ≥Ø 3,000 • afilado plano • forma recta del corte principal • geometría de corte optimizada
M	○	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • fundición • bronce, latón • aleaciones de AlSi altamente aleables
S	○	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 758



Artículo Nº **2711**

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
3,000		6,000	70,000	30,000	36,000
3,100		6,000	70,000	30,000	36,000
3,170	1/8	6,000	70,000	30,000	36,000
3,200		6,000	70,000	30,000	36,000
3,250		6,000	70,000	30,000	36,000
3,300		6,000	70,000	30,000	36,000
3,400		6,000	75,000	35,500	36,000
3,500		6,000	75,000	35,500	36,000
3,570	9/64	6,000	75,000	35,500	36,000
3,600		6,000	75,000	35,500	36,000
3,700		6,000	75,000	35,500	36,000
3,800		6,000	75,000	37,500	36,000
3,900		6,000	75,000	37,500	36,000
3,970	5/32	6,000	75,000	37,500	36,000
4,300		6,000	85,000	45,000	36,000
4,400		6,000	85,000	45,000	36,000
5,000		6,000	90,000	50,000	36,000
5,200		6,000	90,000	50,000	36,000
5,500		6,000	97,000	57,000	36,000
6,000		6,000	97,000	57,000	36,000
6,100		8,000	106,000	66,000	36,000
6,200		8,000	106,000	66,000	36,000
6,500		8,000	106,000	66,000	36,000
6,600		8,000	106,000	66,000	36,000
6,800		8,000	106,000	66,000	36,000
7,000		8,000	116,000	76,000	36,000
7,100		8,000	116,000	76,000	36,000
7,300		8,000	116,000	76,000	36,000
7,500		8,000	116,000	76,000	36,000
8,000		8,000	116,000	76,000	36,000
8,500		10,000	131,000	87,000	40,000
8,600		10,000	131,000	87,000	40,000
8,700		10,000	131,000	87,000	40,000
9,000		10,000	131,000	87,000	40,000
9,100		10,000	139,000	95,000	40,000
9,200		10,000	139,000	95,000	40,000

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
9,300		10,000	139,000	95,000	40,000
9,500		10,000	139,000	95,000	40,000
9,700		10,000	139,000	95,000	40,000
9,800		10,000	139,000	95,000	40,000
10,000		10,000	139,000	95,000	40,000
10,200		12,000	155,000	106,000	45,000
10,500		12,000	155,000	106,000	45,000
11,000		12,000	155,000	106,000	45,000
11,500		12,000	163,000	114,000	45,000
12,000		12,000	163,000	114,000	45,000
12,200		14,000	182,000	133,000	45,000
12,500		14,000	182,000	133,000	45,000
13,000		14,000	182,000	133,000	45,000
13,500		14,000	182,000	133,000	45,000
13,800		14,000	182,000	133,000	45,000
14,000		14,000	182,000	133,000	45,000
15,000		16,000	204,000	152,000	48,000
15,200		16,000	204,000	152,000	48,000
15,500		16,000	204,000	152,000	48,000
15,800		16,000	204,000	152,000	48,000
16,000		16,000	204,000	152,000	48,000
16,500		18,000	223,000	171,000	48,000
17,500		18,000	223,000	171,000	48,000
18,500		20,000	244,000	190,000	50,000
19,500		20,000	244,000	190,000	50,000

Brocas Ratio con refrigeración interior

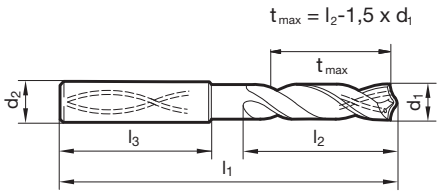
7xD | RT 100 HF | WN | 140° | m7

Material de corte	**Metal duro**
Acabado	Y
Forma del mango	HA

P	•	vaciado de punta ≥Ø 3,000 • entrada cónica • forma del corte principal ligeramente cóncava • geometría de corte optimizada
M		
K		
N		aceros aleados y templados hasta a 1600 N/mm² • Inconel, Hastelloy, Monel • titanio y aleaciones de titanio
S	•	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 758



Artículo Nº **8522**

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
3,000		6,000	70,000	30,000	36,000
3,170	1/8	6,000	70,000	30,000	36,000
3,250		6,000	70,000	30,000	36,000
3,300		6,000	70,000	30,000	36,000
3,400		6,000	75,000	35,500	36,000
3,500		6,000	75,000	35,500	36,000
3,570	9/64	6,000	75,000	35,500	36,000
3,700		6,000	75,000	35,500	36,000
3,970	5/32	6,000	75,000	37,500	36,000
4,000		6,000	75,000	37,500	36,000
4,200		6,000	75,000	37,500	36,000
4,300		6,000	85,000	45,000	36,000
4,370	11/64	6,000	85,000	45,000	36,000
4,500		6,000	85,000	45,000	36,000
4,650		6,000	85,000	45,000	36,000
4,760	3/16	6,000	90,000	50,000	36,000
5,000		6,000	90,000	50,000	36,000
5,100		6,000	90,000	50,000	36,000
5,160	13/64	6,000	90,000	50,000	36,000
5,200		6,000	90,000	50,000	36,000
5,500		6,000	97,000	57,000	36,000
5,550		6,000	97,000	57,000	36,000
5,560	7/32	6,000	97,000	57,000	36,000
5,950	15/64	6,000	97,000	57,000	36,000
6,000		6,000	97,000	57,000	36,000
6,350	1/4	8,000	106,000	66,000	36,000
6,500		8,000	106,000	66,000	36,000
6,530		8,000	106,000	66,000	36,000
6,750	17/64	8,000	106,000	66,000	36,000
6,800		8,000	106,000	66,000	36,000
6,900		8,000	116,000	76,000	36,000
7,000		8,000	116,000	76,000	36,000
7,140	9/32	8,000	116,000	76,000	36,000
7,400		8,000	116,000	76,000	36,000
7,500		8,000	116,000	76,000	36,000
7,540	19/64	8,000	116,000	76,000	36,000
7,800		8,000	116,000	76,000	36,000
7,940	5/16	8,000	116,000	76,000	36,000
8,000		8,000	116,000	76,000	36,000
8,330	21/64	10,000	131,000	87,000	40,000
8,500		10,000	131,000	87,000	40,000
8,600		10,000	131,000	87,000	40,000

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
8,730	11/32	10,000	131,000	87,000	40,000
8,800		10,000	131,000	87,000	40,000
9,000		10,000	131,000	87,000	40,000
9,130	23/64	10,000	139,000	95,000	40,000
9,250		10,000	139,000	95,000	40,000
9,340		10,000	139,000	95,000	40,000
9,400		10,000	139,000	95,000	40,000
9,500		10,000	139,000	95,000	40,000
9,520	3/8	10,000	139,000	95,000	40,000
9,920	25/64	10,000	139,000	95,000	40,000
10,000		10,000	139,000	95,000	40,000
10,200		12,000	155,000	106,000	45,000
10,320	13/32	12,000	155,000	106,000	45,000
10,400		12,000	155,000	106,000	45,000
10,500		12,000	155,000	106,000	45,000
10,720	27/64	12,000	155,000	106,000	45,000
10,800		12,000	155,000	106,000	45,000
11,000		12,000	155,000	106,000	45,000
11,110	7/16	12,000	163,000	114,000	45,000
11,300		12,000	163,000	114,000	45,000
11,400		12,000	163,000	114,000	45,000
11,500		12,000	163,000	114,000	45,000
11,510	29/64	12,000	163,000	114,000	45,000
11,910	15/32	12,000	163,000	114,000	45,000
12,000		12,000	163,000	114,000	45,000
12,300	31/64	14,000	182,000	133,000	45,000
12,500		14,000	182,000	133,000	45,000
12,700	1/2	14,000	182,000	133,000	45,000
13,000		14,000	182,000	133,000	45,000
13,100	33/64	14,000	182,000	133,000	45,000
13,490	17/32	14,000	182,000	133,000	45,000
13,500		14,000	182,000	133,000	45,000
14,000		14,000	182,000	133,000	45,000
14,290	9/16	16,000	204,000	152,000	48,000
14,500		16,000	204,000	152,000	48,000
15,000		16,000	204,000	152,000	48,000
15,100		16,000	204,000	152,000	48,000
15,500		16,000	204,000	152,000	48,000
15,870	5/8	16,000	204,000	152,000	48,000
16,000		16,000	204,000	152,000	48,000

Brocas Ratio con refrigeración interior

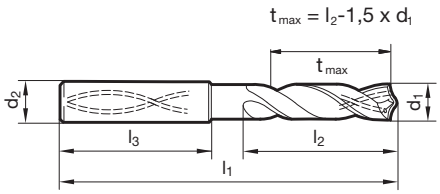
7xD | RT 100 R | WN | m7

Material de corte	**Metal duro**
Acabado	F
Forma del mango	HA

P	vaciado de punta ≥Ø 4,000 • afilado con radios patentado • forma recta del corte principal (mediante corrección)
M	
K	•
N	fundición vermicular GGV y ADI, CDI • fundición gris, fundición maleable, fundición esferica
S	
H	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 758



Artículo Nº **6502**

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
4,000		6,000	75,000	37,500	36,000
4,300		6,000	85,000	45,000	36,000
4,370	11/64	6,000	85,000	45,000	36,000
4,400		6,000	85,000	45,000	36,000
4,500		6,000	85,000	45,000	36,000
4,600		6,000	85,000	45,000	36,000
4,700		6,000	85,000	45,000	36,000
4,760	3/16	6,000	90,000	50,000	36,000
4,900		6,000	90,000	50,000	36,000
5,000		6,000	90,000	50,000	36,000
5,160	13/64	6,000	90,000	50,000	36,000
5,300		6,000	90,000	50,000	36,000
5,500		6,000	97,000	57,000	36,000
5,550		6,000	97,000	57,000	36,000
5,560	7/32	6,000	97,000	57,000	36,000
5,600		6,000	97,000	57,000	36,000
5,700		6,000	97,000	57,000	36,000
5,800		6,000	97,000	57,000	36,000
5,900		6,000	97,000	57,000	36,000
6,000		6,000	97,000	57,000	36,000
6,100		8,000	106,000	66,000	36,000
6,200		8,000	106,000	66,000	36,000
6,300		8,000	106,000	66,000	36,000
6,400		8,000	106,000	66,000	36,000
6,500		8,000	106,000	66,000	36,000
6,700		8,000	106,000	66,000	36,000
6,800		8,000	106,000	66,000	36,000
6,900		8,000	116,000	76,000	36,000
7,000		8,000	116,000	76,000	36,000
7,140	9/32	8,000	116,000	76,000	36,000
7,200		8,000	116,000	76,000	36,000
7,500		8,000	116,000	76,000	36,000
7,600		8,000	116,000	76,000	36,000
7,700		8,000	116,000	76,000	36,000
8,000		8,000	116,000	76,000	36,000
8,100		10,000	131,000	87,000	40,000
8,200		10,000	131,000	87,000	40,000
8,300		10,000	131,000	87,000	40,000
8,330	21/64	10,000	131,000	87,000	40,000
8,400		10,000	131,000	87,000	40,000
8,500		10,000	131,000	87,000	40,000
8,600		10,000	131,000	87,000	40,000

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
8,800		10,000	131,000	87,000	40,000
8,900		10,000	131,000	87,000	40,000
9,000		10,000	131,000	87,000	40,000
9,100		10,000	139,000	95,000	40,000
9,250		10,000	139,000	95,000	40,000
9,300		10,000	139,000	95,000	40,000
9,400		10,000	139,000	95,000	40,000
9,500		10,000	139,000	95,000	40,000
9,600		10,000	139,000	95,000	40,000
9,700		10,000	139,000	95,000	40,000
9,800		10,000	139,000	95,000	40,000
9,900		10,000	139,000	95,000	40,000
10,000		10,000	139,000	95,000	40,000
10,100		12,000	155,000	106,000	45,000
10,200		12,000	155,000	106,000	45,000
10,300		12,000	155,000	106,000	45,000
10,320	13/32	12,000	155,000	106,000	45,000
10,400		12,000	155,000	106,000	45,000
10,500		12,000	155,000	106,000	45,000
10,700		12,000	155,000	106,000	45,000
10,800		12,000	155,000	106,000	45,000
10,900		12,000	155,000	106,000	45,000
11,000		12,000	155,000	106,000	45,000
11,100		12,000	163,000	114,000	45,000
11,200		12,000	163,000	114,000	45,000
11,300		12,000	163,000	114,000	45,000
11,500		12,000	163,000	114,000	45,000
11,600		12,000	163,000	114,000	45,000
11,700		12,000	163,000	114,000	45,000
11,800		12,000	163,000	114,000	45,000
12,000		12,000	163,000	114,000	45,000
12,100		14,000	182,000	133,000	45,000
12,300	31/64	14,000	182,000	133,000	45,000
12,400		14,000	182,000	133,000	45,000
12,500		14,000	182,000	133,000	45,000
12,600		14,000	182,000	133,000	45,000
12,700	1/2	14,000	182,000	133,000	45,000
12,800		14,000	182,000	133,000	45,000
13,000		14,000	182,000	133,000	45,000
13,100	33/64	14,000	182,000	133,000	45,000
13,300		14,000	182,000	133,000	45,000
13,500		14,000	182,000	133,000	45,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
13,700		14,000	182,000	133,000	45,000
13,900		14,000	182,000	133,000	45,000
14,000		14,000	182,000	133,000	45,000
14,100		16,000	204,000	152,000	48,000
14,290	9/16	16,000	204,000	152,000	48,000
14,400		16,000	204,000	152,000	48,000
14,500		16,000	204,000	152,000	48,000
14,600		16,000	204,000	152,000	48,000
14,700		16,000	204,000	152,000	48,000
15,000		16,000	204,000	152,000	48,000
15,100		16,000	204,000	152,000	48,000
15,200		16,000	204,000	152,000	48,000
15,500		16,000	204,000	152,000	48,000
15,600		16,000	204,000	152,000	48,000
15,800		16,000	204,000	152,000	48,000
15,900		16,000	204,000	152,000	48,000
16,000		16,000	204,000	152,000	48,000
16,500		18,000	223,000	171,000	48,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
16,670	21/32	18,000	223,000	171,000	48,000
17,000		18,000	223,000	171,000	48,000
17,500		18,000	223,000	171,000	48,000
18,000		18,000	223,000	171,000	48,000
18,500		20,000	244,000	190,000	50,000
19,000		20,000	244,000	190,000	50,000
19,500		20,000	244,000	190,000	50,000
20,000		20,000	244,000	190,000	50,000

Brocas Ratio con refrigeración interior

7xD | RT 150 GG | WN | 120° | m7

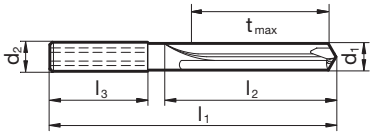
Material de corte	**Metal duro**
Acabado	◯
Forma del mango	HA

P		vaciado de punta ≥Ø 3,000 • entrada cónica • tolerancias en diámetro estrechas • cal. superficial del taladro muy buena • vigilar presión del refrigerante
M		
K	•	
N	○	fundición gris, fundición maleable, fundición esferica
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 758

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **769**

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
3,000		6,000	74,000	32,000	36,000
3,100		6,000	74,000	32,000	36,000
3,200		6,000	74,000	32,000	36,000
3,300		6,000	74,000	32,000	36,000
3,500		6,000	74,000	34,000	36,000
3,600		6,000	74,000	34,000	36,000
3,700		6,000	74,000	34,000	36,000
3,800		6,000	97,000	45,000	36,000
3,900		6,000	97,000	45,000	36,000
4,000		6,000	97,000	45,000	36,000
4,100		6,000	97,000	45,000	36,000
4,200		6,000	97,000	45,000	36,000
4,300		6,000	97,000	45,000	36,000
4,400		6,000	97,000	45,000	36,000
4,500		6,000	97,000	45,000	36,000
4,700		6,000	97,000	45,000	36,000
4,800		6,000	97,000	57,000	36,000
4,900		6,000	97,000	57,000	36,000
5,000		6,000	97,000	57,000	36,000
5,160	13/64	6,000	97,000	57,000	36,000
5,500		6,000	97,000	57,000	36,000
6,000		6,000	97,000	57,000	36,000
6,350	1/4	8,000	116,000	76,000	36,000
6,500		8,000	116,000	76,000	36,000
6,800		8,000	116,000	76,000	36,000
7,000		8,000	116,000	76,000	36,000
7,140	9/32	8,000	116,000	76,000	36,000
7,500		8,000	116,000	76,000	36,000
7,800		8,000	116,000	76,000	36,000
7,940	5/16	8,000	116,000	76,000	36,000
8,000		8,000	116,000	76,000	36,000
8,330	21/64	10,000	139,000	95,000	40,000
8,500		10,000	139,000	95,000	40,000
8,730	11/32	10,000	139,000	95,000	40,000
9,000		10,000	139,000	95,000	40,000
9,130	23/64	10,000	139,000	95,000	40,000

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
9,500		10,000	139,000	95,000	40,000
9,520	3/8	10,000	139,000	95,000	40,000
10,000		10,000	139,000	95,000	40,000
10,200		12,000	163,000	114,000	45,000
10,320	13/32	12,000	163,000	114,000	45,000
10,500		12,000	163,000	114,000	45,000
10,720	27/64	12,000	163,000	114,000	45,000
11,000		12,000	163,000	114,000	45,000
11,110	7/16	12,000	163,000	114,000	45,000
11,500		12,000	163,000	114,000	45,000
11,510	29/64	12,000	163,000	114,000	45,000
12,000		12,000	163,000	114,000	45,000
12,300	31/64	14,000	182,000	133,000	45,000
12,500		14,000	182,000	133,000	45,000
12,700	1/2	14,000	182,000	133,000	45,000
13,000		14,000	182,000	133,000	45,000
13,500		14,000	182,000	133,000	45,000
14,000		14,000	182,000	133,000	45,000
14,500		16,000	204,000	152,000	48,000
15,000		16,000	204,000	152,000	48,000
15,500		16,000	204,000	152,000	48,000
16,000		16,000	204,000	152,000	48,000
16,500		18,000	223,000	171,000	48,000
17,000		18,000	223,000	171,000	48,000
17,500		18,000	223,000	171,000	48,000
18,000		18,000	223,000	171,000	48,000
18,500		20,000	244,000	190,000	50,000
19,000		20,000	244,000	190,000	50,000
20,000		20,000	244,000	190,000	50,000

Brocas Ratio con refrigeración interior

7xD | RT 150 GG | WN | 130° | m7

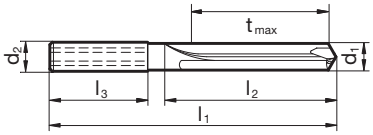
Material de corte	**Metal duro**
Acabado	◯
Forma del mango	HA

P		vaciado de punta ≥Ø 3,000 • afilado plano • tolerancias en diámetro estrechas • cal. superficial del taladro muy buena • vigilar presión óptima del refrigerante
M		
K	○	
N	•	aluminio y sus aleaciones • aluminios con alto porcentaje de Si
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 758

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **6069**

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
3,000		6,000	74,000	32,000	36,000
3,200		6,000	74,000	32,000	36,000
3,300		6,000	74,000	32,000	36,000
3,500		6,000	74,000	34,000	36,000
3,600		6,000	74,000	34,000	36,000
4,000		6,000	97,000	45,000	36,000
4,200		6,000	97,000	45,000	36,000
4,300		6,000	97,000	45,000	36,000
4,500		6,000	97,000	45,000	36,000
5,000		6,000	97,000	57,000	36,000
6,000		6,000	97,000	57,000	36,000
6,350	1/4	8,000	116,000	76,000	36,000
6,500		8,000	116,000	76,000	36,000
6,800		8,000	116,000	76,000	36,000
7,000		8,000	116,000	76,000	36,000
7,800		8,000	116,000	76,000	36,000
8,000		8,000	116,000	76,000	36,000
8,500		10,000	139,000	95,000	40,000
8,730	11/32	10,000	139,000	95,000	40,000
9,000		10,000	139,000	95,000	40,000
9,500		10,000	139,000	95,000	40,000
9,520	3/8	10,000	139,000	95,000	40,000
10,000		10,000	139,000	95,000	40,000
10,200		12,000	163,000	114,000	45,000

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
10,320	13/32	12,000	163,000	114,000	45,000
10,500		12,000	163,000	114,000	45,000
10,720	27/64	12,000	163,000	114,000	45,000
11,000		12,000	163,000	114,000	45,000
12,000		12,000	163,000	114,000	45,000
12,300	31/64	14,000	182,000	133,000	45,000
12,500		14,000	182,000	133,000	45,000
12,700	1/2	14,000	182,000	133,000	45,000
13,000		14,000	182,000	133,000	45,000
13,500		14,000	182,000	133,000	45,000
14,000		14,000	182,000	133,000	45,000
14,500		16,000	204,000	152,000	48,000
15,000		16,000	204,000	152,000	48,000
15,500		16,000	204,000	152,000	48,000
16,000		16,000	204,000	152,000	48,000
16,500		18,000	223,000	171,000	48,000
17,000		18,000	223,000	171,000	48,000
18,000		18,000	223,000	171,000	48,000
18,500		20,000	244,000	190,000	50,000
19,000		20,000	244,000	190,000	50,000
19,500		20,000	244,000	190,000	50,000

Brocas Ratio con refrigeración interior

7xD | RT 80 U | DIN 6538 L | 140° | h7

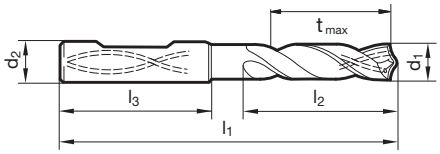
Material de corte	Carbide
Acabado	S
Forma del mango	HE

P	•	vaciado de punta ≥Ø 9,600 • entrada cónica • portaherr. HSS con plaquita HM soldada • amortigua oscilaciones y golpes
M	○	
K	○	
N	○	aceros no aleados y de baja aleación • fundición gris,fundición de grafito • latón, bronce, plásticos y grafitos
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 758

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **1173**

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
9,600		16,000	151,000	99,000	48,000
9,700		16,000	151,000	99,000	48,000
10,000		16,000	151,000	99,000	48,000
10,200		16,000	151,000	99,000	48,000
10,400		16,000	151,000	99,000	48,000
11,000		16,000	151,000	99,000	48,000
11,500		16,000	151,000	99,000	48,000
11,700		16,000	151,000	99,000	48,000
12,000		16,000	151,000	99,000	48,000
12,200		16,000	167,000	115,000	48,000
12,400		16,000	167,000	115,000	48,000
12,500		16,000	167,000	115,000	48,000
12,700	1/2	16,000	167,000	115,000	48,000
13,000		16,000	167,000	115,000	48,000
13,500		16,000	167,000	115,000	48,000
14,000		16,000	167,000	115,000	48,000
14,500		20,000	186,000	132,000	50,000
15,000		20,000	186,000	132,000	50,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
15,700		20,000	186,000	132,000	50,000
15,800		20,000	186,000	132,000	50,000
16,000		20,000	186,000	132,000	50,000
16,500		20,000	202,000	148,000	50,000
17,000		20,000	202,000	148,000	50,000
17,200		20,000	202,000	148,000	50,000
17,460	11/16	20,000	202,000	148,000	50,000
17,500		20,000	202,000	148,000	50,000
18,000		20,000	202,000	148,000	50,000
18,500		25,000	224,000	164,000	56,000
19,000		25,000	224,000	164,000	56,000
20,000		25,000	224,000	164,000	56,000
21,000		25,000	241,000	181,000	56,000
22,000		25,000	241,000	181,000	56,000
22,500		25,000	257,000	197,000	56,000
25,000	63/64	32,000	278,000	214,000	60,000

Brocas Ratio con refrigeración interior

8xD | RT 100 S | WN | 140° | m7

Material de corte	**Metal duro**
Acabado	F
Forma del mango	HA

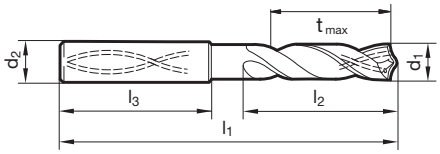
NEW

P	•	afilado plano • forma recta del corte principal • geometría de corte optimizada • máximo rendimiento
M	○	
K	○	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros (aleados/no aleados) hasta 1400 N/mm²
S	○	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 758

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **5760**

d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
3,000		6,000	70,000	30,000	36,000
3,100		6,000	70,000	30,000	36,000
3,170	1/8	6,000	70,000	30,000	36,000
3,200		6,000	70,000	30,000	36,000
3,250		6,000	70,000	30,000	36,000
3,300		6,000	70,000	30,000	36,000
3,400		6,000	75,000	35,500	36,000
3,500		6,000	75,000	35,500	36,000
3,570	9/64	6,000	75,000	35,500	36,000
3,600		6,000	75,000	35,500	36,000
3,700		6,000	75,000	35,500	36,000
3,800		6,000	75,000	37,500	36,000
3,900		6,000	75,000	37,500	36,000
3,970	5/32	6,000	75,000	37,500	36,000
4,000		6,000	75,000	37,500	36,000
4,040		6,000	75,000	37,500	36,000
4,100		6,000	75,000	37,500	36,000
4,200		6,000	75,000	37,500	36,000
4,300		6,000	85,000	45,000	36,000
4,370	11/64	6,000	85,000	45,000	36,000
4,400		6,000	85,000	45,000	36,000
4,500		6,000	85,000	45,000	36,000
4,600		6,000	85,000	45,000	36,000
4,650		6,000	85,000	45,000	36,000
4,700		6,000	85,000	45,000	36,000
4,760	3/16	6,000	90,000	50,000	36,000
4,800		6,000	90,000	50,000	36,000
4,900		6,000	90,000	50,000	36,000
5,000		6,000	90,000	50,000	36,000
5,100		6,000	90,000	50,000	36,000
5,110		6,000	90,000	50,000	36,000
5,160	13/64	6,000	90,000	50,000	36,000
5,200		6,000	90,000	50,000	36,000
5,300		6,000	90,000	50,000	36,000
5,400		6,000	97,000	57,000	36,000
5,410		6,000	97,000	57,000	36,000
5,500		6,000	97,000	57,000	36,000
5,550		6,000	97,000	57,000	36,000
5,560		6,000	97,000	57,000	36,000
5,600		6,000	97,000	57,000	36,000
5,700		6,000	97,000	57,000	36,000
5,800		6,000	97,000	57,000	36,000

d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
5,900		6,000	97,000	57,000	36,000
5,950		6,000	97,000	57,000	36,000
6,000		6,000	97,000	57,000	36,000
6,100		8,000	106,000	66,000	36,000
6,200		8,000	106,000	66,000	36,000
6,300		8,000	106,000	66,000	36,000
6,350	1/4	8,000	106,000	66,000	36,000
6,400		8,000	106,000	66,000	36,000
6,500		8,000	106,000	66,000	36,000
6,530		8,000	106,000	66,000	36,000
6,600		8,000	106,000	66,000	36,000
6,700		8,000	106,000	66,000	36,000
6,750		8,000	106,000	66,000	36,000
6,800		8,000	106,000	66,000	36,000
6,900		8,000	116,000	76,000	36,000
7,000		8,000	116,000	76,000	36,000
7,100		8,000	116,000	76,000	36,000
7,140		8,000	116,000	76,000	36,000
7,200		8,000	116,000	76,000	36,000
7,300		8,000	116,000	76,000	36,000
7,400		8,000	116,000	76,000	36,000
7,500		8,000	116,000	76,000	36,000
7,540		8,000	116,000	76,000	36,000
7,600		8,000	116,000	76,000	36,000
7,700		8,000	116,000	76,000	36,000
7,800		8,000	116,000	76,000	36,000
7,900		8,000	116,000	76,000	36,000
7,940		8,000	116,000	76,000	36,000
8,000		8,000	116,000	76,000	36,000
8,100		10,000	131,000	87,000	40,000
8,200		10,000	131,000	87,000	40,000
8,300		10,000	131,000	87,000	40,000
8,330		10,000	131,000	87,000	40,000
8,400		10,000	131,000	87,000	40,000
8,500		10,000	131,000	87,000	40,000
8,600		10,000	131,000	87,000	40,000
8,700		10,000	131,000	87,000	40,000
8,730		10,000	131,000	87,000	40,000
8,800		10,000	131,000	87,000	40,000
8,900		10,000	131,000	87,000	40,000
9,000		10,000	131,000	87,000	40,000
9,100		10,000	139,000	95,000	40,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
9,130		10,000	139,000	95,000	40,000
9,200		10,000	139,000	95,000	40,000
9,250		10,000	139,000	95,000	40,000
9,300		10,000	139,000	95,000	40,000
9,340		10,000	139,000	95,000	40,000
9,400		10,000	139,000	95,000	40,000
9,500		10,000	139,000	95,000	40,000
9,520	3/8	10,000	139,000	95,000	40,000
9,600		10,000	139,000	95,000	40,000
9,700		10,000	139,000	95,000	40,000
9,800		10,000	139,000	95,000	40,000
9,900		10,000	139,000	95,000	40,000
9,920		10,000	139,000	95,000	40,000
10,000		10,000	139,000	95,000	40,000
10,100		12,000	155,000	106,000	45,000
10,200		12,000	155,000	106,000	45,000
10,300		12,000	155,000	106,000	45,000
10,320		12,000	155,000	106,000	45,000
10,400		12,000	155,000	106,000	45,000
10,500		12,000	155,000	106,000	45,000
10,600		12,000	155,000	106,000	45,000
10,700		12,000	155,000	106,000	45,000
10,720		12,000	155,000	106,000	45,000
10,800		12,000	155,000	106,000	45,000
10,900		12,000	155,000	106,000	45,000
11,000		12,000	155,000	106,000	45,000
11,100		12,000	163,000	114,000	45,000
11,110		12,000	163,000	114,000	45,000
11,200		12,000	163,000	114,000	45,000
11,300		12,000	163,000	114,000	45,000
11,400		12,000	163,000	114,000	45,000
11,500		12,000	163,000	114,000	45,000
11,510		12,000	163,000	114,000	45,000
11,600		12,000	163,000	114,000	45,000
11,700		12,000	163,000	114,000	45,000
11,800		12,000	163,000	114,000	45,000
11,900		12,000	163,000	114,000	45,000
11,910		12,000	163,000	114,000	45,000
12,000		12,000	163,000	114,000	45,000
12,100		14,000	182,000	133,000	45,000
12,200		14,000	182,000	133,000	45,000
12,300		14,000	182,000	133,000	45,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
12,500		14,000	182,000	133,000	45,000
12,700	1/2	14,000	182,000	133,000	45,000
13,000		14,000	182,000	133,000	45,000
13,100		14,000	182,000	133,000	45,000
13,490		14,000	182,000	133,000	45,000
13,500		14,000	182,000	133,000	45,000
13,700		14,000	182,000	133,000	45,000
13,890		14,000	182,000	133,000	45,000
14,000		14,000	182,000	133,000	45,000
14,100		16,000	204,000	152,000	48,000
14,200		16,000	204,000	152,000	48,000
14,290		16,000	204,000	152,000	48,000
14,500		16,000	204,000	152,000	48,000
14,700		16,000	204,000	152,000	48,000
15,000		16,000	204,000	152,000	48,000
15,100		16,000	204,000	152,000	48,000
15,480		16,000	204,000	152,000	48,000
15,500		16,000	204,000	152,000	48,000
15,700		16,000	204,000	152,000	48,000
15,870		16,000	204,000	152,000	48,000
16,000		16,000	204,000	152,000	48,000
16,500		18,000	223,000	171,000	48,000
16,900		18,000	223,000	171,000	48,000
17,000		18,000	223,000	171,000	48,000
17,500		18,000	223,000	171,000	48,000
17,700		18,000	223,000	171,000	48,000
18,000		18,000	223,000	171,000	48,000
18,500		20,000	244,000	190,000	50,000
18,900		20,000	244,000	190,000	50,000
19,000		20,000	244,000	190,000	50,000
19,050	3/4	20,000	244,000	190,000	50,000
19,500		20,000	244,000	190,000	50,000
20,000		20,000	244,000	190,000	50,000

Brocas Ratio con refrigeración interior

10xD | RT 150 GG | WN | 120° | m7

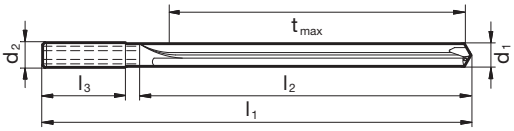
Material de corte	**Metal duro**
Acabado	◯
Forma del mango	HA

P		vaciado de punta ≥Ø 3,000 • entrada cónica • tolerancias en diámetro estrechas • cal. superficial del taladro muy buena • vigilar presión del refrigerante
M		
K	•	
N	○	fundición gris, fundición maleable, fundición esferica
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 758

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **770**

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
3,000		6,000	91,000	42,000	36,000
3,100		6,000	91,000	42,000	36,000
3,300		6,000	91,000	42,000	36,000
3,800		6,000	121,000	77,000	36,000
4,000		6,000	121,000	77,000	36,000
4,100		6,000	121,000	77,000	36,000
4,200		6,000	121,000	77,000	36,000
4,300		6,000	121,000	77,000	36,000
4,400		6,000	121,000	77,000	36,000
4,500		6,000	121,000	77,000	36,000
4,800		6,000	121,000	82,000	36,000
4,900		6,000	121,000	82,000	36,000
5,000		6,000	121,000	82,000	36,000
5,160	13/64	6,000	121,000	82,000	36,000
5,500		6,000	121,000	82,000	36,000
5,560	7/32	6,000	121,000	82,000	36,000
6,000		6,000	121,000	82,000	36,000
6,500		8,000	146,000	106,000	36,000
6,750	17/64	8,000	146,000	106,000	36,000
6,800		8,000	146,000	106,000	36,000
7,000		8,000	146,000	106,000	36,000
7,140	9/32	8,000	146,000	106,000	36,000
7,500		8,000	146,000	106,000	36,000
7,800		8,000	146,000	106,000	36,000
7,940	5/16	8,000	146,000	106,000	36,000
8,000		8,000	146,000	106,000	36,000
8,500		10,000	175,000	130,000	40,000
8,730	11/32	10,000	175,000	130,000	40,000
9,000		10,000	175,000	130,000	40,000
9,500		10,000	175,000	130,000	40,000

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
10,000		10,000	175,000	130,000	40,000
10,200		12,000	209,000	159,000	45,000
10,500		12,000	209,000	159,000	45,000
10,720	27/64	12,000	209,000	159,000	45,000
11,000		12,000	209,000	159,000	45,000
11,500		12,000	209,000	159,000	45,000
11,510	29/64	12,000	209,000	159,000	45,000
12,000		12,000	209,000	159,000	45,000
12,300	31/64	14,000	233,000	183,000	45,000
12,500		14,000	233,000	183,000	45,000
12,700	1/2	14,000	233,000	183,000	45,000
13,000		14,000	233,000	183,000	45,000
13,500		14,000	233,000	183,000	45,000
14,000		14,000	233,000	183,000	45,000
14,500		16,000	260,000	207,000	48,000
15,000		16,000	260,000	207,000	48,000
15,500		16,000	260,000	207,000	48,000
16,500		18,000	284,000	231,000	48,000
17,000		18,000	284,000	231,000	48,000
17,500		18,000	284,000	231,000	48,000
18,000		18,000	284,000	231,000	48,000
19,000		20,000	308,000	255,000	50,000
20,000		20,000	308,000	255,000	50,000

Brocas Ratio con refrigeración interior

10xD | RT 150 GG | WN | 130° | m7

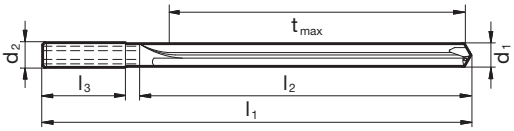
Material de corte	**Metal duro**
Acabado	◯
Forma del mango	HA

P		vaciado de punta ≥Ø 3,000 • afilado plano • tolerancias en diámetro estrechas • cal. superficial del taladro muy buena • vigilar presión óptima del refrigerante
M		
K	○	
N	•	aluminio y sus aleaciones • aluminios con alto porcentaje de Si
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 758

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **6070**

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
3,000		6,000	91,000	42,000	36,000
3,100		6,000	91,000	42,000	36,000
3,300		6,000	91,000	42,000	36,000
3,500		6,000	91,000	48,000	36,000
3,800		6,000	121,000	77,000	36,000
4,000		6,000	121,000	77,000	36,000
4,700		6,000	121,000	77,000	36,000
4,800		6,000	121,000	82,000	36,000
5,000		6,000	121,000	82,000	36,000
5,500		6,000	121,000	82,000	36,000
6,000		6,000	121,000	82,000	36,000
6,350	1/4	8,000	146,000	106,000	36,000
6,500		8,000	146,000	106,000	36,000
6,800		8,000	146,000	106,000	36,000
7,500		8,000	146,000	106,000	36,000
7,800		8,000	146,000	106,000	36,000
7,940	5/16	8,000	146,000	106,000	36,000
8,000		8,000	146,000	106,000	36,000
8,500		10,000	175,000	130,000	40,000
8,730	11/32	10,000	175,000	130,000	40,000
9,000		10,000	175,000	130,000	40,000
9,500		10,000	175,000	130,000	40,000
9,520	3/8	10,000	175,000	130,000	40,000
10,000		10,000	175,000	130,000	40,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
10,500		12,000	209,000	159,000	45,000
11,000		12,000	209,000	159,000	45,000
11,110	7/16	12,000	209,000	159,000	45,000
12,000		12,000	209,000	159,000	45,000
12,700	1/2	14,000	233,000	183,000	45,000
13,000		14,000	233,000	183,000	45,000
14,000		14,000	233,000	183,000	45,000
15,000		16,000	260,000	207,000	48,000
16,000		16,000	260,000	207,000	48,000
17,000		18,000	284,000	231,000	48,000
17,500		18,000	284,000	231,000	48,000
18,000		18,000	284,000	231,000	48,000
18,500		20,000	308,000	255,000	50,000
19,500		20,000	308,000	255,000	50,000

Brocas Ratio con refrigeración interior

12xD | RT 100 U | WN | 135° | h7

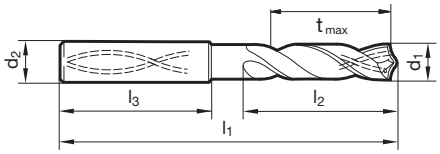
Material de corte	**Metal duro**
Acabado	F
Forma del mango	HA

P	•	vaciado de punta ≥Ø 3,000 • afilado plano • forma recta del corte principal • geometría de corte optimizada
M	○	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • fundición • bronce, latón • aleaciones de AlSi altamente aleables
S	○	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 758

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **5525**

d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
3,000		6,000	90,000	50,000	36,000
3,100		6,000	90,000	50,000	36,000
3,170	1/8	6,000	90,000	50,000	36,000
3,200		6,000	90,000	50,000	36,000
3,300		6,000	90,000	50,000	36,000
3,400		6,000	90,000	50,000	36,000
3,500		6,000	90,000	50,000	36,000
3,600		6,000	90,000	50,000	36,000
3,700		6,000	90,000	50,000	36,000
3,800		6,000	102,000	64,000	36,000
3,900		6,000	102,000	64,000	36,000
4,000		6,000	102,000	64,000	36,000
4,100		6,000	102,000	64,000	36,000
4,200		6,000	102,000	64,000	36,000
4,300		6,000	102,000	64,000	36,000
4,400		6,000	102,000	64,000	36,000
4,500		6,000	102,000	64,000	36,000
4,600		6,000	102,000	64,000	36,000
4,700		6,000	102,000	64,000	36,000
4,800		6,000	116,000	78,000	36,000
4,900		6,000	116,000	78,000	36,000
5,000		6,000	116,000	78,000	36,000
5,100		6,000	116,000	78,000	36,000
5,200		6,000	116,000	78,000	36,000
5,300		6,000	116,000	78,000	36,000
5,400		6,000	116,000	78,000	36,000
5,500		6,000	116,000	78,000	36,000
5,600		6,000	116,000	78,000	36,000
5,700		6,000	116,000	78,000	36,000
5,800		6,000	116,000	78,000	36,000
5,900		6,000	116,000	78,000	36,000
6,000		6,000	116,000	78,000	36,000
6,100		8,000	146,000	108,000	36,000
6,200		8,000	146,000	108,000	36,000
6,300		8,000	146,000	108,000	36,000
6,350	1/4	8,000	146,000	108,000	36,000
6,400		8,000	146,000	108,000	36,000
6,500		8,000	146,000	108,000	36,000
6,600		8,000	146,000	108,000	36,000
6,700		8,000	146,000	108,000	36,000
6,800		8,000	146,000	108,000	36,000
6,900		8,000	146,000	108,000	36,000

d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
7,000		8,000	146,000	108,000	36,000
7,100		8,000	146,000	108,000	36,000
7,200		8,000	146,000	108,000	36,000
7,300		8,000	146,000	108,000	36,000
7,400		8,000	146,000	108,000	36,000
7,500		8,000	146,000	108,000	36,000
7,600		8,000	146,000	108,000	36,000
7,700		8,000	146,000	108,000	36,000
7,800		8,000	146,000	108,000	36,000
7,900		8,000	146,000	108,000	36,000
8,000		8,000	146,000	108,000	36,000
8,100		10,000	162,000	120,000	40,000
8,200		10,000	162,000	120,000	40,000
8,300		10,000	162,000	120,000	40,000
8,400		10,000	162,000	120,000	40,000
8,500		10,000	162,000	120,000	40,000
8,600		10,000	162,000	120,000	40,000
8,700		10,000	162,000	120,000	40,000
8,800		10,000	162,000	120,000	40,000
8,900		10,000	162,000	120,000	40,000
9,000		10,000	162,000	120,000	40,000
9,100		10,000	162,000	120,000	40,000
9,200		10,000	162,000	120,000	40,000
9,300		10,000	162,000	120,000	40,000
9,400		10,000	162,000	120,000	40,000
9,500		10,000	162,000	120,000	40,000
9,520	3/8	10,000	162,000	120,000	40,000
9,600		10,000	162,000	120,000	40,000
9,700		10,000	162,000	120,000	40,000
9,800		10,000	162,000	120,000	40,000
9,900		10,000	162,000	120,000	40,000
10,000		10,000	162,000	120,000	40,000
10,200		12,000	204,000	156,000	45,000
10,500		12,000	204,000	156,000	45,000
11,000		12,000	204,000	156,000	45,000
11,500		12,000	204,000	156,000	45,000
12,000		12,000	204,000	156,000	45,000
12,500		14,000	230,000	182,000	45,000
12,700	1/2	14,000	230,000	182,000	45,000
13,000		14,000	230,000	182,000	45,000
13,500		14,000	230,000	182,000	45,000
14,000		14,000	230,000	182,000	45,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
14,500		16,000	260,000	208,000	48,000
15,000		16,000	260,000	208,000	48,000
15,500		16,000	260,000	208,000	48,000
16,000		16,000	260,000	208,000	48,000
16,500		18,000	285,000	234,000	48,000
17,000		18,000	285,000	234,000	48,000
17,500		18,000	285,000	234,000	48,000
18,000		18,000	285,000	234,000	48,000
18,500		20,000	310,000	258,000	50,000
19,000		20,000	310,000	258,000	50,000
19,050	3/4	20,000	310,000	258,000	50,000
19,500		20,000	310,000	258,000	50,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
20,000		20,000	310,000	258,000	50,000

Brocas Ratio con refrigeración interior

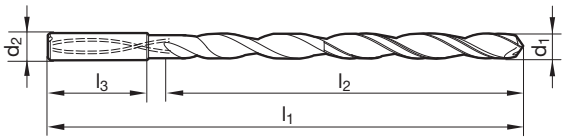
15xD | RT 100 T | WN | 135° | h7

Material de corte	**Metal duro**
Acabado	A
Forma del mango	HA

P	•	vaciado de punta ≥Ø 3,000 • entrada cónica • forma cóncava del corte principal • sección de ranura optimizada • sección máxima del canal de lubricación • vigilar presión del refrigerante
M	•	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • aceros inoxidables • fundición
S	○	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 760



Artículo Nº **6509**

d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
3,000		6,000	95,000	55,000	36,000
3,170	1/8	6,000	106,000	67,000	36,000
3,500		6,000	116,000	76,000	36,000
3,570	9/64	6,000	116,000	76,000	36,000
3,970	5/32	6,000	116,000	76,000	36,000
4,000		6,000	116,000	76,000	36,000
4,370	11/64	6,000	133,000	93,000	36,000
4,500		6,000	133,000	93,000	36,000
4,760	3/16	6,000	133,000	93,000	36,000
5,000		6,000	133,000	93,000	36,000
5,100		6,000	150,000	110,000	36,000
5,160	13/64	6,000	150,000	110,000	36,000
5,410		6,000	150,000	110,000	36,000
5,500		6,000	150,000	110,000	36,000
5,560	7/32	6,000	150,000	110,000	36,000
5,950	15/64	6,000	150,000	110,000	36,000
6,000		6,000	150,000	110,000	36,000
6,350	1/4	8,000	167,000	127,000	36,000
6,500		8,000	167,000	127,000	36,000
6,750	17/64	8,000	167,000	127,000	36,000
7,000		8,000	167,000	127,000	36,000
7,140	9/32	8,000	183,000	143,000	36,000
7,500		8,000	183,000	143,000	36,000
7,540	19/64	8,000	183,000	143,000	36,000

d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
7,940	5/16	8,000	183,000	143,000	36,000
8,000		8,000	183,000	143,000	36,000
8,330	21/64	10,000	204,000	160,000	40,000
8,500		10,000	204,000	160,000	40,000
8,730	11/32	10,000	204,000	160,000	40,000
9,000		10,000	204,000	160,000	40,000
9,130	23/64	10,000	221,000	177,000	40,000
9,520	3/8	10,000	221,000	177,000	40,000
9,920	25/64	10,000	221,000	177,000	40,000
10,000		10,000	221,000	177,000	40,000
10,320	13/32	12,000	247,000	198,000	45,000
10,720	27/64	12,000	247,000	198,000	45,000
11,000		12,000	247,000	198,000	45,000
11,110	7/16	12,000	263,000	214,000	45,000
11,510	29/64	12,000	263,000	214,000	45,000
11,910	15/32	12,000	263,000	214,000	45,000
12,000		12,000	263,000	214,000	45,000
12,300	31/64	14,000	297,000	248,000	45,000
12,700	1/2	14,000	297,000	248,000	45,000
13,100	33/64	14,000	297,000	248,000	45,000
13,490	17/32	14,000	297,000	248,000	45,000
13,890	35/64	14,000	297,000	248,000	45,000
14,000		14,000	297,000	248,000	45,000

Brocas Ratio con refrigeración interior

15xD | RT 150 GN | WN | 120° | m7

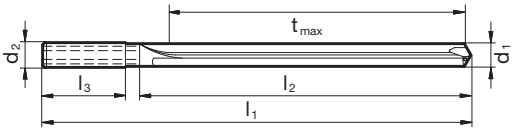
Material de corte	**Metal duro**
Acabado	◯
Forma del mango	HA

P		vaciado de punta ≥Ø 5,000 • entrada cónica • paso negativo • para taladros muy precisos en medida • cal. superficial del taladro muy buena • vigilar presión del refrigerante
M		
K	•	
N	•	aluminio y sus aleaciones • aluminios con alto porcentaje de Si • fundición gris, fundición maleable, fundición esferica
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 760

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **773**

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
5,000		6,000	145,000	105,000	36,000
6,000		6,000	145,000	105,000	36,000
8,000		8,000	180,000	137,000	36,000
9,000		10,000	217,000	170,000	40,000
10,000		10,000	217,000	170,000	40,000
11,000		12,000	258,000	205,000	45,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
12,000		12,000	258,000	205,000	45,000
14,000		14,000	290,000	236,000	45,000

Brocas Ratio con refrigeración interior

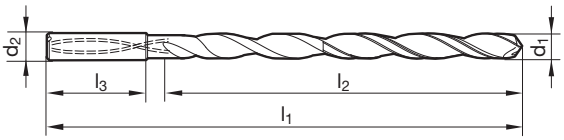
20xD | RT 100 T | WN | 135° | h7

Material de corte	**Metal duro**
Acabado	A
Forma del mango	HA

P	•	vaciado de punta ≥Ø 3,000 • entrada cónica • forma cóncava del corte principal • sección de ranura optimizada • sección máxima del canal de lubricación • vigilar presión del refrigerante
M	•	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • aceros inoxidables • fundición
S	○	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 760



Artículo Nº **6511**

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
3,000		6,000	110,000	70,000	36,000
3,100		6,000	123,000	83,000	36,000
3,170	1/8	6,000	123,000	83,000	36,000
3,500		6,000	136,000	96,000	36,000
3,570	9/64	6,000	136,000	96,000	36,000
3,970	5/32	6,000	136,000	96,000	36,000
4,000		6,000	136,000	96,000	36,000
4,200		6,000	158,000	118,000	36,000
4,370	11/64	6,000	158,000	118,000	36,000
4,500		6,000	158,000	118,000	36,000
4,760	3/16	6,000	158,000	118,000	36,000
5,000		6,000	158,000	118,000	36,000
5,100		6,000	180,000	140,000	36,000
5,160	13/64	6,000	180,000	140,000	36,000
5,410		6,000	180,000	140,000	36,000
5,500		6,000	180,000	140,000	36,000
5,560	7/32	6,000	180,000	140,000	36,000
5,950	15/64	6,000	180,000	140,000	36,000
6,000		6,000	180,000	140,000	36,000
6,350	1/4	8,000	202,000	162,000	36,000
6,500		8,000	202,000	162,000	36,000
6,750	17/64	8,000	202,000	162,000	36,000
7,000		8,000	202,000	162,000	36,000
7,140	9/32	8,000	223,000	183,000	36,000
7,500		8,000	223,000	183,000	36,000
7,540	19/64	8,000	223,000	183,000	36,000
7,940	5/16	8,000	223,000	183,000	36,000
8,000		8,000	223,000	183,000	36,000
8,330	21/64	10,000	249,000	205,000	40,000
8,500		10,000	249,000	205,000	40,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
8,730	11/32	10,000	249,000	205,000	40,000
9,000		10,000	249,000	205,000	40,000
9,130	23/64	10,000	271,000	227,000	40,000
9,520	3/8	10,000	271,000	227,000	40,000
9,920	25/64	10,000	271,000	227,000	40,000
10,000		10,000	271,000	227,000	40,000
10,320	13/32	12,000	302,000	253,000	45,000
10,720	27/64	12,000	302,000	253,000	45,000
11,000		12,000	302,000	253,000	45,000
11,110	7/16	12,000	323,000	274,000	45,000
11,510	29/64	12,000	323,000	274,000	45,000
11,910	15/32	12,000	323,000	274,000	45,000
12,000		12,000	323,000	274,000	45,000
12,300	31/64	14,000	367,000	318,000	45,000
12,700	1/2	14,000	367,000	318,000	45,000
13,100	33/64	14,000	367,000	318,000	45,000
13,490	17/32	14,000	367,000	318,000	45,000
13,890	35/64	14,000	367,000	318,000	45,000
14,000		14,000	367,000	318,000	45,000

Brocas Ratio con refrigeración interior

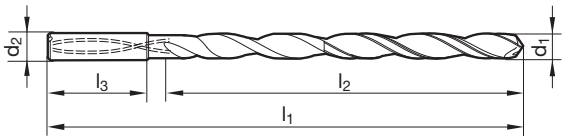
25xD | RT 100 T | WN | 135° | h7

Material de corte	**Metal duro**
Acabado	A
Forma del mango	HA

P	•	vaciado de punta ≥Ø 3,000 • entrada cónica • forma cóncava del corte principal • sección de ranura optimizada • sección máxima del canal de lubricación • vigilar presión del refrigerante
M	•	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • aceros inoxidables • fundición
S	○	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 760



Artículo Nº **6512**

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
3,000		6,000	125,000	85,000	36,000
3,100		6,000	141,000	101,000	36,000
3,170	1/8	6,000	141,000	101,000	36,000
3,500		6,000	156,000	116,000	36,000
3,570	9/64	6,000	156,000	116,000	36,000
3,800		6,000	156,000	116,000	36,000
3,970	5/32	6,000	156,000	116,000	36,000
4,000		6,000	156,000	116,000	36,000
4,200		6,000	183,000	143,000	36,000
4,370	11/64	6,000	183,000	143,000	36,000
4,500		6,000	183,000	143,000	36,000
4,760	3/16	6,000	183,000	143,000	36,000
5,000		6,000	183,000	143,000	36,000
5,100		6,000	210,000	170,000	36,000
5,160	13/64	6,000	210,000	170,000	36,000
5,410		6,000	210,000	170,000	36,000
5,500		6,000	210,000	170,000	36,000
5,560	7/32	6,000	210,000	170,000	36,000
5,950	15/64	6,000	210,000	170,000	36,000
6,000		6,000	210,000	170,000	36,000
6,300		8,000	237,000	197,000	36,000
6,350	1/4	8,000	237,000	197,000	36,000
6,500		8,000	237,000	197,000	36,000
6,750	17/64	8,000	237,000	197,000	36,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
7,000		8,000	237,000	197,000	36,000
7,140	9/32	8,000	263,000	223,000	36,000
7,500		8,000	263,000	223,000	36,000
7,540	19/64	8,000	263,000	223,000	36,000
7,940	5/16	8,000	263,000	223,000	36,000
8,000		8,000	263,000	223,000	36,000
8,330	21/64	10,000	294,000	250,000	40,000
8,500		10,000	294,000	250,000	40,000
8,730	11/32	10,000	294,000	250,000	40,000
8,800		10,000	294,000	250,000	40,000
9,000		10,000	294,000	250,000	40,000
9,130	23/64	10,000	321,000	277,000	40,000
9,520	3/8	10,000	321,000	277,000	40,000
9,920	25/64	10,000	321,000	277,000	40,000
10,000		10,000	321,000	277,000	40,000
10,320	13/32	12,000	359,000	310,000	45,000
10,720	27/64	12,000	359,000	310,000	45,000
11,000		12,000	359,000	310,000	45,000
11,110	7/16	12,000	386,000	337,000	45,000
11,510	29/64	12,000	386,000	337,000	45,000
11,910	15/32	12,000	386,000	337,000	45,000
12,000		12,000	386,000	337,000	45,000

Brocas Ratio con refrigeración interior

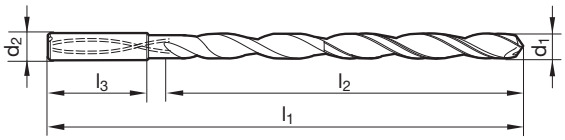
30xD | RT 100 T | WN | 135° | h7

Material de corte	**Metal duro**
Acabado	A
Forma del mango	HA

P	•	vaciado de punta ≥Ø 3,000 • entrada cónica • forma cóncava del corte principal • sección de ranura optimizada • sección máxima del canal de lubricación • vigilar presión del refrigerante
M	•	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • aceros inoxidables • fundición
S	○	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 760



Artículo Nº **6513**

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
3,000		6,000	140,000	100,000	36,000
3,100		6,000	158,000	118,000	36,000
3,170	1/8	6,000	158,000	118,000	36,000
3,500		6,000	176,000	136,000	36,000
3,570	9/64	6,000	176,000	136,000	36,000
3,800		6,000	176,000	136,000	36,000
3,970	5/32	6,000	176,000	136,000	36,000
4,000		6,000	176,000	136,000	36,000
4,200		6,000	208,000	168,000	36,000
4,370	11/64	6,000	208,000	168,000	36,000
4,500		6,000	208,000	168,000	36,000
4,760	3/16	6,000	208,000	168,000	36,000
5,000		6,000	208,000	168,000	36,000
5,100		6,000	240,000	200,000	36,000
5,160	13/64	6,000	240,000	200,000	36,000
5,410		6,000	240,000	200,000	36,000
5,500		6,000	240,000	200,000	36,000
5,560	7/32	6,000	240,000	200,000	36,000
5,950	15/64	6,000	240,000	200,000	36,000
6,000		6,000	240,000	200,000	36,000
6,300		8,000	272,000	232,000	36,000
6,350	1/4	8,000	272,000	232,000	36,000
6,500		8,000	272,000	232,000	36,000
6,750	17/64	8,000	272,000	232,000	36,000

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
7,000		8,000	272,000	232,000	36,000
7,140	9/32	8,000	303,000	263,000	36,000
7,500		8,000	303,000	263,000	36,000
7,540	19/64	8,000	303,000	263,000	36,000
7,940	5/16	8,000	303,000	263,000	36,000
8,000		8,000	303,000	263,000	36,000
8,330	21/64	10,000	339,000	295,000	40,000
8,500		10,000	339,000	295,000	40,000
8,730	11/32	10,000	339,000	295,000	40,000
8,800		10,000	339,000	295,000	40,000
9,000		10,000	339,000	295,000	40,000
9,130	23/64	10,000	371,000	327,000	40,000
9,520	3/8	10,000	371,000	327,000	40,000
9,920	25/64	10,000	371,000	327,000	40,000
10,000		10,000	371,000	327,000	40,000

Brocas Ratio con refrigeración interior

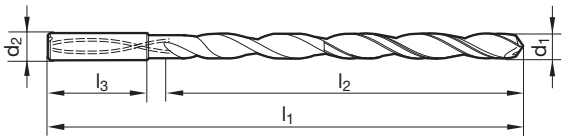
40xD | RT 100 T | WN | 135° | h7

Material de corte	**Metal duro**
Acabado	A
Forma del mango	HA

P	•	vaciado de punta ≥Ø 3,000 • entrada cónica • forma cóncava del corte principal • sección de ranura optimizada • sección máxima del canal de lubricación • vigilar presión del refrigerante
M	•	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • aceros inoxidables • fundición
S	○	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 760



Artículo Nº **6514**

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
3,000		6,000	170,000	130,000	36,000
3,100		6,000	193,000	153,000	36,000
3,170	1/8	6,000	193,000	153,000	36,000
3,500		6,000	193,000	153,000	36,000
3,570	9/64	6,000	216,000	176,000	36,000
3,800		6,000	216,000	176,000	36,000
3,970	5/32	6,000	216,000	176,000	36,000
4,000		6,000	216,000	176,000	36,000
4,200		6,000	238,000	198,000	36,000
4,370	11/64	6,000	238,000	198,000	36,000
4,500		6,000	238,000	198,000	36,000
4,760	3/16	6,000	258,000	218,000	36,000
5,000		6,000	258,000	218,000	36,000
5,100		6,000	280,000	240,000	36,000
5,160	13/64	6,000	280,000	240,000	36,000
5,410		6,000	280,000	240,000	36,000
5,500		6,000	280,000	240,000	36,000
5,560	7/32	6,000	300,000	260,000	36,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
5,950	15/64	6,000	300,000	260,000	36,000
6,000		6,000	300,000	260,000	36,000
6,300		8,000	322,000	282,000	36,000
6,350	1/4	8,000	322,000	282,000	36,000
6,500		8,000	322,000	282,000	36,000
6,750	17/64	8,000	342,000	302,000	36,000
7,000		8,000	342,000	302,000	36,000
7,140	9/32	8,000	363,000	323,000	36,000
7,500		8,000	363,000	323,000	36,000
7,540	19/64	8,000	383,000	343,000	36,000
7,940	5/16	8,000	383,000	343,000	36,000
8,000		8,000	383,000	343,000	36,000

Microbrocas ExclusiveLine sin refrigeración interior

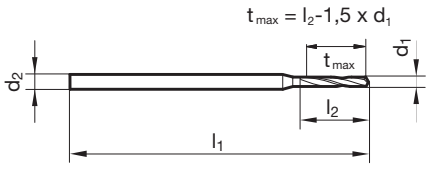
4xD | N | WN | 140° | m7

Material de corte	Metal duro
Acabado	A
Dirección de corte	R

P	•	vaciado de punta ≥Ø 0,500 • afilado plano • forma recta del corte principal • corrección de cantos rectificada
M	•	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • aceros inoxidables • fundición
S	○	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 796



Artículo Nº **6400**

d1	d2 h6	l1	l2
mm	mm	mm	mm
0,500	3,000	47,000	3,000
0,550	3,000	47,000	3,300
0,600	3,000	47,000	3,600
0,650	3,000	47,000	3,900
0,700	3,000	47,000	4,200
0,750	3,000	47,000	4,500
0,800	3,000	47,000	4,800
0,850	3,000	47,000	5,100
0,900	3,000	47,000	5,400
0,950	3,000	47,000	5,700
1,000	3,000	47,000	6,000
1,050	3,000	47,000	6,300
1,100	3,000	47,000	6,600
1,150	3,000	47,000	6,900
1,200	3,000	47,000	7,200
1,250	3,000	47,000	7,500
1,300	3,000	47,000	7,800
1,350	3,000	47,000	8,100
1,400	3,000	47,000	8,400
1,450	3,000	47,000	8,700
1,500	3,000	47,000	9,000
1,550	3,000	47,000	9,300
1,590	3,000	47,000	9,600
1,600	3,000	47,000	9,600
1,650	3,000	47,000	9,900
1,700	3,000	47,000	10,200
1,750	3,000	47,000	10,500
1,800	3,000	52,000	10,800
1,850	3,000	52,000	11,100
1,900	3,000	52,000	11,400

d1	d2 h6	l1	l2
mm	mm	mm	mm
1,950	3,000	52,000	11,700
1,980	4,000	59,000	12,000
2,000	4,000	59,000	12,000
2,050	4,000	59,000	12,300
2,100	4,000	59,000	12,600
2,150	4,000	59,000	12,900
2,200	4,000	59,000	13,200
2,250	4,000	59,000	13,500
2,300	4,000	59,000	13,800
2,350	4,000	59,000	14,100
2,380	4,000	59,000	14,400
2,400	4,000	59,000	14,400
2,450	4,000	59,000	14,700
2,500	4,000	59,000	15,000
2,550	4,000	59,000	15,300
2,600	4,000	59,000	15,600
2,650	4,000	59,000	15,900
2,700	4,000	59,000	16,200
2,750	4,000	59,000	16,500
2,780	4,000	59,000	16,800
2,800	4,000	59,000	16,800
2,850	4,000	59,000	17,100
2,900	4,000	59,000	17,400
2,950	4,000	59,000	17,700
3,000	4,000	59,000	18,000

Microbrocas ExclusiveLine sin refrigeración interior

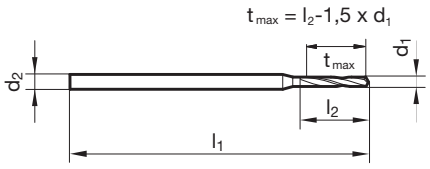
7xD | N | WN | 140° | m7

Material de corte	**Metal duro**
Acabado	A
Dirección de corte	R

P	•	vaciado de punta ≥Ø 0,500 • afilado plano • forma recta del corte principal • corrección de cantos rectificada
M	•	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • aceros inoxidables • fundición
S	○	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 796



Artículo N° **6401**

d1	d2 h6	l1	l2
mm	mm	mm	mm
0,500	3,000	47,000	4,000
0,550	3,000	47,000	4,400
0,600	3,000	47,000	4,800
0,650	3,000	47,000	5,200
0,700	3,000	47,000	5,600
0,750	3,000	47,000	6,000
0,800	3,000	47,000	6,400
0,850	3,000	47,000	6,800
0,900	3,000	47,000	7,200
0,950	3,000	47,000	7,600
1,000	3,000	47,000	8,000
1,050	3,000	47,000	8,400
1,100	3,000	47,000	8,800
1,150	3,000	47,000	9,200
1,200	3,000	52,000	10,800
1,250	3,000	52,000	11,300
1,300	3,000	52,000	11,700
1,350	3,000	52,000	12,200
1,400	3,000	52,000	12,600
1,450	3,000	52,000	13,100
1,500	3,000	52,000	13,500
1,550	3,000	52,000	14,000
1,590	3,000	52,000	14,400
1,600	3,000	52,000	14,400
1,650	3,000	52,000	14,900
1,700	3,000	52,000	15,300
1,750	3,000	52,000	15,800
1,800	3,000	52,000	16,200
1,850	3,000	52,000	16,700
1,900	3,000	52,000	17,100

d1	d2 h6	l1	l2
mm	mm	mm	mm
1,950	3,000	52,000	17,600
1,980	4,000	63,000	18,000
2,000	4,000	63,000	18,000
2,050	4,000	63,000	18,500
2,100	4,000	63,000	18,900
2,150	4,000	63,000	19,400
2,200	4,000	63,000	19,800
2,250	4,000	63,000	20,300
2,300	4,000	63,000	20,700
2,350	4,000	63,000	21,200
2,380	4,000	63,000	21,600
2,400	4,000	63,000	21,600
2,450	4,000	63,000	22,100
2,500	4,000	63,000	22,500
2,550	4,000	63,000	23,000
2,600	4,000	67,000	23,400
2,650	4,000	67,000	23,900
2,700	4,000	67,000	24,300
2,750	4,000	67,000	24,800
2,780	4,000	67,000	25,200
2,800	4,000	67,000	25,200
2,850	4,000	67,000	25,700
2,900	4,000	67,000	26,100
2,950	4,000	67,000	26,600
3,000	4,000	67,000	27,000

Microbrocas ExclusiveLine con refrigeración interior

5xD | N | WN | 140° | m7

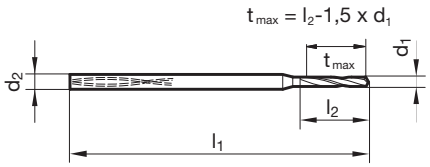
Material de corte	**Metal duro**
Acabado	A
Dirección de corte	R

NEW

P	•	vaciado de punta ≥Ø 1,400 • afilado plano • forma recta del corte principal • corrección de cantos rectificada
M	•	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • aceros inoxidables • fundición
S	○	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 796



Artículo N° **6405**

d1	d2 h6	l1	l2
mm	mm	mm	mm
1,400	4,000	52,000	11,000
1,450	4,000	52,000	12,000
1,500	4,000	52,000	12,000
1,550	4,000	52,000	12,000
1,590	4,000	52,000	13,000
1,600	4,000	52,000	13,000
1,650	4,000	52,000	13,000
1,700	4,000	56,000	14,000
1,750	4,000	56,000	14,000
1,800	4,000	56,000	14,000
1,850	4,000	56,000	15,000
1,900	4,000	56,000	15,000
1,950	4,000	56,000	16,000
1,980	4,000	56,000	16,000
2,000	4,000	56,000	16,000
2,050	4,000	56,000	16,000
2,100	4,000	62,000	17,000
2,150	4,000	62,000	17,000
2,200	4,000	62,000	18,000
2,250	4,000	62,000	18,000
2,300	4,000	62,000	18,000
2,350	4,000	62,000	19,000
2,380	4,000	62,000	19,000
2,400	4,000	62,000	19,000

d1	d2 h6	l1	l2
mm	mm	mm	mm
2,450	4,000	62,000	20,000
2,500	4,000	62,000	20,000
2,550	4,000	62,000	20,000
2,600	4,000	66,000	21,000
2,650	4,000	66,000	21,000
2,700	4,000	66,000	22,000
2,750	4,000	66,000	22,000
2,780	4,000	66,000	22,000
2,800	4,000	66,000	22,000
2,850	4,000	66,000	23,000
2,900	4,000	66,000	23,000
2,950	4,000	66,000	24,000
3,000	4,000	66,000	24,000

Microbrocas ExclusiveLine con refrigeración interior

8xD | N | WN | 135° | h7

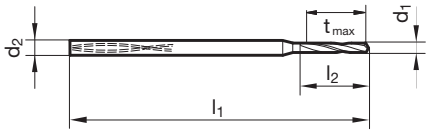
Material de corte	**Metal duro**
Acabado	A
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,400 • afilado plano • forma recta del corte principal • corrección de cantos rectificada
M	•	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • aceros inoxidables • fundición
S	○	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 796

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo N° **6408**

d1	d2 h6	l1	l2
mm	mm	mm	mm
1,400	4,000	52,000	15,000
1,450	4,000	52,000	16,000
1,500	4,000	52,000	17,000
1,550	4,000	52,000	17,000
1,590	4,000	52,000	18,000
1,600	4,000	52,000	18,000
1,650	4,000	52,000	18,000
1,700	4,000	56,000	19,000
1,750	4,000	56,000	19,000
1,800	4,000	56,000	20,000
1,850	4,000	56,000	20,000
1,900	4,000	56,000	21,000
1,950	4,000	56,000	21,000
1,980	4,000	56,000	22,000
2,000	4,000	56,000	22,000
2,050	4,000	56,000	23,000
2,100	4,000	62,000	23,000
2,150	4,000	62,000	24,000
2,200	4,000	62,000	24,000
2,250	4,000	62,000	25,000
2,300	4,000	62,000	25,000
2,320	4,000	62,000	26,000
2,350	4,000	62,000	26,000
2,380	4,000	62,000	26,000

d1	d2 h6	l1	l2
mm	mm	mm	mm
2,400	4,000	62,000	26,000
2,450	4,000	62,000	27,000
2,500	4,000	62,000	28,000
2,550	4,000	62,000	28,000
2,600	4,000	66,000	29,000
2,650	4,000	66,000	29,000
2,700	4,000	66,000	30,000
2,750	4,000	66,000	30,000
2,780	4,000	66,000	31,000
2,800	4,000	66,000	31,000
2,850	4,000	66,000	31,000
2,900	4,000	66,000	32,000
2,950	4,000	66,000	32,000
3,000	4,000	66,000	33,000

Microbrocas ExclusiveLine con refrigeración interior

15xD | N | WN | 135° | h7

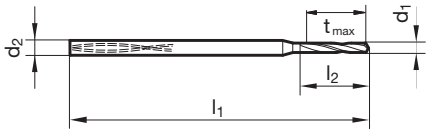
Material de corte	**Metal duro**
Acabado	A
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,400 • afilado plano • forma recta del corte principal • corrección de cantos rectificada
M	•	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • aceros inoxidables • fundición
S	○	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 796

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo N° **6412**

d1	d2 h6	l1	l2
mm	mm	mm	mm
1,400	4,000	62,000	25,000
1,500	4,000	62,000	27,000
1,590	4,000	62,000	29,000
1,600	4,000	62,000	29,000
1,700	4,000	70,000	31,000
1,800	4,000	70,000	32,000
1,900	4,000	70,000	34,000
1,980	4,000	70,000	36,000
2,000	4,000	70,000	36,000
2,100	4,000	78,000	38,000
2,200	4,000	78,000	40,000
2,300	4,000	78,000	42,000

d1	d2 h6	l1	l2
mm	mm	mm	mm
2,380	4,000	78,000	44,000
2,400	4,000	78,000	44,000
2,500	4,000	78,000	45,000
2,600	4,000	87,000	47,000
2,700	4,000	87,000	48,000
2,780	4,000	87,000	50,000
2,800	4,000	87,000	50,000
2,900	4,000	87,000	52,000
3,000	4,000	87,000	54,000

Brocas Ratio, 3 cortes

5xD | FT 200 G | DIN 6537 L | 130° | m7

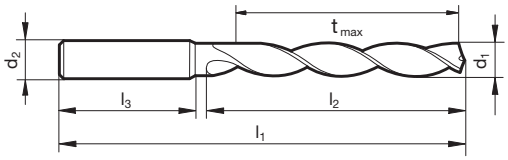
Material de corte	**Metal duro**
Acabado	◯
Forma del mango	HA

P		vaciado de punta ≥Ø 3,000 • afilado spiropoint • ranuras amplias • centraje óptimo • adecuado para corte interrumpido
M		
K	•	
N	•	fundición • aleaciones de aluminio de viruta larga • latón, bronce
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 762

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **2713**

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
3,000		6,000	66,000	28,000	36,000
3,100		6,000	66,000	28,000	36,000
3,200		6,000	66,000	28,000	36,000
3,300		6,000	66,000	28,000	36,000
3,500		6,000	66,000	28,000	36,000
3,700		6,000	66,000	28,000	36,000
3,800		6,000	74,000	36,000	36,000
4,000		6,000	74,000	36,000	36,000
4,100		6,000	74,000	36,000	36,000
4,200		6,000	74,000	36,000	36,000
4,500		6,000	74,000	36,000	36,000
4,800		6,000	82,000	44,000	36,000
5,000		6,000	82,000	44,000	36,000
5,100		6,000	82,000	44,000	36,000
5,200		6,000	82,000	44,000	36,000
5,300		6,000	82,000	44,000	36,000
5,500		6,000	82,000	44,000	36,000
5,800		6,000	82,000	44,000	36,000
6,000		6,000	82,000	44,000	36,000
6,100		8,000	91,000	53,000	36,000
6,200		8,000	91,000	53,000	36,000
6,400		8,000	91,000	53,000	36,000
6,500		8,000	91,000	53,000	36,000
6,700		8,000	91,000	53,000	36,000
6,800		8,000	91,000	53,000	36,000
7,000		8,000	91,000	53,000	36,000
7,100		8,000	91,000	53,000	36,000
7,400		8,000	91,000	53,000	36,000
7,500		8,000	91,000	53,000	36,000
7,800		8,000	91,000	53,000	36,000
8,000		8,000	91,000	53,000	36,000
8,100		10,000	103,000	61,000	40,000
8,200		10,000	103,000	61,000	40,000
8,400		10,000	103,000	61,000	40,000
8,500		10,000	103,000	61,000	40,000
8,600		10,000	103,000	61,000	40,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
8,700		10,000	103,000	61,000	40,000
8,800		10,000	103,000	61,000	40,000
9,000		10,000	103,000	61,000	40,000
9,100		10,000	103,000	61,000	40,000
9,500		10,000	103,000	61,000	40,000
9,800		10,000	103,000	61,000	40,000
10,000		10,000	103,000	61,000	40,000
10,100		12,000	118,000	71,000	45,000
10,200		12,000	118,000	71,000	45,000
10,300		12,000	118,000	71,000	45,000
10,500		12,000	118,000	71,000	45,000
11,000		12,000	118,000	71,000	45,000
11,200		12,000	118,000	71,000	45,000
11,500		12,000	118,000	71,000	45,000
11,800		12,000	118,000	71,000	45,000
12,000		12,000	118,000	71,000	45,000
12,100		14,000	124,000	77,000	45,000
12,500		14,000	124,000	77,000	45,000
13,000		14,000	124,000	77,000	45,000
13,500		14,000	124,000	77,000	45,000
14,000		14,000	124,000	77,000	45,000
14,500		16,000	133,000	83,000	48,000
15,000		16,000	133,000	83,000	48,000
15,500		16,000	133,000	83,000	48,000
16,000		16,000	133,000	83,000	48,000
16,500		18,000	143,000	93,000	48,000
17,000		18,000	143,000	93,000	48,000
17,500		18,000	143,000	93,000	48,000
18,000		18,000	143,000	93,000	48,000
18,500		20,000	153,000	101,000	50,000
19,000		20,000	153,000	101,000	50,000
19,500		20,000	153,000	101,000	50,000
20,000		20,000	153,000	101,000	50,000

Brocas Ratio, 3 cortes

5xD | GS 200 U | DIN 6539 | 150° | h7

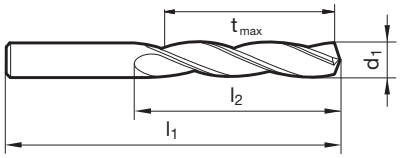
Material de corte	**Metal duro**
Acabado	S
Forma del mango	cil.

P	○	vaciado de punta ≥Ø 3,000 • afilado plano • para taladros muy precisos en medida • cal. superficial del taladro muy buena • adecuado para corte interrumpido
M		
K	○	
N	○	aceros aleados • aceros aleados y no aleados fundición de dureza hasta a 1000 N/mm²
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 762

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **611**

d1		l1	l2
mm	inch	mm	mm
3,000		46,000	22,000
3,100		49,000	24,000
3,900		55,000	30,000
4,000		55,000	30,000
4,100		55,000	30,000
4,200		55,000	30,000
5,000		62,000	35,000
6,000		66,000	39,000
6,200		70,000	42,000
6,800		74,000	45,000
7,000		74,000	45,000
8,000		79,000	48,000

d1		l1	l2
mm	inch	mm	mm
8,500		79,000	48,000
10,000		89,000	55,000
10,200		89,000	55,000
12,000		102,000	65,000
14,000		107,000	66,000
14,400		111,000	70,000

Brocas Ratio, 3 cortes

5xD | GS 200 U | DIN 6539 | 150° | h7

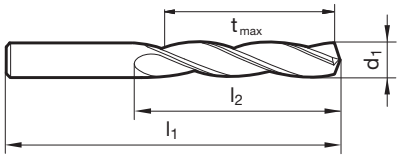
Material de corte	**Metal duro**
Acabado	◯
Forma del mango	cil.

P	○	vaciado de punta ≥Ø 3,000 • afilado plano • para taladros muy precisos en medida • cal. superficial del taladro muy buena • adecuado para corte interrumpido
M		
K	○	
N	○	aceros aleados • aceros aleados y no aleados fundición de dureza hasta a 1000 N/mm²
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 762

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **731**

d1 mm	inch	l1 mm	l2 mm
3,000		46,000	22,000
3,100		49,000	24,000
3,200		49,000	24,000
3,300		49,000	24,000
3,400		52,000	27,000
3,500		52,000	27,000
3,600		52,000	27,000
3,700		52,000	27,000
3,800		55,000	30,000
3,900		55,000	30,000
3,970	5/32	55,000	30,000
4,000		55,000	30,000
4,200		55,000	30,000
4,300		58,000	32,000
4,500		58,000	32,000
4,700		58,000	32,000
4,760	3/16	62,000	35,000
4,800		62,000	35,000
5,000		62,000	35,000
5,100		62,000	35,000
5,200		62,000	35,000
5,300		62,000	35,000
5,400		66,000	39,000
5,500		66,000	39,000
5,600		66,000	39,000
5,800		66,000	39,000
6,000		66,000	39,000
6,100		70,000	42,000
6,400		70,000	42,000
6,500		70,000	42,000
6,700		70,000	42,000
6,750	17/64	74,000	45,000
6,800		74,000	45,000
7,000		74,000	45,000
7,500		74,000	45,000
7,700		79,000	48,000

d1 mm	inch	l1 mm	l2 mm
7,800		79,000	48,000
8,000		79,000	48,000
8,100		79,000	48,000
8,300		79,000	48,000
8,400		79,000	48,000
8,500		79,000	48,000
9,000		84,000	52,000
9,600		89,000	55,000
9,700		89,000	55,000
9,800		89,000	55,000
9,900		89,000	55,000
10,000		89,000	55,000
10,200		89,000	55,000
10,320	13/32	89,000	55,000
10,400		89,000	55,000
10,500		89,000	55,000
10,800		95,000	60,000
11,000		95,000	60,000
11,300		95,000	60,000
11,500		95,000	60,000
11,600		95,000	60,000
11,700		95,000	60,000
12,000		102,000	65,000
12,100		102,000	65,000
12,500		102,000	65,000
13,000		102,000	65,000
13,200		102,000	65,000
13,500		107,000	66,000
14,000		107,000	66,000
14,300		111,000	70,000
16,000		115,000	73,000
17,500		123,000	76,000
20,000		131,000	79,000

Brocas Ratio, 3 cortes

5xD | GS 200 G | DIN 6539 | 150° | h7

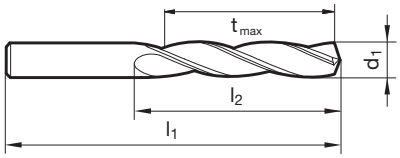
Material de corte	**Metal duro**
Acabado	◯
Forma del mango	cil.

P		vaciado de punta ≥Ø 3,570 • afilado plano • para taladros muy precisos en medida • cal. superficial del taladro muy buena • adecuado para corte interrumpido
M		
K	○	
N	○	fundición • aleaciones de aluminio y fundición
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 762

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **745**

d1		l1	l2
mm	inch	mm	mm
3,570	9/64	52,000	27,000
4,370	11/64	58,000	32,000
6,900		74,000	45,000
7,300		74,000	45,000
7,940	5/16	79,000	48,000
8,330	21/64	79,000	48,000

d1		l1	l2
mm	inch	mm	mm
8,800		84,000	52,000
9,700		89,000	55,000
10,720	27/64	95,000	60,000
12,500		102,000	65,000

Brocas Ratio, 3 cortes

5xD | GS 200 G | DIN 6539 | 150° | h7

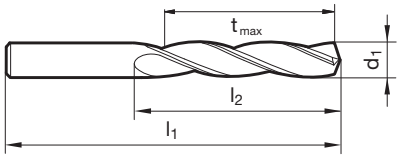
Material de corte	**Metal duro**
Acabado	◯
Forma del mango	cil.

P		vaciado de punta ≥Ø 3,000 • afilado plano • para taladros muy precisos en medida • cal. superficial del taladro muy buena • adecuado para corte interrumpido
M		
K	○	
N	○	fundición • aleaciones de aluminio y fundición
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 762

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **1025**

d1 mm	inch	l1 mm	l2 mm	d1 mm	inch	l1 mm	l2 mm
3,000		46,000	22,000	7,100		74,000	45,000
3,100		49,000	24,000	7,200		74,000	45,000
3,200		49,000	24,000	7,300		74,000	45,000
3,300		49,000	24,000	7,400		74,000	45,000
3,400		52,000	27,000	7,500		74,000	45,000
3,500		52,000	27,000	7,600		79,000	48,000
3,570	9/64	52,000	27,000	7,700		79,000	48,000
3,600		52,000	27,000	7,800		79,000	48,000
3,700		52,000	27,000	7,900		79,000	48,000
3,800		55,000	30,000	8,000		79,000	48,000
3,900		55,000	30,000	8,100		79,000	48,000
3,970	5/32	55,000	30,000	8,200		79,000	48,000
4,000		55,000	30,000	8,400		79,000	48,000
4,100		55,000	30,000	8,500		79,000	48,000
4,200		55,000	30,000	8,600		84,000	52,000
4,300		58,000	32,000	8,700		84,000	52,000
4,370	11/64	58,000	32,000	8,800		84,000	52,000
4,500		58,000	32,000	9,000		84,000	52,000
4,600		58,000	32,000	9,100		84,000	52,000
4,700		58,000	32,000	9,300		84,000	52,000
4,800		62,000	35,000	9,500		84,000	52,000
4,900		62,000	35,000	9,520	3/8	89,000	55,000
5,000		62,000	35,000	9,600		89,000	55,000
5,100		62,000	35,000	9,700		89,000	55,000
5,200		62,000	35,000	9,800		89,000	55,000
5,300		62,000	35,000	10,000		89,000	55,000
5,400		66,000	39,000	10,100		89,000	55,000
5,500		66,000	39,000	10,200		89,000	55,000
5,600		66,000	39,000	10,300		89,000	55,000
5,700		66,000	39,000	10,500		89,000	55,000
5,800		66,000	39,000	10,700		95,000	60,000
5,900		66,000	39,000	11,000		95,000	60,000
6,000		66,000	39,000	11,110	7/16	95,000	60,000
6,100		70,000	42,000	11,200		95,000	60,000
6,200		70,000	42,000	11,500		95,000	60,000
6,300		70,000	42,000	11,510	29/64	95,000	60,000
6,400		70,000	42,000	11,700		95,000	60,000
6,500		70,000	42,000	11,800		95,000	60,000
6,600		70,000	42,000	11,910	15/32	102,000	65,000
6,700		70,000	42,000	12,000		102,000	65,000
6,800		74,000	45,000	12,200		102,000	65,000
7,000		74,000	45,000	12,500		102,000	65,000

d1		l1	l2
mm	inch	mm	mm
12,700	1/2	102,000	65,000
13,000		102,000	65,000
13,500		107,000	66,000
13,800		107,000	66,000
14,000		107,000	66,000
14,300		111,000	70,000
14,500		111,000	70,000
15,000		111,000	70,000
15,870	5/8	115,000	73,000
16,000		115,000	73,000
17,000		119,000	73,000
18,500		127,000	76,000

d1		l1	l2
mm	inch	mm	mm
19,000		127,000	76,000
20,000		131,000	79,000

Brocas Ratio, 3 cortes

5xD | GS 200 F | DIN 6539 | 150° | h7

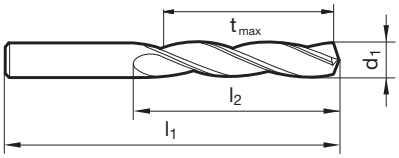
Material de corte	**Metal duro**
Acabado	S
Forma del mango	cil.

P	○	vaciado de punta ≥Ø 3,000 • afilado plano • para taladros muy precisos en medida • cal. superficial del taladro muy buena • adecuado para corte interrumpido
M		
K	○	
N	○	aceros de construcción, para tornos automáticos • aceros aleados y no aleados fundición de dureza hasta a 1000 N/mm²
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 762

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **1027**

d1		l1	l2
mm	inch	mm	mm
3,000		46,000	22,000
3,200		49,000	24,000
3,900		55,000	30,000
4,000		55,000	30,000
4,900		62,000	35,000
5,000		62,000	35,000
5,300		62,000	35,000
5,500		66,000	39,000
6,000		66,000	39,000
6,200		70,000	42,000
7,000		74,000	45,000
9,000		84,000	52,000

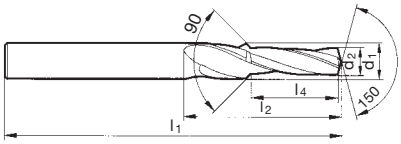
d1		l1	l2
mm	inch	mm	mm
10,000		89,000	55,000
11,000		95,000	60,000

Brocas Ratio escalonadas, 3 cortes

3xD | GS 200 G | WN | 150° | h7

Material de corte	**Metal duro**
Acabado	◯
Forma del mango	cil.

P		vaciado de punta ≥Ø 3,400 • afilado plano • para taladros muy precisos en medida • cal. superficial del taladro muy buena • adecuado para corte interrumpido
M		
K	○	
N	○	fundición • aleaciones de aluminio y fundición
S		
H		



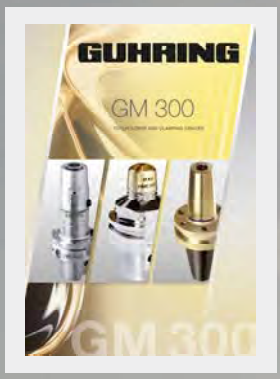
Artículo Nº **1032**

d1	d2	l1	l2	l4	para rosca
mm	mm	mm	mm	mm	
3,400	2,500	52,000	27,000	9,000	M 3
4,500	3,300	58,000	32,000	11,000	M 4
5,500	4,200	66,000	39,000	14,000	M 5
5,500	4,700	66,000	39,000	14,000	
6,600	5,000	70,000	42,000	16,000	M 6
9,000	6,800	84,000	52,000	22,000	M 8
11,000	8,500	95,000	60,000	28,000	M10
11,000	8,800	95,000	60,000	28,000	M10X1,25
13,500	10,200	107,000	66,000	33,000	M12
15,500	13,200	115,000	73,000	38,000	
17,500	15,000	123,000	76,000	41,000	M16 X1
20,000	16,000	131,000	79,000	43,000	M18X2

GM 300

Porta-herramientas y sistemas tensores para cada aplicación.

Encontrará mas información en nuestro catálogo GM300.



SISTEMA DE TALADRADO CON PLACAS INTERCAMBI. T800

El sistema de herramientas modular HT800WP

Con el sistema para taladrar de plaquitas intercambiables HT800WP Gühring ofrece portas y placas de alto rendimiento y buen precio para taldrar desde 11,00 hasta 40,00mm.

Asi el sistema de taladrado HT800WP es ideal para fabricar taladros grandes y de alta precisión en distintos materiales para aplicaciones requeridas en la idustria del automóvil, la energía, fabricación de maquinaria y construcciones de acero.

ALTO RENDIMIENTO

- Plaquitas intercambiables adaptadas en su material de corte y geometría para cada aplicación. Resultados de mecanizado óptimos en acero, aceros inoxidables, fundición y aluminio.

ÓPTIMO DESALOJO DE VIRUTA

- Corte medio de ranura especial. Superficie ultralisa.

PORTAS ESTABLES

- Saltos de diámetros muy cortos reducen el desgaste de los portas. Mejores calidades superficiales en las piezas. Un mejor guiado de la herramienta aumenta la estabilidad. Más vida útil de la herramienta.

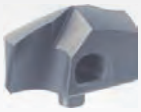
ASIENTO DE PLAQUITAS DE ALTA PRECISIÓN

- Cambio de plaquitas en la máquina. Porta permanece tensado. Cambio de herramientas y presetting desaparecen. Mayor seguridad de proceso y menores tiempos de preparación.

REFRIGERACIÓN Y LUBRIFICACIÓN PERFECTA

- Canales de refrigeración con corte medio máximo. Salida de la ranura.

Para cada material y aplicación el art. de plaquita correcto

P	K	M	N	Para pilotar
				
Artículo Nº 4112	Artículo Nº 4113	Artículo Nº 4115	Artículo Nº 4114	Artículo Nº 4111

HT 800 WP

Para cada profundidad y aplicación el art. de porta correcto

Artículo Nº	4105	4106	4107	4108	4109	4110
Profundidad	1 x D	1,5 x D	3 x D	5 x D	7 x D	10 x D
Diá. de taladro	11,0 - 40,00	11,0 - 40,00	11,0 - 40,00	11,0 - 40,00	11,0 - 31,99	11,0 - 31,99
Forma del mango	DIN 6535-HE	DIN 6535-HE	DIN 6535-HE	DIN 6535-HE	DIN 6535-HE	DIN 6535-HE
	Pilotar/ avellanar 45º					

El porta piloto art.nº. 4105 dispone de un asiento para plaquita de avellanar.
Así se puede mecanizar el taladro piloto y a la vez una avellanado de 45º.

P	M	K	N	S	H	Presentación de herramientas	Profundidad	Forma del mango	Tipo	Norma	Material de corte	Acabado	d1/mm	Artículo Nº	Cond. de corte	Página pág.
Porta placas HT 800																
							1xD	HE	HT 800 WP	WN		Ni		4105	764	138
							1,5xD	HE	HT 800 WP	WN		Ni		4106	764	128
							3xD	HE	HT 800 WP	WN		Ni		4107	764	130
							5xD	HE	HT 800 WP	WN		Ni		4108	766	132
							7xD	HE	HT 800 WP	WN		Ni		4109	766	134
							10xD	HE	HT 800 WP	WN		Ni		4110	768	136
Placa intercambiale para HT 800																
○		●							HT 800 WP	WN	VHM	F	11,000 - 40,000	4113	764	142
			●						HT 800 WP	WN	VHM	○	11,000 - 40,000	4114	764	148
●	○	○							HT 800 WP	WN	VHM	F	11,000 - 40,000	4112	764	139
○	●			○	○				HT 800 WP	WN	VHM	a	11,000 - 40,000	4115	764	145
○	○	○	○	○	○				HT 800 WP	WN	VHM	a	11,000 - 40,000	4111	768	151
Plaquitas de avellanar HT 800																
			●							WN	VHM	○		7635		156
●	○	○		○	○					WN	VHM	S		7645		154
○		●								WN	VHM	A		7632		155
Tornillos de fijación																
										WN				6128		157
										WN				4071		158
Porta placas RT 800																
							3xD	HE	RT 800 WP	WN		Ni		5242	770	159
							5xD	HE	RT 800 WP	WN		Ni		5243	770	160
							7xD	HE	RT 800 WP	WN		Ni		5248	770	161
Placa intercambiale para RT 800																
●	○	●	○						RT 800 WP	WN	VHM	F	16,000 - 40,500	2485	770	164

P	M	K	N	S	H	Presentación de herramientas	Profundidad	Forma del mango	Tipo	Norma	Material de corte	Acabado	d1/mm	Artículo Nº	Cond. de corte pág.	Página
Placa intercambiale para RT 800																
		○	●						RT 800 WP	WN	VHM	◯	16,000 - 40,000	2747	770	166
●	○	●	○						RT 800 WP	WN	VHM	S	16,000 - 40,500	1047	770	162
Tornillo de fijación RT 800																
										WN				1071		168
Llave dinamométrica																
										WN				4915		169
Adaptor exagonal																
										WN				4917		170
Atornillador Torx																
										WN				1612		171

Porta placas HT 800

HT 800 WP | 1,5xD | WN | R

Material de corte	
Acabado	Ni
Forma del mango	HE

P
M
K
N
S
H

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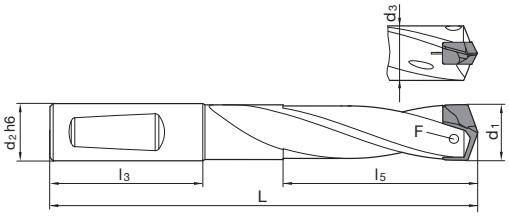
GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 764-768



Artículo Nº **4106**

d1	d2 h6	d3	L	l3	l5	F	Código Nº
mm	mm	mm	mm	mm	mm		
11,00-11,49	12,000	10,700	84,000	45,000	19,300	4071 2.200	11,000
11,00-11,49	12,700	10,700	84,000	45,000	19,300	4071 2.200	11,005
11,50-11,99	12,000	11,200	85,000	45,000	20,100	4071 2.200	11,500
11,50-11,99	12,700	11,200	85,000	45,000	20,100	4071 2.200	11,505
12,00-12,49	12,000	11,700	87,000	45,000	21,000	4071 2.201	12,000
12,00-12,49	12,700	11,700	87,000	45,000	21,000	4071 2.201	12,005
12,50-12,99	14,000	12,200	89,000	45,000	21,900	4071 2.201	12,500
12,50-12,99	15,875	12,200	89,000	45,000	21,900	4071 2.201	12,505
13,00-13,49	14,000	12,700	90,000	45,000	22,600	4071 2.500	13,000
13,00-13,49	15,875	12,700	90,000	45,000	22,600	4071 2.500	13,005
13,50-13,99	14,000	13,200	92,000	45,000	23,600	4071 2.500	13,500
13,50-13,99	15,875	13,200	92,000	45,000	23,600	4071 2.500	13,505
14,00-14,49	14,000	13,700	93,000	45,000	24,500	4071 3.000	14,000
14,00-14,49	15,875	13,700	93,000	45,000	24,500	4071 3.000	14,005
14,50-14,99	16,000	14,200	98,000	48,000	25,300	4071 3.000	14,500
14,50-14,99	15,875	14,200	98,000	48,000	25,300	4071 3.000	14,505
15,00-15,49	16,000	14,700	100,000	48,000	26,100	4071 3.001	15,000
15,00-15,49	15,875	14,700	100,000	48,000	26,100	4071 3.001	15,005
15,50-15,99	16,000	15,200	101,000	48,000	27,000	4071 3.001	15,500
15,50-15,99	15,875	15,200	101,000	48,000	27,000	4071 3.001	15,505
16,00-16,49	16,000	15,700	102,000	48,000	27,800	4071 3.500	16,000
16,00-16,49	15,875	15,700	102,000	48,000	27,800	4071 3.500	16,005
16,50-16,99	18,000	16,200	105,000	48,000	28,700	4071 3.500	16,500
16,50-16,99	19,050	16,200	105,000	48,000	28,700	4071 3.500	16,505
17,00-17,49	18,000	16,700	106,000	48,000	29,600	4071 3.500	17,000
17,00-17,49	19,050	16,700	106,000	48,000	29,600	4071 3.500	17,005
17,50-17,99	18,000	17,200	107,000	48,000	30,400	4071 3.500	17,500
17,50-17,99	19,050	17,200	107,000	48,000	30,400	4071 3.500	17,505
18,00-18,49	18,000	17,700	109,000	48,000	31,200	4071 4.000	18,000
18,00-18,49	19,050	17,700	109,000	48,000	31,200	4071 4.000	18,005
18,50-18,99	20,000	18,200	113,000	50,000	32,100	4071 4.000	18,500
18,50-18,99	19,050	18,200	113,000	50,000	32,100	4071 4.000	18,505
19,00-19,49	20,000	18,700	114,000	50,000	32,900	4071 4.000	19,000
19,00-19,49	19,050	18,700	114,000	50,000	32,900	4071 4.000	19,005
19,50-19,99	20,000	19,200	116,000	50,000	33,700	4071 4.000	19,500
19,50-19,99	19,050	19,200	116,000	50,000	33,700	4071 4.000	19,505
20,00-20,49	20,000	19,700	117,000	50,000	34,600	4071 4.500	20,000
20,00-20,49	19,050	19,700	117,000	50,000	34,600	4071 4.500	20,005
20,50-20,99	25,000	20,200	128,000	56,000	35,500	4071 4.500	20,500
20,50-20,99	25,400	20,200	128,000	56,000	35,500	4071 4.500	20,505
21,00-21,49	25,000	20,700	129,000	56,000	36,400	4071 4.500	21,000
21,00-21,49	25,400	20,700	129,000	56,000	36,400	4071 4.500	21,005

d1	d2 h6	d3	L	l3	l5	F	Código Nº
mm	mm	mm	mm	mm	mm		
21,50-21,99	25,000	21,200	130,000	56,000	37,200	4071 4.500	21,500
21,50-21,99	25,400	21,200	130,000	56,000	37,200	4071 4.500	21,505
22,00-22,49	25,000	21,700	131,000	56,000	38,000	4071 5.000	22,000
22,00-22,49	25,400	21,700	131,000	56,000	38,000	4071 5.000	22,005
22,50-22,99	25,000	22,200	134,000	56,000	38,900	4071 5.000	22,500
22,50-22,99	25,400	22,200	134,000	56,000	38,900	4071 5.000	22,505
23,00-23,49	25,000	22,700	135,000	56,000	39,800	4071 5.000	23,000
23,00-23,49	25,400	22,700	135,000	56,000	39,800	4071 5.000	23,005
23,50-23,99	25,000	23,200	137,000	56,000	40,600	4071 5.000	23,500
23,50-23,99	25,400	23,200	137,000	56,000	40,600	4071 5.000	23,505
24,00-24,49	25,000	23,700	138,000	56,000	41,500	4071 5.001	24,000
24,00-24,49	25,400	23,700	138,000	56,000	41,500	4071 5.001	24,005
24,50-24,99	25,000	24,200	140,000	56,000	42,300	4071 5.001	24,500
24,50-24,99	25,400	24,200	140,000	56,000	42,300	4071 5.001	24,505
25,00-25,49	25,000	24,700	142,000	56,000	43,200	4071 5.001	25,000
25,00-25,49	25,400	24,700	142,000	56,000	43,200	4071 5.001	25,005
25,50-25,99	32,000	25,200	148,000	60,000	44,000	4071 5.001	25,500
25,50-25,99	31,750	25,200	148,000	60,000	44,000	4071 5.001	25,505
26,00-26,49	32,000	25,700	151,000	60,000	44,300	4071 5.003	26,000
26,00-26,49	31,750	25,700	151,000	60,000	44,300	4071 5.003	26,005
26,50-26,99	32,000	26,200	153,000	60,000	45,100	4071 5.003	26,500
26,50-26,99	31,750	26,200	153,000	60,000	45,100	4071 5.003	26,505
27,00-27,49	32,000	26,700	155,000	60,000	46,000	4071 5.003	27,000
27,00-27,49	31,750	26,700	155,000	60,000	46,000	4071 5.003	27,005
27,50-27,99	32,000	27,200	156,000	60,000	46,800	4071 5.003	27,500
27,50-27,99	31,750	27,200	156,000	60,000	46,800	4071 5.003	27,505
28,00-28,49	32,000	27,700	157,000	60,000	47,700	4071 5.003	28,000
28,00-28,49	31,750	27,700	157,000	60,000	47,700	4071 5.003	28,005
28,50-28,99	32,000	28,200	159,000	60,000	48,500	4071 5.003	28,500
28,50-28,99	31,750	28,200	159,000	60,000	48,500	4071 5.003	28,505
29,00-29,49	32,000	28,700	161,000	60,000	49,400	4071 5.003	29,000
29,00-29,49	31,750	28,700	161,000	60,000	49,400	4071 5.003	29,005
29,50-29,99	32,000	29,200	162,000	60,000	50,200	4071 5.003	29,500
29,50-29,99	31,750	29,200	162,000	60,000	50,200	4071 5.003	29,505
30,00-30,49	32,000	29,700	164,000	60,000	50,900	4071 6.000	30,000
30,00-30,49	31,750	29,700	164,000	60,000	50,900	4071 6.000	30,005
30,50-30,99	32,000	30,200	166,000	60,000	51,700	4071 6.000	30,500
30,50-30,99	31,750	30,200	166,000	60,000	51,700	4071 6.000	30,505
31,00-31,49	32,000	30,700	167,000	60,000	52,600	4071 6.000	31,000
31,00-31,49	31,750	30,700	167,000	60,000	52,600	4071 6.000	31,005
31,50-31,99	32,000	31,200	168,000	60,000	53,400	4071 6.000	31,500
31,50-31,99	31,750	31,200	168,000	60,000	53,400	4071 6.000	31,505
32,00-32,99	32,000	31,700	172,000	60,000	55,100	4071 6.001	32,000
32,00-32,99	31,750	31,700	172,000	60,000	55,100	4071 6.001	32,005
33,00-33,99	32,000	32,700	175,000	60,000	56,800	4071 6.001	33,000
33,00-33,99	31,750	32,700	175,000	60,000	56,800	4071 6.001	33,005
34,00-34,99	32,000	33,700	178,000	60,000	58,500	4071 6.001	34,000
34,00-34,99	31,750	33,700	178,000	60,000	58,500	4071 6.001	34,005
35,00-35,99	32,000	34,700	181,000	60,000	60,200	4071 6.001	35,000
35,00-35,99	31,750	34,700	181,000	60,000	60,200	4071 6.001	35,005
36,00-36,99	32,000	35,700	184,000	60,000	61,800	4071 6.002	36,000
36,00-36,99	31,750	35,700	184,000	60,000	61,800	4071 6.002	36,005
37,00-37,99	32,000	36,700	188,000	60,000	63,500	4071 6.002	37,000
37,00-37,99	31,750	36,700	188,000	60,000	63,500	4071 6.002	37,005
38,00-38,99	32,000	37,700	191,000	60,000	65,200	4071 6.002	38,000
38,00-38,99	31,750	37,700	191,000	60,000	65,200	4071 6.002	38,005
39,00-40,00	32,000	38,700	194,000	60,000	66,900	4071 6.002	39,000
39,00-40,00	31,750	38,700	194,000	60,000	66,900	4071 6.002	39,005

Porta placas HT 800

HT 800 WP | 3xD | WN | R

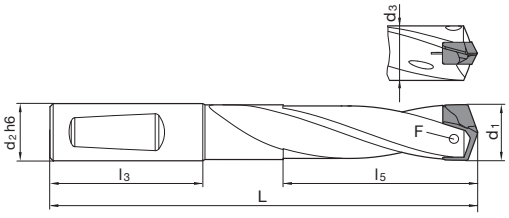
Material de corte	
Acabado	Ni
Forma del mango	HE

P
M
K
N
S
H

niquelado • alta resistencia al desgaste • sección de ranura optimizada • salida de refrigerante optimizada • incluidos tornillos tensores art.nº 4071 • incluido atornillador art.nº 1612

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 764-768



Artículo Nº **4107**

d1	d2 h6	d3	L	l3	l5	F	Código Nº
mm	mm	mm	mm	mm	mm		
11,00-11,49	12,000	10,700	101,000	45,000	36,600	4071 2.200	11,000
11,00-11,49	12,700	10,700	101,000	45,000	36,600	4071 2.200	11,005
11,50-11,99	12,000	11,200	103,000	45,000	38,100	4071 2.200	11,500
11,50-11,99	12,700	11,200	103,000	45,000	38,100	4071 2.200	11,505
12,00-12,49	12,000	11,700	106,000	45,000	39,700	4071 2.201	12,000
12,00-12,49	12,700	11,700	106,000	45,000	39,700	4071 2.201	12,005
12,50-12,99	14,000	12,200	108,000	45,000	41,300	4071 2.201	12,500
12,50-12,99	15,875	12,200	108,000	45,000	41,300	4071 2.201	12,505
13,00-13,49	14,000	12,700	110,000	45,000	42,900	4071 2.500	13,000
13,00-13,49	15,875	12,700	110,000	45,000	42,900	4071 2.500	13,005
13,50-13,99	14,000	13,200	113,000	45,000	44,600	4071 2.500	13,500
13,50-13,99	15,875	13,200	113,000	45,000	44,600	4071 2.500	13,505
14,00-14,49	14,000	13,700	115,000	45,000	46,200	4071 3.000	14,000
14,00-14,49	15,875	13,700	115,000	45,000	46,200	4071 3.000	14,005
14,50-14,99	16,000	14,200	120,000	48,000	47,800	4071 3.000	14,500
14,50-14,99	15,875	14,200	120,000	48,000	47,800	4071 3.000	14,505
15,00-15,49	16,000	14,700	123,000	48,000	49,300	4071 3.001	15,000
15,00-15,49	15,875	14,700	123,000	48,000	49,300	4071 3.001	15,005
15,50-15,99	16,000	15,200	125,000	48,000	50,900	4071 3.001	15,500
15,50-15,99	15,875	15,200	125,000	48,000	50,900	4071 3.001	15,505
16,00-16,49	16,000	15,700	127,000	48,000	52,900	4071 3.500	16,000
16,00-16,49	15,875	15,700	127,000	48,000	52,900	4071 3.500	16,005
16,50-16,99	18,000	16,200	130,000	48,000	54,100	4071 3.500	16,500
16,50-16,99	19,050	16,200	130,000	48,000	54,100	4071 3.500	16,505
17,00-17,49	18,000	16,700	132,000	48,000	55,800	4071 3.500	17,000
17,00-17,49	19,050	16,700	132,000	48,000	55,800	4071 3.500	17,005
17,50-17,99	18,000	17,200	134,000	48,000	57,400	4071 3.500	17,500
17,50-17,99	19,050	17,200	134,000	48,000	57,400	4071 3.500	17,505
18,00-18,49	18,000	17,700	137,000	48,000	58,900	4071 4.000	18,000
18,00-18,49	19,050	17,700	137,000	48,000	58,900	4071 4.000	18,005
18,50-18,99	20,000	18,200	141,000	50,000	60,500	4071 4.000	18,500
18,50-18,99	19,050	18,200	141,000	50,000	60,500	4071 4.000	18,505
19,00-19,49	20,000	18,700	143,000	50,000	62,100	4071 4.000	19,000
19,00-19,49	19,050	18,700	143,000	50,000	62,100	4071 4.000	19,005
19,50-19,99	20,000	19,200	146,000	50,000	63,700	4071 4.000	19,500
19,50-19,99	19,050	19,200	146,000	50,000	63,700	4071 4.000	19,505
20,00-20,49	20,000	19,700	148,000	50,000	65,300	4071 4.500	20,000
20,00-20,49	19,050	19,700	148,000	50,000	65,300	4071 4.500	20,005
20,50-20,99	25,000	20,200	159,000	56,000	67,000	4071 4.500	20,500
20,50-20,99	25,400	20,200	159,000	56,000	67,000	4071 4.500	20,505
21,00-21,49	25,000	20,700	161,000	56,000	68,600	4071 4.500	21,000
21,00-21,49	25,400	20,700	161,000	56,000	68,600	4071 4.500	21,005

d1	d2 h6	d3	L	l3	l5	F	Código Nº
mm	mm	mm	mm	mm	mm		
21,50-21,99	25,000	21,200	163,000	56,000	70,100	4071 4.500	21,500
21,50-21,99	25,400	21,200	163,000	56,000	70,100	4071 4.500	21,505
22,00-22,49	25,000	21,700	165,000	56,000	71,700	4071 5.000	22,000
22,00-22,49	25,400	21,700	165,000	56,000	71,700	4071 5.000	22,005
22,50-22,99	25,000	22,200	168,000	56,000	73,300	4071 5.000	22,500
22,50-22,99	25,400	22,200	168,000	56,000	73,300	4071 5.000	22,505
23,00-23,49	25,000	22,700	170,000	56,000	74,900	4071 5.000	23,000
23,00-23,49	25,400	22,700	170,000	56,000	74,900	4071 5.000	23,005
23,50-23,99	25,000	23,200	173,000	56,000	76,500	4071 5.000	23,500
23,50-23,99	25,400	23,200	173,000	56,000	76,500	4071 5.000	23,505
24,00-24,49	25,000	23,700	175,000	56,000	78,100	4071 5.001	24,000
24,00-24,49	25,400	23,700	175,000	56,000	78,100	4071 5.001	24,005
24,50-24,99	25,000	24,200	177,000	56,000	79,700	4071 5.001	24,500
24,50-24,99	25,400	24,200	177,000	56,000	79,700	4071 5.001	24,505
25,00-25,49	25,000	24,700	180,000	56,000	81,300	4071 5.001	25,000
25,00-25,49	25,400	24,700	180,000	56,000	81,300	4071 5.001	25,005
25,50-25,99	32,000	25,200	187,000	60,000	82,900	4071 5.001	25,500
25,50-25,99	31,750	25,200	187,000	60,000	82,900	4071 5.001	25,505
26,00-26,49	32,000	25,700	191,000	60,000	84,000	4071 5.003	26,000
26,00-26,49	31,750	25,700	191,000	60,000	84,000	4071 5.003	26,005
26,50-26,99	32,000	26,200	193,000	60,000	86,100	4071 5.003	26,500
26,50-26,99	31,750	26,200	193,000	60,000	86,100	4071 5.003	26,505
27,00-27,49	32,000	26,700	196,000	60,000	87,200	4071 5.003	27,000
27,00-27,49	31,750	26,700	196,000	60,000	87,200	4071 5.003	27,005
27,50-27,99	32,000	27,200	198,000	60,000	88,900	4071 5.003	27,500
27,50-27,99	31,750	27,200	198,000	60,000	88,900	4071 5.003	27,505
28,00-28,49	32,000	27,700	200,000	60,000	90,400	4071 5.003	28,000
28,00-28,49	31,750	27,700	200,000	60,000	90,400	4071 5.003	28,005
28,50-28,99	32,000	28,200	202,000	60,000	92,500	4071 5.003	28,500
28,50-28,99	31,750	28,200	202,000	60,000	92,500	4071 5.003	28,505
29,00-29,49	32,000	28,700	205,000	60,000	94,600	4071 5.003	29,000
29,00-29,49	31,750	28,700	205,000	60,000	94,600	4071 5.003	29,005
29,50-29,99	32,000	29,200	207,000	60,000	95,100	4071 5.003	29,500
29,50-29,99	31,750	29,200	207,000	60,000	95,100	4071 5.003	29,505
30,00-30,49	32,000	29,700	210,000	60,000	96,700	4071 6.000	30,000
30,00-30,49	31,750	29,700	210,000	60,000	96,700	4071 6.000	30,005
30,50-30,99	32,000	30,200	212,000	60,000	98,300	4071 6.000	30,500
30,50-30,99	31,750	30,200	212,000	60,000	98,300	4071 6.000	30,505
31,00-31,49	32,000	30,700	214,000	60,000	99,800	4071 6.000	31,000
31,00-31,49	31,750	30,700	214,000	60,000	99,800	4071 6.000	31,005
31,50-31,99	32,000	31,200	216,000	60,000	101,400	4071 6.000	31,500
31,50-31,99	31,750	31,200	216,000	60,000	101,400	4071 6.000	31,505
32,00-32,99	32,000	31,700	221,000	60,000	104,600	4071 6.001	32,000
32,00-32,99	31,750	31,700	221,000	60,000	104,600	4071 6.001	32,005
33,00-33,99	32,000	32,700	226,000	60,000	107,800	4071 6.001	33,000
33,00-33,99	31,750	32,700	226,000	60,000	107,800	4071 6.001	33,005
34,00-34,99	32,000	33,700	230,000	60,000	111,000	4071 6.001	34,000
34,00-34,99	31,750	33,700	230,000	60,000	111,000	4071 6.001	34,005
35,00-35,99	32,000	34,700	235,000	60,000	114,200	4071 6.001	35,000
35,00-35,99	31,750	34,700	235,000	60,000	114,200	4071 6.001	35,005
36,00-36,99	32,000	35,700	240,000	60,000	117,300	4071 6.002	36,000
36,00-36,99	31,750	35,700	240,000	60,000	117,300	4071 6.002	36,005
37,00-37,99	32,000	36,700	245,000	60,000	120,500	4071 6.002	37,000
37,00-37,99	31,750	36,700	245,000	60,000	120,500	4071 6.002	37,005
38,00-38,99	32,000	37,700	249,000	60,000	123,700	4071 6.002	38,000
38,00-38,99	31,750	37,700	249,000	60,000	123,700	4071 6.002	38,005
39,00-40,00	32,000	38,700	254,000	60,000	126,900	4071 6.002	39,000
39,00-40,00	31,750	38,700	254,000	60,000	126,900	4071 6.002	39,005

Porta placas HT 800

HT 800 WP | 5xD | WN | R

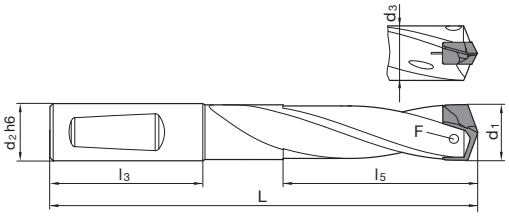
Material de corte	
Acabado	Ni
Forma del mango	HE

P	
M	
K	
N	
S	
H	

niquelado • alta resistencia al desgaste • sección de ranura optimizada • salida de refrigerante optimizada • incluidos tornillos tensores art.nº 4071 • incluido atornillador art.nº 1612

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 764-768



Artículo Nº **4108**

d1	d2 h6	d3	L	l3	l5	F	Código Nº
mm	mm	mm	mm	mm	mm		
11,00-11,49	12,000	10,700	124,000	45,000	59,600	4071 2.200	11,000
11,00-11,49	12,700	10,700	124,000	45,000	59,600	4071 2.200	11,005
11,50-11,99	12,000	11,200	127,000	45,000	62,100	4071 2.200	11,500
11,50-11,99	12,700	11,200	127,000	45,000	62,100	4071 2.200	11,505
12,00-12,49	12,000	11,700	131,000	45,000	64,700	4071 2.201	12,000
12,00-12,49	12,700	11,700	131,000	45,000	64,700	4071 2.201	12,005
12,50-12,99	14,000	12,200	134,000	45,000	67,300	4071 2.201	12,500
12,50-12,99	15,875	12,200	134,000	45,000	67,300	4071 2.201	12,505
13,00-13,49	14,000	12,700	137,000	45,000	69,900	4071 2.500	13,000
13,00-13,49	15,875	12,700	137,000	45,000	69,900	4071 2.500	13,005
13,50-13,99	14,000	13,200	141,000	45,000	72,600	4071 2.500	13,500
13,50-13,99	15,875	13,200	141,000	45,000	72,600	4071 2.500	13,505
14,00-14,49	14,000	13,700	144,000	45,000	75,200	4071 3.000	14,000
14,00-14,49	15,875	13,700	144,000	45,000	75,200	4071 3.000	14,005
14,50-14,99	16,000	14,200	150,000	48,000	77,800	4071 3.000	14,500
14,50-14,99	15,875	14,200	150,000	48,000	77,800	4071 3.000	14,505
15,00-15,49	16,000	14,700	154,000	48,000	80,300	4071 3.001	15,000
15,00-15,49	15,875	14,700	154,000	48,000	80,300	4071 3.001	15,005
15,50-15,99	16,000	15,200	157,000	48,000	82,900	4071 3.001	15,500
15,50-15,99	15,875	15,200	157,000	48,000	82,900	4071 3.001	15,505
16,00-16,49	16,000	15,700	160,000	48,000	85,900	4071 3.500	16,000
16,00-16,49	15,875	15,700	160,000	48,000	85,900	4071 3.500	16,005
16,50-16,99	18,000	16,200	164,000	48,000	88,100	4071 3.500	16,500
16,50-16,99	19,050	16,200	164,000	48,000	88,100	4071 3.500	16,505
17,00-17,49	18,000	16,700	167,000	48,000	90,800	4071 3.500	17,000
17,00-17,49	19,050	16,700	167,000	48,000	90,800	4071 3.500	17,005
17,50-17,99	18,000	17,200	170,000	48,000	93,400	4071 3.500	17,500
17,50-17,99	19,050	17,200	170,000	48,000	93,400	4071 3.500	17,505
18,00-18,49	18,000	17,700	174,000	48,000	95,900	4071 4.000	18,000
18,00-18,49	19,050	17,700	174,000	48,000	95,900	4071 4.000	18,005
18,50-18,99	20,000	18,200	179,000	50,000	98,500	4071 4.000	18,500
18,50-18,99	19,050	18,200	179,000	50,000	98,500	4071 4.000	18,505
19,00-19,49	20,000	18,700	182,000	50,000	101,100	4071 4.000	19,000
19,00-19,49	19,050	18,700	182,000	50,000	101,100	4071 4.000	19,005
19,50-19,99	20,000	19,200	186,000	50,000	103,700	4071 4.000	19,500
19,50-19,99	19,050	19,200	186,000	50,000	103,700	4071 4.000	19,505
20,00-20,49	20,000	19,700	189,000	50,000	106,300	4071 4.500	20,000
20,00-20,49	19,050	19,700	189,000	50,000	106,300	4071 4.500	20,005
20,50-20,99	25,000	20,200	201,000	56,000	109,000	4071 4.500	20,500
20,50-20,99	25,400	20,200	201,000	56,000	109,000	4071 4.500	20,505
21,00-21,49	25,000	20,700	204,000	56,000	111,600	4071 4.500	21,000
21,00-21,49	25,400	20,700	204,000	56,000	111,600	4071 4.500	21,005

d1	d2 h6	d3	L	l3	l5	F	Código Nº
mm	mm	mm	mm	mm	mm		
21,50-21,99	25,000	21,200	207,000	56,000	114,100	4071 4.500	21,500
21,50-21,99	25,400	21,200	207,000	56,000	114,100	4071 4.500	21,505
22,00-22,49	25,000	21,700	210,000	56,000	116,700	4071 5.000	22,000
22,00-22,49	25,400	21,700	210,000	56,000	116,700	4071 5.000	22,005
22,50-22,99	25,000	22,200	214,000	56,000	119,300	4071 5.000	22,500
22,50-22,99	25,400	22,200	214,000	56,000	119,300	4071 5.000	22,505
23,00-23,49	25,000	22,700	217,000	56,000	121,900	4071 5.000	23,000
23,00-23,49	25,400	22,700	217,000	56,000	121,900	4071 5.000	23,005
23,50-23,99	25,000	23,200	221,000	56,000	124,500	4071 5.000	23,500
23,50-23,99	25,400	23,200	221,000	56,000	124,500	4071 5.000	23,505
24,00-24,49	25,000	23,700	224,000	56,000	127,100	4071 5.001	24,000
24,00-24,49	25,400	23,700	224,000	56,000	127,100	4071 5.001	24,005
24,50-24,99	25,000	24,200	227,000	56,000	129,700	4071 5.001	24,500
24,50-24,99	25,400	24,200	227,000	56,000	129,700	4071 5.001	24,505
25,00-25,49	25,000	24,700	231,000	56,000	132,300	4071 5.001	25,000
25,00-25,49	25,400	24,700	231,000	56,000	132,300	4071 5.001	25,005
25,50-25,99	32,000	25,200	239,000	60,000	134,900	4071 5.001	25,500
25,50-25,99	31,750	25,200	239,000	60,000	134,900	4071 5.001	25,505
26,00-26,49	32,000	25,700	244,000	60,000	137,000	4071 5.003	26,000
26,00-26,49	31,750	25,700	244,000	60,000	137,000	4071 5.003	26,005
26,50-26,99	32,000	26,200	247,000	60,000	140,000	4071 5.003	26,500
26,50-26,99	31,750	26,200	247,000	60,000	140,000	4071 5.003	26,505
27,00-27,49	32,000	26,700	251,000	60,000	142,200	4071 5.003	27,000
27,00-27,49	31,750	26,700	251,000	60,000	142,200	4071 5.003	27,005
27,50-27,99	32,000	27,200	254,000	60,000	144,800	4071 5.003	27,500
28,00-28,49	32,000	27,700	257,000	60,000	147,400	4071 5.003	28,000
28,00-28,49	31,750	27,700	257,000	60,000	147,400	4071 5.003	28,005
28,50-28,99	32,000	28,200	260,000	60,000	150,400	4071 5.003	28,500
28,50-28,99	31,750	28,200	260,000	60,000	150,400	4071 5.003	28,505
29,00-29,49	32,000	28,700	264,000	60,000	153,500	4071 5.003	29,000
29,00-29,49	31,750	28,700	264,000	60,000	153,500	4071 5.003	29,005
29,50-29,99	32,000	29,200	267,000	60,000	155,100	4071 5.003	29,500
30,00-30,49	32,000	29,700	271,000	60,000	157,600	4071 6.000	30,000
30,00-30,49	31,750	29,700	271,000	60,000	157,600	4071 6.000	30,005
30,50-30,99	32,000	30,200	274,000	60,000	160,200	4071 6.000	30,500
31,00-31,49	32,000	30,700	277,000	60,000	162,800	4071 6.000	31,000
31,50-31,99	32,000	31,200	280,000	60,000	165,400	4071 6.000	31,500
32,00-32,99	32,000	31,700	287,000	60,000	170,600	4071 6.001	32,000
32,00-32,99	31,750	31,700	287,000	60,000	170,600	4071 6.001	32,005
33,00-33,99	32,000	32,700	294,000	60,000	175,800	4071 6.001	33,000
33,00-33,99	31,750	32,700	294,000	60,000	175,800	4071 6.001	33,005
34,00-34,99	32,000	33,700	300,000	60,000	181,000	4071 6.001	34,000
34,00-34,99	31,750	33,700	300,000	60,000	181,000	4071 6.001	34,005
35,00-35,99	32,000	34,700	307,000	60,000	186,200	4071 6.001	35,000
35,00-35,99	31,750	34,700	307,000	60,000	186,200	4071 6.001	35,005
36,00-36,99	32,000	35,700	314,000	60,000	191,300	4071 6.002	36,000
37,00-37,99	32,000	36,700	321,000	60,000	196,500	4071 6.002	37,000
37,00-37,99	31,750	36,700	321,000	60,000	196,500	4071 6.002	37,005
38,00-38,99	32,000	37,700	327,000	60,000	201,700	4071 6.002	38,000
38,00-38,99	31,750	37,700	327,000	60,000	201,700	4071 6.002	38,005
39,00-40,00	32,000	38,700	334,000	60,000	206,900	4071 6.002	39,000

Porta placas HT 800

HT 800 WP | 7xD | WN | R

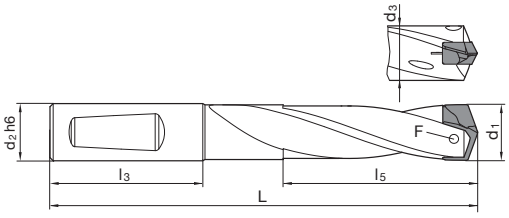
Material de corte	
Acabado	Ni
Forma del mango	HE

P
M
K
N
S
H

niquelado • alta resistencia al desgaste • sección de ranura optimizada • salida de refrigerante optimizada • incluidos tornillos tensores art.nº 4071 • incluido atornillador art.nº 1612

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 764-768



Artículo Nº **4109**

d1	d2 h6	d3	L	l3	l5	F	Código Nº
mm	mm	mm	mm	mm	mm		
11,00-11,49	12,000	10,700	147,000	45,000	82,600	4071 2.200	11,000
11,00-11,49	12,700	10,700	147,000	45,000	82,600	4071 2.200	11,005
11,50-11,99	12,000	11,200	151,000	45,000	86,100	4071 2.200	11,500
11,50-11,99	12,700	11,200	151,000	45,000	86,100	4071 2.200	11,505
12,00-12,49	12,000	11,700	156,000	45,000	89,700	4071 2.201	12,000
12,00-12,49	12,700	11,700	156,000	45,000	89,700	4071 2.201	12,005
12,50-12,99	14,000	12,200	160,000	45,000	93,300	4071 2.201	12,500
12,50-12,99	15,875	12,200	160,000	45,000	93,300	4071 2.201	12,505
13,00-13,49	14,000	12,700	164,000	45,000	96,900	4071 2.500	13,000
13,00-13,49	15,875	12,700	164,000	45,000	96,900	4071 2.500	13,005
13,50-13,99	14,000	13,200	169,000	45,000	100,600	4071 2.500	13,500
13,50-13,99	15,875	13,200	169,000	45,000	100,600	4071 2.500	13,505
14,00-14,49	14,000	13,700	173,000	45,000	104,200	4071 3.000	14,000
14,00-14,49	15,875	13,700	173,000	45,000	104,200	4071 3.000	14,005
14,50-14,99	16,000	14,200	180,000	48,000	107,800	4071 3.000	14,500
14,50-14,99	15,875	14,200	180,000	48,000	107,800	4071 3.000	14,505
15,00-15,49	16,000	14,700	185,000	48,000	111,300	4071 3.001	15,000
15,00-15,49	15,875	14,700	185,000	48,000	111,300	4071 3.001	15,005
15,50-15,99	16,000	15,200	189,000	48,000	114,900	4071 3.001	15,500
15,50-15,99	15,875	15,200	189,000	48,000	114,900	4071 3.001	15,505
16,00-16,49	16,000	15,700	193,000	48,000	118,900	4071 3.500	16,000
16,00-16,49	15,875	15,700	193,000	48,000	118,900	4071 3.500	16,005
16,50-16,99	18,000	16,200	198,000	48,000	122,100	4071 3.500	16,500
16,50-16,99	19,050	16,200	198,000	48,000	122,100	4071 3.500	16,505
17,00-17,49	18,000	16,700	202,000	48,000	125,800	4071 3.500	17,000
17,00-17,49	19,050	16,700	202,000	48,000	125,800	4071 3.500	17,005
17,50-17,99	18,000	17,200	206,000	48,000	129,400	4071 3.500	17,500
17,50-17,99	19,050	17,200	206,000	48,000	129,400	4071 3.500	17,505
18,00-18,49	18,000	17,700	211,000	48,000	132,900	4071 4.000	18,000
18,00-18,49	19,050	17,700	211,000	48,000	132,900	4071 4.000	18,005
18,50-18,99	20,000	18,200	217,000	50,000	136,500	4071 4.000	18,500
18,50-18,99	19,050	18,200	217,000	50,000	136,500	4071 4.000	18,505
19,00-19,49	20,000	18,700	221,000	50,000	140,100	4071 4.000	19,000
19,00-19,49	19,050	18,700	221,000	50,000	140,100	4071 4.000	19,005
19,50-19,99	20,000	19,200	226,000	50,000	143,700	4071 4.000	19,500
19,50-19,99	19,050	19,200	226,000	50,000	143,700	4071 4.000	19,505
20,00-20,49	20,000	19,700	230,000	50,000	147,300	4071 4.500	20,000
20,00-20,49	19,050	19,700	230,000	50,000	147,300	4071 4.500	20,005
20,50-20,99	25,000	20,200	243,000	56,000	151,000	4071 4.500	20,500
20,50-20,99	25,400	20,200	243,000	56,000	151,000	4071 4.500	20,505
21,00-21,49	25,000	20,700	247,000	56,000	154,600	4071 4.500	21,000
21,00-21,49	25,400	20,700	247,000	56,000	154,600	4071 4.500	21,005

d1	d2 h6	d3	L	l3	l5	F	Código Nº
mm	mm	mm	mm	mm	mm		
21,50-21,99	25,000	21,200	251,000	56,000	158,100	4071 4.500	21,500
21,50-21,99	25,400	21,200	251,000	56,000	158,100	4071 4.500	21,505
22,00-22,49	25,000	21,700	255,000	56,000	161,700	4071 5.000	22,000
22,00-22,49	25,400	21,700	255,000	56,000	161,700	4071 5.000	22,005
22,50-22,99	25,000	22,200	260,000	56,000	165,300	4071 5.000	22,500
22,50-22,99	25,400	22,200	260,000	56,000	165,300	4071 5.000	22,505
23,00-23,49	25,000	22,700	264,000	56,000	168,900	4071 5.000	23,000
23,00-23,49	25,400	22,700	264,000	56,000	168,900	4071 5.000	23,005
23,50-23,99	25,000	23,200	269,000	56,000	172,500	4071 5.000	23,500
23,50-23,99	25,400	23,200	269,000	56,000	172,500	4071 5.000	23,505
24,00-24,49	25,000	23,700	273,000	56,000	176,100	4071 5.001	24,000
24,00-24,49	25,400	23,700	273,000	56,000	176,100	4071 5.001	24,005
24,50-24,99	25,000	24,200	277,000	56,000	179,700	4071 5.001	24,500
24,50-24,99	25,400	24,200	277,000	56,000	179,700	4071 5.001	24,505
25,00-25,49	25,000	24,700	282,000	56,000	183,300	4071 5.001	25,000
25,00-25,49	25,400	24,700	282,000	56,000	183,300	4071 5.001	25,005
25,50-25,99	32,000	25,200	291,000	60,000	186,900	4071 5.001	25,500
25,50-25,99	31,750	25,200	291,000	60,000	186,900	4071 5.001	25,505
26,00-26,49	32,000	25,700	297,000	60,000	190,000	4071 5.003	26,000
26,00-26,49	31,750	25,700	297,000	60,000	190,000	4071 5.003	26,005
26,50-26,99	32,000	26,200	301,000	60,000	194,000	4071 5.003	26,500
26,50-26,99	31,750	26,200	301,000	60,000	194,000	4071 5.003	26,505
27,00-27,49	32,000	26,700	306,000	60,000	197,200	4071 5.003	27,000
27,00-27,49	31,750	26,700	306,000	60,000	197,200	4071 5.003	27,005
27,50-27,99	32,000	27,200	310,000	60,000	200,800	4071 5.003	27,500
27,50-27,99	31,750	27,200	310,000	60,000	200,800	4071 5.003	27,505
28,00-28,49	32,000	27,700	314,000	60,000	204,400	4071 5.003	28,000
28,00-28,49	31,750	27,700	314,000	60,000	204,400	4071 5.003	28,005
28,50-28,99	32,000	28,200	318,000	60,000	208,400	4071 5.003	28,500
28,50-28,99	31,750	28,200	318,000	60,000	208,400	4071 5.003	28,505
29,00-29,49	32,000	28,700	323,000	60,000	212,500	4071 5.003	29,000
29,00-29,49	31,750	28,700	323,000	60,000	212,500	4071 5.003	29,005
29,50-29,99	32,000	29,200	327,000	60,000	215,100	4071 5.003	29,500
29,50-29,99	31,750	29,200	327,000	60,000	215,100	4071 5.003	29,505
30,00-30,49	32,000	29,700	332,000	60,000	218,600	4071 6.000	30,000
30,00-30,49	31,750	29,700	332,000	60,000	218,600	4071 6.000	30,005
30,50-30,99	32,000	30,200	336,000	60,000	222,200	4071 6.000	30,500
30,50-30,99	31,750	30,200	336,000	60,000	222,200	4071 6.000	30,505
31,00-31,49	32,000	30,700	340,000	60,000	225,800	4071 6.000	31,000
31,00-31,49	31,750	30,700	340,000	60,000	225,800	4071 6.000	31,005
31,50-31,99	32,000	31,200	344,000	60,000	229,400	4071 6.000	31,500
31,50-31,99	31,750	31,200	344,000	60,000	229,400	4071 6.000	31,505
33,00-33,99	32,000	32,700	362,000	60,000	244,600	4071 6.001	33,000
39,00-40,00	32,000	38,700	413,000	60,000	287,400	4071 6.002	39,000

Porta placas HT 800

HT 800 WP | 10xD | WN | R

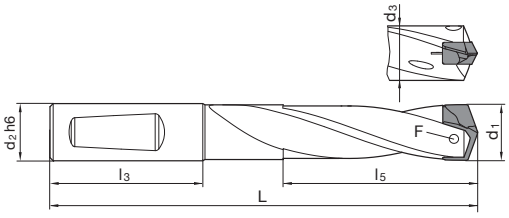
Material de corte	
Acabado	Ni
Forma del mango	HE

P
M
K
N
S
H

niquelado • alta resistencia al desgaste • sección de ranura optimizada • salida de refrigerante optimizada • incluidos tornillos tensores art.nº 4071 • incluido atornillador art.nº 1612

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 764-768



Artículo Nº **4110**

d1	d2 h6	d3	L	l3	l5	F	Código Nº
mm	mm	mm	mm	mm	mm		
11,00-11,49	12,000	10,700	182,000	45,000	117,100	4071 2.200	11,000
11,00-11,49	12,700	10,700	182,000	45,000	117,100	4071 2.200	11,005
11,50-11,99	12,000	11,200	187,000	45,000	122,100	4071 2.200	11,500
11,50-11,99	12,700	11,200	187,000	45,000	122,100	4071 2.200	11,505
12,00-12,49	12,000	11,700	194,000	45,000	127,200	4071 2.201	12,000
12,00-12,49	12,700	11,700	194,000	45,000	127,200	4071 2.201	12,005
12,50-12,99	14,000	12,200	199,000	45,000	132,300	4071 2.201	12,500
12,50-12,99	15,875	12,200	199,000	45,000	132,300	4071 2.201	12,505
13,00-13,49	14,000	12,700	205,000	45,000	137,500	4071 2.500	13,000
13,00-13,49	15,875	12,700	205,000	45,000	137,500	4071 2.500	13,005
13,50-13,99	14,000	13,200	211,000	45,000	142,500	4071 2.500	13,500
13,50-13,99	15,875	13,200	211,000	45,000	142,500	4071 2.500	13,505
14,00-14,49	14,000	13,700	217,000	45,000	147,700	4071 3.000	14,000
14,00-14,49	15,875	13,700	217,000	45,000	147,700	4071 3.000	14,005
14,50-14,99	16,000	14,200	225,000	48,000	152,800	4071 3.000	14,500
14,50-14,99	15,875	14,200	225,000	48,000	152,800	4071 3.000	14,505
15,00-15,49	16,000	14,700	232,000	48,000	157,800	4071 3.001	15,000
15,00-15,49	15,875	14,700	232,000	48,000	157,800	4071 3.001	15,005
15,50-15,99	16,000	15,200	237,000	48,000	162,900	4071 3.001	15,500
15,50-15,99	15,875	15,200	237,000	48,000	162,900	4071 3.001	15,505
16,00-16,49	16,000	15,700	243,000	48,000	168,000	4071 3.500	16,000
16,00-16,49	15,875	15,700	243,000	48,000	168,000	4071 3.500	16,005
16,50-16,99	18,000	16,200	249,000	48,000	170,000	4071 3.500	16,500
16,50-16,99	19,050	16,200	249,000	48,000	170,000	4071 3.500	16,505
17,00-17,49	18,000	16,700	255,000	48,000	178,300	4071 3.500	17,000
17,00-17,49	19,050	16,700	255,000	48,000	178,300	4071 3.500	17,005
17,50-17,99	18,000	17,200	260,000	48,000	183,500	4071 3.500	17,500
17,50-17,99	19,050	17,200	260,000	48,000	183,500	4071 3.500	17,505
18,00-18,49	18,000	17,700	267,000	48,000	188,400	4071 4.000	18,000
18,00-18,49	19,050	17,700	267,000	48,000	188,400	4071 4.000	18,005
18,50-18,99	20,000	18,200	274,000	50,000	193,500	4071 4.000	18,500
18,50-18,99	19,050	18,200	274,000	50,000	193,500	4071 4.000	18,505
19,00-19,49	20,000	18,700	280,000	50,000	198,700	4071 4.000	19,000
19,00-19,49	19,050	18,700	280,000	50,000	198,700	4071 4.000	19,005
19,50-19,99	20,000	19,200	286,000	50,000	203,700	4071 4.000	19,500
19,50-19,99	19,050	19,200	286,000	50,000	203,700	4071 4.000	19,505
20,00-20,49	20,000	19,700	292,000	50,000	208,900	4071 4.500	20,000
20,00-20,49	19,050	19,700	292,000	50,000	208,900	4071 4.500	20,005
20,50-20,99	25,000	20,200	306,000	56,000	214,000	4071 4.500	20,500
20,50-20,99	25,400	20,200	306,000	56,000	214,000	4071 4.500	20,505
21,00-21,49	25,000	20,700	312,000	56,000	219,100	4071 4.500	21,000
21,00-21,49	25,400	20,700	312,000	56,000	219,100	4071 4.500	21,005

d1	d2 h6	d3	L	l3	l5	F	Código Nº
mm	mm	mm	mm	mm	mm		
21,50-21,99	25,000	21,200	317,000	56,000	224,200	4071 4.500	21,500
21,50-21,99	25,400	21,200	317,000	56,000	224,200	4071 4.500	21,505
22,00-22,49	25,000	21,700	323,000	56,000	229,300	4071 5.000	22,000
22,00-22,49	25,400	21,700	323,000	56,000	229,300	4071 5.000	22,005
22,50-22,99	25,000	22,200	329,000	56,000	234,400	4071 5.000	22,500
22,50-22,99	25,400	22,200	329,000	56,000	234,400	4071 5.000	22,505
23,00-23,49	25,000	22,700	335,000	56,000	239,500	4071 5.000	23,000
23,00-23,49	25,400	22,700	335,000	56,000	239,500	4071 5.000	23,005
23,50-23,99	25,000	23,200	341,000	56,000	244,600	4071 5.000	23,500
23,50-23,99	25,400	23,200	341,000	56,000	244,600	4071 5.000	23,505
24,00-24,49	25,000	23,700	347,000	56,000	249,700	4071 5.001	24,000
24,00-24,49	25,400	23,700	347,000	56,000	249,700	4071 5.001	24,005
24,50-24,99	25,000	24,200	352,000	56,000	254,800	4071 5.001	24,500
24,50-24,99	25,400	24,200	352,000	56,000	254,800	4071 5.001	24,505
25,00-25,49	25,000	24,700	359,000	56,000	259,900	4071 5.001	25,000
25,00-25,49	25,400	24,700	359,000	56,000	259,900	4071 5.001	25,005
25,50-25,99	32,000	25,200	369,000	60,000	265,000	4071 5.001	25,500
25,50-25,99	31,750	25,200	369,000	60,000	265,000	4071 5.001	25,505
26,00-26,49	32,000	25,700	377,000	60,000	270,000	4071 5.003	26,000
26,00-26,49	31,750	25,700	377,000	60,000	270,000	4071 5.003	26,005
26,50-26,99	32,000	26,200	382,000	60,000	275,000	4071 5.003	26,500
26,50-26,99	31,750	26,200	382,000	60,000	275,000	4071 5.003	26,505
27,00-27,49	32,000	26,700	388,000	60,000	280,100	4071 5.003	27,000
27,00-27,49	31,750	26,700	388,000	60,000	280,100	4071 5.003	27,005
27,50-27,99	32,000	27,200	394,000	60,000	285,200	4071 5.003	27,500
27,50-27,99	31,750	27,200	394,000	60,000	285,200	4071 5.003	27,505
28,00-28,49	32,000	27,700	400,000	60,000	290,300	4071 5.003	28,000
28,00-28,49	31,750	27,700	400,000	60,000	290,300	4071 5.003	28,005
28,50-28,99	32,000	28,200	405,000	60,000	295,400	4071 5.003	28,500
28,50-28,99	31,750	28,200	405,000	60,000	295,400	4071 5.003	28,505
29,00-29,49	32,000	28,700	412,000	60,000	300,500	4071 5.003	29,000
29,00-29,49	31,750	28,700	412,000	60,000	300,500	4071 5.003	29,005
29,50-29,99	32,000	29,200	418,000	60,000	305,600	4071 5.003	29,500
29,50-29,99	31,750	29,200	418,000	60,000	305,600	4071 5.003	29,505
30,00-30,49	32,000	29,700	424,000	60,000	310,600	4071 6.000	30,000
30,00-30,49	31,750	29,700	424,000	60,000	310,600	4071 6.000	30,005
30,50-30,99	32,000	30,200	429,000	60,000	315,700	4071 6.000	30,500
30,50-30,99	31,750	30,200	429,000	60,000	315,700	4071 6.000	30,505
31,00-31,49	32,000	30,700	435,000	60,000	320,800	4071 6.000	31,000
31,00-31,49	31,750	30,700	435,000	60,000	320,800	4071 6.000	31,005
31,50-31,99	32,000	31,200	441,000	60,000	325,900	4071 6.000	31,500
31,50-31,99	31,750	31,200	441,000	60,000	325,900	4071 6.000	31,505

Porta placas HT 800

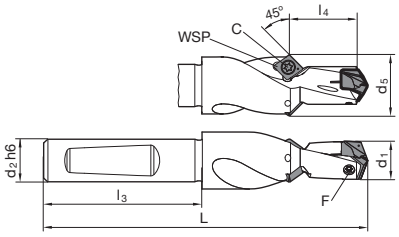
HT 800 WP | 1xD | WN | R

Material de corte	
Acabado	Ni
Forma del mango	HE

P	niquelado • alta resistencia al desgaste • sección de ranura optimizada • salida de refrigerante optimizada • incuidos los tornillos tensores art.nº 4071 y 6128 • incluido atornillador art.nº 1612
M	
K	
N	
S	para pilotar y avellanar 45º
H	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 764-768



Artículo Nº **4105**

d1	d2 h6	d5	L	l3	l4	WSP	C	F	Código Nº
mm	mm	mm	mm	mm	mm				
11,00-11,99	12,000	17,000	81,000	45,000	12,000	CP..0502..	6128 2.000	4071 2.200	11,000
11,00-11,99	12,700	17,000	81,000	45,000	12,000	CP..0502..	6128 2.000	4071 2.200	11,005
12,00-12,99	12,000	18,000	84,000	45,000	13,000	CP..0502..	6128 2.000	4071 2.201	12,000
12,00-12,99	12,700	18,000	84,000	45,000	13,000	CP..0502..	6128 2.000	4071 2.201	12,005
13,00-13,99	14,000	18,000	86,000	45,000	14,000	CP..0502..	6128 2.000	4071 2.500	13,000
13,00-13,99	15,875	18,000	86,000	45,000	14,000	CP..0502..	6128 2.000	4071 2.500	13,005
14,00-15,99	16,000	18,000	93,000	48,000	16,000	CP..0502..	6128 2.000	4071 3.000	14,000
14,00-15,99	15,875	18,000	93,000	48,000	16,000	CP..0502..	6128 2.000	4071 3.000	14,005
16,00-17,99	18,000	20,000	99,000	48,000	18,000	CP..0602..	6128 2.500	4071 3.500	16,000
16,00-17,99	19,050	20,000	99,000	48,000	18,000	CP..0602..	6128 2.500	4071 3.500	16,005
18,00-19,99	20,000	22,000	106,000	50,000	20,000	CP..0602..	6128 2.500	4071 4.000	18,000
18,00-19,99	19,050	22,000	106,000	50,000	20,000	CP..0602..	6128 2.500	4071 4.000	18,005
20,00-21,99	25,000	25,000	117,000	56,000	22,000	CP..0602..	6128 2.500	4071 4.500	20,000
20,00-21,99	25,400	25,400	117,000	56,000	22,000	CP..0602..	6128 2.500	4071 4.500	20,005
22,00-23,99	25,000	26,000	122,000	56,000	24,000	CP..0602..	6128 2.500	4071 5.000	22,000
22,00-23,99	25,400	26,000	122,000	56,000	24,000	CP..0602..	6128 2.500	4071 5.000	22,005
24,00-25,99	25,000	28,000	128,000	56,000	26,000	CP..0602..	6128 2.500	4071 5.001	24,000
24,00-25,99	25,400	28,000	128,000	56,000	26,000	CP..0602..	6128 2.500	4071 5.001	24,005
26,00-27,99	32,000	32,000	142,000	60,000	28,000	CP..0602..	6128 2.500	4071 5.003	26,000
26,00-27,99	31,750	32,000	142,000	60,000	28,000	CP..0602..	6128 2.500	4071 5.003	26,005
28,00-29,99	32,000	34,000	147,000	60,000	30,000	CP..0602..	6128 2.500	4071 5.003	28,000
28,00-29,99	31,750	34,000	147,000	60,000	30,000	CP..09T3..	6128 2.500	4071 5.003	28,005
30,00-31,99	32,000	38,000	152,000	60,000	32,000	CP..09T3..	6128 4.006	4071 6.000	30,000
30,00-31,99	31,750	38,000	152,000	60,000	32,000	CP..09T3..	6128 4.006	4071 6.000	30,005
32,00-35,99	32,000	42,000	163,000	60,000	36,000	CP..09T3..	6128 4.006	4071 6.001	32,000
32,00-35,99	31,750	42,000	163,000	60,000	36,000	CP..09T3..	6128 4.006	4071 6.001	32,005
36,00-40,00	32,000	46,000	173,000	60,000	40,000	CP..09T3..	6128 4.006	4071 6.002	36,000
36,00-40,00	31,750	46,000	173,000	60,000	40,000	CP..09T3..	6128 4.006	4071 6.002	36,005

Placa intercambiale para HT 800

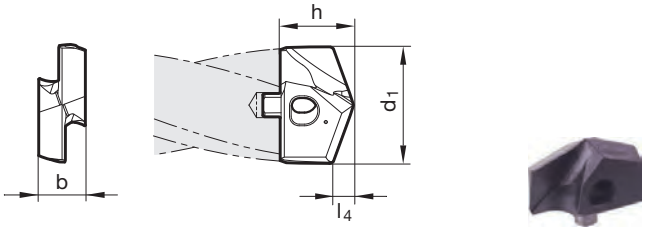
HT 800 WP | WN | R | 140° | h7

Material de corte	**Metal duro**
Acabado	F
Forma del mango	

P	•	vaciado de punta ≥Ø 11,000 • afilado plano • forma recta del corte principal (mediante corrección) • incluidos tornillos tensores art.nº 4071
M	○	
K	○	
N		
S		aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm²
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 764-768



Artículo Nº **4112**

d1		l4	b	h	Código Nº
mm	inch	mm	mm	mm	
11,000		2,100	4,500	7,500	11,000
11,200		2,100	4,500	7,500	11,200
11,500		2,100	4,500	7,500	11,500
11,510	29/64	2,100	4,500	7,500	11,510
11,700		2,200	4,500	7,500	11,700
11,800		2,200	4,500	7,500	11,800
11,910	15/32	2,200	4,500	7,500	11,910
12,000		2,200	5,000	7,700	12,000
12,100		2,300	5,000	7,700	12,100
12,200		2,300	5,000	7,700	12,200
12,300	31/64	2,300	5,000	7,700	12,300
12,500		2,300	5,000	7,700	12,500
12,600		2,300	5,000	7,700	12,600
12,700	1/2	2,400	5,000	7,700	12,700
12,800		2,400	5,000	7,700	12,800
12,900		2,400	5,000	7,700	12,900
13,000		2,400	5,500	8,500	13,000
13,100	33/64	2,400	5,500	8,500	13,100
13,300		2,500	5,500	8,500	13,300
13,490	17/32	2,500	5,500	8,500	13,490
13,500		2,500	5,500	8,500	13,500
13,600		2,500	5,500	8,500	13,600
13,700		2,500	5,500	8,500	13,700
13,800		2,600	5,500	8,500	13,800
13,890	35/64	2,600	5,500	8,500	13,890
14,000		2,600	6,000	9,600	14,000
14,100		2,600	6,000	9,600	14,100
14,290	9/16	2,700	6,000	9,600	14,290
14,400		2,700	6,000	9,600	14,400
14,500		2,700	6,000	9,600	14,500
14,600		2,700	6,000	9,600	14,600
14,680	37/64	2,700	6,000	9,600	14,680
14,700		2,700	6,000	9,600	14,700
14,800		2,700	6,000	9,600	14,800
15,000		2,800	6,000	9,800	15,000
15,080	19/32	2,800	6,000	9,800	15,080
15,100		2,800	6,000	9,800	15,100
15,200		2,800	6,000	9,800	15,200
15,300		2,800	6,000	9,800	15,300
15,480	39/64	2,900	6,000	9,800	15,480
15,500		2,900	6,000	9,800	15,500
15,600		2,900	6,000	9,800	15,600

d1		l4	b	h	Código Nº
mm	inch	mm	mm	mm	
15,700		2,900	6,000	9,800	15,700
15,800		2,900	6,000	9,800	15,800
15,870	5/8	2,900	6,000	9,800	15,870
16,000		3,000	7,000	11,000	16,000
16,270	41/64	3,000	7,000	11,000	16,270
16,500		3,100	7,000	11,000	16,500
16,670	21/32	3,100	7,000	11,000	16,670
17,000		3,100	7,000	11,000	17,000
17,070	43/64	3,200	7,000	11,000	17,070
17,300		3,200	7,000	11,000	17,300
17,460	11/16	3,200	7,000	11,000	17,460
17,500		3,200	7,000	11,000	17,500
17,600		3,300	7,000	11,000	17,600
17,860	45/64	3,300	7,000	11,000	17,860
18,000		3,300	8,000	12,600	18,000
18,260	23/32	3,400	8,000	12,600	18,260
18,500		3,400	8,000	12,600	18,500
18,650	47/64	3,400	8,000	12,600	18,650
18,900		3,500	8,000	12,600	18,900
19,000		3,500	8,000	12,600	19,000
19,050	3/4	3,500	8,000	12,600	19,050
19,250		3,600	8,000	12,600	19,250
19,300		3,600	8,000	12,600	19,300
19,450	49/64	3,600	8,000	12,600	19,450
19,500		3,600	8,000	12,600	19,500
19,600		3,600	8,000	12,600	19,600
19,840	25/32	3,700	8,000	12,600	19,840
20,000		3,700	9,000	13,900	20,000
20,240	51/64	3,700	9,000	13,900	20,240
20,500		3,800	9,000	13,900	20,500
20,640	13/16	3,800	9,000	13,900	20,640
20,900		3,900	9,000	13,900	20,900
21,000		3,900	9,000	13,900	21,000
21,030	53/64	3,900	9,000	13,900	21,030
21,100		3,900	9,000	13,900	21,100
21,430	27/32	3,900	9,000	13,900	21,430
21,500		4,000	9,000	13,900	21,500
21,700		4,000	9,000	13,900	21,700
21,830	55/64	4,000	9,000	13,900	21,830
22,000		4,100	10,000	15,300	22,000
22,220	7/8	4,100	10,000	15,300	22,220
22,500		4,100	10,000	15,300	22,500
22,620	57/64	4,200	10,000	15,300	22,620
22,700		4,200	10,000	15,300	22,700
23,000		4,200	10,000	15,300	23,000
23,020	29/32	4,200	10,000	15,300	23,020
23,420	59/64	4,300	10,000	15,300	23,420
23,500		4,300	10,000	15,300	23,500
23,700		4,400	10,000	15,300	23,700
23,810	15/16	4,400	10,000	15,300	23,810
24,000		4,400	11,000	15,800	24,000
24,100		4,400	11,000	15,800	24,100
24,210	61/64	4,500	11,000	15,800	24,210
24,500		4,500	11,000	15,800	24,500
24,610	31/32	4,500	11,000	15,800	24,610
25,000	63/64	4,600	11,000	15,800	25,000
25,400	1	4,700	11,000	15,800	25,400
25,500		4,700	11,000	15,800	25,500
25,670		4,700	11,000	15,800	25,670
25,700		4,700	11,000	15,800	25,700
25,810		4,700	11,000	15,800	25,810
26,000		4,800	12,000	20,000	26,000
26,190	1 1/32	4,800	12,000	20,000	26,190
26,500		4,900	12,000	20,000	26,500
26,590	1 3/64	4,900	12,000	20,000	26,590
27,000		5,000	12,000	20,000	27,000
27,500		5,100	12,000	20,000	27,500
27,700		5,100	12,000	20,000	27,700
27,780	1 3/32	5,100	12,000	20,000	27,780
28,000		5,100	13,000	20,700	28,000
28,180	1 7/64	5,200	13,000	20,700	28,180
28,500		5,200	13,000	20,700	28,500

d1		l4	b	h	Código Nº
mm	inch	mm	mm	mm	
28,580		5,300	13,000	20,700	28,580
29,000		5,300	13,000	20,700	29,000
29,370	1 5/32	5,400	13,000	20,700	29,370
29,500		5,400	13,000	20,700	29,500
29,600		5,400	13,000	20,700	29,600
29,770	1 11/64	5,500	13,000	20,700	29,770
30,000		5,500	14,000	22,300	30,000
30,160	1 3/16	5,500	14,000	22,300	30,160
30,500		5,600	14,000	22,300	30,500
30,960	1 7/32	5,700	14,000	22,300	30,960
31,000		5,700	14,000	22,300	31,000
31,500		5,800	14,000	22,300	31,500
31,750	1 1/4	5,800	14,000	22,300	31,750
32,000		5,900	15,000	23,100	32,000
32,500		6,000	15,000	23,100	32,500
32,540	1 9/32	6,000	15,000	23,100	32,540
32,940	1 19/64	6,000	15,000	23,100	32,940
33,000		6,100	15,000	23,100	33,000
33,340	1 5/16	6,100	15,000	23,100	33,340
33,500		6,100	15,000	23,100	33,500
34,000		6,200	15,000	23,100	34,000
34,130	1 11/32	6,300	15,000	23,100	34,130
34,500		6,300	15,000	23,100	34,500
34,930		6,400	15,000	23,100	34,930
35,000		6,400	15,000	23,100	35,000
35,500		6,500	15,000	23,100	35,500
35,720	1 13/32	6,600	15,000	23,100	35,720
36,000		6,600	16,000	23,900	36,000
36,500		6,700	16,000	23,900	36,500
36,510	1 7/16	6,700	16,000	23,900	36,510
37,000		6,800	16,000	23,900	37,000
37,310	1 15/32	6,800	16,000	23,900	37,310
37,500		6,900	16,000	23,900	37,500
38,000		7,000	16,000	23,900	38,000
38,100	1 1/2	7,000	16,000	23,900	38,100
38,500	1 33/64	7,100	16,000	23,900	38,500
39,000		7,100	16,000	23,900	39,000
39,500		7,200	16,000	23,900	39,500
40,000		7,300	16,000	23,900	40,000

Placa intercambiale para HT 800

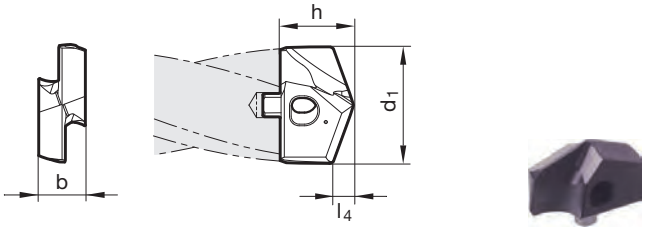
HT 800 WP | WN | R | 140° | m7

Material de corte	**Metal duro**
Acabado	F
Forma del mango	

P	○	vaciado de punta ≥Ø 11,000 • afilado plano • forma recta del corte principal (mediante corrección) • incluidos tornillos tensores art.nº 4071
M		
K	•	
N		
S		fundición vermicular GGV • fundición gris, fundición maleable, fundición esferica
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 764-768



Artículo Nº	**4113**

d1		l4	b	h	Código Nº
mm	inch	mm	mm	mm	
11,000		2,700	4,500	7,500	11,000
11,200		2,700	4,500	7,500	11,200
11,500		2,800	4,500	7,500	11,500
11,510	29/64	2,800	4,500	7,500	11,510
11,700		2,800	4,500	7,500	11,700
11,800		2,800	4,500	7,500	11,800
11,910	15/32	2,800	4,500	7,500	11,910
12,000		2,900	5,000	7,700	12,000
12,100		2,900	5,000	7,700	12,100
12,200		2,900	5,000	7,700	12,200
12,300	31/64	2,900	5,000	7,700	12,300
12,500		3,100	5,000	7,700	12,500
12,600		3,100	5,000	7,700	12,600
12,700	1/2	3,100	5,000	7,700	12,700
12,800		3,100	5,000	7,700	12,800
12,900		3,100	5,000	7,700	12,900
13,000		3,200	5,500	8,500	13,000
13,100	33/64	3,200	5,500	8,500	13,100
13,300		3,200	5,500	8,500	13,300
13,490	17/32	3,200	5,500	8,500	13,490
13,500		3,300	5,500	8,500	13,500
13,600		3,300	5,500	8,500	13,600
13,700		3,300	5,500	8,500	13,700
13,800		3,300	5,500	8,500	13,800
13,890	35/64	3,300	5,500	8,500	13,890
14,000		3,400	6,000	9,600	14,000
14,100		3,400	6,000	9,600	14,100
14,290	9/16	3,400	6,000	9,600	14,290
14,400		3,400	6,000	9,600	14,400
14,500		3,600	6,000	9,600	14,500
14,600		3,600	6,000	9,600	14,600
14,680	37/64	3,600	6,000	9,600	14,680
14,700		3,600	6,000	9,600	14,700
14,800		3,600	6,000	9,600	14,800
15,000		3,700	6,000	9,800	15,000
15,080	19/32	3,700	6,000	9,800	15,080
15,100		3,700	6,000	9,800	15,100
15,200		3,700	6,000	9,800	15,200
15,300		3,700	6,000	9,800	15,300
15,480	39/64	3,700	6,000	9,800	15,480
15,500		3,800	6,000	9,800	15,500
15,600		3,800	6,000	9,800	15,600

d1		l4	b	h	Código Nº
mm	inch	mm	mm	mm	
15,700		3,800	6,000	9,800	15,700
15,800		3,800	6,000	9,800	15,800
15,870	5/8	3,800	6,000	9,800	15,870
16,000		3,900	7,000	11,000	16,000
16,270	41/64	3,900	7,000	11,000	16,270
16,500		4,100	7,000	11,000	16,500
16,670	21/32	4,100	7,000	11,000	16,670
17,000		4,200	7,000	11,000	17,000
17,070	43/64	4,200	7,000	11,000	17,070
17,300		4,200	7,000	11,000	17,300
17,460	11/16	4,200	7,000	11,000	17,460
17,500		4,300	7,000	11,000	17,500
17,600		4,300	7,000	11,000	17,600
17,860	45/64	4,300	7,000	11,000	17,860
18,000		4,400	8,000	12,600	18,000
18,260	23/32	4,400	8,000	12,600	18,260
18,500		4,500	8,000	12,600	18,500
18,650	47/64	4,500	8,000	12,600	18,650
18,900		4,500	8,000	12,600	18,900
19,000		4,700	8,000	12,600	19,000
19,050	3/4	4,700	8,000	12,600	19,050
19,250		4,700	8,000	12,600	19,250
19,300		4,700	8,000	12,600	19,300
19,450	49/64	4,700	8,000	12,600	19,450
19,500		4,800	8,000	12,600	19,500
19,600		4,800	8,000	12,600	19,600
19,840	25/32	4,800	8,000	12,600	19,840
20,000		4,900	9,000	13,900	20,000
20,240	51/64	4,900	9,000	13,900	20,240
20,500		5,100	9,000	13,900	20,500
20,640	13/16	5,100	9,000	13,900	20,640
20,900		5,100	9,000	13,900	20,900
21,000		5,200	9,000	13,900	21,000
21,030	53/64	5,200	9,000	13,900	21,030
21,100		5,200	9,000	13,900	21,100
21,430	27/32	5,200	9,000	13,900	21,430
21,500		5,300	9,000	13,900	21,500
21,700		5,300	9,000	13,900	21,700
21,830	55/64	5,300	9,000	13,900	21,830
22,000		5,400	10,000	15,300	22,000
22,220	7/8	5,400	10,000	15,300	22,220
22,500		5,600	10,000	15,300	22,500
22,620	57/64	5,600	10,000	15,300	22,620
22,700		5,600	10,000	15,300	22,700
23,000		5,700	10,000	15,300	23,000
23,020	29/32	5,700	10,000	15,300	23,020
23,420	59/64	5,700	10,000	15,300	23,420
23,500		5,800	10,000	15,300	23,500
23,700		5,800	10,000	15,300	23,700
23,810	15/16	5,800	10,000	15,300	23,810
24,000		6,000	11,000	15,800	24,000
24,100		6,000	11,000	15,800	24,100
24,210	61/64	6,000	11,000	15,800	24,210
24,500		6,100	11,000	15,800	24,500
24,610	31/32	6,100	11,000	15,800	24,610
25,000	63/64	6,200	11,000	15,800	25,000
25,400	1	6,200	11,000	15,800	25,400
25,500		6,300	11,000	15,800	25,500
25,670		6,300	11,000	15,800	25,670
25,700		6,300	11,000	15,800	25,700
25,810		6,300	11,000	15,800	25,810
26,000		6,400	12,000	20,000	26,000
26,190	1 1/32	6,400	12,000	20,000	26,190
26,500		6,500	12,000	20,000	26,500
26,590	1 3/64	6,500	12,000	20,000	26,590
27,000		6,600	12,000	20,000	27,000
27,500		6,700	12,000	20,000	27,500
27,700		6,700	12,000	20,000	27,700
27,780	1 3/32	6,700	12,000	20,000	27,780
28,000		6,800	13,000	20,700	28,000
28,180	1 7/64	6,800	13,000	20,700	28,180
28,500		6,900	13,000	20,700	28,500

d1		l4	b	h	Código Nº
mm	inch	mm	mm	mm	
28,580		6,900	13,000	20,700	28,580
29,000		7,100	13,000	20,700	29,000
29,370	1 5/32	7,100	13,000	20,700	29,370
29,500		7,200	13,000	20,700	29,500
29,770	1 11/64	7,200	13,000	20,700	29,770
30,000		7,300	14,000	22,300	30,000
30,160	1 3/16	7,300	14,000	22,300	30,160
30,500		7,400	14,000	22,300	30,500
30,960	1 7/32	7,400	14,000	22,300	30,960
31,000		7,500	14,000	22,300	31,000
31,500		7,600	14,000	22,300	31,500
31,750	1 1/4	7,600	14,000	22,300	31,750
32,000		7,700	15,000	23,100	32,000
32,500		7,800	15,000	23,100	32,500
32,540	1 9/32	7,800	15,000	23,100	32,540
32,940	1 19/64	7,800	15,000	23,100	32,940
33,000		7,900	15,000	23,100	33,000
33,340	1 5/16	7,900	15,000	23,100	33,340
33,500		8,100	15,000	23,100	33,500
34,000		8,200	15,000	23,100	34,000
34,130	1 11/32	8,200	15,000	23,100	34,130
34,500		8,400	15,000	23,100	34,500
34,930		8,400	15,000	23,100	34,930
35,000		8,500	15,000	23,100	35,000
35,500		8,600	15,000	23,100	35,500
35,720	1 13/32	8,600	15,000	23,100	35,720
36,000		8,700	16,000	23,900	36,000
36,500		8,800	16,000	23,900	36,500
36,510	1 7/16	8,800	16,000	23,900	36,510
37,000		9,000	16,000	23,900	37,000
37,310	1 15/32	9,000	16,000	23,900	37,310
37,500		9,100	16,000	23,900	37,500
38,000		9,200	16,000	23,900	38,000
38,100	1 1/2	9,200	16,000	23,900	38,100
38,500	1 33/64	9,400	16,000	23,900	38,500
39,000		9,500	16,000	23,900	39,000
39,500		9,700	16,000	23,900	39,500
40,000		9,700	16,000	23,900	40,000

Placa intercambiale para HT 800

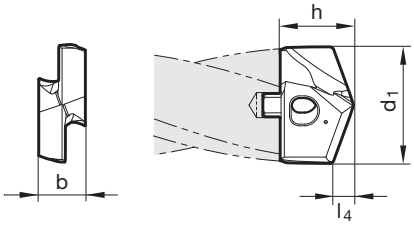
HT 800 WP | WN | R | 140° | h7

Material de corte	**Metal duro**
Acabado	a
Forma del mango	

P	○	vaciado de punta ≥Ø 11,000 • entrada cónica • forma recta del corte principal (mediante corrección) • incluidos tornillos tensores art.nº 4071
M	●	
K		
N		
S	○	aceros inoxidables
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 764-768



Artículo Nº **4115**

d1		l4	b	h	Código Nº
mm	inch	mm	mm	mm	
11,000		2,100	4,500	7,500	11,000
11,200		2,100	4,500	7,500	11,200
11,500		2,100	4,500	7,500	11,500
11,510	29/64	2,100	4,500	7,500	11,510
11,700		2,200	4,500	7,500	11,700
11,800		2,200	4,500	7,500	11,800
11,910	15/32	2,200	4,500	7,500	11,910
12,000		2,200	5,000	7,700	12,000
12,100		2,300	5,000	7,700	12,100
12,200		2,300	5,000	7,700	12,200
12,300	31/64	2,300	5,000	7,700	12,300
12,500		2,300	5,000	7,700	12,500
12,600		2,300	5,000	7,700	12,600
12,700	1/2	2,400	5,000	7,700	12,700
12,800		2,400	5,000	7,700	12,800
12,900		2,400	5,000	7,700	12,900
13,000		2,400	5,500	8,500	13,000
13,100	33/64	2,400	5,500	8,500	13,100
13,490	17/32	2,500	5,500	8,500	13,490
13,500		2,500	5,500	8,500	13,500
13,600		2,500	5,500	8,500	13,600
13,700		2,500	5,500	8,500	13,700
13,800		2,600	5,500	8,500	13,800
13,890	35/64	2,600	5,500	8,500	13,890
14,000		2,600	6,000	9,600	14,000
14,100		2,600	6,000	9,600	14,100
14,290	9/16	2,700	6,000	9,600	14,290
14,400		2,700	6,000	9,600	14,400
14,500		2,700	6,000	9,600	14,500
14,600		2,700	6,000	9,600	14,600
14,700		2,700	6,000	9,600	14,700
14,800		2,700	6,000	9,600	14,800
15,000		2,800	6,000	9,800	15,000
15,080	19/32	2,800	6,000	9,800	15,080
15,100		2,800	6,000	9,800	15,100
15,200		2,800	6,000	9,800	15,200
15,300		2,800	6,000	9,800	15,300
15,500		2,900	6,000	9,800	15,500
15,600		2,900	6,000	9,800	15,600
15,700		2,900	6,000	9,800	15,700
15,800		2,900	6,000	9,800	15,800
15,870	5/8	2,900	6,000	9,800	15,870

d1		l4	b	h	Código Nº
mm	inch	mm	mm	mm	
16,000		3,000	7,000	11,000	16,000
16,270	41/64	3,000	7,000	11,000	16,270
16,500		3,100	7,000	11,000	16,500
16,670	21/32	3,100	7,000	11,000	16,670
17,000		3,100	7,000	11,000	17,000
17,070	43/64	3,200	7,000	11,000	17,070
17,460	11/16	3,200	7,000	11,000	17,460
17,500		3,200	7,000	11,000	17,500
17,600		3,300	7,000	11,000	17,600
17,860	45/64	3,300	7,000	11,000	17,860
18,000		3,300	8,000	12,600	18,000
18,260	23/32	3,400	8,000	12,600	18,260
18,500		3,400	8,000	12,600	18,500
18,650	47/64	3,400	8,000	12,600	18,650
19,000		3,500	8,000	12,600	19,000
19,050	3/4	3,500	8,000	12,600	19,050
19,250		3,600	8,000	12,600	19,250
19,450	49/64	3,600	8,000	12,600	19,450
19,500		3,600	8,000	12,600	19,500
19,600		3,600	8,000	12,600	19,600
19,840	25/32	3,700	8,000	12,600	19,840
20,000		3,700	9,000	13,900	20,000
20,240	51/64	3,700	9,000	13,900	20,240
20,500		3,800	9,000	13,900	20,500
20,640	13/16	3,800	9,000	13,900	20,640
21,000		3,900	9,000	13,900	21,000
21,030	53/64	3,900	9,000	13,900	21,030
21,100		3,900	9,000	13,900	21,100
21,430	27/32	3,900	9,000	13,900	21,430
21,500		4,000	9,000	13,900	21,500
21,830	55/64	4,000	9,000	13,900	21,830
22,000		4,100	10,000	15,300	22,000
22,220	7/8	4,100	10,000	15,300	22,220
22,500		4,100	10,000	15,300	22,500
22,620	57/64	4,200	10,000	15,300	22,620
23,000		4,200	10,000	15,300	23,000
23,020	29/32	4,200	10,000	15,300	23,020
23,420	59/64	4,300	10,000	15,300	23,420
23,500		4,300	10,000	15,300	23,500
23,810	15/16	4,400	10,000	15,300	23,810
24,000		4,400	11,000	15,800	24,000
24,100		4,400	11,000	15,800	24,100
24,210	61/64	4,500	11,000	15,800	24,210
24,500		4,500	11,000	15,800	24,500
24,610	31/32	4,500	11,000	15,800	24,610
25,000	63/64	4,600	11,000	15,800	25,000
25,400	1	4,700	11,000	15,800	25,400
25,500		4,700	11,000	15,800	25,500
25,700		4,700	11,000	15,800	25,700
26,000		4,800	12,000	20,000	26,000
26,190	1 1/32	4,800	12,000	20,000	26,190
26,500		4,900	12,000	20,000	26,500
26,590	1 3/64	4,900	12,000	20,000	26,590
27,000		5,000	12,000	20,000	27,000
27,500		5,100	12,000	20,000	27,500
27,700		5,100	12,000	20,000	27,700
27,780	1 3/32	5,100	12,000	20,000	27,780
28,000		5,100	13,000	20,700	28,000
28,180	1 7/64	5,200	13,000	20,700	28,180
28,500		5,200	13,000	20,700	28,500
28,580		5,300	13,000	20,700	28,580
29,000		5,300	13,000	20,700	29,000
29,370	1 5/32	5,400	13,000	20,700	29,370
29,500		5,400	13,000	20,700	29,500
29,770	1 11/64	5,500	13,000	20,700	29,770
30,000		5,500	14,000	22,300	30,000
30,160	1 3/16	5,500	14,000	22,300	30,160
30,500		5,600	14,000	22,300	30,500
30,960	1 7/32	5,700	14,000	22,300	30,960
31,000		5,700	14,000	22,300	31,000
31,500		5,800	14,000	22,300	31,500
31,750	1 1/4	5,800	14,000	22,300	31,750

d1		l4	b	h	Código Nº
mm	inch	mm	mm	mm	
32,000		5,900	15,000	23,100	32,000
32,500		6,000	15,000	23,100	32,500
32,540	1 9/32	6,000	15,000	23,100	32,540
33,000		6,100	15,000	23,100	33,000
33,340	1 5/16	6,100	15,000	23,100	33,340
33,500		6,100	15,000	23,100	33,500
34,000		6,200	15,000	23,100	34,000
34,130	1 11/32	6,300	15,000	23,100	34,130
34,500		6,300	15,000	23,100	34,500
34,930		6,400	15,000	23,100	34,930
35,000		6,400	15,000	23,100	35,000
35,500		6,500	15,000	23,100	35,500
35,720	1 13/32	6,600	15,000	23,100	35,720
36,000		6,600	16,000	23,900	36,000
36,500		6,700	16,000	23,900	36,500
36,510	1 7/16	6,700	16,000	23,900	36,510
37,000		6,800	16,000	23,900	37,000
37,310	1 15/32	6,800	16,000	23,900	37,310
37,500		6,900	16,000	23,900	37,500
38,000		7,000	16,000	23,900	38,000
38,100	1 1/2	7,000	16,000	23,900	38,100
38,500	1 33/64	7,100	16,000	23,900	38,500
39,000		7,100	16,000	23,900	39,000
39,500		7,200	16,000	23,900	39,500
40,000		7,300	16,000	23,900	40,000

Placa intercambiale para HT 800

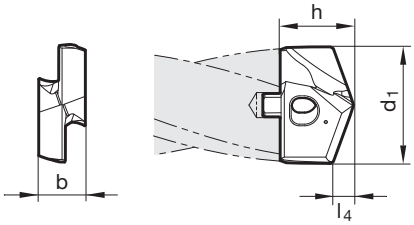
HT 800 WP | WN | R | 140° | h7

Material de corte	**Metal duro**
Acabado	○
Forma del mango	

P		vaciado de punta ≥Ø 11,000 • entrada cónica • forma cóncava del corte principal • incluidos tornillos tensores art.nº 4071
M		
K		
N	•	aluminio y sus aleaciones • metales no ferríticos
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 764-768



Artículo Nº **4114**

d1		l4	b	h	Código Nº
mm	inch	mm	mm	mm	
11,000		2,100	4,500	7,500	11,000
11,200		2,100	4,500	7,500	11,200
11,500		2,100	4,500	7,500	11,500
11,510	29/64	2,100	4,500	7,500	11,510
11,700		2,200	4,500	7,500	11,700
11,800		2,200	4,500	7,500	11,800
11,910	15/32	2,200	4,500	7,500	11,910
12,000		2,200	5,000	7,700	12,000
12,100		2,300	5,000	7,700	12,100
12,200		2,300	5,000	7,700	12,200
12,300	31/64	2,300	5,000	7,700	12,300
12,500		2,300	5,000	7,700	12,500
12,600		2,300	5,000	7,700	12,600
12,700	1/2	2,400	5,000	7,700	12,700
12,800		2,400	5,000	7,700	12,800
12,900		2,400	5,000	7,700	12,900
13,000		2,400	5,500	8,500	13,000
13,100	33/64	2,400	5,500	8,500	13,100
13,490	17/32	2,500	5,500	8,500	13,490
13,500		2,500	5,500	8,500	13,500
13,600		2,500	5,500	8,500	13,600
13,700		2,500	5,500	8,500	13,700
13,800		2,600	5,500	8,500	13,800
13,890	35/64	2,600	5,500	8,500	13,890
14,000		2,600	6,000	9,600	14,000
14,100		2,600	6,000	9,600	14,100
14,290	9/16	2,700	6,000	9,600	14,290
14,400		2,700	6,000	9,600	14,400
14,500		2,700	6,000	9,600	14,500
14,600		2,700	6,000	9,600	14,600
14,680	37/64	2,700	6,000	9,600	14,680
14,700		2,700	6,000	9,600	14,700
14,800		2,700	6,000	9,600	14,800
15,000		2,800	6,000	9,800	15,000
15,080	19/32	2,800	6,000	9,800	15,080
15,100		2,800	6,000	9,800	15,100
15,200		2,800	6,000	9,800	15,200
15,300		2,800	6,000	9,800	15,300
15,480	39/64	2,900	6,000	9,800	15,480
15,500		2,900	6,000	9,800	15,500
15,600		2,900	6,000	9,800	15,600
15,700		2,900	6,000	9,800	15,700

d1		l4	b	h	Código Nº
mm	inch	mm	mm	mm	
15,800		2,900	6,000	9,800	15,800
15,870	5/8	2,900	6,000	9,800	15,870
16,000		3,000	7,000	11,000	16,000
16,270	41/64	3,000	7,000	11,000	16,270
16,500		3,100	7,000	11,000	16,500
16,670	21/32	3,100	7,000	11,000	16,670
17,000		3,100	7,000	11,000	17,000
17,070	43/64	3,200	7,000	11,000	17,070
17,460	11/16	3,200	7,000	11,000	17,460
17,500		3,200	7,000	11,000	17,500
17,600		3,300	7,000	11,000	17,600
17,860	45/64	3,300	7,000	11,000	17,860
18,000		3,300	8,000	12,600	18,000
18,260	23/32	3,400	8,000	12,600	18,260
18,500		3,400	8,000	12,600	18,500
18,650	47/64	3,400	8,000	12,600	18,650
19,000		3,500	8,000	12,600	19,000
19,050	3/4	3,500	8,000	12,600	19,050
19,250		3,600	8,000	12,600	19,250
19,450	49/64	3,600	8,000	12,600	19,450
19,500		3,600	8,000	12,600	19,500
19,600		3,600	8,000	12,600	19,600
19,840	25/32	3,700	8,000	12,600	19,840
20,000		3,700	9,000	13,900	20,000
20,240	51/64	3,700	9,000	13,900	20,240
20,500		3,800	9,000	13,900	20,500
20,640	13/16	3,800	9,000	13,900	20,640
21,000		3,900	9,000	13,900	21,000
21,030	53/64	3,900	9,000	13,900	21,030
21,100		3,900	9,000	13,900	21,100
21,430	27/32	3,900	9,000	13,900	21,430
21,500		4,000	9,000	13,900	21,500
21,830	55/64	4,000	9,000	13,900	21,830
22,000		4,100	10,000	15,300	22,000
22,220	7/8	4,100	10,000	15,300	22,220
22,500		4,100	10,000	15,300	22,500
22,620	57/64	4,200	10,000	15,300	22,620
23,000		4,200	10,000	15,300	23,000
23,020	29/32	4,200	10,000	15,300	23,020
23,420	59/64	4,300	10,000	15,300	23,420
23,500		4,300	10,000	15,300	23,500
23,810	15/16	4,400	10,000	15,300	23,810
24,000		4,400	11,000	15,800	24,000
24,100		4,400	11,000	15,800	24,100
24,210	61/64	4,500	11,000	15,800	24,210
24,500		4,500	11,000	15,800	24,500
24,610	31/32	4,500	11,000	15,800	24,610
25,000	63/64	4,600	11,000	15,800	25,000
25,400	1	4,700	11,000	15,800	25,400
25,500		4,700	11,000	15,800	25,500
25,670		4,700	11,000	15,800	25,670
25,700		4,700	11,000	15,800	25,700
25,810		4,700	11,000	15,800	25,810
26,000		4,800	12,000	20,000	26,000
26,190	1 1/32	4,800	12,000	20,000	26,190
26,500		4,900	12,000	20,000	26,500
26,590	1 3/64	4,900	12,000	20,000	26,590
27,000		5,000	12,000	20,000	27,000
27,500		5,100	12,000	20,000	27,500
27,700		5,100	12,000	20,000	27,700
27,780	1 3/32	5,100	12,000	20,000	27,780
28,000		5,100	13,000	20,700	28,000
28,180	1 7/64	5,200	13,000	20,700	28,180
28,500		5,200	13,000	20,700	28,500
28,580		5,300	13,000	20,700	28,580
29,000		5,300	13,000	20,700	29,000
29,370	1 5/32	5,400	13,000	20,700	29,370
29,500		5,400	13,000	20,700	29,500
29,770	1 11/64	5,500	13,000	20,700	29,770
30,000		5,500	14,000	22,300	30,000
30,160	1 3/16	5,500	14,000	22,300	30,160
30,500		5,600	14,000	22,300	30,500

d1		l4	b	h	Código Nº
mm	inch	mm	mm	mm	
30,960	1 7/32	5,700	14,000	22,300	30,960
31,000		5,700	14,000	22,300	31,000
31,500		5,800	14,000	22,300	31,500
31,750	1 1/4	5,800	14,000	22,300	31,750
32,000		5,900	15,000	23,100	32,000
32,500		6,000	15,000	23,100	32,500
32,540	1 9/32	6,000	15,000	23,100	32,540
32,940	1 19/64	6,000	15,000	23,100	32,940
33,000		6,100	15,000	23,100	33,000
33,340	1 5/16	6,100	15,000	23,100	33,340
33,500		6,100	15,000	23,100	33,500
34,000		6,200	15,000	23,100	34,000
34,130	1 11/32	6,300	15,000	23,100	34,130
34,500		6,300	15,000	23,100	34,500
34,930		6,400	15,000	23,100	34,930
35,000		6,400	15,000	23,100	35,000
35,500		6,500	15,000	23,100	35,500
35,720	1 13/32	6,600	15,000	23,100	35,720
36,000		6,600	16,000	23,900	36,000
36,500		6,700	16,000	23,900	36,500
36,510	1 7/16	6,700	16,000	23,900	36,510
37,000		6,800	16,000	23,900	37,000
37,310	1 15/32	6,800	16,000	23,900	37,310
37,500		6,900	16,000	23,900	37,500
38,000		7,000	16,000	23,900	38,000
38,100	1 1/2	7,000	16,000	23,900	38,100
38,500	1 33/64	7,100	16,000	23,900	38,500
39,000		7,100	16,000	23,900	39,000
39,500		7,200	16,000	23,900	39,500
40,000		7,300	16,000	23,900	40,000

Placa intercambiale para HT 800

HT 800 WP | WN | R | 145° | m7

Material de corte	**Metal duro**
Acabado	a
Forma del mango	

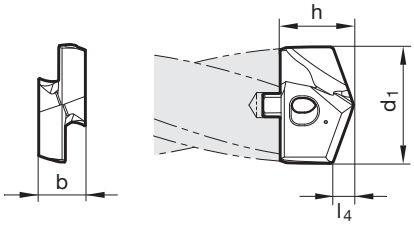
P	○
M	○
K	○
N	○
S	○
H	○

vaciado de punta ≥Ø 11,000 • afilado plano • forma recta del corte principal (mediante corrección) • incluidos tornillos tensores art.nº 4071

Pilotar en todos los materiales

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 768



Artículo Nº **4111**

d1		l4	b	h	Código Nº
mm	inch	mm	mm	mm	
11,000		1,800	4,500	7,200	11,000
11,200		1,800	4,500	7,200	11,200
11,500		1,900	4,500	7,200	11,500
11,510	29/64	1,900	4,500	7,200	11,510
11,700		1,900	4,500	7,200	11,700
11,800		1,900	4,500	7,200	11,800
11,910	15/32	1,900	4,500	7,200	11,910
12,000		1,900	5,000	7,400	12,000
12,100		2,000	5,000	7,400	12,100
12,200		2,000	5,000	7,400	12,200
12,300	31/64	2,000	5,000	7,400	12,300
12,500		2,000	5,000	7,400	12,500
12,600		2,000	5,000	7,400	12,600
12,700	1/2	2,100	5,000	7,400	12,700
12,800		2,100	5,000	7,400	12,800
12,900		2,100	5,000	7,400	12,900
13,000		2,100	5,500	8,200	13,000
13,100	33/64	2,100	5,500	8,200	13,100
13,490	17/32	2,200	5,500	8,200	13,490
13,500		2,200	5,500	8,200	13,500
13,600		2,200	5,500	8,200	13,600
13,700		2,200	5,500	8,200	13,700
13,800		2,200	5,500	8,200	13,800
13,890	35/64	2,200	5,500	8,200	13,890
14,000		2,300	6,000	9,400	14,000
14,100		2,300	6,000	9,400	14,100
14,290	9/16	2,300	6,000	9,400	14,290
14,400		2,300	6,000	9,400	14,400
14,500		2,300	6,000	9,400	14,500
14,600		2,400	6,000	9,400	14,600
14,680	37/64	2,400	6,000	9,400	14,680
14,700		2,400	6,000	9,400	14,700
14,800		2,400	6,000	9,400	14,800
15,000		2,400	6,000	9,400	15,000
15,080	19/32	2,400	6,000	9,400	15,080
15,100		2,400	6,000	9,400	15,100
15,200		2,400	6,000	9,400	15,200
15,300		2,500	6,000	9,400	15,300
15,480	39/64	2,500	6,000	9,400	15,480
15,500		2,500	6,000	9,400	15,500
15,600		2,500	6,000	9,400	15,600
15,700		2,500	6,000	9,400	15,700

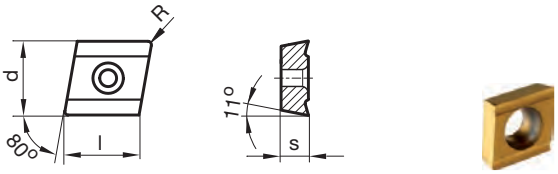
d1		l4	b	h	Código Nº
mm	inch	mm	mm	mm	
15,800		2,500	6,000	9,400	15,800
15,870	5/8	2,600	6,000	9,400	15,870
16,000		2,600	7,000	10,600	16,000
16,270	41/64	2,600	7,000	10,600	16,270
16,500		2,700	7,000	10,600	16,500
16,670	21/32	2,700	7,000	10,600	16,670
17,000		2,700	7,000	10,600	17,000
17,070	43/64	2,700	7,000	10,600	17,070
17,460	11/16	2,800	7,000	10,600	17,460
17,500		2,800	7,000	10,600	17,500
17,600		2,800	7,000	10,600	17,600
17,860	45/64	2,900	7,000	10,600	17,860
18,000		2,900	8,000	12,100	18,000
18,260	23/32	2,900	8,000	12,100	18,260
18,500		3,000	8,000	12,100	18,500
18,650	47/64	3,000	8,000	12,100	18,650
19,000		3,000	8,000	12,100	19,000
19,050	3/4	3,100	8,000	12,100	19,050
19,450	49/64	3,100	8,000	12,100	19,450
19,500		3,100	8,000	12,100	19,500
19,600		3,100	8,000	12,100	19,600
19,840	25/32	3,200	8,000	12,100	19,840
20,000		3,200	9,000	13,300	20,000
20,240	51/64	3,200	9,000	13,300	20,240
20,500		3,300	9,000	13,300	20,500
20,640	13/16	3,300	9,000	13,300	20,640
21,000		3,400	9,000	13,300	21,000
21,030	53/64	3,400	9,000	13,300	21,030
21,100		3,400	9,000	13,300	21,100
21,430	27/32	3,400	9,000	13,300	21,430
21,500		3,400	9,000	13,300	21,500
21,830	55/64	3,500	9,000	13,300	21,830
22,000		3,500	10,000	14,800	22,000
22,220	7/8	3,600	10,000	14,800	22,220
22,500		3,600	10,000	14,800	22,500
22,620	57/64	3,600	10,000	14,800	22,620
23,000		3,700	10,000	14,800	23,000
23,020	29/32	3,700	10,000	14,800	23,020
23,420	59/64	3,700	10,000	14,800	23,420
23,500		3,800	10,000	14,800	23,500
23,810	15/16	3,800	10,000	14,800	23,810
24,000		3,800	11,000	15,300	24,000
24,100		3,800	11,000	15,300	24,100
24,210	61/64	3,900	11,000	15,300	24,210
24,500		3,900	11,000	15,300	24,500
24,610	31/32	3,900	11,000	15,300	24,610
25,000	63/64	4,000	11,000	15,300	25,000
25,400	1	4,100	11,000	15,300	25,400
25,500		4,100	11,000	15,300	25,500
25,700		4,100	11,000	15,300	25,700
26,000		4,100	12,000	19,400	26,000
26,190	1 1/32	4,200	12,000	19,400	26,190
26,500		4,200	12,000	19,400	26,500
26,590	1 3/64	4,200	12,000	19,400	26,590
27,000		4,300	12,000	19,400	27,000
27,500		4,400	12,000	19,400	27,500
27,700		4,400	12,000	19,400	27,700
27,780	1 3/32	4,400	12,000	19,400	27,780
28,000		4,500	13,000	20,100	28,000
28,180	1 7/64	4,500	13,000	20,100	28,180
28,500		4,500	13,000	20,100	28,500
28,580		4,600	13,000	20,100	28,580
29,000		4,600	13,000	20,100	29,000
29,370	1 5/32	4,700	13,000	20,100	29,370
29,500		4,700	13,000	20,100	29,500
30,000		4,800	14,000	21,700	30,000
30,160	1 3/16	4,800	14,000	21,700	30,160
30,500		4,900	14,000	21,700	30,500
30,960	1 7/32	4,900	14,000	21,700	30,960
31,000		4,900	14,000	21,700	31,000
31,500		5,000	14,000	21,700	31,500
31,750	1 1/4	5,100	14,000	21,700	31,750

d1		l4	b	h	Código Nº
mm	inch	mm	mm	mm	
32,000		5,100	15,000	22,400	32,000
32,500		5,200	15,000	22,400	32,500
32,540	1 9/32	5,200	15,000	22,400	32,540
33,000		5,300	15,000	22,400	33,000
33,340	1 5/16	5,300	15,000	22,400	33,340
33,500		5,300	15,000	22,400	33,500
34,000		5,400	15,000	22,400	34,000
34,130	1 11/32	5,400	15,000	22,400	34,130
34,500		5,500	15,000	22,400	34,500
34,930		5,600	15,000	22,400	34,930
35,000		5,600	15,000	22,400	35,000
35,500		5,600	15,000	22,400	35,500
35,720	1 13/32	5,700	15,000	22,400	35,720
36,000		5,700	16,000	23,200	36,000
36,500		5,800	16,000	23,200	36,500
36,510	1 7/16	5,800	16,000	23,200	36,510
37,000		5,900	16,000	23,200	37,000
37,310	1 15/32	5,900	16,000	23,200	37,310
37,500		6,000	16,000	23,200	37,500
38,000		6,000	16,000	23,200	38,000
38,100	1 1/2	6,100	16,000	23,200	38,100
38,500	1 33/64	6,100	16,000	23,200	38,500
39,000		6,200	16,000	23,200	39,000
39,500		6,300	16,000	23,200	39,500
40,000		6,400	16,000	23,200	40,000

Plaquitas de avellanar HT 800

Material de corte	**Metal duro**
Acabado	S
Forma del mango	

P	●	no incluidos tornillos tensores art.nº 6128
M	○	
K	○	
N		
S	○	aceros y fundición de aceros (aleados y sin alear)
H	○	



Artículo Nº **7645**

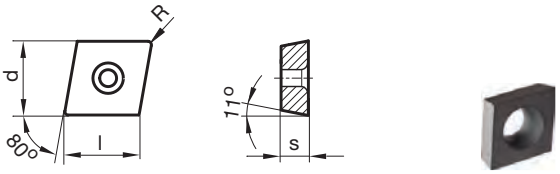
ISO	d	s	R	l	Código Nº
	mm	mm	mm	mm	
CPGT050202FR-P	5,560	2,380	0,200	5,640	52,020
CPGT050204FR-P	5,560	2,380	0,400	5,640	52,040
CPGT060202FR-P	6,350	2,380	0,200	6,450	62,020
CPGT060204FR-P	6,350	2,380	0,400	6,450	62,040
CPGT09T308FR-P	9,525	3,970	0,800	9,670	93,080

Plaquitas de avellanar HT 800

WN N

Material de corte	**Metal duro**
Acabado	A
Forma del mango	

P	○	no incluidos tornillos tensores art.nº 6128
M		
K	•	
N		fundición gris, fundición maleable, fundición esferica
S		
H		



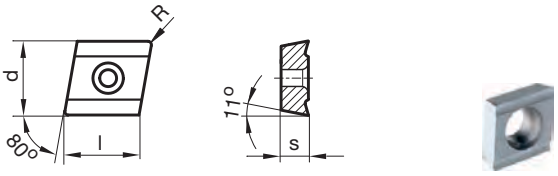
Artículo Nº **7632**

ISO	d	s	R	l	Código Nº
	mm	mm	mm	mm	
CPGW050202FN-K	5,560	2,380	0,200	5,640	52,020
CPGW050204FN-K	5,560	2,380	0,400	5,640	52,040
CPGW060202FN-K	6,350	2,380	0,200	6,450	62,020
CPGW060204FN-K	6,350	2,380	0,400	6,450	62,040
CPGW09T308FN-K	9,525	3,970	0,800	9,670	93,080

Plaquitas de avellanar HT 800

Material de corte	**Metal duro**
Acabado	◯
Forma del mango	

P		no incluidos tornillos tensores art.nº 6128
M		
K		
N	•	aluminio y sus aleaciones • metales no ferríticos
S		
H		

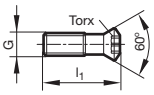


Artículo Nº **7635**

ISO	d	s	R	l	Código Nº
	mm	mm	mm	mm	
CPGT050202FR-AL	5,560	2,380	0,200	5,640	52,020
CPGT050204FR-AL	5,560	2,380	0,400	5,640	52,040
CPGT060202FR-AL	6,350	2,380	0,200	6,450	62,020
CPGT060204FR-AL	6,350	2,380	0,400	6,450	62,040
CPGT09T308FR-AL	9,525	3,970	0,800	9,670	93,080

Tornillos de fijación

WN

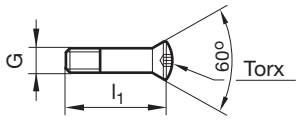


Artículo Nº **6128**

G	l1	Torx	Código Nº
	mm		
M2 x 5,5	5,500	T6	2,000
M2,2 x 5	5,000	T6	2,200
M2 x 5,3	5,300	T7	2,500
M2,5 x 6,5	6,500	T7	2,501
M2,5 x 5,7	5,700	T7	2,502
M3,5 x 10	10,000	T15	3,500
M3,5 x 12	12,000	T15	3,501
M3,5 x 8,5	8,500	T15	3,502
M3,5 x 8	8,000	T15	3,503
M4 x 13,5	13,500	T15	4,000
M4 x 8,4	8,400	T15	4,001
M4 x 10,8	10,800	T15	4,002
M4 x 0,5	11,000	T15	4,003
M4 x 9,5	9,500	T20	4,004
M4 x 0,5	9,000	T15	4,005
M4 x 9,5	9,500	T15	4,006
M4,5 x 11	11,000	T15	4,500
M4,5 x 7,5	7,500	T15	4,501
M4,5 x 11	11,000	T20	4,502
M5 x 17	17,000	T20	5,000
M5 x 11	11,000	T20	5,001

Tornillos de fijación

WN



Artículo Nº **4071**

G	l1	Torx	Código Nº
	mm		
M1,6	4,000	T5	1,600
M1,6	4,400	T5	1,601
M2,2	9,500	T7	2,200
M2,2	10,500	T7	2,201
M2,2	5,600	T7	2,202
M2,2	4,600	T7	2,203
M2,5	11,400	T8	2,500
M2,5	6,400	T8	2,501
M2,5	5,200	T8	2,502
M3	13,100	T9	3,001
M3	6,400	T9	3,002
M3	8,000	T9	3,003
M3,5	14,250	T10	3,500
M4	16,000	T15	4,000
M4	7,700	T15	4,001
M4	10,600	T15	4,002
M4,5	18,000	T15	4,500
M5	19,750	T20	5,000
M5	21,750	T20	5,001
M5	14,200	T20	5,002
M5	23,400	T20	5,003
M6	27,000	T25	6,000
M6	28,500	T25	6,001
M6	32,500	T25	6,002

Porta placas RT 800

RT 800 WP | 3xD | WN | R

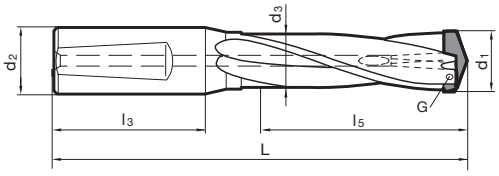
Material de corte	
Acabado	Ni
Forma del mango	HE

P
M
K
N
S
H

vaciado de punta ≥Ø 17,000 • fabricación compacta • tensión segura de la plaquita en el porta • incluidos tornillos tensores art. nº 1071 • incluido atornillador art.nº 1612

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 770



Artículo Nº **5242**

d1	d2	d3	L	l3	l5	G	Código Nº
mm	mm	mm	mm	mm	mm		
16,00-17,00	20,000	15,700	130,000	50,000	54,000	1071 3.006	17,000
16,00-17,00	19,050	15,700	130,000	50,000	54,000	1071 3.006	17,005
17,01-17,99	20,000	16,700	130,000	50,000	54,000	1071 3.006	17,990
17,01-17,99	19,050	16,700	130,000	50,000	54,000	1071 3.006	17,995
18,00-19,00	20,000	17,700	138,000	50,000	60,000	1071 3.000	19,000
18,00-19,00	19,050	17,700	138,000	50,000	60,000	1071 3.000	19,005
19,01-20,00	20,000	18,700	138,000	50,000	60,000	1071 3.000	20,000
19,01-20,00	19,050	18,700	138,000	50,000	60,000	1071 3.000	20,005
20,01-21,00	25,000	19,700	153,000	56,000	66,000	1071 3.000	21,000
20,01-21,00	25,400	19,700	153,000	56,000	66,000	1071 3.000	21,005
21,01-22,50	25,000	20,700	153,000	56,000	66,000	1071 3.000	22,500
21,01-22,50	25,400	21,200	153,000	56,000	66,000	1071 3.000	22,505
22,51-24,00	25,000	22,200	161,000	56,000	72,000	1071 3.500	24,000
22,51-24,00	25,400	22,700	161,000	56,000	72,000	1071 3.500	24,005
24,01-25,50	25,000	23,700	170,000	56,000	78,000	1071 3.500	25,500
24,01-25,50	25,400	24,200	170,000	56,000	78,000	1071 3.500	25,505
25,51-27,50	32,000	25,200	182,000	60,000	84,000	1071 4.000	27,500
25,51-27,50	31,750	26,200	182,000	60,000	84,000	1071 4.000	27,505
27,51-29,50	32,000	27,200	190,000	60,000	90,000	1071 4.000	29,500
27,51-29,50	31,750	28,200	190,000	60,000	90,000	1071 4.000	29,505
29,51-32,00	32,000	29,200	198,000	60,000	96,000	1071 4.500	32,000
29,51-32,00	31,750	30,700	198,000	60,000	96,000	1071 4.500	32,005
32,01-34,50	32,000	31,700	206,000	60,000	102,000	1071 4.500	34,500
32,01-34,50	31,750	33,200	206,000	60,000	102,000	1071 4.500	34,505
34,51-37,50	32,000	34,000	218,000	60,000	114,000	1071 5.000	37,500
34,51-37,50	31,750	36,200	218,000	60,000	114,000	1071 5.000	37,505
37,51-40,50	32,000	37,000	231,000	60,000	120,000	1071 5.000	40,500
37,51-40,50	31,750	39,200	231,000	60,000	120,000	1071 5.000	40,505

Porta placas RT 800

RT 800 WP | 5xD | WN | R

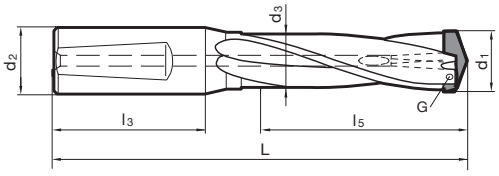
Material de corte	
Acabado	Ni
Forma del mango	HE

P
M
K
N
S
H

vaciado de punta ≥Ø 17,000 • fabricación compacta • tensión segura de la plaquita en el porta • incluidos tornillos tensores art. nº 1071 • incluido atornillador art.nº 1612

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 770



Artículo Nº **5243**

d1	d2	d3	L	l3	l5	G	Código Nº
mm	mm	mm	mm	mm	mm		
16,00-17,00	20,000	15,700	166,000	50,000	90,000	1071 3.006	17,000
16,00-17,00	19,050	15,700	166,000	50,000	90,000	1071 3.006	17,005
17,01-17,99	20,000	16,700	166,000	50,000	90,000	1071 3.006	17,990
17,01-17,99	19,050	16,700	166,000	50,000	90,000	1071 3.006	17,995
18,00-19,00	20,000	17,700	178,000	50,000	100,000	1071 3.000	19,000
18,00-19,00	19,050	17,700	178,000	50,000	100,000	1071 3.000	19,005
19,01-20,00	20,000	18,700	178,000	50,000	100,000	1071 3.000	20,000
19,01-20,00	19,050	18,700	178,000	50,000	100,000	1071 3.000	20,005
20,01-21,00	25,000	19,700	197,000	56,000	110,000	1071 3.000	21,000
20,01-21,00	25,400	19,700	197,000	56,000	110,000	1071 3.000	21,005
21,01-22,50	25,000	20,700	197,000	56,000	110,000	1071 3.000	22,500
21,01-22,50	25,400	21,200	197,000	56,000	110,000	1071 3.000	22,505
22,51-24,00	25,000	22,200	209,000	56,000	120,000	1071 3.500	24,000
22,51-24,00	25,400	22,700	209,000	56,000	120,000	1071 3.500	24,005
24,01-25,50	25,000	23,700	222,000	56,000	130,000	1071 3.500	25,500
24,01-25,50	25,400	24,200	222,000	56,000	130,000	1071 3.500	25,505
25,51-27,50	32,000	25,200	238,000	60,000	140,000	1071 4.000	27,500
25,51-27,50	31,750	26,200	238,000	60,000	140,000	1071 4.000	27,505
27,51-29,50	32,000	27,200	250,000	60,000	150,000	1071 4.000	29,500
27,51-29,50	31,750	28,200	250,000	60,000	150,000	1071 4.000	29,505
29,51-32,00	32,000	29,200	262,000	60,000	160,000	1071 4.500	32,000
29,51-32,00	31,750	30,700	262,000	60,000	160,000	1071 4.500	32,005
32,01-34,50	32,000	31,700	274,000	60,000	170,000	1071 4.500	34,500
32,01-34,50	31,750	33,200	274,000	60,000	170,000	1071 4.500	34,505
34,51-37,50	32,000	34,000	292,000	60,000	190,000	1071 5.000	37,500
34,51-37,50	31,750	36,200	292,000	60,000	190,000	1071 5.000	37,505
37,51-40,50	32,000	37,000	311,000	60,000	200,000	1071 5.000	40,500
37,51-40,50	31,750	39,200	311,000	60,000	200,000	1071 5.000	40,505

Porta placas RT 800

RT 800 WP | 7xD | WN | R

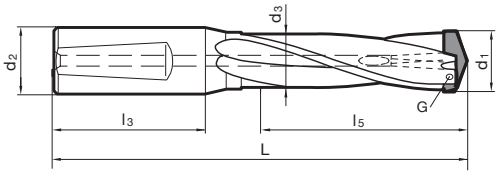
Material de corte	
Acabado	Ni
Forma del mango	HE

P
M
K
N
S
H

vaciado de punta ≥Ø 17,000 • fabricación compacta • tensión segura de la plaquita en el porta • incluidos tornillos tensores art. nº 1071 • incluido atornillador art.nº 1612

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 770



Artículo Nº **5248**

d1	d2	d3	L	l3	l5	G	Código Nº
mm	mm	mm	mm	mm	mm		
16,00-17,00	20,000	15,700	202,000	50,000	126,000	1071 3.006	17,000
16,00-17,00	19,050	15,700	202,000	50,000	126,000	1071 3.006	17,005
17,01-17,99	20,000	16,700	202,000	50,000	126,000	1071 3.006	17,990
17,01-17,99	19,050	16,700	202,000	50,000	126,000	1071 3.006	17,995
18,00-19,00	20,000	17,700	218,000	50,000	140,000	1071 3.000	19,000
18,00-19,00	19,050	17,700	218,000	50,000	140,000	1071 3.000	19,005
19,01-20,00	20,000	18,700	218,000	50,000	140,000	1071 3.000	20,000
19,01-20,00	19,050	18,700	218,000	50,000	140,000	1071 3.000	20,005
20,01-21,00	25,000	19,700	241,000	56,000	154,000	1071 3.000	21,000
20,01-21,00	25,400	19,700	241,000	56,000	154,000	1071 3.000	21,005
21,01-22,50	25,000	20,700	241,000	56,000	154,000	1071 3.000	22,500
21,01-22,50	25,400	21,200	241,000	56,000	154,000	1071 3.000	22,505
22,51-24,00	25,000	22,200	257,000	56,000	168,000	1071 3.500	24,000
22,51-24,00	25,400	22,700	257,000	56,000	168,000	1071 3.500	24,005
24,01-25,50	25,000	23,700	274,000	56,000	182,000	1071 3.500	25,500
24,01-25,50	25,400	24,200	274,000	56,000	182,000	1071 3.500	25,505
25,51-27,50	32,000	25,200	294,000	60,000	196,000	1071 4.000	27,500
25,51-27,50	31,750	26,200	294,000	60,000	196,000	1071 4.000	27,505
27,51-29,50	32,000	27,200	310,000	60,000	210,000	1071 4.000	29,500
27,51-29,50	31,750	28,200	310,000	60,000	210,000	1071 4.000	29,505
29,51-32,00	32,000	29,200	326,000	60,000	224,000	1071 4.500	32,000
29,51-32,00	31,750	30,700	326,000	60,000	224,000	1071 4.500	32,005
32,01-34,50	32,000	31,700	342,000	60,000	238,000	1071 4.500	34,500
32,01-34,50	31,750	33,200	342,000	60,000	238,000	1071 4.500	34,505
34,51-37,50	32,000	34,000	366,000	60,000	266,000	1071 5.000	37,500
34,51-37,50	31,750	36,200	366,000	60,000	266,000	1071 5.000	37,505
37,51-40,50	32,000	37,000	391,000	60,000	280,000	1071 5.000	40,500
37,51-40,50	31,750	39,200	391,000	60,000	280,000	1071 5.000	40,505

Placa intercambiale para RT 800

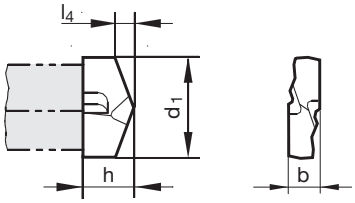
RT 800 WP | WN | R | 140° | h7

Material de corte	Metal duro
Acabado	S
Forma del mango	

P	•	vaciado de punta ≥Ø 16,000 • entrada cónica • forma cóncava del corte principal • incluidos tornillos tensores art.nº 1071
M	○	
K	•	
N	○	
S		aceros de hasta 1000 N/mm²
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 770



Artículo Nº **1047**

d1		l4	b	h	Código Nº
mm	inch	mm	mm	mm	
16,000		3,000	4,500	8,000	16,000
16,270	41/64	3,000	4,500	8,000	16,270
16,500		3,100	4,500	8,000	16,500
16,670	21/32	3,100	4,500	8,000	16,670
17,000		3,100	4,500	8,000	17,000
17,070	43/64	3,200	4,500	8,000	17,070
17,460	11/16	3,200	4,500	8,000	17,460
17,500		3,200	4,500	8,000	17,500
17,860	45/64	3,300	4,500	8,000	17,860
18,000		3,300	5,000	8,000	18,000
18,260	23/32	3,400	5,000	8,000	18,260
18,500		3,400	5,000	8,000	18,500
18,650	47/64	3,400	5,000	8,000	18,650
19,000		3,500	5,000	8,000	19,000
19,050	3/4	3,500	5,000	8,000	19,050
19,250		3,600	5,000	8,000	19,250
19,450	49/64	3,600	5,000	8,000	19,450
19,500		3,600	5,000	8,000	19,500
19,840	25/32	3,700	5,000	8,000	19,840
20,000		3,700	5,000	8,000	20,000
20,240	51/64	3,700	5,500	8,800	20,240
20,500		3,800	5,500	8,800	20,500
20,640	13/16	3,800	5,500	8,800	20,640
21,000		3,900	5,500	8,800	21,000
21,030	53/64	3,900	5,500	8,800	21,030
21,430	27/32	3,900	5,500	8,800	21,430
21,500		4,000	5,500	8,800	21,500
21,830	55/64	4,000	5,500	8,800	21,830
22,000		4,100	5,500	8,800	22,000
22,220	7/8	4,100	5,500	8,800	22,220
22,500		4,100	5,500	8,800	22,500
22,620	57/64	4,200	6,300	10,000	22,620
23,000		4,200	6,300	10,000	23,000
23,020	29/32	4,200	6,300	10,000	23,020
23,420	59/64	4,300	6,300	10,000	23,420
23,500		4,300	6,300	10,000	23,500
23,810	15/16	4,400	6,300	10,000	23,810
24,000		4,400	6,300	10,000	24,000
24,210	61/64	4,500	6,300	10,000	24,210
24,500		4,500	6,300	10,000	24,500
24,610	31/32	4,500	6,300	10,000	24,610
25,000	63/64	4,600	6,300	10,000	25,000

d1		l4	b	h	Código Nº
mm	inch	mm	mm	mm	
25,400	1	4,700	6,300	10,000	25,400
25,500		4,700	6,300	10,000	25,500
26,000		4,800	7,300	11,600	26,000
26,500		4,900	7,300	11,600	26,500
27,000		5,000	7,300	11,600	27,000
27,500		5,100	7,300	11,600	27,500
28,000		5,100	7,300	11,600	28,000
28,500		5,200	7,300	11,600	28,500
29,000		5,300	7,300	11,600	29,000
29,500		5,400	7,300	11,600	29,500
30,000		5,500	8,500	13,600	30,000
30,500		5,600	8,500	13,600	30,500
31,000		5,700	8,500	13,600	31,000
31,500		5,800	8,500	13,600	31,500
32,000		5,900	8,500	13,600	32,000
32,500		6,000	8,500	13,600	32,500
33,000		6,100	8,500	13,600	33,000
33,500		6,100	8,500	13,600	33,500
34,000		6,200	8,500	13,600	34,000
34,500		6,300	8,500	13,600	34,500
35,000		6,400	10,000	16,000	35,000
36,000		6,600	10,000	16,000	36,000
37,000		6,800	10,000	16,000	37,000
37,500		6,900	10,000	16,000	37,500
38,000		7,000	10,000	16,000	38,000
39,000		7,100	10,000	16,000	39,000
40,000		7,300	10,000	16,000	40,000
40,500		7,400	10,000	16,000	40,500

Placa intercambiale para RT 800

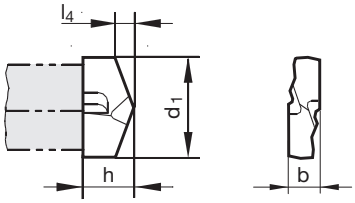
RT 800 WP | WN | R | 140° | h7

Material de corte	Metal duro
Acabado	F
Forma del mango	

P	•	vaciado de punta ≥Ø 16,000 • entrada cónica • forma cóncava del corte principal • incluidos tornillos tensores art.nº 1071
M	○	
K	•	
N	○	
S		aceros de hasta 1000 N/mm²
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 770



Artículo Nº **2485**

d1		l4	b	h	Código Nº
mm	inch	mm	mm	mm	
16,000		3,000	4,500	8,000	16,000
16,270	41/64	3,000	4,500	8,000	16,270
16,500		3,100	4,500	8,000	16,500
16,670	21/32	3,100	4,500	8,000	16,670
17,000		3,100	4,500	8,000	17,000
17,070	43/64	3,200	4,500	8,000	17,070
17,460	11/16	3,200	4,500	8,000	17,460
17,500		3,200	4,500	8,000	17,500
17,860	45/64	3,300	4,500	8,000	17,860
18,000		3,300	5,000	8,000	18,000
18,260	23/32	3,400	5,000	8,000	18,260
18,500		3,400	5,000	8,000	18,500
18,650	47/64	3,400	5,000	8,000	18,650
19,000		3,500	5,000	8,000	19,000
19,050	3/4	3,500	5,000	8,000	19,050
19,250		3,600	5,000	8,000	19,250
19,450	49/64	3,600	5,000	8,000	19,450
19,500		3,600	5,000	8,000	19,500
19,840	25/32	3,700	5,000	8,000	19,840
20,000		3,700	5,000	8,000	20,000
20,240	51/64	3,700	5,500	8,800	20,240
20,500		3,800	5,500	8,800	20,500
20,640	13/16	3,800	5,500	8,800	20,640
21,000		3,900	5,500	8,800	21,000
21,030	53/64	3,900	5,500	8,800	21,030
21,430	27/32	3,900	5,500	8,800	21,430
21,500		4,000	5,500	8,800	21,500
21,830	55/64	4,000	5,500	8,800	21,830
22,000		4,100	5,500	8,800	22,000
22,220	7/8	4,100	5,500	8,800	22,220
22,500		4,100	5,500	8,800	22,500
22,620	57/64	4,200	6,300	10,000	22,620
23,000		4,200	6,300	10,000	23,000
23,020	29/32	4,200	6,300	10,000	23,020
23,420	59/64	4,300	6,300	10,000	23,420
23,500		4,300	6,300	10,000	23,500
23,810	15/16	4,400	6,300	10,000	23,810
24,000		4,400	6,300	10,000	24,000
24,210	61/64	4,500	6,300	10,000	24,210
24,500		4,500	6,300	10,000	24,500
24,610	31/32	4,500	6,300	10,000	24,610
25,000	63/64	4,600	6,300	10,000	25,000

d1		l4	b	h	Código Nº
mm	inch	mm	mm	mm	
25,400	1	4,700	6,300	10,000	25,400
25,500		4,700	6,300	10,000	25,500
26,000		4,800	7,300	11,600	26,000
26,500		4,900	7,300	11,600	26,500
27,000		5,000	7,300	11,600	27,000
27,500		5,100	7,300	11,600	27,500
28,000		5,100	7,300	11,600	28,000
28,500		5,200	7,300	11,600	28,500
29,000		5,300	7,300	11,600	29,000
29,500		5,400	7,300	11,600	29,500
30,000		5,500	8,500	13,600	30,000
30,500		5,600	8,500	13,600	30,500
31,000		5,700	8,500	13,600	31,000
31,500		5,800	8,500	13,600	31,500
32,000		5,900	8,500	13,600	32,000
32,500		6,000	8,500	13,600	32,500
33,000		6,100	8,500	13,600	33,000
33,500		6,100	8,500	13,600	33,500
34,000		6,200	8,500	13,600	34,000
34,500		6,300	8,500	13,600	34,500
35,000		6,400	10,000	16,000	35,000
36,000		6,600	10,000	16,000	36,000
37,000		6,800	10,000	16,000	37,000
37,500		6,900	10,000	16,000	37,500
38,000		7,000	10,000	16,000	38,000
39,000		7,100	10,000	16,000	39,000
40,000		7,300	10,000	16,000	40,000
40,500		7,400	10,000	16,000	40,500

Placa intercambiale para RT 800

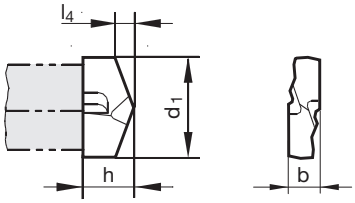
RT 800 WP | WN | R | 140° | h7

Material de corte	**Metal duro**
Acabado	○
Forma del mango	

P		vaciado de punta ≥Ø 16,000 • entrada cónica • forma cóncava del corte principal • incluidos tornillos tensores art.nº 1071
M		
K	○	
N	•	fundición y aleaciones de AlSi
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 770



Artículo Nº **2747**

d1		l4	b	h	Código Nº
mm	inch	mm	mm	mm	
16,000		3,000	4,500	8,000	16,000
16,500		3,100	4,500	8,000	16,500
17,000		3,100	4,500	8,000	17,000
17,070	43/64	3,200	4,500	8,000	17,070
17,500		3,200	4,500	8,000	17,500
18,000		3,300	5,000	8,000	18,000
18,260	23/32	3,400	5,000	8,000	18,260
18,650	47/64	3,400	5,000	8,000	18,650
19,000		3,500	5,000	8,000	19,000
19,050	3/4	3,500	5,000	8,000	19,050
19,250		3,600	5,000	8,000	19,250
19,450	49/64	3,600	5,000	8,000	19,450
19,500		3,600	5,000	8,000	19,500
19,840	25/32	3,700	5,000	8,000	19,840
20,000		3,700	5,000	8,000	20,000
20,500		3,800	5,500	8,800	20,500
20,640	13/16	3,800	5,500	8,800	20,640
21,000		3,900	5,500	8,800	21,000
21,030	53/64	3,900	5,500	8,800	21,030
21,430	27/32	3,900	5,500	8,800	21,430
21,830	55/64	4,000	5,500	8,800	21,830
22,000		4,100	5,500	8,800	22,000
23,000		4,200	6,300	10,000	23,000
23,420	59/64	4,300	6,300	10,000	23,420
23,500		4,300	6,300	10,000	23,500
24,000		4,400	6,300	10,000	24,000
24,210	61/64	4,500	6,300	10,000	24,210
24,500		4,500	6,300	10,000	24,500
25,000	63/64	4,600	6,300	10,000	25,000
25,500		4,700	6,300	10,000	25,500
26,000		4,800	7,300	11,600	26,000
26,500		4,900	7,300	11,600	26,500
27,000		5,000	7,300	11,600	27,000
27,500		5,100	7,300	11,600	27,500
28,000		5,100	7,300	11,600	28,000
29,500		5,400	7,300	11,600	29,500
30,000		5,500	8,500	13,600	30,000
30,500		5,600	8,500	13,600	30,500
31,000		5,700	8,500	13,600	31,000
31,500		5,800	8,500	13,600	31,500
32,000		5,900	8,500	13,600	32,000
32,500		6,000	8,500	13,600	32,500

d1		l4	b	h	Código Nº
mm	inch	mm	mm	mm	
33,000		6,100	8,500	13,600	33,000
33,500		6,100	8,500	13,600	33,500
34,000		6,200	8,500	13,600	34,000
34,500		6,300	8,500	13,600	34,500
35,000		6,400	10,000	16,000	35,000
36,000		6,600	10,000	16,000	36,000
37,000		6,800	10,000	16,000	37,000
39,000		7,100	10,000	16,000	39,000
40,000		7,300	10,000	16,000	40,000

Tornillo de fijación RT 800

WN

Artículo Nº **1071**

G	l1	Torx	Código Nº
	mm		
M3 x 0,35	7,000	T6	3,000
M3 x 0,35	6,000	T6	3,006
M3,5 x 0,35	8,000	T7	3,500
M4 x 0,5	9,000	T8	4,000
M4 x 0,5	10,000	T8	4,500
M5 x 0,5	11,000	T10	5,000

Llave dinamométrica

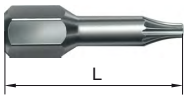
WN

Artículo Nº **4915**

Medida punta			Tipo	Código Nº
		Nm		
1/4”	hexágono	0,4-1	A	1,001
1/4”	hexágono	0,8-2	A	2,000
1/4”	hexágono	1-5	A	5,001
1/4”	hexágono	2-8	A	8,000
1/4”	hexágono	12	D	12,000
1/4”	hexágono	5-14	D	14,000
3/8”	square	5-50	B	50,000
1/2”	square	20-200	C	200,000

Adaptor exagonal

WN

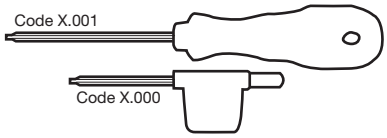


Artículo Nº **4917**

Medida punta		Torx	L	Código Nº
			mm	
1/4	hexágono	T5	25,000	5,000
1/4	hexágono	T6	25,000	6,000
1/4	hexágono	T7	25,000	7,000
1/4	hexágono	T8	25,000	8,000
1/4	hexágono	T9	25,000	9,000
1/4	hexágono	T10	25,000	10,000
1/4	hexágono	T15	25,000	15,000
1/4	hexágono	T20	25,000	20,000
1/2	square	T25	25,000	25,000

Atornillador Torx

WN



Artículo Nº **1612**

Torx	Código Nº
T5	5,001
T6	6,000
T6	6,001
T7	7,001
T8	8,000
T8	8,001
T9	9,001
T10	10,001
T15	15,000
T15	15,001
T20	20,001
T25	25,001
T30	30,001

HT 800 WP

En la aplicación de herramientas Gühring HT800WP se deben tener en cuenta las siguientes indicaciones y recomendaciones:

¡Recomendamos cambiar el tornillo en cada cambio de plaquita! Por eso cada porta se suministra con tornillo art.nº 4071 y atornillador nº art. 1612. Cda plaquita se suministra también con art.nº. 4071.

Por favor tenga en cuenta el par de apriete para el tornillo tensor al cambiar las plaquitas. Respetar esto es necesario para conseguir resultados óptimos.

Campo de diámetros	**11,0 - 12,99**	**13,0 - 13,99**	**14,0 - 15,99**	**16,0 - 17,99**	**18,0 - 19,99**	**20,0 - 21,99**	**22,0 - 29,99**	**30,0 - 40,00**
Rosca	M2,2	M2,5	M3	M3,5	M4	M4,5	M5	M6
Tamaño Torx	T7	T8	T9	T10	T15	T15	T20	T25
Momento dinamométrico (Nm)	**0,8**	**1,0**	**1,7**	**2,7**	**4,0**	**6,0**	**8,0**	**14,0**

Datos válidos para asegurar roscas (Loctite)!

- En los taladros pasantes se debe tener en cuenta que las fases de guía se queden en el taladro. Además recomendamos reducir el avance antes de traspasar el material.
- Generalmente recomendamos en profundidades desde 5xd pilotar con el porta art.nº 4105 y la plaquita art.nº. 4111. Alternativamente y dependiendo del material a mecanizar, se pueden utilizar las brocas RT100U o RT100VA.
- En el taladrado sin centraje o pilotaje se recomienda una reducción del avance al principio del taladro.
- No se debe aplicar la herramienta de taladrar en cortes interrumpidos sin hacer un ensayo antes. En cortes interrumpidos (max. 0,2xd) recomendamos reducir el avance si es posible.
- HT800 también se puede utilizar para taladrar paquetes de chapa.
- En el caso de tornos en el que gira la pieza se debe controlar que la herramienta esté totalmente centrada.
- Es condición imprescindinble para un buen mecanizado que se tenga una buena refrigeración de aceite o emulsión.
- La herramienta se puede utilizar limitadamente con MMS. En el caso de MMS se recomienda el mango con forma especial para lubrificación mínima y los sistemas de Gühring. Nuestros técnicos de ventas le asesorarán gustosamente.

RT 800 WP

En la aplicación de herramientas Gühring RT800WP se deben tener en cuenta las siguientes indicaciones y recomendaciones:

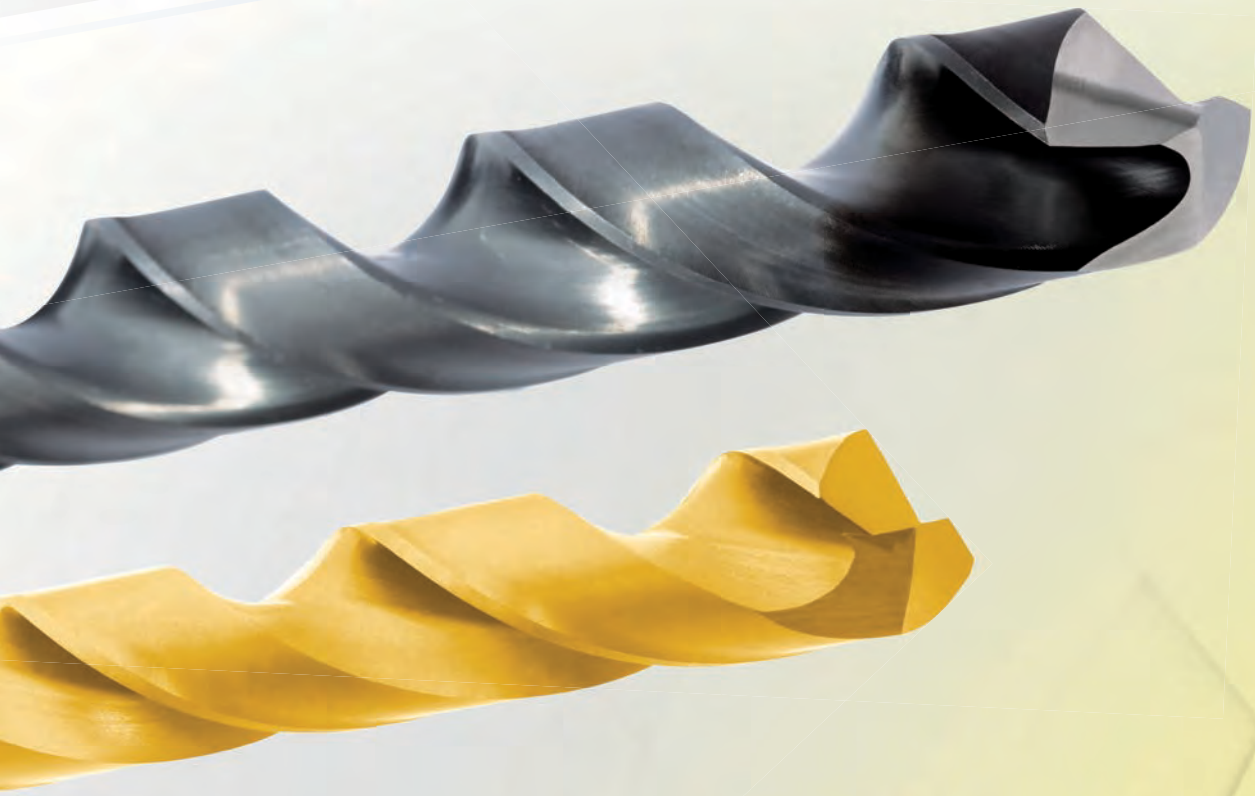
- En los taladros pasantes las fases de guía deben permanecer en el taladro.
- En la versión 7xD se recomienda realizar un taladro piloto de 140º o mayor en min. 2/3 del diámetro de los cortes.
- Las herramientas no se deberían aplicar en taladros interrumpidos sin probarlas antes. En el caso de cortes interrumpidos (max. 0,2xd) recomendamos reducir el avance.
- Las herramientas RT800 también se pueden utilizar en paquetes de chapa.
- Recomendamos cambiar el tornillo tensor cada vez que cambiamos las plaquitas.

HR 500 T

Escariador VHM de alto rendimiento con mangos distintos para mas posibilidades de tensado.

Encontrará mas información en nuestro catálogo de escariadores.

BROCAS ESPIRALES, CIL.



Brocas espirales extra cortas

P	M	K	N	S	H	Presentación de herramientas	Profundidad	Norma	Tipo	Dirección de corte	Material de corte	Acabado	d1/mm	Artículo Nº	Cond. de corte	Página pág.
●		●	○				~3xD	DIN 1897	N	R	HSS	>Ø 2,36	0,350 - 44,000	223	772	192
●		●	○				~3xD	DIN 1897	N	R	HSS	S	0,500 - 30,160	653	772	196
●		●	●				~3xD	DIN 1897	N	R	HSS	F	1,000 - 15,000	2460	772	199
●		●	○				~3xD	DIN 1897	N	L	HSS	>Ø 6,00	0,320 - 50,000	226	772	200
●		●	○				~3xD	DIN 1897	N	L	HSS	S	0,900 - 13,000	672	772	203
			●				~3xD	DIN 1897	H	R	HSS	○	0,690 - 21,000	224	772	204
			●				~3xD	DIN 1897	H	L	HSS	○	0,750 - 24,000	227	772	206
			●				~3xD	DIN 1897	W	R	HSS	○	1,000 - 20,000	225	772	208
			●				~3xD	DIN 1897	W	L	HSS	○	1,000 - 20,000	228	772	210
●	○	○	●				~3xD	DIN 1897	GT 80	R	HSS	>Ø 16,0	1,000 - 20,000	552	772	212
●	○	○	●				~3xD	DIN 1897	GT 80	L	HSS	>Ø 16,0	1,000 - 19,840	553	772	215
●	●	●	○	●	○		~3xD	DIN 1897	GV 120	R	HSCO	>Ø 2,36	0,400 - 48,000	329	772	218
●	●	●	○	●	○		~3xD	DIN 1897	GV 120	R	HSCO	S	0,500 - 15,500	659	774	222
●	●	●	○	●	○		~3xD	DIN 1897	GV 120	R	HSCO	F	1,000 - 13,000	2461	774	224
●	●	●	○	●	○		~3xD	DIN 1897	GV 120	L	HSCO	>Ø 6,00	0,450 - 32,000	330	772	225
●	○	○	○				~3xD	DIN 1897	GT 80	R	HSCO	S	1,000 - 20,000	1228	774	227
●	○	○	○				~3xD	DIN 1897	GT 80	R	HSCO	F	1,000 - 16,000	2498	774	229
○	●		○	○			~3xD	DIN 1897	VA	R	HSCO	○	1,000 - 12,000	1261	772	230
○	●	○	○	●			~3xD	DIN 1897	VA	R	HSCO	S	1,000 - 13,000	572	774	231
●	○	○	○				~3xD	DIN 1897	P2000	R	HSCO	M	1,000 - 13,000	2048	774	233
●	○	○	●	●	○		~3xD	DIN 1897	N	R	M42	○	1,000 - 15,870	1259	772	235
●	○	●	○	○	○		~3xD	DIN 1897	GT 500	R	HSS-E-PM	F	1,000 - 14,290	515	774	237
○	○	○	●	○			3xD	DIN 6539	N	R	VHM	○	0,500 - 16,000	730	776	239
○	○	○	●	○			~3xD	DIN 6539	N	R	VHM	F	1,000 - 16,000	2463	776	241

P	M	K	N	S	H	Presentación de herramientas	Profundidad	Norma	Tipo	Dirección de corte	Material de corte	Acabado	d1/mm	Artículo Nº	Cond. de corte pág.	Página
Brocas espirales extra cortas																
							~3xD	WN	N	R	VHM		0,500 - 6,500	702	776	243
Brocas espirales cil., cortas																
●		●	○				~5xD	DIN 338	N	R	HSS	>Ø 2,36	0,200 - 20,000	205	778	244
●		●	○				~5xD	DIN 338	N	R	HSS	S	0,200 - 19,000	651	780	250
●		●	●				~5xD	DIN 338	N	R	HSS	F	1,000 - 14,500	2456	780	254
●		●	○				~5xD	DIN 338	N	R	HSS		2,400 - 5,610	560	778	256
●		●	○				~5xD	DIN 338	N	R	HSS		3,000 - 16,000	240	778	257
●		●	○				~5xD	DIN 338	N	L	HSS	>Ø 6,00	0,200 - 20,000	208	778	258
●		●	○				~5xD	DIN 338	N	L	HSS	S	0,250 - 14,250	664	780	261
			●				~5xD	DIN 338	H	R	HSS		0,200 - 20,000	206	778	263
			●				~5xD	DIN 338	H	L	HSS		0,300 - 20,000	209	778	266
			●				~5xD	DIN 338	W	R	HSS		0,200 - 20,000	207	778	269
			●				~5xD	DIN 338	W	L	HSS		0,250 - 20,000	210	778	272
●		●	●				~5xD	DIN 338	GT 100	R	HSS	>Ø 2,36	0,600 - 16,000	549	778	274
●		●	●				~5xD	DIN 338	GT 100	R	HSS	S	1,000 - 15,000	652	780	277
●		●	●				~5xD	DIN 338	GT 100	R	HSS	F	1,000 - 15,000	2457	780	280
●		●	●				~5xD	DIN 338	GT 100	L	HSS	>Ø 2,36	1,000 - 15,500	550	778	281
●		●	●				~5xD	DIN 338	GT 100	L	HSS	S	1,300 - 9,800	665	780	283
●	○	●	○				~5xD	DIN 338	N	R	HSCO	>Ø 2,36	0,200 - 20,000	305	780	284
●	○	●	○				~5xD	DIN 338	N	R	HSCO	S	1,200 - 13,000	2997	782	288
●	○	●	○				~5xD	DIN 338	N	L	HSCO	>Ø 6,00	0,360 - 18,500	308	780	289
●	○	●	●				~5xD	DIN 338	GT 100	R	HSCO	>Ø 2,36	1,000 - 16,000	622	780	291
●	○	●	○				~5xD	DIN 338	GT 100	R	HSCO	S	1,000 - 15,000	658	782	294
●	○	●	●		○		~5xD	DIN 338	GT 100	R	HSCO	F	1,000 - 14,000	2459	782	296

P	M	K	N	S	H	Presentación de herramientas	Profundidad	Norma	Tipo	Dirección de corte	Material de corte	Acabado	d1/mm	Artículo Nº	Cond. de corte pág.	Página
Brocas espirales cil., cortas																
●		○					~5xD	DIN 338	GT 100	R	HSCO	C	3,000 - 11,910	1221	782	298
○		●	○				~5xD	DIN 338	GT 100	R	HSCO	A	3,000 - 12,000	1223	782	299
○	●			●			~5xD	DIN 338	Ti	R	HSCO		0,200 - 19,000	605	780	301
○	●			●			~5xD	DIN 338	Ti	R	HSCO	S	0,500 - 14,500	657	782	304
○	●			●			~5xD	DIN 338	Ti	R	HSCO	F	0,400 - 15,000	2458	782	306
○	●			●			~5xD	DIN 338	Ti	L	HSCO		1,300 - 9,500	608	780	308
○	●		○	○			~5xD	DIN 338	VA	R	HSCO		1,000 - 13,000	1260	780	309
●	○	○	○				~5xD	DIN 338	P2000	R	HSCO		1,000 - 13,000	2047	784	311
●	●	●	●	●	○		~5xD	DIN 338	AeroX	R	M42		1,000 - 13,000	1018	784	313
●	○	○	●	●	○		~5xD	DIN 338	N	R	M42		0,400 - 16,000	1146	780	315
●	●	●	○	●			~5xD	DIN 338	N	R	M42	F	1,000 - 16,000	1199	784	317
○	○	○	●	○			~5xD	WN	N	R	VHM		1,000 - 12,700	732	784	319
○	○	○	●	○			~5xD	WN	N	R	VHM	F	1,000 - 12,700	2464	784	321
○		○			●		~5xD	WN	Duro 150	R	HM		3,000 - 14,000	710	776	323
Brocas para casquillos																
●		●	○				~10xD	DIN 339	N	R	HSS	>Ø 2,36	0,800 - 20,000	211	786	325
●		●	○				~10xD	DIN 339	N	R	HSS		2,400 - 5,000	561	786	327
●		●	●				~10xD	DIN 339	N	R	HSS	S	1,000 - 13,000	666	786	328
●	○	●	●	○			~10xD	DIN 339	N	R	HSCO	>Ø 2,36	1,100 - 19,000	311	792	330
Brocas espirales cil., largas																
●		●	○				~10xD	DIN 340	N	R	HSS	>Ø 2,36	0,400 - 36,510	217	786	331
●		●	○				~10xD	DIN 340	N	R	HSS	S	0,500 - 22,220	667	786	334
●		●	○				~10xD	DIN 340	N	L	HSS	>Ø 6,00	0,450 - 29,000	220	786	336
●		●	○				~10xD	DIN 340	N	R	HSS		2,950 - 25,250	204	786	338
			●				~10xD	DIN 340	H	R	HSS		0,500 - 16,000	218	786	339

P	M	K	N	S	H	Presentación de herramientas	Profundidad	Norma	Tipo	Dirección de corte	Material de corte	Acabado	d1/mm	Artículo Nº	Cond. de corte pág.	Página
Brocas espirales cil., largas																
			•				~10xD	DIN 340	H	L	HSS	○	0,450 - 15,000	221	786	341
			•				~10xD	DIN 340	W	R	HSS	○	0,500 - 20,640	219	786	342
•		•	•				~10xD	DIN 340	GT 100	R	HSS	>Ø 2,36	1,000 - 14,000	535	786	344
•		•	•				~10xD	DIN 340	GT 100	R	HSS	S	1,000 - 14,000	668	786	347
•		•	•				~10xD	DIN 340	GT 100	R	HSS	F	1,000 - 10,000	2462	786	349
•		•	•				~10xD	DIN 340	GT 100	L	HSS	>Ø 2,36	1,400 - 13,000	506	786	350
○			•				~10xD	DIN 340	GT 50	R	HSS	○	1,000 - 32,600	501	786	351
•	○	•	•	○			~10xD	DIN 340	N	R	HSCO	>Ø 2,36	0,500 - 22,000	317	792	353
•	•	•	•		○		~10xD	DIN 340	GT 100	R	HSCO	>Ø 2,36	1,000 - 16,000	336	792	355
•	•	•	•		○		~10xD	DIN 340	GT 100	R	HSCO	F	1,000 - 12,000	396	792	357
○	•			•			~10xD	DIN 340	Ti	R	HSCO	○	1,000 - 15,000	617	792	358
○	•			•			~10xD	DIN 340	Ti	R	HSCO	S	1,000 - 10,200	669	792	360
							~10xD	WN	N	R	VHM	○	0,500 - 1,450	706	792	362
Brocas espirales, extra largas, serie 1																
•		•	○				~15xD	DIN 1869	N	R	HSS	>Ø 2,36	1,600 - 13,000	235	788	363
•		•	•				~15xD	DIN 1869	GT 100	R	HSS	>Ø 2,36	1,950 - 13,000	502	790	365
•		•	•	○			~15xD	DIN 1869	GT 100	R	HSS	S	2,000 - 12,700	670	790	367
○			•				~15xD	DIN 1869	GT 50	R	HSS	○	2,000 - 12,700	524	788	368
•	•	•	•	•	○		~15xD	DIN 1869	GT 100	R	HSCO	◓	2,700 - 10,000	618	794	370
Brocas espirales, extra largas, serie 2																
•		•	○				~20xD	DIN 1869	N	R	HSS	●	2,700 - 13,000	236	788	371
•		•	•				~20xD	DIN 1869	GT 100	R	HSS	>Ø 2,36	2,000 - 13,000	503	790	372
•		•	•	○			~20xD	DIN 1869	GT 100	R	HSS	S	2,700 - 8,500	671	790	374
○			•				~20xD	DIN 1869	GT 50	R	HSS	○	3,000 - 13,000	528	788	375
•	•	•	•	•	○		~20xD	DIN 1869	GT 100	R	HSCO	◓	3,000 - 10,000	619	794	376

P	M	K	N	S	H	Presentación de herramientas	Profundidad	Norma	Tipo	Dirección de corte	Material de corte	Acabado	d1/mm	Artículo Nº	Cond. de corte pág.	Página
Brocas espirales, extra largas, serie 3																
●		●	○				~25xD	DIN 1869	N	R	HSS	●	3,500 - 13,000	237	788	377
●		●	●				~25xD	DIN 1869	GT 100	R	HSS	◓	2,500 - 13,000	504	790	378
○			●				~25xD	DIN 1869	GT 50	R	HSS	○	2,500 - 10,000	529	788	379
●	●	●	●	●	○		~25xD	DIN 1869	GT 100	R	HSCO	◓	2,500 - 13,000	571	794	380
Brocas espirales, largo especial																
●		●	●				>25xD	WN	GT 100	R	HSS	◓	6,000 - 12,000	242	790	381
●		●	●				>25xD	WN	GT 100	R	HSS	○	8,000 - 12,000	243	790	382
●		●	●				>25xD	WN	GT 100	R	HSS	○	10,000 - 12,000	244	790	383
Brocas espirales con mango cil. reforzado																
●	●	●	●				~3xD	WN	GU 500	R	HSCO	S	2,000 - 20,000	512	774	384
●	●	●	●				~5xD	WN	GU 500	R	HSCO	S	2,000 - 20,000	511	784	386
●	○	●	○	○	○		~5xD	WN	GT 500	R	HSS-E-PM	F	2,000 - 12,900	513	784	388
○		○			●		~3xD	DIN 6537 K	H	R	VHM	A	2,600 - 14,100	1946	776	389
Brocas esp. largas, longitud 6 pulgadas																
●		●	●					NAS 907	N	R	HSS	○	1,500 - 8,000	577		390
●		●	●					NAS 907	N	R	HSS	○ >Ø 2,36	1,500 - 8,000	579		391
Brocas esp. largas, longitud 12 pulgadas																
●		●	●					NAS 907	N	R	HSS	○	1,500 - 8,000	578		392
●		●	●					NAS 907	N	R	HSS	○ >Ø 2,36	1,500 - 8,000	580		393
Brocas con canal de refrigeración																
●	○	●	●	○			~10xD	WN	N	R	HSS	○	3,000 - 13,000	390	788	394
●	●	●	●	●	○		~5xD	WN	GT 80 IK	R	HSCO	○	5,000 - 20,000	1131	784	395
●	●	●	●	●	○		~5xD	WN	GT 80 IK	R	HSCO	S	5,000 - 20,000	1132	784	396
Microbrocas HSS-E-PM sin refrig. Interna																
●	●	●	●	○			~5xD	DIN 1899	N	R	HSS-E-PM	○	0,050 - 1,920	301	796	397
●	●	●	●	○			~5xD	DIN 1899	N	R	HSS-E-PM	S	0,160 - 1,900	660	796	400

P	M	K	N	S	H	Presentación de herramientas	Profundidad	Norma	Tipo	Dirección de corte	Material de corte	Acabado	d1/mm	Artículo Nº	Cond. de corte pág.	Página
Microbrocas HSS-E-PM sin refrig. Interna																
•	•	•	•	○			~5xD	DIN 1899	N	L	HSS-E-PM	○	0,130 - 1,850	303	796	402
Microbrocas VHM sin refrig. Interna																
•	○	•	○	○	○		~5xD	WN	N	R	VHM	○	0,200 - 1,400	701	796	404
•		•						WN	N	R	VHM	A	0,100 - 3,000	3899	796	405
Microbrocas ExclusiveLine sin refrigeración interior																
•	•	•	○	○			4xD	WN	N	R	VHM	A	0,500 - 3,000	6400	796	407
•	•	•	○	○			7xD	WN	N	R	VHM	A	0,500 - 3,000	6401	796	408
Microbrocas ExclusiveLine con refrigeración interior																
•	•	•	○	○			5xD	WN	N	R	VHM	A	1,400 - 3,000	6405	796	409
•	•	•	○	○			8xD	WN	N	R	VHM	A	1,400 - 3,000	6408	796	410
•	•	•	○	○			15xD	WN	N	R	VHM	A	1,400 - 3,000	6412	796	411
Brocas espirales con mango cil. 12,7 mm																
•		•	○					WN	N	R	HSS	●	13,000 - 28,570	268	778	412
Brocas espirales con mango cil. 16,0 mm																
•	•	○	○	○				WN	V72	R	HSCO	○	16,000 - 40,000	128	772	413
Brocas espirales con mango cil. 25,4 mm																
•	•	○	○	○				WN	V72	R	HSCO	○	25,000 - 40,000	129	772	414
•	•	○	○	○				WN	V72	L	HSCO	○	25,000 - 39,000	136	772	415
Brocas para pasadores cónicos																
•	○	•	○					DIN 1898	N	R	HSS	>Ø 2,36	2,000 - 12,000	531		416
Brocas espirales																
•		•	○				~5xD	DIN 338	N	R	HSS	>Ø 2,36		201		417

Brocas espirales

P	M	K	N	S	H	Presentación de herramientas	Profundidad	Norma	Tipo	Dirección de corte	Material de corte	Acabado	d1/mm	Artículo Nº	Cond. de corte pág.	Página
●		●	○				~5xD	DIN 338	N	R	HSS		>Ø 2,36	200		418
●		●	○				~5xD	DIN 338	N	R	HSS	S		17		419
●	○	●	○				~5xD	DIN 338	N	R	HSCO			16		420
○	●			●			~5xD	DIN 338	Ti	R	HSCO			18		421
○	●		○	○			~5xD	DIN 338	VA	R	HSCO			195		422
●	○	○	○				~5xD	DIN 338	P2000	R	HSCO			2049		423
●	○	○	○				~3xD	DIN 1897	P2000	R	HSCO	M		2050		424
●	●	●	●	●	○		~5xD	DIN 338	AeroX	R	M42			1083		425

P	M	K	N	S	H	Presentación de herramientas	Profundidad	Norma	Tipo	Dirección de corte	Material de corte	Acabado	d1/mm	Artículo Nº	Cond. de corte pág.	Página
Brocas espirales																
								WN						36		426
								WN						73		427
								WN						11		428
Brocas espirales, placa MD soldada																
○		○			○			DIN 8037	N	R	HM	◯	1,700 - 24,000	703	776	429
								DIN 8038	N	R	HM	◯	1,900 - 24,000	704	776	430
Broca para Kevlar																
								WN	FK	R	VHM	◯	2,500 - 10,000	1149	776	431
Brocas punta de lanza																
○		○			○			WN	H	R	HM	◯	3,000 - 12,000	707	776	432
Brocas para piedra																
								WN	N	R	HM	◯	4,000 - 12,000	716		433

P ACERO

	~ 3xD DIN 1897	~ 5xD DIN 338	~10xD DIN 340	~15xD DIN 1869 R1
todo el mango cilíndrico		No 1 Ø 1,00 - 14,00 mm Artículo Nº 2459 desde página 296 F S C A	No 1 Ø 1,00 - 12,00 mm Artículo Nº 396 desde página 357 F	No 1 Ø 2,70 - 10,00 mm Artículo Nº 618 desde página 370
		Ø 1,00 - 15,00 mm Artículo Nº 2457 desde página 280 F S	Ø 1,00 - 10,00 mm Artículo Nº 2462 desde página 349 F S	Ø 2,00 - 12,70 mm Artículo Nº 670 desde página 367 S
	No 1 Ø 1,00 - 13,00 mm Artículo Nº 2461 desde página 224 F S			
	Ø 1,00 - 15,00 mm Artículo Nº 2460 desde página 199 F S	Ø 1,00 - 14,50 mm Artículo Nº 2456 desde página 254 F S	Ø 0,50 - 22,22 mm Artículo Nº 667 desde página 334 S	Ø 1,60 - 13,00 mm Artículo Nº 235 desde página 363
		Ø 1,20 - 13,00 mm Artículo Nº 2997 desde página 288 S	Ø 0,50 - 22,00 mm Artículo Nº 317 desde página 353	
mango universal	No 1 Ø 2,00 - 20,00 mm Artículo Nº 512 desde página 384 S	No 1 Ø 2,00 - 20,00 mm Artículo Nº 511 desde página 386 S	PARA TENSAR CON FACILIDAD	
		Ø 2,00 - 12,90 mm Artículo Nº 513 desde página 388 F		
con refrig. interna		No 1 Ø 5,00 - 20,00 mm Artículo Nº 1132 desde página 396 S	PARA LA APLICACIÓN CON REFRIGERACIÓN INTERNA	

QUICKFINDER

~20xD DIN 1869 R2	~25xD DIN 1869 R3	>25xD Norma de fab. extralargo	No 1 herramienta ideal
No 1 Ø 3,00 - 10,00 mm Artículo Nº 619 desde página 376	No 1 Ø 2,50 - 13,00 mm Artículo Nº 571 desde página 380		GT100, HSCO
Ø 2,70 - 8,50 mm Artículo Nº 671 desde página 374 (S)	Ø 2,50 - 13,00 mm Artículo Nº 504 desde página 378	No 1 Ø 6,00 - 12,00 mm Artículo Nº 242 desde página 381	GT100, HSS
			GV120, HSCO
Ø 2,70 - 13,00 mm Artículo Nº 236 desde página 371	Ø 3,50 - 13,00 mm Artículo Nº 237 desde página 377		Tipo N, HSS
			Tipo N, HSCO
			GU500, HSCO
			GT500, HSS-E-PM
			GT80IK, HSCO

M ACERO INOXIDABLE | S TITANIO & ALEACIONES ESPECIALES

	~ 3xD DIN 1897	~ 5xD DIN 338	~10xD DIN 340	~15xD DIN 1869 R1
todo el mango cilíndrico		No 1 No 1 Ø 0,40 - 15,00 mm Artículo Nº 2458 desde página 306 F S ○	No 1 No 1 Ø 1,00 - 10,2 mm Artículo Nº 669 desde página 360 S ○	
	No 1 No 1 Ø 1,00 - 13,00 mm Artículo Nº 572 desde página 231 S ○	Ø 1,00 - 13,00 mm Artículo Nº 1260 desde página 309 ○		
		Ø 1,00 - 14,00 mm Artículo Nº 2459 desde página 296 F S ◓	Ø 1,00 - 12,00 mm Artículo Nº 396 desde página 357 F ◓	No 1 No 1 Ø 2,70 - 10,00 mm Artículo Nº 618 desde página 370 ◓
	Ø 1,00 - 13,00 mm Artículo Nº 2461 desde página 224 F S ●			
	Ø 1,00 - 15,87 mm Artículo Nº 1259 desde página 235 ○	Ø 1,00 - 16,00 mm Artículo Nº 1199 desde página 317 F ○		
mango universal	No 1 Ø 2,00 - 20,00 mm Artículo Nº 512 desde página 384 S	No 1 Ø 2,00 - 20,00 mm Artículo Nº 511 desde página 386 S		
		Ø 2,00 - 12,900 mm Artículo Nº 513 desde página 388 F	PARA TENSAR CON FACILIDAD	
con refrig. interna		No 1 No 1 Ø 5,00 - 20,00 mm Artículo Nº 1132 desde página 396 S ○	PARA LA APLICACIÓN CON REFRIGERACIÓN INTERNA	

QUICKFINDER

~20xD DIN 1869 R2	~25xD DIN 1869 R3	>25xD Norma de fab. extralargo

No 1 herramienta ideal para acero inoxidable

No 1 herramienta ideal para aleaciones especiales/ titanio

Tipo Ti, HSCO

Tipo VA, HSCO

No 1 No 1
Ø 3,00 - 10,00 mm
Artículo Nº 619
desde página 376

No 1 No 1
Ø 2,50 - 13,00 mm
Artículo Nº 571
desde página 380

GT100, HSCO

GV120, HSCO

Tipo N, M42

GU500, HSCO

GT500, HSS-E-PM

GT80IK, HSCO

K FUNDICIÓN

	~ 3xD DIN 1897	~ 5xD DIN 338	~10xD DIN 340	~15xD DIN 1869 R1
todo el mango cilíndrico		No 1 Ø 1,00 - 14,00 mm Artículo Nº 2459 desde página 296 F S C A	No 1 Ø 1,00 - 12,00 mm Artículo Nº 396 desde página 357 F	No 1 Ø 2,70 - 10,00 mm Artículo Nº 618 desde página 370
		Ø 1,00 - 15,00 mm Artículo Nº 2457 desde página 280 F S	Ø 1,00 - 10,00 mm Artículo Nº 2462 desde página 349 F S	Ø 2,00 - 12,70 mm Artículo Nº 670 desde página 367 S
	No 1 Ø 1,00 - 15,00 mm Artículo Nº 2460 desde página 199 F S	Ø 1,00 - 14,50 mm Artículo Nº 2456 desde página 254 F S	Ø 0,50 - 22,22 mm Artículo Nº 667 desde página 334 S	Ø 1,60 - 13,00 mm Artículo Nº 235 desde página 363
		Ø 1,20 - 13,00 mm Artículo Nº 2997 desde página 288 S	Ø 0,50 - 22,00 mm Artículo Nº 317 desde página 353	
mango universal	No 1 Ø 2,00 - 20,00 mm Artículo Nº 512 desde página 384 S	No 1 Ø 2,00 - 20,00 mm Artículo Nº 511 desde página 386 S	PARA TENSAR CON FACILIDAD	
		Ø 2,00 - 12,90 mm Artículo Nº 513 desde página 388 F		
con refrig. interna		No 1 Ø 5,00 - 20,00 mm Artículo Nº 1132 desde página 396 S	PARA LA APLICACIÓN CON REFRIGERACIÓN INTERNA	

QUICKFINDER

~20xD DIN 1869 R2	~25xD DIN 1869 R3	>25xD Norma de fab. extralargo	No 1 herramienta ideal	
No 1 Ø 3,00 - 10,00 mm Artículo Nº 619 desde página 376	No 1 Ø 2,50 - 13,00 mm Artículo Nº 571 desde página 380			GT100, HSCO
Ø 2,70 - 8,50 mm Artículo Nº 671 desde página 374	Ø 2,50 - 13,00 mm Artículo Nº 504 desde página 378	No 1 Ø 6,00 - 12,00 mm Artículo Nº 242 desde página 381		GT100, HSS
Ø 2,70 - 13,00 mm Artículo Nº 236 desde página 371	Ø 3,50 - 13,00 mm Artículo Nº 237 desde página 377			Tipo N, HSS
				Tipo N, HSCO
				GU500, HSCO
				GT500, HSS-E-PM
				GT80IK, HSCO

N ALUMINIO, NE, PLÁSTICOS

	~ 3xD DIN 1897	~ 5xD DIN 338	~10xD DIN 340	~15xD DIN 1869 R1
todo el mango cilíndrico	No 1 Ø 1,00 - 20,00 mm Artículo Nº 225 desde página 208	No 1 Ø 0,20 - 20,00 mm Artículo Nº 207 desde página 269	No 1 Ø 0,50 - 20,64 mm Artículo Nº 219 desde página 342	Tipo W para materiales blandos de vriuta larga
todo el mango cilíndrico	No 1 Ø 0,69 - 21,00 mm Artículo Nº 224 desde página 204	No 1 Ø 0,20 - 20,00 mm Artículo Nº 206 desde página 263	No 1 Ø 0,50 - 16,00 mm Artículo Nº 218 desde página 339	Tipo H para materiales duros y frágiles
todo el mango cilíndrico		Tipo GT50 para materiales blandos de viruta larga	Ø 1,00 - 32,60 mm Artículo Nº 501 desde página 351	No 1 Ø 2,00 - 12,70 mm Artículo Nº 524 desde página 368
todo el mango cilíndrico		Ø 1,00 - 15,50 mm Artículo Nº 550 desde página 281 S F	Ø 1,00 - 14,00 mm Artículo Nº 535 desde página 344 S F	Ø 1,95 - 13,00 mm Artículo Nº 502 desde página 365 S
todo el mango cilíndrico		Ø 1,00 - 16,00 mm Artículo Nº 622 desde página 291 S F A	Ø 1,00 - 16,00 mm Artículo Nº 336 desde página 355 F	Ø 2,70 - 10,00 mm Artículo Nº 618 desde página 370
mango universal	No 1 Ø 2,00 - 20,00 mm Artículo Nº 512 desde página 384 S	No 1 Ø 2,00 - 20,00 mm Artículo Nº 511 desde página 386 S	PARA TENSAR CON FACILIDAD	
con refrig. interna		No 1 Ø 5,00 - 20,00 mm Artículo Nº 1131 desde página395 S	PARA LA APLICACIÓN CON REFRIGERACIÓN INTERNA	

QUICKFINDER

~20xD DIN 1869 R2	~25xD DIN 1869 R3	>25xD Norma de fab. extralargo	No 1 herramienta ideal

Tipo W, HSS

Tipo H, HSS

No 1
Ø 3,00 - 13,00 mm
Artículo Nº 528
desde página 375

No 1
Ø 2,50 - 10,00 mm
Artículo Nº 529
desde página 379

GT50, HSS

Ø 2,70 - 8,50 mm
Artículo Nº 671
desde página 374

Ø 2,50 - 13,00 mm
Artículo Nº 504
desde página 378

No 1
Ø 6,00 - 12,00 mm
Artículo Nº 242
desde página 381

GT100, HSS

Ø 3,00 - 10,00 mm
Artículo Nº 619
desde página 376

Ø 2,50 - 13,00 mm
Artículo Nº 571
desde página 380

GT100, HSCO

GU500, HSCO

GT80IK, HSCO

Brocas espirales extra cortas

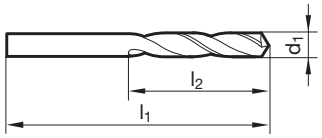
~3xD | DIN 1897 | N | 118° | h8

Material de corte	HSS
Acabado	>Ø 2,36
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,000 • entrada cónica • para aplic. en tornos autom./revolver • para máquinas de taladrar manuales
M		
K	•	
N	○	secciones delgadas
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 772



Artículo N° **223**

d1 mm	inch	l1 mm	l2 mm	d1 mm	inch	l1 mm	l2 mm
0,350		19,000	2,000	1,400		32,000	9,000
0,400	1/64	19,000	2,500	1,430		32,000	9,000
0,480		19,000	2,500	1,450		32,000	9,000
0,500		20,000	3,000	1,480		32,000	9,000
0,550		21,000	3,500	1,500		32,000	9,000
0,575		21,000	3,500	1,510		34,000	10,000
0,600		21,000	3,500	1,520		34,000	10,000
0,650		22,000	4,000	1,550		34,000	10,000
0,660		22,000	4,000	1,570		34,000	10,000
0,700		23,000	4,500	1,590	1/16	34,000	10,000
0,720		23,000	4,500	1,600		34,000	10,000
0,750		23,000	4,500	1,610		34,000	10,000
0,790	1/32	24,000	5,000	1,650		34,000	10,000
0,800		24,000	5,000	1,700		34,000	10,000
0,820		24,000	5,000	1,720		36,000	11,000
0,850		24,000	5,000	1,730		36,000	11,000
0,890		25,000	5,500	1,740		36,000	11,000
0,900		25,000	5,500	1,750		36,000	11,000
0,930		25,000	5,500	1,770		36,000	11,000
0,950		25,000	5,500	1,780		36,000	11,000
0,980		26,000	6,000	1,800		36,000	11,000
1,000		26,000	6,000	1,850		36,000	11,000
1,020		26,000	6,000	1,900		36,000	11,000
1,030		26,000	6,000	1,930		38,000	12,000
1,040		26,000	6,000	1,950		38,000	12,000
1,050		26,000	6,000	1,970		38,000	12,000
1,070		28,000	7,000	1,980	5/64	38,000	12,000
1,090		28,000	7,000	1,990		38,000	12,000
1,100		28,000	7,000	2,000		38,000	12,000
1,110		28,000	7,000	2,020		38,000	12,000
1,120		28,000	7,000	2,050		38,000	12,000
1,150		28,000	7,000	2,060		38,000	12,000
1,180		28,000	7,000	2,080		38,000	12,000
1,190	3/64	30,000	8,000	2,100		38,000	12,000
1,200		30,000	8,000	2,120		38,000	12,000
1,220		30,000	8,000	2,150		40,000	13,000
1,250		30,000	8,000	2,180		40,000	13,000
1,260		30,000	8,000	2,200		40,000	13,000
1,280		30,000	8,000	2,220		40,000	13,000
1,300		30,000	8,000	2,250		40,000	13,000
1,320		30,000	8,000	2,260		40,000	13,000
1,350		32,000	9,000	2,300		40,000	13,000

d1		l1	l2
mm	inch	mm	mm
2,350		40,000	13,000
2,370		43,000	14,000
2,380	3/32	43,000	14,000
2,400		43,000	14,000
2,420		43,000	14,000
2,440		43,000	14,000
2,450		43,000	14,000
2,480		43,000	14,000
2,490		43,000	14,000
2,500		43,000	14,000
2,520		43,000	14,000
2,530		43,000	14,000
2,550		43,000	14,000
2,580		43,000	14,000
2,600		43,000	14,000
2,640		43,000	14,000
2,650		43,000	14,000
2,700		46,000	16,000
2,710		46,000	16,000
2,750		46,000	16,000
2,780	7/64	46,000	16,000
2,790		46,000	16,000
2,800		46,000	16,000
2,820		46,000	16,000
2,850		46,000	16,000
2,870		46,000	16,000
2,900		46,000	16,000
2,920		46,000	16,000
2,950		46,000	16,000
2,970		46,000	16,000
3,000		46,000	16,000
3,020		49,000	18,000
3,050		49,000	18,000
3,100		49,000	18,000
3,150		49,000	18,000
3,170	1/8	49,000	18,000
3,200		49,000	18,000
3,220		49,000	18,000
3,250		49,000	18,000
3,260		49,000	18,000
3,300		49,000	18,000
3,350		49,000	18,000
3,400		52,000	20,000
3,450		52,000	20,000
3,500		52,000	20,000
3,550		52,000	20,000
3,570	9/64	52,000	20,000
3,580		52,000	20,000
3,600		52,000	20,000
3,650		52,000	20,000
3,660		52,000	20,000
3,700		52,000	20,000
3,730		52,000	20,000
3,750		52,000	20,000
3,800		55,000	22,000
3,850		55,000	22,000
3,860		55,000	22,000
3,900		55,000	22,000
3,910		55,000	22,000
3,950		55,000	22,000
3,960		55,000	22,000
3,970	5/32	55,000	22,000
3,990		55,000	22,000
4,000		55,000	22,000
4,020		55,000	22,000
4,040		55,000	22,000
4,050		55,000	22,000
4,080		55,000	22,000
4,090		55,000	22,000
4,100		55,000	22,000
4,150		55,000	22,000
4,200		55,000	22,000

d1		l1	l2
mm	inch	mm	mm
4,220		55,000	22,000
4,250		55,000	22,000
4,300		58,000	24,000
4,370	11/64	58,000	24,000
4,380		58,000	24,000
4,390		58,000	24,000
4,400		58,000	24,000
4,450		58,000	24,000
4,500		58,000	24,000
4,550		58,000	24,000
4,570		58,000	24,000
4,600		58,000	24,000
4,620		58,000	24,000
4,650		58,000	24,000
4,700		58,000	24,000
4,750		58,000	24,000
4,760	3/16	62,000	26,000
4,800		62,000	26,000
4,850		62,000	26,000
4,900		62,000	26,000
4,920		62,000	26,000
4,950		62,000	26,000
4,980		62,000	26,000
5,000		62,000	26,000
5,020		62,000	26,000
5,050		62,000	26,000
5,060		62,000	26,000
5,100		62,000	26,000
5,110		62,000	26,000
5,150		62,000	26,000
5,160	13/64	62,000	26,000
5,180		62,000	26,000
5,200		62,000	26,000
5,220		62,000	26,000
5,250		62,000	26,000
5,300		62,000	26,000
5,310		66,000	28,000
5,350		66,000	28,000
5,400		66,000	28,000
5,410		66,000	28,000
5,450		66,000	28,000
5,500		66,000	28,000
5,550		66,000	28,000
5,560	7/32	66,000	28,000
5,600		66,000	28,000
5,610		66,000	28,000
5,700		66,000	28,000
5,750		66,000	28,000
5,790		66,000	28,000
5,800		66,000	28,000
5,900		66,000	28,000
5,940		66,000	28,000
5,950	15/64	66,000	28,000
6,000		66,000	28,000
6,040		70,000	31,000
6,050		70,000	31,000
6,100		70,000	31,000
6,150		70,000	31,000
6,200		70,000	31,000
6,250		70,000	31,000
6,300		70,000	31,000
6,350	1/4	70,000	31,000
6,400		70,000	31,000
6,450		70,000	31,000
6,500		70,000	31,000
6,530		70,000	31,000
6,550		70,000	31,000
6,600		70,000	31,000
6,630		70,000	31,000
6,700		70,000	31,000
6,750	17/64	74,000	34,000
6,760		74,000	34,000

d1		l1	l2
mm	inch	mm	mm
6,800		74,000	34,000
6,850		74,000	34,000
6,900		74,000	34,000
6,950		74,000	34,000
7,000		74,000	34,000
7,030		74,000	34,000
7,050		74,000	34,000
7,100		74,000	34,000
7,140	9/32	74,000	34,000
7,150		74,000	34,000
7,200		74,000	34,000
7,250		74,000	34,000
7,300		74,000	34,000
7,370		74,000	34,000
7,400		74,000	34,000
7,450		74,000	34,000
7,490		74,000	34,000
7,500		74,000	34,000
7,540	19/64	79,000	37,000
7,550		79,000	37,000
7,600		79,000	37,000
7,670		79,000	37,000
7,700		79,000	37,000
7,750		79,000	37,000
7,800		79,000	37,000
7,850		79,000	37,000
7,900		79,000	37,000
7,940	5/16	79,000	37,000
8,000		79,000	37,000
8,030		79,000	37,000
8,050		79,000	37,000
8,100		79,000	37,000
8,150		79,000	37,000
8,200		79,000	37,000
8,250		79,000	37,000
8,300		79,000	37,000
8,330	21/64	79,000	37,000
8,400		79,000	37,000
8,430		79,000	37,000
8,450		79,000	37,000
8,500		79,000	37,000
8,550		84,000	40,000
8,600		84,000	40,000
8,610		84,000	40,000
8,650		84,000	40,000
8,700		84,000	40,000
8,730	11/32	84,000	40,000
8,750		84,000	40,000
8,800		84,000	40,000
8,840		84,000	40,000
8,900		84,000	40,000
8,950		84,000	40,000
9,000		84,000	40,000
9,050		84,000	40,000
9,090		84,000	40,000
9,100		84,000	40,000
9,130	23/64	84,000	40,000
9,150		84,000	40,000
9,200		84,000	40,000
9,250		84,000	40,000
9,270		84,000	40,000
9,300		84,000	40,000
9,340		84,000	40,000
9,350		84,000	40,000
9,400		84,000	40,000
9,500		84,000	40,000
9,520	3/8	89,000	43,000
9,580		89,000	43,000
9,600		89,000	43,000
9,650		89,000	43,000
9,700		89,000	43,000
9,750		89,000	43,000

d1		l1	l2
mm	inch	mm	mm
9,800		89,000	43,000
9,850		89,000	43,000
9,900		89,000	43,000
9,920	25/64	89,000	43,000
10,000		89,000	43,000
10,050		89,000	43,000
10,080		89,000	43,000
10,100		89,000	43,000
10,150		89,000	43,000
10,200		89,000	43,000
10,250		89,000	43,000
10,260		89,000	43,000
10,300		89,000	43,000
10,320	13/32	89,000	43,000
10,400		89,000	43,000
10,490		89,000	43,000
10,500		89,000	43,000
10,600		89,000	43,000
10,700		95,000	47,000
10,720	27/64	95,000	47,000
10,750		95,000	47,000
10,800		95,000	47,000
10,900		95,000	47,000
11,000		95,000	47,000
11,100		95,000	47,000
11,110	7/16	95,000	47,000
11,200		95,000	47,000
11,250		95,000	47,000
11,300		95,000	47,000
11,400		95,000	47,000
11,500		95,000	47,000
11,510	29/64	95,000	47,000
11,600		95,000	47,000
11,700		95,000	47,000
11,750		95,000	47,000
11,800		95,000	47,000
11,900		102,000	51,000
11,910	15/32	102,000	51,000
12,000		102,000	51,000
12,050		102,000	51,000
12,100		102,000	51,000
12,150		102,000	51,000
12,200		102,000	51,000
12,250		102,000	51,000
12,300	31/64	102,000	51,000
12,400		102,000	51,000
12,500		102,000	51,000
12,600		102,000	51,000
12,700	1/2	102,000	51,000
12,750		102,000	51,000
12,800		102,000	51,000
12,900		102,000	51,000
13,000		102,000	51,000
13,100	33/64	102,000	51,000
13,200		102,000	51,000
13,250		107,000	54,000
13,300		107,000	54,000
13,400		107,000	54,000
13,490	17/32	107,000	54,000
13,500		107,000	54,000
13,600		107,000	54,000
13,700		107,000	54,000
13,750		107,000	54,000
13,800		107,000	54,000
13,890	35/64	107,000	54,000
14,000		107,000	54,000
14,100		111,000	56,000
14,200		111,000	56,000
14,290	9/16	111,000	56,000
14,300		111,000	56,000
14,400		111,000	56,000
14,500		111,000	56,000

d1		l1	l2
mm	inch	mm	mm
14,600		111,000	56,000
14,680	37/64	111,000	56,000
14,700		111,000	56,000
14,750		111,000	56,000
14,800		111,000	56,000
14,900		111,000	56,000
15,000		111,000	56,000
15,080	19/32	115,000	58,000
15,100		115,000	58,000
15,200		115,000	58,000
15,250		115,000	58,000
15,400		115,000	58,000
15,480	39/64	115,000	58,000
15,500		115,000	58,000
15,600		115,000	58,000
15,700		115,000	58,000
15,750		115,000	58,000
15,800		115,000	58,000
15,870	5/8	115,000	58,000
16,000		115,000	58,000
16,100		119,000	60,000
16,150		119,000	60,000
16,200		119,000	60,000
16,250		119,000	60,000
16,270	41/64	119,000	60,000
16,300		119,000	60,000
16,500		119,000	60,000
16,670	21/32	119,000	60,000
16,750		119,000	60,000
17,000		119,000	60,000
17,070	43/64	123,000	62,000
17,100		123,000	62,000
17,200		123,000	62,000
17,250		123,000	62,000
17,460	11/16	123,000	62,000
17,500		123,000	62,000
17,600		123,000	62,000
17,750		123,000	62,000
17,860	45/64	123,000	62,000
18,000		123,000	62,000
18,100		127,000	64,000
18,200		127,000	64,000
18,250		127,000	64,000
18,260	23/32	127,000	64,000
18,500		127,000	64,000
18,650	47/64	127,000	64,000
18,750		127,000	64,000
19,000		127,000	64,000

d1		l1	l2
mm	inch	mm	mm
19,050	3/4	131,000	66,000
19,100		131,000	66,000
19,250		131,000	66,000
19,500		131,000	66,000
19,840	25/32	131,000	66,000
20,000		131,000	66,000
20,100		136,000	68,000
20,240	51/64	136,000	68,000
20,250		136,000	68,000
20,500		136,000	68,000
20,640	13/16	136,000	68,000
20,750		136,000	68,000
20,800		136,000	68,000
21,000		136,000	68,000
21,030	53/64	136,000	68,000
21,430	27/32	141,000	70,000
21,500		141,000	70,000
21,830	55/64	141,000	70,000
22,000		141,000	70,000
22,220	7/8	141,000	70,000
22,500		146,000	72,000
23,000		146,000	72,000
23,020	29/32	146,000	72,000
23,420	59/64	146,000	72,000
23,500		146,000	72,000
23,810	15/16	151,000	75,000
24,000		151,000	75,000
24,210	61/64	151,000	75,000
24,500		151,000	75,000
24,610	31/32	151,000	75,000
25,000	63/64	151,000	75,000
25,400	1	156,000	78,000
26,000		156,000	78,000
26,500		156,000	78,000
27,000		162,000	81,000
27,500		162,000	81,000
28,000		162,000	81,000
28,570	1 1/8	168,000	84,000
29,000		168,000	84,000
29,370	1 5/32	168,000	84,000
30,000		168,000	84,000
31,000		174,000	87,000
32,000		180,000	90,000
33,000		180,000	90,000
40,000		200,000	100,000
44,000		214,000	108,000

Brocas espirales extra cortas

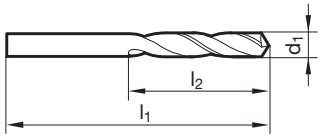
~3xD | DIN 1897 | N | 118° | h8

Material de corte	HSS
Acabado	S
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,000 • entrada cónica • para máquinas de taladrar manuales • para aplic. en tornos autom./revolver
M		
K	•	
N	○	secciones delgadas
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 772



Artículo N° **653**

d1 mm	inch	l1 mm	l2 mm
0,500		20,000	3,000
0,600		21,000	3,500
0,700		23,000	4,500
0,750		23,000	4,500
0,790	1/32	24,000	5,000
0,800		24,000	5,000
0,900		25,000	5,500
1,000		26,000	6,000
1,020		26,000	6,000
1,050		26,000	6,000
1,070		28,000	7,000
1,090		28,000	7,000
1,100		28,000	7,000
1,110		28,000	7,000
1,120		28,000	7,000
1,150		28,000	7,000
1,180		28,000	7,000
1,190	3/64	30,000	8,000
1,200		30,000	8,000
1,250		30,000	8,000
1,300		30,000	8,000
1,320		30,000	8,000
1,350		32,000	9,000
1,400		32,000	9,000
1,450		32,000	9,000
1,500		32,000	9,000
1,510		34,000	10,000
1,550		34,000	10,000
1,590	1/16	34,000	10,000
1,600		34,000	10,000
1,610		34,000	10,000
1,650		34,000	10,000
1,700		34,000	10,000
1,750		36,000	11,000
1,780		36,000	11,000
1,800		36,000	11,000
1,850		36,000	11,000
1,900		36,000	11,000
1,930		38,000	12,000
1,950		38,000	12,000
1,980	5/64	38,000	12,000
1,990		38,000	12,000

d1 mm	inch	l1 mm	l2 mm
2,000		38,000	12,000
2,050		38,000	12,000
2,060		38,000	12,000
2,080		38,000	12,000
2,100		38,000	12,000
2,150		40,000	13,000
2,180		40,000	13,000
2,200		40,000	13,000
2,250		40,000	13,000
2,260		40,000	13,000
2,300		40,000	13,000
2,350		40,000	13,000
2,370		43,000	14,000
2,380	3/32	43,000	14,000
2,400		43,000	14,000
2,440		43,000	14,000
2,450		43,000	14,000
2,500		43,000	14,000
2,530		43,000	14,000
2,550		43,000	14,000
2,580		43,000	14,000
2,600		43,000	14,000
2,640		43,000	14,000
2,650		43,000	14,000
2,700		46,000	16,000
2,710		46,000	16,000
2,750		46,000	16,000
2,780	7/64	46,000	16,000
2,790		46,000	16,000
2,800		46,000	16,000
2,850		46,000	16,000
2,870		46,000	16,000
2,900		46,000	16,000
2,950		46,000	16,000
3,000		46,000	16,000
3,050		49,000	18,000
3,100		49,000	18,000
3,170	1/8	49,000	18,000
3,200		49,000	18,000
3,250		49,000	18,000
3,260		49,000	18,000
3,300		49,000	18,000

d1		l1	l2
mm	inch	mm	mm
3,400		52,000	20,000
3,450		52,000	20,000
3,500		52,000	20,000
3,550		52,000	20,000
3,570	9/64	52,000	20,000
3,600		52,000	20,000
3,650		52,000	20,000
3,660		52,000	20,000
3,700		52,000	20,000
3,730		52,000	20,000
3,750		52,000	20,000
3,800		55,000	22,000
3,860		55,000	22,000
3,900		55,000	22,000
3,970	5/32	55,000	22,000
3,990		55,000	22,000
4,000		55,000	22,000
4,040		55,000	22,000
4,050		55,000	22,000
4,090		55,000	22,000
4,100		55,000	22,000
4,150		55,000	22,000
4,200		55,000	22,000
4,250		55,000	22,000
4,300		58,000	24,000
4,370	11/64	58,000	24,000
4,390		58,000	24,000
4,400		58,000	24,000
4,500		58,000	24,000
4,570		58,000	24,000
4,600		58,000	24,000
4,620		58,000	24,000
4,650		58,000	24,000
4,700		58,000	24,000
4,750		58,000	24,000
4,760	3/16	62,000	26,000
4,800		62,000	26,000
4,850		62,000	26,000
4,900		62,000	26,000
4,920		62,000	26,000
4,950		62,000	26,000
4,980		62,000	26,000
5,000		62,000	26,000
5,050		62,000	26,000
5,060		62,000	26,000
5,100		62,000	26,000
5,110		62,000	26,000
5,160	13/64	62,000	26,000
5,180		62,000	26,000
5,200		62,000	26,000
5,250		62,000	26,000
5,300		62,000	26,000
5,310		66,000	28,000
5,400		66,000	28,000
5,410		66,000	28,000
5,450		66,000	28,000
5,500		66,000	28,000
5,520		66,000	28,000
5,560	7/32	66,000	28,000
5,600		66,000	28,000
5,610		66,000	28,000
5,700		66,000	28,000
5,750		66,000	28,000
5,800		66,000	28,000
5,900		66,000	28,000
5,950	15/64	66,000	28,000
6,000		66,000	28,000
6,040		70,000	31,000
6,050		70,000	31,000
6,100		70,000	31,000
6,150		70,000	31,000
6,200		70,000	31,000

d1		l1	l2
mm	inch	mm	mm
6,250		70,000	31,000
6,300		70,000	31,000
6,350	1/4	70,000	31,000
6,400		70,000	31,000
6,450		70,000	31,000
6,500		70,000	31,000
6,530		70,000	31,000
6,600		70,000	31,000
6,700		70,000	31,000
6,750	17/64	74,000	34,000
6,800		74,000	34,000
6,900		74,000	34,000
7,000		74,000	34,000
7,100		74,000	34,000
7,140	9/32	74,000	34,000
7,200		74,000	34,000
7,250		74,000	34,000
7,300		74,000	34,000
7,370		74,000	34,000
7,400		74,000	34,000
7,500		74,000	34,000
7,540	19/64	79,000	37,000
7,600		79,000	37,000
7,670		79,000	37,000
7,700		79,000	37,000
7,800		79,000	37,000
7,900		79,000	37,000
7,940	5/16	79,000	37,000
8,000		79,000	37,000
8,030		79,000	37,000
8,100		79,000	37,000
8,200		79,000	37,000
8,250		79,000	37,000
8,300		79,000	37,000
8,330	21/64	79,000	37,000
8,400		79,000	37,000
8,430		79,000	37,000
8,500		79,000	37,000
8,550		84,000	40,000
8,600		84,000	40,000
8,610		84,000	40,000
8,700		84,000	40,000
8,730	11/32	84,000	40,000
8,750		84,000	40,000
8,800		84,000	40,000
8,900		84,000	40,000
9,000		84,000	40,000
9,090		84,000	40,000
9,100		84,000	40,000
9,130	23/64	84,000	40,000
9,200		84,000	40,000
9,250		84,000	40,000
9,300		84,000	40,000
9,400		84,000	40,000
9,500		84,000	40,000
9,520	3/8	89,000	43,000
9,580		89,000	43,000
9,700		89,000	43,000
9,800		89,000	43,000
9,900		89,000	43,000
9,920	25/64	89,000	43,000
10,000		89,000	43,000
10,100		89,000	43,000
10,200		89,000	43,000
10,300		89,000	43,000
10,320	13/32	89,000	43,000
10,400		89,000	43,000
10,490		89,000	43,000
10,500		89,000	43,000
10,600		89,000	43,000
10,720	27/64	95,000	47,000
10,750		95,000	47,000

d1		l1	l2
mm	inch	mm	mm
10,800		95,000	47,000
11,000		95,000	47,000
11,110	7/16	95,000	47,000
11,200		95,000	47,000
11,300		95,000	47,000
11,400		95,000	47,000
11,500		95,000	47,000
11,510	29/64	95,000	47,000
11,750		95,000	47,000
11,800		95,000	47,000
11,900		102,000	51,000
11,910	15/32	102,000	51,000
12,000		102,000	51,000
12,100		102,000	51,000
12,200		102,000	51,000
12,300	31/64	102,000	51,000
12,500		102,000	51,000
12,700	1/2	102,000	51,000
12,800		102,000	51,000
13,000		102,000	51,000
13,100	33/64	102,000	51,000
13,490	17/32	107,000	54,000
13,500		107,000	54,000
13,700		107,000	54,000
13,800		107,000	54,000
13,890	35/64	107,000	54,000
14,000		107,000	54,000
14,200		111,000	56,000
14,290	9/16	111,000	56,000
14,500		111,000	56,000
14,800		111,000	56,000
14,900		111,000	56,000
15,000		111,000	56,000
15,080	19/32	115,000	58,000
15,250		115,000	58,000
15,500		115,000	58,000
15,800		115,000	58,000
15,870	5/8	115,000	58,000
16,000		115,000	58,000
16,250		119,000	60,000
16,270	41/64	119,000	60,000
16,500		119,000	60,000

d1		l1	l2
mm	inch	mm	mm
16,670	21/32	119,000	60,000
17,000		119,000	60,000
17,460	11/16	123,000	62,000
17,500		123,000	62,000
17,860	45/64	123,000	62,000
18,000		123,000	62,000
18,250		127,000	64,000
18,260	23/32	127,000	64,000
18,500		127,000	64,000
18,650	47/64	127,000	64,000
19,000		127,000	64,000
19,050	3/4	131,000	66,000
19,500		131,000	66,000
20,000		131,000	66,000
20,500		136,000	68,000
20,640	13/16	136,000	68,000
21,000		136,000	68,000
21,500		141,000	70,000
22,000		141,000	70,000
22,500		146,000	72,000
22,620	57/64	146,000	72,000
23,000		146,000	72,000
23,420	59/64	146,000	72,000
24,000		151,000	75,000
24,500		151,000	75,000
25,000	63/64	151,000	75,000
25,400	1	156,000	78,000
27,500		162,000	81,000
28,500		168,000	84,000
29,370	1 5/32	168,000	84,000
29,500		168,000	84,000
30,000		168,000	84,000
30,160	1 3/16	174,000	87,000

Brocas espirales extra cortas

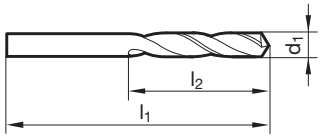
~3xD | DIN 1897 | N | 118° | h8

Material de corte	HSS
Acabado	F
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,000 • entrada cónica • para aplic. en tornos autom./revolver • para máquinas de taladrar manuales
M		
K	•	
N	•	secciones delgadas
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 772



Artículo N° **2460**

d1 mm	d1 inch	l1 mm	l2 mm
1,000		26,000	6,000
1,100		28,000	7,000
1,200		30,000	8,000
1,300		30,000	8,000
2,000		38,000	12,000
2,200		40,000	13,000
2,500		43,000	14,000
2,600		43,000	14,000
2,700		46,000	16,000
2,800		46,000	16,000
2,900		46,000	16,000
3,000		46,000	16,000
3,100		49,000	18,000
3,300		49,000	18,000
3,400		52,000	20,000
3,600		52,000	20,000
3,700		52,000	20,000
3,900		55,000	22,000
4,000		55,000	22,000
4,100		55,000	22,000
4,200		55,000	22,000
4,300		58,000	24,000
4,500		58,000	24,000
4,600		58,000	24,000
4,700		58,000	24,000
4,800		62,000	26,000
4,900		62,000	26,000
5,000		62,000	26,000
5,200		62,000	26,000
5,300		62,000	26,000
5,400		66,000	28,000
5,500		66,000	28,000
5,700		66,000	28,000
5,900		66,000	28,000
6,000		66,000	28,000
6,100		70,000	31,000
6,200		70,000	31,000
6,300		70,000	31,000
6,600		70,000	31,000
6,700		70,000	31,000
6,800		74,000	34,000
7,100		74,000	34,000
7,300		74,000	34,000
7,500		74,000	34,000
7,800		79,000	37,000
8,300		79,000	37,000
8,500		79,000	37,000
8,700		84,000	40,000
8,800		84,000	40,000
8,900		84,000	40,000
9,000		84,000	40,000
9,100		84,000	40,000
9,300		84,000	40,000
9,600		89,000	43,000
9,800		89,000	43,000
9,900		89,000	43,000
10,000		89,000	43,000
10,100		89,000	43,000
10,500		89,000	43,000
11,200		95,000	47,000
12,200		102,000	51,000
12,300	31/64	102,000	51,000
12,700	1/2	102,000	51,000
12,800		102,000	51,000
13,500		107,000	54,000
14,500		111,000	56,000
15,000		111,000	56,000

Brocas espirales extra cortas

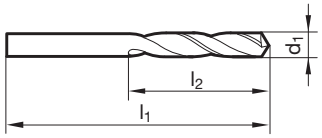
~3xD | DIN 1897 | N | 118° | h8

Material de corte	HSS
Acabado	>Ø 6,00
Dirección de corte	L

P	•	vaciado de punta ≥Ø 14,050 • entrada cónica • para aplic. en tornos autom./revolver
M		
K	•	
N	○	secciones delgadas
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 772



Artículo N° **226**

d1		l1	l2
mm	inch	mm	mm
0,320		19,000	2,000
0,500		20,000	3,000
0,550		21,000	3,500
0,580		21,000	3,500
0,620		22,000	4,000
0,650		22,000	4,000
0,700		23,000	4,500
0,740		23,000	4,500
0,750		23,000	4,500
0,800		24,000	5,000
0,810		24,000	5,000
0,850		24,000	5,000
0,875		25,000	5,500
0,890		25,000	5,500
0,900		25,000	5,500
0,950		25,000	5,500
0,970		26,000	6,000
0,975		26,000	6,000
1,000		26,000	6,000
1,020		26,000	6,000
1,030		26,000	6,000
1,040		26,000	6,000
1,050		26,000	6,000
1,060		26,000	6,000
1,070		28,000	7,000
1,090		28,000	7,000
1,100		28,000	7,000
1,150		28,000	7,000
1,190	3/64	30,000	8,000
1,200		30,000	8,000
1,220		30,000	8,000
1,250		30,000	8,000
1,320		30,000	8,000
1,330		32,000	9,000
1,350		32,000	9,000
1,450		32,000	9,000
1,500		32,000	9,000
1,510		34,000	10,000
1,550		34,000	10,000
1,580		34,000	10,000
1,590	1/16	34,000	10,000
1,600		34,000	10,000

d1		l1	l2
mm	inch	mm	mm
1,610		34,000	10,000
1,650		34,000	10,000
1,670		34,000	10,000
1,700		34,000	10,000
1,720		36,000	11,000
1,750		36,000	11,000
1,780		36,000	11,000
1,800		36,000	11,000
1,810		36,000	11,000
1,850		36,000	11,000
1,900		36,000	11,000
1,930		38,000	12,000
1,940		38,000	12,000
1,950		38,000	12,000
1,980	5/64	38,000	12,000
1,990		38,000	12,000
2,000		38,000	12,000
2,010		38,000	12,000
2,050		38,000	12,000
2,060		38,000	12,000
2,080		38,000	12,000
2,100		38,000	12,000
2,180		40,000	13,000
2,200		40,000	13,000
2,220		40,000	13,000
2,260		40,000	13,000
2,300		40,000	13,000
2,350		40,000	13,000
2,360		40,000	13,000
2,370		43,000	14,000
2,380	3/32	43,000	14,000
2,400		43,000	14,000
2,440		43,000	14,000
2,450		43,000	14,000
2,490		43,000	14,000
2,500		43,000	14,000
2,520		43,000	14,000
2,530		43,000	14,000
2,550		43,000	14,000
2,580		43,000	14,000
2,600		43,000	14,000
2,640		43,000	14,000

d1		l1	l2
mm	inch	mm	mm
2,650		43,000	14,000
2,700		46,000	16,000
2,710		46,000	16,000
2,720		46,000	16,000
2,800		46,000	16,000
2,820		46,000	16,000
2,870		46,000	16,000
2,880		46,000	16,000
2,900		46,000	16,000
3,000		46,000	16,000
3,020		49,000	18,000
3,050		49,000	18,000
3,100		49,000	18,000
3,150		49,000	18,000
3,170	1/8	49,000	18,000
3,200		49,000	18,000
3,230		49,000	18,000
3,250		49,000	18,000
3,300		49,000	18,000
3,330		49,000	18,000
3,400		52,000	20,000
3,420		52,000	20,000
3,450		52,000	20,000
3,480		52,000	20,000
3,500		52,000	20,000
3,530		52,000	20,000
3,700		52,000	20,000
3,710		52,000	20,000
3,720		52,000	20,000
3,730		52,000	20,000
3,750		52,000	20,000
3,770		55,000	22,000
3,800		55,000	22,000
3,840		55,000	22,000
3,850		55,000	22,000
3,860		55,000	22,000
3,910		55,000	22,000
3,950		55,000	22,000
3,970	5/32	55,000	22,000
3,990		55,000	22,000
4,000		55,000	22,000
4,020		55,000	22,000
4,030		55,000	22,000
4,033		55,000	22,000
4,100		55,000	22,000
4,200		55,000	22,000
4,220		55,000	22,000
4,230		55,000	22,000
4,250		55,000	22,000
4,290		58,000	24,000
4,300		58,000	24,000
4,350		58,000	24,000
4,370	11/64	58,000	24,000
4,400		58,000	24,000
4,450		58,000	24,000
4,500		58,000	24,000
4,520		58,000	24,000
4,560		58,000	24,000
4,570		58,000	24,000
4,600		58,000	24,000
4,620		58,000	24,000
4,700		58,000	24,000
4,750		58,000	24,000
4,760	3/16	62,000	26,000
4,800		62,000	26,000
4,850		62,000	26,000
4,920		62,000	26,000
4,930		62,000	26,000
4,950		62,000	26,000
4,970		62,000	26,000
4,980		62,000	26,000
5,000		62,000	26,000

d1		l1	l2
mm	inch	mm	mm
5,050		62,000	26,000
5,100		62,000	26,000
5,110		62,000	26,000
5,150		62,000	26,000
5,160	13/64	62,000	26,000
5,180		62,000	26,000
5,200		62,000	26,000
5,220		62,000	26,000
5,250		62,000	26,000
5,300		62,000	26,000
5,310		66,000	28,000
5,400		66,000	28,000
5,410		66,000	28,000
5,450		66,000	28,000
5,500		66,000	28,000
5,560	7/32	66,000	28,000
5,600		66,000	28,000
5,610		66,000	28,000
5,620		66,000	28,000
5,700		66,000	28,000
5,750		66,000	28,000
5,790		66,000	28,000
5,800		66,000	28,000
5,900		66,000	28,000
5,940		66,000	28,000
5,950	15/64	66,000	28,000
6,000		66,000	28,000
6,040		70,000	31,000
6,150		70,000	31,000
6,170		70,000	31,000
6,200		70,000	31,000
6,250		70,000	31,000
6,300		70,000	31,000
6,350	1/4	70,000	31,000
6,400		70,000	31,000
6,500		70,000	31,000
6,530		70,000	31,000
6,540		70,000	31,000
6,550		70,000	31,000
6,570		70,000	31,000
6,600		70,000	31,000
6,630		70,000	31,000
6,700		70,000	31,000
6,750	17/64	74,000	34,000
6,800		74,000	34,000
6,900		74,000	34,000
6,920		74,000	34,000
7,000		74,000	34,000
7,030		74,000	34,000
7,100		74,000	34,000
7,140	9/32	74,000	34,000
7,200		74,000	34,000
7,250		74,000	34,000
7,350		74,000	34,000
7,370		74,000	34,000
7,400		74,000	34,000
7,450		74,000	34,000
7,490		74,000	34,000
7,500		74,000	34,000
7,540	19/64	79,000	37,000
7,550		79,000	37,000
7,700		79,000	37,000
7,750		79,000	37,000
7,800		79,000	37,000
7,900		79,000	37,000
7,940	5/16	79,000	37,000
8,000		79,000	37,000
8,030		79,000	37,000
8,100		79,000	37,000
8,200		79,000	37,000
8,300		79,000	37,000
8,330	21/64	79,000	37,000

d1		l1	l2
mm	inch	mm	mm
8,500		79,000	37,000
8,600		84,000	40,000
8,700		84,000	40,000
8,730	11/32	84,000	40,000
8,800		84,000	40,000
8,840		84,000	40,000
8,850		84,000	40,000
8,900		84,000	40,000
9,000		84,000	40,000
9,090		84,000	40,000
9,130	23/64	84,000	40,000
9,150		84,000	40,000
9,300		84,000	40,000
9,340		84,000	40,000
9,350		84,000	40,000
9,500		84,000	40,000
9,520	3/8	89,000	43,000
9,580		89,000	43,000
9,700		89,000	43,000
9,750		89,000	43,000
9,900		89,000	43,000
10,000		89,000	43,000
10,050		89,000	43,000
10,080		89,000	43,000
10,100		89,000	43,000
10,200		89,000	43,000
10,300		89,000	43,000
10,320	13/32	89,000	43,000
10,490		89,000	43,000
10,500		89,000	43,000
10,600		89,000	43,000
10,800		95,000	47,000
11,000		95,000	47,000
11,110	7/16	95,000	47,000
11,200		95,000	47,000
11,250		95,000	47,000
11,500		95,000	47,000
11,510	29/64	95,000	47,000
11,750		95,000	47,000
11,800		95,000	47,000
12,000		102,000	51,000
12,200		102,000	51,000
12,450		102,000	51,000
12,500		102,000	51,000
12,700	1/2	102,000	51,000
12,900		102,000	51,000
13,000		102,000	51,000
13,200		102,000	51,000
13,250		107,000	54,000
13,750		107,000	54,000
13,890	35/64	107,000	54,000
14,000		107,000	54,000
14,050		111,000	56,000
14,200		111,000	56,000

d1		l1	l2
mm	inch	mm	mm
14,250		111,000	56,000
14,290	9/16	111,000	56,000
14,500		111,000	56,000
14,700		111,000	56,000
15,000		111,000	56,000
15,200		115,000	58,000
15,480	39/64	115,000	58,000
15,600		115,000	58,000
15,750		115,000	58,000
15,870	5/8	115,000	58,000
16,000		115,000	58,000
16,200		119,000	60,000
16,500		119,000	60,000
16,670	21/32	119,000	60,000
17,000		119,000	60,000
17,070	43/64	123,000	62,000
17,750		123,000	62,000
18,000		123,000	62,000
18,500		127,000	64,000
19,050	3/4	131,000	66,000
19,840	25/32	131,000	66,000
20,000		131,000	66,000
20,640	13/16	136,000	68,000
21,000		136,000	68,000
21,250		141,000	70,000
21,750		141,000	70,000
21,830	55/64	141,000	70,000
22,000		141,000	70,000
22,400		141,000	70,000
23,000		146,000	72,000
24,000		151,000	75,000
25,500		156,000	78,000
26,190	1 1/32	156,000	78,000
26,590	1 3/64	162,000	81,000
26,990	1 1/16	162,000	81,000
27,380	1 5/64	162,000	81,000
29,000		168,000	84,000
30,960	1 7/32	174,000	87,000
31,500		174,000	87,000
32,150	1 17/64	180,000	90,000
32,940	1 19/64	180,000	90,000
33,000		180,000	90,000
34,500		186,000	93,000
34,920	1 3/8	186,000	93,000
36,000		193,000	96,000
37,000		193,000	96,000
40,000		200,000	100,000
45,000		214,000	108,000
48,000		228,000	116,000
50,000		228,000	116,000

Brocas espirales extra cortas

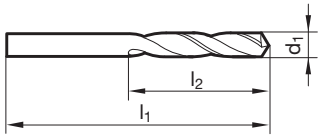
~3xD | DIN 1897 | N | 118° | h8

Material de corte	HSS
Acabado	S
Dirección de corte	L

P	•	vaciado de punta ≥Ø 2,400 • entrada cónica • para aplic. en tornos autom./revolver
M		
K	•	
N	○	secciones delgadas
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 772



Artículo N° **672**

d1 mm	inch	l1 mm	l2 mm
0,900		25,000	5,500
0,950		25,000	5,500
1,000		26,000	6,000
1,100		28,000	7,000
1,400		32,000	9,000
1,500		32,000	9,000
1,600		34,000	10,000
1,800		36,000	11,000
2,000		38,000	12,000
2,100		38,000	12,000
2,200		40,000	13,000
2,300		40,000	13,000
2,350		40,000	13,000
2,400		43,000	14,000
2,500		43,000	14,000
2,550		43,000	14,000
2,700		46,000	16,000
2,800		46,000	16,000
2,920		46,000	16,000
3,000		46,000	16,000
3,100		49,000	18,000
3,150		49,000	18,000
3,200		49,000	18,000
3,300		49,000	18,000
3,400		52,000	20,000
3,500		52,000	20,000
3,800		55,000	22,000
3,900		55,000	22,000
4,000		55,000	22,000
4,200		55,000	22,000
4,250		55,000	22,000
4,300		58,000	24,000
4,400		58,000	24,000
4,600		58,000	24,000
4,700		58,000	24,000
4,800		62,000	26,000

d1 mm	inch	l1 mm	l2 mm
4,900		62,000	26,000
5,000		62,000	26,000
5,200		62,000	26,000
5,600		66,000	28,000
5,700		66,000	28,000
5,900		66,000	28,000
6,000		66,000	28,000
6,100		70,000	31,000
6,200		70,000	31,000
6,500		70,000	31,000
6,800		74,000	34,000
6,900		74,000	34,000
7,500		74,000	34,000
7,900		79,000	37,000
8,000		79,000	37,000
8,500		79,000	37,000
8,700		84,000	40,000
8,800		84,000	40,000
9,000		84,000	40,000
9,500		84,000	40,000
9,800		89,000	43,000
10,000		89,000	43,000
11,000		95,000	47,000
11,500		95,000	47,000
12,500		102,000	51,000
12,700	1/2	102,000	51,000
13,000		102,000	51,000

Brocas espirales extra cortas

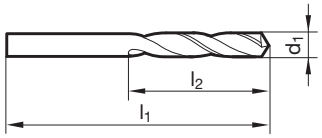
~3xD | DIN 1897 | H | 118° | h8

Material de corte	HSS
Acabado	○
Dirección de corte	R

P		vaciado de punta ≥Ø 14,500 • entrada cónica
M		
K		
N	•	materiales duros y quebradizos • latón, aleaciones de magnesio • bronce y bronce al fósforo • pizarra, mica, Pertinax
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 772



Artículo N° **224**

d1 mm	inch	l1 mm	l2 mm	d1 mm	inch	l1 mm	l2 mm
0,690		23,000	4,500	3,000		46,000	16,000
0,900		25,000	5,500	3,100		49,000	18,000
0,950		25,000	5,500	3,170	1/8	49,000	18,000
1,000		26,000	6,000	3,200		49,000	18,000
1,100		28,000	7,000	3,250		49,000	18,000
1,190	3/64	30,000	8,000	3,300		49,000	18,000
1,200		30,000	8,000	3,350		49,000	18,000
1,300		30,000	8,000	3,400		52,000	20,000
1,400		32,000	9,000	3,500		52,000	20,000
1,500		32,000	9,000	3,570	9/64	52,000	20,000
1,550		34,000	10,000	3,600		52,000	20,000
1,590	1/16	34,000	10,000	3,650		52,000	20,000
1,600		34,000	10,000	3,700		52,000	20,000
1,620		34,000	10,000	3,800		55,000	22,000
1,700		34,000	10,000	3,850		55,000	22,000
1,780		36,000	11,000	3,900		55,000	22,000
1,800		36,000	11,000	3,970	5/32	55,000	22,000
1,850		36,000	11,000	4,000		55,000	22,000
1,900		36,000	11,000	4,050		55,000	22,000
1,950		38,000	12,000	4,100		55,000	22,000
1,980	5/64	38,000	12,000	4,200		55,000	22,000
2,000		38,000	12,000	4,250		55,000	22,000
2,020		38,000	12,000	4,300		58,000	24,000
2,050		38,000	12,000	4,370	11/64	58,000	24,000
2,100		38,000	12,000	4,400		58,000	24,000
2,200		40,000	13,000	4,450		58,000	24,000
2,250		40,000	13,000	4,500		58,000	24,000
2,300		40,000	13,000	4,600		58,000	24,000
2,350		40,000	13,000	4,700		58,000	24,000
2,370		43,000	14,000	4,760	3/16	62,000	26,000
2,380	3/32	43,000	14,000	4,800		62,000	26,000
2,400		43,000	14,000	4,900		62,000	26,000
2,450		43,000	14,000	5,000		62,000	26,000
2,500		43,000	14,000	5,100		62,000	26,000
2,550		43,000	14,000	5,200		62,000	26,000
2,600		43,000	14,000	5,300		62,000	26,000
2,650		43,000	14,000	5,400		66,000	28,000
2,700		46,000	16,000	5,500		66,000	28,000
2,780	7/64	46,000	16,000	5,560	7/32	66,000	28,000
2,800		46,000	16,000	5,600		66,000	28,000
2,900		46,000	16,000	5,700		66,000	28,000
2,950		46,000	16,000	5,800		66,000	28,000

d1		l1	l2
mm	inch	mm	mm
5,900		66,000	28,000
5,950	15/64	66,000	28,000
6,000		66,000	28,000
6,100		70,000	31,000
6,200		70,000	31,000
6,350	1/4	70,000	31,000
6,400		70,000	31,000
6,500		70,000	31,000
6,600		70,000	31,000
6,800		74,000	34,000
6,900		74,000	34,000
7,000		74,000	34,000
7,140	9/32	74,000	34,000
7,500		74,000	34,000
7,540	19/64	79,000	37,000
7,750		79,000	37,000
7,940	5/16	79,000	37,000
8,000		79,000	37,000
8,030		79,000	37,000
8,100		79,000	37,000
8,330	21/64	79,000	37,000
8,400		79,000	37,000
8,500		79,000	37,000
9,000		84,000	40,000

d1		l1	l2
mm	inch	mm	mm
9,200		84,000	40,000
9,500		84,000	40,000
9,920	25/64	89,000	43,000
10,000		89,000	43,000
10,320	13/32	89,000	43,000
10,500		89,000	43,000
10,720	27/64	95,000	47,000
11,000		95,000	47,000
11,110	7/16	95,000	47,000
11,500		95,000	47,000
11,910	15/32	102,000	51,000
12,000		102,000	51,000
12,500		102,000	51,000
13,000		102,000	51,000
14,000		107,000	54,000
14,500		111,000	56,000
15,000		111,000	56,000
16,000		115,000	58,000
17,000		119,000	60,000
18,000		123,000	62,000
19,000		127,000	64,000
20,000		131,000	66,000
21,000		136,000	68,000

Brocas espirales extra cortas

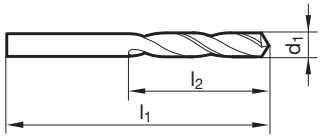
~3xD | DIN 1897 | H | 118° | h8

Material de corte	HSS
Acabado	○
Dirección de corte	L

P		vaciado de punta ≥Ø 15,000 • entrada cónica
M		
K		
N	•	para materiales duros y quebradizos • latón, aleaciones de magnesio • bronce y bronce al fósforo • pizarra, mica, Pertinax
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 772



Artículo N° **227**

d1 mm	inch	l1 mm	l2 mm	d1 mm	inch	l1 mm	l2 mm
0,750		23,000	4,500	4,700		58,000	24,000
1,040		26,000	6,000	4,760	3/16	62,000	26,000
1,150		28,000	7,000	4,800		62,000	26,000
1,190	3/64	30,000	8,000	4,900		62,000	26,000
1,200		30,000	8,000	5,000		62,000	26,000
1,350		32,000	9,000	5,100		62,000	26,000
1,540		34,000	10,000	5,150		62,000	26,000
1,590	1/16	34,000	10,000	5,160	13/64	62,000	26,000
1,700		34,000	10,000	5,300		62,000	26,000
1,800		36,000	11,000	5,400		66,000	28,000
1,900		36,000	11,000	5,500		66,000	28,000
1,950		38,000	12,000	5,560	7/32	66,000	28,000
1,980	5/64	38,000	12,000	5,600		66,000	28,000
2,100		38,000	12,000	5,700		66,000	28,000
2,150		40,000	13,000	5,800		66,000	28,000
2,200		40,000	13,000	5,900		66,000	28,000
2,370		43,000	14,000	5,950	15/64	66,000	28,000
2,380	3/32	43,000	14,000	6,350	1/4	70,000	31,000
2,480		43,000	14,000	6,400		70,000	31,000
2,500		43,000	14,000	6,600		70,000	31,000
2,580		43,000	14,000	6,750	17/64	74,000	34,000
2,600		43,000	14,000	7,000		74,000	34,000
2,700		46,000	16,000	7,140	9/32	74,000	34,000
2,780	7/64	46,000	16,000	7,200		74,000	34,000
2,800		46,000	16,000	7,300		74,000	34,000
2,900		46,000	16,000	7,500		74,000	34,000
3,000		46,000	16,000	7,540	19/64	79,000	37,000
3,100		49,000	18,000	7,750		79,000	37,000
3,170	1/8	49,000	18,000	7,900		79,000	37,000
3,200		49,000	18,000	7,940	5/16	79,000	37,000
3,350		49,000	18,000	8,300		79,000	37,000
3,400		52,000	20,000	8,330	21/64	79,000	37,000
3,500		52,000	20,000	8,500		79,000	37,000
3,570	9/64	52,000	20,000	8,730	11/32	84,000	40,000
3,600		52,000	20,000	8,800		84,000	40,000
3,700		52,000	20,000	9,130	23/64	84,000	40,000
3,970	5/32	55,000	22,000	9,500		84,000	40,000
4,100		55,000	22,000	9,520	3/8	89,000	43,000
4,250		55,000	22,000	9,920	25/64	89,000	43,000
4,300		58,000	24,000	10,000		89,000	43,000
4,370	11/64	58,000	24,000	10,320	13/32	89,000	43,000
4,600		58,000	24,000	10,720	27/64	95,000	47,000

d1		l1	l2
mm	inch	mm	mm
11,000		95,000	47,000
11,110	7/16	95,000	47,000
11,510	29/64	95,000	47,000
11,910	15/32	102,000	51,000
13,500		107,000	54,000
15,000		111,000	56,000

d1		l1	l2
mm	inch	mm	mm
22,200		141,000	70,000
24,000		151,000	75,000

Brocas espirales extra cortas

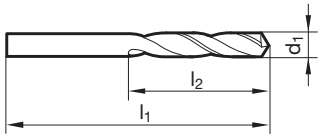
~3xD | DIN 1897 | W | 130° | h8

Material de corte	HSS
Acabado	○
Dirección de corte	Ⓡ

P		vaciado de punta ≥Ø 2,380 • entrada cónica
M		
K		
N	•	mat. blandos y de viruta larga • aluminio, alea. de alum. (de vir. larga) • zink, cobre fino, siluminio, electrón • plásticos (blandos), madera
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 772



Artículo N° **225**

d1		l1	l2
mm	inch	mm	mm
1,000		26,000	6,000
1,100		28,000	7,000
1,190	3/64	30,000	8,000
1,200		30,000	8,000
1,300		30,000	8,000
1,400		32,000	9,000
1,500		32,000	9,000
1,590	1/16	34,000	10,000
1,600		34,000	10,000
1,700		34,000	10,000
1,800		36,000	11,000
1,900		36,000	11,000
1,980	5/64	38,000	12,000
2,000		38,000	12,000
2,100		38,000	12,000
2,200		40,000	13,000
2,250		40,000	13,000
2,300		40,000	13,000
2,380	3/32	43,000	14,000
2,400		43,000	14,000
2,500		43,000	14,000
2,550		43,000	14,000
2,600		43,000	14,000
2,700		46,000	16,000
2,710		46,000	16,000
2,750		46,000	16,000
2,780	7/64	46,000	16,000
2,800		46,000	16,000
2,900		46,000	16,000
3,000		46,000	16,000
3,050		49,000	18,000
3,100		49,000	18,000
3,170	1/8	49,000	18,000
3,200		49,000	18,000
3,300		49,000	18,000
3,400		52,000	20,000
3,500		52,000	20,000
3,570	9/64	52,000	20,000
3,700		52,000	20,000
3,800		55,000	22,000
3,900		55,000	22,000
3,970	5/32	55,000	22,000

d1		l1	l2
mm	inch	mm	mm
4,000		55,000	22,000
4,100		55,000	22,000
4,200		55,000	22,000
4,300		58,000	24,000
4,370	11/64	58,000	24,000
4,400		58,000	24,000
4,500		58,000	24,000
4,600		58,000	24,000
4,760	3/16	62,000	26,000
4,800		62,000	26,000
4,900		62,000	26,000
5,000		62,000	26,000
5,100		62,000	26,000
5,200		62,000	26,000
5,250		62,000	26,000
5,300		62,000	26,000
5,560	7/32	66,000	28,000
5,700		66,000	28,000
5,900		66,000	28,000
5,950	15/64	66,000	28,000
6,000		66,000	28,000
6,100		70,000	31,000
6,200		70,000	31,000
6,300		70,000	31,000
6,350	1/4	70,000	31,000
6,400		70,000	31,000
6,500		70,000	31,000
6,530		70,000	31,000
6,600		70,000	31,000
6,800		74,000	34,000
6,900		74,000	34,000
7,000		74,000	34,000
7,100		74,000	34,000
7,140	9/32	74,000	34,000
7,300		74,000	34,000
7,500		74,000	34,000
7,540	19/64	79,000	37,000
7,600		79,000	37,000
7,800		79,000	37,000
7,940	5/16	79,000	37,000
8,000		79,000	37,000
8,200		79,000	37,000

d1		l1	l2
mm	inch	mm	mm
8,330	21/64	79,000	37,000
8,400		79,000	37,000
8,430		79,000	37,000
8,500		79,000	37,000
8,600		84,000	40,000
8,700		84,000	40,000
8,730	11/32	84,000	40,000
8,900		84,000	40,000
9,000		84,000	40,000
9,130	23/64	84,000	40,000
9,200		84,000	40,000
9,400		84,000	40,000
9,520	3/8	89,000	43,000
9,800		89,000	43,000
9,920	25/64	89,000	43,000
10,000		89,000	43,000
10,200		89,000	43,000
10,500		89,000	43,000

d1		l1	l2
mm	inch	mm	mm
10,720	27/64	95,000	47,000
11,000		95,000	47,000
11,110	7/16	95,000	47,000
12,000		102,000	51,000
12,100		102,000	51,000
12,500		102,000	51,000
12,700	1/2	102,000	51,000
12,800		102,000	51,000
13,000		102,000	51,000
14,500		111,000	56,000
15,000		111,000	56,000
16,000		115,000	58,000
17,500		123,000	62,000
18,000		123,000	62,000
19,050	3/4	131,000	66,000
19,750		131,000	66,000
20,000		131,000	66,000

Brocas espirales extra cortas

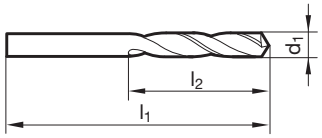
~3xD | DIN 1897 | W | 130° | h8

Material de corte	HSS
Acabado	○
Dirección de corte	L

P		vaciado de punta ≥Ø 2,380 • entrada cónica
M		
K		
N	•	mat. blandos y de viruta larga • aluminio, alea. de alum. (de vir. larga) • zink, cobre fino, siluminio, electrón • plásticos (blandos), madera
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 772



Artículo N° **228**

d1 mm	inch	l1 mm	l2 mm
1,000		26,000	6,000
1,100		28,000	7,000
1,150		28,000	7,000
1,190	3/64	30,000	8,000
1,200		30,000	8,000
1,300		30,000	8,000
1,400		32,000	9,000
1,450		32,000	9,000
1,500		32,000	9,000
1,590	1/16	34,000	10,000
1,600		34,000	10,000
1,700		34,000	10,000
1,800		36,000	11,000
1,900		36,000	11,000
1,980	5/64	38,000	12,000
2,000		38,000	12,000
2,100		38,000	12,000
2,200		40,000	13,000
2,300		40,000	13,000
2,350		40,000	13,000
2,380	3/32	43,000	14,000
2,400		43,000	14,000
2,420		43,000	14,000
2,500		43,000	14,000
2,570		43,000	14,000
2,600		43,000	14,000
2,700		46,000	16,000
2,780	7/64	46,000	16,000
2,800		46,000	16,000
2,900		46,000	16,000
2,920		46,000	16,000
3,100		49,000	18,000
3,170	1/8	49,000	18,000
3,200		49,000	18,000
3,570	9/64	52,000	20,000
3,600		52,000	20,000
3,650		52,000	20,000
3,700		52,000	20,000
3,800		55,000	22,000
3,970	5/32	55,000	22,000
4,000		55,000	22,000
4,100		55,000	22,000

d1 mm	inch	l1 mm	l2 mm
4,200		55,000	22,000
4,300		58,000	24,000
4,370	11/64	58,000	24,000
4,390		58,000	24,000
4,400		58,000	24,000
4,500		58,000	24,000
4,600		58,000	24,000
4,760	3/16	62,000	26,000
4,800		62,000	26,000
4,900		62,000	26,000
5,100		62,000	26,000
5,160	13/64	62,000	26,000
5,200		62,000	26,000
5,400		66,000	28,000
5,600		66,000	28,000
5,700		66,000	28,000
5,800		66,000	28,000
5,900		66,000	28,000
5,950	15/64	66,000	28,000
6,100		70,000	31,000
6,150		70,000	31,000
6,350	1/4	70,000	31,000
6,500		70,000	31,000
6,700		70,000	31,000
6,750	17/64	74,000	34,000
6,800		74,000	34,000
6,900		74,000	34,000
7,000		74,000	34,000
7,140	9/32	74,000	34,000
7,400		74,000	34,000
7,500		74,000	34,000
7,540	19/64	79,000	37,000
7,800		79,000	37,000
7,940	5/16	79,000	37,000
8,330	21/64	79,000	37,000
8,400		79,000	37,000
8,730	11/32	84,000	40,000
9,000		84,000	40,000
9,130	23/64	84,000	40,000
9,500		84,000	40,000
9,920	25/64	89,000	43,000
10,320	13/32	89,000	43,000

d1		l1	l2
mm	inch	mm	mm
10,500		89,000	43,000
10,720	27/64	95,000	47,000
11,110	7/16	95,000	47,000
11,500		95,000	47,000
11,910	15/32	102,000	51,000
12,300	31/64	102,000	51,000
12,500		102,000	51,000
12,700	1/2	102,000	51,000
12,800		102,000	51,000
13,000		102,000	51,000
13,500		107,000	54,000
14,000		107,000	54,000

d1		l1	l2
mm	inch	mm	mm
14,500		111,000	56,000
14,700		111,000	56,000
15,000		111,000	56,000
15,500		115,000	58,000
16,500		119,000	60,000
18,000		123,000	62,000
20,000		131,000	66,000

Brocas espirales extra cortas

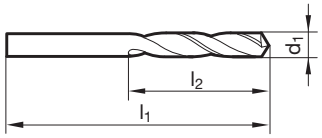
~3xD | DIN 1897 | GT 80 | 130° | h8

Material de corte	HSS
Acabado	>Ø 16,0
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,000 • entrada cónica • para aceros muy duros • blancas < 2,36 mm
M	○	
K	○	
N	•	aceros para tornos automáticos • aceros inoxidables y resistentes al ácido • aceros templados y revenidos de dureza hasta aprox. 800 N/mm² • aleaciones de cobre y de Al de virutas cortas o semilargas
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 772



Artículo N° **552**

d1 mm	inch	l1 mm	l2 mm	d1 mm	inch	l1 mm	l2 mm
1,000		26,000	6,000	2,150		40,000	13,000
1,020		26,000	6,000	2,180		40,000	13,000
1,040		26,000	6,000	2,200		40,000	13,000
1,050		26,000	6,000	2,250		40,000	13,000
1,070		28,000	7,000	2,260		40,000	13,000
1,090		28,000	7,000	2,300		40,000	13,000
1,100		28,000	7,000	2,320		40,000	13,000
1,150		28,000	7,000	2,350		40,000	13,000
1,180		28,000	7,000	2,370		43,000	14,000
1,190	3/64	30,000	8,000	2,380	3/32	43,000	14,000
1,200		30,000	8,000	2,400		43,000	14,000
1,250		30,000	8,000	2,440		43,000	14,000
1,300		30,000	8,000	2,450		43,000	14,000
1,320		30,000	8,000	2,490		43,000	14,000
1,350		32,000	9,000	2,500		43,000	14,000
1,400		32,000	9,000	2,530		43,000	14,000
1,450		32,000	9,000	2,550		43,000	14,000
1,500		32,000	9,000	2,580		43,000	14,000
1,510		34,000	10,000	2,600		43,000	14,000
1,530		34,000	10,000	2,640		43,000	14,000
1,550		34,000	10,000	2,650		43,000	14,000
1,590	1/16	34,000	10,000	2,700		46,000	16,000
1,600		34,000	10,000	2,710		46,000	16,000
1,610		34,000	10,000	2,750		46,000	16,000
1,650		34,000	10,000	2,780	7/64	46,000	16,000
1,700		34,000	10,000	2,790		46,000	16,000
1,750		36,000	11,000	2,800		46,000	16,000
1,780		36,000	11,000	2,820		46,000	16,000
1,800		36,000	11,000	2,850		46,000	16,000
1,820		36,000	11,000	2,870		46,000	16,000
1,850		36,000	11,000	2,900		46,000	16,000
1,900		36,000	11,000	2,950		46,000	16,000
1,930		38,000	12,000	3,000		46,000	16,000
1,950		38,000	12,000	3,050		49,000	18,000
1,980	5/64	38,000	12,000	3,100		49,000	18,000
1,990		38,000	12,000	3,150		49,000	18,000
2,000		38,000	12,000	3,170	1/8	49,000	18,000
2,050		38,000	12,000	3,200		49,000	18,000
2,060		38,000	12,000	3,250		49,000	18,000
2,080		38,000	12,000	3,260		49,000	18,000
2,100		38,000	12,000	3,300		49,000	18,000
2,130		40,000	13,000	3,350		49,000	18,000

d1		l1	l2
mm	inch	mm	mm
3,400		52,000	20,000
3,450		52,000	20,000
3,500		52,000	20,000
3,550		52,000	20,000
3,570	9/64	52,000	20,000
3,600		52,000	20,000
3,650		52,000	20,000
3,660		52,000	20,000
3,700		52,000	20,000
3,730		52,000	20,000
3,750		52,000	20,000
3,800		55,000	22,000
3,850		55,000	22,000
3,860		55,000	22,000
3,900		55,000	22,000
3,910		55,000	22,000
3,950		55,000	22,000
3,970	5/32	55,000	22,000
3,990		55,000	22,000
4,000		55,000	22,000
4,040		55,000	22,000
4,050		55,000	22,000
4,090		55,000	22,000
4,100		55,000	22,000
4,150		55,000	22,000
4,200		55,000	22,000
4,220		55,000	22,000
4,250		55,000	22,000
4,300		58,000	24,000
4,350		58,000	24,000
4,370	11/64	58,000	24,000
4,390		58,000	24,000
4,400		58,000	24,000
4,450		58,000	24,000
4,500		58,000	24,000
4,550		58,000	24,000
4,570		58,000	24,000
4,600		58,000	24,000
4,620		58,000	24,000
4,650		58,000	24,000
4,700		58,000	24,000
4,750		58,000	24,000
4,760	3/16	62,000	26,000
4,800		62,000	26,000
4,850		62,000	26,000
4,900		62,000	26,000
4,920		62,000	26,000
4,950		62,000	26,000
4,980		62,000	26,000
5,000		62,000	26,000
5,050		62,000	26,000
5,060		62,000	26,000
5,100		62,000	26,000
5,110		62,000	26,000
5,160	13/64	62,000	26,000
5,180		62,000	26,000
5,200		62,000	26,000
5,220		62,000	26,000
5,300		62,000	26,000
5,310		66,000	28,000
5,400		66,000	28,000
5,410		66,000	28,000
5,500		66,000	28,000
5,560	7/32	66,000	28,000
5,600		66,000	28,000
5,610		66,000	28,000
5,700		66,000	28,000
5,790		66,000	28,000
5,800		66,000	28,000
5,900		66,000	28,000
5,940		66,000	28,000
5,950	15/64	66,000	28,000

d1		l1	l2
mm	inch	mm	mm
6,000		66,000	28,000
6,040		70,000	31,000
6,100		70,000	31,000
6,150		70,000	31,000
6,200		70,000	31,000
6,250		70,000	31,000
6,300		70,000	31,000
6,350	1/4	70,000	31,000
6,400		70,000	31,000
6,500		70,000	31,000
6,530		70,000	31,000
6,600		70,000	31,000
6,630		70,000	31,000
6,700		70,000	31,000
6,750	17/64	74,000	34,000
6,800		74,000	34,000
6,900		74,000	34,000
7,000		74,000	34,000
7,030		74,000	34,000
7,100		74,000	34,000
7,140	9/32	74,000	34,000
7,200		74,000	34,000
7,300		74,000	34,000
7,370		74,000	34,000
7,400		74,000	34,000
7,490		74,000	34,000
7,500		74,000	34,000
7,540	19/64	79,000	37,000
7,600		79,000	37,000
7,670		79,000	37,000
7,700		79,000	37,000
7,800		79,000	37,000
7,900		79,000	37,000
7,940	5/16	79,000	37,000
8,000		79,000	37,000
8,030		79,000	37,000
8,100		79,000	37,000
8,200		79,000	37,000
8,300		79,000	37,000
8,330	21/64	79,000	37,000
8,400		79,000	37,000
8,430		79,000	37,000
8,500		79,000	37,000
8,600		84,000	40,000
8,610		84,000	40,000
8,700		84,000	40,000
8,730	11/32	84,000	40,000
8,800		84,000	40,000
8,840		84,000	40,000
8,900		84,000	40,000
9,000		84,000	40,000
9,090		84,000	40,000
9,100		84,000	40,000
9,130	23/64	84,000	40,000
9,200		84,000	40,000
9,300		84,000	40,000
9,340		84,000	40,000
9,400		84,000	40,000
9,500		84,000	40,000
9,520	3/8	89,000	43,000
9,580		89,000	43,000
9,600		89,000	43,000
9,700		89,000	43,000
9,800		89,000	43,000
9,900		89,000	43,000
9,920	25/64	89,000	43,000
10,000		89,000	43,000
10,080		89,000	43,000
10,200		89,000	43,000
10,260		89,000	43,000
10,320	13/32	89,000	43,000
10,490		89,000	43,000

d1		l1	l2
mm	inch	mm	mm
10,500		89,000	43,000
10,600		89,000	43,000
10,720	27/64	95,000	47,000
10,800		95,000	47,000
11,000		95,000	47,000
11,110	7/16	95,000	47,000
11,200		95,000	47,000
11,300		95,000	47,000
11,400		95,000	47,000
11,500		95,000	47,000
11,510	29/64	95,000	47,000
11,800		95,000	47,000
11,910	15/32	102,000	51,000
12,000		102,000	51,000
12,300	31/64	102,000	51,000
12,400		102,000	51,000
12,500		102,000	51,000
12,700	1/2	102,000	51,000
12,900		102,000	51,000
13,000		102,000	51,000
13,100	33/64	102,000	51,000
13,490	17/32	107,000	54,000
13,500		107,000	54,000
13,890	35/64	107,000	54,000

d1		l1	l2
mm	inch	mm	mm
14,000		107,000	54,000
14,290	9/16	111,000	56,000
14,500		111,000	56,000
14,680	37/64	111,000	56,000
15,000		111,000	56,000
15,080	19/32	115,000	58,000
15,480	39/64	115,000	58,000
15,500		115,000	58,000
15,870	5/8	115,000	58,000
16,000		115,000	58,000
16,270	41/64	119,000	60,000
16,500		119,000	60,000
17,000		119,000	60,000
17,070	43/64	123,000	62,000
17,460	11/16	123,000	62,000
17,860	45/64	123,000	62,000
18,000		123,000	62,000
18,260	23/32	127,000	64,000
19,000		127,000	64,000
19,050	3/4	131,000	66,000
19,840	25/32	131,000	66,000
20,000		131,000	66,000

Brocas espirales extra cortas

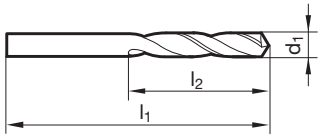
~3xD | DIN 1897 | GT 80 | 130° | h8

Material de corte	HSS
Acabado	>Ø 16,0
Dirección de corte	L

P	•	vaciado de punta ≥Ø 1,000 • entrada cónica • para aceros muy duros • blancas < 2,36 mm
M	○	
K	○	
N	•	aceros para tornos automáticos • aceros inoxidables y resistentes al ácido • aceros templados y revenidos de dureza hasta aprox. 800 N/mm² • aleaciones de cobre y de Al de virutas cortas o semilargas
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 772



Artículo N° **553**

d1 mm	inch	l1 mm	l2 mm
1,000		26,000	6,000
1,020		26,000	6,000
1,070		28,000	7,000
1,090		28,000	7,000
1,100		28,000	7,000
1,150		28,000	7,000
1,180		28,000	7,000
1,190	3/64	30,000	8,000
1,200		30,000	8,000
1,250		30,000	8,000
1,300		30,000	8,000
1,320		30,000	8,000
1,350		32,000	9,000
1,400		32,000	9,000
1,450		32,000	9,000
1,500		32,000	9,000
1,510		34,000	10,000
1,550		34,000	10,000
1,590	1/16	34,000	10,000
1,600		34,000	10,000
1,610		34,000	10,000
1,650		34,000	10,000
1,700		34,000	10,000
1,750		36,000	11,000
1,780		36,000	11,000
1,800		36,000	11,000
1,850		36,000	11,000
1,900		36,000	11,000
1,930		38,000	12,000
1,950		38,000	12,000
1,980	5/64	38,000	12,000
1,990		38,000	12,000
2,000		38,000	12,000
2,050		38,000	12,000
2,060		38,000	12,000
2,080		38,000	12,000
2,100		38,000	12,000
2,180		40,000	13,000
2,200		40,000	13,000
2,250		40,000	13,000
2,260		40,000	13,000
2,300		40,000	13,000

d1 mm	inch	l1 mm	l2 mm
2,350		40,000	13,000
2,380	3/32	43,000	14,000
2,400		43,000	14,000
2,440		43,000	14,000
2,490		43,000	14,000
2,500		43,000	14,000
2,530		43,000	14,000
2,550		43,000	14,000
2,580		43,000	14,000
2,600		43,000	14,000
2,640		43,000	14,000
2,700		46,000	16,000
2,710		46,000	16,000
2,750		46,000	16,000
2,780	7/64	46,000	16,000
2,790		46,000	16,000
2,800		46,000	16,000
2,820		46,000	16,000
2,850		46,000	16,000
2,870		46,000	16,000
2,900		46,000	16,000
2,950		46,000	16,000
3,000		46,000	16,000
3,050		49,000	18,000
3,100		49,000	18,000
3,150		49,000	18,000
3,170	1/8	49,000	18,000
3,200		49,000	18,000
3,250		49,000	18,000
3,260		49,000	18,000
3,300		49,000	18,000
3,350		49,000	18,000
3,400		52,000	20,000
3,450		52,000	20,000
3,500		52,000	20,000
3,570	9/64	52,000	20,000
3,600		52,000	20,000
3,650		52,000	20,000
3,660		52,000	20,000
3,680		52,000	20,000
3,700		52,000	20,000
3,750		52,000	20,000

d1		l1	l2
mm	inch	mm	mm
3,800		55,000	22,000
3,850		55,000	22,000
3,860		55,000	22,000
3,900		55,000	22,000
3,910		55,000	22,000
3,950		55,000	22,000
3,970	5/32	55,000	22,000
3,990		55,000	22,000
4,000		55,000	22,000
4,040		55,000	22,000
4,050		55,000	22,000
4,090		55,000	22,000
4,100		55,000	22,000
4,150		55,000	22,000
4,200		55,000	22,000
4,220		55,000	22,000
4,250		55,000	22,000
4,300		58,000	24,000
4,370	11/64	58,000	24,000
4,390		58,000	24,000
4,400		58,000	24,000
4,450		58,000	24,000
4,500		58,000	24,000
4,550		58,000	24,000
4,570		58,000	24,000
4,600		58,000	24,000
4,620		58,000	24,000
4,650		58,000	24,000
4,700		58,000	24,000
4,760	3/16	62,000	26,000
4,800		62,000	26,000
4,850		62,000	26,000
4,900		62,000	26,000
4,920		62,000	26,000
4,950		62,000	26,000
4,980		62,000	26,000
5,000		62,000	26,000
5,060		62,000	26,000
5,100		62,000	26,000
5,110		62,000	26,000
5,160	13/64	62,000	26,000
5,180		62,000	26,000
5,200		62,000	26,000
5,220		62,000	26,000
5,300		62,000	26,000
5,500		66,000	28,000
5,560	7/32	66,000	28,000
5,600		66,000	28,000
5,610		66,000	28,000
5,700		66,000	28,000
5,790		66,000	28,000
5,800		66,000	28,000
5,900		66,000	28,000
5,940		66,000	28,000
5,950	15/64	66,000	28,000
6,000		66,000	28,000
6,050		70,000	31,000
6,100		70,000	31,000
6,150		70,000	31,000
6,200		70,000	31,000
6,250		70,000	31,000
6,350	1/4	70,000	31,000
6,400		70,000	31,000
6,500		70,000	31,000
6,530		70,000	31,000
6,600		70,000	31,000
6,630		70,000	31,000
6,700		70,000	31,000
6,750	17/64	74,000	34,000
6,800		74,000	34,000
6,900		74,000	34,000
7,000		74,000	34,000

d1		l1	l2
mm	inch	mm	mm
7,030		74,000	34,000
7,140	9/32	74,000	34,000
7,300		74,000	34,000
7,370		74,000	34,000
7,400		74,000	34,000
7,490		74,000	34,000
7,500		74,000	34,000
7,540	19/64	79,000	37,000
7,600		79,000	37,000
7,670		79,000	37,000
7,700		79,000	37,000
7,940	5/16	79,000	37,000
8,000		79,000	37,000
8,200		79,000	37,000
8,330	21/64	79,000	37,000
8,430		79,000	37,000
8,500		79,000	37,000
8,600		84,000	40,000
8,610		84,000	40,000
8,730	11/32	84,000	40,000
8,840		84,000	40,000
9,000		84,000	40,000
9,090		84,000	40,000
9,130	23/64	84,000	40,000
9,340		84,000	40,000
9,400		84,000	40,000
9,500		84,000	40,000
9,520	3/8	89,000	43,000
9,580		89,000	43,000
9,600		89,000	43,000
9,700		89,000	43,000
9,800		89,000	43,000
9,900		89,000	43,000
9,920	25/64	89,000	43,000
10,000		89,000	43,000
10,200		89,000	43,000
10,260		89,000	43,000
10,320	13/32	89,000	43,000
10,490		89,000	43,000
10,500		89,000	43,000
10,700		95,000	47,000
10,720	27/64	95,000	47,000
10,900		95,000	47,000
11,000		95,000	47,000
11,100		95,000	47,000
11,110	7/16	95,000	47,000
11,500		95,000	47,000
11,510	29/64	95,000	47,000
11,800		95,000	47,000
11,910	15/32	102,000	51,000
12,000		102,000	51,000
12,300	31/64	102,000	51,000
12,500		102,000	51,000
12,700	1/2	102,000	51,000
12,800		102,000	51,000
13,000		102,000	51,000
13,100	33/64	102,000	51,000
13,490	17/32	107,000	54,000
13,500		107,000	54,000
13,890	35/64	107,000	54,000
14,000		107,000	54,000
14,250		111,000	56,000
14,290	9/16	111,000	56,000
14,500		111,000	56,000
14,680	37/64	111,000	56,000
15,000		111,000	56,000
15,080	19/32	115,000	58,000
15,480	39/64	115,000	58,000
15,500		115,000	58,000
15,870	5/8	115,000	58,000
16,000		115,000	58,000
16,270	41/64	119,000	60,000

d1		l1	l2
mm	inch	mm	mm
17,070	43/64	123,000	62,000
17,460	11/16	123,000	62,000
17,860	45/64	123,000	62,000
18,000		123,000	62,000
18,260	23/32	127,000	64,000
18,500		127,000	64,000

d1		l1	l2
mm	inch	mm	mm
18,650	47/64	127,000	64,000
19,000		127,000	64,000
19,500		131,000	66,000
19,840	25/32	131,000	66,000

Brocas espirales extra cortas

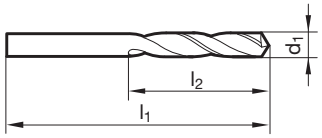
~3xD | DIN 1897 | GV 120 | 130° | h8

Material de corte	HSCO
Acabado	>Ø 2,36
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,000 • entrada cónica • acero rápido al cobalto • más resistencia al desgaste
M	•	
K	•	
N	○	aceros inoxidables y resistentes al ácido • aceros de muelles • aceros austeníticos • Hastelloy, Inconel, Nimonic
S	•	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 772



Artículo N° **329**

d1 mm	d1 inch	l1 mm	l2 mm	d1 mm	d1 inch	l1 mm	l2 mm
0,400	1/64	19,000	2,500	1,200		30,000	8,000
0,500		20,000	3,000	1,210		30,000	8,000
0,510		20,000	3,000	1,230		30,000	8,000
0,520		20,000	3,000	1,250		30,000	8,000
0,550		21,000	3,500	1,280		30,000	8,000
0,570		21,000	3,500	1,300		30,000	8,000
0,580		21,000	3,500	1,320		30,000	8,000
0,590		21,000	3,500	1,330		32,000	9,000
0,600		21,000	3,500	1,350		32,000	9,000
0,610		22,000	4,000	1,370		32,000	9,000
0,640		22,000	4,000	1,400		32,000	9,000
0,650		22,000	4,000	1,450		32,000	9,000
0,700		23,000	4,500	1,470		32,000	9,000
0,730		23,000	4,500	1,500		32,000	9,000
0,740		23,000	4,500	1,510		34,000	10,000
0,750		23,000	4,500	1,550		34,000	10,000
0,790	1/32	24,000	5,000	1,570		34,000	10,000
0,800		24,000	5,000	1,590	1/16	34,000	10,000
0,810		24,000	5,000	1,600		34,000	10,000
0,820		24,000	5,000	1,610		34,000	10,000
0,840		24,000	5,000	1,630		34,000	10,000
0,850		24,000	5,000	1,650		34,000	10,000
0,860		25,000	5,500	1,680		34,000	10,000
0,870		25,000	5,500	1,700		34,000	10,000
0,900		25,000	5,500	1,730		36,000	11,000
0,910		25,000	5,500	1,750		36,000	11,000
0,940		25,000	5,500	1,780		36,000	11,000
0,950		25,000	5,500	1,800		36,000	11,000
0,960		26,000	6,000	1,820		36,000	11,000
0,970		26,000	6,000	1,830		36,000	11,000
0,990		26,000	6,000	1,850		36,000	11,000
1,000		26,000	6,000	1,900		36,000	11,000
1,020		26,000	6,000	1,930		38,000	12,000
1,030		26,000	6,000	1,950		38,000	12,000
1,050		26,000	6,000	1,970		38,000	12,000
1,070		28,000	7,000	1,980	5/64	38,000	12,000
1,090		28,000	7,000	1,990		38,000	12,000
1,100		28,000	7,000	2,000		38,000	12,000
1,150		28,000	7,000	2,030		38,000	12,000
1,170		28,000	7,000	2,050		38,000	12,000
1,180		28,000	7,000	2,060		38,000	12,000
1,190	3/64	30,000	8,000	2,080		38,000	12,000

d1		l1	l2
mm	inch	mm	mm
2,100		38,000	12,000
2,150		40,000	13,000
2,180		40,000	13,000
2,200		40,000	13,000
2,250		40,000	13,000
2,260		40,000	13,000
2,300		40,000	13,000
2,320		40,000	13,000
2,350		40,000	13,000
2,360		40,000	13,000
2,370		43,000	14,000
2,380	3/32	43,000	14,000
2,400		43,000	14,000
2,420		43,000	14,000
2,440		43,000	14,000
2,450		43,000	14,000
2,470		43,000	14,000
2,490		43,000	14,000
2,500		43,000	14,000
2,520		43,000	14,000
2,530		43,000	14,000
2,550		43,000	14,000
2,580		43,000	14,000
2,600		43,000	14,000
2,640		43,000	14,000
2,650		43,000	14,000
2,700		46,000	16,000
2,710		46,000	16,000
2,750		46,000	16,000
2,780	7/64	46,000	16,000
2,790		46,000	16,000
2,800		46,000	16,000
2,820		46,000	16,000
2,830		46,000	16,000
2,850		46,000	16,000
2,870		46,000	16,000
2,900		46,000	16,000
2,950		46,000	16,000
3,000		46,000	16,000
3,020		49,000	18,000
3,050		49,000	18,000
3,100		49,000	18,000
3,150		49,000	18,000
3,170	1/8	49,000	18,000
3,200		49,000	18,000
3,250		49,000	18,000
3,260		49,000	18,000
3,300		49,000	18,000
3,350		49,000	18,000
3,400		52,000	20,000
3,450		52,000	20,000
3,500		52,000	20,000
3,520		52,000	20,000
3,550		52,000	20,000
3,570	9/64	52,000	20,000
3,600		52,000	20,000
3,660		52,000	20,000
3,700		52,000	20,000
3,730		52,000	20,000
3,750		52,000	20,000
3,800		55,000	22,000
3,850		55,000	22,000
3,860		55,000	22,000
3,900		55,000	22,000
3,910		55,000	22,000
3,950		55,000	22,000
3,970	5/32	55,000	22,000
3,990		55,000	22,000
4,000		55,000	22,000
4,040		55,000	22,000
4,050		55,000	22,000
4,090		55,000	22,000

d1		l1	l2
mm	inch	mm	mm
4,100		55,000	22,000
4,150		55,000	22,000
4,200		55,000	22,000
4,220		55,000	22,000
4,250		55,000	22,000
4,300		58,000	24,000
4,350		58,000	24,000
4,370	11/64	58,000	24,000
4,390		58,000	24,000
4,400		58,000	24,000
4,450		58,000	24,000
4,500		58,000	24,000
4,550		58,000	24,000
4,570		58,000	24,000
4,600		58,000	24,000
4,620		58,000	24,000
4,650		58,000	24,000
4,700		58,000	24,000
4,750		58,000	24,000
4,760	3/16	62,000	26,000
4,800		62,000	26,000
4,850		62,000	26,000
4,900		62,000	26,000
4,920		62,000	26,000
4,950		62,000	26,000
4,980		62,000	26,000
5,000		62,000	26,000
5,020		62,000	26,000
5,050		62,000	26,000
5,060		62,000	26,000
5,100		62,000	26,000
5,110		62,000	26,000
5,150		62,000	26,000
5,160	13/64	62,000	26,000
5,180		62,000	26,000
5,200		62,000	26,000
5,220		62,000	26,000
5,250		62,000	26,000
5,300		62,000	26,000
5,310		66,000	28,000
5,350		66,000	28,000
5,400		66,000	28,000
5,410		66,000	28,000
5,450		66,000	28,000
5,500		66,000	28,000
5,550		66,000	28,000
5,560	7/32	66,000	28,000
5,600		66,000	28,000
5,610		66,000	28,000
5,700		66,000	28,000
5,750		66,000	28,000
5,790		66,000	28,000
5,800		66,000	28,000
5,850		66,000	28,000
5,900		66,000	28,000
5,940		66,000	28,000
5,950	15/64	66,000	28,000
6,000		66,000	28,000
6,040		70,000	31,000
6,050		70,000	31,000
6,100		70,000	31,000
6,150		70,000	31,000
6,200		70,000	31,000
6,250		70,000	31,000
6,300		70,000	31,000
6,320		70,000	31,000
6,350	1/4	70,000	31,000
6,400		70,000	31,000
6,450		70,000	31,000
6,500		70,000	31,000
6,530		70,000	31,000
6,550		70,000	31,000

d1		l1	l2
mm	inch	mm	mm
6,600		70,000	31,000
6,630		70,000	31,000
6,700		70,000	31,000
6,750	17/64	74,000	34,000
6,800		74,000	34,000
6,850		74,000	34,000
6,900		74,000	34,000
7,000		74,000	34,000
7,030		74,000	34,000
7,050		74,000	34,000
7,100		74,000	34,000
7,140	9/32	74,000	34,000
7,200		74,000	34,000
7,250		74,000	34,000
7,300		74,000	34,000
7,350		74,000	34,000
7,370		74,000	34,000
7,400		74,000	34,000
7,490		74,000	34,000
7,500		74,000	34,000
7,540	19/64	79,000	37,000
7,550		79,000	37,000
7,600		79,000	37,000
7,670		79,000	37,000
7,700		79,000	37,000
7,750		79,000	37,000
7,800		79,000	37,000
7,900		79,000	37,000
7,940	5/16	79,000	37,000
8,000		79,000	37,000
8,030		79,000	37,000
8,050		79,000	37,000
8,100		79,000	37,000
8,150		79,000	37,000
8,200		79,000	37,000
8,250		79,000	37,000
8,300		79,000	37,000
8,330	21/64	79,000	37,000
8,400		79,000	37,000
8,430		79,000	37,000
8,500		79,000	37,000
8,520		84,000	40,000
8,550		84,000	40,000
8,600		84,000	40,000
8,610		84,000	40,000
8,700		84,000	40,000
8,730	11/32	84,000	40,000
8,750		84,000	40,000
8,800		84,000	40,000
8,840		84,000	40,000
8,900		84,000	40,000
9,000		84,000	40,000
9,050		84,000	40,000
9,090		84,000	40,000
9,100		84,000	40,000
9,130	23/64	84,000	40,000
9,200		84,000	40,000
9,250		84,000	40,000
9,300		84,000	40,000
9,340		84,000	40,000
9,400		84,000	40,000
9,500		84,000	40,000
9,520	3/8	89,000	43,000
9,580		89,000	43,000
9,600		89,000	43,000
9,700		89,000	43,000
9,750		89,000	43,000
9,800		89,000	43,000
9,900		89,000	43,000
9,920	25/64	89,000	43,000
10,000		89,000	43,000
10,050		89,000	43,000

d1		l1	l2
mm	inch	mm	mm
10,080		89,000	43,000
10,100		89,000	43,000
10,200		89,000	43,000
10,300		89,000	43,000
10,320	13/32	89,000	43,000
10,400		89,000	43,000
10,490		89,000	43,000
10,500		89,000	43,000
10,600		89,000	43,000
10,700		95,000	47,000
10,720	27/64	95,000	47,000
10,800		95,000	47,000
10,900		95,000	47,000
11,000		95,000	47,000
11,100		95,000	47,000
11,110	7/16	95,000	47,000
11,200		95,000	47,000
11,250		95,000	47,000
11,300		95,000	47,000
11,400		95,000	47,000
11,500		95,000	47,000
11,510	29/64	95,000	47,000
11,600		95,000	47,000
11,700		95,000	47,000
11,800		95,000	47,000
11,910	15/32	102,000	51,000
12,000		102,000	51,000
12,100		102,000	51,000
12,200		102,000	51,000
12,300	31/64	102,000	51,000
12,500		102,000	51,000
12,600		102,000	51,000
12,700	1/2	102,000	51,000
12,800		102,000	51,000
12,900		102,000	51,000
13,000		102,000	51,000
13,100	33/64	102,000	51,000
13,200		102,000	51,000
13,490	17/32	107,000	54,000
13,500		107,000	54,000
13,600		107,000	54,000
13,750		107,000	54,000
13,800		107,000	54,000
13,890	35/64	107,000	54,000
14,000		107,000	54,000
14,200		111,000	56,000
14,290	9/16	111,000	56,000
14,500		111,000	56,000
14,680	37/64	111,000	56,000
14,750		111,000	56,000
15,000		111,000	56,000
15,080	19/32	115,000	58,000
15,480	39/64	115,000	58,000
15,500		115,000	58,000
15,870	5/8	115,000	58,000
16,000		115,000	58,000
16,200		119,000	60,000
16,270	41/64	119,000	60,000
16,500		119,000	60,000
16,670	21/32	119,000	60,000
17,000		119,000	60,000
17,070	43/64	123,000	62,000
17,460	11/16	123,000	62,000
17,500		123,000	62,000
17,860	45/64	123,000	62,000
18,000		123,000	62,000
18,500		127,000	64,000
18,650	47/64	127,000	64,000
19,000		127,000	64,000
19,050	3/4	131,000	66,000
19,450	49/64	131,000	66,000
19,500		131,000	66,000

d1		l1	l2
mm	inch	mm	mm
19,840	25/32	131,000	66,000
20,000		131,000	66,000
20,250		136,000	68,000
20,500		136,000	68,000
20,640	13/16	136,000	68,000
21,000		136,000	68,000
22,000		141,000	70,000
22,200		141,000	70,000
23,000		146,000	72,000
24,000		151,000	75,000
24,500		151,000	75,000
25,000	63/64	151,000	75,000

d1		l1	l2
mm	inch	mm	mm
25,400	1	156,000	78,000
25,500		156,000	78,000
26,000		156,000	78,000
28,000		162,000	81,000
48,000		228,000	116,000

Brocas espirales extra cortas

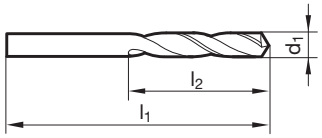
~3xD | DIN 1897 | GV 120 | 130° | h8

Material de corte	HSCO
Acabado	S
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,000 • entrada cónica • acero rápido al cobalto • más resistencia al desgaste
M	•	
K	•	
N	○	aceros inoxidables y resistentes al ácido • aceros de muelles • aceros austeníticos • Hastelloy, Inconel, Nimonic
S	•	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 774



Artículo N° **659**

d1 mm	inch	l1 mm	l2 mm	d1 mm	inch	l1 mm	l2 mm
0,500		20,000	3,000	2,000		38,000	12,000
0,600		21,000	3,500	2,050		38,000	12,000
0,650		22,000	4,000	2,080		38,000	12,000
0,700		23,000	4,500	2,100		38,000	12,000
0,740		23,000	4,500	2,180		40,000	13,000
0,750		23,000	4,500	2,200		40,000	13,000
0,780		24,000	5,000	2,250		40,000	13,000
0,790	1/32	24,000	5,000	2,260		40,000	13,000
0,800		24,000	5,000	2,300		40,000	13,000
0,850		24,000	5,000	2,350		40,000	13,000
0,900		25,000	5,500	2,370		43,000	14,000
0,950		25,000	5,500	2,380	3/32	43,000	14,000
1,000		26,000	6,000	2,400		43,000	14,000
1,020		26,000	6,000	2,440		43,000	14,000
1,070		28,000	7,000	2,450		43,000	14,000
1,090		28,000	7,000	2,490		43,000	14,000
1,100		28,000	7,000	2,500		43,000	14,000
1,150		28,000	7,000	2,530		43,000	14,000
1,190	3/64	30,000	8,000	2,550		43,000	14,000
1,200		30,000	8,000	2,580		43,000	14,000
1,250		30,000	8,000	2,600		43,000	14,000
1,300		30,000	8,000	2,640		43,000	14,000
1,320		30,000	8,000	2,700		46,000	16,000
1,400		32,000	9,000	2,710		46,000	16,000
1,450		32,000	9,000	2,780	7/64	46,000	16,000
1,500		32,000	9,000	2,800		46,000	16,000
1,510		34,000	10,000	2,820		46,000	16,000
1,530		34,000	10,000	2,850		46,000	16,000
1,550		34,000	10,000	2,900		46,000	16,000
1,570		34,000	10,000	2,950		46,000	16,000
1,590	1/16	34,000	10,000	3,000		46,000	16,000
1,600		34,000	10,000	3,030		49,000	18,000
1,610		34,000	10,000	3,050		49,000	18,000
1,700		34,000	10,000	3,100		49,000	18,000
1,780		36,000	11,000	3,170	1/8	49,000	18,000
1,800		36,000	11,000	3,200		49,000	18,000
1,850		36,000	11,000	3,250		49,000	18,000
1,900		36,000	11,000	3,260		49,000	18,000
1,930		38,000	12,000	3,300		49,000	18,000
1,970		38,000	12,000	3,350		49,000	18,000
1,980	5/64	38,000	12,000	3,400		52,000	20,000
1,990		38,000	12,000	3,450		52,000	20,000

d1		l1	l2
mm	inch	mm	mm
3,500		52,000	20,000
3,570	9/64	52,000	20,000
3,600		52,000	20,000
3,660		52,000	20,000
3,700		52,000	20,000
3,730		52,000	20,000
3,800		55,000	22,000
3,860		55,000	22,000
3,900		55,000	22,000
3,910		55,000	22,000
3,970	5/32	55,000	22,000
3,990		55,000	22,000
4,000		55,000	22,000
4,040		55,000	22,000
4,050		55,000	22,000
4,090		55,000	22,000
4,100		55,000	22,000
4,150		55,000	22,000
4,200		55,000	22,000
4,250		55,000	22,000
4,300		58,000	24,000
4,370	11/64	58,000	24,000
4,390		58,000	24,000
4,400		58,000	24,000
4,500		58,000	24,000
4,600		58,000	24,000
4,620		58,000	24,000
4,700		58,000	24,000
4,760	3/16	62,000	26,000
4,800		62,000	26,000
4,850		62,000	26,000
4,900		62,000	26,000
4,920		62,000	26,000
5,000		62,000	26,000
5,060		62,000	26,000
5,100		62,000	26,000
5,160	13/64	62,000	26,000
5,200		62,000	26,000
5,220		62,000	26,000
5,300		62,000	26,000
5,310		66,000	28,000
5,400		66,000	28,000
5,500		66,000	28,000
5,560	7/32	66,000	28,000
5,600		66,000	28,000
5,610		66,000	28,000
5,700		66,000	28,000
5,800		66,000	28,000
5,900		66,000	28,000
5,940		66,000	28,000
6,000		66,000	28,000
6,040		70,000	31,000
6,050		70,000	31,000
6,100		70,000	31,000
6,150		70,000	31,000
6,200		70,000	31,000
6,300		70,000	31,000
6,350	1/4	70,000	31,000
6,400		70,000	31,000
6,500		70,000	31,000
6,530		70,000	31,000
6,600		70,000	31,000
6,700		70,000	31,000
6,750	17/64	74,000	34,000
6,800		74,000	34,000
6,900		74,000	34,000
7,000		74,000	34,000
7,100		74,000	34,000
7,140	9/32	74,000	34,000
7,200		74,000	34,000
7,300		74,000	34,000
7,370		74,000	34,000

d1		l1	l2
mm	inch	mm	mm
7,400		74,000	34,000
7,490		74,000	34,000
7,500		74,000	34,000
7,540	19/64	79,000	37,000
7,600		79,000	37,000
7,700		79,000	37,000
7,800		79,000	37,000
7,900		79,000	37,000
7,940	5/16	79,000	37,000
8,000		79,000	37,000
8,100		79,000	37,000
8,200		79,000	37,000
8,300		79,000	37,000
8,400		79,000	37,000
8,500		79,000	37,000
8,600		84,000	40,000
8,610		84,000	40,000
8,700		84,000	40,000
8,730	11/32	84,000	40,000
8,800		84,000	40,000
8,840		84,000	40,000
9,000		84,000	40,000
9,100		84,000	40,000
9,130	23/64	84,000	40,000
9,200		84,000	40,000
9,300		84,000	40,000
9,400		84,000	40,000
9,500		84,000	40,000
9,520	3/8	89,000	43,000
9,600		89,000	43,000
9,700		89,000	43,000
9,800		89,000	43,000
9,920	25/64	89,000	43,000
10,000		89,000	43,000
10,100		89,000	43,000
10,200		89,000	43,000
10,250		89,000	43,000
10,320	13/32	89,000	43,000
10,500		89,000	43,000
10,720	27/64	95,000	47,000
10,800		95,000	47,000
10,900		95,000	47,000
11,000		95,000	47,000
11,110	7/16	95,000	47,000
11,500		95,000	47,000
12,000		102,000	51,000
12,100		102,000	51,000
12,200		102,000	51,000
12,300	31/64	102,000	51,000
12,500		102,000	51,000
12,700	1/2	102,000	51,000
12,800		102,000	51,000
13,000		102,000	51,000
13,300		107,000	54,000
13,490	17/32	107,000	54,000
13,500		107,000	54,000
14,000		107,000	54,000
14,290	9/16	111,000	56,000
14,500		111,000	56,000
15,000		111,000	56,000
15,500		115,000	58,000

Brocas espirales extra cortas

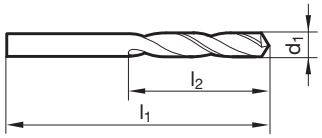
~3xD | DIN 1897 | GV 120 | 130° | h8

Material de corte	HSCO
Acabado	F
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,000 • entrada cónica • acero rápido al cobalto • más resistencia al desgaste
M	•	
K	•	
N	○	aceros inoxidables y resistentes al ácido • aceros de muelles • aceros austeníticos • Hastelloy, Inconel, Nimonic
S	•	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 774



Artículo N° **2461**

d1 mm	inch	l1 mm	l2 mm
1,000		26,000	6,000
1,100		28,000	7,000
1,200		30,000	8,000
1,300		30,000	8,000
1,400		32,000	9,000
1,500		32,000	9,000
1,600		34,000	10,000
1,700		34,000	10,000
1,800		36,000	11,000
1,900		36,000	11,000
2,000		38,000	12,000
2,100		38,000	12,000
2,200		40,000	13,000
2,300		40,000	13,000
2,400		43,000	14,000
2,500		43,000	14,000
2,600		43,000	14,000
2,700		46,000	16,000
2,800		46,000	16,000
2,900		46,000	16,000
3,000		46,000	16,000
3,100		49,000	18,000
3,200		49,000	18,000
3,300		49,000	18,000
3,400		52,000	20,000
3,500		52,000	20,000
3,600		52,000	20,000
3,700		52,000	20,000
3,800		55,000	22,000
3,900		55,000	22,000
4,000		55,000	22,000
4,200		55,000	22,000
4,300		58,000	24,000
4,400		58,000	24,000
4,500		58,000	24,000
4,600		58,000	24,000
4,700		58,000	24,000
4,800		62,000	26,000
4,900		62,000	26,000
5,000		62,000	26,000
5,100		62,000	26,000
5,200		62,000	26,000

d1 mm	inch	l1 mm	l2 mm
5,300		62,000	26,000
5,400		66,000	28,000
5,500		66,000	28,000
5,600		66,000	28,000
5,800		66,000	28,000
6,000		66,000	28,000
6,100		70,000	31,000
6,200		70,000	31,000
6,300		70,000	31,000
6,400		70,000	31,000
6,500		70,000	31,000
6,600		70,000	31,000
6,800		74,000	34,000
6,900		74,000	34,000
7,000		74,000	34,000
7,200		74,000	34,000
7,300		74,000	34,000
7,400		74,000	34,000
7,500		74,000	34,000
7,600		79,000	37,000
7,800		79,000	37,000
8,000		79,000	37,000
8,100		79,000	37,000
8,200		79,000	37,000
8,300		79,000	37,000
8,500		79,000	37,000
8,600		84,000	40,000
8,700		84,000	40,000
8,800		84,000	40,000
9,000		84,000	40,000
9,200		84,000	40,000
9,300		84,000	40,000
9,500		84,000	40,000
9,800		89,000	43,000
10,000		89,000	43,000
10,200		89,000	43,000
10,500		89,000	43,000
11,000		95,000	47,000
11,500		95,000	47,000
12,000		102,000	51,000
13,000		102,000	51,000

Brocas espirales extra cortas

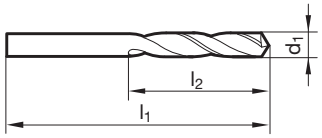
~3xD | DIN 1897 | GV 120 | 130° | h8

Material de corte	HSCO
Acabado	>Ø 6,00
Dirección de corte	L

P	•	vaciado de punta ≥Ø 2,370 • entrada cónica • acero rápido al cobalto • más resistencia al desgaste
M	•	
K	•	
N	○	aceros inoxidables y resistentes al ácido • aceros de muelles • aceros austeníticos • Hastelloy, Inconel, Nimonic
S	•	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 772



Artículo N° **330**

d1 mm	inch	l1 mm	l2 mm	d1 mm	inch	l1 mm	l2 mm
0,450		19,000	2,500	2,000		38,000	12,000
0,500		20,000	3,000	2,020		38,000	12,000
0,620		22,000	4,000	2,080		38,000	12,000
0,700		23,000	4,500	2,100		38,000	12,000
0,710		23,000	4,500	2,180		40,000	13,000
0,750		23,000	4,500	2,200		40,000	13,000
0,800		24,000	5,000	2,260		40,000	13,000
0,900		25,000	5,500	2,300		40,000	13,000
1,000		26,000	6,000	2,370		43,000	14,000
1,030		26,000	6,000	2,380	3/32	43,000	14,000
1,040		26,000	6,000	2,440		43,000	14,000
1,050		26,000	6,000	2,500		43,000	14,000
1,060		26,000	6,000	2,550		43,000	14,000
1,090		28,000	7,000	2,600		43,000	14,000
1,150		28,000	7,000	2,640		43,000	14,000
1,170		28,000	7,000	2,750		46,000	16,000
1,180		28,000	7,000	2,770		46,000	16,000
1,190	3/64	30,000	8,000	2,780	7/64	46,000	16,000
1,200		30,000	8,000	2,820		46,000	16,000
1,210		30,000	8,000	2,950		46,000	16,000
1,220		30,000	8,000	3,000		46,000	16,000
1,230		30,000	8,000	3,150		49,000	18,000
1,300		30,000	8,000	3,170	1/8	49,000	18,000
1,320		30,000	8,000	3,200		49,000	18,000
1,350		32,000	9,000	3,400		52,000	20,000
1,420		32,000	9,000	3,450		52,000	20,000
1,450		32,000	9,000	3,500		52,000	20,000
1,470		32,000	9,000	3,600		52,000	20,000
1,500		32,000	9,000	3,700		52,000	20,000
1,510		34,000	10,000	3,860		55,000	22,000
1,530		34,000	10,000	3,970	5/32	55,000	22,000
1,550		34,000	10,000	3,990		55,000	22,000
1,590	1/16	34,000	10,000	4,000		55,000	22,000
1,600		34,000	10,000	4,040		55,000	22,000
1,610		34,000	10,000	4,090		55,000	22,000
1,650		34,000	10,000	4,100		55,000	22,000
1,700		34,000	10,000	4,200		55,000	22,000
1,780		36,000	11,000	4,300		58,000	24,000
1,800		36,000	11,000	4,370	11/64	58,000	24,000
1,930		38,000	12,000	4,390		58,000	24,000
1,980	5/64	38,000	12,000	4,400		58,000	24,000
1,990		38,000	12,000	4,500		58,000	24,000

d1		l1	l2
mm	inch	mm	mm
4,570		58,000	24,000
4,620		58,000	24,000
4,760	3/16	62,000	26,000
4,850		62,000	26,000
4,920		62,000	26,000
4,980		62,000	26,000
5,000		62,000	26,000
5,100		62,000	26,000
5,110		62,000	26,000
5,160	13/64	62,000	26,000
5,200		62,000	26,000
5,220		62,000	26,000
5,310		66,000	28,000
5,400		66,000	28,000
5,410		66,000	28,000
5,500		66,000	28,000
5,560	7/32	66,000	28,000
5,600		66,000	28,000
5,610		66,000	28,000
5,700		66,000	28,000
5,750		66,000	28,000
5,800		66,000	28,000
5,900		66,000	28,000
6,000		66,000	28,000
6,040		70,000	31,000
6,300		70,000	31,000
6,400		70,000	31,000
6,500		70,000	31,000
6,600		70,000	31,000
6,750	17/64	74,000	34,000
6,800		74,000	34,000
7,000		74,000	34,000
7,030		74,000	34,000
7,050		74,000	34,000
7,100		74,000	34,000
7,140	9/32	74,000	34,000
7,370		74,000	34,000
7,490		74,000	34,000
7,540	19/64	79,000	37,000
7,600		79,000	37,000
7,700		79,000	37,000
7,900		79,000	37,000
8,000		79,000	37,000
8,030		79,000	37,000
8,330	21/64	79,000	37,000
8,430		79,000	37,000
8,500		79,000	37,000
8,610		84,000	40,000

d1		l1	l2
mm	inch	mm	mm
8,700		84,000	40,000
8,730	11/32	84,000	40,000
8,800		84,000	40,000
9,000		84,000	40,000
9,090		84,000	40,000
9,100		84,000	40,000
9,130	23/64	84,000	40,000
9,200		84,000	40,000
9,340		84,000	40,000
9,400		84,000	40,000
9,520	3/8	89,000	43,000
9,580		89,000	43,000
9,700		89,000	43,000
9,900		89,000	43,000
9,920	25/64	89,000	43,000
10,000		89,000	43,000
10,080		89,000	43,000
10,260		89,000	43,000
10,490		89,000	43,000
10,720	27/64	95,000	47,000
10,900		95,000	47,000
11,000		95,000	47,000
11,100		95,000	47,000
11,200		95,000	47,000
11,300		95,000	47,000
11,510	29/64	95,000	47,000
11,910	15/32	102,000	51,000
12,000		102,000	51,000
12,300	31/64	102,000	51,000
12,400		102,000	51,000
13,000		102,000	51,000
13,500		107,000	54,000
14,000		107,000	54,000
14,700		111,000	56,000
15,100		115,000	58,000
15,500		115,000	58,000
16,000		115,000	58,000
19,500		131,000	66,000
19,750		131,000	66,000
22,500		146,000	72,000
23,500		146,000	72,000
24,000		151,000	75,000
25,000	63/64	151,000	75,000
25,500		156,000	78,000
26,000		156,000	78,000
27,000		162,000	81,000
32,000		180,000	90,000

Brocas espirales extra cortas

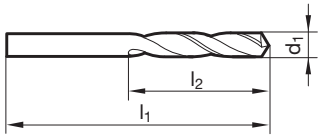
~3xD | DIN 1897 | GT 80 | 130° | h8

Material de corte	HSCO
Acabado	S
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,000 • entrada cónica • acero rápido al cobalto • resistencia más alta al desgaste
M	○	
K	○	
N	○	para aceros muy duros • materiales de viruta larga de hasta 1000 N/mm² • aleaciones de aluminio y cobre • bronce blando • cobre electrolítico • latón tenaz
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 774



Artículo Nº **1228**

d1 mm	inch	l1 mm	l2 mm
1,000		26,000	6,000
1,100		28,000	7,000
1,190	3/64	30,000	8,000
1,200		30,000	8,000
1,300		30,000	8,000
1,400		32,000	9,000
1,500		32,000	9,000
1,600		34,000	10,000
1,700		34,000	10,000
1,800		36,000	11,000
1,900		36,000	11,000
2,000		38,000	12,000
2,100		38,000	12,000
2,200		40,000	13,000
2,300		40,000	13,000
2,400		43,000	14,000
2,500		43,000	14,000
2,580		43,000	14,000
2,600		43,000	14,000
2,800		46,000	16,000
2,900		46,000	16,000
3,000		46,000	16,000
3,100		49,000	18,000
3,170	1/8	49,000	18,000
3,200		49,000	18,000
3,300		49,000	18,000
3,400		52,000	20,000
3,500		52,000	20,000
3,570	9/64	52,000	20,000
3,600		52,000	20,000
3,700		52,000	20,000
3,800		55,000	22,000
3,900		55,000	22,000
3,970	5/32	55,000	22,000
4,000		55,000	22,000
4,100		55,000	22,000
4,200		55,000	22,000
4,300		58,000	24,000
4,370	11/64	58,000	24,000
4,400		58,000	24,000
4,500		58,000	24,000
4,600		58,000	24,000

d1 mm	inch	l1 mm	l2 mm
4,700		58,000	24,000
4,760	3/16	62,000	26,000
4,800		62,000	26,000
4,900		62,000	26,000
5,000		62,000	26,000
5,100		62,000	26,000
5,160	13/64	62,000	26,000
5,200		62,000	26,000
5,300		62,000	26,000
5,400		66,000	28,000
5,500		66,000	28,000
5,560	7/32	66,000	28,000
5,600		66,000	28,000
5,700		66,000	28,000
5,800		66,000	28,000
5,900		66,000	28,000
6,000		66,000	28,000
6,100		70,000	31,000
6,200		70,000	31,000
6,350	1/4	70,000	31,000
6,400		70,000	31,000
6,500		70,000	31,000
6,600		70,000	31,000
6,700		70,000	31,000
6,750	17/64	74,000	34,000
6,800		74,000	34,000
6,900		74,000	34,000
7,000		74,000	34,000
7,140	9/32	74,000	34,000
7,200		74,000	34,000
7,300		74,000	34,000
7,400		74,000	34,000
7,500		74,000	34,000
7,540	19/64	79,000	37,000
7,800		79,000	37,000
7,940	5/16	79,000	37,000
8,000		79,000	37,000
8,100		79,000	37,000
8,200		79,000	37,000
8,300		79,000	37,000
8,330	21/64	79,000	37,000
8,500		79,000	37,000

d1		l1	l2
mm	inch	mm	mm
8,600		84,000	40,000
8,700		84,000	40,000
9,000		84,000	40,000
9,100		84,000	40,000
9,130	23/64	84,000	40,000
9,200		84,000	40,000
9,300		84,000	40,000
9,400		84,000	40,000
9,600		89,000	43,000
9,700		89,000	43,000
9,800		89,000	43,000
9,920	25/64	89,000	43,000
10,000		89,000	43,000
10,200		89,000	43,000
10,320	13/32	89,000	43,000
10,500		89,000	43,000
11,000		95,000	47,000
11,500		95,000	47,000
11,510	29/64	95,000	47,000
11,800		95,000	47,000
12,000		102,000	51,000
12,300	31/64	102,000	51,000
12,500		102,000	51,000
12,700	1/2	102,000	51,000

d1		l1	l2
mm	inch	mm	mm
12,800		102,000	51,000
13,000		102,000	51,000
13,100	33/64	102,000	51,000
13,490	17/32	107,000	54,000
13,500		107,000	54,000
14,000		107,000	54,000
14,500		111,000	56,000
15,000		111,000	56,000
15,500		115,000	58,000
16,000		115,000	58,000
16,500		119,000	60,000
17,000		119,000	60,000
17,500		123,000	62,000
18,000		123,000	62,000
18,500		127,000	64,000
19,000		127,000	64,000
20,000		131,000	66,000

Brocas espirales extra cortas

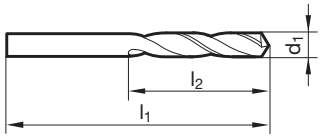
~3xD | DIN 1897 | GT 80 | 130° | h8

Material de corte	HSCO
Acabado	F
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,000 • entrada cónica • acero rápido al cobalto • más resistencia al desgaste
M	○	
K	○	
N	○	materiales de viruta larga de hasta 1000 N/mm² • aleaciones de aluminio y cobre • bronce blando • cobre electrolítico • latón tenaz
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 774



Artículo N° **2498**

d1 mm	d1 inch	l1 mm	l2 mm	d1 mm	d1 inch	l1 mm	l2 mm
1,000		26,000	6,000	5,600		66,000	28,000
1,200		30,000	8,000	6,000		66,000	28,000
1,300		30,000	8,000	6,200		70,000	31,000
1,500		32,000	9,000	6,500		70,000	31,000
1,600		34,000	10,000	6,600		70,000	31,000
1,800		36,000	11,000	6,800		74,000	34,000
2,000		38,000	12,000	6,900		74,000	34,000
2,100		38,000	12,000	7,000		74,000	34,000
2,200		40,000	13,000	7,500		74,000	34,000
2,300		40,000	13,000	7,600		79,000	37,000
2,400		43,000	14,000	7,700		79,000	37,000
2,500		43,000	14,000	7,800		79,000	37,000
2,600		43,000	14,000	8,000		79,000	37,000
2,800		46,000	16,000	8,500		79,000	37,000
2,900		46,000	16,000	8,600		84,000	40,000
3,000		46,000	16,000	9,000		84,000	40,000
3,100		49,000	18,000	9,300		84,000	40,000
3,200		49,000	18,000	9,500		84,000	40,000
3,300		49,000	18,000	10,000		89,000	43,000
3,400		52,000	20,000	10,200		89,000	43,000
3,500		52,000	20,000	10,500		89,000	43,000
3,600		52,000	20,000	10,800		95,000	47,000
3,700		52,000	20,000	11,000		95,000	47,000
4,000		55,000	22,000	11,800		95,000	47,000
4,100		55,000	22,000	12,000		102,000	51,000
4,200		55,000	22,000	12,500		102,000	51,000
4,300		58,000	24,000	13,000		102,000	51,000
4,400		58,000	24,000	13,500		107,000	54,000
4,500		58,000	24,000	14,000		107,000	54,000
4,600		58,000	24,000	14,500		111,000	56,000
4,700		58,000	24,000	15,000		111,000	56,000
5,000		62,000	26,000	16,000		115,000	58,000
5,100		62,000	26,000				
5,200		62,000	26,000				
5,300		62,000	26,000				
5,500		66,000	28,000				

Brocas espirales extra cortas

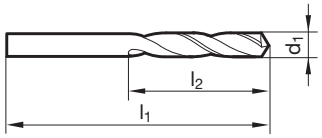
~3xD | DIN 1897 | VA | 130° | h8

Material de corte	HSCO
Acabado	◯
Dirección de corte	Ⓡ

P	○	entrada cónica • acero rápido al cobalto • más resistencia al desgaste
M	●	
K		
N	○	aceros austeníticos inoxidables y resistentes a los ácidos y al calor (V2A y V4A)
S	○	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 772



Artículo N° **1261**

d1 mm	inch	l1 mm	l2 mm	d1 mm	inch	l1 mm	l2 mm
1,000		26,000	6,000	6,100		70,000	31,000
1,100		28,000	7,000	6,300		70,000	31,000
1,200		30,000	8,000	6,400		70,000	31,000
1,300		30,000	8,000	6,500		70,000	31,000
1,500		32,000	9,000	6,600		70,000	31,000
1,590	1/16	34,000	10,000	6,800		74,000	34,000
1,600		34,000	10,000	7,000		74,000	34,000
1,700		34,000	10,000	7,100		74,000	34,000
1,900		36,000	11,000	7,200		74,000	34,000
2,000		38,000	12,000	7,300		74,000	34,000
2,200		40,000	13,000	7,400		74,000	34,000
2,300		40,000	13,000	7,500		74,000	34,000
2,400		43,000	14,000	7,700		79,000	37,000
2,500		43,000	14,000	7,800		79,000	37,000
2,600		43,000	14,000	7,900		79,000	37,000
2,700		46,000	16,000	8,000		79,000	37,000
2,800		46,000	16,000	8,300		79,000	37,000
2,900		46,000	16,000	8,400		79,000	37,000
3,000		46,000	16,000	8,500		79,000	37,000
3,100		49,000	18,000	8,600		84,000	40,000
3,200		49,000	18,000	8,700		84,000	40,000
3,300		49,000	18,000	8,800		84,000	40,000
3,400		52,000	20,000	9,000		84,000	40,000
3,500		52,000	20,000	9,100		84,000	40,000
3,600		52,000	20,000	9,300		84,000	40,000
3,700		52,000	20,000	9,500		84,000	40,000
3,800		55,000	22,000	9,900		89,000	43,000
4,000		55,000	22,000	10,000		89,000	43,000
4,100		55,000	22,000	10,200		89,000	43,000
4,200		55,000	22,000	10,900		95,000	47,000
4,300		58,000	24,000	11,500		95,000	47,000
4,500		58,000	24,000	12,000		102,000	51,000
4,700		58,000	24,000				
4,800		62,000	26,000				
5,000		62,000	26,000				
5,100		62,000	26,000				
5,200		62,000	26,000				
5,500		66,000	28,000				
5,600		66,000	28,000				
5,800		66,000	28,000				
5,900		66,000	28,000				
6,000		66,000	28,000				

Brocas espirales extra cortas

~3xD | DIN 1897 | VA | 130° | h8

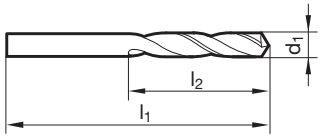
Material de corte	HSCO
Acabado	S
Dirección de corte	R

NEW

P	○	vaciado de punta ≥Ø 1,000 • afilado en cruz optimizado • acero rápido al cobalto • más resistencia al desgaste
M	•	
K	○	
N	○	aceros austeníticos inoxidables y resistentes a los ácidos y al calor (V2A y V4A) • aleaciones especiales
S	•	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 774



Artículo N° **572**

d1 mm	inch	l1 mm	l2 mm	d1 mm	inch	l1 mm	l2 mm
1,000		26,000	6,000	5,100		62,000	26,000
1,100		28,000	7,000	5,200		62,000	26,000
1,200		30,000	8,000	5,300		62,000	26,000
1,300		30,000	8,000	5,400		66,000	28,000
1,400		32,000	9,000	5,500		66,000	28,000
1,500		32,000	9,000	5,550		66,000	28,000
1,600		34,000	10,000	5,600		66,000	28,000
1,700		34,000	10,000	5,700		66,000	28,000
1,800		36,000	11,000	5,800		66,000	28,000
1,900		36,000	11,000	5,900		66,000	28,000
2,000		38,000	12,000	6,000		66,000	28,000
2,100		38,000	12,000	6,100		70,000	31,000
2,200		40,000	13,000	6,200		70,000	31,000
2,300		40,000	13,000	6,300		70,000	31,000
2,400		43,000	14,000	6,400		70,000	31,000
2,500		43,000	14,000	6,500		70,000	31,000
2,600		43,000	14,000	6,600		70,000	31,000
2,700		46,000	16,000	6,700		70,000	31,000
2,800		46,000	16,000	6,800		74,000	34,000
2,900		46,000	16,000	6,900		74,000	34,000
3,000		46,000	16,000	7,000		74,000	34,000
3,100		49,000	18,000	7,100		74,000	34,000
3,200		49,000	18,000	7,200		74,000	34,000
3,300		49,000	18,000	7,300		74,000	34,000
3,400		52,000	20,000	7,400		74,000	34,000
3,500		52,000	20,000	7,450		74,000	34,000
3,600		52,000	20,000	7,500		74,000	34,000
3,700		52,000	20,000	7,600		79,000	37,000
3,800		55,000	22,000	7,700		79,000	37,000
3,900		55,000	22,000	7,800		79,000	37,000
4,000		55,000	22,000	7,900		79,000	37,000
4,100		55,000	22,000	8,000		79,000	37,000
4,200		55,000	22,000	8,100		79,000	37,000
4,300		58,000	24,000	8,200		79,000	37,000
4,400		58,000	24,000	8,300		79,000	37,000
4,500		58,000	24,000	8,400		79,000	37,000
4,600		58,000	24,000	8,500		79,000	37,000
4,650		58,000	24,000	8,600		84,000	40,000
4,700		58,000	24,000	8,700		84,000	40,000
4,800		62,000	26,000	8,800		84,000	40,000
4,900		62,000	26,000	8,900		84,000	40,000
5,000		62,000	26,000	9,000		84,000	40,000

d1		l1	l2
mm	inch	mm	mm
9,100		84,000	40,000
9,200		84,000	40,000
9,250		84,000	40,000
9,300		84,000	40,000
9,400		84,000	40,000
9,500		84,000	40,000
9,600		89,000	43,000
9,700		89,000	43,000
9,800		89,000	43,000
9,900		89,000	43,000
10,000		89,000	43,000
10,200		89,000	43,000

d1		l1	l2
mm	inch	mm	mm
10,500		89,000	43,000
11,000		95,000	47,000
11,200		95,000	47,000
11,500		95,000	47,000
11,800		95,000	47,000
12,000		102,000	51,000
12,500		102,000	51,000
13,000		102,000	51,000

Brocas espirales extra cortas

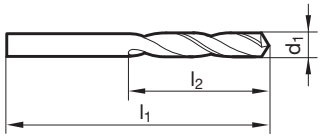
~3xD | DIN 1897 | P2000 | 118° | h8

Material de corte	HSCO
Acabado	M
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,000 • entrada cónica • aplicación universal con afilado de leva • acero rápido al cobalto • más resistencia al desgaste • para el uso profesional • para máquinas de taladrar manuales
M	○	
K	○	
N	○	aceros de viruta larga de hasta 1000 N/mm² • fundición y aleaciones de AlSi
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 774



Artículo N° **2048**

d1 mm	inch	l1 mm	l2 mm
1,000		26,000	6,000
1,100		28,000	7,000
1,200		30,000	8,000
1,300		30,000	8,000
1,400		32,000	9,000
1,500		32,000	9,000
1,600		34,000	10,000
1,700		34,000	10,000
1,800		36,000	11,000
1,900		36,000	11,000
2,000		38,000	12,000
2,100		38,000	12,000
2,200		40,000	13,000
2,300		40,000	13,000
2,400		43,000	14,000
2,700		46,000	16,000
2,800		46,000	16,000
2,900		46,000	16,000
3,000		46,000	16,000
3,100		49,000	18,000
3,300		49,000	18,000
3,400		52,000	20,000
3,500		52,000	20,000
3,600		52,000	20,000
3,700		52,000	20,000
3,800		55,000	22,000
4,000		55,000	22,000
4,100		55,000	22,000
4,200		55,000	22,000
4,400		58,000	24,000
4,500		58,000	24,000
4,600		58,000	24,000
4,700		58,000	24,000
4,800		62,000	26,000
4,900		62,000	26,000
5,000		62,000	26,000
5,200		62,000	26,000
5,300		62,000	26,000
5,400		66,000	28,000
5,500		66,000	28,000
5,600		66,000	28,000
5,700		66,000	28,000

d1 mm	inch	l1 mm	l2 mm
5,800		66,000	28,000
6,000		66,000	28,000
6,100		70,000	31,000
6,200		70,000	31,000
6,300		70,000	31,000
6,400		70,000	31,000
6,500		70,000	31,000
6,600		70,000	31,000
6,700		70,000	31,000
6,900		74,000	34,000
7,000		74,000	34,000
7,100		74,000	34,000
7,200		74,000	34,000
7,300		74,000	34,000
7,400		74,000	34,000
7,500		74,000	34,000
7,600		79,000	37,000
7,700		79,000	37,000
7,800		79,000	37,000
7,900		79,000	37,000
8,000		79,000	37,000
8,100		79,000	37,000
8,200		79,000	37,000
8,300		79,000	37,000
8,400		79,000	37,000
8,500		79,000	37,000
8,600		84,000	40,000
8,700		84,000	40,000
8,800		84,000	40,000
8,900		84,000	40,000
9,000		84,000	40,000
9,100		84,000	40,000
9,200		84,000	40,000
9,300		84,000	40,000
9,400		84,000	40,000
9,500		84,000	40,000
9,600		89,000	43,000
9,700		89,000	43,000
9,800		89,000	43,000
9,900		89,000	43,000
10,000		89,000	43,000
10,200		89,000	43,000

d1		l1	l2
mm	inch	mm	mm
10,500		89,000	43,000
11,500		95,000	47,000
12,000		102,000	51,000
12,500		102,000	51,000
13,000		102,000	51,000

d1		l1	l2
mm	inch	mm	mm

Brocas espirales extra cortas

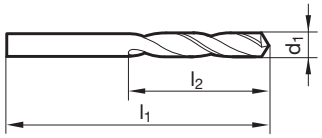
~3xD | DIN 1897 | N | 135° | h8

Material de corte	M42
Acabado	○
Dirección de corte	Ⓡ

P	•	vaciado de punta ≥Ø 1,000 • entrada cónica • acero altamente aleado CoMo • alta resistencia al desgaste
M	○	
K	○	
N	•	aleación dura o muy dura con una base de CrNi • Hastelloy, Inconel, Nimonic • aceros inoxidables y resistentes al ácido y al calor • chapas resistentes al desgaste • aceros o bronces con una resistencia de hasta 1400 N/mm²
S	•	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 772



Artículo N° **1259**

d1 mm	inch	l1 mm	l2 mm	d1 mm	inch	l1 mm	l2 mm
1,000		26,000	6,000	4,700		58,000	24,000
1,100		28,000	7,000	4,760	3/16	62,000	26,000
1,200		30,000	8,000	4,800		62,000	26,000
1,300		30,000	8,000	4,900		62,000	26,000
1,400		32,000	9,000	5,000		62,000	26,000
1,500		32,000	9,000	5,100		62,000	26,000
1,600		34,000	10,000	5,200		62,000	26,000
1,700		34,000	10,000	5,300		62,000	26,000
1,800		36,000	11,000	5,400		66,000	28,000
1,900		36,000	11,000	5,500		66,000	28,000
2,000		38,000	12,000	5,560	7/32	66,000	28,000
2,100		38,000	12,000	5,600		66,000	28,000
2,200		40,000	13,000	5,700		66,000	28,000
2,300		40,000	13,000	5,800		66,000	28,000
2,380	3/32	43,000	14,000	5,950	15/64	66,000	28,000
2,400		43,000	14,000	6,000		66,000	28,000
2,500		43,000	14,000	6,100		70,000	31,000
2,600		43,000	14,000	6,200		70,000	31,000
2,700		46,000	16,000	6,300		70,000	31,000
2,780	7/64	46,000	16,000	6,350	1/4	70,000	31,000
2,800		46,000	16,000	6,400		70,000	31,000
2,900		46,000	16,000	6,500		70,000	31,000
3,000		46,000	16,000	6,600		70,000	31,000
3,100		49,000	18,000	6,800		74,000	34,000
3,170	1/8	49,000	18,000	7,000		74,000	34,000
3,200		49,000	18,000	7,100		74,000	34,000
3,300		49,000	18,000	7,140	9/32	74,000	34,000
3,400		52,000	20,000	7,200		74,000	34,000
3,500		52,000	20,000	7,300		74,000	34,000
3,600		52,000	20,000	7,400		74,000	34,000
3,700		52,000	20,000	7,500		74,000	34,000
3,800		55,000	22,000	7,540	19/64	79,000	37,000
3,900		55,000	22,000	7,600		79,000	37,000
3,970	5/32	55,000	22,000	7,700		79,000	37,000
4,000		55,000	22,000	7,800		79,000	37,000
4,100		55,000	22,000	7,900		79,000	37,000
4,200		55,000	22,000	7,940	5/16	79,000	37,000
4,300		58,000	24,000	8,000		79,000	37,000
4,370	11/64	58,000	24,000	8,100		79,000	37,000
4,400		58,000	24,000	8,200		79,000	37,000
4,500		58,000	24,000	8,300		79,000	37,000
4,600		58,000	24,000	8,330	21/64	79,000	37,000

d1		l1	l2
mm	inch	mm	mm
8,500		79,000	37,000
8,600		84,000	40,000
8,700		84,000	40,000
9,000		84,000	40,000
9,300		84,000	40,000
9,400		84,000	40,000
9,500		84,000	40,000
9,800		89,000	43,000
9,900		89,000	43,000
10,000		89,000	43,000
10,500		89,000	43,000
11,000		95,000	47,000

d1		l1	l2
mm	inch	mm	mm
11,500		95,000	47,000
12,000		102,000	51,000
12,500		102,000	51,000
12,700	1/2	102,000	51,000
13,000		102,000	51,000
14,000		107,000	54,000
15,000		111,000	56,000
15,870	5/8	115,000	58,000

Brocas espirales extra cortas

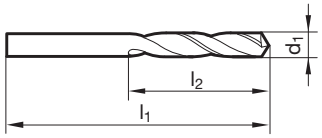
~3xD | DIN 1897 | GT 500 | 130° | h8

Material de corte	HSS-E-PM
Acabado	F
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,000 • afilado al cono con vaciado especial de punta tipo B • PM acero rápido al cobalto • estabilidad muy buena • alta resistencia al desgaste
M	○	
K	•	
N	○	materiales más duros, aceros de aleación alta • aceros de cementación, de bonificación • hierro fundido, latón y bronce
S	○	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 774



Artículo N° **515**

d1 mm	inch	l1 mm	l2 mm	d1 mm	inch	l1 mm	l2 mm
1,000		26,000	6,000	2,640		43,000	14,000
1,020		26,000	6,000	2,700		46,000	16,000
1,040		26,000	6,000	2,710		46,000	16,000
1,070		28,000	7,000	2,780	7/64	46,000	16,000
1,090		28,000	7,000	2,790		46,000	16,000
1,100		28,000	7,000	2,800		46,000	16,000
1,180		28,000	7,000	2,820		46,000	16,000
1,190	3/64	30,000	8,000	2,870		46,000	16,000
1,200		30,000	8,000	2,900		46,000	16,000
1,300		30,000	8,000	2,950		46,000	16,000
1,320		30,000	8,000	3,000		46,000	16,000
1,400		32,000	9,000	3,050		49,000	18,000
1,500		32,000	9,000	3,100		49,000	18,000
1,510		34,000	10,000	3,170	1/8	49,000	18,000
1,590	1/16	34,000	10,000	3,200		49,000	18,000
1,600		34,000	10,000	3,260		49,000	18,000
1,610		34,000	10,000	3,300		49,000	18,000
1,700		34,000	10,000	3,400		52,000	20,000
1,780		36,000	11,000	3,450		52,000	20,000
1,800		36,000	11,000	3,500		52,000	20,000
1,850		36,000	11,000	3,570	9/64	52,000	20,000
1,900		36,000	11,000	3,600		52,000	20,000
1,930		38,000	12,000	3,660		52,000	20,000
1,980	5/64	38,000	12,000	3,700		52,000	20,000
1,990		38,000	12,000	3,730		52,000	20,000
2,000		38,000	12,000	3,800		55,000	22,000
2,060		38,000	12,000	3,860		55,000	22,000
2,080		38,000	12,000	3,900		55,000	22,000
2,100		38,000	12,000	3,910		55,000	22,000
2,180		40,000	13,000	3,970	5/32	55,000	22,000
2,200		40,000	13,000	3,990		55,000	22,000
2,260		40,000	13,000	4,000		55,000	22,000
2,300		40,000	13,000	4,040		55,000	22,000
2,370		43,000	14,000	4,090		55,000	22,000
2,380	3/32	43,000	14,000	4,100		55,000	22,000
2,400		43,000	14,000	4,200		55,000	22,000
2,440		43,000	14,000	4,220		55,000	22,000
2,490		43,000	14,000	4,300		58,000	24,000
2,500		43,000	14,000	4,370	11/64	58,000	24,000
2,530		43,000	14,000	4,390		58,000	24,000
2,580		43,000	14,000	4,400		58,000	24,000
2,600		43,000	14,000	4,500		58,000	24,000

d1		l1	l2
mm	inch	mm	mm
4,570		58,000	24,000
4,600		58,000	24,000
4,620		58,000	24,000
4,650		58,000	24,000
4,700		58,000	24,000
4,760	3/16	62,000	26,000
4,800		62,000	26,000
4,850		62,000	26,000
4,900		62,000	26,000
4,920		62,000	26,000
4,980		62,000	26,000
5,000		62,000	26,000
5,060		62,000	26,000
5,100		62,000	26,000
5,110		62,000	26,000
5,160	13/64	62,000	26,000
5,180		62,000	26,000
5,200		62,000	26,000
5,220		62,000	26,000
5,300		62,000	26,000
5,310		66,000	28,000
5,400		66,000	28,000
5,410		66,000	28,000
5,500		66,000	28,000
5,560	7/32	66,000	28,000
5,600		66,000	28,000
5,610		66,000	28,000
5,700		66,000	28,000
5,790		66,000	28,000
5,800		66,000	28,000
5,900		66,000	28,000
5,940		66,000	28,000
5,950	15/64	66,000	28,000
6,000		66,000	28,000
6,040		70,000	31,000
6,100		70,000	31,000
6,150		70,000	31,000
6,200		70,000	31,000
6,250		70,000	31,000
6,300		70,000	31,000
6,350	1/4	70,000	31,000
6,400		70,000	31,000
6,500		70,000	31,000
6,530		70,000	31,000
6,600		70,000	31,000
6,630		70,000	31,000
6,700		70,000	31,000
6,750	17/64	74,000	34,000
6,800		74,000	34,000
6,900		74,000	34,000
7,000		74,000	34,000
7,030		74,000	34,000
7,100		74,000	34,000
7,140	9/32	74,000	34,000
7,200		74,000	34,000
7,300		74,000	34,000
7,370		74,000	34,000
7,400		74,000	34,000
7,490		74,000	34,000
7,500		74,000	34,000
7,540	19/64	79,000	37,000
7,600		79,000	37,000
7,670		79,000	37,000
7,700		79,000	37,000
7,800		79,000	37,000
7,900		79,000	37,000

d1		l1	l2
mm	inch	mm	mm
7,940	5/16	79,000	37,000
8,000		79,000	37,000
8,030		79,000	37,000
8,100		79,000	37,000
8,200		79,000	37,000
8,300		79,000	37,000
8,330	21/64	79,000	37,000
8,400		79,000	37,000
8,430		79,000	37,000
8,500		79,000	37,000
8,600		84,000	40,000
8,610		84,000	40,000
8,730	11/32	84,000	40,000
8,800		84,000	40,000
8,840		84,000	40,000
8,900		84,000	40,000
9,000		84,000	40,000
9,090		84,000	40,000
9,130	23/64	84,000	40,000
9,200		84,000	40,000
9,300		84,000	40,000
9,340		84,000	40,000
9,350		84,000	40,000
9,400		84,000	40,000
9,500		84,000	40,000
9,520	3/8	89,000	43,000
9,580		89,000	43,000
9,600		89,000	43,000
9,700		89,000	43,000
9,800		89,000	43,000
9,920	25/64	89,000	43,000
10,000		89,000	43,000
10,080		89,000	43,000
10,200		89,000	43,000
10,260		89,000	43,000
10,320	13/32	89,000	43,000
10,490		89,000	43,000
10,500		89,000	43,000
10,720	27/64	95,000	47,000
11,000		95,000	47,000
11,110	7/16	95,000	47,000
11,500		95,000	47,000
11,510	29/64	95,000	47,000
11,800		95,000	47,000
11,910	15/32	102,000	51,000
12,000		102,000	51,000
12,300	31/64	102,000	51,000
12,500		102,000	51,000
12,700	1/2	102,000	51,000
13,000		102,000	51,000
13,100	33/64	102,000	51,000
13,490	17/32	107,000	54,000
13,500		107,000	54,000
14,000		107,000	54,000
14,290	9/16	111,000	56,000

Brocas espirales extra cortas

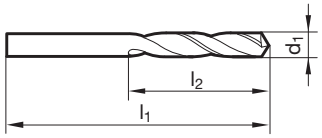
3xD | DIN 6539 | N | 118° | h7

Material de corte	Metal duro
Acabado	○
Dirección de corte	Ⓡ

P	○	vaciado de punta ≥Ø 2,060 • afilado plano • forma recta del corte principal
M	○	
K	○	
N	•	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • fundición gris • bronce, latón • aluminio y sus aleaciones • magnesio y sus aleaciones • plásticos y plásticos con refuerzo de fibras
S	○	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 776



Artículo N° **730**

d1 mm	inch	l1 mm	l2 mm	d1 mm	inch	l1 mm	l2 mm
0,500		20,000	3,000	2,440		43,000	14,000
0,600		21,000	3,500	2,490		43,000	14,000
0,700		23,000	4,500	2,500		43,000	14,000
0,800		24,000	5,000	2,530		43,000	14,000
0,900		25,000	5,500	2,580		43,000	14,000
1,000		26,000	6,000	2,600		43,000	14,000
1,020		26,000	6,000	2,640		43,000	14,000
1,040		26,000	6,000	2,700		46,000	16,000
1,070		28,000	7,000	2,710		46,000	16,000
1,090		28,000	7,000	2,780	7/64	46,000	16,000
1,100		28,000	7,000	2,790		46,000	16,000
1,180		28,000	7,000	2,800		46,000	16,000
1,190	3/64	30,000	8,000	2,820		46,000	16,000
1,200		30,000	8,000	2,870		46,000	16,000
1,300		30,000	8,000	2,900		46,000	16,000
1,320		30,000	8,000	2,950		46,000	16,000
1,400		32,000	9,000	3,000		46,000	16,000
1,500		32,000	9,000	3,050		49,000	18,000
1,510		34,000	10,000	3,100		49,000	18,000
1,590	1/16	34,000	10,000	3,170	1/8	49,000	18,000
1,600		34,000	10,000	3,200		49,000	18,000
1,610		34,000	10,000	3,260		49,000	18,000
1,700		34,000	10,000	3,300		49,000	18,000
1,780		36,000	11,000	3,400		52,000	20,000
1,800		36,000	11,000	3,450		52,000	20,000
1,850		36,000	11,000	3,500		52,000	20,000
1,900		36,000	11,000	3,570	9/64	52,000	20,000
1,930		38,000	12,000	3,600		52,000	20,000
1,980	5/64	38,000	12,000	3,660		52,000	20,000
1,990		38,000	12,000	3,700		52,000	20,000
2,000		38,000	12,000	3,730		52,000	20,000
2,060		38,000	12,000	3,800		55,000	22,000
2,080		38,000	12,000	3,860		55,000	22,000
2,100		38,000	12,000	3,900		55,000	22,000
2,180		40,000	13,000	3,910		55,000	22,000
2,200		40,000	13,000	3,970	5/32	55,000	22,000
2,250		40,000	13,000	3,990		55,000	22,000
2,260		40,000	13,000	4,000		55,000	22,000
2,300		40,000	13,000	4,040		55,000	22,000
2,370		43,000	14,000	4,100		55,000	22,000
2,380	3/32	43,000	14,000	4,200		55,000	22,000
2,400		43,000	14,000	4,220		55,000	22,000

d1		l1	l2
mm	inch	mm	mm
4,300		58,000	24,000
4,370	11/64	58,000	24,000
4,390		58,000	24,000
4,400		58,000	24,000
4,500		58,000	24,000
4,570		58,000	24,000
4,600		58,000	24,000
4,620		58,000	24,000
4,700		58,000	24,000
4,760	3/16	62,000	26,000
4,800		62,000	26,000
4,850		62,000	26,000
4,900		62,000	26,000
4,920		62,000	26,000
4,980		62,000	26,000
5,000		62,000	26,000
5,060		62,000	26,000
5,100		62,000	26,000
5,110		62,000	26,000
5,160	13/64	62,000	26,000
5,180		62,000	26,000
5,200		62,000	26,000
5,220		62,000	26,000
5,300		62,000	26,000
5,310		66,000	28,000
5,400		66,000	28,000
5,410		66,000	28,000
5,500		66,000	28,000
5,560	7/32	66,000	28,000
5,600		66,000	28,000
5,700		66,000	28,000
5,790		66,000	28,000
5,800		66,000	28,000
5,900		66,000	28,000
5,940		66,000	28,000
5,950	15/64	66,000	28,000
6,000		66,000	28,000
6,040		70,000	31,000
6,100		70,000	31,000
6,150		70,000	31,000
6,200		70,000	31,000
6,250		70,000	31,000
6,300		70,000	31,000
6,350	1/4	70,000	31,000
6,400		70,000	31,000
6,500		70,000	31,000
6,530		70,000	31,000
6,600		70,000	31,000
6,630		70,000	31,000
6,700		70,000	31,000
6,750	17/64	74,000	34,000
6,800		74,000	34,000
6,900		74,000	34,000
7,000		74,000	34,000
7,030		74,000	34,000
7,100		74,000	34,000
7,140	9/32	74,000	34,000
7,200		74,000	34,000
7,300		74,000	34,000
7,370		74,000	34,000
7,400		74,000	34,000
7,490		74,000	34,000
7,500		74,000	34,000
7,540	19/64	79,000	37,000
7,600		79,000	37,000
7,670		79,000	37,000

d1		l1	l2
mm	inch	mm	mm
7,700		79,000	37,000
7,800		79,000	37,000
7,900		79,000	37,000
7,940	5/16	79,000	37,000
8,000		79,000	37,000
8,030		79,000	37,000
8,100		79,000	37,000
8,200		79,000	37,000
8,300		79,000	37,000
8,330	21/64	79,000	37,000
8,400		79,000	37,000
8,430		79,000	37,000
8,500		79,000	37,000
8,600		84,000	40,000
8,610		84,000	40,000
8,700		84,000	40,000
8,730	11/32	84,000	40,000
8,800		84,000	40,000
8,840		84,000	40,000
8,900		84,000	40,000
9,000		84,000	40,000
9,090		84,000	40,000
9,100		84,000	40,000
9,130	23/64	84,000	40,000
9,200		84,000	40,000
9,300		84,000	40,000
9,340		84,000	40,000
9,400		84,000	40,000
9,500		84,000	40,000
9,520	3/8	89,000	43,000
9,580		89,000	43,000
9,600		89,000	43,000
9,700		89,000	43,000
9,800		89,000	43,000
9,900		89,000	43,000
9,920	25/64	89,000	43,000
10,000		89,000	43,000
10,080		89,000	43,000
10,200		89,000	43,000
10,260		89,000	43,000
10,300		89,000	43,000
10,320	13/32	89,000	43,000
10,490		89,000	43,000
10,500		89,000	43,000
10,720	27/64	95,000	47,000
11,000		95,000	47,000
11,110	7/16	95,000	47,000
11,500		95,000	47,000
11,510	29/64	95,000	47,000
11,700		95,000	47,000
11,910	15/32	102,000	51,000
12,000		102,000	51,000
12,300	31/64	102,000	51,000
12,500		102,000	51,000
12,700	1/2	102,000	51,000
13,000		102,000	51,000
13,490	17/32	107,000	54,000
14,000		107,000	54,000
14,290	9/16	111,000	56,000
15,000		111,000	56,000
16,000		115,000	58,000

Brocas espirales extra cortas

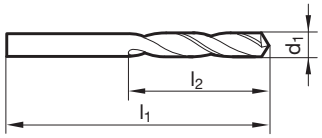
~3xD | DIN 6539 | N | 118° | h7

Material de corte	**Metal duro**
Acabado	F
Dirección de corte	R

P	○	vaciado de punta ≥Ø 2,060 • afilado plano • forma recta del corte principal
M	○	
K	○	
N	●	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • fundición • latón • aluminios con alto porcentaje de Si • magnesio y sus aleaciones • plásticos y plásticos con refuerzo de fibras
S	○	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 776



Artículo N° **2463**

d1 mm	inch	l1 mm	l2 mm	d1 mm	inch	l1 mm	l2 mm
1,000		26,000	6,000	2,600		43,000	14,000
1,020		26,000	6,000	2,640		43,000	14,000
1,040		26,000	6,000	2,700		46,000	16,000
1,070		28,000	7,000	2,710		46,000	16,000
1,090		28,000	7,000	2,780	7/64	46,000	16,000
1,100		28,000	7,000	2,790		46,000	16,000
1,180		28,000	7,000	2,800		46,000	16,000
1,190	3/64	30,000	8,000	2,820		46,000	16,000
1,200		30,000	8,000	2,870		46,000	16,000
1,300		30,000	8,000	2,900		46,000	16,000
1,320		30,000	8,000	2,950		46,000	16,000
1,400		32,000	9,000	3,000		46,000	16,000
1,500		32,000	9,000	3,050		49,000	18,000
1,510		34,000	10,000	3,100		49,000	18,000
1,590	1/16	34,000	10,000	3,170	1/8	49,000	18,000
1,600		34,000	10,000	3,200		49,000	18,000
1,610		34,000	10,000	3,260		49,000	18,000
1,700		34,000	10,000	3,300		49,000	18,000
1,780		36,000	11,000	3,400		52,000	20,000
1,800		36,000	11,000	3,450		52,000	20,000
1,850		36,000	11,000	3,500		52,000	20,000
1,900		36,000	11,000	3,570	9/64	52,000	20,000
1,930		38,000	12,000	3,600		52,000	20,000
1,980	5/64	38,000	12,000	3,660		52,000	20,000
1,990		38,000	12,000	3,700		52,000	20,000
2,000		38,000	12,000	3,730		52,000	20,000
2,060		38,000	12,000	3,800		55,000	22,000
2,080		38,000	12,000	3,860		55,000	22,000
2,100		38,000	12,000	3,900		55,000	22,000
2,180		40,000	13,000	3,910		55,000	22,000
2,200		40,000	13,000	3,970	5/32	55,000	22,000
2,250		40,000	13,000	3,990		55,000	22,000
2,260		40,000	13,000	4,000		55,000	22,000
2,300		40,000	13,000	4,040		55,000	22,000
2,370		43,000	14,000	4,090		55,000	22,000
2,380	3/32	43,000	14,000	4,100		55,000	22,000
2,400		43,000	14,000	4,200		55,000	22,000
2,440		43,000	14,000	4,220		55,000	22,000
2,490		43,000	14,000	4,300		58,000	24,000
2,500		43,000	14,000	4,370	11/64	58,000	24,000
2,530		43,000	14,000	4,390		58,000	24,000
2,580		43,000	14,000	4,400		58,000	24,000

d1		l1	l2
mm	inch	mm	mm
4,500		58,000	24,000
4,570		58,000	24,000
4,600		58,000	24,000
4,620		58,000	24,000
4,700		58,000	24,000
4,760	3/16	62,000	26,000
4,800		62,000	26,000
4,850		62,000	26,000
4,900		62,000	26,000
4,920		62,000	26,000
4,980		62,000	26,000
5,000		62,000	26,000
5,060		62,000	26,000
5,100		62,000	26,000
5,110		62,000	26,000
5,160	13/64	62,000	26,000
5,180		62,000	26,000
5,200		62,000	26,000
5,220		62,000	26,000
5,300		62,000	26,000
5,310		66,000	28,000
5,400		66,000	28,000
5,410		66,000	28,000
5,500		66,000	28,000
5,560	7/32	66,000	28,000
5,600		66,000	28,000
5,610		66,000	28,000
5,700		66,000	28,000
5,790		66,000	28,000
5,800		66,000	28,000
5,900		66,000	28,000
5,940		66,000	28,000
5,950	15/64	66,000	28,000
6,000		66,000	28,000
6,040		70,000	31,000
6,100		70,000	31,000
6,150		70,000	31,000
6,200		70,000	31,000
6,250		70,000	31,000
6,300		70,000	31,000
6,350	1/4	70,000	31,000
6,400		70,000	31,000
6,500		70,000	31,000
6,530		70,000	31,000
6,600		70,000	31,000
6,630		70,000	31,000
6,700		70,000	31,000
6,750	17/64	74,000	34,000
6,800		74,000	34,000
6,900		74,000	34,000
7,000		74,000	34,000
7,030		74,000	34,000
7,100		74,000	34,000
7,140	9/32	74,000	34,000
7,200		74,000	34,000
7,300		74,000	34,000
7,370		74,000	34,000
7,400		74,000	34,000
7,500		74,000	34,000
7,540	19/64	79,000	37,000
7,600		79,000	37,000
7,670		79,000	37,000
7,700		79,000	37,000
7,800		79,000	37,000
7,900		79,000	37,000
7,940	5/16	79,000	37,000

d1		l1	l2
mm	inch	mm	mm
8,000		79,000	37,000
8,030		79,000	37,000
8,100		79,000	37,000
8,200		79,000	37,000
8,300		79,000	37,000
8,330	21/64	79,000	37,000
8,400		79,000	37,000
8,430		79,000	37,000
8,500		79,000	37,000
8,600		84,000	40,000
8,610		84,000	40,000
8,700		84,000	40,000
8,730	11/32	84,000	40,000
8,800		84,000	40,000
8,840		84,000	40,000
8,900		84,000	40,000
9,000		84,000	40,000
9,090		84,000	40,000
9,100		84,000	40,000
9,130	23/64	84,000	40,000
9,200		84,000	40,000
9,300		84,000	40,000
9,340		84,000	40,000
9,400		84,000	40,000
9,500		84,000	40,000
9,520	3/8	89,000	43,000
9,580		89,000	43,000
9,600		89,000	43,000
9,700		89,000	43,000
9,800		89,000	43,000
9,900		89,000	43,000
9,920	25/64	89,000	43,000
10,000		89,000	43,000
10,080		89,000	43,000
10,200		89,000	43,000
10,260		89,000	43,000
10,300		89,000	43,000
10,320	13/32	89,000	43,000
10,490		89,000	43,000
10,500		89,000	43,000
10,720	27/64	95,000	47,000
11,000		95,000	47,000
11,110	7/16	95,000	47,000
11,500		95,000	47,000
11,510	29/64	95,000	47,000
11,910	15/32	102,000	51,000
12,000		102,000	51,000
12,300	31/64	102,000	51,000
12,700	1/2	102,000	51,000
13,000		102,000	51,000
13,490	17/32	107,000	54,000
14,000		107,000	54,000
14,290	9/16	111,000	56,000
15,000		111,000	56,000
16,000		115,000	58,000

Brocas espirales extra cortas

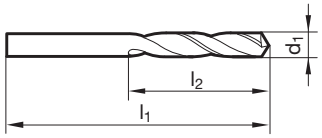
~3xD | WN | N | 130° | h7

Material de corte	**Metal duro**
Acabado	◯
Dirección de corte	Ⓡ

P	afilado plano • forma recta del corte principal
M	
K	
N	plásticos reforzados con fibra de vidrio • placas de circ. impresos que pueden ocasionar un rápido desgaste en las superficies y bordes de corte de la broca
S	
H	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 776



Artículo N° **702**

d1 mm	inch	l1 mm	l2 mm
0,500		30,000	6,500
0,550		30,000	6,500
0,600		30,000	6,500
0,650		30,000	6,500
0,700		30,000	6,500
0,750		30,000	8,500
0,800		30,000	8,500
0,900		30,000	9,500
1,000		30,000	11,000
1,050		30,000	11,000
1,100		30,000	11,000
1,200		30,000	13,000
1,350		30,000	13,000
1,400		30,000	13,000
1,450		30,000	13,000
1,500		30,000	13,000
1,600		40,000	17,500
1,650		40,000	17,500
1,700		40,000	17,500
1,800		40,000	17,500
1,850		40,000	17,500
1,900		40,000	17,500
2,000		40,000	17,500
2,010		40,000	17,500
2,050		40,000	17,500
2,100		40,000	17,500
2,200		40,000	17,500
2,260		40,000	17,500
2,300		40,000	17,500
2,400		40,000	17,500
2,490		40,000	17,500
2,500		40,000	17,500
2,530		45,000	20,000
2,600		45,000	20,000
2,700		45,000	20,000
2,800		45,000	20,000

d1 mm	inch	l1 mm	l2 mm
3,000		45,000	20,000
3,050		50,000	22,000
3,100		50,000	22,000
3,200		50,000	22,000
3,260		50,000	22,000
3,300		50,000	22,000
3,400		50,000	22,000
3,450		50,000	22,000
3,500		50,000	22,000
3,570	9/64	50,000	22,000
3,600		50,000	22,000
3,910		50,000	22,000
4,000		50,000	22,000
4,200		50,000	25,000
4,300		50,000	25,000
4,400		50,000	25,000
4,700		50,000	25,000
5,000		50,000	25,000
5,200		50,000	25,000
5,310		50,000	25,000
5,610		50,000	25,000
5,790		50,000	25,000
5,950	15/64	50,000	25,000
6,000		50,000	25,000
6,250		65,000	30,000
6,350	1/4	65,000	30,000
6,500		65,000	30,000

Brocas espirales cil., cortas

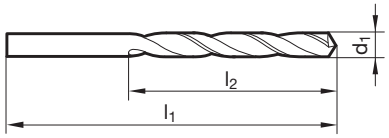
~5xD | DIN 338 | N | 118° | h8

Material de corte	HSS
Acabado	>Ø 2,36
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,000 • entrada cónica
M		
K	•	
N	○	aceros y fundición de aceros (aleados y sin alear) • fundición gris, fundición maleable, fundición esferica • hierro sinterizado, argentón y grafito
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 778



Artículo N° **205**

d1 mm	inch	l1 mm	l2 mm	d1 mm	inch	l1 mm	l2 mm
0,200		19,000	2,500	0,620		26,000	8,000
0,210		19,000	2,500	0,630		26,000	8,000
0,220		19,000	2,500	0,640		26,000	8,000
0,230		19,000	2,500	0,650		26,000	8,000
0,240		19,000	2,500	0,660		26,000	8,000
0,250		19,000	3,000	0,670		26,000	8,000
0,260		19,000	3,000	0,680		28,000	9,000
0,270		19,000	3,000	0,690		28,000	9,000
0,280		19,000	3,000	0,700		28,000	9,000
0,290		19,000	3,000	0,710		28,000	9,000
0,300		19,000	3,000	0,720		28,000	9,000
0,310		19,000	4,000	0,730		28,000	9,000
0,320		19,000	4,000	0,740		28,000	9,000
0,330		19,000	4,000	0,750		28,000	9,000
0,340		19,000	4,000	0,760		30,000	10,000
0,350		19,000	4,000	0,770		30,000	10,000
0,360		19,000	4,000	0,780		30,000	10,000
0,370		19,000	4,000	0,790	1/32	30,000	10,000
0,380		19,000	4,000	0,800		30,000	10,000
0,390		20,000	5,000	0,810		30,000	10,000
0,400	1/64	20,000	5,000	0,820		30,000	10,000
0,410		20,000	5,000	0,830		30,000	10,000
0,420		20,000	5,000	0,840		30,000	10,000
0,430		20,000	5,000	0,850		30,000	10,000
0,440		20,000	5,000	0,860		32,000	11,000
0,450		20,000	5,000	0,870		32,000	11,000
0,460		20,000	5,000	0,880		32,000	11,000
0,470		20,000	5,000	0,890		32,000	11,000
0,480		20,000	5,000	0,900		32,000	11,000
0,490		22,000	6,000	0,910		32,000	11,000
0,500		22,000	6,000	0,920		32,000	11,000
0,510		22,000	6,000	0,930		32,000	11,000
0,520		22,000	6,000	0,940		32,000	11,000
0,530		22,000	6,000	0,950		32,000	11,000
0,540		24,000	7,000	0,960		34,000	12,000
0,550		24,000	7,000	0,970		34,000	12,000
0,560		24,000	7,000	0,980		34,000	12,000
0,570		24,000	7,000	0,990		34,000	12,000
0,580		24,000	7,000	1,000		34,000	12,000
0,590		24,000	7,000	1,010		34,000	12,000
0,600		24,000	7,000	1,020		34,000	12,000
0,610		26,000	8,000	1,030		34,000	12,000

d1		l1	l2
mm	inch	mm	mm
1,040		34,000	12,000
1,050		34,000	12,000
1,060		34,000	12,000
1,070		36,000	14,000
1,080		36,000	14,000
1,090		36,000	14,000
1,100		36,000	14,000
1,110		36,000	14,000
1,120		36,000	14,000
1,130		36,000	14,000
1,140		36,000	14,000
1,150		36,000	14,000
1,160		36,000	14,000
1,170		36,000	14,000
1,180		36,000	14,000
1,190	3/64	38,000	16,000
1,200		38,000	16,000
1,210		38,000	16,000
1,220		38,000	16,000
1,230		38,000	16,000
1,240		38,000	16,000
1,250		38,000	16,000
1,260		38,000	16,000
1,270		38,000	16,000
1,280		38,000	16,000
1,290		38,000	16,000
1,300		38,000	16,000
1,310		38,000	16,000
1,320		38,000	16,000
1,330		40,000	18,000
1,340		40,000	18,000
1,350		40,000	18,000
1,360		40,000	18,000
1,370		40,000	18,000
1,380		40,000	18,000
1,390		40,000	18,000
1,400		40,000	18,000
1,410		40,000	18,000
1,420		40,000	18,000
1,430		40,000	18,000
1,440		40,000	18,000
1,450		40,000	18,000
1,460		40,000	18,000
1,470		40,000	18,000
1,480		40,000	18,000
1,490		40,000	18,000
1,500		40,000	18,000
1,510		43,000	20,000
1,520		43,000	20,000
1,530		43,000	20,000
1,540		43,000	20,000
1,550		43,000	20,000
1,560		43,000	20,000
1,570		43,000	20,000
1,580		43,000	20,000
1,590	1/16	43,000	20,000
1,600		43,000	20,000
1,610		43,000	20,000
1,620		43,000	20,000
1,630		43,000	20,000
1,640		43,000	20,000
1,650		43,000	20,000
1,660		43,000	20,000
1,670		43,000	20,000
1,680		43,000	20,000
1,690		43,000	20,000
1,700		43,000	20,000
1,710		46,000	22,000
1,720		46,000	22,000
1,730		46,000	22,000
1,740		46,000	22,000
1,750		46,000	22,000

d1		l1	l2
mm	inch	mm	mm
1,760		46,000	22,000
1,770		46,000	22,000
1,780		46,000	22,000
1,790		46,000	22,000
1,800		46,000	22,000
1,810		46,000	22,000
1,820		46,000	22,000
1,830		46,000	22,000
1,840		46,000	22,000
1,850		46,000	22,000
1,860		46,000	22,000
1,870		46,000	22,000
1,880		46,000	22,000
1,890		46,000	22,000
1,900		46,000	22,000
1,910		49,000	24,000
1,920		49,000	24,000
1,930		49,000	24,000
1,940		49,000	24,000
1,950		49,000	24,000
1,960		49,000	24,000
1,970		49,000	24,000
1,980	5/64	49,000	24,000
1,990		49,000	24,000
2,000		49,000	24,000
2,010		49,000	24,000
2,020		49,000	24,000
2,030		49,000	24,000
2,040		49,000	24,000
2,050		49,000	24,000
2,060		49,000	24,000
2,070		49,000	24,000
2,080		49,000	24,000
2,090		49,000	24,000
2,100		49,000	24,000
2,110		49,000	24,000
2,120		49,000	24,000
2,130		53,000	27,000
2,140		53,000	27,000
2,150		53,000	27,000
2,170		53,000	27,000
2,180		53,000	27,000
2,200		53,000	27,000
2,210		53,000	27,000
2,220		53,000	27,000
2,230		53,000	27,000
2,240		53,000	27,000
2,250		53,000	27,000
2,260		53,000	27,000
2,270		53,000	27,000
2,280		53,000	27,000
2,290		53,000	27,000
2,300		53,000	27,000
2,320		53,000	27,000
2,330		53,000	27,000
2,340		53,000	27,000
2,350		53,000	27,000
2,360		53,000	27,000
2,370		57,000	30,000
2,380	3/32	57,000	30,000
2,390		57,000	30,000
2,400		57,000	30,000
2,420		57,000	30,000
2,430		57,000	30,000
2,440		57,000	30,000
2,450		57,000	30,000
2,460		57,000	30,000
2,470		57,000	30,000
2,480		57,000	30,000
2,490		57,000	30,000
2,500		57,000	30,000
2,510		57,000	30,000

d1		l1	l2
mm	inch	mm	mm
2,520		57,000	30,000
2,530		57,000	30,000
2,540		57,000	30,000
2,550		57,000	30,000
2,570		57,000	30,000
2,580		57,000	30,000
2,600		57,000	30,000
2,610		57,000	30,000
2,620		57,000	30,000
2,630		57,000	30,000
2,640		57,000	30,000
2,650		57,000	30,000
2,660		61,000	33,000
2,670		61,000	33,000
2,680		61,000	33,000
2,700		61,000	33,000
2,710		61,000	33,000
2,720		61,000	33,000
2,730		61,000	33,000
2,750		61,000	33,000
2,760		61,000	33,000
2,780	7/64	61,000	33,000
2,790		61,000	33,000
2,800		61,000	33,000
2,820		61,000	33,000
2,830		61,000	33,000
2,850		61,000	33,000
2,870		61,000	33,000
2,880		61,000	33,000
2,900		61,000	33,000
2,910		61,000	33,000
2,920		61,000	33,000
2,930		61,000	33,000
2,940		61,000	33,000
2,950		61,000	33,000
2,960		61,000	33,000
2,970		61,000	33,000
2,980		61,000	33,000
2,990		61,000	33,000
3,000		61,000	33,000
3,010		65,000	36,000
3,020		65,000	36,000
3,030		65,000	36,000
3,040		65,000	36,000
3,050		65,000	36,000
3,060		65,000	36,000
3,070		65,000	36,000
3,080		65,000	36,000
3,100		65,000	36,000
3,120		65,000	36,000
3,130		65,000	36,000
3,150		65,000	36,000
3,160		65,000	36,000
3,170	1/8	65,000	36,000
3,180		65,000	36,000
3,200		65,000	36,000
3,220		65,000	36,000
3,230		65,000	36,000
3,250		65,000	36,000
3,260		65,000	36,000
3,300		65,000	36,000
3,320		65,000	36,000
3,330		65,000	36,000
3,350		65,000	36,000
3,360		70,000	39,000
3,370		70,000	39,000
3,380		70,000	39,000
3,400		70,000	39,000
3,420		70,000	39,000
3,450		70,000	39,000
3,500		70,000	39,000
3,520		70,000	39,000

d1		l1	l2
mm	inch	mm	mm
3,550		70,000	39,000
3,570	9/64	70,000	39,000
3,600		70,000	39,000
3,610		70,000	39,000
3,620		70,000	39,000
3,650		70,000	39,000
3,660		70,000	39,000
3,680		70,000	39,000
3,700		70,000	39,000
3,725		70,000	39,000
3,730		70,000	39,000
3,750		70,000	39,000
3,800		75,000	43,000
3,820		75,000	43,000
3,830		75,000	43,000
3,850		75,000	43,000
3,860		75,000	43,000
3,870		75,000	43,000
3,900		75,000	43,000
3,910		75,000	43,000
3,920		75,000	43,000
3,930		75,000	43,000
3,940		75,000	43,000
3,950		75,000	43,000
3,970	5/32	75,000	43,000
3,980		75,000	43,000
3,990		75,000	43,000
4,000		75,000	43,000
4,010		75,000	43,000
4,020		75,000	43,000
4,030		75,000	43,000
4,040		75,000	43,000
4,050		75,000	43,000
4,060		75,000	43,000
4,070		75,000	43,000
4,080		75,000	43,000
4,090		75,000	43,000
4,100		75,000	43,000
4,120		75,000	43,000
4,150		75,000	43,000
4,200		75,000	43,000
4,220		75,000	43,000
4,250		75,000	43,000
4,270		80,000	47,000
4,300		80,000	47,000
4,320		80,000	47,000
4,350		80,000	47,000
4,370	11/64	80,000	47,000
4,380		80,000	47,000
4,390		80,000	47,000
4,400		80,000	47,000
4,420		80,000	47,000
4,450		80,000	47,000
4,500		80,000	47,000
4,520		80,000	47,000
4,530		80,000	47,000
4,550		80,000	47,000
4,570		80,000	47,000
4,600		80,000	47,000
4,620		80,000	47,000
4,650		80,000	47,000
4,700		80,000	47,000
4,730		80,000	47,000
4,750		80,000	47,000
4,760	3/16	86,000	52,000
4,770		86,000	52,000
4,800		86,000	52,000
4,830		86,000	52,000
4,850		86,000	52,000
4,860		86,000	52,000
4,900		86,000	52,000
4,920		86,000	52,000

d1		l1	l2
mm	inch	mm	mm
4,930		86,000	52,000
4,950		86,000	52,000
4,970		86,000	52,000
4,980		86,000	52,000
5,000		86,000	52,000
5,020		86,000	52,000
5,025		86,000	52,000
5,030		86,000	52,000
5,050		86,000	52,000
5,060		86,000	52,000
5,080		86,000	52,000
5,100		86,000	52,000
5,110		86,000	52,000
5,120		86,000	52,000
5,150		86,000	52,000
5,160	13/64	86,000	52,000
5,180		86,000	52,000
5,190		86,000	52,000
5,200		86,000	52,000
5,220		86,000	52,000
5,250		86,000	52,000
5,260		86,000	52,000
5,300		86,000	52,000
5,310		93,000	57,000
5,350		93,000	57,000
5,400		93,000	57,000
5,410		93,000	57,000
5,420		93,000	57,000
5,450		93,000	57,000
5,500		93,000	57,000
5,550		93,000	57,000
5,560	7/32	93,000	57,000
5,600		93,000	57,000
5,610		93,000	57,000
5,630		93,000	57,000
5,650		93,000	57,000
5,700		93,000	57,000
5,750		93,000	57,000
5,790		93,000	57,000
5,800		93,000	57,000
5,850		93,000	57,000
5,900		93,000	57,000
5,920		93,000	57,000
5,930		93,000	57,000
5,940		93,000	57,000
5,950	15/64	93,000	57,000
5,960		93,000	57,000
5,970		93,000	57,000
5,980		93,000	57,000
5,990		93,000	57,000
6,000		93,000	57,000
6,030		101,000	63,000
6,040		101,000	63,000
6,050		101,000	63,000
6,100		101,000	63,000
6,150		101,000	63,000
6,170		101,000	63,000
6,200		101,000	63,000
6,210		101,000	63,000
6,220		101,000	63,000
6,250		101,000	63,000
6,300		101,000	63,000
6,350	1/4	101,000	63,000
6,380		101,000	63,000
6,400		101,000	63,000
6,450		101,000	63,000
6,500		101,000	63,000
6,530		101,000	63,000
6,550		101,000	63,000
6,600		101,000	63,000
6,630		101,000	63,000
6,650		101,000	63,000

d1		l1	l2
mm	inch	mm	mm
6,700		101,000	63,000
6,750	17/64	109,000	69,000
6,760		109,000	69,000
6,800		109,000	69,000
6,850		109,000	69,000
6,900		109,000	69,000
6,950		109,000	69,000
7,000		109,000	69,000
7,030		109,000	69,000
7,040		109,000	69,000
7,050		109,000	69,000
7,070		109,000	69,000
7,100		109,000	69,000
7,130		109,000	69,000
7,140	9/32	109,000	69,000
7,150		109,000	69,000
7,200		109,000	69,000
7,250		109,000	69,000
7,300		109,000	69,000
7,320		109,000	69,000
7,350		109,000	69,000
7,370		109,000	69,000
7,400		109,000	69,000
7,450		109,000	69,000
7,490		109,000	69,000
7,500		109,000	69,000
7,540	19/64	117,000	75,000
7,550		117,000	75,000
7,600		117,000	75,000
7,650		117,000	75,000
7,670		117,000	75,000
7,700		117,000	75,000
7,750		117,000	75,000
7,800		117,000	75,000
7,850		117,000	75,000
7,900		117,000	75,000
7,940	5/16	117,000	75,000
7,950		117,000	75,000
7,980		117,000	75,000
8,000		117,000	75,000
8,030		117,000	75,000
8,050		117,000	75,000
8,100		117,000	75,000
8,130		117,000	75,000
8,150		117,000	75,000
8,200		117,000	75,000
8,250		117,000	75,000
8,300		117,000	75,000
8,330	21/64	117,000	75,000
8,350		117,000	75,000
8,400		117,000	75,000
8,430		117,000	75,000
8,450		117,000	75,000
8,500		117,000	75,000
8,550		125,000	81,000
8,600		125,000	81,000
8,610		125,000	81,000
8,650		125,000	81,000
8,700		125,000	81,000
8,730	11/32	125,000	81,000
8,750		125,000	81,000
8,800		125,000	81,000
8,840		125,000	81,000
8,850		125,000	81,000
8,900		125,000	81,000
8,950		125,000	81,000
9,000		125,000	81,000
9,050		125,000	81,000
9,090		125,000	81,000
9,100		125,000	81,000
9,130	23/64	125,000	81,000
9,150		125,000	81,000

d1		l1	l2
mm	inch	mm	mm
9,200		125,000	81,000
9,250		125,000	81,000
9,300		125,000	81,000
9,340		125,000	81,000
9,350		125,000	81,000
9,400		125,000	81,000
9,450		125,000	81,000
9,500		125,000	81,000
9,510		133,000	87,000
9,520	3/8	133,000	87,000
9,570		133,000	87,000
9,580		133,000	87,000
9,600		133,000	87,000
9,650		133,000	87,000
9,700		133,000	87,000
9,750		133,000	87,000
9,800		133,000	87,000
9,850		133,000	87,000
9,900		133,000	87,000
9,920	25/64	133,000	87,000
9,950		133,000	87,000
10,000		133,000	87,000
10,050		133,000	87,000
10,080		133,000	87,000
10,100		133,000	87,000
10,150		133,000	87,000
10,200		133,000	87,000
10,250		133,000	87,000
10,260		133,000	87,000
10,300		133,000	87,000
10,320	13/32	133,000	87,000
10,350		133,000	87,000
10,400		133,000	87,000
10,450		133,000	87,000
10,490		133,000	87,000
10,500		133,000	87,000
10,550		133,000	87,000
10,600		133,000	87,000
10,700		142,000	94,000
10,720	27/64	142,000	94,000
10,750		142,000	94,000
10,800		142,000	94,000
10,900		142,000	94,000
11,000		142,000	94,000
11,050		142,000	94,000
11,100		142,000	94,000
11,110	7/16	142,000	94,000
11,150		142,000	94,000
11,200		142,000	94,000
11,250		142,000	94,000
11,300		142,000	94,000
11,350		142,000	94,000
11,400		142,000	94,000
11,500		142,000	94,000
11,510	29/64	142,000	94,000
11,600		142,000	94,000
11,700		142,000	94,000
11,750		142,000	94,000
11,800		142,000	94,000
11,900		151,000	101,000
11,910	15/32	151,000	101,000
12,000		151,000	101,000
12,050		151,000	101,000
12,100		151,000	101,000
12,200		151,000	101,000
12,250		151,000	101,000
12,300	31/64	151,000	101,000
12,400		151,000	101,000
12,500		151,000	101,000
12,600		151,000	101,000
12,650		151,000	101,000
12,700	1/2	151,000	101,000

d1		l1	l2
mm	inch	mm	mm
12,750		151,000	101,000
12,800		151,000	101,000
12,850		151,000	101,000
12,900		151,000	101,000
13,000		151,000	101,000
13,100	33/64	151,000	101,000
13,200		151,000	101,000
13,250		160,000	108,000
13,300		160,000	108,000
13,400		160,000	108,000
13,490	17/32	160,000	108,000
13,500		160,000	108,000
13,530		160,000	108,000
13,600		160,000	108,000
13,700		160,000	108,000
13,750		160,000	108,000
13,800		160,000	108,000
13,890	35/64	160,000	108,000
13,900		160,000	108,000
14,000		160,000	108,000
14,100		169,000	114,000
14,200		169,000	114,000
14,250		169,000	114,000
14,290	9/16	169,000	114,000
14,300		169,000	114,000
14,400		169,000	114,000
14,450		169,000	114,000
14,500		169,000	114,000
14,600		169,000	114,000
14,680	37/64	169,000	114,000
14,700		169,000	114,000
14,750		169,000	114,000
14,800		169,000	114,000
14,900		169,000	114,000
15,000		169,000	114,000
15,080	19/32	178,000	120,000
15,100		178,000	120,000
15,200		178,000	120,000
15,250		178,000	120,000
15,300		178,000	120,000
15,400		178,000	120,000
15,480	39/64	178,000	120,000
15,500		178,000	120,000
15,600		178,000	120,000
15,700		178,000	120,000
15,750		178,000	120,000
15,800		178,000	120,000
15,870	5/8	178,000	120,000
15,900		178,000	120,000
16,000		178,000	120,000
16,100		184,000	125,000
16,200		184,000	125,000
16,250		184,000	125,000
16,270	41/64	184,000	125,000
16,300		184,000	125,000
16,400		184,000	125,000
16,500		184,000	125,000
16,600		184,000	125,000
16,670	21/32	184,000	125,000
16,700		184,000	125,000
16,750		184,000	125,000
16,800		184,000	125,000
16,900		184,000	125,000
17,000		184,000	125,000
17,070	43/64	191,000	130,000
17,200		191,000	130,000
17,250		191,000	130,000
17,300		191,000	130,000
17,400		191,000	130,000
17,460	11/16	191,000	130,000
17,500		191,000	130,000
17,600		191,000	130,000

d1		l1	l2
mm	inch	mm	mm
17,700		191,000	130,000
17,750		191,000	130,000
17,800		191,000	130,000
17,860	45/64	191,000	130,000
17,900		191,000	130,000
18,000		191,000	130,000
18,100		198,000	135,000
18,200		198,000	135,000
18,260	23/32	198,000	135,000
18,400		198,000	135,000
18,500		198,000	135,000
18,650	47/64	198,000	135,000

d1		l1	l2
mm	inch	mm	mm
18,750		198,000	135,000
18,800		198,000	135,000
19,000		198,000	135,000
19,050	3/4	205,000	140,000
19,100		205,000	140,000
19,200		205,000	140,000
19,250		205,000	140,000
19,500		205,000	140,000
19,600		205,000	140,000
19,750		205,000	140,000
19,840	25/32	205,000	140,000
20,000		205,000	140,000

Brocas espirales cil., cortas

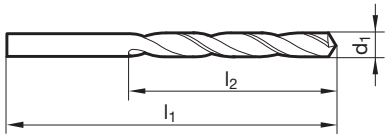
~5xD | DIN 338 | N | 118° | h8

Material de corte	HSS
Acabado	S
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,000 • entrada cónica
M		
K	•	
N	○	aceros y fundición de aceros (aleados y sin alear) • fundición gris, fundición maleable, fundición esferica • hierro sinterizado, argentón y grafito
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 780



Artículo N° **651**

d1		l1	l2
mm	inch	mm	mm
0,200		19,000	2,500
0,250		19,000	3,000
0,280		19,000	3,000
0,300		19,000	3,000
0,310		19,000	4,000
0,320		19,000	4,000
0,330		19,000	4,000
0,340		19,000	4,000
0,360		19,000	4,000
0,370		19,000	4,000
0,380		19,000	4,000
0,390		20,000	5,000
0,400	1/64	20,000	5,000
0,410		20,000	5,000
0,420		20,000	5,000
0,430		20,000	5,000
0,440		20,000	5,000
0,450		20,000	5,000
0,460		20,000	5,000
0,470		20,000	5,000
0,480		20,000	5,000
0,490		22,000	6,000
0,500		22,000	6,000
0,510		22,000	6,000
0,520		22,000	6,000
0,530		22,000	6,000
0,540		24,000	7,000
0,550		24,000	7,000
0,570		24,000	7,000
0,580		24,000	7,000
0,590		24,000	7,000
0,600		24,000	7,000
0,610		26,000	8,000
0,620		26,000	8,000
0,630		26,000	8,000
0,640		26,000	8,000
0,650		26,000	8,000
0,660		26,000	8,000
0,680		28,000	9,000
0,690		28,000	9,000
0,700		28,000	9,000
0,710		28,000	9,000

d1		l1	l2
mm	inch	mm	mm
0,720		28,000	9,000
0,740		28,000	9,000
0,750		28,000	9,000
0,770		30,000	10,000
0,780		30,000	10,000
0,790	1/32	30,000	10,000
0,800		30,000	10,000
0,810		30,000	10,000
0,820		30,000	10,000
0,830		30,000	10,000
0,840		30,000	10,000
0,850		30,000	10,000
0,860		32,000	11,000
0,870		32,000	11,000
0,880		32,000	11,000
0,890		32,000	11,000
0,900		32,000	11,000
0,910		32,000	11,000
0,920		32,000	11,000
0,930		32,000	11,000
0,940		32,000	11,000
0,950		32,000	11,000
0,960		34,000	12,000
0,970		34,000	12,000
0,980		34,000	12,000
0,990		34,000	12,000
1,000		34,000	12,000
1,020		34,000	12,000
1,030		34,000	12,000
1,040		34,000	12,000
1,050		34,000	12,000
1,060		34,000	12,000
1,070		36,000	14,000
1,080		36,000	14,000
1,090		36,000	14,000
1,100		36,000	14,000
1,110		36,000	14,000
1,120		36,000	14,000
1,130		36,000	14,000
1,140		36,000	14,000
1,150		36,000	14,000
1,160		36,000	14,000

d1		l1	l2
mm	inch	mm	mm
1,170		36,000	14,000
1,180		36,000	14,000
1,190	3/64	38,000	16,000
1,200		38,000	16,000
1,210		38,000	16,000
1,220		38,000	16,000
1,240		38,000	16,000
1,250		38,000	16,000
1,260		38,000	16,000
1,270		38,000	16,000
1,280		38,000	16,000
1,300		38,000	16,000
1,320		38,000	16,000
1,330		40,000	18,000
1,340		40,000	18,000
1,350		40,000	18,000
1,400		40,000	18,000
1,420		40,000	18,000
1,430		40,000	18,000
1,450		40,000	18,000
1,460		40,000	18,000
1,470		40,000	18,000
1,480		40,000	18,000
1,490		40,000	18,000
1,500		40,000	18,000
1,510		43,000	20,000
1,520		43,000	20,000
1,530		43,000	20,000
1,540		43,000	20,000
1,550		43,000	20,000
1,560		43,000	20,000
1,570		43,000	20,000
1,590	1/16	43,000	20,000
1,600		43,000	20,000
1,610		43,000	20,000
1,620		43,000	20,000
1,640		43,000	20,000
1,650		43,000	20,000
1,660		43,000	20,000
1,680		43,000	20,000
1,700		43,000	20,000
1,710		46,000	22,000
1,720		46,000	22,000
1,730		46,000	22,000
1,750		46,000	22,000
1,770		46,000	22,000
1,780		46,000	22,000
1,800		46,000	22,000
1,820		46,000	22,000
1,830		46,000	22,000
1,850		46,000	22,000
1,870		46,000	22,000
1,900		46,000	22,000
1,910		49,000	24,000
1,930		49,000	24,000
1,950		49,000	24,000
1,960		49,000	24,000
1,970		49,000	24,000
1,980	5/64	49,000	24,000
1,990		49,000	24,000
2,000		49,000	24,000
2,020		49,000	24,000
2,030		49,000	24,000
2,050		49,000	24,000
2,060		49,000	24,000
2,080		49,000	24,000
2,100		49,000	24,000
2,150		53,000	27,000
2,180		53,000	27,000
2,200		53,000	27,000
2,250		53,000	27,000
2,260		53,000	27,000

d1		l1	l2
mm	inch	mm	mm
2,300		53,000	27,000
2,350		53,000	27,000
2,370		57,000	30,000
2,380	3/32	57,000	30,000
2,400		57,000	30,000
2,440		57,000	30,000
2,450		57,000	30,000
2,490		57,000	30,000
2,500		57,000	30,000
2,520		57,000	30,000
2,530		57,000	30,000
2,550		57,000	30,000
2,580		57,000	30,000
2,600		57,000	30,000
2,640		57,000	30,000
2,650		57,000	30,000
2,700		61,000	33,000
2,710		61,000	33,000
2,720		61,000	33,000
2,750		61,000	33,000
2,780	7/64	61,000	33,000
2,790		61,000	33,000
2,800		61,000	33,000
2,820		61,000	33,000
2,850		61,000	33,000
2,870		61,000	33,000
2,900		61,000	33,000
2,950		61,000	33,000
3,000		61,000	33,000
3,020		65,000	36,000
3,030		65,000	36,000
3,050		65,000	36,000
3,100		65,000	36,000
3,150		65,000	36,000
3,170	1/8	65,000	36,000
3,200		65,000	36,000
3,250		65,000	36,000
3,260		65,000	36,000
3,300		65,000	36,000
3,350		65,000	36,000
3,400		70,000	39,000
3,450		70,000	39,000
3,500		70,000	39,000
3,550		70,000	39,000
3,570	9/64	70,000	39,000
3,600		70,000	39,000
3,650		70,000	39,000
3,660		70,000	39,000
3,700		70,000	39,000
3,730		70,000	39,000
3,750		70,000	39,000
3,800		75,000	43,000
3,850		75,000	43,000
3,860		75,000	43,000
3,900		75,000	43,000
3,910		75,000	43,000
3,950		75,000	43,000
3,970	5/32	75,000	43,000
3,990		75,000	43,000
4,000		75,000	43,000
4,040		75,000	43,000
4,050		75,000	43,000
4,070		75,000	43,000
4,090		75,000	43,000
4,100		75,000	43,000
4,150		75,000	43,000
4,200		75,000	43,000
4,220		75,000	43,000
4,250		75,000	43,000
4,300		80,000	47,000
4,350		80,000	47,000
4,370	11/64	80,000	47,000

d1		l1	l2
mm	inch	mm	mm
4,390		80,000	47,000
4,400		80,000	47,000
4,450		80,000	47,000
4,500		80,000	47,000
4,550		80,000	47,000
4,570		80,000	47,000
4,600		80,000	47,000
4,620		80,000	47,000
4,650		80,000	47,000
4,700		80,000	47,000
4,750		80,000	47,000
4,760	3/16	86,000	52,000
4,800		86,000	52,000
4,850		86,000	52,000
4,900		86,000	52,000
4,920		86,000	52,000
4,950		86,000	52,000
4,980		86,000	52,000
5,000		86,000	52,000
5,020		86,000	52,000
5,050		86,000	52,000
5,060		86,000	52,000
5,100		86,000	52,000
5,110		86,000	52,000
5,150		86,000	52,000
5,160	13/64	86,000	52,000
5,180		86,000	52,000
5,200		86,000	52,000
5,220		86,000	52,000
5,250		86,000	52,000
5,300		86,000	52,000
5,310		93,000	57,000
5,400		93,000	57,000
5,410		93,000	57,000
5,450		93,000	57,000
5,500		93,000	57,000
5,550		93,000	57,000
5,560	7/32	93,000	57,000
5,600		93,000	57,000
5,610		93,000	57,000
5,650		93,000	57,000
5,700		93,000	57,000
5,750		93,000	57,000
5,790		93,000	57,000
5,800		93,000	57,000
5,850		93,000	57,000
5,900		93,000	57,000
5,940		93,000	57,000
5,950	15/64	93,000	57,000
6,000		93,000	57,000
6,040		101,000	63,000
6,050		101,000	63,000
6,100		101,000	63,000
6,150		101,000	63,000
6,200		101,000	63,000
6,250		101,000	63,000
6,300		101,000	63,000
6,350	1/4	101,000	63,000
6,400		101,000	63,000
6,500		101,000	63,000
6,530		101,000	63,000
6,550		101,000	63,000
6,600		101,000	63,000
6,630		101,000	63,000
6,650		101,000	63,000
6,700		101,000	63,000
6,750	17/64	109,000	69,000
6,800		109,000	69,000
6,850		109,000	69,000
6,900		109,000	69,000
7,000		109,000	69,000
7,020		109,000	69,000

d1		l1	l2
mm	inch	mm	mm
7,030		109,000	69,000
7,050		109,000	69,000
7,100		109,000	69,000
7,140	9/32	109,000	69,000
7,200		109,000	69,000
7,250		109,000	69,000
7,300		109,000	69,000
7,370		109,000	69,000
7,400		109,000	69,000
7,450		109,000	69,000
7,490		109,000	69,000
7,500		109,000	69,000
7,540	19/64	117,000	75,000
7,600		117,000	75,000
7,670		117,000	75,000
7,700		117,000	75,000
7,750		117,000	75,000
7,800		117,000	75,000
7,900		117,000	75,000
7,940	5/16	117,000	75,000
8,000		117,000	75,000
8,030		117,000	75,000
8,050		117,000	75,000
8,100		117,000	75,000
8,150		117,000	75,000
8,200		117,000	75,000
8,250		117,000	75,000
8,300		117,000	75,000
8,330	21/64	117,000	75,000
8,400		117,000	75,000
8,430		117,000	75,000
8,450		117,000	75,000
8,500		117,000	75,000
8,600		125,000	81,000
8,610		125,000	81,000
8,700		125,000	81,000
8,730	11/32	125,000	81,000
8,750		125,000	81,000
8,800		125,000	81,000
8,840		125,000	81,000
8,850		125,000	81,000
8,900		125,000	81,000
9,000		125,000	81,000
9,050		125,000	81,000
9,090		125,000	81,000
9,100		125,000	81,000
9,130	23/64	125,000	81,000
9,200		125,000	81,000
9,250		125,000	81,000
9,300		125,000	81,000
9,340		125,000	81,000
9,350		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,520	3/8	133,000	87,000
9,550		133,000	87,000
9,580		133,000	87,000
9,600		133,000	87,000
9,700		133,000	87,000
9,750		133,000	87,000
9,800		133,000	87,000
9,900		133,000	87,000
9,920	25/64	133,000	87,000
10,000		133,000	87,000
10,060		133,000	87,000
10,080		133,000	87,000
10,100		133,000	87,000
10,200		133,000	87,000
10,250		133,000	87,000
10,260		133,000	87,000
10,300		133,000	87,000
10,320	13/32	133,000	87,000

d1		l1	l2
mm	inch	mm	mm
10,400		133,000	87,000
10,490		133,000	87,000
10,500		133,000	87,000
10,550		133,000	87,000
10,600		133,000	87,000
10,700		142,000	94,000
10,720	27/64	142,000	94,000
10,750		142,000	94,000
10,800		142,000	94,000
10,900		142,000	94,000
11,000		142,000	94,000
11,100		142,000	94,000
11,110	7/16	142,000	94,000
11,200		142,000	94,000
11,250		142,000	94,000
11,300		142,000	94,000
11,400		142,000	94,000
11,500		142,000	94,000
11,510	29/64	142,000	94,000
11,600		142,000	94,000
11,650		142,000	94,000
11,700		142,000	94,000
11,750		142,000	94,000
11,800		142,000	94,000
11,900		151,000	101,000
11,910	15/32	151,000	101,000
12,000		151,000	101,000
12,100		151,000	101,000
12,200		151,000	101,000
12,250		151,000	101,000
12,300	31/64	151,000	101,000
12,400		151,000	101,000
12,500		151,000	101,000
12,600		151,000	101,000
12,700	1/2	151,000	101,000
12,800		151,000	101,000
12,900		151,000	101,000
13,000		151,000	101,000
13,100	33/64	151,000	101,000
13,200		151,000	101,000
13,490	17/32	160,000	108,000
13,500		160,000	108,000

d1		l1	l2
mm	inch	mm	mm
13,700		160,000	108,000
13,750		160,000	108,000
13,800		160,000	108,000
13,890	35/64	160,000	108,000
13,900		160,000	108,000
14,000		160,000	108,000
14,100		169,000	114,000
14,200		169,000	114,000
14,250		169,000	114,000
14,290	9/16	169,000	114,000
14,300		169,000	114,000
14,400		169,000	114,000
14,500		169,000	114,000
14,680	37/64	169,000	114,000
15,000		169,000	114,000
15,080	19/32	178,000	120,000
15,250		178,000	120,000
15,480	39/64	178,000	120,000
15,500		178,000	120,000
15,800		178,000	120,000
15,870	5/8	178,000	120,000
16,000		178,000	120,000
16,500		184,000	125,000
16,750		184,000	125,000
17,000		184,000	125,000
17,250		191,000	130,000
17,500		191,000	130,000
18,000		191,000	130,000
18,500		198,000	135,000
18,800		198,000	135,000
19,000		198,000	135,000

Brocas espirales cil., cortas

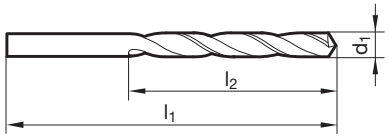
~5xD | DIN 338 | N | 118° | h8

Material de corte	HSS
Acabado	F
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,000 • entrada cónica
M		
K	•	
N	•	aceros y fundición de aceros (aleados y sin alear) • fundición gris, fundición maleable, fundición esferica • hierro sinterizado, argentón y grafito
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 780



Artículo N° **2456**

d1		l1	l2
mm	inch	mm	mm
1,000		34,000	12,000
1,100		36,000	14,000
1,200		38,000	16,000
1,300		38,000	16,000
1,400		40,000	18,000
1,500		40,000	18,000
1,600		43,000	20,000
1,700		43,000	20,000
1,800		46,000	22,000
1,900		46,000	22,000
2,000		49,000	24,000
2,100		49,000	24,000
2,200		53,000	27,000
2,300		53,000	27,000
2,400		57,000	30,000
2,500		57,000	30,000
2,600		57,000	30,000
2,700		61,000	33,000
2,800		61,000	33,000
2,900		61,000	33,000
3,000		61,000	33,000
3,100		65,000	36,000
3,200		65,000	36,000
3,300		65,000	36,000
3,400		70,000	39,000
3,500		70,000	39,000
3,600		70,000	39,000
3,700		70,000	39,000
3,800		75,000	43,000
3,900		75,000	43,000
4,000		75,000	43,000
4,100		75,000	43,000
4,200		75,000	43,000
4,300		80,000	47,000
4,400		80,000	47,000
4,500		80,000	47,000
4,600		80,000	47,000
4,800		86,000	52,000
5,000		86,000	52,000
5,100		86,000	52,000
5,200		86,000	52,000
5,500		93,000	57,000

d1		l1	l2
mm	inch	mm	mm
5,600		93,000	57,000
5,700		93,000	57,000
5,800		93,000	57,000
5,900		93,000	57,000
6,000		93,000	57,000
6,100		101,000	63,000
6,200		101,000	63,000
6,300		101,000	63,000
6,400		101,000	63,000
6,500		101,000	63,000
6,600		101,000	63,000
6,700		101,000	63,000
6,800		109,000	69,000
6,900		109,000	69,000
7,000		109,000	69,000
7,200		109,000	69,000
7,300		109,000	69,000
7,400		109,000	69,000
7,500		109,000	69,000
7,600		117,000	75,000
7,700		117,000	75,000
7,800		117,000	75,000
7,900		117,000	75,000
8,000		117,000	75,000
8,100		117,000	75,000
8,200		117,000	75,000
8,300		117,000	75,000
8,500		117,000	75,000
8,600		125,000	81,000
8,700		125,000	81,000
8,800		125,000	81,000
8,900		125,000	81,000
9,000		125,000	81,000
9,500		125,000	81,000
9,600		133,000	87,000
9,700		133,000	87,000
9,800		133,000	87,000
9,900		133,000	87,000
10,000		133,000	87,000
10,100		133,000	87,000
10,200		133,000	87,000
10,300		133,000	87,000

d1		l1	l2
mm	inch	mm	mm
10,400		133,000	87,000
10,700		142,000	94,000
11,000		142,000	94,000
11,100		142,000	94,000
11,400		142,000	94,000
11,700		142,000	94,000

d1		l1	l2
mm	inch	mm	mm
11,900		151,000	101,000
12,700	1/2	151,000	101,000
13,000		151,000	101,000
14,000		160,000	108,000
14,500		169,000	114,000

Brocas espirales cil., cortas

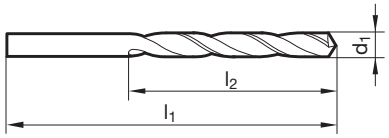
~5xD | DIN 338 | N | 118° | h8

Material de corte	HSS
Acabado	○
Dirección de corte	R

P	•	vaciado de punta ≥Ø 2,370 • entrada cónica
M		
K	•	
N	○	aceros y fundición de aceros (aleados y sin alear) • fundición gris, fundición maleable, fundición esferica • hierro sinterizado, argentón y grafito
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 778



Artículo N° **560**

d1		l1	l2
mm	inch	mm	mm
2,400		57,000	30,000
2,500		57,000	30,000
2,580		57,000	30,000
2,600		57,000	30,000
2,640		57,000	30,000
2,700		61,000	33,000
2,710		61,000	33,000
2,750		61,000	33,000
2,790		61,000	33,000
2,800		61,000	33,000
2,820		61,000	33,000
2,850		61,000	33,000
2,870		61,000	33,000
2,950		61,000	33,000
3,000		61,000	33,000
3,050		65,000	36,000
3,200		65,000	36,000
3,240		65,000	36,000
3,260		65,000	36,000
3,300		65,000	36,000
3,400		70,000	39,000
3,450		70,000	39,000
3,500		70,000	39,000
3,570	9/64	70,000	39,000
3,600		70,000	39,000
3,650		70,000	39,000
3,660		70,000	39,000
3,700		70,000	39,000
3,730		70,000	39,000
3,800		75,000	43,000

d1		l1	l2
mm	inch	mm	mm
3,860		75,000	43,000
3,900		75,000	43,000
3,950		75,000	43,000
3,970	5/32	75,000	43,000
4,000		75,000	43,000
4,200		75,000	43,000
4,300		80,000	47,000
4,370	11/64	80,000	47,000
4,500		80,000	47,000
4,550		80,000	47,000
4,600		80,000	47,000
4,620		80,000	47,000
4,650		80,000	47,000
4,700		80,000	47,000
4,760	3/16	86,000	52,000
4,800		86,000	52,000
4,850		86,000	52,000
4,900		86,000	52,000
4,920		86,000	52,000
4,950		86,000	52,000
5,000		86,000	52,000
5,100		86,000	52,000
5,200		86,000	52,000
5,300		86,000	52,000
5,610		93,000	57,000

Brocas espirales cil., cortas

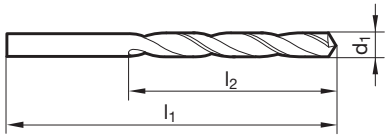
~5xD | DIN 338 | N | 118° | h8

Material de corte	HSS
Acabado	●
Dirección de corte	R

P	•	vaciado de punta ≥Ø 3,000 • entrada cónica • con arrastre según DIN 1809
M		
K	•	
N	○	aceros y fundición de aceros (aleados y sin alear) • fundición gris, fundición maleable, fundición esferica • hierro sinterizado, argentón y grafito
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 778



Artículo N° **240**

d1 mm	inch	l1 mm	l2 mm
3,000		61,000	33,000
3,100		65,000	36,000
3,200		65,000	36,000
3,300		65,000	36,000
3,400		70,000	39,000
3,500		70,000	39,000
3,600		70,000	39,000
3,700		70,000	39,000
3,800		75,000	43,000
3,900		75,000	43,000
3,970	5/32	75,000	43,000
4,000		75,000	43,000
4,100		75,000	43,000
4,200		75,000	43,000
4,300		80,000	47,000
4,400		80,000	47,000
4,500		80,000	47,000
4,600		80,000	47,000
4,700		80,000	47,000
4,800		86,000	52,000
4,900		86,000	52,000
5,000		86,000	52,000
5,100		86,000	52,000
5,200		86,000	52,000
5,250		86,000	52,000
5,300		86,000	52,000
5,400		93,000	57,000
5,500		93,000	57,000
5,600		93,000	57,000
5,700		93,000	57,000
5,800		93,000	57,000
5,850		93,000	57,000
5,900		93,000	57,000
6,000		93,000	57,000
6,050		101,000	63,000
6,100		101,000	63,000
6,200		101,000	63,000
6,300		101,000	63,000
6,400		101,000	63,000
6,500		101,000	63,000
6,600		101,000	63,000
6,700		101,000	63,000

d1 mm	inch	l1 mm	l2 mm
6,800		109,000	69,000
6,900		109,000	69,000
7,000		109,000	69,000
7,100		109,000	69,000
7,200		109,000	69,000
7,500		109,000	69,000
7,600		117,000	75,000
7,700		117,000	75,000
7,800		117,000	75,000
8,000		117,000	75,000
8,100		117,000	75,000
8,200		117,000	75,000
8,300		117,000	75,000
8,400		117,000	75,000
8,500		117,000	75,000
8,600		125,000	81,000
8,700		125,000	81,000
8,800		125,000	81,000
9,000		125,000	81,000
9,100		125,000	81,000
9,250		125,000	81,000
9,300		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,600		133,000	87,000
9,800		133,000	87,000
10,000		133,000	87,000
10,100		133,000	87,000
10,200		133,000	87,000
10,500		133,000	87,000
11,000		142,000	94,000
11,500		142,000	94,000
12,000		151,000	101,000
13,000		151,000	101,000
13,490	17/32	160,000	108,000
15,000		169,000	114,000
16,000		178,000	120,000

Brocas espirales cil., cortas

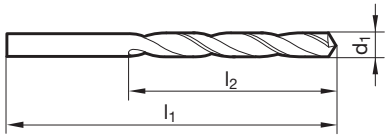
~5xD | DIN 338 | N | 118° | h8

Material de corte	HSS
Acabado	>Ø 6,00
Dirección de corte	L

P	•	vaciado de punta ≥Ø 14,700 • entrada cónica
M		
K	•	
N	○	aceros y fundición de aceros (aleados y sin alear) • fundición gris, fundición maleable, fundición esferica • hierro sinterizado, argentón y grafito
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 778



Artículo N° **208**

d1		l1	l2
mm	inch	mm	mm
0,200		19,000	2,500
0,240		19,000	2,500
0,290		19,000	3,000
0,300		19,000	3,000
0,340		19,000	4,000
0,350		19,000	4,000
0,360		19,000	4,000
0,370		19,000	4,000
0,390		20,000	5,000
0,400	1/64	20,000	5,000
0,410		20,000	5,000
0,420		20,000	5,000
0,430		20,000	5,000
0,440		20,000	5,000
0,450		20,000	5,000
0,460		20,000	5,000
0,470		20,000	5,000
0,480		20,000	5,000
0,500		22,000	6,000
0,510		22,000	6,000
0,520		22,000	6,000
0,530		22,000	6,000
0,540		24,000	7,000
0,550		24,000	7,000
0,560		24,000	7,000
0,570		24,000	7,000
0,580		24,000	7,000
0,600		24,000	7,000
0,610		26,000	8,000
0,620		26,000	8,000
0,630		26,000	8,000
0,640		26,000	8,000
0,650		26,000	8,000
0,660		26,000	8,000
0,670		26,000	8,000
0,680		28,000	9,000
0,690		28,000	9,000
0,700		28,000	9,000
0,710		28,000	9,000
0,720		28,000	9,000
0,730		28,000	9,000
0,740		28,000	9,000

d1		l1	l2
mm	inch	mm	mm
0,750		28,000	9,000
0,770		30,000	10,000
0,775		30,000	10,000
0,780		30,000	10,000
0,790	1/32	30,000	10,000
0,800		30,000	10,000
0,810		30,000	10,000
0,820		30,000	10,000
0,830		30,000	10,000
0,840		30,000	10,000
0,850		30,000	10,000
0,860		32,000	11,000
0,870		32,000	11,000
0,880		32,000	11,000
0,890		32,000	11,000
0,900		32,000	11,000
0,910		32,000	11,000
0,930		32,000	11,000
0,950		32,000	11,000
0,960		34,000	12,000
0,970		34,000	12,000
0,980		34,000	12,000
0,990		34,000	12,000
1,000		34,000	12,000
1,020		34,000	12,000
1,040		34,000	12,000
1,050		34,000	12,000
1,070		36,000	14,000
1,080		36,000	14,000
1,090		36,000	14,000
1,100		36,000	14,000
1,110		36,000	14,000
1,120		36,000	14,000
1,130		36,000	14,000
1,150		36,000	14,000
1,170		36,000	14,000
1,180		36,000	14,000
1,190	3/64	38,000	16,000
1,200		38,000	16,000
1,210		38,000	16,000
1,220		38,000	16,000
1,250		38,000	16,000

d1		l1	l2
mm	inch	mm	mm
1,270		38,000	16,000
1,290		38,000	16,000
1,300		38,000	16,000
1,310		38,000	16,000
1,320		38,000	16,000
1,350		40,000	18,000
1,380		40,000	18,000
1,390		40,000	18,000
1,400		40,000	18,000
1,420		40,000	18,000
1,430		40,000	18,000
1,450		40,000	18,000
1,465		40,000	18,000
1,470		40,000	18,000
1,490		40,000	18,000
1,500		40,000	18,000
1,510		43,000	20,000
1,550		43,000	20,000
1,590	1/16	43,000	20,000
1,600		43,000	20,000
1,610		43,000	20,000
1,620		43,000	20,000
1,630		43,000	20,000
1,650		43,000	20,000
1,660		43,000	20,000
1,700		43,000	20,000
1,720		46,000	22,000
1,750		46,000	22,000
1,760		46,000	22,000
1,770		46,000	22,000
1,780		46,000	22,000
1,790		46,000	22,000
1,800		46,000	22,000
1,820		46,000	22,000
1,830		46,000	22,000
1,840		46,000	22,000
1,850		46,000	22,000
1,880		46,000	22,000
1,900		46,000	22,000
1,930		49,000	24,000
1,940		49,000	24,000
1,950		49,000	24,000
1,970		49,000	24,000
1,980	5/64	49,000	24,000
2,000		49,000	24,000
2,040		49,000	24,000
2,050		49,000	24,000
2,080		49,000	24,000
2,100		49,000	24,000
2,120		49,000	24,000
2,150		53,000	27,000
2,180		53,000	27,000
2,200		53,000	27,000
2,240		53,000	27,000
2,250		53,000	27,000
2,260		53,000	27,000
2,300		53,000	27,000
2,320		53,000	27,000
2,350		53,000	27,000
2,360		53,000	27,000
2,370		57,000	30,000
2,380	3/32	57,000	30,000
2,400		57,000	30,000
2,420		57,000	30,000
2,440		57,000	30,000
2,450		57,000	30,000
2,490		57,000	30,000
2,500		57,000	30,000
2,530		57,000	30,000
2,550		57,000	30,000
2,570		57,000	30,000
2,580		57,000	30,000

d1		l1	l2
mm	inch	mm	mm
2,600		57,000	30,000
2,640		57,000	30,000
2,650		57,000	30,000
2,660		61,000	33,000
2,670		61,000	33,000
2,700		61,000	33,000
2,710		61,000	33,000
2,730		61,000	33,000
2,750		61,000	33,000
2,780	7/64	61,000	33,000
2,800		61,000	33,000
2,870		61,000	33,000
2,880		61,000	33,000
2,900		61,000	33,000
2,910		61,000	33,000
2,950		61,000	33,000
2,970		61,000	33,000
3,000		61,000	33,000
3,020		65,000	36,000
3,030		65,000	36,000
3,050		65,000	36,000
3,100		65,000	36,000
3,150		65,000	36,000
3,170	1/8	65,000	36,000
3,200		65,000	36,000
3,220		65,000	36,000
3,250		65,000	36,000
3,260		65,000	36,000
3,280		65,000	36,000
3,300		65,000	36,000
3,320		65,000	36,000
3,330		65,000	36,000
3,340		65,000	36,000
3,370		70,000	39,000
3,380		70,000	39,000
3,400		70,000	39,000
3,450		70,000	39,000
3,470		70,000	39,000
3,500		70,000	39,000
3,530		70,000	39,000
3,570	9/64	70,000	39,000
3,600		70,000	39,000
3,650		70,000	39,000
3,700		70,000	39,000
3,750		70,000	39,000
3,800		75,000	43,000
3,850		75,000	43,000
3,870		75,000	43,000
3,900		75,000	43,000
3,910		75,000	43,000
3,950		75,000	43,000
3,970	5/32	75,000	43,000
4,000		75,000	43,000
4,050		75,000	43,000
4,090		75,000	43,000
4,100		75,000	43,000
4,130		75,000	43,000
4,150		75,000	43,000
4,200		75,000	43,000
4,250		75,000	43,000
4,300		80,000	47,000
4,350		80,000	47,000
4,370	11/64	80,000	47,000
4,390		80,000	47,000
4,400		80,000	47,000
4,450		80,000	47,000
4,500		80,000	47,000
4,520		80,000	47,000
4,530		80,000	47,000
4,550		80,000	47,000
4,570		80,000	47,000
4,600		80,000	47,000

d1		l1	l2
mm	inch	mm	mm
4,680		80,000	47,000
4,750		80,000	47,000
4,760	3/16	86,000	52,000
4,800		86,000	52,000
4,850		86,000	52,000
4,900		86,000	52,000
4,920		86,000	52,000
4,930		86,000	52,000
4,950		86,000	52,000
4,970		86,000	52,000
4,980		86,000	52,000
5,000		86,000	52,000
5,060		86,000	52,000
5,080		86,000	52,000
5,100		86,000	52,000
5,110		86,000	52,000
5,160	13/64	86,000	52,000
5,200		86,000	52,000
5,220		86,000	52,000
5,300		86,000	52,000
5,400		93,000	57,000
5,500		93,000	57,000
5,520		93,000	57,000
5,560	7/32	93,000	57,000
5,600		93,000	57,000
5,610		93,000	57,000
5,650		93,000	57,000
5,700		93,000	57,000
5,750		93,000	57,000
5,800		93,000	57,000
5,850		93,000	57,000
5,900		93,000	57,000
5,940		93,000	57,000
5,950	15/64	93,000	57,000
6,000		93,000	57,000
6,100		101,000	63,000
6,200		101,000	63,000
6,300		101,000	63,000
6,350	1/4	101,000	63,000
6,400		101,000	63,000
6,450		101,000	63,000
6,500		101,000	63,000
6,530		101,000	63,000
6,550		101,000	63,000
6,570		101,000	63,000
6,600		101,000	63,000
6,630		101,000	63,000
6,700		101,000	63,000
6,800		109,000	69,000
6,880		109,000	69,000
6,900		109,000	69,000
6,910		109,000	69,000
6,950		109,000	69,000
7,000		109,000	69,000
7,030		109,000	69,000
7,040		109,000	69,000
7,100		109,000	69,000
7,140	9/32	109,000	69,000
7,200		109,000	69,000
7,220		109,000	69,000
7,300		109,000	69,000
7,400		109,000	69,000
7,490		109,000	69,000
7,500		109,000	69,000
7,520		117,000	75,000
7,540	19/64	117,000	75,000
7,550		117,000	75,000
7,600		117,000	75,000
7,700		117,000	75,000
7,800		117,000	75,000
7,850		117,000	75,000
7,900		117,000	75,000

d1		l1	l2
mm	inch	mm	mm
7,940	5/16	117,000	75,000
8,000		117,000	75,000
8,100		117,000	75,000
8,200		117,000	75,000
8,330	21/64	117,000	75,000
8,500		117,000	75,000
8,600		125,000	81,000
8,610		125,000	81,000
8,650		125,000	81,000
8,700		125,000	81,000
8,800		125,000	81,000
9,000		125,000	81,000
9,100		125,000	81,000
9,130	23/64	125,000	81,000
9,200		125,000	81,000
9,300		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,520	3/8	133,000	87,000
9,600		133,000	87,000
9,700		133,000	87,000
9,750		133,000	87,000
9,900		133,000	87,000
9,920	25/64	133,000	87,000
10,000		133,000	87,000
10,080		133,000	87,000
10,100		133,000	87,000
10,200		133,000	87,000
10,300		133,000	87,000
10,500		133,000	87,000
10,750		142,000	94,000
11,000		142,000	94,000
11,110	7/16	142,000	94,000
11,250		142,000	94,000
11,500		142,000	94,000
11,510	29/64	142,000	94,000
11,800		142,000	94,000
11,900		151,000	101,000
11,910	15/32	151,000	101,000
12,000		151,000	101,000
12,300	31/64	151,000	101,000
12,500		151,000	101,000
12,600		151,000	101,000
12,700	1/2	151,000	101,000
12,750		151,000	101,000
12,800		151,000	101,000
13,000		151,000	101,000
13,250		160,000	108,000
13,400		160,000	108,000
13,600		160,000	108,000
13,750		160,000	108,000
13,800		160,000	108,000
14,000		160,000	108,000
14,700		169,000	114,000
14,800		169,000	114,000
14,900		169,000	114,000
15,000		169,000	114,000
15,050		178,000	120,000
15,500		178,000	120,000
15,600		178,000	120,000
15,700		178,000	120,000
15,750		178,000	120,000
15,800		178,000	120,000
15,870	5/8	178,000	120,000
16,000		178,000	120,000
17,250		191,000	130,000
17,500		191,000	130,000
19,000		198,000	135,000
19,050	3/4	205,000	140,000
19,500		205,000	140,000
20,000		205,000	140,000

Brocas espirales cil., cortas

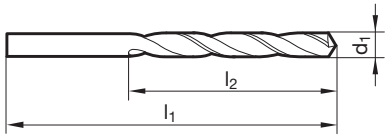
~5xD | DIN 338 | N | 118° | h8

Material de corte	HSS
Acabado	S
Dirección de corte	L

P	•	vaciado de punta ≥Ø 2,380 • entrada cónica
M		
K	•	
N	○	aceros y fundición de aceros (aleados y sin alear) • fundición gris, fundición maleable, fundición esferica • hierro sinterizado, argentón y grafito
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 780



Artículo N° **664**

d1 mm	inch	l1 mm	l2 mm
0,250		19,000	3,000
0,420		20,000	5,000
0,430		20,000	5,000
0,450		20,000	5,000
0,500		22,000	6,000
0,550		24,000	7,000
0,575		24,000	7,000
0,600		24,000	7,000
0,670		26,000	8,000
0,680		28,000	9,000
0,770		30,000	10,000
0,800		30,000	10,000
0,900		32,000	11,000
0,950		32,000	11,000
1,000		34,000	12,000
1,040		34,000	12,000
1,050		34,000	12,000
1,070		36,000	14,000
1,090		36,000	14,000
1,100		36,000	14,000
1,150		36,000	14,000
1,180		36,000	14,000
1,190	3/64	38,000	16,000
1,200		38,000	16,000
1,250		38,000	16,000
1,300		38,000	16,000
1,320		38,000	16,000
1,400		40,000	18,000
1,420		40,000	18,000
1,450		40,000	18,000
1,500		40,000	18,000
1,550		43,000	20,000
1,580		43,000	20,000
1,590	1/16	43,000	20,000
1,600		43,000	20,000
1,650		43,000	20,000
1,700		43,000	20,000
1,750		46,000	22,000
1,800		46,000	22,000
1,850		46,000	22,000
1,900		46,000	22,000
2,000		49,000	24,000

d1 mm	inch	l1 mm	l2 mm
2,050		49,000	24,000
2,100		49,000	24,000
2,150		53,000	27,000
2,300		53,000	27,000
2,360		53,000	27,000
2,380	3/32	57,000	30,000
2,400		57,000	30,000
2,450		57,000	30,000
2,500		57,000	30,000
2,580		57,000	30,000
2,600		57,000	30,000
2,650		57,000	30,000
2,700		61,000	33,000
2,710		61,000	33,000
2,750		61,000	33,000
2,780	7/64	61,000	33,000
2,800		61,000	33,000
2,850		61,000	33,000
2,870		61,000	33,000
2,900		61,000	33,000
2,950		61,000	33,000
3,000		61,000	33,000
3,050		65,000	36,000
3,100		65,000	36,000
3,170	1/8	65,000	36,000
3,200		65,000	36,000
3,300		65,000	36,000
3,400		70,000	39,000
3,500		70,000	39,000
3,570	9/64	70,000	39,000
3,700		70,000	39,000
3,750		70,000	39,000
3,800		75,000	43,000
3,970	5/32	75,000	43,000
4,000		75,000	43,000
4,100		75,000	43,000
4,200		75,000	43,000
4,300		80,000	47,000
4,370	11/64	80,000	47,000
4,400		80,000	47,000
4,500		80,000	47,000
4,700		80,000	47,000

d1		l1	l2
mm	inch	mm	mm
4,760	3/16	86,000	52,000
4,800		86,000	52,000
4,900		86,000	52,000
5,000		86,000	52,000
5,060		86,000	52,000
5,100		86,000	52,000
5,160	13/64	86,000	52,000
5,200		86,000	52,000
5,300		86,000	52,000
5,400		93,000	57,000
5,410		93,000	57,000
5,500		93,000	57,000
5,560	7/32	93,000	57,000
5,700		93,000	57,000
5,950	15/64	93,000	57,000
6,000		93,000	57,000
6,200		101,000	63,000
6,250		101,000	63,000
6,350	1/4	101,000	63,000
6,400		101,000	63,000
6,700		101,000	63,000
6,800		109,000	69,000
7,000		109,000	69,000
7,140	9/32	109,000	69,000
7,200		109,000	69,000
7,300		109,000	69,000
7,500		109,000	69,000
7,540	19/64	117,000	75,000
7,850		117,000	75,000
7,900		117,000	75,000

d1		l1	l2
mm	inch	mm	mm
8,000		117,000	75,000
8,500		117,000	75,000
8,730	11/32	125,000	81,000
8,800		125,000	81,000
9,100		125,000	81,000
9,130	23/64	125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,600		133,000	87,000
9,800		133,000	87,000
9,920	25/64	133,000	87,000
10,000		133,000	87,000
10,200		133,000	87,000
10,320	13/32	133,000	87,000
10,900		142,000	94,000
11,000		142,000	94,000
12,000		151,000	101,000
12,400		151,000	101,000
12,500		151,000	101,000
13,500		160,000	108,000
14,250		169,000	114,000

Brocas espirales cil., cortas

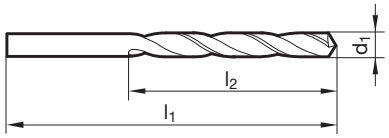
~5xD | DIN 338 | H | 118° | h8

Material de corte	HSS
Acabado	○
Dirección de corte	Ⓡ

P		vaciado de punta ≥Ø 14,500 • entrada cónica
M		
K		
N	•	materiales duros y quebradizos • latón, aleaciones de magnesio • bronce y bronce al fósforo • pizarra, mica, Pertinax
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 778



Artículo N° **206**

d1 mm	inch	l1 mm	l2 mm
0,200		19,000	2,500
0,210		19,000	2,500
0,220		19,000	2,500
0,240		19,000	2,500
0,250		19,000	3,000
0,280		19,000	3,000
0,290		19,000	3,000
0,300		19,000	3,000
0,310		19,000	4,000
0,320		19,000	4,000
0,340		19,000	4,000
0,350		19,000	4,000
0,400	1/64	20,000	5,000
0,410		20,000	5,000
0,420		20,000	5,000
0,440		20,000	5,000
0,450		20,000	5,000
0,460		20,000	5,000
0,480		20,000	5,000
0,500		22,000	6,000
0,520		22,000	6,000
0,530		22,000	6,000
0,550		24,000	7,000
0,560		24,000	7,000
0,570		24,000	7,000
0,600		24,000	7,000
0,620		26,000	8,000
0,640		26,000	8,000
0,650		26,000	8,000
0,660		26,000	8,000
0,670		26,000	8,000
0,680		28,000	9,000
0,690		28,000	9,000
0,700		28,000	9,000
0,710		28,000	9,000
0,720		28,000	9,000
0,730		28,000	9,000
0,740		28,000	9,000
0,750		28,000	9,000
0,760		30,000	10,000
0,770		30,000	10,000
0,780		30,000	10,000

d1 mm	inch	l1 mm	l2 mm
0,790	1/32	30,000	10,000
0,800		30,000	10,000
0,810		30,000	10,000
0,820		30,000	10,000
0,830		30,000	10,000
0,840		30,000	10,000
0,850		30,000	10,000
0,860		32,000	11,000
0,870		32,000	11,000
0,880		32,000	11,000
0,890		32,000	11,000
0,900		32,000	11,000
0,910		32,000	11,000
0,930		32,000	11,000
0,950		32,000	11,000
0,960		34,000	12,000
0,970		34,000	12,000
0,980		34,000	12,000
0,990		34,000	12,000
1,000		34,000	12,000
1,020		34,000	12,000
1,030		34,000	12,000
1,040		34,000	12,000
1,050		34,000	12,000
1,060		34,000	12,000
1,070		36,000	14,000
1,080		36,000	14,000
1,100		36,000	14,000
1,120		36,000	14,000
1,130		36,000	14,000
1,140		36,000	14,000
1,150		36,000	14,000
1,160		36,000	14,000
1,180		36,000	14,000
1,190	3/64	38,000	16,000
1,200		38,000	16,000
1,220		38,000	16,000
1,230		38,000	16,000
1,250		38,000	16,000
1,270		38,000	16,000
1,280		38,000	16,000
1,300		38,000	16,000

d1		l1	l2
mm	inch	mm	mm
1,320		38,000	16,000
1,330		40,000	18,000
1,350		40,000	18,000
1,370		40,000	18,000
1,380		40,000	18,000
1,400		40,000	18,000
1,420		40,000	18,000
1,430		40,000	18,000
1,440		40,000	18,000
1,450		40,000	18,000
1,470		40,000	18,000
1,480		40,000	18,000
1,490		40,000	18,000
1,500		40,000	18,000
1,520		43,000	20,000
1,530		43,000	20,000
1,540		43,000	20,000
1,550		43,000	20,000
1,590	1/16	43,000	20,000
1,600		43,000	20,000
1,620		43,000	20,000
1,650		43,000	20,000
1,670		43,000	20,000
1,700		43,000	20,000
1,720		46,000	22,000
1,730		46,000	22,000
1,750		46,000	22,000
1,780		46,000	22,000
1,800		46,000	22,000
1,820		46,000	22,000
1,850		46,000	22,000
1,870		46,000	22,000
1,900		46,000	22,000
1,920		49,000	24,000
1,950		49,000	24,000
1,960		49,000	24,000
1,980	5/64	49,000	24,000
2,000		49,000	24,000
2,010		49,000	24,000
2,020		49,000	24,000
2,030		49,000	24,000
2,040		49,000	24,000
2,050		49,000	24,000
2,060		49,000	24,000
2,070		49,000	24,000
2,080		49,000	24,000
2,100		49,000	24,000
2,120		49,000	24,000
2,150		53,000	27,000
2,180		53,000	27,000
2,200		53,000	27,000
2,220		53,000	27,000
2,230		53,000	27,000
2,250		53,000	27,000
2,270		53,000	27,000
2,300		53,000	27,000
2,320		53,000	27,000
2,350		53,000	27,000
2,380	3/32	57,000	30,000
2,400		57,000	30,000
2,450		57,000	30,000
2,470		57,000	30,000
2,480		57,000	30,000
2,500		57,000	30,000
2,520		57,000	30,000
2,530		57,000	30,000
2,550		57,000	30,000
2,570		57,000	30,000
2,600		57,000	30,000
2,640		57,000	30,000
2,650		57,000	30,000
2,700		61,000	33,000

d1		l1	l2
mm	inch	mm	mm
2,710		61,000	33,000
2,750		61,000	33,000
2,780	7/64	61,000	33,000
2,800		61,000	33,000
2,820		61,000	33,000
2,840		61,000	33,000
2,850		61,000	33,000
2,900		61,000	33,000
2,920		61,000	33,000
2,950		61,000	33,000
2,970		61,000	33,000
3,000		61,000	33,000
3,010		65,000	36,000
3,020		65,000	36,000
3,030		65,000	36,000
3,040		65,000	36,000
3,050		65,000	36,000
3,060		65,000	36,000
3,070		65,000	36,000
3,100		65,000	36,000
3,120		65,000	36,000
3,150		65,000	36,000
3,170	1/8	65,000	36,000
3,200		65,000	36,000
3,220		65,000	36,000
3,250		65,000	36,000
3,260		65,000	36,000
3,300		65,000	36,000
3,350		65,000	36,000
3,400		70,000	39,000
3,410		70,000	39,000
3,450		70,000	39,000
3,470		70,000	39,000
3,500		70,000	39,000
3,520		70,000	39,000
3,550		70,000	39,000
3,570	9/64	70,000	39,000
3,600		70,000	39,000
3,650		70,000	39,000
3,700		70,000	39,000
3,720		70,000	39,000
3,750		70,000	39,000
3,800		75,000	43,000
3,830		75,000	43,000
3,850		75,000	43,000
3,870		75,000	43,000
3,880		75,000	43,000
3,900		75,000	43,000
3,910		75,000	43,000
3,950		75,000	43,000
3,970	5/32	75,000	43,000
4,000		75,000	43,000
4,020		75,000	43,000
4,040		75,000	43,000
4,050		75,000	43,000
4,070		75,000	43,000
4,100		75,000	43,000
4,150		75,000	43,000
4,200		75,000	43,000
4,250		75,000	43,000
4,300		80,000	47,000
4,350		80,000	47,000
4,370	11/64	80,000	47,000
4,400		80,000	47,000
4,420		80,000	47,000
4,450		80,000	47,000
4,500		80,000	47,000
4,600		80,000	47,000
4,650		80,000	47,000
4,700		80,000	47,000
4,750		80,000	47,000
4,760	3/16	86,000	52,000

d1		l1	l2
mm	inch	mm	mm
4,800		86,000	52,000
4,850		86,000	52,000
4,900		86,000	52,000
4,950		86,000	52,000
5,000		86,000	52,000
5,050		86,000	52,000
5,100		86,000	52,000
5,150		86,000	52,000
5,160	13/64	86,000	52,000
5,200		86,000	52,000
5,250		86,000	52,000
5,300		86,000	52,000
5,310		93,000	57,000
5,400		93,000	57,000
5,450		93,000	57,000
5,500		93,000	57,000
5,560	7/32	93,000	57,000
5,600		93,000	57,000
5,700		93,000	57,000
5,750		93,000	57,000
5,800		93,000	57,000
5,850		93,000	57,000
5,900		93,000	57,000
5,950	15/64	93,000	57,000
6,000		93,000	57,000
6,050		101,000	63,000
6,100		101,000	63,000
6,150		101,000	63,000
6,200		101,000	63,000
6,250		101,000	63,000
6,300		101,000	63,000
6,350	1/4	101,000	63,000
6,400		101,000	63,000
6,450		101,000	63,000
6,500		101,000	63,000
6,530		101,000	63,000
6,550		101,000	63,000
6,600		101,000	63,000
6,700		101,000	63,000
6,750	17/64	109,000	69,000
6,800		109,000	69,000
6,900		109,000	69,000
7,000		109,000	69,000
7,050		109,000	69,000
7,100		109,000	69,000
7,140	9/32	109,000	69,000
7,200		109,000	69,000
7,250		109,000	69,000
7,300		109,000	69,000
7,350		109,000	69,000
7,400		109,000	69,000
7,500		109,000	69,000
7,540	19/64	117,000	75,000
7,600		117,000	75,000
7,700		117,000	75,000
7,800		117,000	75,000
7,850		117,000	75,000
7,900		117,000	75,000
7,940	5/16	117,000	75,000
8,000		117,000	75,000
8,050		117,000	75,000
8,100		117,000	75,000
8,200		117,000	75,000
8,250		117,000	75,000
8,300		117,000	75,000
8,330	21/64	117,000	75,000

d1		l1	l2
mm	inch	mm	mm
8,400		117,000	75,000
8,500		117,000	75,000
8,600		125,000	81,000
8,700		125,000	81,000
8,730	11/32	125,000	81,000
8,750		125,000	81,000
8,800		125,000	81,000
8,900		125,000	81,000
9,000		125,000	81,000
9,100		125,000	81,000
9,130	23/64	125,000	81,000
9,200		125,000	81,000
9,250		125,000	81,000
9,300		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,520	3/8	133,000	87,000
9,600		133,000	87,000
9,700		133,000	87,000
9,800		133,000	87,000
9,900		133,000	87,000
9,920	25/64	133,000	87,000
10,000		133,000	87,000
10,100		133,000	87,000
10,150		133,000	87,000
10,200		133,000	87,000
10,250		133,000	87,000
10,300		133,000	87,000
10,320	13/32	133,000	87,000
10,500		133,000	87,000
10,600		133,000	87,000
10,720	27/64	142,000	94,000
10,800		142,000	94,000
10,900		142,000	94,000
11,000		142,000	94,000
11,100		142,000	94,000
11,110	7/16	142,000	94,000
11,200		142,000	94,000
11,400		142,000	94,000
11,500		142,000	94,000
11,510	29/64	142,000	94,000
11,700		142,000	94,000
11,900		151,000	101,000
12,000		151,000	101,000
12,100		151,000	101,000
12,200		151,000	101,000
12,300	31/64	151,000	101,000
12,500		151,000	101,000
12,700	1/2	151,000	101,000
12,800		151,000	101,000
13,000		151,000	101,000
13,200		151,000	101,000
13,500		160,000	108,000
14,000		160,000	108,000
14,500		169,000	114,000
15,000		169,000	114,000
15,500		178,000	120,000
16,000		178,000	120,000
17,000		184,000	125,000
18,000		191,000	130,000
19,000		198,000	135,000
20,000		205,000	140,000

Brocas espirales cil., cortas

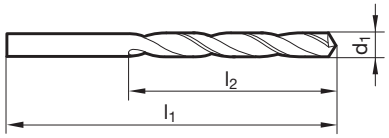
~5xD | DIN 338 | H | 118° | h8

Material de corte	HSS
Acabado	○
Dirección de corte	L

P		vaciado de punta ≥Ø 14,200 • entrada cónica
M		
K		
N	•	materiales duros y quebradizos • latón, aleaciones de magnesio • bronce y bronce al fósforo • pizarra, mica, Pertinax
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 778



Artículo N° **209**

d1		l1	l2
mm	inch	mm	mm
0,300		19,000	3,000
0,400	1/64	20,000	5,000
0,450		20,000	5,000
0,480		20,000	5,000
0,490		22,000	6,000
0,500		22,000	6,000
0,530		22,000	6,000
0,540		24,000	7,000
0,550		24,000	7,000
0,580		24,000	7,000
0,590		24,000	7,000
0,600		24,000	7,000
0,620		26,000	8,000
0,640		26,000	8,000
0,660		26,000	8,000
0,670		26,000	8,000
0,680		28,000	9,000
0,700		28,000	9,000
0,710		28,000	9,000
0,720		28,000	9,000
0,730		28,000	9,000
0,740		28,000	9,000
0,750		28,000	9,000
0,780		30,000	10,000
0,800		30,000	10,000
0,810		30,000	10,000
0,860		32,000	11,000
0,880		32,000	11,000
0,900		32,000	11,000
0,910		32,000	11,000
0,920		32,000	11,000
0,940		32,000	11,000
0,950		32,000	11,000
0,960		34,000	12,000
0,970		34,000	12,000
1,000		34,000	12,000
1,020		34,000	12,000
1,030		34,000	12,000
1,060		34,000	12,000
1,080		36,000	14,000
1,100		36,000	14,000
1,120		36,000	14,000

d1		l1	l2
mm	inch	mm	mm
1,130		36,000	14,000
1,150		36,000	14,000
1,160		36,000	14,000
1,165		36,000	14,000
1,170		36,000	14,000
1,200		38,000	16,000
1,210		38,000	16,000
1,220		38,000	16,000
1,230		38,000	16,000
1,240		38,000	16,000
1,250		38,000	16,000
1,260		38,000	16,000
1,270		38,000	16,000
1,280		38,000	16,000
1,300		38,000	16,000
1,320		38,000	16,000
1,380		40,000	18,000
1,400		40,000	18,000
1,410		40,000	18,000
1,450		40,000	18,000
1,480		40,000	18,000
1,500		40,000	18,000
1,520		43,000	20,000
1,550		43,000	20,000
1,560		43,000	20,000
1,600		43,000	20,000
1,610		43,000	20,000
1,620		43,000	20,000
1,640		43,000	20,000
1,650		43,000	20,000
1,670		43,000	20,000
1,680		43,000	20,000
1,700		43,000	20,000
1,720		46,000	22,000
1,730		46,000	22,000
1,740		46,000	22,000
1,750		46,000	22,000
1,800		46,000	22,000
1,810		46,000	22,000
1,820		46,000	22,000
1,830		46,000	22,000
1,850		46,000	22,000

d1		l1	l2
mm	inch	mm	mm
1,860		46,000	22,000
1,870		46,000	22,000
1,890		46,000	22,000
1,900		46,000	22,000
1,930		49,000	24,000
1,980	5/64	49,000	24,000
2,000		49,000	24,000
2,030		49,000	24,000
2,050		49,000	24,000
2,060		49,000	24,000
2,100		49,000	24,000
2,140		53,000	27,000
2,150		53,000	27,000
2,200		53,000	27,000
2,220		53,000	27,000
2,230		53,000	27,000
2,240		53,000	27,000
2,250		53,000	27,000
2,280		53,000	27,000
2,290		53,000	27,000
2,300		53,000	27,000
2,350		53,000	27,000
2,380	3/32	57,000	30,000
2,390		57,000	30,000
2,400		57,000	30,000
2,420		57,000	30,000
2,450		57,000	30,000
2,470		57,000	30,000
2,500		57,000	30,000
2,520		57,000	30,000
2,530		57,000	30,000
2,550		57,000	30,000
2,570		57,000	30,000
2,600		57,000	30,000
2,650		57,000	30,000
2,700		61,000	33,000
2,750		61,000	33,000
2,800		61,000	33,000
2,820		61,000	33,000
2,830		61,000	33,000
2,850		61,000	33,000
2,900		61,000	33,000
2,930		61,000	33,000
3,000		61,000	33,000
3,030		65,000	36,000
3,050		65,000	36,000
3,070		65,000	36,000
3,080		65,000	36,000
3,100		65,000	36,000
3,150		65,000	36,000
3,160		65,000	36,000
3,170	1/8	65,000	36,000
3,175		65,000	36,000
3,200		65,000	36,000
3,250		65,000	36,000
3,270		65,000	36,000
3,300		65,000	36,000
3,340		65,000	36,000
3,350		65,000	36,000
3,380		70,000	39,000
3,400		70,000	39,000
3,450		70,000	39,000
3,470		70,000	39,000
3,500		70,000	39,000
3,550		70,000	39,000
3,580		70,000	39,000
3,650		70,000	39,000
3,700		70,000	39,000
3,710		70,000	39,000
3,730		70,000	39,000
3,830		75,000	43,000
3,900		75,000	43,000

d1		l1	l2
mm	inch	mm	mm
3,950		75,000	43,000
3,960		75,000	43,000
4,000		75,000	43,000
4,050		75,000	43,000
4,070		75,000	43,000
4,100		75,000	43,000
4,120		75,000	43,000
4,200		75,000	43,000
4,220		75,000	43,000
4,250		75,000	43,000
4,280		80,000	47,000
4,300		80,000	47,000
4,370	11/64	80,000	47,000
4,400		80,000	47,000
4,450		80,000	47,000
4,500		80,000	47,000
4,550		80,000	47,000
4,600		80,000	47,000
4,700		80,000	47,000
4,800		86,000	52,000
4,850		86,000	52,000
4,870		86,000	52,000
4,950		86,000	52,000
5,000		86,000	52,000
5,050		86,000	52,000
5,100		86,000	52,000
5,200		86,000	52,000
5,250		86,000	52,000
5,300		86,000	52,000
5,400		93,000	57,000
5,500		93,000	57,000
5,650		93,000	57,000
5,800		93,000	57,000
5,850		93,000	57,000
6,000		93,000	57,000
6,050		101,000	63,000
6,100		101,000	63,000
6,120		101,000	63,000
6,130		101,000	63,000
6,150		101,000	63,000
6,250		101,000	63,000
6,300		101,000	63,000
6,450		101,000	63,000
6,500		101,000	63,000
6,650		101,000	63,000
6,700		101,000	63,000
6,900		109,000	69,000
7,000		109,000	69,000
7,100		109,000	69,000
7,150		109,000	69,000
7,200		109,000	69,000
7,220		109,000	69,000
7,300		109,000	69,000
7,350		109,000	69,000
7,550		117,000	75,000
7,750		117,000	75,000
7,800		117,000	75,000
8,000		117,000	75,000
8,050		117,000	75,000
8,100		117,000	75,000
8,300		117,000	75,000
8,400		117,000	75,000
8,450		117,000	75,000
8,500		117,000	75,000
8,600		125,000	81,000
8,800		125,000	81,000
9,000		125,000	81,000
9,100		125,000	81,000
9,250		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,750		133,000	87,000

d1		l1	l2
mm	inch	mm	mm
9,800		133,000	87,000
9,850		133,000	87,000
10,000		133,000	87,000
10,500		133,000	87,000
11,100		142,000	94,000
11,400		142,000	94,000
11,500		142,000	94,000
12,050		151,000	101,000
12,100		151,000	101,000
12,150		151,000	101,000
12,200		151,000	101,000
12,300	31/64	151,000	101,000
12,800		151,000	101,000
13,100	33/64	151,000	101,000
13,300		160,000	108,000
13,500		160,000	108,000
13,800		160,000	108,000
14,200		169,000	114,000

d1		l1	l2
mm	inch	mm	mm
14,300		169,000	114,000
14,400		169,000	114,000
14,500		169,000	114,000
15,100		178,000	120,000
15,300		178,000	120,000
15,500		178,000	120,000
16,000		178,000	120,000
17,000		184,000	125,000
18,000		191,000	130,000
20,000		205,000	140,000

Brocas espirales cil., cortas

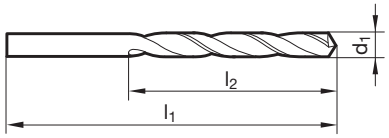
~5xD | DIN 338 | W | 130° | h8

Material de corte	HSS
Acabado	○
Dirección de corte	Ⓡ

P		vaciado de punta ≥Ø 14,500 • entrada cónica
M		
K		
N	•	mat. blandos y de viruta larga • aluminio, alea. de alum. (de vir. larga) • zink, cobre fino, siluminio, electrón • plásticos (blandos) • madera
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 778



Artículo N° **207**

d1 mm	inch	l1 mm	l2 mm	d1 mm	inch	l1 mm	l2 mm
0,200		19,000	2,500	1,190	3/64	38,000	16,000
0,250		19,000	3,000	1,200		38,000	16,000
0,300		19,000	3,000	1,220		38,000	16,000
0,340		19,000	4,000	1,250		38,000	16,000
0,350		19,000	4,000	1,270		38,000	16,000
0,400	1/64	20,000	5,000	1,280		38,000	16,000
0,410		20,000	5,000	1,300		38,000	16,000
0,450		20,000	5,000	1,330		40,000	18,000
0,460		20,000	5,000	1,350		40,000	18,000
0,500		22,000	6,000	1,380		40,000	18,000
0,520		22,000	6,000	1,400		40,000	18,000
0,550		24,000	7,000	1,420		40,000	18,000
0,570		24,000	7,000	1,430		40,000	18,000
0,600		24,000	7,000	1,450		40,000	18,000
0,610		26,000	8,000	1,500		40,000	18,000
0,620		26,000	8,000	1,510		43,000	20,000
0,650		26,000	8,000	1,520		43,000	20,000
0,660		26,000	8,000	1,530		43,000	20,000
0,700		28,000	9,000	1,550		43,000	20,000
0,720		28,000	9,000	1,570		43,000	20,000
0,750		28,000	9,000	1,580		43,000	20,000
0,790	1/32	30,000	10,000	1,590	1/16	43,000	20,000
0,800		30,000	10,000	1,600		43,000	20,000
0,810		30,000	10,000	1,610		43,000	20,000
0,840		30,000	10,000	1,630		43,000	20,000
0,850		30,000	10,000	1,650		43,000	20,000
0,860		32,000	11,000	1,660		43,000	20,000
0,870		32,000	11,000	1,680		43,000	20,000
0,900		32,000	11,000	1,700		43,000	20,000
0,950		32,000	11,000	1,750		46,000	22,000
0,970		34,000	12,000	1,770		46,000	22,000
0,990		34,000	12,000	1,780		46,000	22,000
1,000		34,000	12,000	1,800		46,000	22,000
1,010		34,000	12,000	1,820		46,000	22,000
1,020		34,000	12,000	1,850		46,000	22,000
1,050		34,000	12,000	1,900		46,000	22,000
1,100		36,000	14,000	1,920		49,000	24,000
1,110		36,000	14,000	1,930		49,000	24,000
1,120		36,000	14,000	1,950		49,000	24,000
1,140		36,000	14,000	1,980	5/64	49,000	24,000
1,150		36,000	14,000	2,000		49,000	24,000
1,180		36,000	14,000	2,020		49,000	24,000

d1		l1	l2
mm	inch	mm	mm
2,030		49,000	24,000
2,050		49,000	24,000
2,060		49,000	24,000
2,080		49,000	24,000
2,100		49,000	24,000
2,150		53,000	27,000
2,200		53,000	27,000
2,250		53,000	27,000
2,270		53,000	27,000
2,300		53,000	27,000
2,320		53,000	27,000
2,350		53,000	27,000
2,380	3/32	57,000	30,000
2,400		57,000	30,000
2,450		57,000	30,000
2,500		57,000	30,000
2,530		57,000	30,000
2,550		57,000	30,000
2,600		57,000	30,000
2,650		57,000	30,000
2,700		61,000	33,000
2,730		61,000	33,000
2,750		61,000	33,000
2,780	7/64	61,000	33,000
2,800		61,000	33,000
2,820		61,000	33,000
2,830		61,000	33,000
2,850		61,000	33,000
2,900		61,000	33,000
2,930		61,000	33,000
2,950		61,000	33,000
3,000		61,000	33,000
3,030		65,000	36,000
3,050		65,000	36,000
3,100		65,000	36,000
3,150		65,000	36,000
3,170	1/8	65,000	36,000
3,200		65,000	36,000
3,250		65,000	36,000
3,260		65,000	36,000
3,300		65,000	36,000
3,350		65,000	36,000
3,380		70,000	39,000
3,400		70,000	39,000
3,450		70,000	39,000
3,500		70,000	39,000
3,550		70,000	39,000
3,570	9/64	70,000	39,000
3,600		70,000	39,000
3,650		70,000	39,000
3,700		70,000	39,000
3,730		70,000	39,000
3,750		70,000	39,000
3,800		75,000	43,000
3,850		75,000	43,000
3,900		75,000	43,000
3,950		75,000	43,000
3,970	5/32	75,000	43,000
4,000		75,000	43,000
4,030		75,000	43,000
4,040		75,000	43,000
4,050		75,000	43,000
4,100		75,000	43,000
4,150		75,000	43,000
4,200		75,000	43,000
4,220		75,000	43,000
4,250		75,000	43,000
4,300		80,000	47,000
4,350		80,000	47,000
4,370	11/64	80,000	47,000
4,390		80,000	47,000
4,400		80,000	47,000

d1		l1	l2
mm	inch	mm	mm
4,500		80,000	47,000
4,550		80,000	47,000
4,600		80,000	47,000
4,620		80,000	47,000
4,650		80,000	47,000
4,700		80,000	47,000
4,750		80,000	47,000
4,760	3/16	86,000	52,000
4,800		86,000	52,000
4,850		86,000	52,000
4,900		86,000	52,000
5,000		86,000	52,000
5,030		86,000	52,000
5,050		86,000	52,000
5,100		86,000	52,000
5,160	13/64	86,000	52,000
5,200		86,000	52,000
5,250		86,000	52,000
5,300		86,000	52,000
5,400		93,000	57,000
5,450		93,000	57,000
5,500		93,000	57,000
5,550		93,000	57,000
5,560	7/32	93,000	57,000
5,600		93,000	57,000
5,700		93,000	57,000
5,750		93,000	57,000
5,800		93,000	57,000
5,900		93,000	57,000
5,950	15/64	93,000	57,000
6,000		93,000	57,000
6,050		101,000	63,000
6,100		101,000	63,000
6,150		101,000	63,000
6,200		101,000	63,000
6,250		101,000	63,000
6,300		101,000	63,000
6,350	1/4	101,000	63,000
6,400		101,000	63,000
6,500		101,000	63,000
6,530		101,000	63,000
6,550		101,000	63,000
6,600		101,000	63,000
6,630		101,000	63,000
6,650		101,000	63,000
6,700		101,000	63,000
6,750	17/64	109,000	69,000
6,800		109,000	69,000
6,850		109,000	69,000
6,900		109,000	69,000
7,000		109,000	69,000
7,100		109,000	69,000
7,140	9/32	109,000	69,000
7,200		109,000	69,000
7,250		109,000	69,000
7,300		109,000	69,000
7,400		109,000	69,000
7,490		109,000	69,000
7,500		109,000	69,000
7,540	19/64	117,000	75,000
7,600		117,000	75,000
7,700		117,000	75,000
7,750		117,000	75,000
7,800		117,000	75,000
7,900		117,000	75,000
7,940	5/16	117,000	75,000
8,000		117,000	75,000
8,030		117,000	75,000
8,100		117,000	75,000
8,200		117,000	75,000
8,300		117,000	75,000
8,400		117,000	75,000

d1		l1	l2
mm	inch	mm	mm
8,450		117,000	75,000
8,500		117,000	75,000
8,600		125,000	81,000
8,700		125,000	81,000
8,730	11/32	125,000	81,000
8,750		125,000	81,000
8,800		125,000	81,000
8,840		125,000	81,000
8,900		125,000	81,000
9,000		125,000	81,000
9,090		125,000	81,000
9,100		125,000	81,000
9,130	23/64	125,000	81,000
9,200		125,000	81,000
9,250		125,000	81,000
9,300		125,000	81,000
9,340		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,520	3/8	133,000	87,000
9,600		133,000	87,000
9,700		133,000	87,000
9,800		133,000	87,000
9,900		133,000	87,000
9,920	25/64	133,000	87,000
10,000		133,000	87,000
10,080		133,000	87,000
10,100		133,000	87,000
10,200		133,000	87,000
10,250		133,000	87,000
10,260		133,000	87,000
10,400		133,000	87,000
10,500		133,000	87,000
10,700		142,000	94,000
10,800		142,000	94,000
10,900		142,000	94,000

d1		l1	l2
mm	inch	mm	mm
11,000		142,000	94,000
11,100		142,000	94,000
11,200		142,000	94,000
11,500		142,000	94,000
11,510	29/64	142,000	94,000
11,600		142,000	94,000
11,700		142,000	94,000
11,800		142,000	94,000
11,900		151,000	101,000
12,000		151,000	101,000
12,100		151,000	101,000
12,200		151,000	101,000
12,500		151,000	101,000
12,600		151,000	101,000
12,700	1/2	151,000	101,000
12,800		151,000	101,000
12,900		151,000	101,000
13,000		151,000	101,000
13,100	33/64	151,000	101,000
13,200		151,000	101,000
13,500		160,000	108,000
13,800		160,000	108,000
14,000		160,000	108,000
14,500		169,000	114,000
14,700		169,000	114,000
15,000		169,000	114,000
15,600		178,000	120,000
16,000		178,000	120,000
16,500		184,000	125,000
17,000		184,000	125,000
17,500		191,000	130,000
18,000		191,000	130,000
20,000		205,000	140,000

Brocas espirales cil., cortas

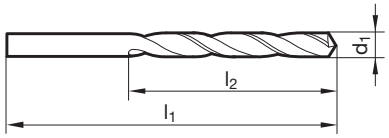
~5xD | DIN 338 | W | 130° | h8

Material de corte	HSS
Acabado	○
Dirección de corte	L

P		vaciado de punta ≥Ø 14,500 • entrada cónica
M		
K		
N	•	mat. blandos y de viruta larga • aluminio, alea. de alum. (de vir. larga) • zink, cobre fino, siluminio, electrón • plásticos (blandos) • madera
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 778



Artículo N° **210**

d1		l1	l2
mm	inch	mm	mm
0,250		19,000	3,000
0,270		19,000	3,000
0,280		19,000	3,000
0,320		19,000	4,000
0,330		19,000	4,000
0,340		19,000	4,000
0,360		19,000	4,000
0,390		20,000	5,000
0,400	1/64	20,000	5,000
0,410		20,000	5,000
0,420		20,000	5,000
0,430		20,000	5,000
0,450		20,000	5,000
0,470		20,000	5,000
0,490		22,000	6,000
0,500		22,000	6,000
0,525		22,000	6,000
0,530		22,000	6,000
0,560		24,000	7,000
0,590		24,000	7,000
0,600		24,000	7,000
0,610		26,000	8,000
0,660		26,000	8,000
0,710		28,000	9,000
0,720		28,000	9,000
0,730		28,000	9,000
0,740		28,000	9,000
0,750		28,000	9,000
0,760		30,000	10,000
0,770		30,000	10,000
0,790	1/32	30,000	10,000
0,800		30,000	10,000
0,810		30,000	10,000
0,825		30,000	10,000
0,840		30,000	10,000
0,850		30,000	10,000
0,860		32,000	11,000
0,880		32,000	11,000
0,890		32,000	11,000
0,900		32,000	11,000
0,950		32,000	11,000
0,970		34,000	12,000

d1		l1	l2
mm	inch	mm	mm
0,980		34,000	12,000
0,990		34,000	12,000
1,000		34,000	12,000
1,020		34,000	12,000
1,050		34,000	12,000
1,070		36,000	14,000
1,100		36,000	14,000
1,120		36,000	14,000
1,150		36,000	14,000
1,210		38,000	16,000
1,220		38,000	16,000
1,250		38,000	16,000
1,290		38,000	16,000
1,300		38,000	16,000
1,320		38,000	16,000
1,400		40,000	18,000
1,450		40,000	18,000
1,480		40,000	18,000
1,500		40,000	18,000
1,540		43,000	20,000
1,550		43,000	20,000
1,580		43,000	20,000
1,600		43,000	20,000
1,630		43,000	20,000
1,700		43,000	20,000
1,750		46,000	22,000
1,800		46,000	22,000
1,850		46,000	22,000
1,950		49,000	24,000
2,000		49,000	24,000
2,150		53,000	27,000
2,200		53,000	27,000
2,300		53,000	27,000
2,320		53,000	27,000
2,340		53,000	27,000
2,350		53,000	27,000
2,380	3/32	57,000	30,000
2,450		57,000	30,000
2,500		57,000	30,000
2,530		57,000	30,000
2,550		57,000	30,000
2,570		57,000	30,000

d1		l1	l2
mm	inch	mm	mm
2,600		57,000	30,000
2,650		57,000	30,000
2,700		61,000	33,000
2,750		61,000	33,000
2,800		61,000	33,000
2,900		61,000	33,000
2,950		61,000	33,000
2,970		61,000	33,000
3,000		61,000	33,000
3,130		65,000	36,000
3,170	1/8	65,000	36,000
3,200		65,000	36,000
3,250		65,000	36,000
3,280		65,000	36,000
3,300		65,000	36,000
3,380		70,000	39,000
3,400		70,000	39,000
3,450		70,000	39,000
3,500		70,000	39,000
3,550		70,000	39,000
3,600		70,000	39,000
3,650		70,000	39,000
3,700		70,000	39,000
3,750		70,000	39,000
3,800		75,000	43,000
3,820		75,000	43,000
3,860		75,000	43,000
3,900		75,000	43,000
3,910		75,000	43,000
3,920		75,000	43,000
4,000		75,000	43,000
4,030		75,000	43,000
4,050		75,000	43,000
4,100		75,000	43,000
4,200		75,000	43,000
4,400		80,000	47,000
4,500		80,000	47,000
4,520		80,000	47,000
4,550		80,000	47,000
4,600		80,000	47,000
4,700		80,000	47,000
4,720		80,000	47,000
4,750		80,000	47,000
4,850		86,000	52,000
4,900		86,000	52,000
4,950		86,000	52,000
5,000		86,000	52,000
5,020		86,000	52,000
5,100		86,000	52,000
5,150		86,000	52,000
5,200		86,000	52,000
5,400		93,000	57,000
5,450		93,000	57,000
5,500		93,000	57,000
5,560	7/32	93,000	57,000
5,600		93,000	57,000
5,620		93,000	57,000
5,800		93,000	57,000
5,850		93,000	57,000
5,900		93,000	57,000
5,950	15/64	93,000	57,000
6,000		93,000	57,000
6,030		101,000	63,000
6,050		101,000	63,000
6,080		101,000	63,000
6,100		101,000	63,000

d1		l1	l2
mm	inch	mm	mm
6,150		101,000	63,000
6,200		101,000	63,000
6,400		101,000	63,000
6,450		101,000	63,000
6,600		101,000	63,000
6,700		101,000	63,000
6,750	17/64	109,000	69,000
6,800		109,000	69,000
6,900		109,000	69,000
6,950		109,000	69,000
7,000		109,000	69,000
7,100		109,000	69,000
7,250		109,000	69,000
7,350		109,000	69,000
7,400		109,000	69,000
7,450		109,000	69,000
7,500		109,000	69,000
7,600		117,000	75,000
7,900		117,000	75,000
8,050		117,000	75,000
8,250		117,000	75,000
8,300		117,000	75,000
8,600		125,000	81,000
8,700		125,000	81,000
8,750		125,000	81,000
9,350		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,650		133,000	87,000
9,700		133,000	87,000
9,750		133,000	87,000
9,800		133,000	87,000
10,000		133,000	87,000
10,200		133,000	87,000
10,500		133,000	87,000
10,700		142,000	94,000
10,750		142,000	94,000
11,100		142,000	94,000
11,500		142,000	94,000
11,750		142,000	94,000
11,800		142,000	94,000
11,950		151,000	101,000
12,100		151,000	101,000
12,200		151,000	101,000
12,250		151,000	101,000
12,500		151,000	101,000
12,800		151,000	101,000
13,200		151,000	101,000
14,500		169,000	114,000
15,000		169,000	114,000
15,500		178,000	120,000
16,000		178,000	120,000
16,200		184,000	125,000
17,000		184,000	125,000
17,300		191,000	130,000
17,500		191,000	130,000
17,600		191,000	130,000
18,000		191,000	130,000
19,000		198,000	135,000
19,500		205,000	140,000
19,800		205,000	140,000
20,000		205,000	140,000

Brocas espirales cil., cortas

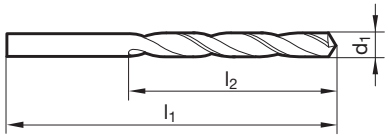
~5xD | DIN 338 | GT 100 | 130° | h8

Material de corte	HSS
Acabado	>Ø 2,36
Dirección de corte	R

P	•	vaciado de punta ≥Ø 0,970 • entrada cónica • ranuras amplias • ideal para prof. de taladro sup. a 3xD
M		
K	•	
N	•	fundición gris • aceros de hasta 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 778



Artículo N° **549**

d1		l1	l2
mm	inch	mm	mm
0,600		24,000	7,000
0,700		28,000	9,000
0,710		28,000	9,000
0,790	1/32	30,000	10,000
0,800		30,000	10,000
0,890		32,000	11,000
0,900		32,000	11,000
0,950		32,000	11,000
0,970		34,000	12,000
0,990		34,000	12,000
1,000		34,000	12,000
1,020		34,000	12,000
1,040		34,000	12,000
1,050		34,000	12,000
1,070		36,000	14,000
1,090		36,000	14,000
1,100		36,000	14,000
1,150		36,000	14,000
1,180		36,000	14,000
1,190	3/64	38,000	16,000
1,200		38,000	16,000
1,220		38,000	16,000
1,230		38,000	16,000
1,240		38,000	16,000
1,250		38,000	16,000
1,300		38,000	16,000
1,305		38,000	16,000
1,320		38,000	16,000
1,350		40,000	18,000
1,400		40,000	18,000
1,450		40,000	18,000
1,500		40,000	18,000
1,510		43,000	20,000
1,520		43,000	20,000
1,530		43,000	20,000
1,550		43,000	20,000
1,560		43,000	20,000
1,570		43,000	20,000
1,580		43,000	20,000
1,590	1/16	43,000	20,000
1,600		43,000	20,000
1,610		43,000	20,000

d1		l1	l2
mm	inch	mm	mm
1,620		43,000	20,000
1,650		43,000	20,000
1,660		43,000	20,000
1,670		43,000	20,000
1,680		43,000	20,000
1,690		43,000	20,000
1,700		43,000	20,000
1,720		46,000	22,000
1,750		46,000	22,000
1,780		46,000	22,000
1,800		46,000	22,000
1,820		46,000	22,000
1,850		46,000	22,000
1,860		46,000	22,000
1,900		46,000	22,000
1,930		49,000	24,000
1,950		49,000	24,000
1,980	5/64	49,000	24,000
1,990		49,000	24,000
2,000		49,000	24,000
2,020		49,000	24,000
2,050		49,000	24,000
2,060		49,000	24,000
2,080		49,000	24,000
2,100		49,000	24,000
2,150		53,000	27,000
2,180		53,000	27,000
2,200		53,000	27,000
2,250		53,000	27,000
2,260		53,000	27,000
2,300		53,000	27,000
2,330		53,000	27,000
2,350		53,000	27,000
2,370		57,000	30,000
2,380	3/32	57,000	30,000
2,400		57,000	30,000
2,420		57,000	30,000
2,440		57,000	30,000
2,450		57,000	30,000
2,480		57,000	30,000
2,490		57,000	30,000
2,500		57,000	30,000

d1		l1	l2
mm	inch	mm	mm
2,530		57,000	30,000
2,550		57,000	30,000
2,580		57,000	30,000
2,600		57,000	30,000
2,640		57,000	30,000
2,650		57,000	30,000
2,700		61,000	33,000
2,710		61,000	33,000
2,750		61,000	33,000
2,780	7/64	61,000	33,000
2,790		61,000	33,000
2,800		61,000	33,000
2,820		61,000	33,000
2,850		61,000	33,000
2,870		61,000	33,000
2,900		61,000	33,000
2,950		61,000	33,000
2,980		61,000	33,000
3,000		61,000	33,000
3,030		65,000	36,000
3,050		65,000	36,000
3,080		65,000	36,000
3,100		65,000	36,000
3,150		65,000	36,000
3,170	1/8	65,000	36,000
3,200		65,000	36,000
3,220		65,000	36,000
3,230		65,000	36,000
3,250		65,000	36,000
3,260		65,000	36,000
3,300		65,000	36,000
3,350		65,000	36,000
3,400		70,000	39,000
3,450		70,000	39,000
3,500		70,000	39,000
3,550		70,000	39,000
3,570	9/64	70,000	39,000
3,580		70,000	39,000
3,600		70,000	39,000
3,660		70,000	39,000
3,680		70,000	39,000
3,700		70,000	39,000
3,730		70,000	39,000
3,750		70,000	39,000
3,800		75,000	43,000
3,860		75,000	43,000
3,870		75,000	43,000
3,900		75,000	43,000
3,910		75,000	43,000
3,950		75,000	43,000
3,970	5/32	75,000	43,000
3,990		75,000	43,000
4,000		75,000	43,000
4,040		75,000	43,000
4,050		75,000	43,000
4,090		75,000	43,000
4,100		75,000	43,000
4,150		75,000	43,000
4,200		75,000	43,000
4,210		75,000	43,000
4,220		75,000	43,000
4,250		75,000	43,000
4,300		80,000	47,000
4,370	11/64	80,000	47,000
4,390		80,000	47,000
4,400		80,000	47,000
4,450		80,000	47,000
4,500		80,000	47,000
4,550		80,000	47,000
4,570		80,000	47,000
4,600		80,000	47,000
4,620		80,000	47,000

d1		l1	l2
mm	inch	mm	mm
4,650		80,000	47,000
4,700		80,000	47,000
4,750		80,000	47,000
4,760	3/16	86,000	52,000
4,800		86,000	52,000
4,850		86,000	52,000
4,900		86,000	52,000
4,920		86,000	52,000
4,950		86,000	52,000
4,980		86,000	52,000
5,000		86,000	52,000
5,030		86,000	52,000
5,050		86,000	52,000
5,060		86,000	52,000
5,100		86,000	52,000
5,110		86,000	52,000
5,150		86,000	52,000
5,160	13/64	86,000	52,000
5,180		86,000	52,000
5,200		86,000	52,000
5,220		86,000	52,000
5,250		86,000	52,000
5,300		86,000	52,000
5,310		93,000	57,000
5,350		93,000	57,000
5,400		93,000	57,000
5,410		93,000	57,000
5,450		93,000	57,000
5,500		93,000	57,000
5,550		93,000	57,000
5,560	7/32	93,000	57,000
5,600		93,000	57,000
5,610		93,000	57,000
5,650		93,000	57,000
5,700		93,000	57,000
5,750		93,000	57,000
5,790		93,000	57,000
5,800		93,000	57,000
5,850		93,000	57,000
5,900		93,000	57,000
5,940		93,000	57,000
5,950	15/64	93,000	57,000
6,000		93,000	57,000
6,040		101,000	63,000
6,050		101,000	63,000
6,100		101,000	63,000
6,150		101,000	63,000
6,200		101,000	63,000
6,250		101,000	63,000
6,300		101,000	63,000
6,350	1/4	101,000	63,000
6,400		101,000	63,000
6,500		101,000	63,000
6,530		101,000	63,000
6,550		101,000	63,000
6,600		101,000	63,000
6,630		101,000	63,000
6,700		101,000	63,000
6,750	17/64	109,000	69,000
6,800		109,000	69,000
6,830		109,000	69,000
6,900		109,000	69,000
7,000		109,000	69,000
7,030		109,000	69,000
7,040		109,000	69,000
7,050		109,000	69,000
7,100		109,000	69,000
7,140	9/32	109,000	69,000
7,200		109,000	69,000
7,250		109,000	69,000
7,290		109,000	69,000
7,300		109,000	69,000

d1		l1	l2
mm	inch	mm	mm
7,370		109,000	69,000
7,400		109,000	69,000
7,490		109,000	69,000
7,500		109,000	69,000
7,540	19/64	117,000	75,000
7,580		117,000	75,000
7,600		117,000	75,000
7,670		117,000	75,000
7,700		117,000	75,000
7,750		117,000	75,000
7,800		117,000	75,000
7,900		117,000	75,000
7,940	5/16	117,000	75,000
8,000		117,000	75,000
8,030		117,000	75,000
8,100		117,000	75,000
8,200		117,000	75,000
8,250		117,000	75,000
8,300		117,000	75,000
8,330	21/64	117,000	75,000
8,400		117,000	75,000
8,430		117,000	75,000
8,500		117,000	75,000
8,600		125,000	81,000
8,610		125,000	81,000
8,700		125,000	81,000
8,730	11/32	125,000	81,000
8,750		125,000	81,000
8,800		125,000	81,000
8,840		125,000	81,000
8,900		125,000	81,000
9,000		125,000	81,000
9,090		125,000	81,000
9,100		125,000	81,000
9,130	23/64	125,000	81,000
9,200		125,000	81,000
9,250		125,000	81,000
9,300		125,000	81,000
9,340		125,000	81,000
9,350		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,520	3/8	133,000	87,000
9,580		133,000	87,000
9,600		133,000	87,000
9,700		133,000	87,000
9,750		133,000	87,000
9,800		133,000	87,000
9,900		133,000	87,000
9,920	25/64	133,000	87,000
10,000		133,000	87,000
10,080		133,000	87,000
10,100		133,000	87,000
10,200		133,000	87,000
10,260		133,000	87,000
10,300		133,000	87,000
10,320	13/32	133,000	87,000
10,400		133,000	87,000
10,490		133,000	87,000
10,500		133,000	87,000

d1		l1	l2
mm	inch	mm	mm
10,600		133,000	87,000
10,700		142,000	94,000
10,720	27/64	142,000	94,000
10,750		142,000	94,000
10,800		142,000	94,000
10,900		142,000	94,000
11,000		142,000	94,000
11,100		142,000	94,000
11,110	7/16	142,000	94,000
11,200		142,000	94,000
11,300		142,000	94,000
11,400		142,000	94,000
11,500		142,000	94,000
11,510	29/64	142,000	94,000
11,600		142,000	94,000
11,700		142,000	94,000
11,750		142,000	94,000
11,800		142,000	94,000
11,900		151,000	101,000
11,910	15/32	151,000	101,000
12,000		151,000	101,000
12,100		151,000	101,000
12,150		151,000	101,000
12,200		151,000	101,000
12,250		151,000	101,000
12,300	31/64	151,000	101,000
12,400		151,000	101,000
12,500		151,000	101,000
12,700	1/2	151,000	101,000
12,750		151,000	101,000
12,800		151,000	101,000
12,900		151,000	101,000
13,000		151,000	101,000
13,100	33/64	151,000	101,000
13,200		151,000	101,000
13,490	17/32	160,000	108,000
13,500		160,000	108,000
13,600		160,000	108,000
13,700		160,000	108,000
13,890	35/64	160,000	108,000
14,000		160,000	108,000
14,250		169,000	114,000
14,290	9/16	169,000	114,000
14,500		169,000	114,000
14,680	37/64	169,000	114,000
15,000		169,000	114,000
15,080	19/32	178,000	120,000
15,400		178,000	120,000
15,480	39/64	178,000	120,000
15,500		178,000	120,000
15,750		178,000	120,000
15,870	5/8	178,000	120,000
16,000		178,000	120,000

Brocas espirales cil., cortas

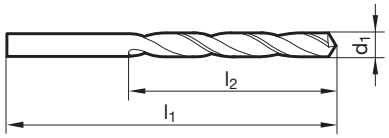
~5xD | DIN 338 | GT 100 | 130° | h8

Material de corte	HSS
Acabado	S
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,000 • entrada cónica • ranuras amplias • ideal para prof. de taladro sup. a 3xD
M		
K	•	
N	•	fundición gris • aceros de hasta 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 780



Artículo N° **652**

d1 mm	inch	l1 mm	l2 mm
1,000		34,000	12,000
1,020		34,000	12,000
1,040		34,000	12,000
1,070		36,000	14,000
1,090		36,000	14,000
1,100		36,000	14,000
1,180		36,000	14,000
1,190	3/64	38,000	16,000
1,200		38,000	16,000
1,220		38,000	16,000
1,250		38,000	16,000
1,300		38,000	16,000
1,320		38,000	16,000
1,350		40,000	18,000
1,400		40,000	18,000
1,450		40,000	18,000
1,500		40,000	18,000
1,510		43,000	20,000
1,530		43,000	20,000
1,550		43,000	20,000
1,590	1/16	43,000	20,000
1,600		43,000	20,000
1,610		43,000	20,000
1,650		43,000	20,000
1,700		43,000	20,000
1,720		46,000	22,000
1,750		46,000	22,000
1,780		46,000	22,000
1,800		46,000	22,000
1,850		46,000	22,000
1,900		46,000	22,000
1,930		49,000	24,000
1,950		49,000	24,000
1,980	5/64	49,000	24,000
1,990		49,000	24,000
2,000		49,000	24,000
2,060		49,000	24,000
2,080		49,000	24,000
2,100		49,000	24,000
2,150		53,000	27,000
2,180		53,000	27,000
2,200		53,000	27,000

d1 mm	inch	l1 mm	l2 mm
2,250		53,000	27,000
2,260		53,000	27,000
2,300		53,000	27,000
2,350		53,000	27,000
2,370		57,000	30,000
2,380	3/32	57,000	30,000
2,400		57,000	30,000
2,440		57,000	30,000
2,450		57,000	30,000
2,490		57,000	30,000
2,500		57,000	30,000
2,530		57,000	30,000
2,550		57,000	30,000
2,580		57,000	30,000
2,600		57,000	30,000
2,640		57,000	30,000
2,650		57,000	30,000
2,700		61,000	33,000
2,710		61,000	33,000
2,750		61,000	33,000
2,780	7/64	61,000	33,000
2,790		61,000	33,000
2,800		61,000	33,000
2,820		61,000	33,000
2,850		61,000	33,000
2,870		61,000	33,000
2,900		61,000	33,000
2,950		61,000	33,000
3,000		61,000	33,000
3,050		65,000	36,000
3,100		65,000	36,000
3,170	1/8	65,000	36,000
3,200		65,000	36,000
3,250		65,000	36,000
3,260		65,000	36,000
3,300		65,000	36,000
3,350		65,000	36,000
3,400		70,000	39,000
3,450		70,000	39,000
3,500		70,000	39,000
3,570	9/64	70,000	39,000
3,600		70,000	39,000

d1		l1	l2
mm	inch	mm	mm
3,650		70,000	39,000
3,660		70,000	39,000
3,700		70,000	39,000
3,730		70,000	39,000
3,750		70,000	39,000
3,800		75,000	43,000
3,860		75,000	43,000
3,900		75,000	43,000
3,910		75,000	43,000
3,970	5/32	75,000	43,000
3,990		75,000	43,000
4,000		75,000	43,000
4,040		75,000	43,000
4,050		75,000	43,000
4,090		75,000	43,000
4,100		75,000	43,000
4,200		75,000	43,000
4,220		75,000	43,000
4,250		75,000	43,000
4,300		80,000	47,000
4,370	11/64	80,000	47,000
4,390		80,000	47,000
4,400		80,000	47,000
4,450		80,000	47,000
4,500		80,000	47,000
4,570		80,000	47,000
4,600		80,000	47,000
4,620		80,000	47,000
4,700		80,000	47,000
4,760	3/16	86,000	52,000
4,800		86,000	52,000
4,850		86,000	52,000
4,900		86,000	52,000
4,920		86,000	52,000
4,980		86,000	52,000
5,000		86,000	52,000
5,060		86,000	52,000
5,100		86,000	52,000
5,110		86,000	52,000
5,160	13/64	86,000	52,000
5,180		86,000	52,000
5,200		86,000	52,000
5,220		86,000	52,000
5,300		86,000	52,000
5,310		93,000	57,000
5,400		93,000	57,000
5,410		93,000	57,000
5,500		93,000	57,000
5,560	7/32	93,000	57,000
5,600		93,000	57,000
5,610		93,000	57,000
5,700		93,000	57,000
5,750		93,000	57,000
5,790		93,000	57,000
5,800		93,000	57,000
5,900		93,000	57,000
5,940		93,000	57,000
5,950	15/64	93,000	57,000
6,000		93,000	57,000
6,040		101,000	63,000
6,100		101,000	63,000
6,150		101,000	63,000
6,200		101,000	63,000
6,250		101,000	63,000
6,300		101,000	63,000
6,350	1/4	101,000	63,000
6,400		101,000	63,000
6,500		101,000	63,000
6,530		101,000	63,000
6,600		101,000	63,000
6,630		101,000	63,000
6,700		101,000	63,000

d1		l1	l2
mm	inch	mm	mm
6,750	17/64	109,000	69,000
6,800		109,000	69,000
6,900		109,000	69,000
7,000		109,000	69,000
7,030		109,000	69,000
7,100		109,000	69,000
7,140	9/32	109,000	69,000
7,200		109,000	69,000
7,300		109,000	69,000
7,370		109,000	69,000
7,400		109,000	69,000
7,490		109,000	69,000
7,500		109,000	69,000
7,540	19/64	117,000	75,000
7,600		117,000	75,000
7,670		117,000	75,000
7,700		117,000	75,000
7,800		117,000	75,000
7,900		117,000	75,000
7,940	5/16	117,000	75,000
8,000		117,000	75,000
8,030		117,000	75,000
8,100		117,000	75,000
8,200		117,000	75,000
8,330	21/64	117,000	75,000
8,400		117,000	75,000
8,430		117,000	75,000
8,500		117,000	75,000
8,600		125,000	81,000
8,610		125,000	81,000
8,730	11/32	125,000	81,000
8,800		125,000	81,000
8,840		125,000	81,000
8,900		125,000	81,000
9,000		125,000	81,000
9,100		125,000	81,000
9,130	23/64	125,000	81,000
9,200		125,000	81,000
9,300		125,000	81,000
9,340		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,520	3/8	133,000	87,000
9,600		133,000	87,000
9,700		133,000	87,000
9,800		133,000	87,000
9,900		133,000	87,000
9,920	25/64	133,000	87,000
10,000		133,000	87,000
10,200		133,000	87,000
10,300		133,000	87,000
10,320	13/32	133,000	87,000
10,490		133,000	87,000
10,500		133,000	87,000
10,700		142,000	94,000
10,720	27/64	142,000	94,000
11,000		142,000	94,000
11,110	7/16	142,000	94,000
11,200		142,000	94,000
11,500		142,000	94,000
11,510	29/64	142,000	94,000
11,600		142,000	94,000
11,910	15/32	151,000	101,000
12,000		151,000	101,000
12,300	31/64	151,000	101,000
12,500		151,000	101,000
12,600		151,000	101,000
12,700	1/2	151,000	101,000
13,000		151,000	101,000
13,100	33/64	151,000	101,000
13,490	17/32	160,000	108,000
13,890	35/64	160,000	108,000

d1		l1	l2
mm	inch	mm	mm
14,000		160,000	108,000
14,290	9/16	169,000	114,000
15,000		169,000	114,000

d1		l1	l2
mm	inch	mm	mm

Brocas espirales cil., cortas

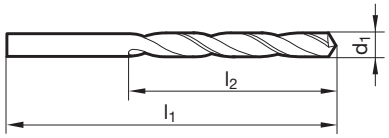
~5xD | DIN 338 | GT 100 | 130° | h8

Material de corte	HSS
Acabado	F
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,000 • entrada cónica • ranuras amplias • ideal para prof. de taladro sup. a 3xD
M		
K	•	
N	•	fundición gris • aceros de hasta 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 780



Artículo N° **2457**

d1		l1	l2
mm	inch	mm	mm
1,000		34,000	12,000
1,300		38,000	16,000
1,500		40,000	18,000
1,600		43,000	20,000
1,700		43,000	20,000
1,800		46,000	22,000
2,000		49,000	24,000
2,100		49,000	24,000
2,400		57,000	30,000
2,800		61,000	33,000
2,900		61,000	33,000
3,000		61,000	33,000
3,100		65,000	36,000
3,200		65,000	36,000
3,300		65,000	36,000
3,400		70,000	39,000
3,500		70,000	39,000
3,600		70,000	39,000
3,800		75,000	43,000
4,000		75,000	43,000
4,200		75,000	43,000
4,300		80,000	47,000
4,400		80,000	47,000
4,700		80,000	47,000
4,800		86,000	52,000
4,900		86,000	52,000
5,000		86,000	52,000
5,100		86,000	52,000
5,400		93,000	57,000
5,500		93,000	57,000

d1		l1	l2
mm	inch	mm	mm
5,600		93,000	57,000
5,700		93,000	57,000
6,000		93,000	57,000
6,100		101,000	63,000
6,200		101,000	63,000
6,600		101,000	63,000
6,800		109,000	69,000
7,000		109,000	69,000
7,100		109,000	69,000
7,200		109,000	69,000
7,300		109,000	69,000
7,400		109,000	69,000
7,900		117,000	75,000
8,000		117,000	75,000
8,100		117,000	75,000
8,400		117,000	75,000
8,500		117,000	75,000
8,700		125,000	81,000
8,800		125,000	81,000
8,900		125,000	81,000
9,100		125,000	81,000
9,400		125,000	81,000
9,600		133,000	87,000
9,700		133,000	87,000
10,300		133,000	87,000
10,700		142,000	94,000
11,400		142,000	94,000
11,700		142,000	94,000
11,800		142,000	94,000
15,000		169,000	114,000

Brocas espirales cil., cortas

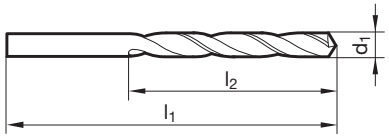
~5xD | DIN 338 | GT 100 | 130° | h8

Material de corte	HSS
Acabado	>Ø 2,36
Dirección de corte	L

P	•	vaciado de punta ≥Ø 1,000 • entrada cónica • ranuras amplias • ideal para prof. de taladro sup. a 3xD
M		
K	•	
N	•	fundición gris • aceros de hasta 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 778



Artículo N° **550**

d1 mm	inch	l1 mm	l2 mm	d1 mm	inch	l1 mm	l2 mm
1,000		34,000	12,000	2,750		61,000	33,000
1,300		38,000	16,000	2,780	7/64	61,000	33,000
1,350		40,000	18,000	2,790		61,000	33,000
1,400		40,000	18,000	2,800		61,000	33,000
1,450		40,000	18,000	2,870		61,000	33,000
1,485		40,000	18,000	2,900		61,000	33,000
1,490		40,000	18,000	2,950		61,000	33,000
1,500		40,000	18,000	3,000		61,000	33,000
1,550		43,000	20,000	3,020		65,000	36,000
1,580		43,000	20,000	3,050		65,000	36,000
1,590	1/16	43,000	20,000	3,100		65,000	36,000
1,600		43,000	20,000	3,150		65,000	36,000
1,650		43,000	20,000	3,170	1/8	65,000	36,000
1,700		43,000	20,000	3,175	1/8	65,000	36,000
1,780		46,000	22,000	3,200		65,000	36,000
1,800		46,000	22,000	3,250		65,000	36,000
1,850		46,000	22,000	3,260		65,000	36,000
1,900		46,000	22,000	3,300		65,000	36,000
1,950		49,000	24,000	3,350		65,000	36,000
1,980	5/64	49,000	24,000	3,400		70,000	39,000
2,000		49,000	24,000	3,450		70,000	39,000
2,030		49,000	24,000	3,500		70,000	39,000
2,050		49,000	24,000	3,550		70,000	39,000
2,080		49,000	24,000	3,570	9/64	70,000	39,000
2,100		49,000	24,000	3,600		70,000	39,000
2,150		53,000	27,000	3,650		70,000	39,000
2,200		53,000	27,000	3,660		70,000	39,000
2,250		53,000	27,000	3,700		70,000	39,000
2,260		53,000	27,000	3,750		70,000	39,000
2,300		53,000	27,000	3,800		75,000	43,000
2,350		53,000	27,000	3,860		75,000	43,000
2,370		57,000	30,000	3,900		75,000	43,000
2,380	3/32	57,000	30,000	3,990		75,000	43,000
2,400		57,000	30,000	4,000		75,000	43,000
2,490		57,000	30,000	4,040		75,000	43,000
2,500		57,000	30,000	4,100		75,000	43,000
2,530		57,000	30,000	4,200		75,000	43,000
2,550		57,000	30,000	4,300		80,000	47,000
2,580		57,000	30,000	4,370	11/64	80,000	47,000
2,600		57,000	30,000	4,450		80,000	47,000
2,670		61,000	33,000	4,500		80,000	47,000
2,700		61,000	33,000	4,600		80,000	47,000

d1		l1	l2
mm	inch	mm	mm
4,620		80,000	47,000
4,760	3/16	86,000	52,000
4,900		86,000	52,000
5,000		86,000	52,000
5,100		86,000	52,000
5,200		86,000	52,000
5,300		86,000	52,000
5,400		93,000	57,000
5,500		93,000	57,000
5,560	7/32	93,000	57,000
5,600		93,000	57,000
5,700		93,000	57,000
5,750		93,000	57,000
5,790		93,000	57,000
5,800		93,000	57,000
5,850		93,000	57,000
5,900		93,000	57,000
5,950	15/64	93,000	57,000
6,000		93,000	57,000
6,100		101,000	63,000
6,200		101,000	63,000
6,350	1/4	101,000	63,000
6,400		101,000	63,000
6,500		101,000	63,000
6,600		101,000	63,000
6,750	17/64	109,000	69,000
6,800		109,000	69,000
6,900		109,000	69,000
7,000		109,000	69,000
7,140	9/32	109,000	69,000
7,200		109,000	69,000
7,300		109,000	69,000
7,400		109,000	69,000
7,500		109,000	69,000
7,540	19/64	117,000	75,000
7,600		117,000	75,000

d1		l1	l2
mm	inch	mm	mm
7,700		117,000	75,000
7,900		117,000	75,000
7,940	5/16	117,000	75,000
8,000		117,000	75,000
8,100		117,000	75,000
8,330	21/64	117,000	75,000
8,400		117,000	75,000
8,500		117,000	75,000
8,700		125,000	81,000
8,730	11/32	125,000	81,000
8,800		125,000	81,000
9,000		125,000	81,000
9,200		125,000	81,000
9,400		125,000	81,000
9,520	3/8	133,000	87,000
9,600		133,000	87,000
9,700		133,000	87,000
10,000		133,000	87,000
10,200		133,000	87,000
10,300		133,000	87,000
10,600		133,000	87,000
10,800		142,000	94,000
11,100		142,000	94,000
11,110	7/16	142,000	94,000
11,900		151,000	101,000
12,400		151,000	101,000
12,800		151,000	101,000
14,290	9/16	169,000	114,000
15,000		169,000	114,000
15,500		178,000	120,000

Brocas espirales cil., cortas

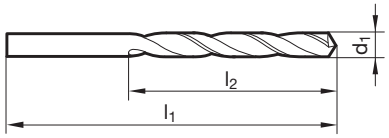
~5xD | DIN 338 | GT 100 | 130° | h8

Material de corte	HSS
Acabado	S
Dirección de corte	L

P	•	vaciado de punta ≥Ø 1,300 • entrada cónica • ranuras amplias • ideal para prof. de taladro sup. a 3xD
M		
K	•	
N	•	fundición gris • aceros de hasta 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 780



Artículo N° **665**

d1 mm	inch	l1 mm	l2 mm
1,300		38,000	16,000
1,400		40,000	18,000
1,500		40,000	18,000
1,550		43,000	20,000
1,590	1/16	43,000	20,000
1,600		43,000	20,000
1,650		43,000	20,000
1,700		43,000	20,000
1,800		46,000	22,000
1,900		46,000	22,000
1,980	5/64	49,000	24,000
2,000		49,000	24,000
2,100		49,000	24,000
2,200		53,000	27,000
2,260		53,000	27,000
2,300		53,000	27,000
2,380	3/32	57,000	30,000
2,400		57,000	30,000
2,500		57,000	30,000
2,530		57,000	30,000
2,580		57,000	30,000
2,600		57,000	30,000
2,700		61,000	33,000
2,780	7/64	61,000	33,000
2,800		61,000	33,000
2,950		61,000	33,000
3,000		61,000	33,000
3,100		65,000	36,000
3,170	1/8	65,000	36,000
3,200		65,000	36,000
3,300		65,000	36,000
3,400		70,000	39,000
3,450		70,000	39,000
3,570	9/64	70,000	39,000
3,700		70,000	39,000
3,800		75,000	43,000

d1 mm	inch	l1 mm	l2 mm
3,900		75,000	43,000
4,000		75,000	43,000
4,300		80,000	47,000
4,400		80,000	47,000
4,500		80,000	47,000
4,700		80,000	47,000
4,760	3/16	86,000	52,000
4,800		86,000	52,000
4,900		86,000	52,000
5,000		86,000	52,000
5,100		86,000	52,000
5,300		86,000	52,000
5,400		93,000	57,000
5,500		93,000	57,000
5,700		93,000	57,000
5,800		93,000	57,000
5,900		93,000	57,000
6,000		93,000	57,000
6,500		101,000	63,000
7,000		109,000	69,000
7,100		109,000	69,000
7,140	9/32	109,000	69,000
7,540	19/64	117,000	75,000
7,800		117,000	75,000
7,940	5/16	117,000	75,000
8,600		125,000	81,000
9,130	23/64	125,000	81,000
9,500		125,000	81,000
9,520	3/8	133,000	87,000
9,800		133,000	87,000

Brocas espirales cil., cortas

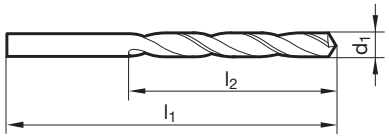
~5xD | DIN 338 | N | 118° | h8

Material de corte	HSCO
Acabado	>Ø 2,36
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,000 • entrada cónica • acero rápido al cobalto • más resistencia al desgaste
M	○	
K	•	
N	○	aceros y fundición de aceros (aleados y sin alear) • fundición de dureza sup. a 800 N/mm² • aceros para trab. en frío y en caliente • aceros para rodamientos • aceros altamente aleados • aceros de cementación, de bonificación
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 780



Artículo N° **305**

d1 mm	inch	l1 mm	l2 mm	d1 mm	inch	l1 mm	l2 mm
0,200		19,000	2,500	0,660		26,000	8,000
0,220		19,000	2,500	0,670		26,000	8,000
0,230		19,000	2,500	0,680		28,000	9,000
0,250		19,000	3,000	0,700		28,000	9,000
0,260		19,000	3,000	0,710		28,000	9,000
0,270		19,000	3,000	0,720		28,000	9,000
0,280		19,000	3,000	0,730		28,000	9,000
0,300		19,000	3,000	0,740		28,000	9,000
0,310		19,000	4,000	0,750		28,000	9,000
0,320		19,000	4,000	0,760		30,000	10,000
0,330		19,000	4,000	0,770		30,000	10,000
0,340		19,000	4,000	0,780		30,000	10,000
0,350		19,000	4,000	0,790	1/32	30,000	10,000
0,360		19,000	4,000	0,800		30,000	10,000
0,370		19,000	4,000	0,810		30,000	10,000
0,380		19,000	4,000	0,820		30,000	10,000
0,390		20,000	5,000	0,830		30,000	10,000
0,400	1/64	20,000	5,000	0,840		30,000	10,000
0,410		20,000	5,000	0,850		30,000	10,000
0,420		20,000	5,000	0,860		32,000	11,000
0,430		20,000	5,000	0,870		32,000	11,000
0,440		20,000	5,000	0,880		32,000	11,000
0,450		20,000	5,000	0,890		32,000	11,000
0,460		20,000	5,000	0,900		32,000	11,000
0,470		20,000	5,000	0,910		32,000	11,000
0,480		20,000	5,000	0,920		32,000	11,000
0,490		22,000	6,000	0,930		32,000	11,000
0,500		22,000	6,000	0,940		32,000	11,000
0,510		22,000	6,000	0,950		32,000	11,000
0,520		22,000	6,000	0,960		34,000	12,000
0,530		22,000	6,000	0,970		34,000	12,000
0,540		24,000	7,000	0,980		34,000	12,000
0,550		24,000	7,000	0,990		34,000	12,000
0,560		24,000	7,000	1,000		34,000	12,000
0,570		24,000	7,000	1,010		34,000	12,000
0,580		24,000	7,000	1,020		34,000	12,000
0,590		24,000	7,000	1,030		34,000	12,000
0,600		24,000	7,000	1,040		34,000	12,000
0,610		26,000	8,000	1,050		34,000	12,000
0,620		26,000	8,000	1,070		36,000	14,000
0,640		26,000	8,000	1,080		36,000	14,000
0,650		26,000	8,000	1,090		36,000	14,000

d1		l1	l2
mm	inch	mm	mm
1,100		36,000	14,000
1,120		36,000	14,000
1,130		36,000	14,000
1,140		36,000	14,000
1,150		36,000	14,000
1,160		36,000	14,000
1,170		36,000	14,000
1,180		36,000	14,000
1,190	3/64	38,000	16,000
1,200		38,000	16,000
1,210		38,000	16,000
1,220		38,000	16,000
1,230		38,000	16,000
1,250		38,000	16,000
1,260		38,000	16,000
1,280		38,000	16,000
1,290		38,000	16,000
1,300		38,000	16,000
1,310		38,000	16,000
1,320		38,000	16,000
1,330		40,000	18,000
1,350		40,000	18,000
1,360		40,000	18,000
1,370		40,000	18,000
1,380		40,000	18,000
1,400		40,000	18,000
1,410		40,000	18,000
1,420		40,000	18,000
1,430		40,000	18,000
1,440		40,000	18,000
1,450		40,000	18,000
1,460		40,000	18,000
1,470		40,000	18,000
1,480		40,000	18,000
1,490		40,000	18,000
1,500		40,000	18,000
1,510		43,000	20,000
1,520		43,000	20,000
1,530		43,000	20,000
1,540		43,000	20,000
1,550		43,000	20,000
1,560		43,000	20,000
1,570		43,000	20,000
1,580		43,000	20,000
1,590	1/16	43,000	20,000
1,600		43,000	20,000
1,610		43,000	20,000
1,620		43,000	20,000
1,640		43,000	20,000
1,650		43,000	20,000
1,660		43,000	20,000
1,670		43,000	20,000
1,680		43,000	20,000
1,700		43,000	20,000
1,710		46,000	22,000
1,720		46,000	22,000
1,730		46,000	22,000
1,740		46,000	22,000
1,750		46,000	22,000
1,760		46,000	22,000
1,780		46,000	22,000
1,790		46,000	22,000
1,800		46,000	22,000
1,810		46,000	22,000
1,820		46,000	22,000
1,830		46,000	22,000
1,840		46,000	22,000
1,850		46,000	22,000
1,860		46,000	22,000
1,900		46,000	22,000
1,910		49,000	24,000
1,930		49,000	24,000

d1		l1	l2
mm	inch	mm	mm
1,950		49,000	24,000
1,960		49,000	24,000
1,970		49,000	24,000
1,980	5/64	49,000	24,000
1,990		49,000	24,000
2,000		49,000	24,000
2,010		49,000	24,000
2,020		49,000	24,000
2,030		49,000	24,000
2,040		49,000	24,000
2,050		49,000	24,000
2,060		49,000	24,000
2,070		49,000	24,000
2,080		49,000	24,000
2,100		49,000	24,000
2,120		49,000	24,000
2,150		53,000	27,000
2,180		53,000	27,000
2,200		53,000	27,000
2,230		53,000	27,000
2,250		53,000	27,000
2,260		53,000	27,000
2,300		53,000	27,000
2,320		53,000	27,000
2,350		53,000	27,000
2,370		57,000	30,000
2,380	3/32	57,000	30,000
2,400		57,000	30,000
2,440		57,000	30,000
2,450		57,000	30,000
2,470		57,000	30,000
2,490		57,000	30,000
2,500		57,000	30,000
2,510		57,000	30,000
2,520		57,000	30,000
2,530		57,000	30,000
2,550		57,000	30,000
2,580		57,000	30,000
2,600		57,000	30,000
2,640		57,000	30,000
2,650		57,000	30,000
2,700		61,000	33,000
2,710		61,000	33,000
2,750		61,000	33,000
2,780	7/64	61,000	33,000
2,790		61,000	33,000
2,800		61,000	33,000
2,820		61,000	33,000
2,850		61,000	33,000
2,870		61,000	33,000
2,900		61,000	33,000
2,920		61,000	33,000
2,950		61,000	33,000
3,000		61,000	33,000
3,020		65,000	36,000
3,030		65,000	36,000
3,050		65,000	36,000
3,100		65,000	36,000
3,150		65,000	36,000
3,170	1/8	65,000	36,000
3,200		65,000	36,000
3,250		65,000	36,000
3,260		65,000	36,000
3,300		65,000	36,000
3,330		65,000	36,000
3,350		65,000	36,000
3,400		70,000	39,000
3,450		70,000	39,000
3,500		70,000	39,000
3,550		70,000	39,000
3,570	9/64	70,000	39,000
3,600		70,000	39,000

d1		l1	l2
mm	inch	mm	mm
3,650		70,000	39,000
3,660		70,000	39,000
3,700		70,000	39,000
3,730		70,000	39,000
3,750		70,000	39,000
3,800		75,000	43,000
3,850		75,000	43,000
3,860		75,000	43,000
3,900		75,000	43,000
3,910		75,000	43,000
3,970	5/32	75,000	43,000
3,990		75,000	43,000
4,000		75,000	43,000
4,020		75,000	43,000
4,040		75,000	43,000
4,050		75,000	43,000
4,070		75,000	43,000
4,090		75,000	43,000
4,100		75,000	43,000
4,120		75,000	43,000
4,150		75,000	43,000
4,170		75,000	43,000
4,200		75,000	43,000
4,220		75,000	43,000
4,250		75,000	43,000
4,300		80,000	47,000
4,370	11/64	80,000	47,000
4,390		80,000	47,000
4,400		80,000	47,000
4,450		80,000	47,000
4,500		80,000	47,000
4,550		80,000	47,000
4,570		80,000	47,000
4,600		80,000	47,000
4,620		80,000	47,000
4,650		80,000	47,000
4,700		80,000	47,000
4,750		80,000	47,000
4,760	3/16	86,000	52,000
4,800		86,000	52,000
4,850		86,000	52,000
4,900		86,000	52,000
4,920		86,000	52,000
4,980		86,000	52,000
5,000		86,000	52,000
5,020		86,000	52,000
5,050		86,000	52,000
5,060		86,000	52,000
5,100		86,000	52,000
5,110		86,000	52,000
5,150		86,000	52,000
5,160	13/64	86,000	52,000
5,180		86,000	52,000
5,200		86,000	52,000
5,220		86,000	52,000
5,250		86,000	52,000
5,300		86,000	52,000
5,310		93,000	57,000
5,400		93,000	57,000
5,410		93,000	57,000
5,450		93,000	57,000
5,500		93,000	57,000
5,550		93,000	57,000
5,560	7/32	93,000	57,000
5,600		93,000	57,000
5,610		93,000	57,000
5,650		93,000	57,000
5,700		93,000	57,000
5,750		93,000	57,000
5,790		93,000	57,000
5,800		93,000	57,000
5,850		93,000	57,000

d1		l1	l2
mm	inch	mm	mm
5,900		93,000	57,000
5,940		93,000	57,000
5,950	15/64	93,000	57,000
6,000		93,000	57,000
6,040		101,000	63,000
6,050		101,000	63,000
6,100		101,000	63,000
6,150		101,000	63,000
6,200		101,000	63,000
6,250		101,000	63,000
6,300		101,000	63,000
6,350	1/4	101,000	63,000
6,400		101,000	63,000
6,450		101,000	63,000
6,500		101,000	63,000
6,530		101,000	63,000
6,600		101,000	63,000
6,630		101,000	63,000
6,700		101,000	63,000
6,750	17/64	109,000	69,000
6,760		109,000	69,000
6,800		109,000	69,000
6,850		109,000	69,000
6,900		109,000	69,000
6,950		109,000	69,000
7,000		109,000	69,000
7,030		109,000	69,000
7,050		109,000	69,000
7,100		109,000	69,000
7,140	9/32	109,000	69,000
7,200		109,000	69,000
7,250		109,000	69,000
7,300		109,000	69,000
7,370		109,000	69,000
7,400		109,000	69,000
7,490		109,000	69,000
7,500		109,000	69,000
7,540	19/64	117,000	75,000
7,600		117,000	75,000
7,670		117,000	75,000
7,700		117,000	75,000
7,750		117,000	75,000
7,800		117,000	75,000
7,900		117,000	75,000
7,940	5/16	117,000	75,000
8,000		117,000	75,000
8,030		117,000	75,000
8,050		117,000	75,000
8,100		117,000	75,000
8,150		117,000	75,000
8,200		117,000	75,000
8,250		117,000	75,000
8,300		117,000	75,000
8,330	21/64	117,000	75,000
8,400		117,000	75,000
8,430		117,000	75,000
8,500		117,000	75,000
8,600		125,000	81,000
8,610		125,000	81,000
8,700		125,000	81,000
8,730	11/32	125,000	81,000
8,750		125,000	81,000
8,800		125,000	81,000
8,840		125,000	81,000
8,900		125,000	81,000
9,000		125,000	81,000
9,090		125,000	81,000
9,100		125,000	81,000
9,130	23/64	125,000	81,000
9,200		125,000	81,000
9,250		125,000	81,000
9,300		125,000	81,000

d1		l1	l2
mm	inch	mm	mm
9,340		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,520	3/8	133,000	87,000
9,580		133,000	87,000
9,600		133,000	87,000
9,700		133,000	87,000
9,750		133,000	87,000
9,800		133,000	87,000
9,900		133,000	87,000
9,920	25/64	133,000	87,000
10,000		133,000	87,000
10,050		133,000	87,000
10,080		133,000	87,000
10,100		133,000	87,000
10,200		133,000	87,000
10,250		133,000	87,000
10,260		133,000	87,000
10,300		133,000	87,000
10,320	13/32	133,000	87,000
10,400		133,000	87,000
10,490		133,000	87,000
10,500		133,000	87,000
10,600		133,000	87,000
10,700		142,000	94,000
10,720	27/64	142,000	94,000
10,750		142,000	94,000
10,800		142,000	94,000
10,900		142,000	94,000
11,000		142,000	94,000
11,100		142,000	94,000
11,110	7/16	142,000	94,000
11,200		142,000	94,000
11,250		142,000	94,000
11,300		142,000	94,000
11,400		142,000	94,000
11,500		142,000	94,000
11,510	29/64	142,000	94,000
11,600		142,000	94,000
11,700		142,000	94,000
11,750		142,000	94,000
11,800		142,000	94,000
11,900		151,000	101,000
11,910	15/32	151,000	101,000
12,000		151,000	101,000
12,100		151,000	101,000
12,200		151,000	101,000
12,250		151,000	101,000

d1		l1	l2
mm	inch	mm	mm
12,300	31/64	151,000	101,000
12,400		151,000	101,000
12,500		151,000	101,000
12,600		151,000	101,000
12,700	1/2	151,000	101,000
12,750		151,000	101,000
12,800		151,000	101,000
12,900		151,000	101,000
13,000		151,000	101,000
13,100	33/64	151,000	101,000
13,200		151,000	101,000
13,300		160,000	108,000
13,490	17/32	160,000	108,000
13,500		160,000	108,000
13,600		160,000	108,000
13,700		160,000	108,000
13,750		160,000	108,000
13,800		160,000	108,000
13,890	35/64	160,000	108,000
13,900		160,000	108,000
14,000		160,000	108,000
14,100		169,000	114,000
14,200		169,000	114,000
14,290	9/16	169,000	114,000
14,500		169,000	114,000
14,680	37/64	169,000	114,000
15,000		169,000	114,000
15,250		178,000	120,000
15,480	39/64	178,000	120,000
15,500		178,000	120,000
15,750		178,000	120,000
15,870	5/8	178,000	120,000
16,000		178,000	120,000
16,500		184,000	125,000
16,670	21/32	184,000	125,000
17,000		184,000	125,000
17,460	11/16	191,000	130,000
17,500		191,000	130,000
18,000		191,000	130,000
18,500		198,000	135,000
19,000		198,000	135,000
19,500		205,000	140,000
20,000		205,000	140,000

Brocas espirales cil., cortas

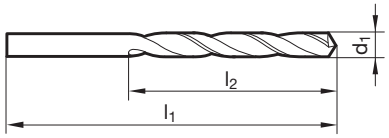
~5xD | DIN 338 | N | 118° | h8

Material de corte	HSCO
Acabado	S
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,200 • entrada cónica • acero rápido al cobalto • resistencia más alta al desgaste
M	○	
K	•	
N	○	aceros aleados y no aleados • fundición de dureza sup. a 800 N/mm² • aceros para trab. en frío y en caliente • aceros para rodamientos • aceros altamente aleados • aceros de cementación, de bonificación
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 782



Artículo N° **2997**

d1 mm	inch	l1 mm	l2 mm
1,200		38,000	16,000
1,300		38,000	16,000
1,400		40,000	18,000
1,500		40,000	18,000
1,600		43,000	20,000
1,700		43,000	20,000
1,800		46,000	22,000
1,900		46,000	22,000
2,000		49,000	24,000
2,100		49,000	24,000
2,200		53,000	27,000
2,300		53,000	27,000
2,500		57,000	30,000
2,700		61,000	33,000
2,800		61,000	33,000
2,900		61,000	33,000
3,000		61,000	33,000
3,100		65,000	36,000
3,300		65,000	36,000
3,400		70,000	39,000
3,500		70,000	39,000
3,600		70,000	39,000
3,700		70,000	39,000
3,800		75,000	43,000
3,900		75,000	43,000
4,000		75,000	43,000
4,100		75,000	43,000
4,200		75,000	43,000
4,300		80,000	47,000
4,500		80,000	47,000
4,700		80,000	47,000
4,800		86,000	52,000
4,900		86,000	52,000
5,000		86,000	52,000
5,200		86,000	52,000
5,300		86,000	52,000
5,400		93,000	57,000
5,500		93,000	57,000
5,600		93,000	57,000
5,800		93,000	57,000
6,000		93,000	57,000
6,100		101,000	63,000

d1 mm	inch	l1 mm	l2 mm
6,300		101,000	63,000
6,400		101,000	63,000
6,500		101,000	63,000
6,600		101,000	63,000
6,700		101,000	63,000
6,800		109,000	69,000
6,900		109,000	69,000
7,000		109,000	69,000
7,100		109,000	69,000
7,300		109,000	69,000
7,400		109,000	69,000
7,500		109,000	69,000
7,600		117,000	75,000
7,700		117,000	75,000
7,800		117,000	75,000
7,900		117,000	75,000
8,000		117,000	75,000
8,200		117,000	75,000
8,400		117,000	75,000
8,500		117,000	75,000
8,800		125,000	81,000
8,900		125,000	81,000
9,000		125,000	81,000
9,300		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,600		133,000	87,000
9,700		133,000	87,000
9,800		133,000	87,000
9,900		133,000	87,000
10,000		133,000	87,000
10,300		133,000	87,000
10,500		133,000	87,000
10,800		142,000	94,000
11,000		142,000	94,000
11,200		142,000	94,000
11,500		142,000	94,000
12,000		151,000	101,000
12,500		151,000	101,000
12,700	1/2	151,000	101,000
13,000		151,000	101,000

Brocas espirales cil., cortas

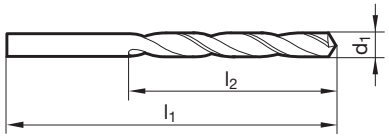
~5xD | DIN 338 | N | 118° | h8

Material de corte	HSCO
Acabado	>Ø 6,00
Dirección de corte	L

P	•	vaciado de punta ≥Ø 2,370 • entrada cónica • acero rápido al cobalto • resistencia más alta al desgaste
M	○	
K	•	
N	○	aceros aleados y no aleados • fundición de dureza sup. a 800 N/mm² • aceros para trab. en frío y en caliente • aceros para rodamientos • aceros altamente aleados • aceros de cementación, de bonificación
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 780



Artículo N° **308**

d1 mm	inch	l1 mm	l2 mm
0,360		19,000	4,000
0,390		20,000	5,000
0,500		22,000	6,000
0,560		24,000	7,000
0,590		24,000	7,000
0,600		24,000	7,000
0,620		26,000	8,000
0,630		26,000	8,000
0,650		26,000	8,000
0,750		28,000	9,000
0,780		30,000	10,000
0,800		30,000	10,000
0,820		30,000	10,000
0,900		32,000	11,000
0,910		32,000	11,000
0,920		32,000	11,000
0,930		32,000	11,000
0,950		32,000	11,000
0,980		34,000	12,000
1,000		34,000	12,000
1,020		34,000	12,000
1,030		34,000	12,000
1,050		34,000	12,000
1,080		36,000	14,000
1,100		36,000	14,000
1,150		36,000	14,000
1,180		36,000	14,000
1,190	3/64	38,000	16,000
1,200		38,000	16,000
1,210		38,000	16,000
1,230		38,000	16,000
1,320		38,000	16,000
1,330		40,000	18,000
1,350		40,000	18,000
1,400		40,000	18,000
1,430		40,000	18,000
1,450		40,000	18,000
1,470		40,000	18,000
1,480		40,000	18,000
1,490		40,000	18,000
1,510		43,000	20,000
1,520		43,000	20,000

d1 mm	inch	l1 mm	l2 mm
1,600		43,000	20,000
1,610		43,000	20,000
1,620		43,000	20,000
1,700		43,000	20,000
1,720		46,000	22,000
1,750		46,000	22,000
1,780		46,000	22,000
1,800		46,000	22,000
1,830		46,000	22,000
1,850		46,000	22,000
1,900		46,000	22,000
1,930		49,000	24,000
1,950		49,000	24,000
1,980	5/64	49,000	24,000
2,000		49,000	24,000
2,050		49,000	24,000
2,060		49,000	24,000
2,080		49,000	24,000
2,100		49,000	24,000
2,180		53,000	27,000
2,200		53,000	27,000
2,250		53,000	27,000
2,260		53,000	27,000
2,350		53,000	27,000
2,370		57,000	30,000
2,380	3/32	57,000	30,000
2,400		57,000	30,000
2,500		57,000	30,000
2,520		57,000	30,000
2,530		57,000	30,000
2,600		57,000	30,000
2,640		57,000	30,000
2,750		61,000	33,000
2,780	7/64	61,000	33,000
2,790		61,000	33,000
2,800		61,000	33,000
2,820		61,000	33,000
2,950		61,000	33,000
3,000		61,000	33,000
3,030		65,000	36,000
3,050		65,000	36,000
3,100		65,000	36,000

d1		l1	l2
mm	inch	mm	mm
3,150		65,000	36,000
3,170	1/8	65,000	36,000
3,200		65,000	36,000
3,300		65,000	36,000
3,400		70,000	39,000
3,420		70,000	39,000
3,450		70,000	39,000
3,500		70,000	39,000
3,530		70,000	39,000
3,650		70,000	39,000
3,660		70,000	39,000
3,700		70,000	39,000
3,800		75,000	43,000
3,860		75,000	43,000
3,900		75,000	43,000
3,910		75,000	43,000
3,970	5/32	75,000	43,000
3,990		75,000	43,000
4,000		75,000	43,000
4,040		75,000	43,000
4,050		75,000	43,000
4,090		75,000	43,000
4,150		75,000	43,000
4,200		75,000	43,000
4,220		75,000	43,000
4,300		80,000	47,000
4,350		80,000	47,000
4,370	11/64	80,000	47,000
4,390		80,000	47,000
4,400		80,000	47,000
4,500		80,000	47,000
4,620		80,000	47,000
4,650		80,000	47,000
4,700		80,000	47,000
4,760	3/16	86,000	52,000
4,800		86,000	52,000
4,830		86,000	52,000
4,900		86,000	52,000
5,000		86,000	52,000
5,060		86,000	52,000
5,110		86,000	52,000
5,160	13/64	86,000	52,000
5,180		86,000	52,000
5,200		86,000	52,000
5,220		86,000	52,000
5,300		86,000	52,000
5,310		93,000	57,000
5,400		93,000	57,000
5,410		93,000	57,000
5,550		93,000	57,000
5,560	7/32	93,000	57,000
5,570		93,000	57,000
5,610		93,000	57,000
5,700		93,000	57,000
5,800		93,000	57,000
5,900		93,000	57,000
5,940		93,000	57,000
5,950	15/64	93,000	57,000
6,000		93,000	57,000
6,100		101,000	63,000
6,250		101,000	63,000
6,300		101,000	63,000
6,350	1/4	101,000	63,000
6,400		101,000	63,000
6,530		101,000	63,000
6,700		101,000	63,000

d1		l1	l2
mm	inch	mm	mm
6,750	17/64	109,000	69,000
7,040		109,000	69,000
7,370		109,000	69,000
7,400		109,000	69,000
7,490		109,000	69,000
7,500		109,000	69,000
7,540	19/64	117,000	75,000
7,600		117,000	75,000
7,670		117,000	75,000
7,700		117,000	75,000
8,000		117,000	75,000
8,030		117,000	75,000
8,040		117,000	75,000
8,300		117,000	75,000
8,330	21/64	117,000	75,000
8,600		125,000	81,000
8,610		125,000	81,000
8,700		125,000	81,000
8,730	11/32	125,000	81,000
8,800		125,000	81,000
8,840		125,000	81,000
9,000		125,000	81,000
9,090		125,000	81,000
9,100		125,000	81,000
9,130	23/64	125,000	81,000
9,200		125,000	81,000
9,300		125,000	81,000
9,340		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,520	3/8	133,000	87,000
9,600		133,000	87,000
9,800		133,000	87,000
9,900		133,000	87,000
9,920	25/64	133,000	87,000
10,000		133,000	87,000
10,080		133,000	87,000
10,260		133,000	87,000
10,320	13/32	133,000	87,000
10,490		133,000	87,000
10,800		142,000	94,000
11,000		142,000	94,000
11,110	7/16	142,000	94,000
11,200		142,000	94,000
11,400		142,000	94,000
11,500		142,000	94,000
11,510	29/64	142,000	94,000
11,910	15/32	151,000	101,000
12,050		151,000	101,000
12,250		151,000	101,000
12,300	31/64	151,000	101,000
12,500		151,000	101,000
12,700	1/2	151,000	101,000
13,750		160,000	108,000
14,300		169,000	114,000
14,500		169,000	114,000
16,200		184,000	125,000
16,500		184,000	125,000
18,000		191,000	130,000
18,500		198,000	135,000

Brocas espirales cil., cortas

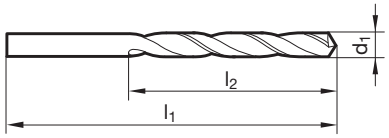
~5xD | DIN 338 | GT 100 | 130° | h8

Material de corte	HSCO
Acabado	>Ø 2,36
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,000 • entrada cónica • acero rápido al cobalto • ranuras amplias • más resistencia al desgaste • ideal para prof. de taladro sup. a 3xD
M	○	
K	•	
N	•	aceros (aleados y sin alear) • fundición de dureza sup. a 800 N/mm² • aceros para trab. en frío y en caliente • aceros para rodamientos • aceros altamente aleados • aceros de cementación, de bonificación
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 780



Artículo N° **622**

d1 mm	inch	l1 mm	l2 mm	d1 mm	inch	l1 mm	l2 mm
1,000		34,000	12,000	2,080		49,000	24,000
1,020		34,000	12,000	2,100		49,000	24,000
1,040		34,000	12,000	2,150		53,000	27,000
1,050		34,000	12,000	2,180		53,000	27,000
1,070		36,000	14,000	2,200		53,000	27,000
1,090		36,000	14,000	2,250		53,000	27,000
1,100		36,000	14,000	2,260		53,000	27,000
1,130		36,000	14,000	2,300		53,000	27,000
1,150		36,000	14,000	2,350		53,000	27,000
1,180		36,000	14,000	2,370		57,000	30,000
1,190	3/64	38,000	16,000	2,380	3/32	57,000	30,000
1,200		38,000	16,000	2,400		57,000	30,000
1,250		38,000	16,000	2,420		57,000	30,000
1,270		38,000	16,000	2,440		57,000	30,000
1,300		38,000	16,000	2,450		57,000	30,000
1,320		38,000	16,000	2,490		57,000	30,000
1,350		40,000	18,000	2,500		57,000	30,000
1,400		40,000	18,000	2,530		57,000	30,000
1,430		40,000	18,000	2,550		57,000	30,000
1,440		40,000	18,000	2,580		57,000	30,000
1,450		40,000	18,000	2,600		57,000	30,000
1,500		40,000	18,000	2,640		57,000	30,000
1,510		43,000	20,000	2,650		57,000	30,000
1,550		43,000	20,000	2,700		61,000	33,000
1,590	1/16	43,000	20,000	2,710		61,000	33,000
1,600		43,000	20,000	2,750		61,000	33,000
1,610		43,000	20,000	2,780	7/64	61,000	33,000
1,650		43,000	20,000	2,790		61,000	33,000
1,700		43,000	20,000	2,800		61,000	33,000
1,780		46,000	22,000	2,820		61,000	33,000
1,800		46,000	22,000	2,850		61,000	33,000
1,850		46,000	22,000	2,870		61,000	33,000
1,900		46,000	22,000	2,900		61,000	33,000
1,920		49,000	24,000	2,950		61,000	33,000
1,930		49,000	24,000	3,000		61,000	33,000
1,950		49,000	24,000	3,050		65,000	36,000
1,960		49,000	24,000	3,100		65,000	36,000
1,980	5/64	49,000	24,000	3,150		65,000	36,000
1,990		49,000	24,000	3,170	1/8	65,000	36,000
2,000		49,000	24,000	3,200		65,000	36,000
2,050		49,000	24,000	3,250		65,000	36,000
2,060		49,000	24,000	3,260		65,000	36,000

d1		l1	l2
mm	inch	mm	mm
3,300		65,000	36,000
3,400		70,000	39,000
3,450		70,000	39,000
3,500		70,000	39,000
3,570	9/64	70,000	39,000
3,600		70,000	39,000
3,650		70,000	39,000
3,660		70,000	39,000
3,700		70,000	39,000
3,730		70,000	39,000
3,800		75,000	43,000
3,860		75,000	43,000
3,900		75,000	43,000
3,910		75,000	43,000
3,970	5/32	75,000	43,000
3,990		75,000	43,000
4,000		75,000	43,000
4,020		75,000	43,000
4,040		75,000	43,000
4,050		75,000	43,000
4,090		75,000	43,000
4,100		75,000	43,000
4,150		75,000	43,000
4,200		75,000	43,000
4,220		75,000	43,000
4,250		75,000	43,000
4,300		80,000	47,000
4,370	11/64	80,000	47,000
4,390		80,000	47,000
4,400		80,000	47,000
4,500		80,000	47,000
4,550		80,000	47,000
4,570		80,000	47,000
4,600		80,000	47,000
4,620		80,000	47,000
4,650		80,000	47,000
4,700		80,000	47,000
4,750		80,000	47,000
4,760	3/16	86,000	52,000
4,800		86,000	52,000
4,850		86,000	52,000
4,900		86,000	52,000
4,920		86,000	52,000
4,980		86,000	52,000
5,000		86,000	52,000
5,060		86,000	52,000
5,100		86,000	52,000
5,110		86,000	52,000
5,160	13/64	86,000	52,000
5,180		86,000	52,000
5,200		86,000	52,000
5,220		86,000	52,000
5,250		86,000	52,000
5,300		86,000	52,000
5,310		93,000	57,000
5,400		93,000	57,000
5,410		93,000	57,000
5,500		93,000	57,000
5,560	7/32	93,000	57,000
5,600		93,000	57,000
5,610		93,000	57,000
5,700		93,000	57,000
5,750		93,000	57,000
5,790		93,000	57,000
5,800		93,000	57,000
5,900		93,000	57,000
5,940		93,000	57,000
5,950	15/64	93,000	57,000
6,000		93,000	57,000
6,040		101,000	63,000
6,050		101,000	63,000
6,100		101,000	63,000

d1		l1	l2
mm	inch	mm	mm
6,150		101,000	63,000
6,200		101,000	63,000
6,250		101,000	63,000
6,300		101,000	63,000
6,350	1/4	101,000	63,000
6,400		101,000	63,000
6,500		101,000	63,000
6,530		101,000	63,000
6,600		101,000	63,000
6,630		101,000	63,000
6,650		101,000	63,000
6,700		101,000	63,000
6,750	17/64	109,000	69,000
6,800		109,000	69,000
6,900		109,000	69,000
7,000		109,000	69,000
7,030		109,000	69,000
7,100		109,000	69,000
7,140	9/32	109,000	69,000
7,200		109,000	69,000
7,300		109,000	69,000
7,370		109,000	69,000
7,400		109,000	69,000
7,450		109,000	69,000
7,490		109,000	69,000
7,500		109,000	69,000
7,540	19/64	117,000	75,000
7,600		117,000	75,000
7,670		117,000	75,000
7,700		117,000	75,000
7,750		117,000	75,000
7,800		117,000	75,000
7,900		117,000	75,000
7,940	5/16	117,000	75,000
8,000		117,000	75,000
8,030		117,000	75,000
8,100		117,000	75,000
8,200		117,000	75,000
8,300		117,000	75,000
8,330	21/64	117,000	75,000
8,400		117,000	75,000
8,430		117,000	75,000
8,500		117,000	75,000
8,600		125,000	81,000
8,610		125,000	81,000
8,700		125,000	81,000
8,730	11/32	125,000	81,000
8,800		125,000	81,000
8,840		125,000	81,000
8,900		125,000	81,000
9,000		125,000	81,000
9,090		125,000	81,000
9,100		125,000	81,000
9,130	23/64	125,000	81,000
9,200		125,000	81,000
9,300		125,000	81,000
9,340		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,520	3/8	133,000	87,000
9,580		133,000	87,000
9,600		133,000	87,000
9,700		133,000	87,000
9,800		133,000	87,000
9,900		133,000	87,000
9,920	25/64	133,000	87,000
10,000		133,000	87,000
10,080		133,000	87,000
10,100		133,000	87,000
10,200		133,000	87,000
10,250		133,000	87,000
10,260		133,000	87,000

d1		l1	l2
mm	inch	mm	mm
10,300		133,000	87,000
10,320	13/32	133,000	87,000
10,400		133,000	87,000
10,500		133,000	87,000
10,600		133,000	87,000
10,700		142,000	94,000
10,720	27/64	142,000	94,000
10,800		142,000	94,000
10,900		142,000	94,000
11,000		142,000	94,000
11,100		142,000	94,000
11,110	7/16	142,000	94,000
11,200		142,000	94,000
11,300		142,000	94,000
11,400		142,000	94,000
11,500		142,000	94,000
11,510	29/64	142,000	94,000
11,600		142,000	94,000

d1		l1	l2
mm	inch	mm	mm
11,700		142,000	94,000
11,800		142,000	94,000
11,910	15/32	151,000	101,000
12,000		151,000	101,000
12,500		151,000	101,000
12,700	1/2	151,000	101,000
12,800		151,000	101,000
13,000		151,000	101,000
13,500		160,000	108,000
13,800		160,000	108,000
14,000		160,000	108,000
16,000		178,000	120,000

Brocas espirales cil., cortas

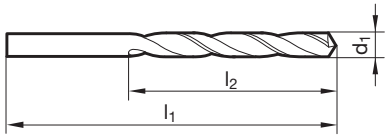
~5xD | DIN 338 | GT 100 | 130° | h8

Material de corte	HSCO
Acabado	S
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,000 • entrada cónica • acero rápido al cobalto • ranuras amplias • más resistencia al desgaste • ideal para prof. de taladro sup. a 3xD
M	○	
K	•	
N	○	aceros aleados y no aleados • fundición de dureza sup. a 800 N/mm² • aceros para trab. en frío y en caliente • aceros para rodamientos • aceros altamente aleados • aceros de cementación, de bonificación
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 782



Artículo N° **658**

d1 mm	inch	l1 mm	l2 mm
1,000		34,000	12,000
1,020		34,000	12,000
1,050		34,000	12,000
1,070		36,000	14,000
1,100		36,000	14,000
1,130		36,000	14,000
1,150		36,000	14,000
1,190	3/64	38,000	16,000
1,200		38,000	16,000
1,300		38,000	16,000
1,320		38,000	16,000
1,350		40,000	18,000
1,400		40,000	18,000
1,430		40,000	18,000
1,450		40,000	18,000
1,500		40,000	18,000
1,510		43,000	20,000
1,550		43,000	20,000
1,590	1/16	43,000	20,000
1,600		43,000	20,000
1,610		43,000	20,000
1,630		43,000	20,000
1,650		43,000	20,000
1,700		43,000	20,000
1,780		46,000	22,000
1,800		46,000	22,000
1,850		46,000	22,000
1,900		46,000	22,000
1,930		49,000	24,000
1,950		49,000	24,000
1,980	5/64	49,000	24,000
1,990		49,000	24,000
2,000		49,000	24,000
2,050		49,000	24,000
2,060		49,000	24,000
2,080		49,000	24,000
2,100		49,000	24,000
2,150		53,000	27,000
2,180		53,000	27,000
2,200		53,000	27,000
2,250		53,000	27,000
2,260		53,000	27,000

d1 mm	inch	l1 mm	l2 mm
2,300		53,000	27,000
2,350		53,000	27,000
2,370		57,000	30,000
2,380	3/32	57,000	30,000
2,400		57,000	30,000
2,440		57,000	30,000
2,450		57,000	30,000
2,490		57,000	30,000
2,500		57,000	30,000
2,530		57,000	30,000
2,550		57,000	30,000
2,580		57,000	30,000
2,600		57,000	30,000
2,640		57,000	30,000
2,650		57,000	30,000
2,700		61,000	33,000
2,750		61,000	33,000
2,780	7/64	61,000	33,000
2,790		61,000	33,000
2,800		61,000	33,000
2,820		61,000	33,000
2,870		61,000	33,000
2,900		61,000	33,000
2,950		61,000	33,000
3,000		61,000	33,000
3,050		65,000	36,000
3,100		65,000	36,000
3,170	1/8	65,000	36,000
3,200		65,000	36,000
3,250		65,000	36,000
3,260		65,000	36,000
3,300		65,000	36,000
3,400		70,000	39,000
3,450		70,000	39,000
3,500		70,000	39,000
3,570	9/64	70,000	39,000
3,600		70,000	39,000
3,660		70,000	39,000
3,700		70,000	39,000
3,750		70,000	39,000
3,800		75,000	43,000
3,860		75,000	43,000

d1		l1	l2
mm	inch	mm	mm
3,900		75,000	43,000
3,970	5/32	75,000	43,000
4,000		75,000	43,000
4,030		75,000	43,000
4,040		75,000	43,000
4,050		75,000	43,000
4,090		75,000	43,000
4,100		75,000	43,000
4,200		75,000	43,000
4,220		75,000	43,000
4,250		75,000	43,000
4,300		80,000	47,000
4,370	11/64	80,000	47,000
4,400		80,000	47,000
4,500		80,000	47,000
4,570		80,000	47,000
4,600		80,000	47,000
4,620		80,000	47,000
4,700		80,000	47,000
4,760	3/16	86,000	52,000
4,800		86,000	52,000
4,850		86,000	52,000
4,900		86,000	52,000
4,920		86,000	52,000
4,980		86,000	52,000
5,000		86,000	52,000
5,060		86,000	52,000
5,100		86,000	52,000
5,160	13/64	86,000	52,000
5,200		86,000	52,000
5,300		86,000	52,000
5,400		93,000	57,000
5,500		93,000	57,000
5,560	7/32	93,000	57,000
5,600		93,000	57,000
5,610		93,000	57,000
5,700		93,000	57,000
5,790		93,000	57,000
5,800		93,000	57,000
5,850		93,000	57,000
5,900		93,000	57,000
5,950	15/64	93,000	57,000
6,000		93,000	57,000
6,100		101,000	63,000
6,150		101,000	63,000
6,200		101,000	63,000
6,300		101,000	63,000
6,350	1/4	101,000	63,000
6,400		101,000	63,000
6,500		101,000	63,000
6,530		101,000	63,000
6,600		101,000	63,000
6,700		101,000	63,000
6,750	17/64	109,000	69,000
6,800		109,000	69,000
6,900		109,000	69,000
7,000		109,000	69,000
7,100		109,000	69,000
7,140	9/32	109,000	69,000
7,200		109,000	69,000

d1		l1	l2
mm	inch	mm	mm
7,300		109,000	69,000
7,400		109,000	69,000
7,500		109,000	69,000
7,600		117,000	75,000
7,700		117,000	75,000
7,800		117,000	75,000
7,900		117,000	75,000
7,940	5/16	117,000	75,000
8,000		117,000	75,000
8,100		117,000	75,000
8,200		117,000	75,000
8,300		117,000	75,000
8,400		117,000	75,000
8,500		117,000	75,000
8,600		125,000	81,000
8,700		125,000	81,000
8,730	11/32	125,000	81,000
8,750		125,000	81,000
8,800		125,000	81,000
8,900		125,000	81,000
9,000		125,000	81,000
9,130	23/64	125,000	81,000
9,200		125,000	81,000
9,300		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,520	3/8	133,000	87,000
9,600		133,000	87,000
9,700		133,000	87,000
9,800		133,000	87,000
9,900		133,000	87,000
9,920	25/64	133,000	87,000
10,000		133,000	87,000
10,100		133,000	87,000
10,200		133,000	87,000
10,300		133,000	87,000
10,320	13/32	133,000	87,000
10,500		133,000	87,000
10,720	27/64	142,000	94,000
10,800		142,000	94,000
11,000		142,000	94,000
11,110	7/16	142,000	94,000
11,200		142,000	94,000
11,500		142,000	94,000
11,700		142,000	94,000
11,800		142,000	94,000
11,910	15/32	151,000	101,000
12,000		151,000	101,000
12,500		151,000	101,000
12,800		151,000	101,000
13,000		151,000	101,000
13,500		160,000	108,000
13,800		160,000	108,000
14,000		160,000	108,000
14,500		169,000	114,000
15,000		169,000	114,000

Brocas espirales cil., cortas

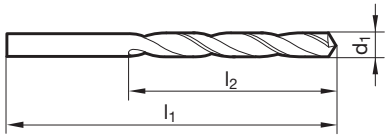
~5xD | DIN 338 | GT 100 | 130° | h8

Material de corte	HSCO
Acabado	F
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,000 • entrada cónica • acero rápido al cobalto • ranuras amplias • más resistencia al desgaste • ideal para prof. de taladro sup. a 3xD
M	○	
K	•	
N	•	aceros aleados y no aleados • fundición de dureza sup. a 800 N/mm² • aceros para trab. en frío y en caliente • aceros para rodamientos • aceros altamente aleados • aceros de cementación, de bonificación
S		
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 782



Artículo N° **2459**

d1 mm	inch	l1 mm	l2 mm
1,000		34,000	12,000
1,100		36,000	14,000
1,200		38,000	16,000
1,300		38,000	16,000
1,400		40,000	18,000
1,500		40,000	18,000
1,600		43,000	20,000
1,700		43,000	20,000
1,800		46,000	22,000
1,900		46,000	22,000
2,000		49,000	24,000
2,100		49,000	24,000
2,200		53,000	27,000
2,300		53,000	27,000
2,400		57,000	30,000
2,500		57,000	30,000
2,600		57,000	30,000
2,700		61,000	33,000
2,800		61,000	33,000
2,900		61,000	33,000
3,000		61,000	33,000
3,100		65,000	36,000
3,200		65,000	36,000
3,300		65,000	36,000
3,400		70,000	39,000
3,500		70,000	39,000
3,600		70,000	39,000
3,700		70,000	39,000
3,800		75,000	43,000
3,900		75,000	43,000
4,000		75,000	43,000
4,100		75,000	43,000
4,200		75,000	43,000
4,300		80,000	47,000
4,400		80,000	47,000
4,500		80,000	47,000
4,600		80,000	47,000
4,700		80,000	47,000
4,800		86,000	52,000
4,900		86,000	52,000
5,000		86,000	52,000
5,100		86,000	52,000

d1 mm	inch	l1 mm	l2 mm
5,200		86,000	52,000
5,300		86,000	52,000
5,400		93,000	57,000
5,500		93,000	57,000
5,600		93,000	57,000
5,700		93,000	57,000
5,800		93,000	57,000
5,900		93,000	57,000
6,000		93,000	57,000
6,100		101,000	63,000
6,200		101,000	63,000
6,300		101,000	63,000
6,400		101,000	63,000
6,500		101,000	63,000
6,600		101,000	63,000
6,700		101,000	63,000
6,800		109,000	69,000
6,900		109,000	69,000
7,000		109,000	69,000
7,100		109,000	69,000
7,300		109,000	69,000
7,400		109,000	69,000
7,500		109,000	69,000
7,700		117,000	75,000
7,800		117,000	75,000
7,900		117,000	75,000
8,000		117,000	75,000
8,100		117,000	75,000
8,200		117,000	75,000
8,300		117,000	75,000
8,400		117,000	75,000
8,500		117,000	75,000
8,600		125,000	81,000
8,700		125,000	81,000
8,800		125,000	81,000
9,000		125,000	81,000
9,200		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,700		133,000	87,000
9,800		133,000	87,000
9,900		133,000	87,000

d1		l1	l2
mm	inch	mm	mm
10,000		133,000	87,000
10,200		133,000	87,000
10,300		133,000	87,000
10,400		133,000	87,000
10,500		133,000	87,000
11,000		142,000	94,000

d1		l1	l2
mm	inch	mm	mm
11,500		142,000	94,000
12,000		151,000	101,000
13,000		151,000	101,000
14,000		160,000	108,000

Brocas espirales cil., cortas

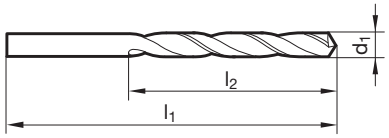
~5xD | DIN 338 | GT 100 | 130° | h8

Material de corte	HSCO
Acabado	C
Dirección de corte	R

P	•	vaciado de punta ≥Ø 3,000 • entrada cónica • acero rápido al cobalto • ranuras amplias • más resistencia al desgaste • ideal para prof. de taladro sup. a 3xD
M		
K	○	
N		aceros aleados y no aleados • fundición de dureza sup. a 800 N/mm² • aceros para trab. en frío y en caliente • aceros para rodamientos • aceros altamente aleados • aceros de cementación, de bonificación
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 782



Artículo N° **1221**

d1 mm	d1 inch	l1 mm	l2 mm
3,000		61,000	33,000
3,050		65,000	36,000
3,100		65,000	36,000
3,170	1/8	65,000	36,000
3,200		65,000	36,000
3,300		65,000	36,000
3,400		70,000	39,000
3,450		70,000	39,000
3,500		70,000	39,000
3,570	9/64	70,000	39,000
3,600		70,000	39,000
3,660		70,000	39,000
3,700		70,000	39,000
3,750		70,000	39,000
3,800		75,000	43,000
3,900		75,000	43,000
3,970	5/32	75,000	43,000
4,000		75,000	43,000
4,050		75,000	43,000
4,100		75,000	43,000
4,200		75,000	43,000
4,300		80,000	47,000
4,370	11/64	80,000	47,000
4,500		80,000	47,000
4,700		80,000	47,000
4,760	3/16	86,000	52,000
4,800		86,000	52,000
4,900		86,000	52,000
4,920		86,000	52,000
4,980		86,000	52,000
5,000		86,000	52,000
5,100		86,000	52,000
5,200		86,000	52,000
5,400		93,000	57,000
5,500		93,000	57,000
5,560	7/32	93,000	57,000
5,700		93,000	57,000
5,900		93,000	57,000
6,000		93,000	57,000
6,100		101,000	63,000
6,200		101,000	63,000
6,300		101,000	63,000

d1 mm	d1 inch	l1 mm	l2 mm
6,350	1/4	101,000	63,000
6,400		101,000	63,000
6,600		101,000	63,000
6,700		101,000	63,000
6,800		109,000	69,000
6,900		109,000	69,000
7,000		109,000	69,000
7,100		109,000	69,000
7,400		109,000	69,000
7,800		117,000	75,000
7,900		117,000	75,000
8,000		117,000	75,000
8,200		117,000	75,000
8,300		117,000	75,000
8,400		117,000	75,000
8,500		117,000	75,000
8,600		125,000	81,000
8,700		125,000	81,000
8,900		125,000	81,000
9,000		125,000	81,000
9,130	23/64	125,000	81,000
9,500		125,000	81,000
9,520	3/8	133,000	87,000
9,900		133,000	87,000
9,920	25/64	133,000	87,000
10,000		133,000	87,000
10,100		133,000	87,000
10,200		133,000	87,000
10,400		133,000	87,000
10,700		142,000	94,000
11,200		142,000	94,000
11,910	15/32	151,000	101,000

Brocas espirales cil., cortas

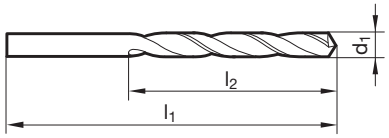
~5xD | DIN 338 | GT 100 | 130° | h8

Material de corte	HSCO
Acabado	A
Dirección de corte	R

P	○	vaciado de punta ≥Ø 3,000 • entrada cónica • acero rápido al cobalto • ranuras amplias • más resistencia al desgaste • ideal para prof. de taladro sup. a 3xD
M		
K	•	
N	○	aceros aleados y no aleados • fundición de dureza sup. a 800 N/mm² • aceros para trab. en frío y en caliente • aceros para rodamientos • aceros altamente aleados • aceros de cementación, de bonificación
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 782



Artículo N° **1223**

d1 mm	inch	l1 mm	l2 mm
3,000		61,000	33,000
3,050		65,000	36,000
3,100		65,000	36,000
3,170	1/8	65,000	36,000
3,200		65,000	36,000
3,300		65,000	36,000
3,500		70,000	39,000
3,600		70,000	39,000
3,700		70,000	39,000
3,800		75,000	43,000
3,860		75,000	43,000
3,900		75,000	43,000
3,970	5/32	75,000	43,000
4,000		75,000	43,000
4,040		75,000	43,000
4,100		75,000	43,000
4,200		75,000	43,000
4,300		80,000	47,000
4,370	11/64	80,000	47,000
4,400		80,000	47,000
4,500		80,000	47,000
4,600		80,000	47,000
4,700		80,000	47,000
4,760	3/16	86,000	52,000
4,800		86,000	52,000
4,900		86,000	52,000
4,920		86,000	52,000
4,980		86,000	52,000
5,000		86,000	52,000
5,100		86,000	52,000
5,160	13/64	86,000	52,000
5,200		86,000	52,000
5,300		86,000	52,000
5,400		93,000	57,000
5,500		93,000	57,000
5,600		93,000	57,000
5,700		93,000	57,000
5,800		93,000	57,000
5,900		93,000	57,000
5,950	15/64	93,000	57,000
6,000		93,000	57,000
6,100		101,000	63,000

d1 mm	inch	l1 mm	l2 mm
6,300		101,000	63,000
6,350	1/4	101,000	63,000
6,400		101,000	63,000
6,500		101,000	63,000
6,600		101,000	63,000
6,700		101,000	63,000
6,900		109,000	69,000
7,000		109,000	69,000
7,100		109,000	69,000
7,200		109,000	69,000
7,300		109,000	69,000
7,400		109,000	69,000
7,500		109,000	69,000
7,600		117,000	75,000
7,700		117,000	75,000
7,800		117,000	75,000
7,900		117,000	75,000
7,940	5/16	117,000	75,000
8,000		117,000	75,000
8,100		117,000	75,000
8,200		117,000	75,000
8,300		117,000	75,000
8,400		117,000	75,000
8,500		117,000	75,000
8,600		125,000	81,000
8,700		125,000	81,000
8,730	11/32	125,000	81,000
8,800		125,000	81,000
9,000		125,000	81,000
9,130	23/64	125,000	81,000
9,200		125,000	81,000
9,500		125,000	81,000
9,520	3/8	133,000	87,000
9,530		133,000	87,000
9,800		133,000	87,000
9,900		133,000	87,000
9,920	25/64	133,000	87,000
10,000		133,000	87,000
10,100		133,000	87,000
10,200		133,000	87,000
10,300		133,000	87,000
10,400		133,000	87,000

d1		l1	l2
mm	inch	mm	mm
10,500		133,000	87,000
10,700		142,000	94,000
10,720	27/64	142,000	94,000
10,800		142,000	94,000
11,000		142,000	94,000
11,110	7/16	142,000	94,000

d1		l1	l2
mm	inch	mm	mm
11,200		142,000	94,000
11,500		142,000	94,000
11,700		142,000	94,000
12,000		151,000	101,000

Brocas espirales cil., cortas

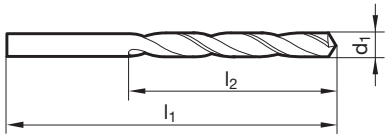
~5xD | DIN 338 | Ti | 130° | h8

Material de corte	HSCO
Acabado	○
Dirección de corte	Ⓡ

P	○	vaciado de punta ≥Ø 0,970 • entrada cónica • acero rápido al cobalto • más resistencia al desgaste
M	•	
K		
N		titanio y aleaciones de titanio • aceros austeníticos inoxidables y resistentes a los ácidos y al calor • aceros de gran resistencia a partir de 900 N/mm² y cifras más elevadas • Hastelloy, Inconel, Nimonic
S	•	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 780



Artículo N° **605**

d1 mm	inch	l1 mm	l2 mm	d1 mm	inch	l1 mm	l2 mm
0,200		19,000	2,500	1,040		34,000	12,000
0,300		19,000	3,000	1,050		34,000	12,000
0,380		19,000	4,000	1,070		36,000	14,000
0,400	1/64	20,000	5,000	1,080		36,000	14,000
0,440		20,000	5,000	1,090		36,000	14,000
0,450		20,000	5,000	1,100		36,000	14,000
0,500		22,000	6,000	1,140		36,000	14,000
0,510		22,000	6,000	1,150		36,000	14,000
0,530		22,000	6,000	1,160		36,000	14,000
0,550		24,000	7,000	1,180		36,000	14,000
0,570		24,000	7,000	1,190	3/64	38,000	16,000
0,580		24,000	7,000	1,200		38,000	16,000
0,600		24,000	7,000	1,210		38,000	16,000
0,610		26,000	8,000	1,220		38,000	16,000
0,640		26,000	8,000	1,230		38,000	16,000
0,650		26,000	8,000	1,250		38,000	16,000
0,700		28,000	9,000	1,290		38,000	16,000
0,710		28,000	9,000	1,300		38,000	16,000
0,720		28,000	9,000	1,320		38,000	16,000
0,750		28,000	9,000	1,350		40,000	18,000
0,760		30,000	10,000	1,400		40,000	18,000
0,790	1/32	30,000	10,000	1,450		40,000	18,000
0,800		30,000	10,000	1,460		40,000	18,000
0,810		30,000	10,000	1,500		40,000	18,000
0,820		30,000	10,000	1,510		43,000	20,000
0,830		30,000	10,000	1,520		43,000	20,000
0,840		30,000	10,000	1,530		43,000	20,000
0,850		30,000	10,000	1,550		43,000	20,000
0,860		32,000	11,000	1,570		43,000	20,000
0,870		32,000	11,000	1,590	1/16	43,000	20,000
0,880		32,000	11,000	1,600		43,000	20,000
0,887		32,000	11,000	1,610		43,000	20,000
0,890		32,000	11,000	1,620		43,000	20,000
0,900		32,000	11,000	1,650		43,000	20,000
0,910		32,000	11,000	1,680		43,000	20,000
0,920		32,000	11,000	1,700		43,000	20,000
0,940		32,000	11,000	1,730		46,000	22,000
0,950		32,000	11,000	1,750		46,000	22,000
0,980		34,000	12,000	1,780		46,000	22,000
0,990		34,000	12,000	1,800		46,000	22,000
1,000		34,000	12,000	1,820		46,000	22,000
1,020		34,000	12,000	1,850		46,000	22,000

d1		l1	l2
mm	inch	mm	mm
1,900		46,000	22,000
1,930		49,000	24,000
1,950		49,000	24,000
1,970		49,000	24,000
1,980	5/64	49,000	24,000
1,990		49,000	24,000
2,000		49,000	24,000
2,020		49,000	24,000
2,030		49,000	24,000
2,050		49,000	24,000
2,080		49,000	24,000
2,100		49,000	24,000
2,120		49,000	24,000
2,150		53,000	27,000
2,180		53,000	27,000
2,200		53,000	27,000
2,250		53,000	27,000
2,260		53,000	27,000
2,300		53,000	27,000
2,320		53,000	27,000
2,350		53,000	27,000
2,370		57,000	30,000
2,380	3/32	57,000	30,000
2,400		57,000	30,000
2,450		57,000	30,000
2,490		57,000	30,000
2,500		57,000	30,000
2,530		57,000	30,000
2,550		57,000	30,000
2,600		57,000	30,000
2,650		57,000	30,000
2,700		61,000	33,000
2,710		61,000	33,000
2,750		61,000	33,000
2,780	7/64	61,000	33,000
2,790		61,000	33,000
2,800		61,000	33,000
2,810		61,000	33,000
2,820		61,000	33,000
2,850		61,000	33,000
2,870		61,000	33,000
2,900		61,000	33,000
2,950		61,000	33,000
3,000		61,000	33,000
3,030		65,000	36,000
3,050		65,000	36,000
3,100		65,000	36,000
3,150		65,000	36,000
3,170	1/8	65,000	36,000
3,200		65,000	36,000
3,250		65,000	36,000
3,260		65,000	36,000
3,300		65,000	36,000
3,350		65,000	36,000
3,400		70,000	39,000
3,450		70,000	39,000
3,500		70,000	39,000
3,550		70,000	39,000
3,570	9/64	70,000	39,000
3,600		70,000	39,000
3,650		70,000	39,000
3,700		70,000	39,000
3,750		70,000	39,000
3,790		75,000	43,000
3,800		75,000	43,000
3,900		75,000	43,000
3,950		75,000	43,000
3,970	5/32	75,000	43,000
3,980		75,000	43,000
4,000		75,000	43,000
4,040		75,000	43,000
4,050		75,000	43,000

d1		l1	l2
mm	inch	mm	mm
4,100		75,000	43,000
4,150		75,000	43,000
4,200		75,000	43,000
4,220		75,000	43,000
4,250		75,000	43,000
4,300		80,000	47,000
4,350		80,000	47,000
4,370	11/64	80,000	47,000
4,400		80,000	47,000
4,450		80,000	47,000
4,500		80,000	47,000
4,570		80,000	47,000
4,600		80,000	47,000
4,650		80,000	47,000
4,700		80,000	47,000
4,750		80,000	47,000
4,760	3/16	86,000	52,000
4,790		86,000	52,000
4,800		86,000	52,000
4,850		86,000	52,000
4,900		86,000	52,000
5,000		86,000	52,000
5,050		86,000	52,000
5,100		86,000	52,000
5,110		86,000	52,000
5,160	13/64	86,000	52,000
5,200		86,000	52,000
5,250		86,000	52,000
5,300		86,000	52,000
5,400		93,000	57,000
5,410		93,000	57,000
5,500		93,000	57,000
5,550		93,000	57,000
5,560	7/32	93,000	57,000
5,600		93,000	57,000
5,610		93,000	57,000
5,700		93,000	57,000
5,750		93,000	57,000
5,800		93,000	57,000
5,900		93,000	57,000
5,950	15/64	93,000	57,000
6,000		93,000	57,000
6,050		101,000	63,000
6,080		101,000	63,000
6,100		101,000	63,000
6,200		101,000	63,000
6,300		101,000	63,000
6,350	1/4	101,000	63,000
6,400		101,000	63,000
6,500		101,000	63,000
6,600		101,000	63,000
6,700		101,000	63,000
6,750	17/64	109,000	69,000
6,800		109,000	69,000
6,900		109,000	69,000
7,000		109,000	69,000
7,100		109,000	69,000
7,140	9/32	109,000	69,000
7,200		109,000	69,000
7,300		109,000	69,000
7,400		109,000	69,000
7,500		109,000	69,000
7,540	19/64	117,000	75,000
7,600		117,000	75,000
7,700		117,000	75,000
7,800		117,000	75,000
7,900		117,000	75,000
7,940	5/16	117,000	75,000
8,000		117,000	75,000
8,100		117,000	75,000
8,200		117,000	75,000
8,300		117,000	75,000

d1		l1	l2
mm	inch	mm	mm
8,330	21/64	117,000	75,000
8,400		117,000	75,000
8,500		117,000	75,000
8,550		125,000	81,000
8,600		125,000	81,000
8,700		125,000	81,000
8,730	11/32	125,000	81,000
8,800		125,000	81,000
8,900		125,000	81,000
9,000		125,000	81,000
9,100		125,000	81,000
9,130	23/64	125,000	81,000
9,200		125,000	81,000
9,300		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,520	3/8	133,000	87,000
9,600		133,000	87,000
9,700		133,000	87,000
9,800		133,000	87,000
9,900		133,000	87,000
9,920	25/64	133,000	87,000
10,000		133,000	87,000
10,100		133,000	87,000
10,200		133,000	87,000
10,300		133,000	87,000
10,320	13/32	133,000	87,000
10,400		133,000	87,000
10,500		133,000	87,000
10,600		133,000	87,000
10,700		142,000	94,000
10,720	27/64	142,000	94,000
10,800		142,000	94,000
11,000		142,000	94,000
11,100		142,000	94,000
11,110	7/16	142,000	94,000

d1		l1	l2
mm	inch	mm	mm
11,200		142,000	94,000
11,300		142,000	94,000
11,500		142,000	94,000
11,510	29/64	142,000	94,000
11,600		142,000	94,000
11,700		142,000	94,000
11,750		142,000	94,000
11,800		142,000	94,000
11,900		151,000	101,000
11,910	15/32	151,000	101,000
12,000		151,000	101,000
12,100		151,000	101,000
12,200		151,000	101,000
12,300	31/64	151,000	101,000
12,500		151,000	101,000
12,700	1/2	151,000	101,000
12,800		151,000	101,000
13,000		151,000	101,000
13,100	33/64	151,000	101,000
13,500		160,000	108,000
13,800		160,000	108,000
13,890	35/64	160,000	108,000
13,970		160,000	108,000
14,000		160,000	108,000
14,290	9/16	169,000	114,000
14,500		169,000	114,000
14,680	37/64	169,000	114,000
15,000		169,000	114,000
15,500		178,000	120,000
16,000		178,000	120,000
16,500		184,000	125,000
17,000		184,000	125,000
17,500		191,000	130,000
18,000		191,000	130,000
19,000		198,000	135,000

Brocas espirales cil., cortas

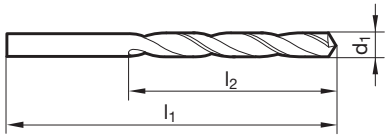
~5xD | DIN 338 | Ti | 130° | h8

Material de corte	HSCO
Acabado	S
Dirección de corte	R

P	○	vaciado de punta ≥Ø 1,000 • entrada cónica • acero rápido al cobalto • más resistencia al desgaste
M	•	
K		
N		titanio y aleaciones de titanio • aceros austeníticos inoxidables y resistentes a los ácidos y al calor • aceros de gran resistencia a partir de 900 N/mm² y cifras más elevadas • Hastelloy, Inconel, Nimonic
S	•	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 782



Artículo N° **657**

d1 mm	inch	l1 mm	l2 mm
0,500		22,000	6,000
0,530		22,000	6,000
0,600		24,000	7,000
0,650		26,000	8,000
0,700		28,000	9,000
0,750		28,000	9,000
0,800		30,000	10,000
0,850		30,000	10,000
0,880		32,000	11,000
0,900		32,000	11,000
0,920		32,000	11,000
0,940		32,000	11,000
0,950		32,000	11,000
1,000		34,000	12,000
1,050		34,000	12,000
1,100		36,000	14,000
1,150		36,000	14,000
1,180		36,000	14,000
1,190	3/64	38,000	16,000
1,200		38,000	16,000
1,210		38,000	16,000
1,250		38,000	16,000
1,300		38,000	16,000
1,320		38,000	16,000
1,350		40,000	18,000
1,390		40,000	18,000
1,400		40,000	18,000
1,450		40,000	18,000
1,500		40,000	18,000
1,510		43,000	20,000
1,520		43,000	20,000
1,550		43,000	20,000
1,590	1/16	43,000	20,000
1,600		43,000	20,000
1,610		43,000	20,000
1,620		43,000	20,000
1,650		43,000	20,000
1,700		43,000	20,000
1,750		46,000	22,000
1,780		46,000	22,000
1,800		46,000	22,000
1,850		46,000	22,000

d1 mm	inch	l1 mm	l2 mm
1,900		46,000	22,000
1,950		49,000	24,000
1,980	5/64	49,000	24,000
2,000		49,000	24,000
2,050		49,000	24,000
2,100		49,000	24,000
2,150		53,000	27,000
2,200		53,000	27,000
2,250		53,000	27,000
2,260		53,000	27,000
2,300		53,000	27,000
2,350		53,000	27,000
2,380	3/32	57,000	30,000
2,400		57,000	30,000
2,440		57,000	30,000
2,500		57,000	30,000
2,530		57,000	30,000
2,550		57,000	30,000
2,600		57,000	30,000
2,700		61,000	33,000
2,750		61,000	33,000
2,780	7/64	61,000	33,000
2,800		61,000	33,000
2,820		61,000	33,000
2,900		61,000	33,000
2,950		61,000	33,000
3,000		61,000	33,000
3,050		65,000	36,000
3,100		65,000	36,000
3,150		65,000	36,000
3,170	1/8	65,000	36,000
3,200		65,000	36,000
3,250		65,000	36,000
3,260		65,000	36,000
3,300		65,000	36,000
3,350		65,000	36,000
3,400		70,000	39,000
3,500		70,000	39,000
3,570	9/64	70,000	39,000
3,600		70,000	39,000
3,650		70,000	39,000
3,700		70,000	39,000

d1		l1	l2
mm	inch	mm	mm
3,750		70,000	39,000
3,800		75,000	43,000
3,900		75,000	43,000
3,970	5/32	75,000	43,000
4,000		75,000	43,000
4,050		75,000	43,000
4,100		75,000	43,000
4,200		75,000	43,000
4,250		75,000	43,000
4,300		80,000	47,000
4,350		80,000	47,000
4,370	11/64	80,000	47,000
4,400		80,000	47,000
4,500		80,000	47,000
4,600		80,000	47,000
4,700		80,000	47,000
4,760	3/16	86,000	52,000
4,800		86,000	52,000
4,900		86,000	52,000
5,000		86,000	52,000
5,050		86,000	52,000
5,100		86,000	52,000
5,110		86,000	52,000
5,160	13/64	86,000	52,000
5,200		86,000	52,000
5,300		86,000	52,000
5,400		93,000	57,000
5,500		93,000	57,000
5,560	7/32	93,000	57,000
5,600		93,000	57,000
5,610		93,000	57,000
5,700		93,000	57,000
5,800		93,000	57,000
5,900		93,000	57,000
5,950	15/64	93,000	57,000
6,000		93,000	57,000
6,100		101,000	63,000
6,200		101,000	63,000
6,300		101,000	63,000
6,350	1/4	101,000	63,000
6,400		101,000	63,000
6,500		101,000	63,000
6,600		101,000	63,000
6,700		101,000	63,000
6,750	17/64	109,000	69,000
6,800		109,000	69,000
6,900		109,000	69,000
7,000		109,000	69,000
7,100		109,000	69,000
7,140	9/32	109,000	69,000
7,200		109,000	69,000
7,300		109,000	69,000
7,400		109,000	69,000
7,500		109,000	69,000

d1		l1	l2
mm	inch	mm	mm
7,540	19/64	117,000	75,000
7,600		117,000	75,000
7,700		117,000	75,000
7,800		117,000	75,000
7,900		117,000	75,000
7,940	5/16	117,000	75,000
8,000		117,000	75,000
8,100		117,000	75,000
8,200		117,000	75,000
8,300		117,000	75,000
8,400		117,000	75,000
8,500		117,000	75,000
8,550		125,000	81,000
8,600		125,000	81,000
8,700		125,000	81,000
8,730	11/32	125,000	81,000
8,800		125,000	81,000
8,900		125,000	81,000
9,000		125,000	81,000
9,100		125,000	81,000
9,200		125,000	81,000
9,300		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,520	3/8	133,000	87,000
9,600		133,000	87,000
9,700		133,000	87,000
9,800		133,000	87,000
9,900		133,000	87,000
10,000		133,000	87,000
10,100		133,000	87,000
10,200		133,000	87,000
10,300		133,000	87,000
10,320	13/32	133,000	87,000
10,400		133,000	87,000
10,500		133,000	87,000
10,800		142,000	94,000
11,000		142,000	94,000
11,110	7/16	142,000	94,000
11,200		142,000	94,000
11,500		142,000	94,000
11,910	15/32	151,000	101,000
12,000		151,000	101,000
12,100		151,000	101,000
12,300	31/64	151,000	101,000
12,500		151,000	101,000
12,700	1/2	151,000	101,000
13,000		151,000	101,000
13,500		160,000	108,000
14,000		160,000	108,000
14,500		169,000	114,000

Brocas espirales cil., cortas

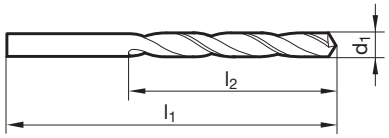
~5xD | DIN 338 | Ti | 130° | h8

Material de corte	HSCO
Acabado	F
Dirección de corte	R

P	○	vaciado de punta ≥Ø 1,000 • entrada cónica • acero rápido al cobalto • más resistencia al desgaste
M	•	
K		
N		titanio y aleaciones de titanio • aceros austeníticos inoxidables y resistentes a los ácidos y al calor • aceros de gran resistencia a partir de 900 N/mm² y cifras más elevadas • Hastelloy, Inconel, Nimonic
S	•	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 782



Artículo N° **2458**

d1		l1	l2
mm	inch	mm	mm
0,400	1/64	20,000	5,000
0,810		30,000	10,000
1,000		34,000	12,000
1,100		36,000	14,000
1,190	3/64	38,000	16,000
1,200		38,000	16,000
1,300		38,000	16,000
1,400		40,000	18,000
1,500		40,000	18,000
1,530		43,000	20,000
1,590	1/16	43,000	20,000
1,600		43,000	20,000
1,650		43,000	20,000
1,700		43,000	20,000
1,800		46,000	22,000
1,900		46,000	22,000
1,980	5/64	49,000	24,000
2,000		49,000	24,000
2,050		49,000	24,000
2,100		49,000	24,000
2,200		53,000	27,000
2,300		53,000	27,000
2,370		57,000	30,000
2,380	3/32	57,000	30,000
2,400		57,000	30,000
2,500		57,000	30,000
2,600		57,000	30,000
2,700		61,000	33,000
2,750		61,000	33,000
2,780	7/64	61,000	33,000
2,800		61,000	33,000
2,900		61,000	33,000
3,000		61,000	33,000
3,100		65,000	36,000
3,170	1/8	65,000	36,000
3,200		65,000	36,000
3,300		65,000	36,000
3,400		70,000	39,000
3,500		70,000	39,000
3,570	9/64	70,000	39,000
3,600		70,000	39,000
3,700		70,000	39,000

d1		l1	l2
mm	inch	mm	mm
3,800		75,000	43,000
3,900		75,000	43,000
3,970	5/32	75,000	43,000
4,000		75,000	43,000
4,100		75,000	43,000
4,150		75,000	43,000
4,200		75,000	43,000
4,220		75,000	43,000
4,300		80,000	47,000
4,370	11/64	80,000	47,000
4,400		80,000	47,000
4,500		80,000	47,000
4,600		80,000	47,000
4,700		80,000	47,000
4,760	3/16	86,000	52,000
4,800		86,000	52,000
4,900		86,000	52,000
5,000		86,000	52,000
5,050		86,000	52,000
5,100		86,000	52,000
5,160	13/64	86,000	52,000
5,200		86,000	52,000
5,300		86,000	52,000
5,400		93,000	57,000
5,500		93,000	57,000
5,560	7/32	93,000	57,000
5,600		93,000	57,000
5,700		93,000	57,000
5,800		93,000	57,000
5,900		93,000	57,000
5,950	15/64	93,000	57,000
6,000		93,000	57,000
6,100		101,000	63,000
6,200		101,000	63,000
6,300		101,000	63,000
6,350	1/4	101,000	63,000
6,400		101,000	63,000
6,500		101,000	63,000
6,600		101,000	63,000
6,700		101,000	63,000
6,750	17/64	109,000	69,000
6,800		109,000	69,000

d1		l1	l2
mm	inch	mm	mm
6,900		109,000	69,000
7,000		109,000	69,000
7,140	9/32	109,000	69,000
7,400		109,000	69,000
7,500		109,000	69,000
7,540	19/64	117,000	75,000
7,600		117,000	75,000
7,800		117,000	75,000
7,900		117,000	75,000
7,940	5/16	117,000	75,000
8,000		117,000	75,000
8,100		117,000	75,000
8,200		117,000	75,000
8,300		117,000	75,000
8,330	21/64	117,000	75,000
8,400		117,000	75,000
8,500		117,000	75,000
8,600		125,000	81,000
8,700		125,000	81,000
8,730	11/32	125,000	81,000
8,800		125,000	81,000
9,000		125,000	81,000
9,130	23/64	125,000	81,000
9,200		125,000	81,000
9,300		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,520	3/8	133,000	87,000
9,600		133,000	87,000
9,700		133,000	87,000

d1		l1	l2
mm	inch	mm	mm
9,800		133,000	87,000
9,920	25/64	133,000	87,000
10,000		133,000	87,000
10,100		133,000	87,000
10,200		133,000	87,000
10,300		133,000	87,000
10,320	13/32	133,000	87,000
10,400		133,000	87,000
10,500		133,000	87,000
10,720	27/64	142,000	94,000
11,000		142,000	94,000
11,110	7/16	142,000	94,000
11,500		142,000	94,000
11,510	29/64	142,000	94,000
11,910	15/32	151,000	101,000
12,000		151,000	101,000
12,300	31/64	151,000	101,000
12,500		151,000	101,000
12,700	1/2	151,000	101,000
13,000		151,000	101,000
13,100	33/64	151,000	101,000
13,490	17/32	160,000	108,000
14,000		160,000	108,000
14,290	9/16	169,000	114,000
14,500		169,000	114,000
15,000		169,000	114,000

Brocas espirales cil., cortas

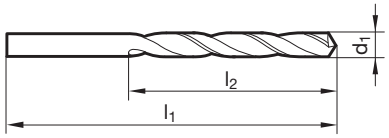
~5xD | DIN 338 | Ti | 130° | h8

Material de corte	HSCO
Acabado	○
Dirección de corte	L

P	○	vaciado de punta ≥Ø 1,000 • entrada cónica • acero rápido al cobalto • resistencia más alta al desgaste
M	•	
K		
N		titanio y aleaciones de titanio • aceros austeníticos inoxidables y resistentes a los ácidos y al calor • aceros de gran resistencia a partir de 900 N/mm² y cifras más elevadas • Hastelloy, Inconel, Nimonic
S	•	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 780



Artículo N° **608**

d1 mm	d1 inch	l1 mm	l2 mm
1,300		38,000	16,000
1,320		38,000	16,000
1,350		40,000	18,000
1,400		40,000	18,000
1,600		43,000	20,000
1,620		43,000	20,000
1,640		43,000	20,000
1,700		43,000	20,000
1,800		46,000	22,000
1,900		46,000	22,000
1,950		49,000	24,000
2,000		49,000	24,000
2,150		53,000	27,000
2,400		57,000	30,000
2,500		57,000	30,000
2,600		57,000	30,000
2,750		61,000	33,000
2,800		61,000	33,000
3,000		61,000	33,000
3,300		65,000	36,000
3,320		65,000	36,000
3,400		70,000	39,000
3,500		70,000	39,000
3,550		70,000	39,000
3,600		70,000	39,000
3,650		70,000	39,000
3,700		70,000	39,000
3,900		75,000	43,000
4,000		75,000	43,000
4,250		75,000	43,000
4,300		80,000	47,000
4,400		80,000	47,000
4,500		80,000	47,000
4,700		80,000	47,000
4,800		86,000	52,000
4,900		86,000	52,000

d1 mm	d1 inch	l1 mm	l2 mm
4,920		86,000	52,000
5,000		86,000	52,000
5,200		86,000	52,000
5,400		93,000	57,000
5,450		93,000	57,000
5,580		93,000	57,000
5,600		93,000	57,000
5,700		93,000	57,000
5,800		93,000	57,000
5,900		93,000	57,000
6,000		93,000	57,000
6,300		101,000	63,000
6,600		101,000	63,000
6,900		109,000	69,000
7,000		109,000	69,000
7,100		109,000	69,000
7,300		109,000	69,000
7,400		109,000	69,000
7,500		109,000	69,000
7,600		117,000	75,000
7,700		117,000	75,000
7,800		117,000	75,000
7,900		117,000	75,000
8,100		117,000	75,000
8,400		117,000	75,000
8,750		125,000	81,000
8,800		125,000	81,000
9,100		125,000	81,000
9,200		125,000	81,000
9,300		125,000	81,000
9,500		125,000	81,000

Brocas espirales cil., cortas

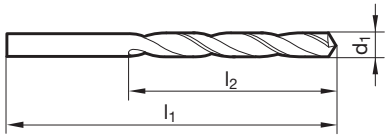
~5xD | DIN 338 | VA | 130° | h8

Material de corte	HSCO
Acabado	○
Dirección de corte	Ⓡ

P	○	entrada cónica • acero rápido al cobalto • más resistencia al desgaste
M	•	
K		
N	○	aceros austeníticos inoxidables y resistentes a los ácidos y al calor (V2A y V4A)
S	○	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 780



Artículo N° **1260**

d1 mm	inch	l1 mm	l2 mm
1,000		34,000	12,000
1,100		36,000	14,000
1,200		38,000	16,000
1,300		38,000	16,000
1,400		40,000	18,000
1,500		40,000	18,000
1,600		43,000	20,000
1,700		43,000	20,000
1,800		46,000	22,000
1,900		46,000	22,000
2,000		49,000	24,000
2,100		49,000	24,000
2,200		53,000	27,000
2,300		53,000	27,000
2,400		57,000	30,000
2,500		57,000	30,000
2,600		57,000	30,000
2,700		61,000	33,000
2,800		61,000	33,000
2,900		61,000	33,000
3,000		61,000	33,000
3,100		65,000	36,000
3,200		65,000	36,000
3,300		65,000	36,000
3,400		70,000	39,000
3,500		70,000	39,000
3,570	9/64	70,000	39,000
3,600		70,000	39,000
3,700		70,000	39,000
3,800		75,000	43,000
3,900		75,000	43,000
4,000		75,000	43,000
4,100		75,000	43,000
4,200		75,000	43,000
4,300		80,000	47,000
4,400		80,000	47,000
4,500		80,000	47,000
4,600		80,000	47,000
4,700		80,000	47,000
4,800		86,000	52,000
4,900		86,000	52,000
5,000		86,000	52,000

d1 mm	inch	l1 mm	l2 mm
5,100		86,000	52,000
5,200		86,000	52,000
5,300		86,000	52,000
5,400		93,000	57,000
5,500		93,000	57,000
5,600		93,000	57,000
5,700		93,000	57,000
5,800		93,000	57,000
5,900		93,000	57,000
6,000		93,000	57,000
6,100		101,000	63,000
6,200		101,000	63,000
6,300		101,000	63,000
6,400		101,000	63,000
6,500		101,000	63,000
6,600		101,000	63,000
6,700		101,000	63,000
6,800		109,000	69,000
6,900		109,000	69,000
7,000		109,000	69,000
7,100		109,000	69,000
7,200		109,000	69,000
7,300		109,000	69,000
7,400		109,000	69,000
7,500		109,000	69,000
7,700		117,000	75,000
7,800		117,000	75,000
7,900		117,000	75,000
8,000		117,000	75,000
8,100		117,000	75,000
8,200		117,000	75,000
8,300		117,000	75,000
8,400		117,000	75,000
8,500		117,000	75,000
8,600		125,000	81,000
8,700		125,000	81,000
8,800		125,000	81,000
8,900		125,000	81,000
9,000		125,000	81,000
9,100		125,000	81,000
9,200		125,000	81,000
9,400		125,000	81,000

d1		l1	l2
mm	inch	mm	mm
9,500		125,000	81,000
9,600		133,000	87,000
9,700		133,000	87,000
9,800		133,000	87,000
9,920	25/64	133,000	87,000
10,000		133,000	87,000
10,100		133,000	87,000
10,200		133,000	87,000
10,300		133,000	87,000
10,500		133,000	87,000
10,600		133,000	87,000
10,800		142,000	94,000

d1		l1	l2
mm	inch	mm	mm
11,000		142,000	94,000
11,200		142,000	94,000
11,500		142,000	94,000
11,800		142,000	94,000
11,900		151,000	101,000
12,000		151,000	101,000
12,500		151,000	101,000
13,000		151,000	101,000

Brocas espirales cil., cortas

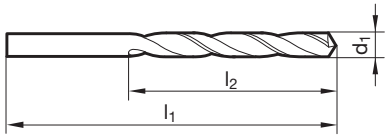
~5xD | DIN 338 | P2000 | 118° | h8

Material de corte	HSCO
Acabado	
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,000 • entrada cónica • aplicación universal con afilado de leva • acero rápido al cobalto • más resistencia al desgaste
M	○	
K	○	
N	○	aceros de hasta 1000 N/mm² • aleaciones de AlSi
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 784



Artículo N° **2047**

d1 mm	d1 inch	l1 mm	l2 mm	d1 mm	d1 inch	l1 mm	l2 mm
1,000		34,000	12,000	5,200		86,000	52,000
1,100		36,000	14,000	5,300		86,000	52,000
1,200		38,000	16,000	5,400		93,000	57,000
1,300		38,000	16,000	5,500		93,000	57,000
1,400		40,000	18,000	5,600		93,000	57,000
1,500		40,000	18,000	5,700		93,000	57,000
1,600		43,000	20,000	5,800		93,000	57,000
1,700		43,000	20,000	5,900		93,000	57,000
1,800		46,000	22,000	6,000		93,000	57,000
1,900		46,000	22,000	6,100		101,000	63,000
2,000		49,000	24,000	6,200		101,000	63,000
2,100		49,000	24,000	6,300		101,000	63,000
2,200		53,000	27,000	6,400		101,000	63,000
2,300		53,000	27,000	6,500		101,000	63,000
2,400		57,000	30,000	6,600		101,000	63,000
2,500		57,000	30,000	6,700		101,000	63,000
2,600		57,000	30,000	6,800		109,000	69,000
2,700		61,000	33,000	6,900		109,000	69,000
2,800		61,000	33,000	7,000		109,000	69,000
2,900		61,000	33,000	7,100		109,000	69,000
3,000		61,000	33,000	7,200		109,000	69,000
3,100		65,000	36,000	7,300		109,000	69,000
3,200		65,000	36,000	7,400		109,000	69,000
3,300		65,000	36,000	7,500		109,000	69,000
3,400		70,000	39,000	7,600		117,000	75,000
3,500		70,000	39,000	7,700		117,000	75,000
3,600		70,000	39,000	7,800		117,000	75,000
3,700		70,000	39,000	7,900		117,000	75,000
3,800		75,000	43,000	8,000		117,000	75,000
3,900		75,000	43,000	8,100		117,000	75,000
4,000		75,000	43,000	8,200		117,000	75,000
4,100		75,000	43,000	8,300		117,000	75,000
4,200		75,000	43,000	8,400		117,000	75,000
4,300		80,000	47,000	8,500		117,000	75,000
4,400		80,000	47,000	8,600		125,000	81,000
4,500		80,000	47,000	8,700		125,000	81,000
4,600		80,000	47,000	8,800		125,000	81,000
4,700		80,000	47,000	8,900		125,000	81,000
4,800		86,000	52,000	9,000		125,000	81,000
4,900		86,000	52,000	9,100		125,000	81,000
5,000		86,000	52,000	9,200		125,000	81,000
5,100		86,000	52,000	9,300		125,000	81,000

d1		l1	l2
mm	inch	mm	mm
9,400		125,000	81,000
9,500		125,000	81,000
9,600		133,000	87,000
9,700		133,000	87,000
9,800		133,000	87,000
9,900		133,000	87,000
10,000		133,000	87,000
10,200		133,000	87,000
10,500		133,000	87,000
11,000		142,000	94,000
11,500		142,000	94,000
12,000		151,000	101,000

d1		l1	l2
mm	inch	mm	mm
12,500		151,000	101,000
13,000		151,000	101,000

Brocas espiralizadas AeroX con afilado en cruz

~5xD | DIN 338 | AeroX | 135° | h8

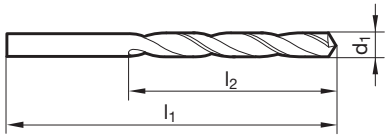
Material de corte	M42
Acabado	
Dirección de corte	R

NEW

P	•	vaciado de punta ≥Ø 1,000 • afilado en cruz optimizado • acero rápido HSCO con un 8% de cobalto para más vida útil, dureza y resistencia térmica
M	•	
K	•	
N	•	aceros sin alear y aleados • fundición • metales no ferríticos • titanio y aleaciones de titanio
S	•	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 784



Artículo N° **1018**

d1 mm	inch	l1 mm	l2 mm
1,000		34,000	12,000
1,100		36,000	14,000
1,200		38,000	16,000
1,300		38,000	16,000
1,400		40,000	18,000
1,500		40,000	18,000
1,590	1/16	43,000	20,000
1,600		43,000	20,000
1,700		43,000	20,000
1,800		46,000	22,000
1,900		46,000	22,000
1,980	5/64	49,000	24,000
2,000		49,000	24,000
2,100		49,000	24,000
2,200		53,000	27,000
2,300		53,000	27,000
2,380	3/32	57,000	30,000
2,400		57,000	30,000
2,500		57,000	30,000
2,600		57,000	30,000
2,700		61,000	33,000
2,780	7/64	61,000	33,000
2,800		61,000	33,000
2,900		61,000	33,000
3,000		61,000	33,000
3,100		65,000	36,000
3,170	1/8	65,000	36,000
3,200		65,000	36,000
3,250		65,000	36,000
3,300		65,000	36,000
3,400		70,000	39,000
3,500		70,000	39,000
3,570	9/64	70,000	39,000
3,600		70,000	39,000
3,700		70,000	39,000
3,800		75,000	43,000
3,900		75,000	43,000
3,970	5/32	75,000	43,000
4,000		75,000	43,000
4,100		75,000	43,000
4,200		75,000	43,000
4,300		80,000	47,000

d1 mm	inch	l1 mm	l2 mm
4,400		80,000	47,000
4,500		80,000	47,000
4,600		80,000	47,000
4,700		80,000	47,000
4,760	3/16	86,000	52,000
4,800		86,000	52,000
4,900		86,000	52,000
5,000		86,000	52,000
5,100		86,000	52,000
5,160	13/64	86,000	52,000
5,200		86,000	52,000
5,300		86,000	52,000
5,400		93,000	57,000
5,500		93,000	57,000
5,560	7/32	93,000	57,000
5,600		93,000	57,000
5,700		93,000	57,000
5,800		93,000	57,000
5,900		93,000	57,000
5,950	15/64	93,000	57,000
6,000		93,000	57,000
6,100		101,000	63,000
6,200		101,000	63,000
6,300		101,000	63,000
6,350	1/4	101,000	63,000
6,400		101,000	63,000
6,500		101,000	63,000
6,600		101,000	63,000
6,700		101,000	63,000
6,800		109,000	69,000
6,900		109,000	69,000
7,000		109,000	69,000
7,100		109,000	69,000
7,140	9/32	109,000	69,000
7,200		109,000	69,000
7,300		109,000	69,000
7,400		109,000	69,000
7,500		109,000	69,000
7,540	19/64	117,000	75,000
7,600		117,000	75,000
7,700		117,000	75,000
7,800		117,000	75,000

d1		l1	l2
mm	inch	mm	mm
7,900		117,000	75,000
7,940	5/16	117,000	75,000
8,000		117,000	75,000
8,100		117,000	75,000
8,200		117,000	75,000
8,300		117,000	75,000
8,330	21/64	117,000	75,000
8,400		117,000	75,000
8,500		117,000	75,000
8,600		125,000	81,000
8,700		125,000	81,000
8,730	11/32	125,000	81,000
8,800		125,000	81,000
8,900		125,000	81,000
9,000		125,000	81,000
9,100		125,000	81,000
9,130	23/64	125,000	81,000
9,200		125,000	81,000
9,300		125,000	81,000
9,500		125,000	81,000
9,520	3/8	133,000	87,000
9,600		133,000	87,000
9,700		133,000	87,000
9,800		133,000	87,000

d1		l1	l2
mm	inch	mm	mm
9,900		133,000	87,000
9,920	25/64	133,000	87,000
10,000		133,000	87,000
10,100		133,000	87,000
10,200		133,000	87,000
10,300		133,000	87,000
10,320	13/32	133,000	87,000
10,500		133,000	87,000
10,720	27/64	142,000	94,000
10,800		142,000	94,000
11,000		142,000	94,000
11,110	7/16	142,000	94,000
11,500		142,000	94,000
11,510	29/64	142,000	94,000
11,910	15/32	151,000	101,000
12,000		151,000	101,000
12,200		151,000	101,000
12,300	31/64	151,000	101,000
12,500		151,000	101,000
12,700	1/2	151,000	101,000
12,800		151,000	101,000
13,000		151,000	101,000

Brocas espirales cil., cortas

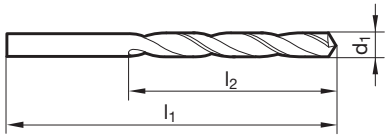
~5xD | DIN 338 | N | 135° | h8

Material de corte	M42
Acabado	○
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,000 • entrada cónica • acero altamente aleado CoMo • alta resistencia al desgaste
M	○	
K	○	
N	•	aleación dura o muy dura con una base de CrNi • Hastelloy, Inconel, Nimonic • aceros inoxidables y resistentes al ácido y al calor • chapas resistentes al desgaste • aceros o bronces con una resistencia de hasta 1400 N/mm²
S	•	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 780



Artículo N° **1146**

d1 mm	d1 inch	l1 mm	l2 mm	d1 mm	d1 inch	l1 mm	l2 mm
0,400	1/64	20,000	5,000	4,200		75,000	43,000
0,500		22,000	6,000	4,300		80,000	47,000
0,800		30,000	10,000	4,400		80,000	47,000
0,900		32,000	11,000	4,500		80,000	47,000
1,000		34,000	12,000	4,600		80,000	47,000
1,100		36,000	14,000	4,700		80,000	47,000
1,200		38,000	16,000	4,760	3/16	86,000	52,000
1,300		38,000	16,000	4,800		86,000	52,000
1,400		40,000	18,000	4,900		86,000	52,000
1,500		40,000	18,000	5,000		86,000	52,000
1,590	1/16	43,000	20,000	5,100		86,000	52,000
1,600		43,000	20,000	5,200		86,000	52,000
1,700		43,000	20,000	5,300		86,000	52,000
1,800		46,000	22,000	5,400		93,000	57,000
1,900		46,000	22,000	5,500		93,000	57,000
1,980	5/64	49,000	24,000	5,600		93,000	57,000
2,000		49,000	24,000	5,700		93,000	57,000
2,100		49,000	24,000	5,800		93,000	57,000
2,200		53,000	27,000	5,900		93,000	57,000
2,300		53,000	27,000	5,950	15/64	93,000	57,000
2,380	3/32	57,000	30,000	6,000		93,000	57,000
2,400		57,000	30,000	6,100		101,000	63,000
2,500		57,000	30,000	6,200		101,000	63,000
2,600		57,000	30,000	6,300		101,000	63,000
2,700		61,000	33,000	6,350	1/4	101,000	63,000
2,780	7/64	61,000	33,000	6,400		101,000	63,000
2,800		61,000	33,000	6,500		101,000	63,000
2,900		61,000	33,000	6,600		101,000	63,000
3,000		61,000	33,000	6,700		101,000	63,000
3,100		65,000	36,000	6,750	17/64	109,000	69,000
3,170	1/8	65,000	36,000	6,800		109,000	69,000
3,200		65,000	36,000	6,900		109,000	69,000
3,300		65,000	36,000	7,000		109,000	69,000
3,400		70,000	39,000	7,100		109,000	69,000
3,500		70,000	39,000	7,200		109,000	69,000
3,600		70,000	39,000	7,300		109,000	69,000
3,700		70,000	39,000	7,400		109,000	69,000
3,800		75,000	43,000	7,500		109,000	69,000
3,900		75,000	43,000	7,540	19/64	117,000	75,000
3,970	5/32	75,000	43,000	7,600		117,000	75,000
4,000		75,000	43,000	7,700		117,000	75,000
4,100		75,000	43,000	7,800		117,000	75,000

d1		l1	l2
mm	inch	mm	mm
7,900		117,000	75,000
8,000		117,000	75,000
8,100		117,000	75,000
8,200		117,000	75,000
8,300		117,000	75,000
8,330	21/64	117,000	75,000
8,400		117,000	75,000
8,500		117,000	75,000
8,600		125,000	81,000
8,700		125,000	81,000
8,730	11/32	125,000	81,000
8,800		125,000	81,000
8,900		125,000	81,000
9,000		125,000	81,000
9,100		125,000	81,000
9,130	23/64	125,000	81,000
9,200		125,000	81,000
9,300		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,600		133,000	87,000
9,700		133,000	87,000
9,800		133,000	87,000
9,900		133,000	87,000

d1		l1	l2
mm	inch	mm	mm
9,920	25/64	133,000	87,000
10,000		133,000	87,000
10,200		133,000	87,000
10,500		133,000	87,000
11,000		142,000	94,000
11,500		142,000	94,000
11,510	29/64	142,000	94,000
11,910	15/32	151,000	101,000
12,000		151,000	101,000
12,300	31/64	151,000	101,000
12,500		151,000	101,000
13,000		151,000	101,000
13,100	33/64	151,000	101,000
13,500		160,000	108,000
14,000		160,000	108,000
15,000		169,000	114,000
15,870	5/8	178,000	120,000
16,000		178,000	120,000

Brocas espirales cil., cortas

~5xD | DIN 338 | N | 135° | h8

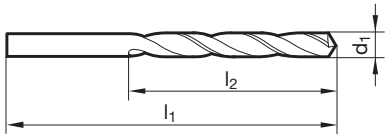
Material de corte	M42
Acabado	F
Dirección de corte	R

NEW

P	•	vaciado de punta ≥Ø 1,000 • afilado en cruz optimizado • acero rápido HSCO con un 8% de cobalto • alta resistencia al desgaste
M	•	
K	•	
N	○	aleación dura o muy dura con una base de CrNi • Hastelloy, Inconel, Nimonic • aceros inoxidables y resistentes al ácido y al calor • chapas resistentes al desgaste • aceros o bronces con una resistencia de hasta 1400 N/mm²
S	•	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 784



Artículo Nº **1199**

d1 mm	inch	l1 mm	l2 mm	d1 mm	inch	l1 mm	l2 mm
1,000		34,000	12,000	4,760	3/16	86,000	52,000
1,100		36,000	14,000	4,800		86,000	52,000
1,200		38,000	16,000	4,900		86,000	52,000
1,300		38,000	16,000	5,000		86,000	52,000
1,400		40,000	18,000	5,100		86,000	52,000
1,500		40,000	18,000	5,160	13/64	86,000	52,000
1,590	1/16	43,000	20,000	5,200		86,000	52,000
1,600		43,000	20,000	5,300		86,000	52,000
1,700		43,000	20,000	5,400		93,000	57,000
1,800		46,000	22,000	5,500		93,000	57,000
1,900		46,000	22,000	5,600		93,000	57,000
2,000		49,000	24,000	5,700		93,000	57,000
2,100		49,000	24,000	5,800		93,000	57,000
2,200		53,000	27,000	5,900		93,000	57,000
2,300		53,000	27,000	5,950	15/64	93,000	57,000
2,380	3/32	57,000	30,000	6,000		93,000	57,000
2,400		57,000	30,000	6,100		101,000	63,000
2,500		57,000	30,000	6,200		101,000	63,000
2,600		57,000	30,000	6,300		101,000	63,000
2,700		61,000	33,000	6,350	1/4	101,000	63,000
2,800		61,000	33,000	6,400		101,000	63,000
2,900		61,000	33,000	6,500		101,000	63,000
3,000		61,000	33,000	6,600		101,000	63,000
3,100		65,000	36,000	6,700		101,000	63,000
3,170	1/8	65,000	36,000	6,750	17/64	109,000	69,000
3,200		65,000	36,000	6,800		109,000	69,000
3,300		65,000	36,000	6,900		109,000	69,000
3,400		70,000	39,000	7,000		109,000	69,000
3,500		70,000	39,000	7,100		109,000	69,000
3,600		70,000	39,000	7,200		109,000	69,000
3,700		70,000	39,000	7,300		109,000	69,000
3,800		75,000	43,000	7,400		109,000	69,000
3,900		75,000	43,000	7,500		109,000	69,000
3,970	5/32	75,000	43,000	7,600		117,000	75,000
4,000		75,000	43,000	7,700		117,000	75,000
4,100		75,000	43,000	7,800		117,000	75,000
4,200		75,000	43,000	7,900		117,000	75,000
4,300		80,000	47,000	8,000		117,000	75,000
4,400		80,000	47,000	8,100		117,000	75,000
4,500		80,000	47,000	8,200		117,000	75,000
4,600		80,000	47,000	8,300		117,000	75,000
4,700		80,000	47,000	8,400		117,000	75,000

d1		l1	l2
mm	inch	mm	mm
8,500		117,000	75,000
8,600		125,000	81,000
8,700		125,000	81,000
8,730		125,000	81,000
8,800		125,000	81,000
8,900		125,000	81,000
9,000		125,000	81,000
9,100		125,000	81,000
9,200		125,000	81,000
9,300		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,600		133,000	87,000
9,700		133,000	87,000
9,800		133,000	87,000
9,900		133,000	87,000
9,920	25/64	133,000	87,000
10,000		133,000	87,000

d1		l1	l2
mm	inch	mm	mm
10,100		133,000	87,000
10,200		133,000	87,000
10,500		133,000	87,000
10,800		142,000	94,000
11,000		142,000	94,000
11,200		142,000	94,000
11,500		142,000	94,000
11,800		142,000	94,000
11,910	15/32	151,000	101,000
12,000		151,000	101,000
12,200		151,000	101,000
12,500		151,000	101,000
13,000		151,000	101,000
14,000		160,000	108,000
15,000		169,000	114,000
16,000		178,000	120,000

Brocas espirales cil., cortas

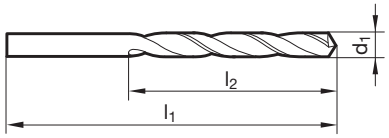
~5xD | WN | N | 118° | h7

Material de corte	**Metal duro**
Acabado	○
Dirección de corte	R

P	○	vaciado de punta ≥Ø 2,060 • afilado plano • forma recta del corte principal
M	○	
K	○	
N	•	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • fundición gris • bronce, latón • aluminio y sus aleaciones • magnesio y sus aleaciones • plásticos y plásticos con refuerzo de fibras
S	○	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 784



Artículo N° **732**

d1 mm	inch	l1 mm	l2 mm
1,000		34,000	12,000
1,020		34,000	12,000
1,040		34,000	12,000
1,070		36,000	14,000
1,090		36,000	14,000
1,100		36,000	14,000
1,180		36,000	14,000
1,190	3/64	38,000	16,000
1,200		38,000	16,000
1,300		38,000	16,000
1,320		38,000	16,000
1,400		40,000	18,000
1,500		40,000	18,000
1,510		43,000	20,000
1,590	1/16	43,000	20,000
1,600		43,000	20,000
1,610		43,000	20,000
1,700		43,000	20,000
1,780		46,000	22,000
1,800		46,000	22,000
1,850		46,000	22,000
1,900		46,000	22,000
1,930		49,000	24,000
1,980	5/64	49,000	24,000
1,990		49,000	24,000
2,000		49,000	24,000
2,060		49,000	24,000
2,080		49,000	24,000
2,100		49,000	24,000
2,180		53,000	27,000
2,200		53,000	27,000
2,260		53,000	27,000
2,300		53,000	27,000
2,370		57,000	30,000
2,380	3/32	57,000	30,000
2,400		57,000	30,000
2,440		57,000	30,000
2,490		57,000	30,000
2,500		57,000	30,000
2,530		57,000	30,000
2,580		57,000	30,000
2,600		57,000	30,000

d1 mm	inch	l1 mm	l2 mm
2,640		57,000	30,000
2,700		61,000	33,000
2,710		61,000	33,000
2,780	7/64	61,000	33,000
2,790		61,000	33,000
2,800		61,000	33,000
2,820		61,000	33,000
2,870		61,000	33,000
2,900		61,000	33,000
2,950		61,000	33,000
3,000		61,000	33,000
3,050		65,000	36,000
3,100		65,000	36,000
3,170	1/8	65,000	36,000
3,200		65,000	36,000
3,260		65,000	36,000
3,300		65,000	36,000
3,400		70,000	39,000
3,450		70,000	39,000
3,500		70,000	39,000
3,570	9/64	70,000	39,000
3,600		70,000	39,000
3,660		70,000	39,000
3,700		70,000	39,000
3,730		70,000	39,000
3,800		75,000	43,000
3,860		75,000	43,000
3,900		75,000	43,000
3,910		75,000	43,000
3,970	5/32	75,000	43,000
3,990		75,000	43,000
4,000		75,000	43,000
4,040		75,000	43,000
4,090		75,000	43,000
4,100		75,000	43,000
4,200		75,000	43,000
4,220		75,000	43,000
4,300		80,000	47,000
4,370	11/64	80,000	47,000
4,390		80,000	47,000
4,400		80,000	47,000
4,500		80,000	47,000

d1		l1	l2
mm	inch	mm	mm
4,570		80,000	47,000
4,600		80,000	47,000
4,620		80,000	47,000
4,700		80,000	47,000
4,760	3/16	86,000	52,000
4,800		86,000	52,000
4,850		86,000	52,000
4,900		86,000	52,000
4,920		86,000	52,000
4,980		86,000	52,000
5,000		86,000	52,000
5,060		86,000	52,000
5,100		86,000	52,000
5,110		86,000	52,000
5,160	13/64	86,000	52,000
5,180		86,000	52,000
5,200		86,000	52,000
5,220		86,000	52,000
5,300		86,000	52,000
5,310		93,000	57,000
5,400		93,000	57,000
5,410		93,000	57,000
5,500		93,000	57,000
5,560	7/32	93,000	57,000
5,600		93,000	57,000
5,610		93,000	57,000
5,700		93,000	57,000
5,790		93,000	57,000
5,800		93,000	57,000
5,900		93,000	57,000
5,940		93,000	57,000
5,950	15/64	93,000	57,000
6,000		93,000	57,000
6,040		101,000	63,000
6,100		101,000	63,000
6,150		101,000	63,000
6,200		101,000	63,000
6,250		101,000	63,000
6,300		101,000	63,000
6,350	1/4	101,000	63,000
6,400		101,000	63,000
6,500		101,000	63,000
6,530		101,000	63,000
6,600		101,000	63,000
6,630		101,000	63,000
6,700		101,000	63,000
6,750	17/64	109,000	69,000
6,800		109,000	69,000
6,900		109,000	69,000
7,000		109,000	69,000
7,030		109,000	69,000
7,100		109,000	69,000
7,140	9/32	109,000	69,000
7,200		109,000	69,000
7,300		109,000	69,000
7,370		109,000	69,000
7,400		109,000	69,000
7,490		109,000	69,000
7,500		109,000	69,000
7,540	19/64	117,000	75,000

d1		l1	l2
mm	inch	mm	mm
7,600		117,000	75,000
7,670		117,000	75,000
7,700		117,000	75,000
7,800		117,000	75,000
7,900		117,000	75,000
7,940	5/16	117,000	75,000
8,000		117,000	75,000
8,030		117,000	75,000
8,100		117,000	75,000
8,200		117,000	75,000
8,300		117,000	75,000
8,330	21/64	117,000	75,000
8,400		117,000	75,000
8,430		117,000	75,000
8,500		117,000	75,000
8,600		125,000	81,000
8,610		125,000	81,000
8,700		125,000	81,000
8,730	11/32	125,000	81,000
8,800		125,000	81,000
8,840		125,000	81,000
8,900		125,000	81,000
9,000		125,000	81,000
9,090		125,000	81,000
9,100		125,000	81,000
9,130	23/64	125,000	81,000
9,200		125,000	81,000
9,300		125,000	81,000
9,340		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,520	3/8	133,000	87,000
9,580		133,000	87,000
9,600		133,000	87,000
9,700		133,000	87,000
9,800		133,000	87,000
9,900		133,000	87,000
9,920	25/64	133,000	87,000
10,000		133,000	87,000
10,080		133,000	87,000
10,200		133,000	87,000
10,260		133,000	87,000
10,300		133,000	87,000
10,320	13/32	133,000	87,000
10,490		133,000	87,000
10,500		133,000	87,000
10,720	27/64	142,000	94,000
11,000		142,000	94,000
11,110	7/16	142,000	94,000
11,500		142,000	94,000
11,510	29/64	142,000	94,000
11,910	15/32	151,000	101,000
12,000		151,000	101,000
12,300	31/64	151,000	101,000
12,700	1/2	151,000	101,000

Brocas espirales cil., cortas

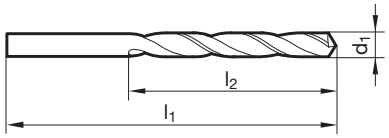
~5xD | WN | N | 118° | h7

Material de corte	**Metal duro**
Acabado	F
Dirección de corte	R

P	○	vaciado de punta ≥Ø 2,060 • afilado plano • forma recta del corte principal
M	○	
K	○	
N	●	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • fundición • latón • aluminios con alto porcentaje de Si • magnesio y sus aleaciones • plásticos y plásticos con refuerzo de fibras
S	○	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 784



Artículo N° **2464**

d1 mm	inch	l1 mm	l2 mm
1,000		34,000	12,000
1,020		34,000	12,000
1,040		34,000	12,000
1,070		36,000	14,000
1,090		36,000	14,000
1,100		36,000	14,000
1,180		36,000	14,000
1,190	3/64	38,000	16,000
1,200		38,000	16,000
1,300		38,000	16,000
1,320		38,000	16,000
1,400		40,000	18,000
1,500		40,000	18,000
1,510		43,000	20,000
1,590	1/16	43,000	20,000
1,600		43,000	20,000
1,610		43,000	20,000
1,700		43,000	20,000
1,780		46,000	22,000
1,800		46,000	22,000
1,850		46,000	22,000
1,900		46,000	22,000
1,930		49,000	24,000
1,980	5/64	49,000	24,000
1,990		49,000	24,000
2,000		49,000	24,000
2,060		49,000	24,000
2,080		49,000	24,000
2,100		49,000	24,000
2,180		53,000	27,000
2,200		53,000	27,000
2,260		53,000	27,000
2,300		53,000	27,000
2,370		57,000	30,000
2,380	3/32	57,000	30,000
2,400		57,000	30,000
2,440		57,000	30,000
2,490		57,000	30,000
2,500		57,000	30,000
2,530		57,000	30,000
2,580		57,000	30,000
2,600		57,000	30,000

d1 mm	inch	l1 mm	l2 mm
2,640		57,000	30,000
2,700		61,000	33,000
2,710		61,000	33,000
2,780	7/64	61,000	33,000
2,790		61,000	33,000
2,800		61,000	33,000
2,820		61,000	33,000
2,870		61,000	33,000
2,900		61,000	33,000
2,950		61,000	33,000
3,000		61,000	33,000
3,050		65,000	36,000
3,100		65,000	36,000
3,170	1/8	65,000	36,000
3,200		65,000	36,000
3,260		65,000	36,000
3,300		65,000	36,000
3,400		70,000	39,000
3,450		70,000	39,000
3,500		70,000	39,000
3,570	9/64	70,000	39,000
3,600		70,000	39,000
3,660		70,000	39,000
3,700		70,000	39,000
3,730		70,000	39,000
3,800		75,000	43,000
3,860		75,000	43,000
3,900		75,000	43,000
3,910		75,000	43,000
3,970	5/32	75,000	43,000
3,990		75,000	43,000
4,000		75,000	43,000
4,040		75,000	43,000
4,090		75,000	43,000
4,100		75,000	43,000
4,200		75,000	43,000
4,220		75,000	43,000
4,300		80,000	47,000
4,370	11/64	80,000	47,000
4,390		80,000	47,000
4,400		80,000	47,000
4,500		80,000	47,000

d1		l1	l2
mm	inch	mm	mm
4,570		80,000	47,000
4,600		80,000	47,000
4,620		80,000	47,000
4,700		80,000	47,000
4,760	3/16	86,000	52,000
4,800		86,000	52,000
4,850		86,000	52,000
4,900		86,000	52,000
4,920		86,000	52,000
4,980		86,000	52,000
5,000		86,000	52,000
5,060		86,000	52,000
5,100		86,000	52,000
5,110		86,000	52,000
5,160	13/64	86,000	52,000
5,180		86,000	52,000
5,200		86,000	52,000
5,220		86,000	52,000
5,300		86,000	52,000
5,310		93,000	57,000
5,400		93,000	57,000
5,410		93,000	57,000
5,500		93,000	57,000
5,560	7/32	93,000	57,000
5,600		93,000	57,000
5,610		93,000	57,000
5,700		93,000	57,000
5,790		93,000	57,000
5,800		93,000	57,000
5,900		93,000	57,000
5,940		93,000	57,000
5,950	15/64	93,000	57,000
6,000		93,000	57,000
6,040		101,000	63,000
6,100		101,000	63,000
6,150		101,000	63,000
6,200		101,000	63,000
6,250		101,000	63,000
6,300		101,000	63,000
6,350	1/4	101,000	63,000
6,400		101,000	63,000
6,500		101,000	63,000
6,530		101,000	63,000
6,600		101,000	63,000
6,630		101,000	63,000
6,700		101,000	63,000
6,750	17/64	109,000	69,000
6,800		109,000	69,000
6,900		109,000	69,000
7,000		109,000	69,000
7,030		109,000	69,000
7,100		109,000	69,000
7,140	9/32	109,000	69,000
7,200		109,000	69,000
7,300		109,000	69,000
7,370		109,000	69,000
7,400		109,000	69,000
7,490		109,000	69,000
7,500		109,000	69,000
7,540	19/64	117,000	75,000

d1		l1	l2
mm	inch	mm	mm
7,600		117,000	75,000
7,670		117,000	75,000
7,700		117,000	75,000
7,800		117,000	75,000
7,900		117,000	75,000
7,940	5/16	117,000	75,000
8,000		117,000	75,000
8,030		117,000	75,000
8,100		117,000	75,000
8,200		117,000	75,000
8,300		117,000	75,000
8,330	21/64	117,000	75,000
8,400		117,000	75,000
8,430		117,000	75,000
8,500		117,000	75,000
8,600		125,000	81,000
8,610		125,000	81,000
8,700		125,000	81,000
8,730	11/32	125,000	81,000
8,800		125,000	81,000
8,840		125,000	81,000
8,900		125,000	81,000
9,000		125,000	81,000
9,090		125,000	81,000
9,100		125,000	81,000
9,130	23/64	125,000	81,000
9,200		125,000	81,000
9,300		125,000	81,000
9,340		125,000	81,000
9,400		125,000	81,000
9,500		125,000	81,000
9,520	3/8	133,000	87,000
9,580		133,000	87,000
9,600		133,000	87,000
9,700		133,000	87,000
9,800		133,000	87,000
9,900		133,000	87,000
9,920	25/64	133,000	87,000
10,000		133,000	87,000
10,080		133,000	87,000
10,200		133,000	87,000
10,260		133,000	87,000
10,300		133,000	87,000
10,320	13/32	133,000	87,000
10,490		133,000	87,000
10,500		133,000	87,000
10,720	27/64	142,000	94,000
11,000		142,000	94,000
11,110	7/16	142,000	94,000
11,500		142,000	94,000
11,510	29/64	142,000	94,000
11,910	15/32	151,000	101,000
12,000		151,000	101,000
12,300	31/64	151,000	101,000
12,700	1/2	151,000	101,000

Brocas espirales cil., cortas

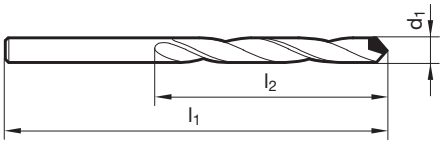
~5xD | WN | Duro 150 | 118° | h8

Material de corte	Carbide
Acabado	○
Dirección de corte	R

P	○	vaciado de punta ≥Ø 2,700 • afilado plano • broca especial • placa MD soldada
M		
K	○	
N		materiales fuertemente abrasivos • aceros tratados térmicamente y endurecidos • fundición dura, acero-manganeso, bronce duro
S		
H	•	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 776



Artículo N° **710**

d1 mm	d1 inch	l1 mm	l2 mm
3,000		61,000	33,000
3,100		65,000	36,000
3,300		65,000	36,000
3,400		70,000	39,000
3,500		70,000	39,000
4,000		75,000	43,000
4,200		75,000	43,000
4,500		80,000	47,000
4,700		80,000	47,000
5,000		86,000	52,000
5,100		86,000	52,000
5,500		93,000	57,000
6,000		93,000	57,000
6,300		101,000	63,000
6,500		101,000	63,000
6,800		109,000	69,000
7,000		109,000	69,000
7,100		109,000	69,000

d1 mm	d1 inch	l1 mm	l2 mm
7,200		109,000	69,000
7,400		109,000	69,000
7,500		109,000	69,000
8,000		117,000	75,000
8,500		117,000	75,000
9,000		125,000	81,000
9,500		125,000	81,000
10,000		133,000	87,000
10,200		133,000	87,000
11,000		142,000	94,000
12,000		151,000	101,000
12,500		151,000	101,000
13,000		151,000	101,000
14,000		160,000	108,000

Especialistas en HSS

Brocas de acero rápido en versiones especiales para aplicaciones específicas.

Especialmente en la fabricación de herramientas de acero rápido Gühring destaca por más de 100 años de experiencia, tecnologías de producción modernísimas, fabricación rápida de herramientas especiales, recubrimiento orientado a las aplicaciones y una relación precio-calidad muy buena. Sean micro-brocas, brocas escalonadas o herramientas de varios cortes-confíe en nuestra destacada experiencia en el acero rápido.

Brocas para casquillos

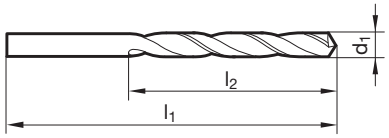
~10xD | DIN 339 | N | 118° | h8

Material de corte	HSS
Acabado	>Ø 2,36
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,000 • entrada cónica • para taladrar casquillos
M		
K	•	
N	○	aceros y fundición de aceros (aleados y sin alear) • fundición gris, fundición maleable, fundición esferica • hierro sinterizado, argentón y grafito
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 786



Artículo N° **211**

d1 mm	inch	l1 mm	l2 mm
0,800		42,000	22,000
1,000		48,000	26,000
1,050		48,000	26,000
1,080		50,000	28,000
1,100		50,000	28,000
1,110		50,000	28,000
1,150		50,000	28,000
1,200		52,000	30,000
1,230		52,000	30,000
1,250		52,000	30,000
1,300		52,000	30,000
1,350		55,000	33,000
1,380		55,000	33,000
1,400		55,000	33,000
1,430		55,000	33,000
1,450		55,000	33,000
1,460		55,000	33,000
1,480		55,000	33,000
1,500		55,000	33,000
1,520		58,000	35,000
1,580		58,000	35,000
1,600		58,000	35,000
1,620		58,000	35,000
1,650		58,000	35,000
1,700		58,000	35,000
1,800		62,000	38,000
1,810		62,000	38,000
1,850		62,000	38,000
1,870		62,000	38,000
1,900		62,000	38,000
1,930		66,000	41,000
1,980	5/64	66,000	41,000
1,990		66,000	41,000
2,000		66,000	41,000
2,020		66,000	41,000
2,030		66,000	41,000
2,050		66,000	41,000
2,100		66,000	41,000
2,150		70,000	44,000
2,200		70,000	44,000
2,220		70,000	44,000
2,320		70,000	44,000

d1 mm	inch	l1 mm	l2 mm
2,350		70,000	44,000
2,360		70,000	44,000
2,400		74,000	47,000
2,450		74,000	47,000
2,470		74,000	47,000
2,500		74,000	47,000
2,550		74,000	47,000
2,600		74,000	47,000
2,620		74,000	47,000
2,650		74,000	47,000
2,680		79,000	51,000
2,700		79,000	51,000
2,730		79,000	51,000
2,800		79,000	51,000
2,900		79,000	51,000
2,950		79,000	51,000
2,960		79,000	51,000
3,000		79,000	51,000
3,050		84,000	55,000
3,070		84,000	55,000
3,100		84,000	55,000
3,150		84,000	55,000
3,170	1/8	84,000	55,000
3,200		84,000	55,000
3,250		84,000	55,000
3,300		84,000	55,000
3,400		91,000	60,000
3,480		91,000	60,000
3,500		91,000	60,000
3,600		91,000	60,000
3,700		91,000	60,000
3,730		91,000	60,000
3,800		96,000	64,000
3,900		96,000	64,000
3,950		96,000	64,000
4,000		96,000	64,000
4,100		96,000	64,000
4,200		96,000	64,000
4,300		102,000	69,000
4,400		102,000	69,000
4,500		102,000	69,000
4,580		102,000	69,000

d1		l1	l2
mm	inch	mm	mm
4,600		102,000	69,000
4,700		102,000	69,000
4,750		102,000	69,000
4,800		108,000	74,000
4,900		108,000	74,000
4,950		108,000	74,000
5,000		108,000	74,000
5,100		108,000	74,000
5,200		108,000	74,000
5,300		108,000	74,000
5,330		116,000	80,000
5,350		116,000	80,000
5,400		116,000	80,000
5,500		116,000	80,000
5,550		116,000	80,000
5,600		116,000	80,000
5,700		116,000	80,000
5,800		116,000	80,000
5,900		116,000	80,000
6,000		116,000	80,000
6,100		124,000	86,000
6,150		124,000	86,000
6,200		124,000	86,000
6,350	1/4	124,000	86,000
6,400		124,000	86,000
6,500		124,000	86,000
6,600		124,000	86,000
6,700		124,000	86,000
6,800		133,000	93,000
6,900		133,000	93,000
7,000		133,000	93,000
7,050		133,000	93,000
7,100		133,000	93,000
7,150		133,000	93,000
7,200		133,000	93,000
7,300		133,000	93,000
7,400		133,000	93,000
7,600		142,000	100,000
7,750		142,000	100,000
7,800		142,000	100,000
7,950		142,000	100,000
8,000		142,000	100,000
8,100		142,000	100,000
8,120		142,000	100,000
8,200		142,000	100,000
8,300		142,000	100,000
8,500		142,000	100,000
8,600		151,000	107,000

d1		l1	l2
mm	inch	mm	mm
8,700		151,000	107,000
8,730	11/32	151,000	107,000
8,900		151,000	107,000
9,000		151,000	107,000
9,100		151,000	107,000
9,200		151,000	107,000
9,300		151,000	107,000
9,500		151,000	107,000
9,600		162,000	116,000
9,650		162,000	116,000
9,700		162,000	116,000
9,750		162,000	116,000
9,800		162,000	116,000
10,000		162,000	116,000
10,200		162,000	116,000
10,500		162,000	116,000
10,800		173,000	125,000
10,900		173,000	125,000
11,000		173,000	125,000
11,300		173,000	125,000
11,400		173,000	125,000
11,500		173,000	125,000
11,700		173,000	125,000
11,750		173,000	125,000
12,000		184,000	134,000
12,100		184,000	134,000
12,300	31/64	184,000	134,000
12,500		184,000	134,000
13,000		184,000	134,000
13,200		184,000	134,000
13,500		194,000	142,000
13,800		194,000	142,000
14,200		202,000	147,000
14,500		202,000	147,000
15,000		202,000	147,000
15,500		211,000	153,000
16,500		218,000	159,000
17,000		218,000	159,000
18,000		226,000	165,000
18,250		234,000	171,000
18,500		234,000	171,000
19,000		234,000	171,000
19,500		242,000	177,000
20,000		242,000	177,000

Brocas para casquillos

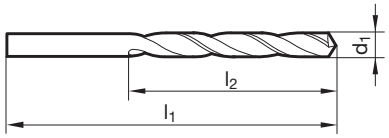
~10xD | DIN 339 | N | 118° | h8

Material de corte	HSS
Acabado	○
Dirección de corte	R

P	•	vaciado de punta ≥Ø 2,400 • entrada cónica • para taladrar casquillos
M		
K	•	
N	○	aceros y fundición de aceros (aleados y sin alear) • fundición gris, fundición maleable, fundición esferica • hierro sinterizado, argentón y grafito
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 786



Artículo N° **561**

d1		l1	l2
mm	inch	mm	mm
2,400		74,000	47,000
2,500		74,000	47,000
2,600		74,000	47,000
3,000		79,000	51,000
3,100		84,000	55,000
3,120		84,000	55,000
3,200		84,000	55,000
3,300		84,000	55,000
4,000		96,000	64,000
4,250		96,000	64,000
4,400		102,000	69,000
4,800		108,000	74,000

d1		l1	l2
mm	inch	mm	mm
5,000		108,000	74,000

Brocas para casquillos

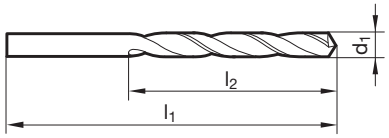
~10xD | DIN 339 | N | 118° | h8

Material de corte	HSS
Acabado	S
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,000 • entrada cónica • para taladrar casquillos
M		
K	•	
N	•	aceros y fundición de aceros (aleados y sin alear) • fundición gris, fundición maleable, fundición esferica • hierro sinterizado, argentón y grafito
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 786



Artículo N° **666**

d1		l1	l2
mm	inch	mm	mm
1,000		48,000	26,000
1,100		50,000	28,000
1,200		52,000	30,000
1,280		52,000	30,000
1,300		52,000	30,000
1,350		55,000	33,000
1,400		55,000	33,000
1,450		55,000	33,000
1,500		55,000	33,000
1,510		58,000	35,000
1,550		58,000	35,000
1,600		58,000	35,000
1,700		58,000	35,000
1,800		62,000	38,000
1,900		62,000	38,000
1,980	5/64	66,000	41,000
1,990		66,000	41,000
2,000		66,000	41,000
2,020		66,000	41,000
2,100		66,000	41,000
2,200		70,000	44,000
2,300		70,000	44,000
2,400		74,000	47,000
2,450		74,000	47,000
2,500		74,000	47,000
2,550		74,000	47,000
2,600		74,000	47,000
2,800		79,000	51,000
2,900		79,000	51,000
3,000		79,000	51,000
3,100		84,000	55,000
3,150		84,000	55,000
3,200		84,000	55,000
3,300		84,000	55,000
3,400		91,000	60,000
3,500		91,000	60,000
3,570	9/64	91,000	60,000
3,600		91,000	60,000
3,700		91,000	60,000
3,800		96,000	64,000
3,900		96,000	64,000
4,000		96,000	64,000

d1		l1	l2
mm	inch	mm	mm
4,100		96,000	64,000
4,200		96,000	64,000
4,300		102,000	69,000
4,400		102,000	69,000
4,500		102,000	69,000
4,600		102,000	69,000
4,800		108,000	74,000
5,000		108,000	74,000
5,100		108,000	74,000
5,150		108,000	74,000
5,300		108,000	74,000
5,400		116,000	80,000
5,500		116,000	80,000
5,600		116,000	80,000
5,700		116,000	80,000
5,800		116,000	80,000
6,000		116,000	80,000
6,100		124,000	86,000
6,200		124,000	86,000
6,350	1/4	124,000	86,000
6,400		124,000	86,000
6,500		124,000	86,000
6,600		124,000	86,000
6,700		124,000	86,000
6,800		133,000	93,000
6,900		133,000	93,000
7,000		133,000	93,000
7,100		133,000	93,000
7,200		133,000	93,000
7,300		133,000	93,000
7,500		133,000	93,000
7,600		142,000	100,000
7,700		142,000	100,000
7,800		142,000	100,000
7,900		142,000	100,000
7,940	5/16	142,000	100,000
8,000		142,000	100,000
8,200		142,000	100,000
8,500		142,000	100,000
8,600		151,000	107,000
9,000		151,000	107,000
9,600		162,000	116,000

d1		l1	l2
mm	inch	mm	mm
9,800		162,000	116,000
10,000		162,000	116,000
10,200		162,000	116,000
11,000		173,000	125,000
11,500		173,000	125,000
11,910	15/32	184,000	134,000

d1		l1	l2
mm	inch	mm	mm
12,500		184,000	134,000
13,000		184,000	134,000

Brocas para casquillos

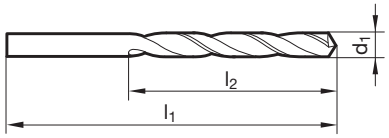
~10xD | DIN 339 | N | 118° | h8

Material de corte	HSCO
Acabado	>Ø 2,36
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,100 • entrada cónica • acero rápido al cobalto • resistencia más alta al desgaste • para taladrar casquillos
M	○	
K	•	
N	•	aceros aleados y no aleados fundición de dureza sup. a 800 N/mm² • aceros para trab. en frío y en caliente • aceros para rodamientos • aceros altamente aleados • aceros de cementación, de bonificación
S	○	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 792



Artículo N° **311**

d1 mm	d1 inch	l1 mm	l2 mm
1,100		50,000	28,000
1,300		52,000	30,000
1,500		55,000	33,000
1,600		58,000	35,000
1,800		62,000	38,000
1,900		62,000	38,000
1,950		66,000	41,000
2,000		66,000	41,000
2,500		74,000	47,000
3,000		79,000	51,000
3,100		84,000	55,000
3,200		84,000	55,000
4,000		96,000	64,000
4,500		102,000	69,000
5,000		108,000	74,000
5,100		108,000	74,000
6,100		124,000	86,000
6,400		124,000	86,000

d1 mm	d1 inch	l1 mm	l2 mm
6,800		133,000	93,000
7,000		133,000	93,000
8,200		142,000	100,000
8,500		142,000	100,000
10,000		162,000	116,000
10,800		173,000	125,000
17,500		226,000	165,000
19,000		234,000	171,000

Brocas espirales cil., largas

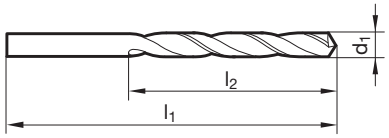
~10xD | DIN 340 | N | 118° | h8

Material de corte	HSS
Acabado	>Ø 2,36
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,000 • entrada cónica • para taladros profundos
M		
K	•	
N	○	aceros y fundición de aceros (aleados y sin alear) • fundición gris, fundición maleable, fundición esferica • hierro sinterizado, argentón y grafito
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 786



Artículo N° **217**

d1 mm	d1 inch	l1 mm	l2 mm
0,400	1/64	30,000	10,000
0,440		30,000	10,000
0,450		30,000	10,000
0,470		30,000	10,000
0,500		32,000	12,000
0,520		32,000	12,000
0,550		35,000	15,000
0,570		35,000	15,000
0,600		35,000	15,000
0,620		38,000	18,000
0,650		38,000	18,000
0,700		42,000	21,000
0,730		42,000	21,000
0,750		42,000	21,000
0,760		46,000	25,000
0,790	1/32	46,000	25,000
0,800		46,000	25,000
0,820		46,000	25,000
0,850		46,000	25,000
0,900		51,000	29,000
0,910		51,000	29,000
0,920		51,000	29,000
0,950		51,000	29,000
0,970		56,000	33,000
1,000		56,000	33,000
1,040		56,000	33,000
1,050		56,000	33,000
1,080		60,000	37,000
1,090		60,000	37,000
1,100		60,000	37,000
1,120		60,000	37,000
1,130		60,000	37,000
1,150		60,000	37,000
1,180		60,000	37,000
1,190	3/64	65,000	41,000
1,200		65,000	41,000
1,250		65,000	41,000
1,300		65,000	41,000
1,350		70,000	45,000
1,400		70,000	45,000
1,450		70,000	45,000
1,490		70,000	45,000

d1 mm	d1 inch	l1 mm	l2 mm
1,500		70,000	45,000
1,510		76,000	50,000
1,550		76,000	50,000
1,590	1/16	76,000	50,000
1,600		76,000	50,000
1,610		76,000	50,000
1,650		76,000	50,000
1,700		76,000	50,000
1,750		80,000	53,000
1,780		80,000	53,000
1,800		80,000	53,000
1,850		80,000	53,000
1,900		80,000	53,000
1,930		85,000	56,000
1,950		85,000	56,000
1,980	5/64	85,000	56,000
2,000		85,000	56,000
2,030		85,000	56,000
2,050		85,000	56,000
2,060		85,000	56,000
2,080		85,000	56,000
2,100		85,000	56,000
2,150		90,000	59,000
2,200		90,000	59,000
2,250		90,000	59,000
2,260		90,000	59,000
2,300		90,000	59,000
2,350		90,000	59,000
2,370		95,000	62,000
2,380	3/32	95,000	62,000
2,400		95,000	62,000
2,420		95,000	62,000
2,440		95,000	62,000
2,450		95,000	62,000
2,490		95,000	62,000
2,500		95,000	62,000
2,550		95,000	62,000
2,580		95,000	62,000
2,600		95,000	62,000
2,620		95,000	62,000
2,640		95,000	62,000
2,650		95,000	62,000

d1		l1	l2
mm	inch	mm	mm
2,700		100,000	66,000
2,710		100,000	66,000
2,750		100,000	66,000
2,780	7/64	100,000	66,000
2,790		100,000	66,000
2,800		100,000	66,000
2,820		100,000	66,000
2,850		100,000	66,000
2,870		100,000	66,000
2,900		100,000	66,000
2,950		100,000	66,000
3,000		100,000	66,000
3,030		106,000	69,000
3,050		106,000	69,000
3,100		106,000	69,000
3,150		106,000	69,000
3,170	1/8	106,000	69,000
3,200		106,000	69,000
3,250		106,000	69,000
3,260		106,000	69,000
3,300		106,000	69,000
3,350		106,000	69,000
3,400		112,000	73,000
3,450		112,000	73,000
3,500		112,000	73,000
3,550		112,000	73,000
3,570	9/64	112,000	73,000
3,600		112,000	73,000
3,650		112,000	73,000
3,660		112,000	73,000
3,700		112,000	73,000
3,750		112,000	73,000
3,800		119,000	78,000
3,850		119,000	78,000
3,860		119,000	78,000
3,900		119,000	78,000
3,910		119,000	78,000
3,950		119,000	78,000
3,970	5/32	119,000	78,000
3,990		119,000	78,000
4,000		119,000	78,000
4,030		119,000	78,000
4,040		119,000	78,000
4,050		119,000	78,000
4,090		119,000	78,000
4,100		119,000	78,000
4,150		119,000	78,000
4,200		119,000	78,000
4,220		119,000	78,000
4,250		119,000	78,000
4,300		126,000	82,000
4,350		126,000	82,000
4,370	11/64	126,000	82,000
4,390		126,000	82,000
4,400		126,000	82,000
4,450		126,000	82,000
4,500		126,000	82,000
4,570		126,000	82,000
4,600		126,000	82,000
4,650		126,000	82,000
4,700		126,000	82,000
4,750		126,000	82,000
4,760	3/16	132,000	87,000
4,800		132,000	87,000
4,850		132,000	87,000
4,900		132,000	87,000
4,920		132,000	87,000
4,950		132,000	87,000
4,980		132,000	87,000
5,000		132,000	87,000
5,030		132,000	87,000
5,050		132,000	87,000

d1		l1	l2
mm	inch	mm	mm
5,060		132,000	87,000
5,100		132,000	87,000
5,110		132,000	87,000
5,150		132,000	87,000
5,160	13/64	132,000	87,000
5,180		132,000	87,000
5,200		132,000	87,000
5,220		132,000	87,000
5,250		132,000	87,000
5,300		132,000	87,000
5,310		139,000	91,000
5,350		139,000	91,000
5,400		139,000	91,000
5,410		139,000	91,000
5,450		139,000	91,000
5,500		139,000	91,000
5,550		139,000	91,000
5,560	7/32	139,000	91,000
5,600		139,000	91,000
5,650		139,000	91,000
5,700		139,000	91,000
5,750		139,000	91,000
5,790		139,000	91,000
5,800		139,000	91,000
5,900		139,000	91,000
5,950	15/64	139,000	91,000
6,000		139,000	91,000
6,060		148,000	97,000
6,100		148,000	97,000
6,200		148,000	97,000
6,250		148,000	97,000
6,300		148,000	97,000
6,350	1/4	148,000	97,000
6,400		148,000	97,000
6,500		148,000	97,000
6,600		148,000	97,000
6,700		148,000	97,000
6,750	17/64	156,000	102,000
6,800		156,000	102,000
6,900		156,000	102,000
7,000		156,000	102,000
7,100		156,000	102,000
7,140	9/32	156,000	102,000
7,200		156,000	102,000
7,250		156,000	102,000
7,300		156,000	102,000
7,400		156,000	102,000
7,500		156,000	102,000
7,540	19/64	165,000	109,000
7,600		165,000	109,000
7,700		165,000	109,000
7,750		165,000	109,000
7,800		165,000	109,000
7,900		165,000	109,000
7,940	5/16	165,000	109,000
8,000		165,000	109,000
8,100		165,000	109,000
8,200		165,000	109,000
8,250		165,000	109,000
8,300		165,000	109,000
8,330	21/64	165,000	109,000
8,400		165,000	109,000
8,500		165,000	109,000
8,600		175,000	115,000
8,700		175,000	115,000
8,730	11/32	175,000	115,000
8,750		175,000	115,000
8,800		175,000	115,000
8,900		175,000	115,000
9,000		175,000	115,000
9,100		175,000	115,000
9,130	23/64	175,000	115,000

d1		l1	l2
mm	inch	mm	mm
9,200		175,000	115,000
9,300		175,000	115,000
9,400		175,000	115,000
9,500		175,000	115,000
9,520	3/8	184,000	121,000
9,600		184,000	121,000
9,700		184,000	121,000
9,750		184,000	121,000
9,800		184,000	121,000
9,900		184,000	121,000
9,920	25/64	184,000	121,000
10,000		184,000	121,000
10,100		184,000	121,000
10,200		184,000	121,000
10,250		184,000	121,000
10,300		184,000	121,000
10,320	13/32	184,000	121,000
10,400		184,000	121,000
10,500		184,000	121,000
10,700		195,000	128,000
10,720	27/64	195,000	128,000
10,750		195,000	128,000
10,800		195,000	128,000
11,000		195,000	128,000
11,110	7/16	195,000	128,000
11,200		195,000	128,000
11,400		195,000	128,000
11,500		195,000	128,000
11,510	29/64	195,000	128,000
11,600		195,000	128,000
11,700		195,000	128,000
11,750		195,000	128,000
11,800		195,000	128,000
11,910	15/32	205,000	134,000
12,000		205,000	134,000
12,100		205,000	134,000
12,200		205,000	134,000
12,300	31/64	205,000	134,000
12,500		205,000	134,000
12,700	1/2	205,000	134,000
12,800		205,000	134,000
13,000		205,000	134,000
13,200		205,000	134,000
13,490	17/32	214,000	140,000
13,500		214,000	140,000
13,800		214,000	140,000
13,890	35/64	214,000	140,000
14,000		214,000	140,000
14,200		220,000	144,000
14,250		220,000	144,000
14,290	9/16	220,000	144,000
14,490		220,000	144,000
14,500		220,000	144,000
14,900		220,000	144,000

d1		l1	l2
mm	inch	mm	mm
15,000		220,000	144,000
15,080	19/32	227,000	149,000
15,200		227,000	149,000
15,250		227,000	149,000
15,400		227,000	149,000
15,480	39/64	227,000	149,000
15,500		227,000	149,000
15,600		227,000	149,000
15,870	5/8	227,000	149,000
16,000		227,000	149,000
16,270	41/64	235,000	154,000
16,500		235,000	154,000
16,670	21/32	235,000	154,000
17,000		235,000	154,000
17,070	43/64	241,000	158,000
17,460	11/16	241,000	158,000
17,500		241,000	158,000
18,000		241,000	158,000
18,500		247,000	162,000
18,650	47/64	247,000	162,000
19,000		247,000	162,000
19,050	3/4	254,000	166,000
19,500		254,000	166,000
20,000		254,000	166,000
20,500		261,000	171,000
20,640	13/16	261,000	171,000
21,000		261,000	171,000
21,500		268,000	176,000
22,000		268,000	176,000
23,300		275,000	180,000
23,810	15/16	282,000	185,000
24,000		282,000	185,000
25,000	63/64	282,000	185,000
26,190	1 1/32	290,000	190,000
26,500		290,000	190,000
26,990	1 1/16	298,000	195,000
28,570	1 1/8	307,000	201,000
29,000		307,000	201,000
29,370	1 5/32	307,000	201,000
29,500		307,000	201,000
30,160	1 3/16	316,000	207,000
30,960	1 7/32	316,000	207,000
31,000		316,000	207,000
36,510	1 7/16	345,000	225,000

Brocas espirales cil., largas

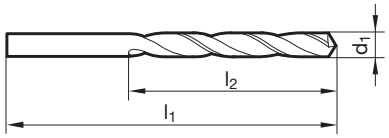
~10xD | DIN 340 | N | 118° | h8

Material de corte	HSS
Acabado	S
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,000 • entrada cónica • para taladros profundos • para taladrar casquillos
M		
K	•	
N	○	aceros y fundición de aceros (aleados y sin alear) • fundición gris, fundición maleable, fundición esferica • hierro sinterizado, argentón y grafito
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 786



Artículo N° **667**

d1 mm	inch	l1 mm	l2 mm
0,500		32,000	12,000
0,600		35,000	15,000
0,700		42,000	21,000
0,750		42,000	21,000
0,800		46,000	25,000
0,900		51,000	29,000
0,950		51,000	29,000
1,000		56,000	33,000
1,100		60,000	37,000
1,150		60,000	37,000
1,200		65,000	41,000
1,250		65,000	41,000
1,300		65,000	41,000
1,350		70,000	45,000
1,400		70,000	45,000
1,450		70,000	45,000
1,500		70,000	45,000
1,550		76,000	50,000
1,590	1/16	76,000	50,000
1,600		76,000	50,000
1,650		76,000	50,000
1,700		76,000	50,000
1,800		80,000	53,000
1,850		80,000	53,000
1,900		80,000	53,000
1,950		85,000	56,000
1,980	5/64	85,000	56,000
2,000		85,000	56,000
2,100		85,000	56,000
2,200		90,000	59,000
2,300		90,000	59,000
2,350		90,000	59,000
2,370		95,000	62,000
2,380	3/32	95,000	62,000
2,440		95,000	62,000
2,450		95,000	62,000
2,500		95,000	62,000
2,530		95,000	62,000
2,650		95,000	62,000
2,700		100,000	66,000
2,750		100,000	66,000
2,780	7/64	100,000	66,000

d1 mm	inch	l1 mm	l2 mm
2,800		100,000	66,000
2,850		100,000	66,000
2,870		100,000	66,000
2,900		100,000	66,000
3,000		100,000	66,000
3,030		106,000	69,000
3,050		106,000	69,000
3,100		106,000	69,000
3,170	1/8	106,000	69,000
3,200		106,000	69,000
3,250		106,000	69,000
3,260		106,000	69,000
3,300		106,000	69,000
3,350		106,000	69,000
3,400		112,000	73,000
3,500		112,000	73,000
3,570	9/64	112,000	73,000
3,600		112,000	73,000
3,650		112,000	73,000
3,700		112,000	73,000
3,730		112,000	73,000
3,750		112,000	73,000
3,800		119,000	78,000
3,850		119,000	78,000
3,900		119,000	78,000
3,950		119,000	78,000
3,970	5/32	119,000	78,000
4,000		119,000	78,000
4,050		119,000	78,000
4,100		119,000	78,000
4,200		119,000	78,000
4,250		119,000	78,000
4,300		126,000	82,000
4,370	11/64	126,000	82,000
4,400		126,000	82,000
4,500		126,000	82,000
4,570		126,000	82,000
4,600		126,000	82,000
4,620		126,000	82,000
4,650		126,000	82,000
4,700		126,000	82,000
4,750		126,000	82,000

d1		l1	l2
mm	inch	mm	mm
4,760	3/16	132,000	87,000
4,850		132,000	87,000
4,900		132,000	87,000
5,000		132,000	87,000
5,100		132,000	87,000
5,160	13/64	132,000	87,000
5,200		132,000	87,000
5,250		132,000	87,000
5,300		132,000	87,000
5,310		139,000	91,000
5,400		139,000	91,000
5,410		139,000	91,000
5,500		139,000	91,000
5,560	7/32	139,000	91,000
5,600		139,000	91,000
5,610		139,000	91,000
5,700		139,000	91,000
5,790		139,000	91,000
5,900		139,000	91,000
6,000		139,000	91,000
6,100		148,000	97,000
6,200		148,000	97,000
6,250		148,000	97,000
6,350	1/4	148,000	97,000
6,400		148,000	97,000
6,500		148,000	97,000
6,600		148,000	97,000
6,750	17/64	156,000	102,000
6,800		156,000	102,000
7,000		156,000	102,000
7,100		156,000	102,000
7,140	9/32	156,000	102,000
7,200		156,000	102,000
7,250		156,000	102,000
7,300		156,000	102,000
7,370		156,000	102,000
7,400		156,000	102,000
7,500		156,000	102,000
7,540	19/64	165,000	109,000
7,700		165,000	109,000
7,940	5/16	165,000	109,000
8,000		165,000	109,000
8,050		165,000	109,000
8,100		165,000	109,000
8,200		165,000	109,000
8,250		165,000	109,000
8,300		165,000	109,000
8,400		165,000	109,000
8,500		165,000	109,000
8,700		175,000	115,000
8,730	11/32	175,000	115,000
8,800		175,000	115,000
8,900		175,000	115,000
9,000		175,000	115,000

d1		l1	l2
mm	inch	mm	mm
9,100		175,000	115,000
9,300		175,000	115,000
9,400		175,000	115,000
9,500		175,000	115,000
9,520	3/8	184,000	121,000
9,700		184,000	121,000
9,900		184,000	121,000
9,920	25/64	184,000	121,000
10,000		184,000	121,000
10,200		184,000	121,000
10,320	13/32	184,000	121,000
10,500		184,000	121,000
10,720	27/64	195,000	128,000
10,800		195,000	128,000
10,900		195,000	128,000
11,000		195,000	128,000
11,110	7/16	195,000	128,000
11,500		195,000	128,000
11,750		195,000	128,000
11,910	15/32	205,000	134,000
12,000		205,000	134,000
12,500		205,000	134,000
12,700	1/2	205,000	134,000
13,000		205,000	134,000
13,490	17/32	214,000	140,000
13,500		214,000	140,000
13,800		214,000	140,000
13,890	35/64	214,000	140,000
14,000		214,000	140,000
14,290	9/16	220,000	144,000
14,500		220,000	144,000
14,750		220,000	144,000
14,800		220,000	144,000
14,900		220,000	144,000
15,000		220,000	144,000
15,080	19/32	227,000	149,000
16,000		227,000	149,000
16,500		235,000	154,000
16,670	21/32	235,000	154,000
16,750		235,000	154,000
17,000		235,000	154,000
17,460	11/16	241,000	158,000
18,000		241,000	158,000
18,250		247,000	162,000
22,220	7/8	268,000	176,000

Brocas espirales cil., largas

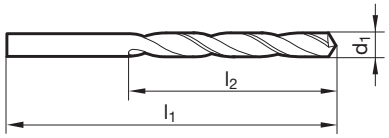
~10xD | DIN 340 | N | 118° | h8

Material de corte	HSS
Acabado	>Ø 6,00
Dirección de corte	

P	•	vaciado de punta ≥Ø 14,750 • entrada cónica • para taladros profundos • para taladrar casquillos
M		
K	•	
N	○	aceros y fundición de aceros (aleados y sin alear) • fundición gris, fundición maleable, fundición esferica • hierro sinterizado, argentón y grafito
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 786



Artículo N° **220**

d1		l1	l2
mm	inch	mm	mm
0,450		30,000	10,000
0,470		30,000	10,000
0,900		51,000	29,000
0,950		51,000	29,000
1,100		60,000	37,000
1,150		60,000	37,000
1,200		65,000	41,000
1,250		65,000	41,000
1,400		70,000	45,000
1,450		70,000	45,000
1,500		70,000	45,000
1,600		76,000	50,000
1,630		76,000	50,000
1,660		76,000	50,000
1,730		80,000	53,000
1,800		80,000	53,000
1,850		80,000	53,000
1,900		80,000	53,000
2,000		85,000	56,000
2,300		90,000	59,000
2,500		95,000	62,000
2,700		100,000	66,000
2,750		100,000	66,000
2,900		100,000	66,000
2,950		100,000	66,000
3,000		100,000	66,000
3,050		106,000	69,000
3,070		106,000	69,000
3,100		106,000	69,000
3,250		106,000	69,000
3,300		106,000	69,000
3,350		106,000	69,000
3,400		112,000	73,000
3,500		112,000	73,000
3,550		112,000	73,000
3,600		112,000	73,000
3,700		112,000	73,000
3,800		119,000	78,000
4,000		119,000	78,000
4,050		119,000	78,000
4,250		119,000	78,000
4,300		126,000	82,000

d1		l1	l2
mm	inch	mm	mm
4,500		126,000	82,000
4,600		126,000	82,000
4,780		132,000	87,000
4,800		132,000	87,000
4,950		132,000	87,000
5,000		132,000	87,000
5,100		132,000	87,000
5,200		132,000	87,000
5,600		139,000	91,000
5,700		139,000	91,000
6,000		139,000	91,000
6,050		148,000	97,000
6,100		148,000	97,000
6,400		148,000	97,000
6,500		148,000	97,000
6,600		148,000	97,000
6,800		156,000	102,000
7,200		156,000	102,000
7,500		156,000	102,000
7,800		165,000	109,000
8,000		165,000	109,000
8,100		165,000	109,000
8,250		165,000	109,000
8,400		165,000	109,000
8,800		175,000	115,000
9,000		175,000	115,000
9,520	3/8	184,000	121,000
9,700		184,000	121,000
9,800		184,000	121,000
9,900		184,000	121,000
10,000		184,000	121,000
10,100		184,000	121,000
10,500		184,000	121,000
11,000		195,000	128,000
11,500		195,000	128,000
11,900		205,000	134,000
12,000		205,000	134,000
12,200		205,000	134,000
12,500		205,000	134,000
13,000		205,000	134,000
13,500		214,000	140,000
14,750		220,000	144,000

d1		l1	l2
mm	inch	mm	mm
19,000		247,000	162,000
20,000		254,000	166,000
22,000		268,000	176,000
25,000	63/64	282,000	185,000
25,500		290,000	190,000
29,000		307,000	201,000

d1		l1	l2
mm	inch	mm	mm

Brocas espirales cil., largas

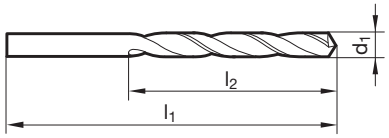
~10xD | DIN 340 | N | 118° | h8

Material de corte	HSS
Acabado	
Dirección de corte	R

P	•	vaciado de punta ≥Ø 2,950 • entrada cónica • con arrastre
M		
K	•	
N	○	aceros y fundición de aceros (aleados y sin alear) • fundición gris, fundición maleable, fundición esferica • hierro sinterizado, argentón y grafito
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 786



Artículo N° **204**

d1		l1	l2
mm	inch	mm	mm
2,950		100,000	66,000
3,000		100,000	66,000
3,100		106,000	69,000
3,170	1/8	106,000	69,000
3,200		106,000	69,000
3,300		106,000	69,000
3,400		112,000	73,000
3,500		112,000	73,000
3,600		112,000	73,000
3,800		119,000	78,000
3,900		119,000	78,000
4,000		119,000	78,000
4,050		119,000	78,000
4,100		119,000	78,000
4,200		119,000	78,000
4,250		119,000	78,000
4,300		126,000	82,000
4,400		126,000	82,000
4,500		126,000	82,000
4,760	3/16	132,000	87,000
4,800		132,000	87,000
5,000		132,000	87,000
5,080		132,000	87,000
5,100		132,000	87,000
5,200		132,000	87,000
5,500		139,000	91,000
5,600		139,000	91,000
5,800		139,000	91,000
5,850		139,000	91,000
5,900		139,000	91,000
6,000		139,000	91,000
6,100		148,000	97,000
6,200		148,000	97,000
6,300		148,000	97,000
6,350	1/4	148,000	97,000
6,400		148,000	97,000
6,500		148,000	97,000
6,600		148,000	97,000
6,700		148,000	97,000
6,750	17/64	156,000	102,000
6,800		156,000	102,000
6,900		156,000	102,000

d1		l1	l2
mm	inch	mm	mm
7,000		156,000	102,000
7,400		156,000	102,000
7,500		156,000	102,000
7,600		165,000	109,000
7,700		165,000	109,000
7,800		165,000	109,000
8,000		165,000	109,000
8,100		165,000	109,000
8,200		165,000	109,000
8,250		165,000	109,000
8,400		165,000	109,000
8,450		165,000	109,000
8,500		165,000	109,000
8,600		175,000	115,000
8,750		175,000	115,000
8,800		175,000	115,000
9,000		175,000	115,000
9,300		175,000	115,000
9,400		175,000	115,000
9,700		184,000	121,000
9,800		184,000	121,000
9,900		184,000	121,000
10,000		184,000	121,000
10,200		184,000	121,000
10,300		184,000	121,000
10,400		184,000	121,000
10,500		184,000	121,000
10,800		195,000	128,000
11,600		195,000	128,000
12,000		205,000	134,000
13,000		205,000	134,000
25,250		290,000	190,000

Brocas espirales cil., largas

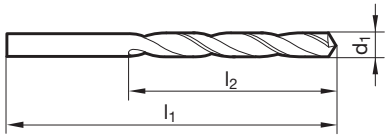
~10xD | DIN 340 | H | 118° | h8

Material de corte	HSS
Acabado	○
Dirección de corte	R

P		vaciado de punta ≥Ø 15,000 • entrada cónica • para taladros profundos
M		
K		
N	•	materiales duros y quebradizos • latón, aleaciones de magnesio • bronce y bronce al fósforo • pizarra, mica, Pertinax
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 786



Artículo N° **218**

d1 mm	inch	l1 mm	l2 mm
0,500		32,000	12,000
0,520		32,000	12,000
0,550		35,000	15,000
0,600		35,000	15,000
0,650		38,000	18,000
0,700		42,000	21,000
0,750		42,000	21,000
0,800		46,000	25,000
0,820		46,000	25,000
0,840		46,000	25,000
0,850		46,000	25,000
0,900		51,000	29,000
0,950		51,000	29,000
0,970		56,000	33,000
1,000		56,000	33,000
1,050		56,000	33,000
1,100		60,000	37,000
1,150		60,000	37,000
1,200		65,000	41,000
1,250		65,000	41,000
1,300		65,000	41,000
1,400		70,000	45,000
1,500		70,000	45,000
1,550		76,000	50,000
1,560		76,000	50,000
1,570		76,000	50,000
1,580		76,000	50,000
1,600		76,000	50,000
1,650		76,000	50,000
1,700		76,000	50,000
1,750		80,000	53,000
1,800		80,000	53,000
1,820		80,000	53,000
1,850		80,000	53,000
1,900		80,000	53,000
1,950		85,000	56,000
2,000		85,000	56,000
2,050		85,000	56,000
2,100		85,000	56,000
2,180		90,000	59,000
2,200		90,000	59,000
2,250		90,000	59,000

d1 mm	inch	l1 mm	l2 mm
2,300		90,000	59,000
2,350		90,000	59,000
2,400		95,000	62,000
2,500		95,000	62,000
2,550		95,000	62,000
2,600		95,000	62,000
2,650		95,000	62,000
2,700		100,000	66,000
2,800		100,000	66,000
2,830		100,000	66,000
2,870		100,000	66,000
2,900		100,000	66,000
2,940		100,000	66,000
3,000		100,000	66,000
3,020		106,000	69,000
3,050		106,000	69,000
3,060		106,000	69,000
3,100		106,000	69,000
3,150		106,000	69,000
3,180		106,000	69,000
3,200		106,000	69,000
3,250		106,000	69,000
3,270		106,000	69,000
3,300		106,000	69,000
3,400		112,000	73,000
3,500		112,000	73,000
3,550		112,000	73,000
3,600		112,000	73,000
3,800		119,000	78,000
3,900		119,000	78,000
4,000		119,000	78,000
4,030		119,000	78,000
4,100		119,000	78,000
4,200		119,000	78,000
4,300		126,000	82,000
4,400		126,000	82,000
4,500		126,000	82,000
4,600		126,000	82,000
4,700		126,000	82,000
4,760	3/16	132,000	87,000
4,800		132,000	87,000
4,900		132,000	87,000

d1		l1	l2
mm	inch	mm	mm
5,000		132,000	87,000
5,100		132,000	87,000
5,200		132,000	87,000
5,300		132,000	87,000
5,400		139,000	91,000
5,450		139,000	91,000
5,500		139,000	91,000
5,600		139,000	91,000
5,900		139,000	91,000
5,950	15/64	139,000	91,000
6,000		139,000	91,000
6,100		148,000	97,000
6,200		148,000	97,000
6,300		148,000	97,000
6,420		148,000	97,000
6,500		148,000	97,000
6,600		148,000	97,000
6,700		148,000	97,000
6,800		156,000	102,000
6,900		156,000	102,000
7,000		156,000	102,000
7,200		156,000	102,000
7,350		156,000	102,000
7,500		156,000	102,000

d1		l1	l2
mm	inch	mm	mm
8,000		165,000	109,000
8,200		165,000	109,000
8,300		165,000	109,000
8,700		175,000	115,000
9,000		175,000	115,000
9,500		175,000	115,000
9,700		184,000	121,000
9,900		184,000	121,000
10,000		184,000	121,000
11,250		195,000	128,000
12,100		205,000	134,000
14,000		214,000	140,000
15,000		220,000	144,000
16,000		227,000	149,000

Brocas espirales cil., largas

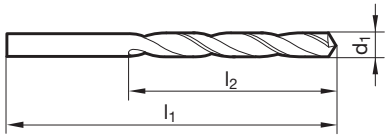
~10xD | DIN 340 | H | 118° | h8

Material de corte	HSS
Acabado	○
Dirección de corte	L

P	vaciado de punta ≥Ø 15,000 • entrada cónica • para taladros profundos
M	
K	
N	• materiales duros y quebradizos • latón, aleaciones de magnesio • bronce y bronce al fósforo • pizarra, mica, Pertinax
S	
H	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 786



Artículo N° **221**

d1 mm	inch	l1 mm	l2 mm
0,450		30,000	10,000
0,600		35,000	15,000
0,650		38,000	18,000
0,900		51,000	29,000
1,100		60,000	37,000
1,240		65,000	41,000
1,300		65,000	41,000
1,320		65,000	41,000
1,370		70,000	45,000
1,400		70,000	45,000
1,500		70,000	45,000
1,550		76,000	50,000
1,800		80,000	53,000
1,850		80,000	53,000
2,000		85,000	56,000
2,160		90,000	59,000
2,180		90,000	59,000
2,200		90,000	59,000
2,270		90,000	59,000
2,350		90,000	59,000
2,850		100,000	66,000
2,900		100,000	66,000
2,950		100,000	66,000
3,000		100,000	66,000
3,170	1/8	106,000	69,000
3,200		106,000	69,000
3,250		106,000	69,000
3,400		112,000	73,000
3,450		112,000	73,000
3,500		112,000	73,000

d1 mm	inch	l1 mm	l2 mm
3,510		112,000	73,000
3,700		112,000	73,000
4,100		119,000	78,000
4,200		119,000	78,000
4,400		126,000	82,000
4,500		126,000	82,000
4,900		132,000	87,000
5,000		132,000	87,000
5,050		132,000	87,000
5,100		132,000	87,000
5,400		139,000	91,000
5,600		139,000	91,000
5,900		139,000	91,000
6,000		139,000	91,000
6,800		156,000	102,000
8,000		165,000	109,000
9,000		175,000	115,000
12,800		205,000	134,000
15,000		220,000	144,000

Brocas espirales cil., largas

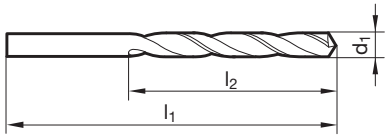
~10xD | DIN 340 | W | 130° | h8

Material de corte	HSS
Acabado	○
Dirección de corte	R

P		vaciado de punta ≥Ø 14,500 • entrada cónica • para taladros profundos
M		
K		
N	•	mat. blandos y de viruta larga • aluminio, alea. de alum. (de vir. larga) • zink, cobre fino, siluminio, electrón • plásticos (blandos), madera
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 786



Artículo N° **219**

d1 mm	inch	l1 mm	l2 mm	d1 mm	inch	l1 mm	l2 mm
0,500		32,000	12,000	2,100		85,000	56,000
0,600		35,000	15,000	2,150		90,000	59,000
0,650		38,000	18,000	2,200		90,000	59,000
0,700		42,000	21,000	2,250		90,000	59,000
0,740		42,000	21,000	2,300		90,000	59,000
0,750		42,000	21,000	2,350		90,000	59,000
0,800		46,000	25,000	2,380	3/32	95,000	62,000
0,850		46,000	25,000	2,400		95,000	62,000
0,900		51,000	29,000	2,430		95,000	62,000
0,950		51,000	29,000	2,450		95,000	62,000
0,970		56,000	33,000	2,490		95,000	62,000
0,980		56,000	33,000	2,500		95,000	62,000
1,000		56,000	33,000	2,550		95,000	62,000
1,100		60,000	37,000	2,600		95,000	62,000
1,180		60,000	37,000	2,650		95,000	62,000
1,190	3/64	65,000	41,000	2,700		100,000	66,000
1,200		65,000	41,000	2,710		100,000	66,000
1,220		65,000	41,000	2,750		100,000	66,000
1,250		65,000	41,000	2,800		100,000	66,000
1,300		65,000	41,000	2,850		100,000	66,000
1,350		70,000	45,000	2,880		100,000	66,000
1,370		70,000	45,000	2,900		100,000	66,000
1,400		70,000	45,000	2,950		100,000	66,000
1,440		70,000	45,000	3,000		100,000	66,000
1,500		70,000	45,000	3,100		106,000	69,000
1,520		76,000	50,000	3,170	1/8	106,000	69,000
1,600		76,000	50,000	3,180		106,000	69,000
1,610		76,000	50,000	3,200		106,000	69,000
1,650		76,000	50,000	3,250		106,000	69,000
1,700		76,000	50,000	3,260		106,000	69,000
1,750		80,000	53,000	3,300		106,000	69,000
1,760		80,000	53,000	3,350		106,000	69,000
1,770		80,000	53,000	3,400		112,000	73,000
1,780		80,000	53,000	3,500		112,000	73,000
1,800		80,000	53,000	3,550		112,000	73,000
1,850		80,000	53,000	3,600		112,000	73,000
1,900		80,000	53,000	3,650		112,000	73,000
1,950		85,000	56,000	3,700		112,000	73,000
1,970		85,000	56,000	3,750		112,000	73,000
2,000		85,000	56,000	3,800		119,000	78,000
2,050		85,000	56,000	3,830		119,000	78,000
2,070		85,000	56,000	3,900		119,000	78,000

d1		l1	l2
mm	inch	mm	mm
3,920		119,000	78,000
3,990		119,000	78,000
4,000		119,000	78,000
4,100		119,000	78,000
4,150		119,000	78,000
4,200		119,000	78,000
4,250		119,000	78,000
4,300		126,000	82,000
4,400		126,000	82,000
4,500		126,000	82,000
4,700		126,000	82,000
4,800		132,000	87,000
4,830		132,000	87,000
4,870		132,000	87,000
4,900		132,000	87,000
4,950		132,000	87,000
5,000		132,000	87,000
5,100		132,000	87,000
5,200		132,000	87,000
5,300		132,000	87,000
5,400		139,000	91,000
5,430		139,000	91,000
5,500		139,000	91,000
5,650		139,000	91,000
5,700		139,000	91,000
5,800		139,000	91,000
5,900		139,000	91,000
5,980		139,000	91,000
6,000		139,000	91,000
6,100		148,000	97,000
6,250		148,000	97,000
6,300		148,000	97,000
6,400		148,000	97,000
6,500		148,000	97,000
6,600		148,000	97,000
6,700		148,000	97,000
6,800		156,000	102,000
6,900		156,000	102,000
7,000		156,000	102,000
7,100		156,000	102,000
7,300		156,000	102,000
7,400		156,000	102,000
7,450		156,000	102,000
7,500		156,000	102,000
7,540	19/64	165,000	109,000
7,550		165,000	109,000
7,670		165,000	109,000
7,700		165,000	109,000

d1		l1	l2
mm	inch	mm	mm
7,850		165,000	109,000
7,900		165,000	109,000
7,950		165,000	109,000
8,000		165,000	109,000
8,200		165,000	109,000
8,300		165,000	109,000
8,500		165,000	109,000
8,550		175,000	115,000
8,600		175,000	115,000
8,700		175,000	115,000
8,750		175,000	115,000
8,800		175,000	115,000
8,900		175,000	115,000
9,000		175,000	115,000
9,100		175,000	115,000
9,500		175,000	115,000
9,700		184,000	121,000
9,800		184,000	121,000
9,900		184,000	121,000
10,000		184,000	121,000
10,300		184,000	121,000
10,700		195,000	128,000
10,750		195,000	128,000
11,000		195,000	128,000
11,300		195,000	128,000
11,400		195,000	128,000
12,000		205,000	134,000
13,100	33/64	205,000	134,000
13,500		214,000	140,000
13,750		214,000	140,000
14,000		214,000	140,000
14,500		220,000	144,000
15,000		220,000	144,000
15,500		227,000	149,000
17,000		235,000	154,000
18,000		241,000	158,000
18,250		247,000	162,000
19,000		247,000	162,000
19,840	25/32	254,000	166,000
20,000		254,000	166,000
20,640	13/16	261,000	171,000

Brocas espirales cil., largas

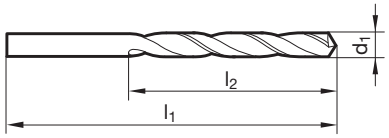
~10xD | DIN 340 | GT 100 | 130° | h8

Material de corte	HSS
Acabado	>Ø 2,36
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,000 • entrada cónica • ranuras amplias • con desalojo de viruta difícil
M		
K	•	
N	•	fundición gris y aceros hasta máx. 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 786



Artículo N° **535**

d1 mm	inch	l1 mm	l2 mm
1,000		56,000	33,000
1,020		56,000	33,000
1,040		56,000	33,000
1,050		56,000	33,000
1,070		60,000	37,000
1,090		60,000	37,000
1,100		60,000	37,000
1,150		60,000	37,000
1,180		60,000	37,000
1,190	3/64	65,000	41,000
1,200		65,000	41,000
1,250		65,000	41,000
1,300		65,000	41,000
1,320		65,000	41,000
1,350		70,000	45,000
1,400		70,000	45,000
1,450		70,000	45,000
1,500		70,000	45,000
1,510		76,000	50,000
1,520		76,000	50,000
1,550		76,000	50,000
1,590	1/16	76,000	50,000
1,600		76,000	50,000
1,650		76,000	50,000
1,670		76,000	50,000
1,700		76,000	50,000
1,750		80,000	53,000
1,780		80,000	53,000
1,800		80,000	53,000
1,850		80,000	53,000
1,900		80,000	53,000
1,930		85,000	56,000
1,950		85,000	56,000
1,980	5/64	85,000	56,000
1,990		85,000	56,000
2,000		85,000	56,000
2,050		85,000	56,000
2,060		85,000	56,000
2,080		85,000	56,000
2,100		85,000	56,000
2,150		90,000	59,000
2,180		90,000	59,000

d1 mm	inch	l1 mm	l2 mm
2,200		90,000	59,000
2,250		90,000	59,000
2,260		90,000	59,000
2,300		90,000	59,000
2,350		90,000	59,000
2,370		95,000	62,000
2,380	3/32	95,000	62,000
2,400		95,000	62,000
2,440		95,000	62,000
2,450		95,000	62,000
2,480		95,000	62,000
2,490		95,000	62,000
2,500		95,000	62,000
2,530		95,000	62,000
2,550		95,000	62,000
2,580		95,000	62,000
2,600		95,000	62,000
2,640		95,000	62,000
2,650		95,000	62,000
2,700		100,000	66,000
2,710		100,000	66,000
2,750		100,000	66,000
2,780	7/64	100,000	66,000
2,790		100,000	66,000
2,800		100,000	66,000
2,820		100,000	66,000
2,830		100,000	66,000
2,850		100,000	66,000
2,870		100,000	66,000
2,900		100,000	66,000
2,940		100,000	66,000
2,950		100,000	66,000
3,000		100,000	66,000
3,050		106,000	69,000
3,100		106,000	69,000
3,150		106,000	69,000
3,170	1/8	106,000	69,000
3,200		106,000	69,000
3,250		106,000	69,000
3,260		106,000	69,000
3,270		106,000	69,000
3,300		106,000	69,000

d1		l1	l2
mm	inch	mm	mm
3,400		112,000	73,000
3,450		112,000	73,000
3,500		112,000	73,000
3,550		112,000	73,000
3,570	9/64	112,000	73,000
3,600		112,000	73,000
3,660		112,000	73,000
3,700		112,000	73,000
3,730		112,000	73,000
3,750		112,000	73,000
3,800		119,000	78,000
3,860		119,000	78,000
3,900		119,000	78,000
3,910		119,000	78,000
3,970	5/32	119,000	78,000
3,990		119,000	78,000
4,000		119,000	78,000
4,040		119,000	78,000
4,050		119,000	78,000
4,090		119,000	78,000
4,100		119,000	78,000
4,130		119,000	78,000
4,150		119,000	78,000
4,200		119,000	78,000
4,220		119,000	78,000
4,250		119,000	78,000
4,300		126,000	82,000
4,350		126,000	82,000
4,370	11/64	126,000	82,000
4,390		126,000	82,000
4,400		126,000	82,000
4,500		126,000	82,000
4,570		126,000	82,000
4,600		126,000	82,000
4,620		126,000	82,000
4,700		126,000	82,000
4,750		126,000	82,000
4,760	3/16	132,000	87,000
4,800		132,000	87,000
4,850		132,000	87,000
4,900		132,000	87,000
4,920		132,000	87,000
4,980		132,000	87,000
5,000		132,000	87,000
5,050		132,000	87,000
5,060		132,000	87,000
5,100		132,000	87,000
5,110		132,000	87,000
5,160	13/64	132,000	87,000
5,180		132,000	87,000
5,200		132,000	87,000
5,220		132,000	87,000
5,250		132,000	87,000
5,300		132,000	87,000
5,310		139,000	91,000
5,400		139,000	91,000
5,410		139,000	91,000
5,500		139,000	91,000
5,560	7/32	139,000	91,000
5,600		139,000	91,000
5,610		139,000	91,000
5,700		139,000	91,000
5,750		139,000	91,000
5,790		139,000	91,000
5,800		139,000	91,000
5,900		139,000	91,000
5,940		139,000	91,000
5,950	15/64	139,000	91,000
6,000		139,000	91,000
6,040		148,000	97,000
6,050		148,000	97,000
6,100		148,000	97,000

d1		l1	l2
mm	inch	mm	mm
6,150		148,000	97,000
6,200		148,000	97,000
6,250		148,000	97,000
6,300		148,000	97,000
6,350	1/4	148,000	97,000
6,400		148,000	97,000
6,500		148,000	97,000
6,530		148,000	97,000
6,600		148,000	97,000
6,630		148,000	97,000
6,700		148,000	97,000
6,750	17/64	156,000	102,000
6,800		156,000	102,000
6,900		156,000	102,000
6,910		156,000	102,000
7,000		156,000	102,000
7,030		156,000	102,000
7,040		156,000	102,000
7,100		156,000	102,000
7,140	9/32	156,000	102,000
7,200		156,000	102,000
7,300		156,000	102,000
7,370		156,000	102,000
7,400		156,000	102,000
7,490		156,000	102,000
7,500		156,000	102,000
7,540	19/64	165,000	109,000
7,600		165,000	109,000
7,670		165,000	109,000
7,700		165,000	109,000
7,750		165,000	109,000
7,800		165,000	109,000
7,850		165,000	109,000
7,900		165,000	109,000
7,940	5/16	165,000	109,000
8,000		165,000	109,000
8,030		165,000	109,000
8,100		165,000	109,000
8,200		165,000	109,000
8,250		165,000	109,000
8,300		165,000	109,000
8,330	21/64	165,000	109,000
8,400		165,000	109,000
8,430		165,000	109,000
8,500		165,000	109,000
8,600		175,000	115,000
8,610		175,000	115,000
8,700		175,000	115,000
8,730	11/32	175,000	115,000
8,800		175,000	115,000
8,840		175,000	115,000
8,900		175,000	115,000
9,000		175,000	115,000
9,090		175,000	115,000
9,100		175,000	115,000
9,130	23/64	175,000	115,000
9,200		175,000	115,000
9,300		175,000	115,000
9,340		175,000	115,000
9,350		175,000	115,000
9,400		175,000	115,000
9,500		175,000	115,000
9,520	3/8	184,000	121,000
9,600		184,000	121,000
9,700		184,000	121,000
9,800		184,000	121,000
9,900		184,000	121,000
9,920	25/64	184,000	121,000
10,000		184,000	121,000
10,080		184,000	121,000
10,100		184,000	121,000
10,200		184,000	121,000

d1		l1	l2
mm	inch	mm	mm
10,300		184,000	121,000
10,320	13/32	184,000	121,000
10,400		184,000	121,000
10,490		184,000	121,000
10,500		184,000	121,000
10,600		184,000	121,000
10,720	27/64	195,000	128,000
10,800		195,000	128,000
10,900		195,000	128,000
11,000		195,000	128,000
11,100		195,000	128,000
11,110	7/16	195,000	128,000
11,300		195,000	128,000
11,400		195,000	128,000
11,500		195,000	128,000
11,800		195,000	128,000
11,900		205,000	134,000
11,910	15/32	205,000	134,000

d1		l1	l2
mm	inch	mm	mm
12,000		205,000	134,000
12,150		205,000	134,000
12,300	31/64	205,000	134,000
12,500		205,000	134,000
12,600		205,000	134,000
12,700	1/2	205,000	134,000
13,000		205,000	134,000
13,100	33/64	205,000	134,000
13,490	17/32	214,000	140,000
13,500		214,000	140,000
13,700		214,000	140,000
13,890	35/64	214,000	140,000
13,900		214,000	140,000
14,000		214,000	140,000

Brocas espirales cil., largas

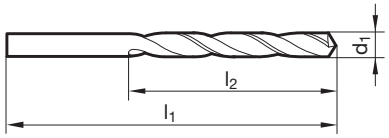
~10xD | DIN 340 | GT 100 | 130° | h8

Material de corte	HSS
Acabado	S
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,000 • entrada cónica • ranuras amplias • con desalojo de viruta difícil
M		
K	•	
N	•	fundición gris y aceros hasta máx. 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 786



Artículo N° **668**

d1 mm	inch	l1 mm	l2 mm
1,000		56,000	33,000
1,090		60,000	37,000
1,100		60,000	37,000
1,180		60,000	37,000
1,190	3/64	65,000	41,000
1,200		65,000	41,000
1,300		65,000	41,000
1,320		65,000	41,000
1,400		70,000	45,000
1,500		70,000	45,000
1,510		76,000	50,000
1,590	1/16	76,000	50,000
1,600		76,000	50,000
1,650		76,000	50,000
1,700		76,000	50,000
1,800		80,000	53,000
1,850		80,000	53,000
1,900		80,000	53,000
1,930		85,000	56,000
1,950		85,000	56,000
1,980	5/64	85,000	56,000
1,990		85,000	56,000
2,000		85,000	56,000
2,060		85,000	56,000
2,080		85,000	56,000
2,100		85,000	56,000
2,180		90,000	59,000
2,200		90,000	59,000
2,260		90,000	59,000
2,300		90,000	59,000
2,380	3/32	95,000	62,000
2,400		95,000	62,000
2,490		95,000	62,000
2,500		95,000	62,000
2,530		95,000	62,000
2,550		95,000	62,000
2,580		95,000	62,000
2,600		95,000	62,000
2,640		95,000	62,000
2,700		100,000	66,000
2,710		100,000	66,000
2,780	7/64	100,000	66,000

d1 mm	inch	l1 mm	l2 mm
2,800		100,000	66,000
2,820		100,000	66,000
2,850		100,000	66,000
2,870		100,000	66,000
2,900		100,000	66,000
2,950		100,000	66,000
3,000		100,000	66,000
3,050		106,000	69,000
3,100		106,000	69,000
3,170	1/8	106,000	69,000
3,200		106,000	69,000
3,250		106,000	69,000
3,260		106,000	69,000
3,300		106,000	69,000
3,400		112,000	73,000
3,450		112,000	73,000
3,500		112,000	73,000
3,570	9/64	112,000	73,000
3,600		112,000	73,000
3,700		112,000	73,000
3,730		112,000	73,000
3,750		112,000	73,000
3,800		119,000	78,000
3,860		119,000	78,000
3,870		119,000	78,000
3,900		119,000	78,000
3,910		119,000	78,000
3,970	5/32	119,000	78,000
4,000		119,000	78,000
4,040		119,000	78,000
4,090		119,000	78,000
4,100		119,000	78,000
4,200		119,000	78,000
4,220		119,000	78,000
4,300		126,000	82,000
4,370	11/64	126,000	82,000
4,400		126,000	82,000
4,500		126,000	82,000
4,600		126,000	82,000
4,700		126,000	82,000
4,760	3/16	132,000	87,000
4,800		132,000	87,000

d1		l1	l2
mm	inch	mm	mm
4,850		132,000	87,000
4,900		132,000	87,000
4,910		132,000	87,000
4,920		132,000	87,000
5,000		132,000	87,000
5,060		132,000	87,000
5,100		132,000	87,000
5,160	13/64	132,000	87,000
5,200		132,000	87,000
5,300		132,000	87,000
5,400		139,000	91,000
5,500		139,000	91,000
5,560	7/32	139,000	91,000
5,600		139,000	91,000
5,700		139,000	91,000
5,800		139,000	91,000
5,900		139,000	91,000
5,950	15/64	139,000	91,000
6,000		139,000	91,000
6,040		148,000	97,000
6,100		148,000	97,000
6,150		148,000	97,000
6,200		148,000	97,000
6,250		148,000	97,000
6,300		148,000	97,000
6,350	1/4	148,000	97,000
6,400		148,000	97,000
6,500		148,000	97,000
6,530		148,000	97,000
6,600		148,000	97,000
6,630		148,000	97,000
6,700		148,000	97,000
6,750	17/64	156,000	102,000
6,760		156,000	102,000
6,800		156,000	102,000
6,900		156,000	102,000
7,000		156,000	102,000
7,100		156,000	102,000
7,140	9/32	156,000	102,000
7,250		156,000	102,000
7,300		156,000	102,000
7,370		156,000	102,000
7,490		156,000	102,000
7,500		156,000	102,000
7,600		165,000	109,000
7,700		165,000	109,000
7,800		165,000	109,000
7,900		165,000	109,000

d1		l1	l2
mm	inch	mm	mm
7,940	5/16	165,000	109,000
8,000		165,000	109,000
8,200		165,000	109,000
8,300		165,000	109,000
8,400		165,000	109,000
8,430		165,000	109,000
8,500		165,000	109,000
8,600		175,000	115,000
8,610		175,000	115,000
8,700		175,000	115,000
8,730	11/32	175,000	115,000
8,800		175,000	115,000
8,900		175,000	115,000
9,000		175,000	115,000
9,130	23/64	175,000	115,000
9,200		175,000	115,000
9,340		175,000	115,000
9,400		175,000	115,000
9,500		175,000	115,000
9,520	3/8	184,000	121,000
9,700		184,000	121,000
9,900		184,000	121,000
9,920	25/64	184,000	121,000
10,000		184,000	121,000
10,100		184,000	121,000
10,200		184,000	121,000
10,320	13/32	184,000	121,000
10,500		184,000	121,000
11,000		195,000	128,000
11,110	7/16	195,000	128,000
11,500		195,000	128,000
11,510	29/64	195,000	128,000
11,910	15/32	205,000	134,000
12,000		205,000	134,000
12,300	31/64	205,000	134,000
12,700	1/2	205,000	134,000
13,000		205,000	134,000
14,000		214,000	140,000

Brocas espirales cil., largas

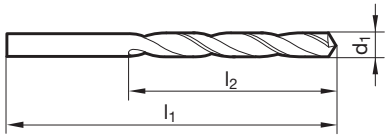
~10xD | DIN 340 | GT 100 | 130° | h8

Material de corte	HSS
Acabado	F
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,000 • entrada cónica • ranuras amplias • con desalojo de viruta difícil
M		
K	•	
N	•	fundición gris y aceros hasta máx. 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 786



Artículo N° **2462**

d1		l1	l2
mm	inch	mm	mm
1,000		56,000	33,000
1,100		60,000	37,000
1,200		65,000	41,000
1,300		65,000	41,000
1,500		70,000	45,000
1,600		76,000	50,000
1,700		76,000	50,000
1,800		80,000	53,000
1,900		80,000	53,000
2,000		85,000	56,000
2,100		85,000	56,000
2,200		90,000	59,000
2,300		90,000	59,000
2,400		95,000	62,000
2,500		95,000	62,000
2,600		95,000	62,000
2,800		100,000	66,000
2,900		100,000	66,000
3,000		100,000	66,000
3,100		106,000	69,000
3,200		106,000	69,000
3,300		106,000	69,000
3,400		112,000	73,000
3,500		112,000	73,000

d1		l1	l2
mm	inch	mm	mm
3,800		119,000	78,000
4,000		119,000	78,000
4,200		119,000	78,000
4,300		126,000	82,000
4,500		126,000	82,000
4,800		132,000	87,000
5,000		132,000	87,000
5,200		132,000	87,000
5,400		139,000	91,000
5,500		139,000	91,000
6,000		139,000	91,000
6,100		148,000	97,000
6,200		148,000	97,000
6,500		148,000	97,000
6,600		148,000	97,000
6,800		156,000	102,000
7,000		156,000	102,000
7,200		156,000	102,000
7,300		156,000	102,000
7,600		165,000	109,000
8,000		165,000	109,000
9,000		175,000	115,000
10,000		184,000	121,000

Brocas espirales cil., largas

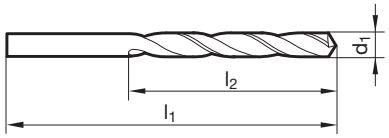
~10xD | DIN 340 | GT 100 | 130° | h8

Material de corte	HSS
Acabado	>Ø 2,36
Dirección de corte	L

P	•	vaciado de punta ≥Ø 1,400 • entrada cónica • ranuras amplias • con desalojo de viruta difícil
M		
K	•	
N	•	fundición gris y aceros hasta máx. 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 786



Artículo N° **506**

d1		l1	l2
mm	inch	mm	mm
1,400		70,000	45,000
1,500		70,000	45,000
1,600		76,000	50,000
1,680		76,000	50,000
1,800		80,000	53,000
1,850		80,000	53,000
2,000		85,000	56,000
2,200		90,000	59,000
2,300		90,000	59,000
2,350		90,000	59,000
2,500		95,000	62,000
2,800		100,000	66,000
3,000		100,000	66,000
3,050		106,000	69,000
3,200		106,000	69,000
3,300		106,000	69,000
3,400		112,000	73,000
3,500		112,000	73,000
3,550		112,000	73,000
3,800		119,000	78,000
3,950		119,000	78,000
4,000		119,000	78,000
4,400		126,000	82,000
4,500		126,000	82,000

d1		l1	l2
mm	inch	mm	mm
4,600		126,000	82,000
4,760	3/16	132,000	87,000
4,800		132,000	87,000
4,950		132,000	87,000
5,160	13/64	132,000	87,000
5,200		132,000	87,000
5,400		139,000	91,000
5,600		139,000	91,000
5,700		139,000	91,000
5,800		139,000	91,000
5,900		139,000	91,000
6,000		139,000	91,000
7,400		156,000	102,000
7,800		165,000	109,000
8,500		165,000	109,000
9,000		175,000	115,000
9,900		184,000	121,000
10,320	13/32	184,000	121,000
11,000		195,000	128,000
11,500		195,000	128,000
11,600		195,000	128,000
12,000		205,000	134,000
12,500		205,000	134,000
13,000		205,000	134,000

Brocas espirales cil., largas

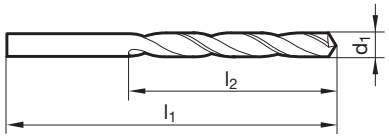
~10xD | DIN 340 | GT 50 | 130° | h8

Material de corte	HSS
Acabado	○
Dirección de corte	Ⓡ

P	○	vaciado de punta ≥Ø 2,370 • entrada cónica • ranura muy grande
M		
K		
N	•	mat. blandos y de viruta larga de hasta a 500 N/mm² • aceros blandos para automáticos • aluminio, alea. de alum. (de vir. larga) • zink, cobre fino, siluminio, electrón • zamak, argalio, plásticos (blandos) y madera
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 786



Artículo N° **501**

d1 mm	inch	l1 mm	l2 mm
1,000		56,000	33,000
1,020		56,000	33,000
1,030		56,000	33,000
1,040		56,000	33,000
1,070		60,000	37,000
1,090		60,000	37,000
1,100		60,000	37,000
1,180		60,000	37,000
1,190	3/64	65,000	41,000
1,200		65,000	41,000
1,250		65,000	41,000
1,300		65,000	41,000
1,320		65,000	41,000
1,400		70,000	45,000
1,450		70,000	45,000
1,480		70,000	45,000
1,500		70,000	45,000
1,510		76,000	50,000
1,550		76,000	50,000
1,590	1/16	76,000	50,000
1,600		76,000	50,000
1,610		76,000	50,000
1,700		76,000	50,000
1,750		80,000	53,000
1,780		80,000	53,000
1,800		80,000	53,000
1,850		80,000	53,000
1,900		80,000	53,000
1,930		85,000	56,000
1,950		85,000	56,000
1,980	5/64	85,000	56,000
1,990		85,000	56,000
2,000		85,000	56,000
2,050		85,000	56,000
2,060		85,000	56,000
2,080		85,000	56,000
2,100		85,000	56,000
2,180		90,000	59,000
2,200		90,000	59,000
2,250		90,000	59,000
2,260		90,000	59,000
2,300		90,000	59,000

d1 mm	inch	l1 mm	l2 mm
2,350		90,000	59,000
2,370		95,000	62,000
2,380	3/32	95,000	62,000
2,400		95,000	62,000
2,440		95,000	62,000
2,450		95,000	62,000
2,490		95,000	62,000
2,500		95,000	62,000
2,520		95,000	62,000
2,530		95,000	62,000
2,550		95,000	62,000
2,580		95,000	62,000
2,600		95,000	62,000
2,640		95,000	62,000
2,650		95,000	62,000
2,700		100,000	66,000
2,710		100,000	66,000
2,750		100,000	66,000
2,780	7/64	100,000	66,000
2,790		100,000	66,000
2,800		100,000	66,000
2,820		100,000	66,000
2,850		100,000	66,000
2,870		100,000	66,000
2,900		100,000	66,000
2,950		100,000	66,000
3,000		100,000	66,000
3,050		106,000	69,000
3,100		106,000	69,000
3,170	1/8	106,000	69,000
3,200		106,000	69,000
3,250		106,000	69,000
3,260		106,000	69,000
3,300		106,000	69,000
3,350		106,000	69,000
3,400		112,000	73,000
3,450		112,000	73,000
3,500		112,000	73,000
3,570	9/64	112,000	73,000
3,600		112,000	73,000
3,650		112,000	73,000
3,660		112,000	73,000

d1		l1	l2
mm	inch	mm	mm
3,700		112,000	73,000
3,800		119,000	78,000
3,860		119,000	78,000
3,900		119,000	78,000
3,910		119,000	78,000
3,970	5/32	119,000	78,000
3,990		119,000	78,000
4,000		119,000	78,000
4,040		119,000	78,000
4,050		119,000	78,000
4,090		119,000	78,000
4,100		119,000	78,000
4,200		119,000	78,000
4,220		119,000	78,000
4,250		119,000	78,000
4,300		126,000	82,000
4,350		126,000	82,000
4,370	11/64	126,000	82,000
4,400		126,000	82,000
4,500		126,000	82,000
4,570		126,000	82,000
4,600		126,000	82,000
4,620		126,000	82,000
4,700		126,000	82,000
4,750		126,000	82,000
4,760	3/16	132,000	87,000
4,800		132,000	87,000
4,850		132,000	87,000
4,900		132,000	87,000
4,920		132,000	87,000
4,980		132,000	87,000
5,000		132,000	87,000
5,060		132,000	87,000
5,100		132,000	87,000
5,110		132,000	87,000
5,160	13/64	132,000	87,000
5,180		132,000	87,000
5,200		132,000	87,000
5,300		132,000	87,000
5,310		139,000	91,000
5,400		139,000	91,000
5,410		139,000	91,000
5,500		139,000	91,000
5,560	7/32	139,000	91,000
5,600		139,000	91,000
5,610		139,000	91,000
5,650		139,000	91,000
5,700		139,000	91,000
5,790		139,000	91,000
5,800		139,000	91,000
5,900		139,000	91,000
5,940		139,000	91,000
5,950	15/64	139,000	91,000
6,000		139,000	91,000
6,030		148,000	97,000
6,040		148,000	97,000
6,150		148,000	97,000
6,200		148,000	97,000
6,250		148,000	97,000
6,300		148,000	97,000
6,350	1/4	148,000	97,000
6,400		148,000	97,000
6,500		148,000	97,000
6,530		148,000	97,000
6,600		148,000	97,000
6,630		148,000	97,000
6,700		148,000	97,000
6,750	17/64	156,000	102,000
6,800		156,000	102,000
6,900		156,000	102,000
7,000		156,000	102,000
7,040		156,000	102,000

d1		l1	l2
mm	inch	mm	mm
7,100		156,000	102,000
7,140	9/32	156,000	102,000
7,300		156,000	102,000
7,370		156,000	102,000
7,490		156,000	102,000
7,500		156,000	102,000
7,540	19/64	165,000	109,000
7,600		165,000	109,000
7,670		165,000	109,000
7,900		165,000	109,000
7,940	5/16	165,000	109,000
8,000		165,000	109,000
8,025		165,000	109,000
8,030		165,000	109,000
8,100		165,000	109,000
8,200		165,000	109,000
8,330	21/64	165,000	109,000
8,430		165,000	109,000
8,500		165,000	109,000
8,600		175,000	115,000
8,610		175,000	115,000
8,700		175,000	115,000
8,730	11/32	175,000	115,000
8,750		175,000	115,000
8,900		175,000	115,000
9,000		175,000	115,000
9,090		175,000	115,000
9,100		175,000	115,000
9,130	23/64	175,000	115,000
9,300		175,000	115,000
9,340		175,000	115,000
9,350		175,000	115,000
9,400		175,000	115,000
9,500		175,000	115,000
9,520	3/8	184,000	121,000
9,580		184,000	121,000
9,600		184,000	121,000
9,800		184,000	121,000
9,900		184,000	121,000
9,920	25/64	184,000	121,000
10,000		184,000	121,000
10,080		184,000	121,000
10,200		184,000	121,000
10,260		184,000	121,000
10,320	13/32	184,000	121,000
10,500		184,000	121,000
10,600		184,000	121,000
10,700		195,000	128,000
10,720	27/64	195,000	128,000
10,800		195,000	128,000
11,000		195,000	128,000
11,110	7/16	195,000	128,000
11,200		195,000	128,000
11,400		195,000	128,000
11,500		195,000	128,000
11,510	29/64	195,000	128,000
11,750		195,000	128,000
11,800		195,000	128,000
11,900		205,000	134,000
11,910	15/32	205,000	134,000
12,000		205,000	134,000
12,200		205,000	134,000
12,300	31/64	205,000	134,000
12,500		205,000	134,000
12,700	1/2	205,000	134,000
13,000		205,000	134,000
13,100	33/64	205,000	134,000
13,490	17/32	214,000	140,000
14,000		214,000	140,000
32,600		325,000	213,000

Brocas espirales cil., largas

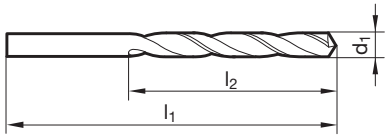
~10xD | DIN 340 | N | 118° | h8

Material de corte	HSCO
Acabado	>Ø 2,36
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,000 • entrada cónica • acero rápido al cobalto • más resistencia al desgaste
M	○	
K	•	
N	•	aceros aleados y no aleados fundición de dureza sup. a 800 N/mm² • aceros para trab. en frío y en caliente • aceros para rodamientos • aceros altamente aleados • aceros de cementación, de bonificación
S	○	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 792



Artículo N° **317**

d1 mm	inch	l1 mm	l2 mm
0,500		32,000	12,000
0,600		35,000	15,000
0,700		42,000	21,000
0,750		42,000	21,000
0,800		46,000	25,000
0,850		46,000	25,000
0,900		51,000	29,000
0,950		51,000	29,000
0,960		56,000	33,000
1,000		56,000	33,000
1,020		56,000	33,000
1,050		56,000	33,000
1,100		60,000	37,000
1,150		60,000	37,000
1,190	3/64	65,000	41,000
1,200		65,000	41,000
1,250		65,000	41,000
1,300		65,000	41,000
1,350		70,000	45,000
1,400		70,000	45,000
1,450		70,000	45,000
1,500		70,000	45,000
1,510		76,000	50,000
1,550		76,000	50,000
1,590	1/16	76,000	50,000
1,600		76,000	50,000
1,650		76,000	50,000
1,700		76,000	50,000
1,780		80,000	53,000
1,800		80,000	53,000
1,850		80,000	53,000
1,900		80,000	53,000
1,950		85,000	56,000
1,980	5/64	85,000	56,000
2,000		85,000	56,000
2,050		85,000	56,000
2,060		85,000	56,000
2,100		85,000	56,000
2,200		90,000	59,000
2,300		90,000	59,000
2,380	3/32	95,000	62,000
2,400		95,000	62,000

d1 mm	inch	l1 mm	l2 mm
2,500		95,000	62,000
2,600		95,000	62,000
2,700		100,000	66,000
2,780	7/64	100,000	66,000
2,800		100,000	66,000
2,900		100,000	66,000
3,000		100,000	66,000
3,050		106,000	69,000
3,100		106,000	69,000
3,170	1/8	106,000	69,000
3,200		106,000	69,000
3,250		106,000	69,000
3,300		106,000	69,000
3,400		112,000	73,000
3,500		112,000	73,000
3,550		112,000	73,000
3,570	9/64	112,000	73,000
3,600		112,000	73,000
3,700		112,000	73,000
3,800		119,000	78,000
3,900		119,000	78,000
3,970	5/32	119,000	78,000
4,000		119,000	78,000
4,040		119,000	78,000
4,100		119,000	78,000
4,200		119,000	78,000
4,300		126,000	82,000
4,370	11/64	126,000	82,000
4,400		126,000	82,000
4,500		126,000	82,000
4,600		126,000	82,000
4,700		126,000	82,000
4,760	3/16	132,000	87,000
4,800		132,000	87,000
4,850		132,000	87,000
4,900		132,000	87,000
5,000		132,000	87,000
5,050		132,000	87,000
5,100		132,000	87,000
5,160	13/64	132,000	87,000
5,200		132,000	87,000
5,300		132,000	87,000

d1		l1	l2
mm	inch	mm	mm
5,400		139,000	91,000
5,500		139,000	91,000
5,560	7/32	139,000	91,000
5,600		139,000	91,000
5,700		139,000	91,000
5,800		139,000	91,000
5,900		139,000	91,000
5,950	15/64	139,000	91,000
6,000		139,000	91,000
6,100		148,000	97,000
6,200		148,000	97,000
6,300		148,000	97,000
6,350	1/4	148,000	97,000
6,400		148,000	97,000
6,500		148,000	97,000
6,600		148,000	97,000
6,630		148,000	97,000
6,750	17/64	156,000	102,000
6,800		156,000	102,000
6,900		156,000	102,000
7,000		156,000	102,000
7,140	9/32	156,000	102,000
7,200		156,000	102,000
7,500		156,000	102,000
7,540	19/64	165,000	109,000
7,600		165,000	109,000
7,700		165,000	109,000
7,800		165,000	109,000
7,940	5/16	165,000	109,000
8,000		165,000	109,000
8,200		165,000	109,000
8,330	21/64	165,000	109,000
8,430		165,000	109,000
8,500		165,000	109,000
8,600		175,000	115,000
8,730	11/32	175,000	115,000
8,800		175,000	115,000
9,000		175,000	115,000
9,130	23/64	175,000	115,000
9,200		175,000	115,000
9,300		175,000	115,000
9,500		175,000	115,000

d1		l1	l2
mm	inch	mm	mm
9,520	3/8	184,000	121,000
9,700		184,000	121,000
9,920	25/64	184,000	121,000
10,000		184,000	121,000
10,100		184,000	121,000
10,200		184,000	121,000
10,320	13/32	184,000	121,000
10,500		184,000	121,000
10,720	27/64	195,000	128,000
10,750		195,000	128,000
10,800		195,000	128,000
11,000		195,000	128,000
11,110	7/16	195,000	128,000
11,200		195,000	128,000
11,500		195,000	128,000
11,510	29/64	195,000	128,000
11,910	15/32	205,000	134,000
12,000		205,000	134,000
12,300	31/64	205,000	134,000
12,500		205,000	134,000
12,700	1/2	205,000	134,000
13,000		205,000	134,000
13,100	33/64	205,000	134,000
13,500		214,000	140,000
13,700		214,000	140,000
13,890	35/64	214,000	140,000
13,900		214,000	140,000
14,000		214,000	140,000
14,290	9/16	220,000	144,000
14,400		220,000	144,000
14,600		220,000	144,000
14,680	37/64	220,000	144,000
14,700		220,000	144,000
14,750		220,000	144,000
14,900		220,000	144,000
15,000		220,000	144,000
15,080	19/32	227,000	149,000
15,480	39/64	227,000	149,000
15,800		227,000	149,000
15,870	5/8	227,000	149,000
16,000		227,000	149,000
22,000		268,000	176,000

Brocas espirales cil., largas

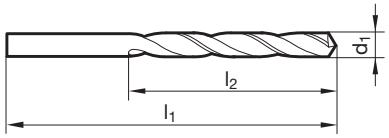
~10xD | DIN 340 | GT 100 | 130° | h8

Material de corte	HSCO
Acabado	>Ø 2,36
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,000 • entrada cónica • acero rápido al cobalto • ranuras amplias • más resistencia al desgaste • con desalojo de viruta difícil
M	•	
K	•	
N	•	aceros aleados y no aleados fundición de dureza sup. a 800 N/mm² • aceros para trab. en frío y en caliente • aceros para rodamientos • aceros altamente aleados • aceros de cementación, de bonificación
S		
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 792



Artículo N° **336**

d1 mm	inch	l1 mm	l2 mm	d1 mm	inch	l1 mm	l2 mm
1,000		56,000	33,000	2,440		95,000	62,000
1,020		56,000	33,000	2,450		95,000	62,000
1,040		56,000	33,000	2,490		95,000	62,000
1,070		60,000	37,000	2,500		95,000	62,000
1,090		60,000	37,000	2,530		95,000	62,000
1,100		60,000	37,000	2,550		95,000	62,000
1,180		60,000	37,000	2,580		95,000	62,000
1,190	3/64	65,000	41,000	2,600		95,000	62,000
1,200		65,000	41,000	2,640		95,000	62,000
1,250		65,000	41,000	2,700		100,000	66,000
1,300		65,000	41,000	2,710		100,000	66,000
1,320		65,000	41,000	2,750		100,000	66,000
1,400		70,000	45,000	2,780	7/64	100,000	66,000
1,500		70,000	45,000	2,790		100,000	66,000
1,510		76,000	50,000	2,800		100,000	66,000
1,550		76,000	50,000	2,820		100,000	66,000
1,590	1/16	76,000	50,000	2,850		100,000	66,000
1,600		76,000	50,000	2,870		100,000	66,000
1,610		76,000	50,000	2,900		100,000	66,000
1,700		76,000	50,000	2,950		100,000	66,000
1,750		80,000	53,000	3,000		100,000	66,000
1,780		80,000	53,000	3,050		106,000	69,000
1,800		80,000	53,000	3,100		106,000	69,000
1,850		80,000	53,000	3,170	1/8	106,000	69,000
1,900		80,000	53,000	3,200		106,000	69,000
1,930		85,000	56,000	3,260		106,000	69,000
1,980	5/64	85,000	56,000	3,300		106,000	69,000
1,990		85,000	56,000	3,400		112,000	73,000
2,000		85,000	56,000	3,440		112,000	73,000
2,050		85,000	56,000	3,450		112,000	73,000
2,060		85,000	56,000	3,500		112,000	73,000
2,080		85,000	56,000	3,570	9/64	112,000	73,000
2,100		85,000	56,000	3,600		112,000	73,000
2,180		90,000	59,000	3,660		112,000	73,000
2,200		90,000	59,000	3,700		112,000	73,000
2,250		90,000	59,000	3,730		112,000	73,000
2,260		90,000	59,000	3,750		112,000	73,000
2,300		90,000	59,000	3,800		119,000	78,000
2,350		90,000	59,000	3,860		119,000	78,000
2,370		95,000	62,000	3,900		119,000	78,000
2,380	3/32	95,000	62,000	3,910		119,000	78,000
2,400		95,000	62,000	3,970	5/32	119,000	78,000

d1		l1	l2
mm	inch	mm	mm
3,990		119,000	78,000
4,000		119,000	78,000
4,040		119,000	78,000
4,090		119,000	78,000
4,100		119,000	78,000
4,200		119,000	78,000
4,220		119,000	78,000
4,300		126,000	82,000
4,370	11/64	126,000	82,000
4,390		126,000	82,000
4,400		126,000	82,000
4,500		126,000	82,000
4,570		126,000	82,000
4,600		126,000	82,000
4,620		126,000	82,000
4,700		126,000	82,000
4,760	3/16	132,000	87,000
4,800		132,000	87,000
4,850		132,000	87,000
4,900		132,000	87,000
4,920		132,000	87,000
4,980		132,000	87,000
5,000		132,000	87,000
5,060		132,000	87,000
5,100		132,000	87,000
5,110		132,000	87,000
5,160	13/64	132,000	87,000
5,180		132,000	87,000
5,200		132,000	87,000
5,220		132,000	87,000
5,300		132,000	87,000
5,310		139,000	91,000
5,400		139,000	91,000
5,410		139,000	91,000
5,500		139,000	91,000
5,560	7/32	139,000	91,000
5,600		139,000	91,000
5,610		139,000	91,000
5,700		139,000	91,000
5,790		139,000	91,000
5,800		139,000	91,000
5,900		139,000	91,000
5,940		139,000	91,000
5,950	15/64	139,000	91,000
6,000		139,000	91,000
6,040		148,000	97,000
6,100		148,000	97,000
6,150		148,000	97,000
6,200		148,000	97,000
6,250		148,000	97,000
6,300		148,000	97,000
6,350	1/4	148,000	97,000
6,400		148,000	97,000
6,500		148,000	97,000
6,530		148,000	97,000
6,600		148,000	97,000
6,630		148,000	97,000
6,700		148,000	97,000
6,750	17/64	156,000	102,000
6,800		156,000	102,000

d1		l1	l2
mm	inch	mm	mm
6,900		156,000	102,000
7,000		156,000	102,000
7,030		156,000	102,000
7,100		156,000	102,000
7,140	9/32	156,000	102,000
7,200		156,000	102,000
7,300		156,000	102,000
7,370		156,000	102,000
7,400		156,000	102,000
7,490		156,000	102,000
7,500		156,000	102,000
7,540	19/64	165,000	109,000
7,670		165,000	109,000
7,700		165,000	109,000
7,800		165,000	109,000
7,900		165,000	109,000
7,940	5/16	165,000	109,000
8,000		165,000	109,000
8,030		165,000	109,000
8,100		165,000	109,000
8,200		165,000	109,000
8,300		165,000	109,000
8,400		165,000	109,000
8,500		165,000	109,000
8,600		175,000	115,000
8,610		175,000	115,000
8,700		175,000	115,000
8,730	11/32	175,000	115,000
8,800		175,000	115,000
8,840		175,000	115,000
8,900		175,000	115,000
9,000		175,000	115,000
9,090		175,000	115,000
9,100		175,000	115,000
9,200		175,000	115,000
9,300		175,000	115,000
9,350		175,000	115,000
9,400		175,000	115,000
9,500		175,000	115,000
9,520	3/8	184,000	121,000
9,700		184,000	121,000
9,750		184,000	121,000
9,800		184,000	121,000
9,900		184,000	121,000
10,000		184,000	121,000
10,200		184,000	121,000
10,500		184,000	121,000
10,750		195,000	128,000
10,800		195,000	128,000
10,900		195,000	128,000
11,000		195,000	128,000
11,500		195,000	128,000
11,800		195,000	128,000
12,000		205,000	134,000
12,500		205,000	134,000
13,000		205,000	134,000
15,500		227,000	149,000
16,000		227,000	149,000

Brocas espirales cil., largas

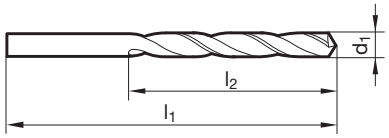
~10xD | DIN 340 | GT 100 | 130° | h8

Material de corte	HSCO
Acabado	F
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,000 • entrada cónica • acero rápido al cobalto • ranuras amplias • alta resistencia al desgaste • con desalojo de viruta difícil
M	•	
K	•	
N	•	aceros aleados y no aleados fundición de dureza sup. a 800 N/mm² • aceros para trab. en frío y en caliente • aceros para rodamientos • aceros altamente aleados • aceros de cementación, de bonificación
S		
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 792



Artículo N° **396**

d1 mm	d1 inch	l1 mm	l2 mm
1,000		56,000	33,000
1,100		60,000	37,000
1,200		65,000	41,000
1,300		65,000	41,000
1,500		70,000	45,000
1,600		76,000	50,000
1,800		80,000	53,000
1,900		80,000	53,000
2,000		85,000	56,000
2,100		85,000	56,000
2,200		90,000	59,000
2,300		90,000	59,000
2,400		95,000	62,000
2,500		95,000	62,000
2,700		100,000	66,000
2,800		100,000	66,000
2,900		100,000	66,000
3,000		100,000	66,000
3,100		106,000	69,000
3,200		106,000	69,000
3,300		106,000	69,000
3,400		112,000	73,000
3,500		112,000	73,000
3,600		112,000	73,000
3,800		119,000	78,000
3,900		119,000	78,000
4,000		119,000	78,000
4,100		119,000	78,000
4,200		119,000	78,000
4,500		126,000	82,000
4,800		132,000	87,000
5,000		132,000	87,000
5,100		132,000	87,000
5,200		132,000	87,000
5,400		139,000	91,000
5,500		139,000	91,000

d1 mm	d1 inch	l1 mm	l2 mm
5,800		139,000	91,000
5,900		139,000	91,000
6,000		139,000	91,000
6,200		148,000	97,000
6,500		148,000	97,000
6,700		148,000	97,000
6,800		156,000	102,000
7,000		156,000	102,000
7,200		156,000	102,000
7,400		156,000	102,000
7,500		156,000	102,000
7,600		165,000	109,000
7,700		165,000	109,000
7,800		165,000	109,000
7,900		165,000	109,000
8,000		165,000	109,000
8,200		165,000	109,000
8,300		165,000	109,000
8,500		165,000	109,000
8,600		175,000	115,000
8,800		175,000	115,000
8,900		175,000	115,000
9,000		175,000	115,000
9,100		175,000	115,000
9,200		175,000	115,000
9,300		175,000	115,000
9,500		175,000	115,000
9,600		184,000	121,000
9,700		184,000	121,000
10,000		184,000	121,000
10,200		184,000	121,000
10,500		184,000	121,000
11,000		195,000	128,000
11,500		195,000	128,000
12,000		205,000	134,000

Brocas espirales cil., largas

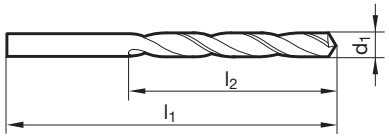
~10xD | DIN 340 | Ti | 130° | h8

Material de corte	HSCO
Acabado	○
Dirección de corte	R

P	○	vaciado de punta ≥Ø 1,000 • entrada cónica • acero rápido al cobalto • más resistencia al desgaste
M	•	
K		
N		titanio y aleaciones de titanio • aceros austeníticos inoxidables y resistentes a los ácidos y al calor • aceros de gran resistencia a partir de 900 N/mm² y cifras más elevadas • aceros para rodamientos • Hastelloy, Inconel, Nimonic
S	•	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 792



Artículo N° **617**

d1 mm	inch	l1 mm	l2 mm
1,000		56,000	33,000
1,100		60,000	37,000
1,200		65,000	41,000
1,300		65,000	41,000
1,400		70,000	45,000
1,450		70,000	45,000
1,500		70,000	45,000
1,590	1/16	76,000	50,000
1,600		76,000	50,000
1,610		76,000	50,000
1,650		76,000	50,000
1,700		76,000	50,000
1,750		80,000	53,000
1,800		80,000	53,000
1,850		80,000	53,000
1,900		80,000	53,000
1,930		85,000	56,000
1,950		85,000	56,000
1,980	5/64	85,000	56,000
2,000		85,000	56,000
2,050		85,000	56,000
2,100		85,000	56,000
2,150		90,000	59,000
2,200		90,000	59,000
2,260		90,000	59,000
2,300		90,000	59,000
2,380	3/32	95,000	62,000
2,400		95,000	62,000
2,450		95,000	62,000
2,500		95,000	62,000
2,550		95,000	62,000
2,600		95,000	62,000
2,700		100,000	66,000
2,780	7/64	100,000	66,000
2,800		100,000	66,000
2,900		100,000	66,000
3,000		100,000	66,000
3,050		106,000	69,000
3,100		106,000	69,000
3,170	1/8	106,000	69,000
3,200		106,000	69,000
3,250		106,000	69,000

d1 mm	inch	l1 mm	l2 mm
3,300		106,000	69,000
3,400		112,000	73,000
3,450		112,000	73,000
3,500		112,000	73,000
3,570	9/64	112,000	73,000
3,600		112,000	73,000
3,700		112,000	73,000
3,800		119,000	78,000
3,900		119,000	78,000
3,970	5/32	119,000	78,000
4,000		119,000	78,000
4,050		119,000	78,000
4,100		119,000	78,000
4,200		119,000	78,000
4,300		126,000	82,000
4,400		126,000	82,000
4,500		126,000	82,000
4,600		126,000	82,000
4,700		126,000	82,000
4,760	3/16	132,000	87,000
4,800		132,000	87,000
4,900		132,000	87,000
4,950		132,000	87,000
5,000		132,000	87,000
5,100		132,000	87,000
5,160	13/64	132,000	87,000
5,200		132,000	87,000
5,300		132,000	87,000
5,400		139,000	91,000
5,500		139,000	91,000
5,600		139,000	91,000
5,700		139,000	91,000
5,800		139,000	91,000
6,000		139,000	91,000
6,100		148,000	97,000
6,200		148,000	97,000
6,300		148,000	97,000
6,350	1/4	148,000	97,000
6,400		148,000	97,000
6,500		148,000	97,000
6,600		148,000	97,000
6,700		148,000	97,000

d1		l1	l2
mm	inch	mm	mm
6,750	17/64	156,000	102,000
6,800		156,000	102,000
6,900		156,000	102,000
7,000		156,000	102,000
7,100		156,000	102,000
7,140	9/32	156,000	102,000
7,250		156,000	102,000
7,400		156,000	102,000
7,500		156,000	102,000
7,540	19/64	165,000	109,000
7,700		165,000	109,000
7,800		165,000	109,000
7,940	5/16	165,000	109,000
8,000		165,000	109,000
8,100		165,000	109,000
8,200		165,000	109,000
8,300		165,000	109,000
8,330	21/64	165,000	109,000
8,400		165,000	109,000
8,500		165,000	109,000
8,600		175,000	115,000
8,700		175,000	115,000
8,730	11/32	175,000	115,000
8,800		175,000	115,000

d1		l1	l2
mm	inch	mm	mm
9,000		175,000	115,000
9,100		175,000	115,000
9,500		175,000	115,000
9,520	3/8	184,000	121,000
9,800		184,000	121,000
10,000		184,000	121,000
10,200		184,000	121,000
10,500		184,000	121,000
11,000		195,000	128,000
11,110	7/16	195,000	128,000
11,510	29/64	195,000	128,000
12,000		205,000	134,000
12,500		205,000	134,000
13,000		205,000	134,000
15,000		220,000	144,000

Brocas espirales cil., largas

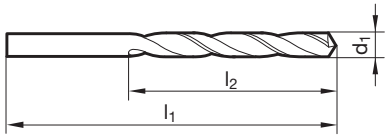
~10xD | DIN 340 | Ti | 130° | h8

Material de corte	HSCO
Acabado	S
Dirección de corte	R

P	○	vaciado de punta ≥Ø 1,000 • entrada cónica • acero rápido al cobalto • más resistencia al desgaste
M	•	
K		
N		titanio y aleaciones de titanio • aceros austeníticos inoxidables y resistentes a los ácidos y al calor • aceros de gran resistencia a partir de 900 N/mm² y cifras más elevadas • aceros para rodamientos • Hastelloy, Inconel, Nimonic
S	•	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 792



Artículo Nº **669**

d1 mm	d1 inch	l1 mm	l2 mm
1,000		56,000	33,000
1,200		65,000	41,000
1,300		65,000	41,000
1,400		70,000	45,000
1,500		70,000	45,000
1,590	1/16	76,000	50,000
1,600		76,000	50,000
1,700		76,000	50,000
1,800		80,000	53,000
1,900		80,000	53,000
1,980	5/64	85,000	56,000
2,000		85,000	56,000
2,050		85,000	56,000
2,100		85,000	56,000
2,200		90,000	59,000
2,300		90,000	59,000
2,380	3/32	95,000	62,000
2,400		95,000	62,000
2,500		95,000	62,000
2,600		95,000	62,000
2,700		100,000	66,000
2,750		100,000	66,000
2,780	7/64	100,000	66,000
2,800		100,000	66,000
2,900		100,000	66,000
3,000		100,000	66,000
3,100		106,000	69,000
3,170	1/8	106,000	69,000
3,200		106,000	69,000
3,250		106,000	69,000
3,300		106,000	69,000
3,400		112,000	73,000
3,500		112,000	73,000
3,570	9/64	112,000	73,000
3,600		112,000	73,000
3,700		112,000	73,000
3,800		119,000	78,000
3,900		119,000	78,000
3,970	5/32	119,000	78,000
4,000		119,000	78,000
4,100		119,000	78,000
4,200		119,000	78,000

d1 mm	d1 inch	l1 mm	l2 mm
4,300		126,000	82,000
4,370	11/64	126,000	82,000
4,400		126,000	82,000
4,500		126,000	82,000
4,700		126,000	82,000
4,760	3/16	132,000	87,000
4,800		132,000	87,000
5,000		132,000	87,000
5,100		132,000	87,000
5,160	13/64	132,000	87,000
5,200		132,000	87,000
5,300		132,000	87,000
5,500		139,000	91,000
5,600		139,000	91,000
5,700		139,000	91,000
5,800		139,000	91,000
6,000		139,000	91,000
6,100		148,000	97,000
6,200		148,000	97,000
6,300		148,000	97,000
6,350	1/4	148,000	97,000
6,400		148,000	97,000
6,500		148,000	97,000
6,700		148,000	97,000
6,750	17/64	156,000	102,000
6,800		156,000	102,000
7,000		156,000	102,000
7,100		156,000	102,000
7,140	9/32	156,000	102,000
7,200		156,000	102,000
7,400		156,000	102,000
7,500		156,000	102,000
7,540	19/64	165,000	109,000
7,800		165,000	109,000
7,900		165,000	109,000
7,940	5/16	165,000	109,000
8,000		165,000	109,000
8,200		165,000	109,000
8,500		165,000	109,000
8,730	11/32	175,000	115,000
9,000		175,000	115,000
9,130	23/64	175,000	115,000

d1		l1	l2
mm	inch	mm	mm
9,300		175,000	115,000
9,500		175,000	115,000
9,520	3/8	184,000	121,000
10,000		184,000	121,000
10,200		184,000	121,000

d1		l1	l2
mm	inch	mm	mm

Brocas espirales cil., largas

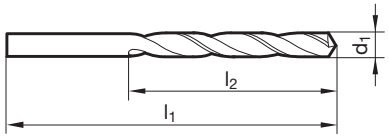
~10xD | WN | N | 130° | h7

Material de corte	**Metal duro**
Acabado	◯
Dirección de corte	Ⓡ

P	afilado plano • forma recta del corte principal
M	
K	
N	plásticos reforzados con fibra de vidrio • placas de circ. impresos que pueden ocasionar un rápido desgaste en las superficies y bordes de corte de la broca
S	
H	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 792



Artículo N° **706**

d1		l1	l2
mm	inch	mm	mm
0,500		38,000	8,500
0,600		38,000	9,500
0,650		38,000	10,500
0,700		38,000	10,500
0,750		38,000	12,500
0,800		38,000	12,500
0,850		38,000	14,500
0,900		38,000	14,500
1,000		38,000	17,000
1,050		38,000	17,000
1,100		38,000	17,000
1,400		38,000	17,000

d1		l1	l2
mm	inch	mm	mm
1,450		38,000	17,000

Brocas espirales, extra largas, serie 1

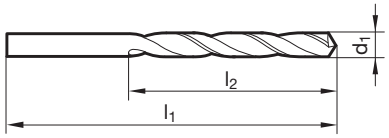
~15xD | DIN 1869 | N | 118° | h8

Material de corte	HSS
Acabado	>Ø 2,36
Dirección de corte	R

P	•	vaciado de punta ≥Ø 2,380 • entrada cónica • para taladros muy profundos
M		
K	•	
N	○	aceros y fundición de aceros (aleados y sin alear) • fundición gris, fundición maleable, fundición esferica • hierro sinterizado, argentón y grafito
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 788



Artículo N° **235**

d1 mm	inch	l1 mm	l2 mm
1,600		115,000	75,000
1,700		115,000	75,000
1,800		120,000	80,000
1,900		120,000	80,000
1,930		125,000	85,000
1,950		125,000	85,000
2,000		125,000	85,000
2,050		125,000	85,000
2,100		125,000	85,000
2,200		135,000	90,000
2,300		135,000	90,000
2,350		135,000	90,000
2,380	3/32	140,000	95,000
2,400		140,000	95,000
2,500		140,000	95,000
2,600		140,000	95,000
2,700		150,000	100,000
2,800		150,000	100,000
2,900		150,000	100,000
3,000		150,000	100,000
3,100		155,000	105,000
3,170	1/8	155,000	105,000
3,200		155,000	105,000
3,250		155,000	105,000
3,300		155,000	105,000
3,400		165,000	115,000
3,500		165,000	115,000
3,570	9/64	165,000	115,000
3,600		165,000	115,000
3,650		165,000	115,000
3,700		165,000	115,000
3,750		165,000	115,000
3,800		175,000	120,000
3,900		175,000	120,000
3,970	5/32	175,000	120,000
4,000		175,000	120,000
4,100		175,000	120,000
4,200		175,000	120,000
4,300		185,000	125,000
4,370	11/64	185,000	125,000
4,400		185,000	125,000
4,500		185,000	125,000

d1 mm	inch	l1 mm	l2 mm
4,600		185,000	125,000
4,700		185,000	125,000
4,760	3/16	195,000	135,000
4,800		195,000	135,000
4,900		195,000	135,000
5,000		195,000	135,000
5,100		195,000	135,000
5,200		195,000	135,000
5,300		195,000	135,000
5,340		205,000	140,000
5,400		205,000	140,000
5,500		205,000	140,000
5,560	7/32	205,000	140,000
5,600		205,000	140,000
5,700		205,000	140,000
5,800		205,000	140,000
5,900		205,000	140,000
6,000		205,000	140,000
6,100		215,000	150,000
6,200		215,000	150,000
6,250		215,000	150,000
6,300		215,000	150,000
6,350	1/4	215,000	150,000
6,400		215,000	150,000
6,500		215,000	150,000
6,600		215,000	150,000
6,700		215,000	150,000
6,750	17/64	225,000	155,000
6,800		225,000	155,000
7,000		225,000	155,000
7,200		225,000	155,000
7,400		225,000	155,000
7,500		225,000	155,000
7,700		240,000	165,000
7,800		240,000	165,000
7,900		240,000	165,000
7,940	5/16	240,000	165,000
8,000		240,000	165,000
8,100		240,000	165,000
8,200		240,000	165,000
8,330	21/64	240,000	165,000
8,400		240,000	165,000

d1		l1	l2
mm	inch	mm	mm
8,500		240,000	165,000
8,700		250,000	175,000
8,730	11/32	250,000	175,000
8,800		250,000	175,000
8,900		250,000	175,000
9,000		250,000	175,000
9,130	23/64	250,000	175,000
9,500		250,000	175,000
9,520	3/8	265,000	185,000
9,600		265,000	185,000
9,700		265,000	185,000
9,800		265,000	185,000
9,900		265,000	185,000
9,920	25/64	265,000	185,000
10,000		265,000	185,000
10,100		265,000	185,000
10,200		265,000	185,000
10,250		265,000	185,000

d1		l1	l2
mm	inch	mm	mm
10,320	13/32	265,000	185,000
10,500		265,000	185,000
11,000		280,000	195,000
11,500		280,000	195,000
11,510	29/64	280,000	195,000
11,800		280,000	195,000
12,000		295,000	205,000
12,100		295,000	205,000
12,250		295,000	205,000
12,300	31/64	295,000	205,000
12,500		295,000	205,000
12,700	1/2	295,000	205,000
13,000		295,000	205,000

Brocas espirales, extra largas, serie 1

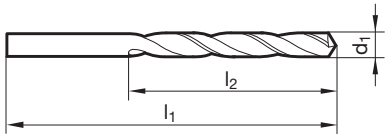
~15xD | DIN 1869 | GT 100 | 130° | h8

Material de corte	HSS
Acabado	>Ø 2,36
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,950 • entrada cónica • ranuras amplias • para taladros muy profundos • con desalojo de viruta difícil
M		
K	•	
N	•	fundición gris y aceros hasta máx. 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 790



Artículo N° **502**

d1 mm	inch	l1 mm	l2 mm
1,950		125,000	85,000
2,000		125,000	85,000
2,050		125,000	85,000
2,100		125,000	85,000
2,200		135,000	90,000
2,300		135,000	90,000
2,370		140,000	95,000
2,380	3/32	140,000	95,000
2,400		140,000	95,000
2,500		140,000	95,000
2,550		140,000	95,000
2,580		140,000	95,000
2,600		140,000	95,000
2,700		150,000	100,000
2,780	7/64	150,000	100,000
2,800		150,000	100,000
2,850		150,000	100,000
2,870		150,000	100,000
2,900		150,000	100,000
2,950		150,000	100,000
3,000		150,000	100,000
3,030		155,000	105,000
3,100		155,000	105,000
3,170	1/8	155,000	105,000
3,200		155,000	105,000
3,250		155,000	105,000
3,300		155,000	105,000
3,400		165,000	115,000
3,500		165,000	115,000
3,570	9/64	165,000	115,000
3,600		165,000	115,000
3,700		165,000	115,000
3,750		165,000	115,000
3,800		175,000	120,000
3,860		175,000	120,000
3,900		175,000	120,000
3,970	5/32	175,000	120,000
4,000		175,000	120,000
4,100		175,000	120,000
4,200		175,000	120,000
4,300		185,000	125,000
4,370	11/64	185,000	125,000

d1 mm	inch	l1 mm	l2 mm
4,400		185,000	125,000
4,500		185,000	125,000
4,570		185,000	125,000
4,600		185,000	125,000
4,700		185,000	125,000
4,760	3/16	195,000	135,000
4,800		195,000	135,000
4,900		195,000	135,000
5,000		195,000	135,000
5,100		195,000	135,000
5,110		195,000	135,000
5,160	13/64	195,000	135,000
5,200		195,000	135,000
5,300		195,000	135,000
5,400		205,000	140,000
5,500		205,000	140,000
5,560	7/32	205,000	140,000
5,600		205,000	140,000
5,700		205,000	140,000
5,750		205,000	140,000
5,800		205,000	140,000
5,900		205,000	140,000
5,950	15/64	205,000	140,000
6,000		205,000	140,000
6,100		215,000	150,000
6,200		215,000	150,000
6,250		215,000	150,000
6,300		215,000	150,000
6,350	1/4	215,000	150,000
6,400		215,000	150,000
6,500		215,000	150,000
6,600		215,000	150,000
6,700		215,000	150,000
6,750	17/64	225,000	155,000
6,800		225,000	155,000
6,900		225,000	155,000
7,000		225,000	155,000
7,100		225,000	155,000
7,200		225,000	155,000
7,300		225,000	155,000
7,500		225,000	155,000
7,540	19/64	240,000	165,000

d1		l1	l2
mm	inch	mm	mm
7,700		240,000	165,000
7,750		240,000	165,000
7,800		240,000	165,000
7,900		240,000	165,000
7,940	5/16	240,000	165,000
8,000		240,000	165,000
8,100		240,000	165,000
8,200		240,000	165,000
8,300		240,000	165,000
8,330	21/64	240,000	165,000
8,400		240,000	165,000
8,430		240,000	165,000
8,500		240,000	165,000
8,600		250,000	175,000
8,700		250,000	175,000
8,730	11/32	250,000	175,000
8,800		250,000	175,000
9,000		250,000	175,000
9,200		250,000	175,000
9,300		250,000	175,000
9,400		250,000	175,000
9,500		250,000	175,000
9,520	3/8	265,000	185,000
9,600		265,000	185,000

d1		l1	l2
mm	inch	mm	mm
9,700		265,000	185,000
9,800		265,000	185,000
9,900		265,000	185,000
9,920	25/64	265,000	185,000
10,000		265,000	185,000
10,200		265,000	185,000
10,320	13/32	265,000	185,000
10,500		265,000	185,000
10,720	27/64	280,000	195,000
11,000		280,000	195,000
11,110	7/16	280,000	195,000
11,200		280,000	195,000
11,500		280,000	195,000
11,510	29/64	280,000	195,000
11,750		280,000	195,000
11,800		280,000	195,000
12,000		295,000	205,000
12,500		295,000	205,000
12,700	1/2	295,000	205,000
13,000		295,000	205,000

Brocas espirales, extra largas, serie 1

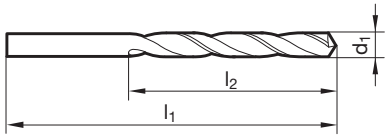
~15xD | DIN 1869 | GT 100 | 130° | h8

Material de corte	HSS
Acabado	S
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,980 • entrada cónica • ranuras amplias • para taladros muy profundos • con desalojo de viruta difícil
M		
K	•	
N	•	fundición gris y aceros hasta máx. 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S	○	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 790



Artículo N° **670**

d1 mm	d1 inch	l1 mm	l2 mm
2,000		125,000	85,000
2,100		125,000	85,000
2,200		135,000	90,000
2,300		135,000	90,000
2,380	3/32	140,000	95,000
2,400		140,000	95,000
2,500		140,000	95,000
2,780	7/64	150,000	100,000
2,800		150,000	100,000
2,950		150,000	100,000
3,000		150,000	100,000
3,100		155,000	105,000
3,170	1/8	155,000	105,000
3,200		155,000	105,000
3,300		155,000	105,000
3,500		165,000	115,000
3,570	9/64	165,000	115,000
3,600		165,000	115,000
3,800		175,000	120,000
3,970	5/32	175,000	120,000
4,000		175,000	120,000
4,200		175,000	120,000
4,370	11/64	185,000	125,000
4,500		185,000	125,000
4,600		185,000	125,000
4,760	3/16	195,000	135,000
4,800		195,000	135,000
5,000		195,000	135,000
5,100		195,000	135,000
5,160	13/64	195,000	135,000
5,200		195,000	135,000
5,500		205,000	140,000
5,560	7/32	205,000	140,000
6,000		205,000	140,000
6,100		215,000	150,000
6,200		215,000	150,000

d1 mm	d1 inch	l1 mm	l2 mm
6,350	1/4	215,000	150,000
6,500		215,000	150,000
6,600		215,000	150,000
6,800		225,000	155,000
7,000		225,000	155,000
7,140	9/32	225,000	155,000
7,500		225,000	155,000
7,540	19/64	240,000	165,000
7,940	5/16	240,000	165,000
8,000		240,000	165,000
8,200		240,000	165,000
8,500		240,000	165,000
8,730	11/32	250,000	175,000
9,000		250,000	175,000
9,520	3/8	265,000	185,000
9,600		265,000	185,000
9,920	25/64	265,000	185,000
10,000		265,000	185,000
10,900		280,000	195,000
11,000		280,000	195,000
11,900		295,000	205,000
11,910	15/32	295,000	205,000
12,000		295,000	205,000
12,500		295,000	205,000
12,700	1/2	295,000	205,000

Brocas espirales, extra largas, serie 1

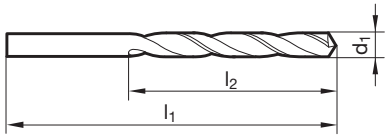
~15xD | DIN 1869 | GT 50 | 130° | h8

Material de corte	HSS
Acabado	○
Dirección de corte	R

P	○	vaciado de punta ≥Ø 2,380 • entrada cónica • para taladros muy profundos
M		
K		
N	•	mat. blandos y de viruta larga de hasta a 500 N/mm² • aceros blandos para automáticos • aluminio, alea. de alum. (de vir. larga) • zink, cobre fino, siluminio, electrón • zamak, argalio, plásticos (blandos) y madera
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 788



Artículo N° **524**

d1 mm	inch	l1 mm	l2 mm
2,000		125,000	85,000
2,100		125,000	85,000
2,200		135,000	90,000
2,300		135,000	90,000
2,350		135,000	90,000
2,380	3/32	140,000	95,000
2,400		140,000	95,000
2,450		140,000	95,000
2,500		140,000	95,000
2,600		140,000	95,000
2,780	7/64	150,000	100,000
2,800		150,000	100,000
2,900		150,000	100,000
2,950		150,000	100,000
3,000		150,000	100,000
3,100		155,000	105,000
3,170	1/8	155,000	105,000
3,200		155,000	105,000
3,300		155,000	105,000
3,350		155,000	105,000
3,400		165,000	115,000
3,450		165,000	115,000
3,500		165,000	115,000
3,530		165,000	115,000
3,570	9/64	165,000	115,000
3,600		165,000	115,000
3,800		175,000	120,000
3,900		175,000	120,000
3,970	5/32	175,000	120,000
4,000		175,000	120,000
4,100		175,000	120,000
4,200		175,000	120,000
4,250		175,000	120,000
4,300		185,000	125,000
4,370	11/64	185,000	125,000
4,400		185,000	125,000
4,500		185,000	125,000
4,760	3/16	195,000	135,000
4,900		195,000	135,000
5,000		195,000	135,000
5,100		195,000	135,000
5,160	13/64	195,000	135,000

d1 mm	inch	l1 mm	l2 mm
5,200		195,000	135,000
5,400		205,000	140,000
5,600		205,000	140,000
5,700		205,000	140,000
5,800		205,000	140,000
5,900		205,000	140,000
5,950	15/64	205,000	140,000
6,000		205,000	140,000
6,100		215,000	150,000
6,350	1/4	215,000	150,000
6,400		215,000	150,000
6,500		215,000	150,000
6,600		215,000	150,000
6,750	17/64	225,000	155,000
6,800		225,000	155,000
7,000		225,000	155,000
7,100		225,000	155,000
7,140	9/32	225,000	155,000
7,300		225,000	155,000
7,400		225,000	155,000
7,500		225,000	155,000
7,540	19/64	240,000	165,000
7,800		240,000	165,000
7,900		240,000	165,000
7,940	5/16	240,000	165,000
8,000		240,000	165,000
8,100		240,000	165,000
8,330	21/64	240,000	165,000
8,600		250,000	175,000
8,730	11/32	250,000	175,000
8,900		250,000	175,000
9,000		250,000	175,000
9,130	23/64	250,000	175,000
9,200		250,000	175,000
9,500		250,000	175,000
9,520	3/8	265,000	185,000
9,920	25/64	265,000	185,000
10,000		265,000	185,000
10,320	13/32	265,000	185,000
10,500		265,000	185,000
11,000		280,000	195,000
11,110	7/16	280,000	195,000

d1		l1	l2
mm	inch	mm	mm
11,500		280,000	195,000
11,910	15/32	295,000	205,000
12,000		295,000	205,000
12,700	1/2	295,000	205,000

d1		l1	l2
mm	inch	mm	mm

Brocas espirales, extra largas, serie 1

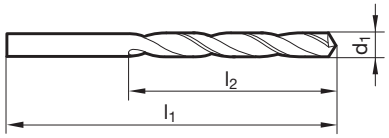
~15xD | DIN 1869 | GT 100 | 130° | h8

Material de corte	HSCO
Acabado	
Dirección de corte	R

P	•	vaciado de punta ≥Ø 2,700 • entrada cónica • acero rápido al cobalto • ranuras amplias • más resistencia al desgaste • para taladros muy profundos • con desalojo de viruta difícil
M	•	
K	•	
N	•	aceros y fundición de acero de gran dureza • fundición gris, fundición maleable, fundición esferica
S	•	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 794



Artículo N° **618**

d1 mm	inch	l1 mm	l2 mm
2,700		150,000	100,000
2,900		150,000	100,000
3,000		150,000	100,000
3,100		155,000	105,000
3,170	1/8	155,000	105,000
3,200		155,000	105,000
3,300		155,000	105,000
3,400		165,000	115,000
3,500		165,000	115,000
3,570	9/64	165,000	115,000
3,600		165,000	115,000
3,700		165,000	115,000
3,750		165,000	115,000
3,800		175,000	120,000
3,970	5/32	175,000	120,000
4,000		175,000	120,000
4,100		175,000	120,000
4,200		175,000	120,000
4,300		185,000	125,000
4,370	11/64	185,000	125,000
4,400		185,000	125,000
4,500		185,000	125,000
4,600		185,000	125,000
4,760	3/16	195,000	135,000
4,800		195,000	135,000
4,850		195,000	135,000
5,000		195,000	135,000
5,100		195,000	135,000
5,160	13/64	195,000	135,000
5,200		195,000	135,000
5,300		195,000	135,000
5,400		205,000	140,000
5,500		205,000	140,000
5,560	7/32	205,000	140,000
5,600		205,000	140,000
5,700		205,000	140,000

d1 mm	inch	l1 mm	l2 mm
5,800		205,000	140,000
6,000		205,000	140,000
6,100		215,000	150,000
6,200		215,000	150,000
6,300		215,000	150,000
6,350	1/4	215,000	150,000
6,400		215,000	150,000
6,500		215,000	150,000
6,600		215,000	150,000
6,700		215,000	150,000
6,750	17/64	225,000	155,000
6,800		225,000	155,000
7,000		225,000	155,000
7,140	9/32	225,000	155,000
7,400		225,000	155,000
7,500		225,000	155,000
7,540	19/64	240,000	165,000
7,700		240,000	165,000
7,800		240,000	165,000
7,940	5/16	240,000	165,000
8,000		240,000	165,000
8,200		240,000	165,000
8,330	21/64	240,000	165,000
8,500		240,000	165,000
8,700		250,000	175,000
8,730	11/32	250,000	175,000
8,800		250,000	175,000
9,000		250,000	175,000
9,130	23/64	250,000	175,000
9,400		250,000	175,000
9,500		250,000	175,000
9,520	3/8	265,000	185,000
9,700		265,000	185,000
10,000		265,000	185,000

Brocas espirales, extra largas, serie 2

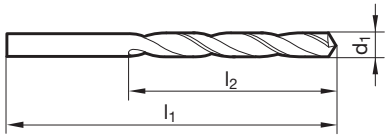
~20xD | DIN 1869 | N | 118° | h8

Material de corte	HSS
Acabado	
Dirección de corte	R

P	•	vaciado de punta ≥Ø 2,700 • entrada cónica • para taladros muy profundos
M		
K	•	
N	○	aceros y fundición de aceros (aleados y sin alear) • fundición gris, fundición maleable, fundición esferica • hierro sinterizado, argentón y grafito
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 788



Artículo N° **236**

d1		l1	l2
mm	inch	mm	mm
2,700		190,000	130,000
2,800		190,000	130,000
2,900		190,000	130,000
3,000		190,000	130,000
3,100		200,000	135,000
3,170	1/8	200,000	135,000
3,200		200,000	135,000
3,300		200,000	135,000
3,500		210,000	145,000
3,570	9/64	210,000	145,000
3,600		210,000	145,000
3,800		220,000	150,000
3,970	5/32	220,000	150,000
4,000		220,000	150,000
4,100		220,000	150,000
4,200		220,000	150,000
4,500		235,000	160,000
4,760	3/16	245,000	170,000
4,800		245,000	170,000
4,900		245,000	170,000
5,000		245,000	170,000
5,200		245,000	170,000
5,500		260,000	180,000
5,560	7/32	260,000	180,000
5,800		260,000	180,000
5,900		260,000	180,000
5,950	15/64	260,000	180,000
6,000		260,000	180,000
6,200		275,000	190,000
6,350	1/4	275,000	190,000

d1		l1	l2
mm	inch	mm	mm
6,500		275,000	190,000
6,700		275,000	190,000
6,800		290,000	200,000
7,000		290,000	200,000
7,140	9/32	290,000	200,000
7,500		290,000	200,000
7,540	19/64	305,000	210,000
7,800		305,000	210,000
7,940	5/16	305,000	210,000
8,000		305,000	210,000
8,100		305,000	210,000
8,500		305,000	210,000
8,700		320,000	220,000
8,730	11/32	320,000	220,000
8,800		320,000	220,000
8,900		320,000	220,000
9,000		320,000	220,000
9,130	23/64	320,000	220,000
9,500		320,000	220,000
9,800		340,000	235,000
10,000		340,000	235,000
10,200		340,000	235,000
10,500		340,000	235,000
11,000		365,000	250,000
11,110	7/16	365,000	250,000
11,500		365,000	250,000
11,510	29/64	365,000	250,000
11,750		365,000	250,000
12,000		375,000	260,000
13,000		375,000	260,000

Brocas espirales, extra largas, serie 2

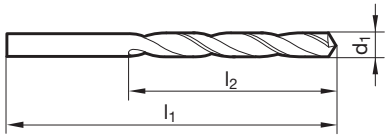
~20xD | DIN 1869 | GT 100 | 130° | h8

Material de corte	HSS
Acabado	>Ø 2,36
Dirección de corte	R

P	•	vaciado de punta ≥Ø 2,000 • entrada cónica • ranuras amplias • para taladros muy profundos • con desalojo de viruta difícil
M		
K	•	
N	•	fundición gris y aceros hasta máx. 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 790



Artículo N° **503**

d1 mm	inch	l1 mm	l2 mm
2,000		160,000	110,000
2,200		170,000	115,000
2,300		170,000	115,000
2,500		180,000	120,000
2,800		190,000	130,000
3,000		190,000	130,000
3,030		200,000	135,000
3,100		200,000	135,000
3,170	1/8	200,000	135,000
3,200		200,000	135,000
3,300		200,000	135,000
3,400		210,000	145,000
3,500		210,000	145,000
3,570	9/64	210,000	145,000
3,600		210,000	145,000
3,700		210,000	145,000
3,800		220,000	150,000
3,900		220,000	150,000
3,970	5/32	220,000	150,000
4,000		220,000	150,000
4,100		220,000	150,000
4,200		220,000	150,000
4,300		235,000	160,000
4,370	11/64	235,000	160,000
4,400		235,000	160,000
4,500		235,000	160,000
4,760	3/16	245,000	170,000
4,800		245,000	170,000
4,900		245,000	170,000
5,000		245,000	170,000
5,100		245,000	170,000
5,160	13/64	245,000	170,000
5,200		245,000	170,000
5,300		245,000	170,000
5,400		260,000	180,000
5,500		260,000	180,000
5,560	7/32	260,000	180,000
5,700		260,000	180,000
5,800		260,000	180,000
5,900		260,000	180,000
5,950	15/64	260,000	180,000
6,000		260,000	180,000

d1 mm	inch	l1 mm	l2 mm
6,100		275,000	190,000
6,150		275,000	190,000
6,200		275,000	190,000
6,350	1/4	275,000	190,000
6,400		275,000	190,000
6,500		275,000	190,000
6,600		275,000	190,000
6,700		275,000	190,000
6,750	17/64	290,000	200,000
6,800		290,000	200,000
6,900		290,000	200,000
7,000		290,000	200,000
7,140	9/32	290,000	200,000
7,500		290,000	200,000
7,540	19/64	305,000	210,000
7,800		305,000	210,000
7,940	5/16	305,000	210,000
8,000		305,000	210,000
8,200		305,000	210,000
8,330	21/64	305,000	210,000
8,500		305,000	210,000
8,600		320,000	220,000
8,730	11/32	320,000	220,000
8,800		320,000	220,000
9,000		320,000	220,000
9,100		320,000	220,000
9,130	23/64	320,000	220,000
9,500		320,000	220,000
9,520	3/8	340,000	235,000
9,700		340,000	235,000
9,800		340,000	235,000
9,920	25/64	340,000	235,000
10,000		340,000	235,000
10,200		340,000	235,000
10,500		340,000	235,000
10,720	27/64	365,000	250,000
11,000		365,000	250,000
11,110	7/16	365,000	250,000
11,500		365,000	250,000
11,510	29/64	365,000	250,000
11,750		365,000	250,000
11,910	15/32	375,000	260,000

d1		l1	l2
mm	inch	mm	mm
12,000		375,000	260,000
12,300	31/64	375,000	260,000
12,500		375,000	260,000
12,700	1/2	375,000	260,000
13,000		375,000	260,000

d1		l1	l2
mm	inch	mm	mm

Brocas espirales, extra largas, serie 2

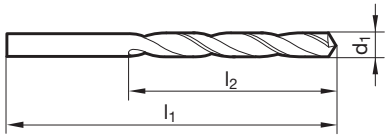
~20xD | DIN 1869 | GT 100 | 130° | h8

Material de corte	HSS
Acabado	S
Dirección de corte	R

P	•	vaciado de punta ≥Ø 2,300 • entrada cónica • ranuras amplias • para taladros muy profundos • con desalojo de viruta difícil
M		
K	•	
N	•	fundición gris y aceros hasta máx. 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S	○	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 790



Artículo N° **671**

d1 mm	inch	l1 mm	l2 mm
2,700		190,000	130,000
2,800		190,000	130,000
3,000		190,000	130,000
3,100		200,000	135,000
3,170	1/8	200,000	135,000
3,200		200,000	135,000
3,500		210,000	145,000
3,570	9/64	210,000	145,000
3,970	5/32	220,000	150,000
4,000		220,000	150,000
4,090		220,000	150,000
4,370	11/64	235,000	160,000
4,400		235,000	160,000
4,500		235,000	160,000
4,600		235,000	160,000
4,760	3/16	245,000	170,000
4,800		245,000	170,000
5,000		245,000	170,000

d1 mm	inch	l1 mm	l2 mm
5,300		245,000	170,000
5,500		260,000	180,000
5,560	7/32	260,000	180,000
6,000		260,000	180,000
6,350	1/4	275,000	190,000
6,500		275,000	190,000
6,750	17/64	290,000	200,000
6,800		290,000	200,000
7,000		290,000	200,000
7,140	9/32	290,000	200,000
7,500		290,000	200,000
7,940	5/16	305,000	210,000
8,000		305,000	210,000
8,500		305,000	210,000

Brocas espirales, extra largas, serie 2

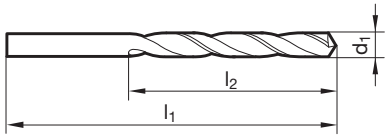
~20xD | DIN 1869 | GT 50 | 130° | h8

Material de corte	HSS
Acabado	○
Dirección de corte	R

P	○	vaciado de punta ≥Ø 2,800 • entrada cónica • para taladros muy profundos
M		
K		
N	•	mat. blandos y de viruta larga de hasta a 500 N/mm² • aceros blandos para automáticos • aluminio, alea. de alum. (de vir. larga) • zink, cobre fino, siluminio, electrón • zamak, argalio, plásticos (blandos) y madera
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 788



Artículo N° **528**

d1		l1	l2
mm	inch	mm	mm
3,000		190,000	130,000
3,030		200,000	135,000
3,100		200,000	135,000
3,170	1/8	200,000	135,000
3,500		210,000	145,000
3,650		210,000	145,000
3,800		220,000	150,000
4,000		220,000	150,000
4,200		220,000	150,000
4,500		235,000	160,000
4,760	3/16	245,000	170,000
4,800		245,000	170,000
5,000		245,000	170,000
5,110		245,000	170,000
5,500		260,000	180,000
5,800		260,000	180,000
6,000		260,000	180,000
7,000		290,000	200,000

d1		l1	l2
mm	inch	mm	mm
7,500		290,000	200,000
8,000		305,000	210,000
8,500		305,000	210,000
9,000		320,000	220,000
10,000		340,000	235,000
10,500		340,000	235,000
11,500		365,000	250,000
13,000		375,000	260,000

Brocas espirales, extra largas, serie 2

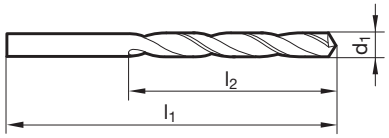
~20xD | DIN 1869 | GT 100 | 130° | h8

Material de corte	HSCO
Acabado	
Dirección de corte	R

P	•	vaciado de punta ≥Ø 3,000 • entrada cónica • acero rápido al cobalto • ranuras amplias • más resistencia al desgaste • para taladros muy profundos • con desalojo de viruta difícil
M	•	
K	•	
N	•	aceros y fundición de acero de gran dureza • fundición gris, fundición maleable, fundición esferica
S	•	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 794



Artículo N° **619**

d1 mm	inch	l1 mm	l2 mm
3,000		190,000	130,000
3,170	1/8	200,000	135,000
3,200		200,000	135,000
3,300		200,000	135,000
3,500		210,000	145,000
3,570	9/64	210,000	145,000
3,970	5/32	220,000	150,000
4,000		220,000	150,000
4,100		220,000	150,000
4,200		220,000	150,000
4,370	11/64	235,000	160,000
4,500		235,000	160,000
4,760	3/16	245,000	170,000
4,800		245,000	170,000
4,900		245,000	170,000
5,000		245,000	170,000
5,200		245,000	170,000
5,500		260,000	180,000
5,560	7/32	260,000	180,000
5,950	15/64	260,000	180,000
6,000		260,000	180,000
6,100		275,000	190,000
6,200		275,000	190,000
6,350	1/4	275,000	190,000

d1 mm	inch	l1 mm	l2 mm
6,500		275,000	190,000
6,750	17/64	290,000	200,000
6,800		290,000	200,000
7,000		290,000	200,000
7,140	9/32	290,000	200,000
7,400		290,000	200,000
7,500		290,000	200,000
7,540	19/64	305,000	210,000
7,600		305,000	210,000
7,940	5/16	305,000	210,000
8,000		305,000	210,000
8,200		305,000	210,000
8,500		305,000	210,000
8,730	11/32	320,000	220,000
9,000		320,000	220,000
9,130	23/64	320,000	220,000
9,500		320,000	220,000
9,520	3/8	340,000	235,000
9,600		340,000	235,000
9,900		340,000	235,000
10,000		340,000	235,000

Brocas espirales, extra largas, serie 3

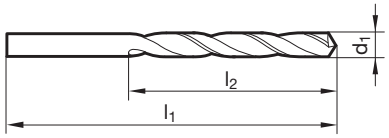
~25xD | DIN 1869 | N | 118° | h8

Material de corte	HSS
Acabado	
Dirección de corte	R

P	•	vaciado de punta ≥Ø 3,500 • entrada cónica • para taladros muy profundos
M		
K	•	
N	○	aceros y fundición de aceros (aleados y sin alear) • fundición gris, fundición maleable, fundición esferica • hierro sinterizado, argentón y grafito
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 788



Artículo N° **237**

d1 mm	d1 inch	l1 mm	l2 mm
3,500		265,000	180,000
3,800		280,000	190,000
4,000		280,000	190,000
4,100		280,000	190,000
4,200		280,000	190,000
4,500		295,000	200,000
5,000		315,000	210,000
5,200		315,000	210,000
5,500		330,000	225,000
5,800		330,000	225,000
5,900		330,000	225,000
6,000		330,000	225,000
6,100		350,000	235,000
6,200		350,000	235,000
6,500		350,000	235,000
6,700		350,000	235,000
6,800		370,000	250,000
7,000		370,000	250,000

d1 mm	d1 inch	l1 mm	l2 mm
7,500		370,000	250,000
7,800		390,000	265,000
8,000		390,000	265,000
8,500		390,000	265,000
9,000		410,000	280,000
9,500		410,000	280,000
9,800		430,000	295,000
10,000		430,000	295,000
10,300		430,000	295,000
10,500		430,000	295,000
11,000		455,000	310,000
11,500		455,000	310,000
11,750		455,000	310,000
12,000		480,000	330,000
12,500		480,000	330,000
13,000		480,000	330,000

Brocas espirales, extra largas, serie 3

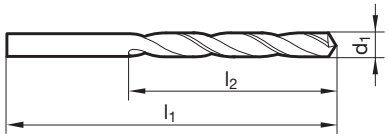
~25xD | DIN 1869 | GT 100 | 130° | h8

Material de corte	HSS
Acabado	
Dirección de corte	R

P	•	vaciado de punta ≥Ø 2,500 • entrada cónica • ranuras amplias • con desalojo de viruta difícil • para taladros muy profundos
M		
K	•	
N	•	fundición gris y aceros hasta máx. 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 790



Artículo N° **504**

d1 mm	inch	l1 mm	l2 mm
2,500		225,000	150,000
3,000		240,000	160,000
3,100		250,000	170,000
3,170	1/8	250,000	170,000
3,200		250,000	170,000
3,300		250,000	170,000
3,400		265,000	180,000
3,500		265,000	180,000
3,570	9/64	265,000	180,000
3,600		265,000	180,000
3,700		265,000	180,000
3,800		280,000	190,000
3,900		280,000	190,000
3,970	5/32	280,000	190,000
4,000		280,000	190,000
4,100		280,000	190,000
4,200		280,000	190,000
4,300		295,000	200,000
4,370	11/64	295,000	200,000
4,400		295,000	200,000
4,500		295,000	200,000
4,600		295,000	200,000
4,760	3/16	315,000	210,000
4,800		315,000	210,000
4,900		315,000	210,000
5,000		315,000	210,000
5,100		315,000	210,000
5,200		315,000	210,000
5,500		330,000	225,000
5,560	7/32	330,000	225,000
5,800		330,000	225,000
5,950	15/64	330,000	225,000
6,000		330,000	225,000
6,100		350,000	235,000
6,200		350,000	235,000
6,300		350,000	235,000
6,350	1/4	350,000	235,000
6,400		350,000	235,000
6,500		350,000	235,000
6,700		350,000	235,000
6,750	17/64	370,000	250,000
6,800		370,000	250,000

d1 mm	inch	l1 mm	l2 mm
7,000		370,000	250,000
7,140	9/32	370,000	250,000
7,200		370,000	250,000
7,500		370,000	250,000
7,540	19/64	390,000	265,000
7,750		390,000	265,000
7,800		390,000	265,000
7,940	5/16	390,000	265,000
8,000		390,000	265,000
8,200		390,000	265,000
8,330	21/64	390,000	265,000
8,500		390,000	265,000
8,600		410,000	280,000
8,730	11/32	410,000	280,000
8,800		410,000	280,000
8,900		410,000	280,000
9,000		410,000	280,000
9,200		410,000	280,000
9,500		410,000	280,000
9,520	3/8	430,000	295,000
9,530		430,000	295,000
9,920	25/64	430,000	295,000
10,000		430,000	295,000
10,320	13/32	430,000	295,000
10,500		430,000	295,000
10,720	27/64	455,000	310,000
11,000		455,000	310,000
11,110	7/16	455,000	310,000
11,500		455,000	310,000
12,000		480,000	330,000
12,200		480,000	330,000
12,500		480,000	330,000
13,000		480,000	330,000

Brocas espirales, extra largas, serie 3

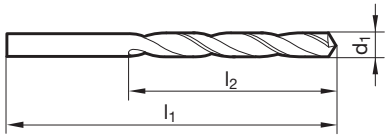
~25xD | DIN 1869 | GT 50 | 130° | h8

Material de corte	HSS
Acabado	○
Dirección de corte	R

P	○	vaciado de punta ≥Ø 2,500 • entrada cónica • para taladros muy profundos
M		
K		
N	•	mat. blandos y de viruta larga de hasta a 500 N/mm² • aceros blandos para automáticos • aluminio, alea. de alum. (de vir. larga) • zink, cobre fino, siluminio, electrón • zamak, argalio, plásticos (blandos) y madera
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 788



Artículo N° **529**

d1		l1	l2
mm	inch	mm	mm
2,500		225,000	150,000
3,000		240,000	160,000
3,500		265,000	180,000
3,800		280,000	190,000
4,000		280,000	190,000
4,500		295,000	200,000
5,000		315,000	210,000
6,000		330,000	225,000
6,500		350,000	235,000
6,700		350,000	235,000
6,800		370,000	250,000
7,500		370,000	250,000

d1		l1	l2
mm	inch	mm	mm
8,000		390,000	265,000
9,500		410,000	280,000
10,000		430,000	295,000

Brocas espirales, extra largas, serie 3

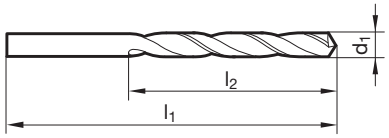
~25xD | DIN 1869 | GT 100 | 130° | h8

Material de corte	HSCO
Acabado	
Dirección de corte	R

P	•	vaciado de punta ≥Ø 2,500 • entrada cónica • acero rápido al cobalto • ranuras amplias • resistencia más alta al desgaste
M	•	• para taladros muy profundos
K	•	• con desalojo de viruta difícil
N	•	aceros y fundición de acero de gran dureza • fundición gris, fundición maleable, fundición esferica
S	•	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 794



Artículo N° **571**

d1 mm	inch	l1 mm	l2 mm
2,500		225,000	150,000
3,000		240,000	160,000
3,100		250,000	170,000
3,170	1/8	250,000	170,000
3,200		250,000	170,000
3,300		250,000	170,000
3,400		265,000	180,000
3,500		265,000	180,000
3,700		265,000	180,000
3,800		280,000	190,000
3,900		280,000	190,000
3,970	5/32	280,000	190,000
4,000		280,000	190,000
4,100		280,000	190,000
4,200		280,000	190,000
4,300		295,000	200,000
4,500		295,000	200,000
4,600		295,000	200,000
4,760	3/16	315,000	210,000
4,800		315,000	210,000
4,900		315,000	210,000
5,000		315,000	210,000
5,100		315,000	210,000
5,200		315,000	210,000
5,500		330,000	225,000
5,560	7/32	330,000	225,000
5,800		330,000	225,000
5,950	15/64	330,000	225,000
6,000		330,000	225,000
6,100		350,000	235,000
6,200		350,000	235,000
6,300		350,000	235,000
6,350	1/4	350,000	235,000
6,400		350,000	235,000
6,500		350,000	235,000
6,700		350,000	235,000

d1 mm	inch	l1 mm	l2 mm
6,750	17/64	370,000	250,000
6,800		370,000	250,000
7,000		370,000	250,000
7,140	9/32	370,000	250,000
7,200		370,000	250,000
7,500		370,000	250,000
7,750		390,000	265,000
7,800		390,000	265,000
7,940	5/16	390,000	265,000
8,000		390,000	265,000
8,200		390,000	265,000
8,500		390,000	265,000
8,600		410,000	280,000
8,730	11/32	410,000	280,000
8,800		410,000	280,000
9,000		410,000	280,000
9,500		410,000	280,000
9,520	3/8	430,000	295,000
10,000		430,000	295,000
10,320	13/32	430,000	295,000
10,500		430,000	295,000
10,720	27/64	455,000	310,000
11,000		455,000	310,000
11,110	7/16	455,000	310,000
11,500		455,000	310,000
12,000		480,000	330,000
12,200		480,000	330,000
12,500		480,000	330,000
13,000		480,000	330,000

Brocas espirales, largo especial

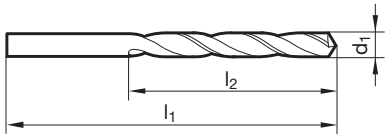
>25xD | WN | GT 100 | 130° | h8

Material de corte	HSS
Acabado	
Dirección de corte	R

P	•	vaciado de punta ≥Ø 6,000 • entrada cónica • ranuras amplias • para taladros muy profundos • con desalojo de viruta difícil
M		
K	•	
N	•	fundición gris y aceros hasta máx. 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 790



Artículo N° **242**

d1		l1	l2
mm	inch	mm	mm
6,000		500,000	400,000
8,000		500,000	400,000
10,000		600,000	500,000
11,000		600,000	500,000
12,000		600,000	500,000

d1		l1	l2
mm	inch	mm	mm

Brocas espirales, largo especial

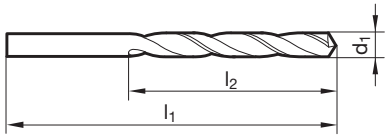
>25xD | WN | GT 100 | 130° | h8

Material de corte	HSS
Acabado	◯
Dirección de corte	R

P	•	vaciado de punta ≥Ø 8,000 • entrada cónica • ranuras amplias • para taladros muy profundos • con desalojo de viruta difícil
M		
K	•	
N	•	fundición gris y aceros hasta máx. 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 790



Artículo N° **243**

d1		l1	l2
mm	inch	mm	mm
8,000		750,000	650,000
10,000		750,000	650,000
11,000		750,000	650,000
12,000		750,000	650,000

d1		l1	l2
mm	inch	mm	mm

Brocas espirales, largo especial

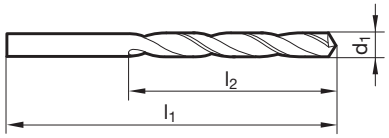
>25xD | WN | GT 100 | 130° | h8

Material de corte	HSS
Acabado	○
Dirección de corte	R

P	•	vaciado de punta ≥Ø 10,000 • entrada cónica • ranuras amplias • para taladros muy profundos • con desalojo de viruta difícil
M		
K	•	
N	•	fundición gris y aceros hasta máx. 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 790



Artículo N° **244**

d1		l1	l2
mm	inch	mm	mm
10,000		1000,000	850,000
11,000		1000,000	850,000
12,000		1000,000	850,000

d1		l1	l2
mm	inch	mm	mm

Brocas espirales con mango cil. reforzado

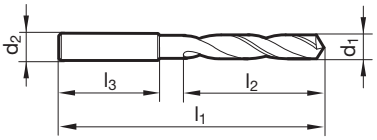
~3xD | WN | GU 500 | 118° | h8 | HA

Material de corte	HSCO
Acabado	S
Dirección de corte	R

P	•	vaciado de punta ≥Ø 2,000 • afilado plano • acero rápido al cobalto • se requiere poca fuerza de avance • se requiere poco par • más resistencia al desgaste • aplicación universal
M	•	
K	•	
N	•	aceros aleados y no aleados fundición de dureza hasta a 800 N/mm² • aceros para trab. en frío y en caliente • aceros inoxidables • metales no ferríticos • fundición • plásticos
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 774



Artículo N° **512**

d1	d2 h6	l1	l2	l3
mm	mm	mm	mm	mm
2,000	3,000	44,000	12,000	28,000
2,100	3,000	44,000	12,000	28,000
2,200	3,000	45,000	13,000	28,000
2,300	3,000	45,000	13,000	28,000
2,400	3,000	46,000	14,000	28,000
2,500	3,000	46,000	14,000	28,000
2,600	3,000	46,000	14,000	28,000
2,700	3,000	48,000	16,000	28,000
2,780	3,000	48,000	16,000	28,000
2,800	3,000	48,000	16,000	28,000
2,900	3,000	48,000	16,000	28,000
3,000	3,000	48,000	16,000	28,000
3,100	4,000	50,000	18,000	28,000
3,170	4,000	50,000	18,000	28,000
3,200	4,000	50,000	18,000	28,000
3,300	4,000	50,000	18,000	28,000
3,400	4,000	52,000	20,000	28,000
3,500	4,000	52,000	20,000	28,000
3,570	4,000	52,000	20,000	28,000
3,600	4,000	52,000	20,000	28,000
3,700	4,000	52,000	20,000	28,000
3,800	4,000	54,000	22,000	28,000
3,900	4,000	54,000	22,000	28,000
4,000	4,000	54,000	22,000	28,000
4,100	6,000	66,000	22,000	36,000
4,200	6,000	66,000	22,000	36,000
4,300	6,000	68,000	24,000	36,000
4,370	6,000	68,000	24,000	36,000
4,400	6,000	68,000	24,000	36,000
4,500	6,000	68,000	24,000	36,000
4,700	6,000	68,000	24,000	36,000
4,760	6,000	70,000	26,000	36,000
4,800	6,000	70,000	26,000	36,000
4,900	6,000	70,000	26,000	36,000
5,000	6,000	70,000	26,000	36,000
5,100	6,000	70,000	26,000	36,000
5,200	6,000	70,000	26,000	36,000
5,300	6,000	70,000	26,000	36,000
5,400	6,000	72,000	28,000	36,000
5,500	6,000	72,000	28,000	36,000
5,560	6,000	72,000	28,000	36,000
5,600	6,000	72,000	28,000	36,000

d1	d2 h6	l1	l2	l3
mm	mm	mm	mm	mm
5,800	6,000	72,000	28,000	36,000
5,900	6,000	72,000	28,000	36,000
5,950	6,000	72,000	28,000	36,000
6,000	6,000	72,000	28,000	36,000
6,100	8,000	75,000	31,000	36,000
6,200	8,000	75,000	31,000	36,000
6,300	8,000	75,000	31,000	36,000
6,350	8,000	75,000	31,000	36,000
6,400	8,000	75,000	31,000	36,000
6,500	8,000	75,000	31,000	36,000
6,600	8,000	75,000	31,000	36,000
6,750	8,000	78,000	34,000	36,000
6,800	8,000	78,000	34,000	36,000
6,900	8,000	78,000	34,000	36,000
7,000	8,000	78,000	34,000	36,000
7,100	8,000	78,000	34,000	36,000
7,140	8,000	78,000	34,000	36,000
7,200	8,000	78,000	34,000	36,000
7,300	8,000	78,000	34,000	36,000
7,500	8,000	78,000	34,000	36,000
7,600	8,000	81,000	37,000	36,000
7,800	8,000	81,000	37,000	36,000
7,900	8,000	81,000	37,000	36,000
7,940	8,000	81,000	37,000	36,000
8,000	8,000	81,000	37,000	36,000
8,100	10,000	87,000	37,000	40,000
8,200	10,000	87,000	37,000	40,000
8,300	10,000	87,000	37,000	40,000
8,330	10,000	87,000	37,000	40,000
8,500	10,000	87,000	37,000	40,000
8,600	10,000	91,000	40,000	40,000
8,730	10,000	91,000	40,000	40,000
8,800	10,000	91,000	40,000	40,000
8,900	10,000	91,000	40,000	40,000
9,000	10,000	91,000	40,000	40,000
9,100	10,000	91,000	40,000	40,000
9,130	10,000	91,000	40,000	40,000
9,200	10,000	91,000	40,000	40,000
9,300	10,000	91,000	40,000	40,000
9,400	10,000	91,000	40,000	40,000
9,500	10,000	91,000	40,000	40,000
9,520	10,000	93,000	43,000	40,000

d1	d2 h6	l1	l2	l3
mm	mm	mm	mm	mm
9,800	10,000	93,000	43,000	40,000
9,900	10,000	93,000	43,000	40,000
9,920	10,000	93,000	43,000	40,000
10,000	10,000	93,000	43,000	40,000
10,100	12,000	100,000	43,000	45,000
10,200	12,000	100,000	43,000	45,000
10,300	12,000	100,000	43,000	45,000
10,320	12,000	100,000	43,000	45,000
10,500	12,000	100,000	43,000	45,000
10,800	12,000	104,000	47,000	45,000
11,000	12,000	104,000	47,000	45,000
11,100	12,000	104,000	47,000	45,000
11,110	12,000	104,000	47,000	45,000
11,200	12,000	104,000	47,000	45,000
11,300	12,000	104,000	47,000	45,000
11,400	12,000	104,000	47,000	45,000
11,500	12,000	104,000	47,000	45,000
11,510	12,000	104,000	47,000	45,000

d1	d2 h6	l1	l2	l3
mm	mm	mm	mm	mm
11,700	12,000	104,000	47,000	45,000
11,800	12,000	104,000	47,000	45,000
12,000	12,000	108,000	51,000	45,000
12,300	16,000	111,000	51,000	48,000
12,500	16,000	111,000	51,000	48,000
13,000	16,000	111,000	51,000	48,000
13,490	16,000	114,000	54,000	48,000
13,500	16,000	114,000	54,000	48,000
14,000	16,000	114,000	54,000	48,000
15,000	16,000	116,000	56,000	48,000
16,000	16,000	118,000	58,000	48,000
16,500	20,000	126,000	60,000	50,000
16,670	20,000	126,000	60,000	50,000
17,500	20,000	128,000	62,000	50,000
18,000	20,000	128,000	62,000	50,000
18,500	20,000	130,000	64,000	50,000
19,500	20,000	132,000	66,000	50,000
20,000	20,000	132,000	66,000	50,000

Brocas espirales con mango cil. reforzado

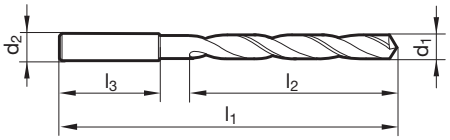
~5xD | WN | GU 500 | 118° | h8 | HA

Material de corte	HSCO
Acabado	S
Dirección de corte	R

P •	vaciado de punta ≥Ø 2,000 • afilado plano • acero rápido al cobalto • se requiere poca fuerza de avance • se requiere poco par • más resistencia al desgaste • aplicación universal
M •	
K •	
N •	aceros aleados y no aleados fundición de dureza hasta a 800 N/mm² • aceros para trab. en frío y en caliente • aceros inoxidables • metales no ferríticos • fundición • plásticos
S	
H	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 784



Artículo N° **511**

d1	d2 h6	l1	l2	l3
mm	mm	mm	mm	mm
2,000	3,000	56,000	24,000	28,000
2,100	3,000	56,000	24,000	28,000
2,300	3,000	59,000	27,000	28,000
2,380	3,000	62,000	30,000	28,000
2,400	3,000	62,000	30,000	28,000
2,500	3,000	62,000	30,000	28,000
2,600	3,000	62,000	30,000	28,000
2,780	3,000	65,000	33,000	28,000
2,800	3,000	65,000	33,000	28,000
2,900	3,000	65,000	33,000	28,000
3,000	3,000	65,000	33,000	28,000
3,100	4,000	68,000	36,000	28,000
3,200	4,000	68,000	36,000	28,000
3,300	4,000	68,000	36,000	28,000
3,400	4,000	71,000	39,000	28,000
3,500	4,000	71,000	39,000	28,000
3,570	4,000	71,000	39,000	28,000
3,900	4,000	75,000	43,000	28,000
3,970	4,000	75,000	43,000	28,000
4,000	4,000	75,000	43,000	28,000
4,200	6,000	87,000	43,000	36,000
4,300	6,000	91,000	47,000	36,000
4,370	6,000	91,000	47,000	36,000
4,400	6,000	91,000	47,000	36,000
4,500	6,000	91,000	47,000	36,000
4,650	6,000	91,000	47,000	36,000
4,700	6,000	91,000	47,000	36,000
4,760	6,000	96,000	52,000	36,000
4,800	6,000	96,000	52,000	36,000
4,900	6,000	96,000	52,000	36,000
5,000	6,000	96,000	52,000	36,000
5,100	6,000	96,000	52,000	36,000
5,160	6,000	96,000	52,000	36,000
5,200	6,000	96,000	52,000	36,000
5,300	6,000	96,000	52,000	36,000
5,400	6,000	101,000	57,000	36,000
5,500	6,000	101,000	57,000	36,000
5,600	6,000	101,000	57,000	36,000
5,800	6,000	101,000	57,000	36,000
5,900	6,000	101,000	57,000	36,000
6,000	6,000	101,000	57,000	36,000
6,100	8,000	107,000	63,000	36,000

d1	d2 h6	l1	l2	l3
mm	mm	mm	mm	mm
6,300	8,000	107,000	63,000	36,000
6,350	8,000	107,000	63,000	36,000
6,400	8,000	107,000	63,000	36,000
6,500	8,000	107,000	63,000	36,000
6,600	8,000	107,000	63,000	36,000
6,750	8,000	113,000	69,000	36,000
6,800	8,000	113,000	69,000	36,000
6,900	8,000	113,000	69,000	36,000
7,000	8,000	113,000	69,000	36,000
7,100	8,000	113,000	69,000	36,000
7,140	8,000	113,000	69,000	36,000
7,200	8,000	113,000	69,000	36,000
7,300	8,000	113,000	69,000	36,000
7,400	8,000	113,000	69,000	36,000
7,500	8,000	113,000	69,000	36,000
7,540	8,000	119,000	75,000	36,000
7,550	8,000	119,000	75,000	36,000
7,600	8,000	119,000	75,000	36,000
7,700	8,000	119,000	75,000	36,000
7,800	8,000	119,000	75,000	36,000
7,900	8,000	119,000	75,000	36,000
8,000	8,000	119,000	75,000	36,000
8,100	10,000	125,000	75,000	40,000
8,200	10,000	125,000	75,000	40,000
8,300	10,000	125,000	75,000	40,000
8,330	10,000	125,000	75,000	40,000
8,500	10,000	125,000	75,000	40,000
8,600	10,000	131,000	81,000	40,000
8,730	10,000	131,000	81,000	40,000
8,800	10,000	131,000	81,000	40,000
8,900	10,000	131,000	81,000	40,000
9,000	10,000	131,000	81,000	40,000
9,100	10,000	131,000	81,000	40,000
9,130	10,000	131,000	81,000	40,000
9,400	10,000	131,000	81,000	40,000
9,500	10,000	131,000	81,000	40,000
9,520	10,000	137,000	87,000	40,000
9,550	10,000	137,000	87,000	40,000
9,600	10,000	137,000	87,000	40,000
9,900	10,000	137,000	87,000	40,000
9,920	10,000	137,000	87,000	40,000
10,000	10,000	137,000	87,000	40,000

d1	d2 h6	l1	l2	l3
mm	mm	mm	mm	mm
10,100	12,000	144,000	87,000	45,000
10,200	12,000	144,000	87,000	45,000
10,400	12,000	144,000	87,000	45,000
10,500	12,000	144,000	87,000	45,000
10,600	12,000	144,000	87,000	45,000
10,800	12,000	151,000	94,000	45,000
11,000	12,000	151,000	94,000	45,000
11,110	12,000	151,000	94,000	45,000
11,200	12,000	151,000	94,000	45,000
11,300	12,000	151,000	94,000	45,000
11,510	12,000	151,000	94,000	45,000
11,800	12,000	151,000	94,000	45,000
11,910	12,000	158,000	101,000	45,000
12,000	12,000	158,000	101,000	45,000
12,200	16,000	161,000	101,000	48,000
12,500	16,000	161,000	101,000	48,000
12,700	16,000	161,000	101,000	48,000
13,000	16,000	161,000	101,000	48,000

d1	d2 h6	l1	l2	l3
mm	mm	mm	mm	mm
13,500	16,000	166,000	106,000	48,000
13,890	16,000	166,000	106,000	48,000
14,000	16,000	166,000	106,000	48,000
14,500	16,000	169,000	109,000	48,000
15,000	16,000	169,000	109,000	48,000
15,500	16,000	172,000	112,000	48,000
16,000	16,000	172,000	112,000	48,000
16,500	20,000	181,000	115,000	50,000
17,000	20,000	181,000	115,000	50,000
17,460	20,000	184,000	118,000	50,000
17,500	20,000	184,000	118,000	50,000
18,000	20,000	184,000	118,000	50,000
19,000	20,000	188,000	122,000	50,000
19,500	20,000	191,000	125,000	50,000
20,000	20,000	191,000	125,000	50,000

Brocas espirales con mango cil. reforzado

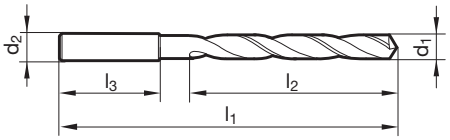
~5xD | WN | GT 500 | 130° | h8 | HA

Material de corte	HSS-E-PM
Acabado	F
Dirección de corte	R

P	•	vaciado de punta ≥Ø 2,000 • afilado al cono con vaciado especial de punta tipo B • PM acero rápido al cobalto • estabilidad muy buena • alta resistencia al desgaste
M	○	
K	•	
N	○	materiales más duros, aceros de aleación alta • aceros de cementación, de bonificación • hierro fundido, latón y bronce
S	○	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 784



Artículo N° **513**

d1	d2 h6	l1	l2	l3
mm	mm	mm	mm	mm
2,000	3,000	56,000	24,000	28,000
2,100	3,000	56,000	24,000	28,000
2,380	3,000	62,000	30,000	28,000
2,500	3,000	62,000	30,000	28,000
2,780	3,000	65,000	33,000	28,000
3,000	3,000	65,000	33,000	28,000
3,170	4,000	68,000	36,000	28,000
3,300	4,000	68,000	36,000	28,000
3,500	4,000	71,000	39,000	28,000
3,570	4,000	71,000	39,000	28,000
3,970	4,000	75,000	43,000	28,000
4,000	4,000	75,000	43,000	28,000
4,200	6,000	87,000	43,000	36,000
4,370	6,000	91,000	47,000	36,000
4,500	6,000	91,000	47,000	36,000
4,650	6,000	91,000	47,000	36,000
4,760	6,000	96,000	52,000	36,000
4,800	6,000	96,000	52,000	36,000
5,000	6,000	96,000	52,000	36,000
5,100	6,000	96,000	52,000	36,000
5,160	6,000	96,000	52,000	36,000
5,200	6,000	96,000	52,000	36,000
5,300	6,000	96,000	52,000	36,000
5,500	6,000	101,000	57,000	36,000
5,800	6,000	101,000	57,000	36,000
6,000	6,000	101,000	57,000	36,000
6,350	8,000	107,000	63,000	36,000
6,500	8,000	107,000	63,000	36,000
6,600	8,000	107,000	63,000	36,000
6,750	8,000	113,000	69,000	36,000
6,800	8,000	113,000	69,000	36,000
7,000	8,000	113,000	69,000	36,000
7,140	8,000	113,000	69,000	36,000
7,400	8,000	113,000	69,000	36,000
7,500	8,000	113,000	69,000	36,000
7,540	8,000	119,000	75,000	36,000

d1	d2 h6	l1	l2	l3
mm	mm	mm	mm	mm
7,800	8,000	119,000	75,000	36,000
7,940	8,000	119,000	75,000	36,000
8,000	8,000	119,000	75,000	36,000
8,330	10,000	125,000	75,000	40,000
8,500	10,000	125,000	75,000	40,000
8,730	10,000	131,000	81,000	40,000
8,800	10,000	131,000	81,000	40,000
9,000	10,000	131,000	81,000	40,000
9,130	10,000	131,000	81,000	40,000
9,300	10,000	131,000	81,000	40,000
9,500	10,000	131,000	81,000	40,000
9,520	10,000	137,000	87,000	40,000
9,600	10,000	137,000	87,000	40,000
9,800	10,000	137,000	87,000	40,000
9,920	10,000	137,000	87,000	40,000
10,000	10,000	137,000	87,000	40,000
10,200	12,000	144,000	87,000	45,000
10,500	12,000	144,000	87,000	45,000
10,600	12,000	144,000	87,000	45,000
10,700	12,000	151,000	94,000	45,000
10,900	12,000	151,000	94,000	45,000
11,000	12,000	151,000	94,000	45,000
11,100	12,000	151,000	94,000	45,000
11,300	12,000	151,000	94,000	45,000
11,400	12,000	151,000	94,000	45,000
11,500	12,000	151,000	94,000	45,000
11,900	12,000	158,000	101,000	45,000
12,000	12,000	158,000	101,000	45,000
12,200	14,000	161,000	101,000	45,000
12,300	14,000	161,000	101,000	45,000
12,400	14,000	161,000	101,000	45,000
12,500	14,000	161,000	101,000	45,000
12,600	14,000	161,000	101,000	45,000
12,700	14,000	161,000	101,000	45,000
12,900	14,000	161,000	101,000	45,000

Brocas espirales con mango cil. reforzado

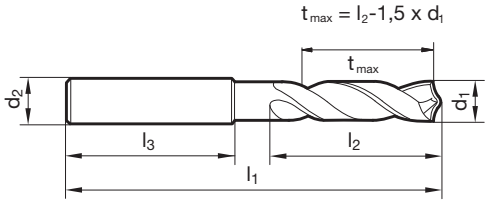
~3xD | DIN 6537K | H | 120° | m7 | HA

Material de corte	**Metal duro**
Acabado	A
Dirección de corte	R

P	○	vaciado de punta ≥Ø 2,600 • afilado plano • forma recta del corte principal (mediante corrección)
M		
K	○	
N		aceros templados con una dureza aprox. de HRC 62
S		
H	•	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 776



Artículo N° **1946**

d1	d2 h6	l1	l2	l3
mm	mm	mm	mm	mm
2,600	6,000	62,000	20,000	36,000
3,000	6,000	62,000	20,000	36,000
3,400	6,000	62,000	20,000	36,000
4,000	6,000	66,000	24,000	36,000
4,300	6,000	66,000	24,000	36,000
5,000	6,000	66,000	28,000	36,000
5,100	6,000	66,000	28,000	36,000
5,600	6,000	66,000	28,000	36,000
6,000	6,000	66,000	28,000	36,000
6,900	8,000	79,000	34,000	36,000
7,100	8,000	79,000	41,000	36,000
8,000	8,000	79,000	41,000	36,000

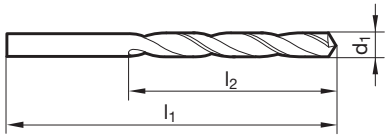
d1	d2 h6	l1	l2	l3
mm	mm	mm	mm	mm
8,600	10,000	89,000	47,000	40,000
9,100	10,000	89,000	47,000	40,000
10,000	10,000	89,000	47,000	40,000
10,400	12,000	102,000	55,000	45,000
10,600	12,000	102,000	55,000	45,000
11,100	12,000	102,000	55,000	45,000
12,000	12,000	102,000	55,000	45,000
14,100	16,000	115,000	65,000	48,000

Brocas esp. largas, longitud 6 pulgadas

NAS 907 | N | 118° | h8

Material de corte	HSS
Acabado	○
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,500 • entrada cónica
M		
K	•	
N	•	planchas en aleaciones de aluminio • planchas en capas (paq. tipo sandwich) • acero y fundiciòn
S		
H		



Artículo N° **577**

d1 mm	inch	l1 mm	l2 mm
1,500		153,000	23,000
1,590	1/16	153,000	26,000
1,650		153,000	26,000
1,750		153,000	26,000
1,780		153,000	26,000
1,900		153,000	26,000
1,930		153,000	29,000
1,980	5/64	153,000	29,000
1,990		153,000	29,000
2,000		153,000	29,000
2,100		153,000	29,000
2,300		153,000	32,500
2,380	3/32	153,000	37,000
2,400		153,000	37,000
2,490		153,000	37,000
2,500		153,000	37,000
2,530		153,000	37,000
2,580		153,000	37,000
2,870		153,000	42,000
2,950		153,000	42,000
3,000		153,000	42,000
3,170	1/8	153,000	42,000
3,200		153,000	42,000
3,260		153,000	42,000
3,500		154,000	49,000
3,570	9/64	154,000	49,000
3,800		154,000	55,000
3,860		154,000	55,000
3,910		154,000	55,000
3,970	5/32	154,000	55,000
4,000		154,000	55,000
4,040		154,000	55,000
4,090		154,000	55,000
4,220		154,000	55,000
4,390		154,000	60,000
4,500		154,000	60,000

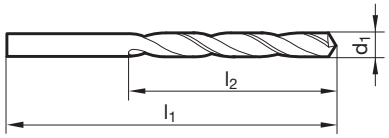
d1 mm	inch	l1 mm	l2 mm
4,570		154,000	60,000
4,700		154,000	60,000
4,760	3/16	154,000	63,500
4,800		154,000	63,500
4,850		154,000	63,500
4,920		154,000	63,500
4,980		154,000	63,500
5,000		154,000	63,500
5,160	13/64	154,000	63,500
5,500		154,000	68,500
5,560	7/32	154,000	68,500
5,800		154,000	68,500
5,940		154,000	68,500
5,950	15/64	154,000	68,500
6,040		154,000	75,000
6,150		154,000	75,000
6,200		154,000	75,000
6,250		154,000	75,000
6,350	1/4	154,000	75,000
6,530		154,000	75,000
6,800		155,000	80,000
7,000		155,000	80,000
7,700		155,000	90,000
7,940	5/16	155,000	90,000
8,000		155,000	90,000

Brocas esp. largas, longitud 6 pulgadas

NAS 907 | N | 135° | h8

Material de corte	HSS
Acabado	>Ø 2,36
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,500 • entrada cónica
M		
K	•	
N	•	planchas en aleaciones de aluminio • planchas en capas (paq. tipo sandwich) • acero y fundiciòn
S		
H		



Artículo N° **579**

d1 mm	inch	l1 mm	l2 mm
1,500		153,000	23,000
1,590	1/16	153,000	26,000
1,780		153,000	26,000
1,980	5/64	153,000	29,000
2,000		153,000	29,000
2,380	3/32	153,000	37,000
2,400		153,000	37,000
2,490		153,000	37,000
2,500		153,000	37,000
2,580		153,000	37,000
2,640		153,000	37,000
2,710		153,000	42,000
2,780	7/64	153,000	42,000
2,790		153,000	42,000
2,820		153,000	42,000
2,870		153,000	42,000
2,950		153,000	42,000
3,000		153,000	42,000
3,050		153,000	42,000
3,170	1/8	153,000	42,000
3,200		153,000	42,000
3,260		153,000	42,000
3,450		154,000	49,000
3,500		154,000	49,000
3,570	9/64	154,000	49,000
3,600		154,000	49,000
3,660		154,000	49,000
3,700		154,000	49,000
3,800		154,000	55,000
3,970	5/32	154,000	55,000

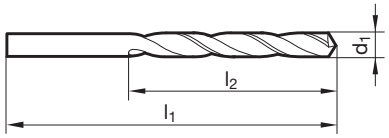
d1 mm	inch	l1 mm	l2 mm
3,990		154,000	55,000
4,000		154,000	55,000
4,040		154,000	55,000
4,090		154,000	55,000
4,370	11/64	154,000	60,000
4,390		154,000	60,000
4,500		154,000	60,000
4,570		154,000	60,000
4,620		154,000	60,000
4,760	3/16	154,000	63,500
4,800		154,000	63,500
4,850		154,000	63,500
4,920		154,000	63,500
4,980		154,000	63,500
5,000		154,000	63,500
5,160	13/64	154,000	63,500
5,560	7/32	154,000	68,500
5,800		154,000	68,500
5,940		154,000	68,500
5,950	15/64	154,000	68,500
6,040		154,000	75,000
6,250		154,000	75,000
6,350	1/4	154,000	75,000
6,450		154,000	75,000
6,530		154,000	75,000
6,750	17/64	155,000	80,000
7,940	5/16	155,000	90,000
8,000		155,000	90,000

Brocas esp. largas, longitud 12 pulgadas

NAS 907 | N | 118° | h8

Material de corte	HSS
Acabado	○
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,500 • entrada cónica
M		
K	•	
N	•	planchas en aleaciones de aluminio • planchas en capas (paq. tipo sandwich) • acero y fundiciòn
S		
H		



Artículo N° **578**

d1 mm	inch	l1 mm	l2 mm
1,500		306,000	23,000
1,590	1/16	306,000	26,000
1,780		306,000	26,000
1,850		306,000	26,000
1,930		306,000	29,000
2,000		306,000	29,000
2,180		306,000	32,500
2,260		306,000	32,500
2,380	3/32	306,000	37,000
2,440		306,000	37,000
2,490		306,000	37,000
2,500		306,000	37,000
2,580		306,000	37,000
2,640		306,000	37,000
2,790		306,000	42,000
2,820		306,000	42,000
3,000		306,000	42,000
3,170	1/8	306,000	42,000
3,200		306,000	42,000
3,260		306,000	42,000
3,500		308,000	49,000
3,570	9/64	308,000	49,000
3,660		308,000	49,000
3,800		308,000	55,000
3,970	5/32	308,000	55,000
4,000		308,000	55,000
4,040		308,000	55,000
4,090		308,000	55,000
4,220		308,000	55,000
4,370	11/64	308,000	60,000

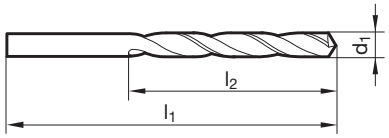
d1 mm	inch	l1 mm	l2 mm
4,390		308,000	60,000
4,500		308,000	60,000
4,570		308,000	60,000
4,620		308,000	60,000
4,700		308,000	60,000
4,760	3/16	308,000	63,500
4,800		308,000	63,500
4,850		308,000	63,500
4,920		308,000	63,500
4,980		308,000	63,500
5,000		308,000	63,500
5,160	13/64	308,000	63,500
5,500		308,000	68,500
5,800		308,000	68,500
5,950	15/64	308,000	68,500
6,000		308,000	68,500
6,040		308,000	75,000
6,350	1/4	308,000	75,000
6,530		308,000	75,000
7,000		310,000	80,000
8,000		310,000	90,000

Brocas esp. largas, longitud 12 pulgadas

NAS 907 | N | 135° | h8

Material de corte	HSS
Acabado	>Ø 2,36
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,500 • entrada cónica
M		
K	•	
N	•	planchas en aleaciones de aluminio • planchas en capas (paq. tipo sandwich) • acero y fundiciòn
S		
H		



Artículo N° **580**

d1 mm	inch	l1 mm	l2 mm
1,500		306,000	23,000
1,590	1/16	306,000	26,000
1,780		306,000	26,000
1,980	5/64	306,000	29,000
2,000		306,000	29,000
2,380	3/32	306,000	37,000
2,490		306,000	37,000
2,500		306,000	37,000
2,580		306,000	37,000
2,640		306,000	37,000
2,710		306,000	42,000
2,780	7/64	306,000	42,000
2,790		306,000	42,000
2,820		306,000	42,000
2,870		306,000	42,000
2,950		306,000	42,000
3,000		306,000	42,000
3,170	1/8	306,000	42,000
3,260		306,000	42,000
3,450		308,000	49,000
3,500		308,000	49,000
3,660		308,000	49,000
3,730		308,000	49,000
3,800		308,000	55,000
3,970	5/32	308,000	55,000
3,990		308,000	55,000
4,000		308,000	55,000
4,040		308,000	55,000
4,300		308,000	60,000
4,370	11/64	308,000	60,000

d1 mm	inch	l1 mm	l2 mm
4,390		308,000	60,000
4,500		308,000	60,000
4,570		308,000	60,000
4,620		308,000	60,000
4,700		308,000	60,000
4,760	3/16	308,000	63,500
4,800		308,000	63,500
4,850		308,000	63,500
4,920		308,000	63,500
4,980		308,000	63,500
5,000		308,000	63,500
5,060		308,000	63,500
5,110		308,000	63,500
5,160	13/64	308,000	63,500
5,560	7/32	308,000	68,500
5,790		308,000	68,500
5,940		308,000	68,500
5,950	15/64	308,000	68,500
6,000		308,000	68,500
6,040		308,000	75,000
6,150		308,000	75,000
6,250		308,000	75,000
6,350	1/4	308,000	75,000
6,530		308,000	75,000
7,940	5/16	310,000	90,000
8,000		310,000	90,000

Brocas con canal de refrigeración

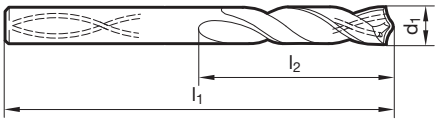
~10xD | WN | N | 130° | h8

Material de corte	HSS
Acabado	○
Dirección de corte	Ⓡ

P	•	vaciado de punta ≥Ø 3,000 • entrada cónica • para taladrar casquillos • ideal para prof. de taladro sup. a 5xD
M	○	
K	•	
N	•	paquetes de chapas • aceros y fundición de aceros, fundición gris • aceros austeníticos hasta aprox. 800 N/mm²
S	○	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 788



Artículo N° **390**

d1	l1	l2
mm	mm	mm
3,000	100,000	66,000
3,300	106,000	69,000
3,500	112,000	73,000
4,000	119,000	78,000
4,200	119,000	78,000
4,500	126,000	82,000
5,000	132,000	87,000
5,500	139,000	91,000
6,000	139,000	91,000
6,500	148,000	97,000
6,800	156,000	102,000
6,900	156,000	102,000
7,000	156,000	102,000
7,500	156,000	102,000
8,000	165,000	109,000
8,500	165,000	109,000
9,000	175,000	115,000
9,500	175,000	115,000

d1	l1	l2
mm	mm	mm
10,000	184,000	121,000
10,200	184,000	121,000
10,500	184,000	121,000
11,000	195,000	128,000
11,500	195,000	128,000
12,000	205,000	134,000
13,000	205,000	134,000

Brocas con canal de refrigeración

~5xD | GT 80 IK | WN | 130° | h8

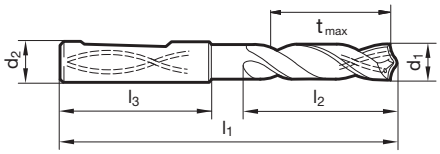
Material de corte	HSCO
Acabado	◯
Forma del mango	HE

P	•	vaciado de punta ≥Ø 5,000 • entrada cónica • acero rápido al cobalto
M	•	
K	•	
N	•	materiales de viruta larga de hasta 1000 N/mm² • aceros inoxidables • fundición • metales no ferríticos
S	•	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 784

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **1131**

d1 mm	d1 inch	d6 h6 mm	l1 mm	l2 mm	l3 mm
5,000		6,000	82,000	44,000	36,000
5,500		6,000	82,000	44,000	36,000
6,000		6,000	82,000	44,000	36,000
6,350	1/4	8,000	91,000	53,000	36,000
6,800		8,000	91,000	53,000	36,000
7,140	9/32	8,000	91,000	53,000	36,000
7,800		8,000	91,000	53,000	36,000
8,000		8,000	91,000	53,000	36,000
9,000		10,000	103,000	61,000	40,000
9,500		10,000	103,000	61,000	40,000
10,000		10,000	103,000	61,000	40,000
10,200		12,000	118,000	71,000	45,000
10,320	13/32	12,000	118,000	71,000	45,000
10,500		12,000	118,000	71,000	45,000
11,000		12,000	118,000	71,000	45,000
11,500		12,000	118,000	71,000	45,000
12,000		12,000	118,000	71,000	45,000
12,500		14,000	124,000	77,000	45,000

d1 mm	d1 inch	d6 h6 mm	l1 mm	l2 mm	l3 mm
13,000		14,000	124,000	77,000	45,000
13,500		14,000	124,000	77,000	45,000
14,000		14,000	124,000	77,000	45,000
14,290	9/16	16,000	133,000	83,000	48,000
15,000		16,000	133,000	83,000	48,000
15,500		16,000	133,000	83,000	48,000
15,870	5/8	16,000	133,000	83,000	48,000
16,000		16,000	133,000	83,000	48,000
16,500		18,000	143,000	93,000	48,000
17,000		18,000	143,000	93,000	48,000
17,500		18,000	143,000	93,000	48,000
18,000		18,000	143,000	93,000	48,000
18,500		20,000	153,000	101,000	50,000
19,500		20,000	153,000	101,000	50,000
20,000		20,000	153,000	101,000	50,000

Brocas con canal de refrigeración

~5xD | GT 80 IK | WN | 130° | h8

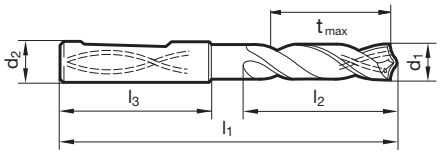
Material de corte	HSCO
Acabado	S
Forma del mango	HE

P	•	vaciado de punta ≥Ø 5,000 • entrada cónica • acero rápido al cobalto • más resistencia al desgaste
M	•	
K	•	
N	•	materiales de viruta larga de hasta 1000 N/mm² • aceros inoxidables • fundición • metales no ferríticos
S	•	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 784

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo Nº **1132**

d1 mm	d1 inch	d6 h6 mm	l1 mm	l2 mm	l3 mm
5,000		6,000	82,000	44,000	36,000
5,500		6,000	82,000	44,000	36,000
6,000		6,000	82,000	44,000	36,000
6,500		8,000	91,000	53,000	36,000
6,800		8,000	91,000	53,000	36,000
7,000		8,000	91,000	53,000	36,000
7,500		8,000	91,000	53,000	36,000
7,800		8,000	91,000	53,000	36,000
8,000		8,000	91,000	53,000	36,000
8,500		10,000	103,000	61,000	40,000
9,000		10,000	103,000	61,000	40,000
9,500		10,000	103,000	61,000	40,000
10,000		10,000	103,000	61,000	40,000
10,200		12,000	118,000	71,000	45,000
10,320	13/32	12,000	118,000	71,000	45,000
10,500		12,000	118,000	71,000	45,000
11,000		12,000	118,000	71,000	45,000
11,500		12,000	118,000	71,000	45,000

d1 mm	d1 inch	d6 h6 mm	l1 mm	l2 mm	l3 mm
12,000		12,000	118,000	71,000	45,000
12,500		14,000	124,000	77,000	45,000
13,000		14,000	124,000	77,000	45,000
13,500		14,000	124,000	77,000	45,000
14,000		14,000	124,000	77,000	45,000
14,500		16,000	133,000	83,000	48,000
15,000		16,000	133,000	83,000	48,000
15,500		16,000	133,000	83,000	48,000
15,870	5/8	16,000	133,000	83,000	48,000
16,000		16,000	133,000	83,000	48,000
16,500		18,000	143,000	93,000	48,000
17,000		18,000	143,000	93,000	48,000
17,500		18,000	143,000	93,000	48,000
18,000		18,000	143,000	93,000	48,000
19,000		20,000	153,000	101,000	50,000
19,500		20,000	153,000	101,000	50,000
20,000		20,000	153,000	101,000	50,000

Microbrocas HSS-E-PM sin refrig. Interna

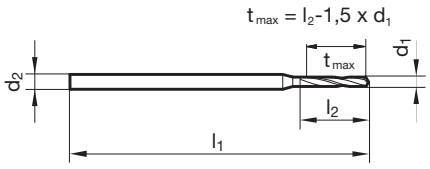
~5xD | DIN 1899 | N | 118° | 0/-0,004

Material de corte	HSS-E-PM
Acabado	◯
Dirección de corte	Ⓡ

P	•	afilado plano • con mango reforzado • < Ø 0,15 mm acero rápido al cobalto
M	•	
K	•	
N	•	aceros altamente aleados
S	○	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 796



Artículo N° **301**

d1	d2	l1	l2
mm	mm	mm	mm
0,050	1,000	25,000	0,400
0,060	1,000	25,000	0,400
0,070	1,000	25,000	0,500
0,075	1,000	25,000	0,500
0,080	1,000	25,000	0,500
0,090	1,000	25,000	0,500
0,100	1,000	25,000	0,500
0,105	1,000	25,000	0,500
0,110	1,000	25,000	0,500
0,115	1,000	25,000	0,500
0,120	1,000	25,000	0,500
0,121	1,000	25,000	0,800
0,125	1,000	25,000	0,800
0,128	1,000	25,000	0,800
0,130	1,000	25,000	0,800
0,140	1,000	25,000	0,800
0,143	1,000	25,000	0,800
0,145	1,000	25,000	0,800
0,147	1,000	25,000	0,800
0,150	1,000	25,000	0,800
0,155	1,000	25,000	1,100
0,160	1,000	25,000	1,100
0,170	1,000	25,000	1,100
0,175	1,000	25,000	1,100
0,180	1,000	25,000	1,100
0,190	1,000	25,000	1,100
0,195	1,000	25,000	1,500
0,200	1,000	25,000	1,500
0,205	1,000	25,000	1,500
0,210	1,000	25,000	1,500
0,215	1,000	25,000	1,500
0,220	1,000	25,000	1,500
0,225	1,000	25,000	1,500
0,230	1,000	25,000	1,500
0,235	1,000	25,000	1,500
0,240	1,000	25,000	1,500
0,245	1,000	25,000	1,900
0,250	1,000	25,000	1,900
0,255	1,000	25,000	1,900
0,260	1,000	25,000	1,900
0,265	1,000	25,000	1,900
0,270	1,000	25,000	1,900

d1	d2	l1	l2
mm	mm	mm	mm
0,275	1,000	25,000	1,900
0,280	1,000	25,000	1,900
0,285	1,000	25,000	1,900
0,290	1,000	25,000	1,900
0,295	1,000	25,000	1,900
0,300	1,000	25,000	1,900
0,305	1,000	25,000	2,400
0,310	1,000	25,000	2,400
0,315	1,000	25,000	2,400
0,320	1,000	25,000	2,400
0,325	1,000	25,000	2,400
0,330	1,000	25,000	2,400
0,335	1,000	25,000	2,400
0,340	1,000	25,000	2,400
0,345	1,000	25,000	2,400
0,350	1,000	25,000	2,400
0,355	1,000	25,000	2,400
0,360	1,000	25,000	2,400
0,365	1,000	25,000	2,400
0,370	1,000	25,000	2,400
0,375	1,000	25,000	2,400
0,380	1,000	25,000	2,400
0,385	1,000	25,000	3,000
0,390	1,000	25,000	3,000
0,400	1,000	25,000	3,000
0,405	1,000	25,000	3,000
0,410	1,000	25,000	3,000
0,415	1,000	25,000	3,000
0,420	1,000	25,000	3,000
0,425	1,000	25,000	3,000
0,430	1,000	25,000	3,000
0,432	1,000	25,000	3,000
0,435	1,000	25,000	3,000
0,440	1,000	25,000	3,000
0,445	1,000	25,000	3,000
0,450	1,000	25,000	3,000
0,455	1,000	25,000	3,000
0,460	1,000	25,000	3,000
0,470	1,000	25,000	3,000
0,475	1,000	25,000	3,000
0,480	1,000	25,000	3,000
0,485	1,000	25,000	3,400

d1	d2	l1	l2
mm	mm	mm	mm
0,490	1,000	25,000	3,400
0,495	1,000	25,000	3,400
0,500	1,000	25,000	3,400
0,505	1,000	25,000	3,400
0,510	1,000	25,000	3,400
0,515	1,000	25,000	3,400
0,520	1,000	25,000	3,400
0,525	1,000	25,000	3,400
0,530	1,000	25,000	3,400
0,535	1,000	25,000	3,900
0,540	1,000	25,000	3,900
0,545	1,000	25,000	3,900
0,550	1,000	25,000	3,900
0,560	1,000	25,000	3,900
0,570	1,000	25,000	3,900
0,580	1,000	25,000	3,900
0,585	1,000	25,000	3,900
0,590	1,000	25,000	3,900
0,595	1,000	25,000	3,900
0,600	1,000	25,000	3,900
0,605	1,000	25,000	4,200
0,610	1,000	25,000	4,200
0,615	1,000	25,000	4,200
0,620	1,000	25,000	4,200
0,625	1,000	25,000	4,200
0,630	1,000	25,000	4,200
0,632	1,000	25,000	4,200
0,640	1,000	25,000	4,200
0,650	1,000	25,000	4,200
0,655	1,000	25,000	4,200
0,660	1,000	25,000	4,200
0,665	1,000	25,000	4,200
0,670	1,000	25,000	4,200
0,675	1,000	25,000	4,800
0,680	1,000	25,000	4,800
0,690	1,000	25,000	4,800
0,695	1,000	25,000	4,800
0,700	1,000	25,000	4,800
0,705	1,000	25,000	4,800
0,710	1,000	25,000	4,800
0,720	1,000	25,000	4,800
0,725	1,000	25,000	4,800
0,730	1,000	25,000	4,800
0,740	1,000	25,000	4,800
0,750	1,000	25,000	4,800
0,760	1,000	25,000	5,300
0,770	1,000	25,000	5,300
0,780	1,000	25,000	5,300
0,790	1,000	25,000	5,300
0,795	1,500	25,000	5,300
0,800	1,500	25,000	5,300
0,810	1,500	25,000	5,300
0,820	1,500	25,000	5,300
0,825	1,500	25,000	5,300
0,830	1,500	25,000	5,300
0,840	1,500	25,000	5,300
0,845	1,500	25,000	5,300
0,850	1,500	25,000	5,300
0,860	1,500	25,000	6,000
0,870	1,500	25,000	6,000
0,880	1,500	25,000	6,000
0,890	1,500	25,000	6,000
0,900	1,500	25,000	6,000
0,910	1,500	25,000	6,000
0,920	1,500	25,000	6,000
0,925	1,500	25,000	6,000
0,930	1,500	25,000	6,000
0,940	1,500	25,000	6,000
0,950	1,500	25,000	6,000
0,960	1,500	25,000	6,800
0,970	1,500	25,000	6,800
0,980	1,500	25,000	6,800

d1	d2	l1	l2
mm	mm	mm	mm
0,990	1,500	25,000	6,800
1,000	1,500	25,000	6,800
1,010	1,500	25,000	6,800
1,020	1,500	25,000	6,800
1,030	1,500	25,000	6,800
1,040	1,500	25,000	6,800
1,050	1,500	25,000	6,800
1,055	1,500	25,000	6,800
1,060	1,500	25,000	6,800
1,070	1,500	25,000	7,600
1,080	1,500	25,000	7,600
1,090	1,500	25,000	7,600
1,100	1,500	25,000	7,600
1,110	1,500	25,000	7,600
1,120	1,500	25,000	7,600
1,130	1,500	25,000	7,600
1,140	1,500	25,000	7,600
1,150	1,500	25,000	7,600
1,160	1,500	25,000	7,600
1,170	1,500	25,000	7,600
1,180	1,500	25,000	7,600
1,190	1,500	25,000	8,500
1,200	1,500	25,000	8,500
1,210	1,500	25,000	8,500
1,220	1,500	25,000	8,500
1,230	1,500	25,000	8,500
1,240	1,500	25,000	8,500
1,250	1,500	25,000	8,500
1,260	1,500	25,000	8,500
1,265	1,500	25,000	8,500
1,270	1,500	25,000	8,500
1,280	1,500	25,000	8,500
1,290	1,500	25,000	8,500
1,300	1,500	25,000	8,500
1,310	1,500	25,000	8,500
1,320	1,500	25,000	8,500
1,325	1,500	25,000	9,500
1,330	1,500	25,000	9,500
1,340	1,500	25,000	9,500
1,350	1,500	25,000	9,500
1,370	1,500	25,000	9,500
1,380	1,500	25,000	9,500
1,390	1,500	25,000	9,500
1,400	1,500	25,000	9,500
1,410	1,500	25,000	9,500
1,420	1,500	25,000	9,500
1,430	1,500	25,000	9,500
1,440	1,500	25,000	9,500
1,450	1,500	25,000	9,500
1,460	2,000	30,000	9,500
1,470	2,000	30,000	9,500
1,500	2,000	30,000	9,500
1,520	2,000	30,000	10,600
1,530	2,000	30,000	10,600
1,540	2,000	30,000	10,600
1,550	2,000	30,000	10,600
1,590	2,000	30,000	10,600
1,600	2,000	30,000	10,600
1,610	2,000	30,000	10,600
1,630	2,000	30,000	10,600
1,640	2,000	30,000	10,600
1,650	2,000	30,000	10,600
1,660	2,000	30,000	10,600
1,690	2,000	30,000	10,600
1,700	2,000	30,000	10,600
1,710	2,000	30,000	11,800
1,715	2,000	30,000	11,800
1,730	2,000	30,000	11,800
1,745	2,000	30,000	11,800
1,750	2,000	30,000	11,800
1,775	2,000	30,000	11,800
1,800	2,000	30,000	11,800

d1	d2	l1	l2
mm	mm	mm	mm
1,830	2,000	30,000	11,800
1,840	2,000	30,000	11,800
1,850	2,000	30,000	11,800
1,860	2,000	30,000	11,800
1,900	2,000	30,000	11,800
1,920	2,000	30,000	13,200

d1	d2	l1	l2
mm	mm	mm	mm

Microbrocas HSS-E-PM sin refrig. Interna

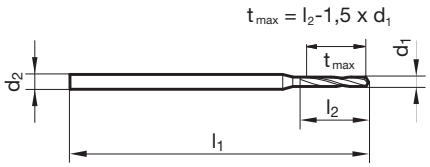
~5xD | DIN 1899 | N | 118° | 0/-0,004

Material de corte	HSS-E-PM
Acabado	S
Dirección de corte	R

P	•	afilado plano • con mango reforzado • más resistencia al desgaste
M	•	
K	•	
N	•	aceros altamente aleados
S	○	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 796



Artículo Nº **660**

d1	d2	l1	l2	d1	d2	l1	l2
mm	mm	mm	mm	mm	mm	mm	mm
0,160	1,000	25,000	1,100	0,530	1,000	25,000	3,400
0,170	1,000	25,000	1,100	0,540	1,000	25,000	3,900
0,180	1,000	25,000	1,100	0,550	1,000	25,000	3,900
0,190	1,000	25,000	1,100	0,560	1,000	25,000	3,900
0,200	1,000	25,000	1,500	0,570	1,000	25,000	3,900
0,210	1,000	25,000	1,500	0,580	1,000	25,000	3,900
0,220	1,000	25,000	1,500	0,590	1,000	25,000	3,900
0,230	1,000	25,000	1,500	0,600	1,000	25,000	3,900
0,240	1,000	25,000	1,500	0,610	1,000	25,000	4,200
0,250	1,000	25,000	1,900	0,620	1,000	25,000	4,200
0,255	1,000	25,000	1,900	0,630	1,000	25,000	4,200
0,260	1,000	25,000	1,900	0,640	1,000	25,000	4,200
0,265	1,000	25,000	1,900	0,650	1,000	25,000	4,200
0,270	1,000	25,000	1,900	0,660	1,000	25,000	4,200
0,280	1,000	25,000	1,900	0,670	1,000	25,000	4,200
0,290	1,000	25,000	1,900	0,680	1,000	25,000	4,800
0,295	1,000	25,000	1,900	0,690	1,000	25,000	4,800
0,300	1,000	25,000	1,900	0,700	1,000	25,000	4,800
0,305	1,000	25,000	2,400	0,710	1,000	25,000	4,800
0,310	1,000	25,000	2,400	0,720	1,000	25,000	4,800
0,320	1,000	25,000	2,400	0,730	1,000	25,000	4,800
0,325	1,000	25,000	2,400	0,740	1,000	25,000	4,800
0,330	1,000	25,000	2,400	0,750	1,000	25,000	4,800
0,340	1,000	25,000	2,400	0,760	1,000	25,000	5,300
0,350	1,000	25,000	2,400	0,770	1,000	25,000	5,300
0,360	1,000	25,000	2,400	0,780	1,000	25,000	5,300
0,370	1,000	25,000	2,400	0,790	1,000	25,000	5,300
0,380	1,000	25,000	2,400	0,800	1,500	25,000	5,300
0,390	1,000	25,000	3,000	0,810	1,500	25,000	5,300
0,400	1,000	25,000	3,000	0,820	1,500	25,000	5,300
0,410	1,000	25,000	3,000	0,830	1,500	25,000	5,300
0,420	1,000	25,000	3,000	0,840	1,500	25,000	5,300
0,430	1,000	25,000	3,000	0,850	1,500	25,000	5,300
0,440	1,000	25,000	3,000	0,860	1,500	25,000	6,000
0,450	1,000	25,000	3,000	0,870	1,500	25,000	6,000
0,460	1,000	25,000	3,000	0,880	1,500	25,000	6,000
0,470	1,000	25,000	3,000	0,900	1,500	25,000	6,000
0,480	1,000	25,000	3,000	0,910	1,500	25,000	6,000
0,490	1,000	25,000	3,400	0,920	1,500	25,000	6,000
0,500	1,000	25,000	3,400	0,940	1,500	25,000	6,000
0,510	1,000	25,000	3,400	0,950	1,500	25,000	6,000
0,520	1,000	25,000	3,400	0,960	1,500	25,000	6,800

d1	d2	l1	l2
mm	mm	mm	mm
0,970	1,500	25,000	6,800
0,980	1,500	25,000	6,800
1,000	1,500	25,000	6,800
1,020	1,500	25,000	6,800
1,040	1,500	25,000	6,800
1,050	1,500	25,000	6,800
1,070	1,500	25,000	7,600
1,080	1,500	25,000	7,600
1,100	1,500	25,000	7,600
1,150	1,500	25,000	7,600
1,180	1,500	25,000	7,600
1,190	1,500	25,000	8,500

d1	d2	l1	l2
mm	mm	mm	mm
1,200	1,500	25,000	8,500
1,220	1,500	25,000	8,500
1,250	1,500	25,000	8,500
1,300	1,500	25,000	8,500
1,350	1,500	25,000	9,500
1,390	1,500	25,000	9,500
1,400	1,500	25,000	9,500
1,420	1,500	25,000	9,500
1,450	1,500	25,000	9,500
1,500	2,000	30,000	9,500
1,800	2,000	30,000	11,800
1,900	2,000	30,000	11,800

Microbrocas HSS-E-PM sin refrig. Interna

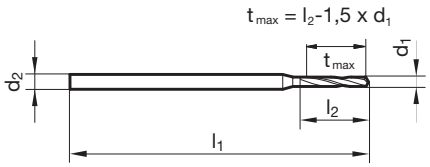
~5xD | DIN 1899 | N | 118° | 0/-0,004

Material de corte	HSS-E-PM
Acabado	○
Dirección de corte	

P	•	afilado plano • con mango reforzado • < Ø 0,15 mm acero rápido al cobalto
M	•	
K	•	
N	•	aceros altamente aleados
S	○	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 796



Artículo Nº **303**

d1	d2	l1	l2	d1	d2	l1	l2
mm	mm	mm	mm	mm	mm	mm	mm
0,130	1,000	25,000	0,800	0,410	1,000	25,000	3,000
0,140	1,000	25,000	0,800	0,415	1,000	25,000	3,000
0,150	1,000	25,000	0,800	0,420	1,000	25,000	3,000
0,155	1,000	25,000	1,100	0,430	1,000	25,000	3,000
0,160	1,000	25,000	1,100	0,435	1,000	25,000	3,000
0,170	1,000	25,000	1,100	0,440	1,000	25,000	3,000
0,175	1,000	25,000	1,100	0,450	1,000	25,000	3,000
0,180	1,000	25,000	1,100	0,460	1,000	25,000	3,000
0,185	1,000	25,000	1,100	0,465	1,000	25,000	3,000
0,190	1,000	25,000	1,100	0,470	1,000	25,000	3,000
0,195	1,000	25,000	1,500	0,480	1,000	25,000	3,000
0,200	1,000	25,000	1,500	0,485	1,000	25,000	3,400
0,210	1,000	25,000	1,500	0,490	1,000	25,000	3,400
0,215	1,000	25,000	1,500	0,495	1,000	25,000	3,400
0,220	1,000	25,000	1,500	0,500	1,000	25,000	3,400
0,225	1,000	25,000	1,500	0,510	1,000	25,000	3,400
0,230	1,000	25,000	1,500	0,520	1,000	25,000	3,400
0,235	1,000	25,000	1,500	0,525	1,000	25,000	3,400
0,240	1,000	25,000	1,500	0,540	1,000	25,000	3,900
0,245	1,000	25,000	1,900	0,545	1,000	25,000	3,900
0,250	1,000	25,000	1,900	0,550	1,000	25,000	3,900
0,255	1,000	25,000	1,900	0,555	1,000	25,000	3,900
0,260	1,000	25,000	1,900	0,565	1,000	25,000	3,900
0,265	1,000	25,000	1,900	0,570	1,000	25,000	3,900
0,270	1,000	25,000	1,900	0,580	1,000	25,000	3,900
0,275	1,000	25,000	1,900	0,590	1,000	25,000	3,900
0,280	1,000	25,000	1,900	0,600	1,000	25,000	3,900
0,290	1,000	25,000	1,900	0,615	1,000	25,000	4,200
0,295	1,000	25,000	1,900	0,620	1,000	25,000	4,200
0,300	1,000	25,000	1,900	0,630	1,000	25,000	4,200
0,310	1,000	25,000	2,400	0,640	1,000	25,000	4,200
0,315	1,000	25,000	2,400	0,650	1,000	25,000	4,200
0,330	1,000	25,000	2,400	0,660	1,000	25,000	4,200
0,340	1,000	25,000	2,400	0,670	1,000	25,000	4,200
0,345	1,000	25,000	2,400	0,675	1,000	25,000	4,800
0,350	1,000	25,000	2,400	0,680	1,000	25,000	4,800
0,355	1,000	25,000	2,400	0,685	1,000	25,000	4,800
0,360	1,000	25,000	2,400	0,690	1,000	25,000	4,800
0,370	1,000	25,000	2,400	0,695	1,000	25,000	4,800
0,380	1,000	25,000	2,400	0,700	1,000	25,000	4,800
0,390	1,000	25,000	3,000	0,710	1,000	25,000	4,800
0,400	1,000	25,000	3,000	0,720	1,000	25,000	4,800

d1	d2	l1	l2
mm	mm	mm	mm
0,740	1,000	25,000	4,800
0,750	1,000	25,000	4,800
0,760	1,000	25,000	5,300
0,770	1,000	25,000	5,300
0,780	1,000	25,000	5,300
0,790	1,000	25,000	5,300
0,800	1,500	25,000	5,300
0,805	1,500	25,000	5,300
0,810	1,500	25,000	5,300
0,820	1,500	25,000	5,300
0,830	1,500	25,000	5,300
0,840	1,500	25,000	5,300
0,850	1,500	25,000	5,300
0,855	1,500	25,000	6,000
0,860	1,500	25,000	6,000
0,870	1,500	25,000	6,000
0,880	1,500	25,000	6,000
0,885	1,500	25,000	6,000
0,890	1,500	25,000	6,000
0,900	1,500	25,000	6,000
0,910	1,500	25,000	6,000
0,915	1,500	25,000	6,000
0,920	1,500	25,000	6,000
0,925	1,500	25,000	6,000
0,935	1,500	25,000	6,000
0,940	1,500	25,000	6,000
0,950	1,500	25,000	6,000
0,960	1,500	25,000	6,800
0,970	1,500	25,000	6,800
0,975	1,500	25,000	6,800
0,980	1,500	25,000	6,800
0,985	1,500	25,000	6,800
0,990	1,500	25,000	6,800
1,000	1,500	25,000	6,800
1,005	1,500	25,000	6,800
1,020	1,500	25,000	6,800

d1	d2	l1	l2
mm	mm	mm	mm
1,030	1,500	25,000	6,800
1,040	1,500	25,000	6,800
1,050	1,500	25,000	6,800
1,060	1,500	25,000	6,800
1,080	1,500	25,000	7,600
1,085	1,500	25,000	7,600
1,090	1,500	25,000	7,600
1,100	1,500	25,000	7,600
1,110	1,500	25,000	7,600
1,120	1,500	25,000	7,600
1,125	1,500	25,000	7,600
1,150	1,500	25,000	7,600
1,160	1,500	25,000	7,600
1,170	1,500	25,000	7,600
1,180	1,500	25,000	7,600
1,200	1,500	25,000	8,500
1,250	1,500	25,000	8,500
1,270	1,500	25,000	8,500
1,280	1,500	25,000	8,500
1,285	1,500	25,000	8,500
1,290	1,500	25,000	8,500
1,310	1,500	25,000	8,500
1,330	1,500	25,000	9,500
1,350	1,500	25,000	9,500
1,360	1,500	25,000	9,500
1,375	1,500	25,000	9,500
1,400	1,500	25,000	9,500
1,405	1,500	25,000	9,500
1,425	1,500	25,000	9,500
1,450	1,500	25,000	9,500
1,460	2,000	30,000	9,500
1,500	2,000	30,000	9,500
1,600	2,000	30,000	10,600
1,615	2,000	30,000	10,600
1,800	2,000	30,000	11,800
1,850	2,000	30,000	11,800

Microbrocas VHM sin refrig. Interna

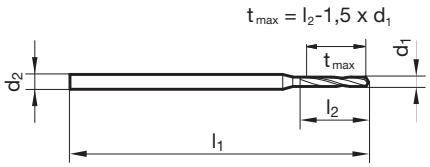
~5xD | WN | N | 130° | 0/-0,004

Material de corte	**Metal duro**
Acabado	◯
Dirección de corte	Ⓡ

P	•	vaciado de punta ≥Ø 0,800 • afilado plano • forma recta del corte principal
M	○	
K	•	
N	○	aceros de construcción y de cementación • fundición • bronce, latón • aluminio y sus aleaciones • magnesio y sus aleaciones • plásticos y plásticos con refuerzo de fibras
S	○	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 796



Artículo N° **701**

d1	d2	l1	l2
mm	mm	mm	mm
0,200	1,000	25,000	1,500
0,220	1,000	25,000	1,500
0,250	1,000	25,000	1,900
0,260	1,000	25,000	1,900
0,280	1,000	25,000	1,900
0,300	1,000	25,000	1,900
0,330	1,000	25,000	2,400
0,350	1,000	25,000	2,400
0,400	1,000	25,000	3,000
0,450	1,000	25,000	3,000
0,500	1,000	25,000	3,400
0,600	1,000	25,000	3,900
0,650	1,000	25,000	4,200
0,700	1,000	25,000	4,800
0,750	1,000	25,000	4,800
0,800	1,500	25,000	5,300
0,810	1,500	25,000	5,300
0,830	1,500	25,000	5,300

d1	d2	l1	l2
mm	mm	mm	mm
0,850	1,500	25,000	5,300
0,900	1,500	25,000	6,000
1,000	1,500	25,000	6,800
1,050	1,500	25,000	6,800
1,100	1,500	25,000	7,600
1,150	1,500	25,000	7,600
1,200	1,500	25,000	8,500
1,250	1,500	25,000	8,500
1,300	1,500	25,000	8,500
1,350	1,500	25,000	9,500
1,400	1,500	25,000	9,500

Microbrocas VHM sin refrig. Interna

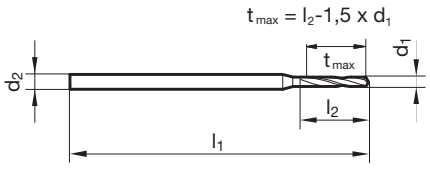
N | WN | 140° | ≥1,0 h7

Material de corte	**Metal duro**
Acabado	A
Dirección de corte	R

P	•	vaciado de punta ≥Ø 0,800 • afilado plano
M		
K	•	
N		aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • fundición
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 796



Artículo Nº **3899**

d1	d2 h6	l1	l2
mm	mm	mm	mm
0,100	3,000	38,000	1,200
0,150	3,000	38,000	2,000
0,200	3,000	38,000	2,500
0,250	3,000	38,000	3,000
0,260	3,000	38,000	3,000
0,270	3,000	38,000	3,000
0,280	3,000	38,000	3,000
0,300	3,000	38,000	5,000
0,310	3,000	38,000	5,000
0,330	3,000	38,000	5,000
0,350	3,000	38,000	6,000
0,360	3,000	38,000	6,000
0,370	3,000	38,000	6,000
0,380	3,000	38,000	6,000
0,400	3,000	38,000	7,000
0,410	3,000	38,000	7,000
0,430	3,000	38,000	7,000
0,440	3,000	38,000	7,000
0,450	3,000	38,000	7,000
0,480	3,000	38,000	7,000
0,500	3,000	38,000	7,000
0,510	3,000	38,000	7,000
0,530	3,000	38,000	7,000
0,550	3,000	38,000	7,000
0,570	3,000	38,000	7,000
0,600	3,000	38,000	7,000
0,640	3,000	38,000	7,000
0,650	3,000	38,000	7,000
0,660	3,000	38,000	7,000
0,680	3,000	38,000	7,000
0,700	3,000	38,000	8,000
0,710	3,000	38,000	8,000
0,720	3,000	38,000	8,000
0,740	3,000	38,000	8,000
0,750	3,000	38,000	8,000
0,760	3,000	38,000	8,000
0,770	3,000	38,000	8,000
0,780	3,000	38,000	8,000
0,790	3,000	38,000	8,000
0,800	3,000	38,000	10,000
0,810	3,000	38,000	10,000
0,820	3,000	38,000	10,000

d1	d2 h6	l1	l2
mm	mm	mm	mm
0,830	3,000	38,000	10,000
0,840	3,000	38,000	10,000
0,850	3,000	38,000	10,000
0,860	3,000	38,000	10,000
0,870	3,000	38,000	10,000
0,880	3,000	38,000	10,000
0,890	3,000	38,000	10,000
0,900	3,000	38,000	10,000
0,910	3,000	38,000	10,000
0,920	3,000	38,000	10,000
0,930	3,000	38,000	10,000
0,940	3,000	38,000	10,000
0,950	3,000	38,000	10,000
0,960	3,000	38,000	10,000
0,970	3,000	38,000	10,000
0,980	3,000	38,000	10,000
0,990	3,000	38,000	10,000
1,000	3,000	38,000	10,000
1,010	3,000	38,000	10,000
1,020	3,000	38,000	10,000
1,050	3,000	38,000	10,000
1,060	3,000	38,000	10,000
1,070	3,000	38,000	10,000
1,090	3,000	38,000	10,000
1,100	3,000	38,000	10,000
1,110	3,000	38,000	10,000
1,150	3,000	38,000	10,000
1,170	3,000	38,000	10,000
1,190	3,000	38,000	10,000
1,200	3,000	38,000	10,000
1,210	3,000	38,000	10,000
1,220	3,000	38,000	10,000
1,230	3,000	38,000	10,000
1,240	3,000	38,000	10,000
1,260	3,000	38,000	10,000
1,270	3,000	38,000	10,000
1,280	3,000	38,000	10,000
1,300	3,000	38,000	10,000
1,370	3,000	38,000	10,000
1,400	3,000	38,000	10,000
1,420	3,000	38,000	10,000
1,450	3,000	38,000	10,000

d1	d2 h6	l1	l2
mm	mm	mm	mm
1,490	3,000	38,000	10,000
1,500	3,000	38,000	10,000
1,510	3,000	38,000	10,000
1,520	3,000	38,000	10,000
1,550	3,000	38,000	10,000
1,560	3,000	38,000	10,000
1,580	3,000	38,000	10,000
1,590	3,000	38,000	10,000
1,600	3,000	38,000	12,000
1,630	3,000	38,000	12,000
1,650	3,000	38,000	12,000
1,700	3,000	38,000	12,000
1,750	3,000	38,000	12,000
1,800	3,000	38,000	12,000
1,810	3,000	38,000	12,000
1,820	3,000	38,000	12,000
1,830	3,000	38,000	12,000
1,840	3,000	38,000	12,000
1,850	3,000	38,000	12,000
1,860	3,000	38,000	12,000
1,900	3,000	38,000	12,000
1,920	3,000	38,000	12,000
1,950	3,000	38,000	12,000
1,980	3,000	38,000	12,000

d1	d2 h6	l1	l2
mm	mm	mm	mm
2,000	3,000	38,000	12,000
2,050	3,000	38,000	12,000
2,100	3,000	38,000	12,000
2,150	3,000	38,000	12,000
2,200	3,000	38,000	12,000
2,400	3,000	38,000	12,000
2,500	3,000	38,000	12,000
2,550	3,000	38,000	12,000
2,600	3,000	38,000	12,000
2,750	3,000	38,000	12,000
2,800	3,000	38,000	12,000
2,950	3,000	38,000	12,000
3,000	3,000	38,000	12,000

Microbrocas ExclusiveLine sin refrigeración interior

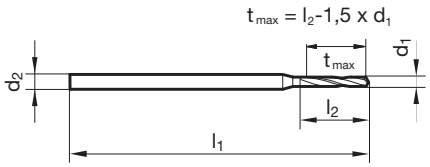
4xD | N | WN | 140° | m7

Material de corte	Metal duro
Acabado	A
Dirección de corte	R

P	•	vaciado de punta ≥Ø 0,500 • afilado plano • forma recta del corte principal • corrección de cantos rectificada
M	•	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • aceros inoxidables • fundición
S	○	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 796



Artículo N° **6400**

d1	d2 h6	l1	l2
mm	mm	mm	mm
0,500	3,000	47,000	3,000
0,550	3,000	47,000	3,300
0,600	3,000	47,000	3,600
0,650	3,000	47,000	3,900
0,700	3,000	47,000	4,200
0,750	3,000	47,000	4,500
0,800	3,000	47,000	4,800
0,850	3,000	47,000	5,100
0,900	3,000	47,000	5,400
0,950	3,000	47,000	5,700
1,000	3,000	47,000	6,000
1,050	3,000	47,000	6,300
1,100	3,000	47,000	6,600
1,150	3,000	47,000	6,900
1,200	3,000	47,000	7,200
1,250	3,000	47,000	7,500
1,300	3,000	47,000	7,800
1,350	3,000	47,000	8,100
1,400	3,000	47,000	8,400
1,450	3,000	47,000	8,700
1,500	3,000	47,000	9,000
1,550	3,000	47,000	9,300
1,590	3,000	47,000	9,600
1,600	3,000	47,000	9,600
1,650	3,000	47,000	9,900
1,700	3,000	47,000	10,200
1,750	3,000	47,000	10,500
1,800	3,000	52,000	10,800
1,850	3,000	52,000	11,100
1,900	3,000	52,000	11,400

d1	d2 h6	l1	l2
mm	mm	mm	mm
1,950	3,000	52,000	11,700
1,980	4,000	59,000	12,000
2,000	4,000	59,000	12,000
2,050	4,000	59,000	12,300
2,100	4,000	59,000	12,600
2,150	4,000	59,000	12,900
2,200	4,000	59,000	13,200
2,250	4,000	59,000	13,500
2,300	4,000	59,000	13,800
2,350	4,000	59,000	14,100
2,380	4,000	59,000	14,400
2,400	4,000	59,000	14,400
2,450	4,000	59,000	14,700
2,500	4,000	59,000	15,000
2,550	4,000	59,000	15,300
2,600	4,000	59,000	15,600
2,650	4,000	59,000	15,900
2,700	4,000	59,000	16,200
2,750	4,000	59,000	16,500
2,780	4,000	59,000	16,800
2,800	4,000	59,000	16,800
2,850	4,000	59,000	17,100
2,900	4,000	59,000	17,400
2,950	4,000	59,000	17,700
3,000	4,000	59,000	18,000

Microbrocas ExclusiveLine sin refrigeración interior

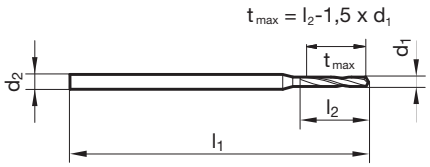
7xD | N | WN | 140° | m7

Material de corte	**Metal duro**
Acabado	A
Dirección de corte	R

P	•	vaciado de punta ≥Ø 0,500 • afilado plano • forma recta del corte principal • corrección de cantos rectificada
M	•	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • aceros inoxidables • fundición
S	○	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 796



Artículo N° **6401**

d1	d2 h6	l1	l2
mm	mm	mm	mm
0,500	3,000	47,000	4,000
0,550	3,000	47,000	4,400
0,600	3,000	47,000	4,800
0,650	3,000	47,000	5,200
0,700	3,000	47,000	5,600
0,750	3,000	47,000	6,000
0,800	3,000	47,000	6,400
0,850	3,000	47,000	6,800
0,900	3,000	47,000	7,200
0,950	3,000	47,000	7,600
1,000	3,000	47,000	8,000
1,050	3,000	47,000	8,400
1,100	3,000	47,000	8,800
1,150	3,000	47,000	9,200
1,200	3,000	52,000	10,800
1,250	3,000	52,000	11,300
1,300	3,000	52,000	11,700
1,350	3,000	52,000	12,200
1,400	3,000	52,000	12,600
1,450	3,000	52,000	13,100
1,500	3,000	52,000	13,500
1,550	3,000	52,000	14,000
1,590	3,000	52,000	14,400
1,600	3,000	52,000	14,400
1,650	3,000	52,000	14,900
1,700	3,000	52,000	15,300
1,750	3,000	52,000	15,800
1,800	3,000	52,000	16,200
1,850	3,000	52,000	16,700
1,900	3,000	52,000	17,100

d1	d2 h6	l1	l2
mm	mm	mm	mm
1,950	3,000	52,000	17,600
1,980	4,000	63,000	18,000
2,000	4,000	63,000	18,000
2,050	4,000	63,000	18,500
2,100	4,000	63,000	18,900
2,150	4,000	63,000	19,400
2,200	4,000	63,000	19,800
2,250	4,000	63,000	20,300
2,300	4,000	63,000	20,700
2,350	4,000	63,000	21,200
2,380	4,000	63,000	21,600
2,400	4,000	63,000	21,600
2,450	4,000	63,000	22,100
2,500	4,000	63,000	22,500
2,550	4,000	63,000	23,000
2,600	4,000	67,000	23,400
2,650	4,000	67,000	23,900
2,700	4,000	67,000	24,300
2,750	4,000	67,000	24,800
2,780	4,000	67,000	25,200
2,800	4,000	67,000	25,200
2,850	4,000	67,000	25,700
2,900	4,000	67,000	26,100
2,950	4,000	67,000	26,600
3,000	4,000	67,000	27,000

Microbrocas ExclusiveLine con refrigeración interior

5xD | N | WN | 140° | m7

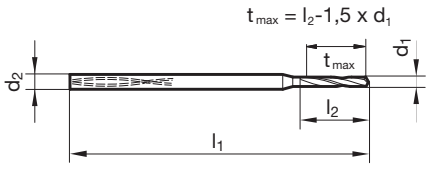
Material de corte	**Metal duro**
Acabado	A
Dirección de corte	R

NEW

P	•	vaciado de punta ≥Ø 1,400 • afilado plano • forma recta del corte principal • corrección de cantos rectificada
M	•	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • aceros inoxidables • fundición
S	○	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 796



Artículo N° **6405**

d1	d2 h6	l1	l2
mm	mm	mm	mm
1,400	4,000	52,000	11,000
1,450	4,000	52,000	12,000
1,500	4,000	52,000	12,000
1,550	4,000	52,000	12,000
1,590	4,000	52,000	13,000
1,600	4,000	52,000	13,000
1,650	4,000	52,000	13,000
1,700	4,000	56,000	14,000
1,750	4,000	56,000	14,000
1,800	4,000	56,000	14,000
1,850	4,000	56,000	15,000
1,900	4,000	56,000	15,000
1,950	4,000	56,000	16,000
1,980	4,000	56,000	16,000
2,000	4,000	56,000	16,000
2,050	4,000	56,000	16,000
2,100	4,000	62,000	17,000
2,150	4,000	62,000	17,000
2,200	4,000	62,000	18,000
2,250	4,000	62,000	18,000
2,300	4,000	62,000	18,000
2,350	4,000	62,000	19,000
2,380	4,000	62,000	19,000
2,400	4,000	62,000	19,000

d1	d2 h6	l1	l2
mm	mm	mm	mm
2,450	4,000	62,000	20,000
2,500	4,000	62,000	20,000
2,550	4,000	62,000	20,000
2,600	4,000	66,000	21,000
2,650	4,000	66,000	21,000
2,700	4,000	66,000	22,000
2,750	4,000	66,000	22,000
2,780	4,000	66,000	22,000
2,800	4,000	66,000	22,000
2,850	4,000	66,000	23,000
2,900	4,000	66,000	23,000
2,950	4,000	66,000	24,000
3,000	4,000	66,000	24,000

Microbrocas ExclusiveLine con refrigeración interior

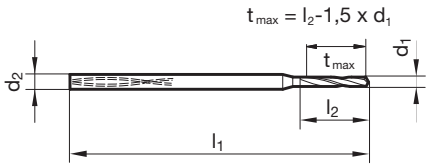
8xD | N | WN | 135° | h7

Material de corte	Metal duro
Acabado	A
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,400 • afilado plano • forma recta del corte principal • corrección de cantos rectificada
M	•	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • aceros inoxidables • fundición
S	○	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 796



Artículo N° **6408**

d1	d2 h6	l1	l2
mm	mm	mm	mm
1,400	4,000	52,000	15,000
1,450	4,000	52,000	16,000
1,500	4,000	52,000	17,000
1,550	4,000	52,000	17,000
1,590	4,000	52,000	18,000
1,600	4,000	52,000	18,000
1,650	4,000	52,000	18,000
1,700	4,000	56,000	19,000
1,750	4,000	56,000	19,000
1,800	4,000	56,000	20,000
1,850	4,000	56,000	20,000
1,900	4,000	56,000	21,000
1,950	4,000	56,000	21,000
1,980	4,000	56,000	22,000
2,000	4,000	56,000	22,000
2,050	4,000	56,000	23,000
2,100	4,000	62,000	23,000
2,150	4,000	62,000	24,000
2,200	4,000	62,000	24,000
2,250	4,000	62,000	25,000
2,300	4,000	62,000	25,000
2,320	4,000	62,000	26,000
2,350	4,000	62,000	26,000
2,380	4,000	62,000	26,000

d1	d2 h6	l1	l2
mm	mm	mm	mm
2,400	4,000	62,000	26,000
2,450	4,000	62,000	27,000
2,500	4,000	62,000	28,000
2,550	4,000	62,000	28,000
2,600	4,000	66,000	29,000
2,650	4,000	66,000	29,000
2,700	4,000	66,000	30,000
2,750	4,000	66,000	30,000
2,780	4,000	66,000	31,000
2,800	4,000	66,000	31,000
2,850	4,000	66,000	31,000
2,900	4,000	66,000	32,000
2,950	4,000	66,000	32,000
3,000	4,000	66,000	33,000

Microbrocas ExclusiveLine con refrigeración interior

15xD | N | WN | 135° | h7

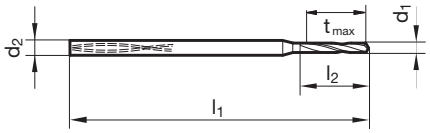
Material de corte	**Metal duro**
Acabado	A
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,400 • afilado plano • forma recta del corte principal • corrección de cantos rectificada
M	•	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • aceros inoxidables • fundición
S	○	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 796

$t_{max} = l_2 - 1{,}5 \times d_1$



Artículo N° **6412**

d1	d2 h6	l1	l2
mm	mm	mm	mm
1,400	4,000	62,000	25,000
1,500	4,000	62,000	27,000
1,590	4,000	62,000	29,000
1,600	4,000	62,000	29,000
1,700	4,000	70,000	31,000
1,800	4,000	70,000	32,000
1,900	4,000	70,000	34,000
1,980	4,000	70,000	36,000
2,000	4,000	70,000	36,000
2,100	4,000	78,000	38,000
2,200	4,000	78,000	40,000
2,300	4,000	78,000	42,000

d1	d2 h6	l1	l2
mm	mm	mm	mm
2,380	4,000	78,000	44,000
2,400	4,000	78,000	44,000
2,500	4,000	78,000	45,000
2,600	4,000	87,000	47,000
2,700	4,000	87,000	48,000
2,780	4,000	87,000	50,000
2,800	4,000	87,000	50,000
2,900	4,000	87,000	52,000
3,000	4,000	87,000	54,000

Brocas espirales con mango cil. 12,7 mm

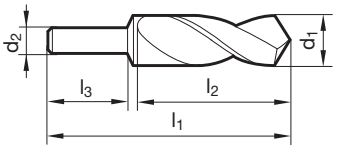
WN | N | 118° | h8

Material de corte	HSS
Acabado	
Dirección de corte	R

P	•	vaciado de punta ≥Ø 14,290 • entrada cónica • con mango universal
M		
K	•	
N	○	aceros y fundición de aceros (aleados y sin alear) • fundición gris, fundición maleable, fundición esferica • hierro sinterizado, argentón y grafito
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 778



Artículo N° **268**

d1	d2	l1	l2	l3
mm	mm	mm	mm	mm
13,000	12,700	156,000	82,000	57,000
13,490	12,700	156,000	82,000	57,000
13,500	12,700	156,000	82,000	57,000
14,000	12,700	156,000	82,000	57,000
14,290	12,700	157,000	83,000	57,000
14,500	12,700	157,000	83,000	57,000
15,000	12,700	157,000	83,000	57,000
15,500	12,700	157,000	83,000	57,000
15,870	12,700	157,000	83,000	57,000
16,000	12,700	157,000	83,000	57,000
16,500	12,700	158,000	84,000	57,000
16,670	12,700	158,000	84,000	57,000
17,000	12,700	158,000	84,000	57,000
17,460	12,700	158,000	84,000	57,000
17,500	12,700	158,000	84,000	57,000
18,000	12,700	158,000	84,000	57,000
19,000	12,700	158,000	84,000	57,000
19,050	12,700	159,000	85,000	57,000

d1	d2	l1	l2	l3
mm	mm	mm	mm	mm
19,840	12,700	159,000	85,000	57,000
20,000	12,700	159,000	85,000	57,000
21,000	12,700	159,000	85,000	57,000
21,430	12,700	159,000	85,000	57,000
22,000	12,700	159,000	85,000	57,000
22,220	12,700	159,000	85,000	57,000
23,000	12,700	159,000	85,000	57,000
23,020	12,700	159,000	85,000	57,000
23,810	12,700	160,000	86,000	57,000
24,000	12,700	160,000	86,000	57,000
25,000	12,700	160,000	86,000	57,000
25,400	12,700	160,000	86,000	57,000
28,570	12,700	160,000	86,000	57,000

Brocas espirales con mango cil. 16,0 mm

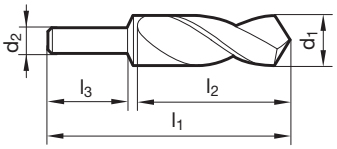
WN | V72 | 120° | h8

Material de corte	HSCO
Acabado	○
Dirección de corte	R

P	•	sin afilado de punta • acero rápido al cobalto • más resistencia al desgaste • con mango universal
M	•	• producto semiacabado con puntos de centraje en ambos lados
K	○	• producto semiacabado con puntos de centraje en ambos lados
N	○	materiales difíciles
S	○	• aceros inoxidables y resistentes al ácido • aceros de muelles • aceros austeníticos
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 772



Artículo N° **128**

d1	d2	l1	l2	l3
mm	mm	mm	mm	mm
16,000	16,000	130,000	88,000	42,000
16,500	16,000	130,000	88,000	40,000
17,000	16,000	130,000	88,000	40,000
17,500	16,000	130,000	88,000	40,000
18,000	16,000	130,000	88,000	40,000
19,000	16,000	130,000	88,000	40,000
20,000	16,000	130,000	88,000	40,000
20,500	16,000	130,000	88,000	40,000
21,000	16,000	130,000	88,000	40,000
21,500	16,000	130,000	88,000	40,000
22,000	16,000	130,000	88,000	40,000
22,500	16,000	130,000	88,000	40,000
23,000	16,000	130,000	88,000	40,000
23,500	16,000	130,000	88,000	40,000
24,000	16,000	130,000	88,000	40,000
24,500	16,000	130,000	88,000	40,000
25,000	16,000	130,000	88,000	40,000
25,500	16,000	140,000	98,000	40,000

d1	d2	l1	l2	l3
mm	mm	mm	mm	mm
26,000	16,000	140,000	98,000	40,000
27,000	16,000	140,000	98,000	40,000
28,000	16,000	140,000	98,000	40,000
28,500	16,000	140,000	98,000	40,000
30,000	16,000	140,000	98,000	40,000
31,000	16,000	140,000	98,000	40,000
32,000	16,000	140,000	98,000	40,000
35,000	16,000	140,000	98,000	40,000
38,000	16,000	140,000	98,000	40,000
40,000	16,000	140,000	98,000	40,000

Brocas espirales con mango cil. 25,4 mm

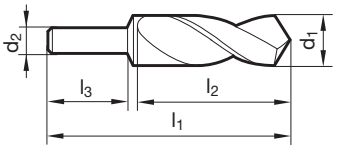
WN | V72 | 120° | h8

Material de corte	HSCO
Acabado	○
Dirección de corte	R

P	•	sin afilado de punta • acero rápido al cobalto • más resistencia al desgaste • con mango universal
M	•	• producto semiacabado con puntos de centraje en ambos lados
K	○	• producto semiacabado con puntos de centraje en ambos lados
N	○	aceros inoxidables y resistentes al ácido • materiales difíciles
S	○	• aceros de muelles • aceros austeníticos
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 772



Artículo N° **129**

d1	d2	l1	l2	l3
mm	mm	mm	mm	mm
25,000	25,400	140,000	93,000	45,000
26,000	25,400	140,000	93,000	45,000
28,000	25,400	140,000	93,000	45,000
29,500	25,400	140,000	93,000	45,000
30,000	25,400	140,000	93,000	45,000
32,000	25,400	140,000	93,000	45,000
33,000	25,400	140,000	93,000	45,000
34,000	25,400	140,000	93,000	45,000
35,000	25,400	140,000	93,000	45,000
36,000	25,400	140,000	93,000	45,000
37,000	25,400	140,000	93,000	45,000
38,000	25,400	140,000	93,000	45,000

d1	d2	l1	l2	l3
mm	mm	mm	mm	mm
40,000	25,400	140,000	93,000	45,000

Brocas espirales con mango cil. 25,4 mm

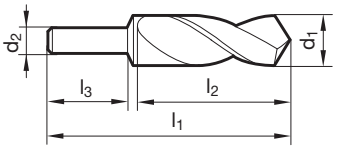
WN | V72 | 120° | h8

Material de corte	HSCO
Acabado	○
Dirección de corte	L

P	•	sin afilado de punta • acero rápido al cobalto • resistencia más alta al desgaste
M	•	• con mango universal
K	○	• producto semiacabado con puntos de centraje en ambos lados
N	○	• producto semiacabado con puntos de centraje en ambos lados
S	○	materiales difíciles • aceros inoxidables y resistentes al ácido (aceros VA) • aceros de muelles • aceros austeníticos
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 772



Artículo N° **136**

d1	d2	l1	l2	l3
mm	mm	mm	mm	mm
25,000	25,400	140,000	93,000	45,000
25,500	25,400	140,000	93,000	45,000
26,000	25,400	140,000	93,000	45,000
26,500	25,400	140,000	93,000	45,000
27,500	25,400	140,000	93,000	45,000
29,500	25,400	140,000	93,000	45,000

d1	d2	l1	l2	l3
mm	mm	mm	mm	mm
36,000	25,400	140,000	93,000	45,000
38,000	25,400	140,000	93,000	45,000
39,000	25,400	140,000	93,000	45,000

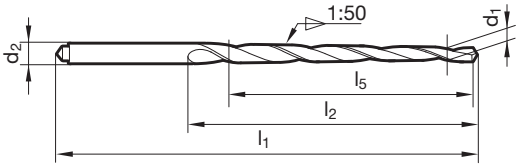
Brocas para pasadores cónicos

DIN 1898 | N | 118°

Material de corte	HSS
Acabado	>Ø 2,36
Dirección de corte	R

P	•
M	○
K	•
N	○
S	
H	

vaciado de punta ≥Ø 1,000 • entrada cónica • para taladros cónicos para punzones cónicos según DIN 1 (nuevo: DIN EN 22339) y DIN 7978 (nuevo: DIN EN 28736) • con arrastre



Artículo N° **531**

d1	d2	l1	l2	l5
mm	mm	mm	mm	mm
2,000	3,150	86,000	52,000	48,000
2,500	3,150	86,000	52,000	48,000
3,000	4,000	100,000	63,000	58,000
3,500	5,000	112,000	74,000	68,000
4,000	5,000	112,000	74,000	68,000
4,500	6,300	122,000	81,000	73,000

d1	d2	l1	l2	l5
mm	mm	mm	mm	mm
5,000	6,300	122,000	81,000	73,000
5,500	8,000	160,000	114,000	105,000
6,000	8,000	160,000	114,000	105,000
8,000	10,000	207,000	157,000	145,000
10,000	12,500	245,000	190,000	175,000
12,000	16,000	290,000	228,000	210,000

Brocas espirales

~5xD | DIN 338 | N | 118° | h8

Material de corte	HSS
Acabado	>Ø 2,36
Dirección de corte	R

P	•
M	
K	•
N	○
S	
H	

entrada cónica • Para montadores y operarios están disponibles sets con las medidas de brocas más habituales que se pueden suministrar con soprtes y cajitas. Se pueden hacer sets con otras combinaciones si se requieren.

Artículo N° **201**

d1	ascendente en	Cantidad/juego	Código N°
mm	mm		
1,0-5,0	0,1	41	0,011
5,1-10,0	0,1	50	0,012
1,0-10,0	0,5	19	0,013
1,0-13,0	0,5	25	0,014
1,0-5,9	0,1	50	0,015
6,0-10,0	0,1	41	0,016
1,0-10,5	0,5	24	0,018
1,0-10,5	0,5	32	0,019
1/16 - 1/2	1/64	29	0,021
1,02-5,79	1/64	60	0,026

Sets de brocas espiralizadas, sueltos

~5xD | DIN 338 | N | 118° | h8

Material de corte	HSS
Acabado	>Ø 2,36
Dirección de corte	R

P	•
M	
K	•
N	○
S	
H	

entrada cónica • Para montadores y operarios están disponibles sets con las medidas de brocas más habituales que se pueden suministrar con soprtes y cajitas. Se pueden hacer sets con otras combinaciones si se requieren.

Artículo N° **200**

d1	ascendente en	Cantidad/juego	Código N°
mm	mm		
1,0-5,0	0,1	41	0,011
5,1-10,0	0,1	50	0,012
1,0-10,0	0,5	19	0,013
1,0-13,0	0,5	25	0,014
1,0-5,9	0,1	50	0,015
6,0-10,0	0,1	41	0,016
1,0-10,5	0,5	24	0,018

Brocas espirales

~5xD | DIN 338 | N | 118° | h8

Material de corte	HSS
Acabado	S
Dirección de corte	R

P	•
M	
K	•
N	○
S	
H	

entrada cónica • Para montadores y operarios están disponibles sets con las medidas de brocas más habituales que se pueden suministrar con soprtes y cajitas. Se pueden hacer sets con otras combinaciones si se requieren.

Artículo N° **17**

d1	ascendente en	Cantidad/juego	Código N°
mm	mm		
1,0-10,0	0,5	19	6,013
1,0-13,0	0,5	25	6,014
1,0-5,9	0,1	50	6,015
6,0-10,0	0,1	41	6,016
1/16 - 1/2	1/64	29	6,021

Brocas espirales

~5xD | DIN 338 | N | 118° | h8

Material de corte	HSCO
Acabado	●
Dirección de corte	Ⓡ

P	•
M	○
K	•
N	○
S	
H	

entrada cónica • Para montadores y operarios están disponibles sets con las medidas de brocas más habituales que se pueden suministrar con soprtes y cajitas. Se pueden hacer sets con otras combinaciones si se requieren.

Artículo N° **16**

d1	ascendente en	Cantidad/juego	Código N°
mm	mm		
1,0-10,0	0,5	19	3,013
1,0-13,0	0,5	25	3,014
1,0-5,9	0,1	50	3,015
6,0-10,0	0,1	41	3,016
1/16 - 1/2	1/64	29	3,021

Brocas espirales

~5xD | DIN 338 | Ti | 130° | h8

Material de corte	HSCO
Acabado	◯
Dirección de corte	Ⓡ

P	○
M	•
K	
N	
S	•
H	

entrada cónica • Para montadores y operarios están disponibles sets con las medidas de brocas más habituales que se pueden suministrar con soprtes y cajitas. Se pueden hacer sets con otras combinaciones si se requieren.

Artículo N° **18**

d1	ascendente en	Cantidad/juego	Código N°
mm	mm		
1,0-10,0	0,5	19	8,013
1,0-13,0	0,5	25	8,014
1,0-5,9	0,1	50	8,015
6,0-10,0	0,1	41	8,016
1,0-10,5	0,5	24	8,018

Brocas espirales

~5xD | DIN 338 | VA | 130° | h8

P	○
M	●
K	
N	○
S	○
H	

entrada cónica • Para montadores y operarios están disponibles sets con las medidas de brocas más habituales que se pueden suministrar con soprtes y cajitas. Se pueden hacer sets con otras combinaciones si se requieren.

Material de corte	HSCO
Acabado	◯
Dirección de corte	Ⓡ

Artículo N° **195**

d1	ascendente en	Cantidad/juego	Código N°
mm	mm		
1,0-13,0	0,5	25	8,014
1,0-10,5	0,5	24	8,018

Brocas espirales

~5xD | DIN 338 | P2000 | 118° | h8

Material de corte	HSCO
Acabado	●
Dirección de corte	Ⓡ

P	●
M	○
K	○
N	○
S	
H	

entrada cónica • Para montadores y operarios están disponibles sets con las medidas de brocas más habituales que se pueden suministrar con soprtes y cajitas. Se pueden hacer sets con otras combinaciones si se requieren.

Artículo N° **2049**

d1	ascendente en	Cantidad/juego	Código N°
mm	mm		
1,0-13,0	0,5	25	0,014
1,0-10,0	0,5	19	0,013
1,0-10,5	0,5	24	0,018
1,0-5,0	0,1	41	0,011
5,1-10,0	0,1	50	0,012

Brocas espirales

~3xD | DIN 1897 | P2000 | 118° | h8

Material de corte	HSCO
Acabado	M
Dirección de corte	R

P	•
M	○
K	○
N	○
S	
H	

entrada cónica • Para montadores y operarios están disponibles sets con las medidas de brocas más habituales que se pueden suministrar con soprtes y cajitas. Se pueden hacer sets con otras combinaciones si se requieren.

Artículo N° **2050**

d1	ascendente en	Cantidad/juego	Código N°
mm	mm		
1,0-10,0	0,5	19	0,013
5,1-10,0	0,1	50	0,012

AeroX sets de brocas espiralizadas con afilado en cruz optimizado

~5xD | DIN 338 | AeroX | 135° | h8

Material de corte	M42
Acabado	●
Dirección de corte	®

NEW

P	●
M	●
K	●
N	●
S	●
H	○

afilado en cruz optimizado • acero rápido HSCO con un 8% de cobalto • Para montadores y operarios están disponibles sets con las medidas de brocas más habituales que se pueden suministrar con soprtes y cajitas. Se pueden hacer sets con otras combinaciones si se requieren.

aceros sin alear y aleados • fundición • metales no ferríticos • titanio y aleaciones de titanio

Artículo N° **1083**

d1	ascendente en	Cantidad/juego	Código N°
mm	mm		
1,0-13,0	0,5	25	0,014
1,0-10,0	0,5	19	0,013

Brocas espirales

WN

Cassette vacío

Artículo Nº **36**

d1	ascendente en	Cantidad/juego	Código Nº
mm	mm		
1,0-13,0			0,214
1,0-10,0			0,213
1,0-5,9			0,215
6,0-10,0			0,216
1,0-10,5			0,218

Brocas espirales

WN

Cassette vacío

Artículo Nº **73**

d1	ascendente en	Cantidad/juego	Código Nº
mm	mm		
1,0-13,0			0,614

Brocas espirales

WN

pié soporte de bakelita

Artículo N° **11**

d1	ascendente en	Cantidad/juego	Código N°
mm	mm		
1,0-13,0			0,114
5,1-10,0			0,112
1,0-5,0			0,111
1,0-5,9			0,115
1,0-10,0			0,113
1/16 - 1/2			0,121
1/16 - 1/2			0,122

Brocas espirales, placa MD soldada

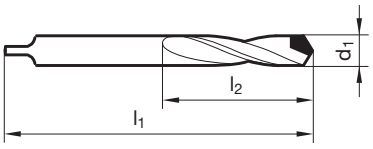
DIN 8037 | N | 118° | h8

Material de corte	Carbide
Acabado	○
Dirección de corte	Ⓡ

P	○	vaciado de punta ≥Ø 1,700 • afilado plano • placa MD soldada
M		
K	○	
N		acero de muelles • fundición dura con más de 300 HB • molibdeno puro • bronce duro y tenaz
S		
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 776



Artículo N° **703**

d1	l1	l2	d1	l1	l2
mm	mm	mm	mm	mm	mm
1,700	45,000	18,000	7,200	80,000	40,000
2,600	50,000	20,000	7,500	80,000	40,000
2,700	50,000	20,000	7,800	80,000	40,000
2,900	50,000	20,000	8,000	80,000	40,000
3,000	50,000	20,000	8,200	90,000	50,000
3,100	56,000	25,000	8,400	90,000	50,000
3,200	56,000	25,000	8,500	90,000	50,000
3,250	56,000	25,000	9,000	90,000	50,000
3,300	56,000	25,000	9,500	90,000	50,000
3,500	56,000	25,000	9,800	100,000	56,000
3,700	56,000	25,000	10,000	100,000	56,000
3,800	56,000	25,000	10,200	100,000	56,000
3,900	56,000	25,000	10,400	100,000	56,000
4,000	56,000	25,000	10,500	100,000	56,000
4,100	63,000	28,000	11,000	100,000	56,000
4,200	63,000	28,000	11,500	112,000	63,000
4,300	63,000	28,000	12,000	112,000	63,000
4,500	63,000	28,000	12,500	112,000	63,000
4,800	63,000	28,000	12,700	112,000	63,000
4,900	63,000	28,000	13,000	112,000	63,000
5,000	63,000	28,000	13,500	125,000	71,000
5,100	71,000	32,000	14,000	125,000	71,000
5,200	71,000	32,000	14,500	125,000	71,000
5,300	71,000	32,000	15,000	125,000	71,000
5,400	71,000	32,000	15,500	140,000	80,000
5,500	71,000	32,000	16,000	140,000	80,000
5,800	71,000	32,000	16,500	140,000	80,000
6,000	71,000	32,000	17,000	140,000	80,000
6,200	71,000	32,000	17,500	160,000	90,000
6,300	71,000	32,000	18,000	160,000	90,000
6,350	71,000	32,000	19,000	160,000	90,000
6,400	71,000	32,000	19,500	160,000	90,000
6,500	71,000	32,000	20,000	160,000	90,000
6,700	80,000	40,000	21,000	160,000	90,000
6,800	80,000	40,000	22,000	160,000	90,000
7,000	80,000	40,000	24,000	170,000	100,000

Brocas espirales, placa MD soldada

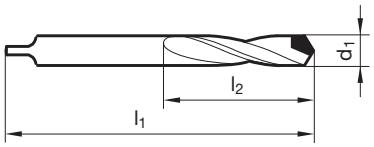
DIN 8038 | N | 85° | h8

Material de corte	Carbide
Acabado	◯
Dirección de corte	Ⓡ

P	vaciado de punta ≥Ø 1,500 • afilado plano • placa MD soldada
M	
K	
N	plásticos reforzados con fibra de vidrio • placas de circ. impresos que pueden ocasionar un rápido desgaste en las superficies y bordes de corte de la broca
S	
H	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 776



Artículo N° **704**

d1	l1	l2
mm	mm	mm
1,900	45,000	18,000
2,200	45,000	18,000
3,100	56,000	25,000
3,200	56,000	25,000
3,500	56,000	25,000
4,200	63,000	28,000

d1	l1	l2
mm	mm	mm
5,000	63,000	28,000
6,000	71,000	32,000
8,000	80,000	40,000
24,000	170,000	100,000

Broca para Kevlar

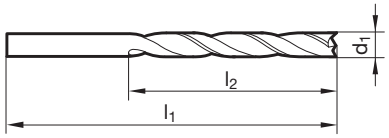
WN | FK | h8

Material de corte	**Metal duro**
Acabado	○
Dirección de corte	Ⓡ

P	vaciado de punta ≥Ø 2,380 • con afilado especial
M	
K	
N	plásticos con refuerzo de fibras
S	
H	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 776



Artículo N° **1149**

d1		l1	l2
mm	inch	mm	mm
2,500		43,000	14,000
3,200		49,000	18,000
3,570	9/64	52,000	20,000
4,000		55,000	22,000
4,760	3/16	62,000	26,000
5,000		62,000	26,000

d1		l1	l2
mm	inch	mm	mm
6,000		66,000	28,000
8,000		79,000	37,000
10,000		89,000	43,000

Brocas punta de lanza

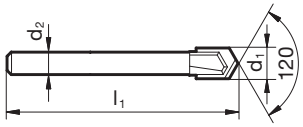
WN | H | 120° | h8

Material de corte	**Carbide**
Acabado	◯
Dirección de corte	R

P	○	vaciado de punta ≥Ø 3,000 • afilado plano • broca especial • bajo condiciones difíciles
M		
K	○	
N		aceros duros • fundición dura
S		
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 776



Artículo N° **707**

d1	l1	l2
mm	mm	mm
3,000	50,000	
5,000	63,000	
5,500	70,000	
6,000	70,000	
8,000	80,000	
9,000	90,000	

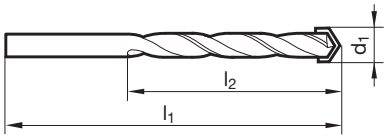
d1	l1	l2
mm	mm	mm
12,000	112,000	

Brocas para piedra

WN | 120° | h8

Material de corte	**Carbide**
Acabado	◯
Dirección de corte	R

P	afilado plano • placa MD soldada • para máquinas de taladrar y percutoras • taladrar azulejos sin efecto de percusión
M	
K	
N	muros, hormigón, azulejos
S	
H	

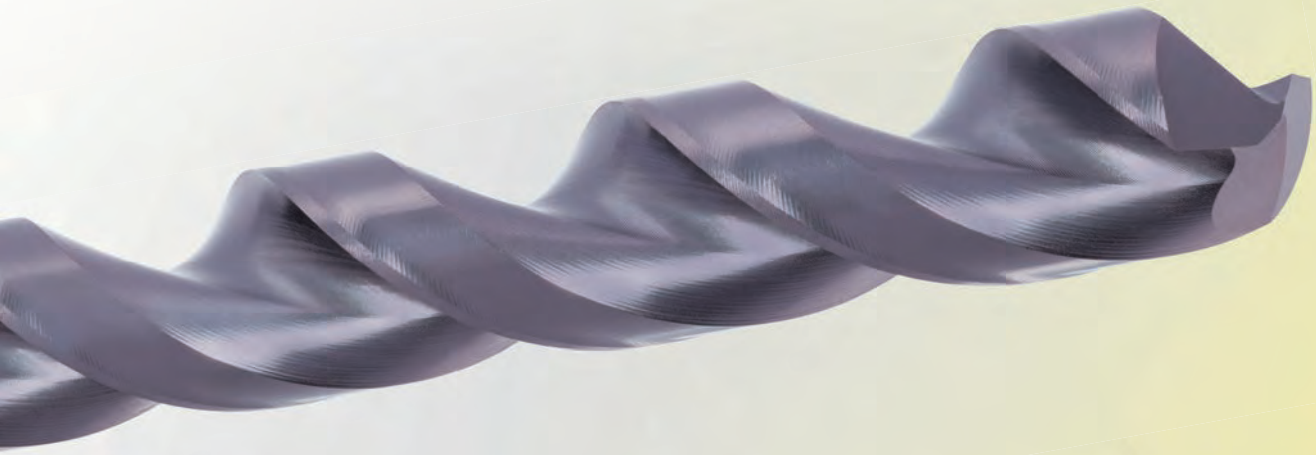


Artículo Nº **716**

d1	l1	l2
mm	mm	mm
4,000	75,000	40,000
5,000	85,000	50,000
6,000	100,000	60,000
8,000	120,000	80,000
10,000	120,000	80,000
12,000	150,000	90,000

d1	l1	l2
mm	mm	mm

BROCAS ESP. CM



P	M	K	N	S	H	Presentación de herramientas	Profundidad	Norma	Tipo	Dirección de corte	Material de corte	Acabado	d1/mm	Artículo Nº	Cond. de corte pág.	Página
Brocas espirales cil., cortas																
●	●	●	○	●	○		~3xD	WN	GV 120	R	HSCO		8,100 - 38,000	363	772	448
●	●	●	○	●	○		~3xD	WN	GV 120	R	HSCO	S	10,500 - 31,000	663	774	449
Brocas espirales																
●		●	○				~5xD	DIN 345	N	R	HSS	>Ø 2,36	2,380 - 96,000	245	778	450
●		●	○				~5xD	DIN 345	N	R	HSS	>Ø 16,0	10,000 - 28,000	592	778	454
●		●	○				~5xD	DIN 345	N	R	HSS	S	3,000 - 31,000	654	780	455
●		●	○				~5xD	DIN 345	N	L	HSS		6,000 - 60,000	248	778	457
●		●	○				~5xD	DIN 345	N	R	HSS		8,500 - 59,000	229	778	458
			●				~5xD	DIN 345	H	R	HSS		6,700 - 25,250	246	778	459
			●				~5xD	DIN 345	W	R	HSS		3,200 - 32,000	247	778	460
●		●	●				~5xD	DIN 345	GT 100	R	HSS	>Ø 16,0	7,940 - 31,750	558	778	461
●		●	●				~5xD	DIN 345	GT 100	R	HSS	S	7,940 - 31,500	606	780	462
●	○	●	○				~5xD	DIN 345	N	R	HSCO		4,000 - 50,000	345	780	463
●	○	●	○				~5xD	DIN 345	N	R	HSCO	S	8,000 - 30,000	661	782	465
●	○	●	○				~5xD	DIN 345	GT 100	R	HSCO	>Ø 16,0	10,000 - 39,000	645	780	466
●	○	●	○				~5xD	DIN 345	GT 100	R	HSCO	S	10,000 - 23,810	662	782	467
●		○					~5xD	DIN 345	GT 100	R	HSCO	C	10,000 - 30,160	1222	782	468
○		●	○				~5xD	DIN 345	GT 100	R	HSCO	A	10,400 - 30,160	1224	782	469
○	●		○	○			~5xD	DIN 345	VA	R	HSCO		10,000 - 34,000	1262	780	470
●		●	○				~5xD	DIN 346	N	R	HSS		10,000 - 73,000	251	778	471
●	○	●	●				~5xD	DIN 346	N	R	HSCO		12,000 - 31,500	351	780	472
Brocas para casquillos																
●		●	○				~10xD	DIN 341	N	R	HSS		2,900 - 50,000	257	786	473
●		●	○				~10xD	DIN 341	N	R	HSS	S	5,500 - 22,000	655	786	475
●		●	●				~10xD	DIN 341	GT 100	R	HSS	>Ø 16,0	5,500 - 32,000	551	786	476

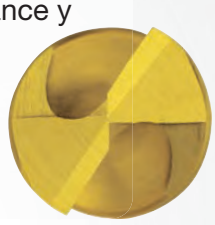
P	M	K	N	S	H	Presentación de herramientas	Profundidad	Norma	Tipo	Dirección de corte	Material de corte	Acabado	d1/mm	Artículo Nº	Cond. de corte pág.	Página
Brocas para casquillos																
●		●	●				~10xD	DIN 341	GT 100	R	HSS	S	7,000 - 23,000	656	786	478
○			●				~10xD	DIN 341	GT 50	R	HSS		5,500 - 29,500	505	786	479
●	○	●	●	○			~10xD	DIN 341	N	R	HSCO		4,750 - 40,000	357	792	480
●	●	●	●		○		~10xD	DIN 341	GT 100	R	HSCO	>Ø 16,0	10,000 - 26,000	623	792	481
●		●	○				~10xD	WN	N	R	HSS		10,000 - 29,000	523	786	482
Brocas espirales, extra largas, serie 1																
●		●	○				~15xD	DIN 1870	N	R	HSS		8,000 - 50,000	266	788	483
●		●	●				~15xD	DIN 1870	GT 100	R	HSS	>Ø 16,0	8,000 - 30,000	526	790	484
○			●				~15xD	DIN 1870	GT 50	R	HSS		8,500 - 33,000	525	788	485
●	●	●	●	●	○		~15xD	DIN 1870	GT 100	R	HSCO	>Ø 16,0	9,520 - 30,000	620	794	486
Brocas espirales, extra largas, serie 2																
●		●	○				~20xD	DIN 1870	N	R	HSS		8,000 - 45,000	267	788	487
●		●	●				~20xD	DIN 1870	GT 100	R	HSS	>Ø 16,0	8,000 - 30,000	527	790	488
○			●				~20xD	DIN 1870	GT 50	R	HSS		8,500 - 31,000	542	788	489
●	●	●	●	●	○		~20xD	DIN 1870	GT 100	R	HSCO	>Ø 16,0	9,520 - 23,420	621	794	490
Brocas espirales, largo especial																
●		●	●				>20xD	WN	GT 100	R	HSS		6,000 - 7,500	563	790	491
●		●	●				>20xD	WN	GT 100	R	HSS		6,000 - 10,000	564	790	492
●		●	●				>20xD	WN	GT 100	R	HSS	>Ø 16,0	6,000 - 17,000	565	790	493
●		●	●				>20xD	WN	GT 100	R	HSS	>Ø 16,0	8,000 - 40,000	566	790	494
●		●	●				>20xD	WN	GT 100	R	HSS	>Ø 16,0	14,000 - 40,000	293	790	495
●		●	●				>20xD	WN	GT 100	R	HSS		14,000 - 18,000	298	790	496
●		●	●				>20xD	WN	GT 100	R	HSS		14,000 - 18,000	299	790	497
Brocas con canal de refrigeración, corte																
●	○	●	●				~7xD	WN	N	R	HSS		9,920 - 23,020	269	788	498

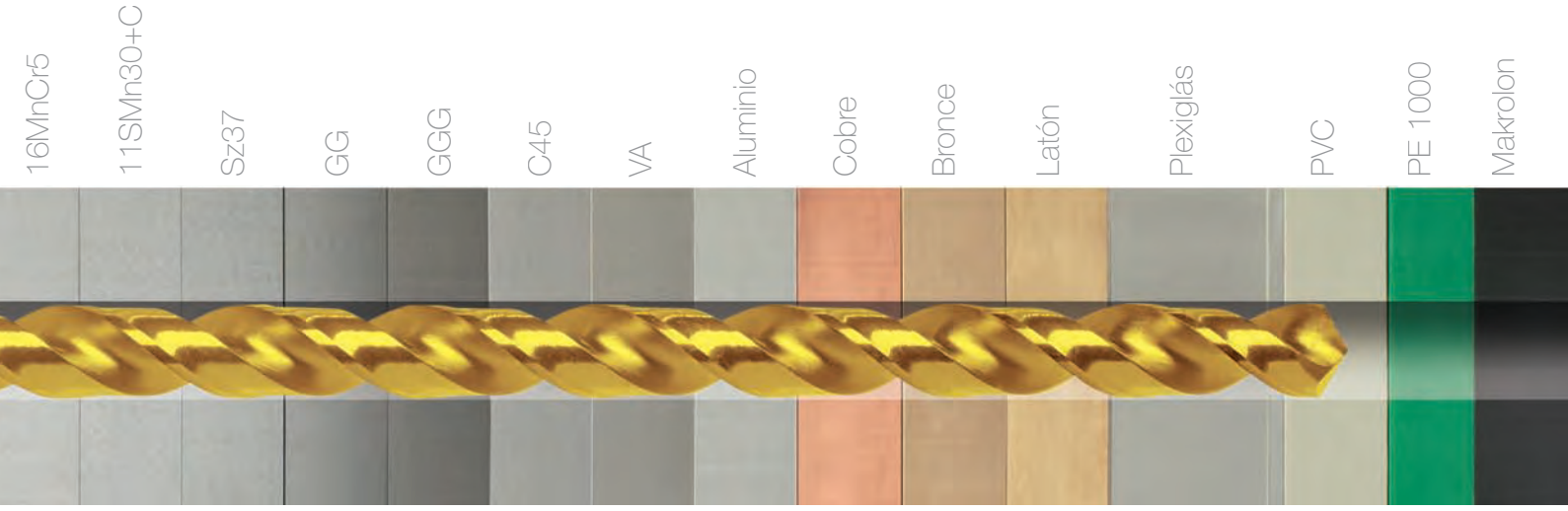
P	M	K	N	S	H	Presentación de herramientas	Profundidad	Norma	Tipo	Dirección de corte	Material de corte	Acabado	d1/mm	Artículo Nº	Cond. de corte pág.	Página
Brocas con canal de refrig., long. ranuras norma de fab.																
•	○	•	•					WN	N	R	HSS	●	8,000 - 50,000	254	788	499
•	○	•	•					WN	N	R	HSS	●	8,000 - 42,000	255	788	500
Brocas con canal de refrig., long. ranuras DIN 341																
•	○	•	•				~10xD	WN	N	R	HSS	●	10,000 - 32,000	1101	788	501
•	○	•	•				~10xD	WN	N	R	HSS	●	10,000 - 40,000	270	788	502
•	○	•	•				~10xD	WN	N	R	HSS	●	10,000 - 44,450	271	788	503
•	○	•	•				~10xD	WN	N	R	HSS	●	10,000 - 44,450	272	788	504
•	•	•	•	•	○		~10xD	WN	GT 100	R	HSCO	●	11,000 - 34,920	370	794	505
•	•	•	•	•	○		~10xD	WN	GT 100	R	HSCO	●	11,000 - 34,920	371	794	506
•	•	•	•	•	○		~10xD	WN	GT 100	R	HSCO	●	12,500 - 34,000	372	794	507
Brocas con canal de refrig., long. ranuras DIN 1870																
•	•	•	•	•	○		~15xD	WN	GT 100	R	HSCO	●	11,000 - 34,000	374	794	508
•	•	•	•	•	○		~15xD	WN	GT 100	R	HSCO	●	11,000 - 34,000	375	794	509
•	•	•	•	•	○		~15xD	WN	GT 100	R	HSCO	●	11,000 - 29,000	376	794	510
Brocas para pasadores cónicos																
•	○	•	○					DIN 1898	N	R	HSS	●	5,000 - 25,000	532		511
Brocas espirales, placa MD soldada																
○		○			○			DIN 8041	N	R	HM	○	8,000 - 40,000	705	776	512

GU 500

La broca universal HSCO

- Aplicable universalmente en casi todos los materiales.
- Afilado de cuatro facetas para un autocentrado y una gran precisión de taladro.
- Gracias al afilado de precisión, pocas fuerzas de avance y poco par de fuerzas.
- Desalojo de virutas óptimo gracias al perfil redondo de las ranuras.





GU 500 - **aplicable universalmente** en casi todos los materiales

aceros de construcción y al carbono · aceros de alta aleación hasta 850 N/mm² · aceros inoxidables · materiales de fundición
aceros no ferrosos · aluminio · aleaciones de magnesio · plásticos

P ACERO

sin refrigeración interior

~ 3xD Norma de fab.	~ 5xD DIN 345	~10xD DIN 341	~15xD DIN 1870 R1
	No 1 Ø 3,00 - 31,00 mm Artículo Nº 654 desde página 455 S	No 1 Ø 5,50 - 22,00 mm Artículo Nº 655 desde página 475 S	Ø 8,00 - 50,00 mm Artículo Nº 266 desde página 483
	Ø 8,00 - 30,00 mm Artículo Nº 661 desde página 465 S	Ø 4,75 - 40,00 mm Artículo Nº 357 desde página 480	
	Ø 7,94 - 31,50 mm Artículo Nº 606 desde página 462 S >Ø 16,0	Ø 7,00 - 23,00 mm Artículo Nº 656 desde página 478 S >Ø 16,0	Ø 8,00 - 30,00 mm Artículo Nº 526 desde página 484 >Ø 16,0
	Ø 10,00 - 23,81 mm Artículo Nº 662 desde página 467 S C A	Ø 10,00 - 26,00 mm Artículo Nº 623 desde página 481 >Ø 16,0	No 1 Ø 9,52 - 30,00 mm Artículo Nº 620 desde página 486 >Ø 16,0
No 1 Ø 10,50 - 31,00 mm Artículo Nº 663 desde página 449 S			

con refrigeración interna

		~10xD long. de corte DIN 341	~15xD long. de corte DIN 1870 R1
		No 1 Ø 10,00 - 32,00 mm Artículo Nº 1101 desde página 501	
		Ø 11,00 - 34,92 mm Artículo Nº 370 desde página 505	No 1 Ø 11,00 - 34,00 mm Artículo Nº 374 desde página 508

QUICKFINDER

~20xD DIN 1870 R2	>20xD Norma de fab. extralargo	No 1 herramienta ideal

Ø 8,00 - 45,00 mm
Artículo Nº 267
desde página 487

Tipo N, HSS

Tipo N, HSCO

Ø 8,00 - 30,00 mm
Artículo Nº 527
desde página 488
>Ø 16,0

No 1
Ø 8,00 - 40,00 mm
Artículo Nº 566
desde página 494
>Ø 16,0

GT100, HSS

No 1
Ø 9,52 - 23,42 mm
Artículo Nº 621
desde página 490
>Ø 16,0

GT100, HSCO

GV120, HSCO

Tipo N, HSS

GT100, HSCO

M ACERO INOXIDABLE / S TITANIO & ALEACIONES ESPECIALES

sin refrigeración interior

~ 3xD Norma de fab.	~ 5xD DIN 345	~10xD DIN 341	~15xD DIN 1870 R1
	No 1 No 1 Ø 10,00 - 34,00 mm Artículo Nº 1262 desde página 470		
	Ø 10,00 - 23,81 mm Artículo Nº 662 desde página 467 S C A	No 1 No 1 Ø 10,00 - 26,00 mm Artículo Nº 623 desde página 481 >Ø 16,0	No 1 No 1 Ø 9,52 - 30,00 mm Artículo Nº 620 desde página 486 >Ø 16,0
No 1 No 1 Ø 10,50 - 31,00 mm Artículo Nº 663 desde página449 S			
	Ø 8,00 - 30,00 mm Artículo Nº 661 desde página 465 S	Ø 4,75 - 40,00 mm Artículo Nº 357 desde página 480	

con refrigeración interna

		~10xD long. de corte DIN 341	~15xD long. de corte DIN 1870 R1
		No 1 No 1 Ø 11,00 - 34,92 mm Artículo Nº 370 desde página 505	No 1 No 1 Ø 11,00 - 34,00 mm Artículo Nº 374 desde página 508

QUICKFINDER

~20xD
DIN 1870
R2

>20xD
Norma de fab.
extralargo

No 1 herramienta ideal para acero inoxidable

No 1 herramienta ideal para aleaciones especiales/titanio

Tipo VA, HSCO

No 1 No 1
Ø 9,52 - 23,42 mm
Artículo Nº 621
desde página 490
>Ø 16,0

GT100, HSCO

GV120, HSCO

Tipo N, HSCO

GT100, HSCO

K FUNDICIÓN

sin refrigeración interior

~ 3xD Norma de fab.	~ 5xD DIN 345	~10xD DIN 341	~15xD DIN 1870 R1
	No 1 Ø 3,00 - 31,00 mm Artículo Nº 654 desde página 455 S	No 1 Ø 5,50 - 22,00 mm Artículo Nº 655 desde página 475 S	Ø 8,00 - 50,00 mm Artículo Nº 266 desde página 483
	Ø 8,00 - 30,00 mm Artículo Nº 661 desde página 465 S	Ø 4,75 - 40,00 mm Artículo Nº 357 desde página 480	
	Ø 7,94 - 31,50 mm Artículo Nº 606 desde página 462 S >Ø 16,0	Ø 7,00 - 23,00 mm Artículo Nº 656 desde página 478 S >Ø 16,0	Ø 8,00 - 30,00 mm Artículo Nº 526 desde página 484 >Ø 16,0
	Ø 10,00 - 23,81 mm Artículo Nº 662 desde página 467 S C A	Ø 10,00 - 26,00 mm Artículo Nº 623 desde página 481 >Ø 16,0	No 1 Ø 9,52 - 30,00 mm Artículo Nº 620 desde página 486 >Ø 16,0
No 1 Ø 10,50 - 31,00 mm Artículo Nº 663 desde página 449 S			

con refrigeración interna

		~10xD long. de corte DIN 341	~15xD long. de corte DIN 1870 R1
		No 1 Ø 10,00 - 32,00 mm Artículo Nº 1101 desde página 501	
		Ø 11,00 - 34,92 mm Artículo Nº 370 desde página 505	No 1 Ø 11,00 - 34,00 mm Artículo Nº 374 desde página 508

QUICKFINDER

~20xD DIN 1870 R2	>20xD Norma de fab. extralargo	No 1 herramienta ideal

Ø 8,00 - 45,00 mm
Artículo Nº 267
desde página 487

Tipo N, HSS

Tipo N, HSCO

Ø 8,00 - 30,00 mm
Artículo Nº 527
desde página 488
>Ø 16,0

No 1
Ø 8,00 - 40,00 mm
Artículo Nº 566
desde página 494
>Ø 16,0

GT100, HSS

No 1
Ø 9,52 - 23,42 mm
Artículo Nº 621
desde página 490
>Ø 16,0

GT100, HSCO

GV120, HSCO

Tipo N, HSS

GT100, HSCO

N ALUMINIO, NE, PLÁSTICOS

sin refrigeración interior

~ 3xD Norma de fab.	~ 5xD DIN 345	~10xD DIN 341	~15xD DIN 1870 R1
	No 1 Ø 3,20 - 32,00 mm Artículo Nº 247 desde página 460	Tipo W para materiales blandos de viruta larga	
	No 1 Ø 6,70 - 25,25 mm Artículo Nº 246 desde página 459	Tipo H para materiales duros y frágiles	
Tipo GT50 para materiales blandos de viruta larga		No 1 Ø 5,50 - 29,50 mm Artículo Nº 505 desde página 479	No 1 Ø 8,50 - 33,00 mm Artículo Nº 525 desde página 485
	Ø 7,94 - 31,75 mm Artículo Nº 558 desde página 461 >Ø 16,0 S	Ø 5,50 - 32,00 mm Artículo Nº 551 desde página 476 >Ø 16,0 S	Ø 8,00 - 30,00 mm Artículo Nº 526 desde página 484 >Ø 16,0
	Ø 10,00 - 39,00 mm Artículo Nº 645 desde página 466 S C A	Ø 10,00 - 26,00 mm Artículo Nº 623 desde página 481 >Ø 16,0	Ø 9,52 - 30,00 mm Artículo Nº 620 desde página 486 >Ø 16,0

con refrigeración interna

		~10xD long. de corte DIN 341	~15xD long. de corte DIN 1870 R1
		No 1 Ø 10,00 - 32,00 mm Artículo Nº 1101 desde página 501	
		Ø 11,00 - 34,92 mm Artículo Nº 370 desde página 505	No 1 Ø 11,00 - 34,00 mm Artículo Nº 374 desde página 508

QUICKFINDER

~20xD DIN 1870 R2	>20xD Norma de fab. extralargo	No 1 herramienta ideal

Tipo W, HSS

Tipo H, HSS

No 1
Ø 8,50 - 31,00 mm
Artículo Nº 542
desde página 489

GT50, HSS

Ø 8,00 - 30,00 mm
Artículo Nº 527
desde página 488
>Ø 16,0

No 1
Ø 8,00 - 40,00 mm
Artículo Nº 566
desde página 494
>Ø 16,0

GT100, HSS

Ø 9,52 - 23,42 mm
Artículo Nº 621
desde página 490
>Ø 16,0

GT100, HSCO

Tipo N, HSS

GT100, HSCO

Brocas espirales cil., cortas

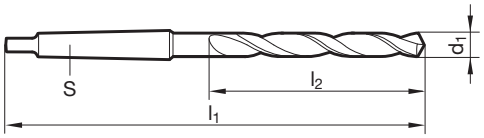
~3xD | WN | GV 120 | 130° | h8

Material de corte	HSCO
Acabado	●
Dirección de corte	R

P	●	vaciado de punta ≥Ø 7,000 • entrada cónica • acero rápido al cobalto • más resistencia al desgaste
M	●	
K	●	
N	○	materiales difíciles • aceros inoxidables y resistentes al ácido • aceros de muelles, aceros austeníticos
S	●	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 772



Artículo N° **363**

d1 mm	inch	S	l1 mm	l2 mm
8,100		MK-1	130,000	49,000
8,200		MK-1	130,000	49,000
8,300		MK-1	130,000	49,000
8,500		MK-1	130,000	49,000
8,600		MK-1	134,000	53,000
8,730	11/32	MK-1	134,000	53,000
9,000		MK-1	134,000	53,000
9,520	3/8	MK-1	138,000	57,000
9,920	25/64	MK-1	138,000	57,000
10,000		MK-1	138,000	57,000
10,100		MK-1	138,000	57,000
10,200		MK-1	138,000	57,000
10,500		MK-1	138,000	57,000
11,000		MK-1	142,000	61,000
11,750		MK-1	142,000	61,000
12,000		MK-1	147,000	66,000
12,500		MK-1	147,000	66,000
12,700	1/2	MK-1	147,000	66,000
13,000		MK-1	147,000	66,000
13,490	17/32	MK-2	168,000	70,000
13,500		MK-2	168,000	70,000
14,000		MK-2	168,000	70,000
14,500		MK-2	172,000	74,000
15,000		MK-2	172,000	74,000
15,500		MK-2	176,000	78,000
16,000		MK-2	176,000	78,000
16,500		MK-2	179,000	81,000
17,000		MK-2	179,000	81,000
17,500		MK-2	183,000	85,000
18,000		MK-2	183,000	85,000

d1 mm	inch	S	l1 mm	l2 mm
18,500		MK-2	186,000	88,000
19,000		MK-2	186,000	88,000
19,450	49/64	MK-3	212,000	91,000
20,000		MK-3	212,000	91,000
20,500		MK-3	216,000	95,000
20,900		MK-3	216,000	95,000
21,000		MK-3	216,000	95,000
21,500		MK-3	219,000	98,000
22,000		MK-3	219,000	98,000
22,220	7/8	MK-3	219,000	98,000
23,000		MK-3	222,000	101,000
23,020	29/32	MK-3	222,000	101,000
24,000		MK-3	225,000	104,000
24,500		MK-3	225,000	104,000
25,000	63/64	MK-3	225,000	104,000
26,000		MK-4	256,000	107,000
26,500		MK-4	256,000	107,000
27,000		MK-4	259,000	110,000
27,500		MK-4	259,000	110,000
28,000		MK-4	259,000	110,000
29,000		MK-4	263,000	114,000
29,370	1 5/32	MK-4	263,000	114,000
30,000		MK-4	263,000	114,000
32,000		MK-4	269,000	120,000
33,000		MK-4	269,000	120,000
37,000		MK-4	276,000	127,000
38,000		MK-5	317,000	130,000

Brocas espirales cil., cortas

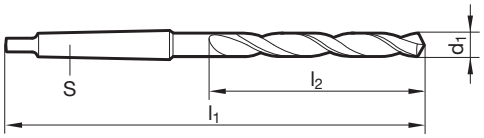
~3xD | WN | GV 120 | 130° | h8

Material de corte	HSCO
Acabado	S
Dirección de corte	R

P	•	vaciado de punta ≥Ø 9,000 • entrada cónica • acero rápido al cobalto • resistencia más alta al desgaste
M	•	
K	•	
N	○	materiales difíciles • aceros inoxidables y resistentes al ácido (aceros VA) • aceros de muelles, aceros austeníticos
S	•	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 774



Artículo N° **663**

d1 mm	d1 inch	S	l1 mm	l2 mm
10,500		MK-1	138,000	57,000
10,750		MK-1	142,000	61,000
11,500		MK-1	142,000	61,000
12,500		MK-1	147,000	66,000
13,500		MK-2	168,000	70,000
14,000		MK-2	168,000	70,000
14,250		MK-2	172,000	74,000
15,000		MK-2	172,000	74,000
16,000		MK-2	176,000	78,000
16,500		MK-2	179,000	81,000
17,000		MK-2	179,000	81,000
17,500		MK-2	183,000	85,000

d1 mm	d1 inch	S	l1 mm	l2 mm
18,000		MK-2	183,000	85,000
19,000		MK-2	186,000	88,000
20,000		MK-3	212,000	91,000
21,000		MK-3	216,000	95,000
22,000		MK-3	219,000	98,000
23,000		MK-3	222,000	101,000
25,000	63/64	MK-3	225,000	104,000
27,000		MK-4	259,000	110,000
29,000		MK-4	263,000	114,000
30,000		MK-4	263,000	114,000
31,000		MK-4	266,000	117,000

Brocas espirales

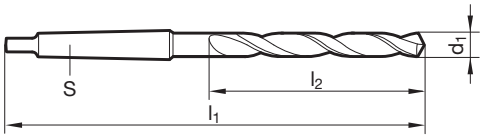
~5xD | DIN 345 | N | 118° | h8

Material de corte	HSS
Acabado	>Ø 2,36
Dirección de corte	R

P	•	vaciado de punta ≥Ø 14,050 • entrada cónica
M		
K	•	
N	○	aceros y fundición de aceros (aleados y sin alear) • fundición gris, fundición maleable, fundición esferica • hierro sinterizado, argentón y grafito
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 778



Artículo N° **245**

d1 mm	d1 inch	S	l1 mm	l2 mm
2,380	3/32	MK-1	111,000	30,000
2,400		MK-1	111,000	30,000
2,450		MK-1	111,000	30,000
2,500		MK-1	111,000	30,000
2,650		MK-1	111,000	30,000
2,780	7/64	MK-1	114,000	33,000
2,900		MK-1	114,000	33,000
3,000		MK-1	114,000	33,000
3,050		MK-1	117,000	36,000
3,170	1/8	MK-1	117,000	36,000
3,200		MK-1	117,000	36,000
3,250		MK-1	117,000	36,000
3,300		MK-1	117,000	36,000
3,450		MK-1	120,000	39,000
3,500		MK-1	120,000	39,000
3,570	9/64	MK-1	120,000	39,000
3,600		MK-1	120,000	39,000
3,970	5/32	MK-1	124,000	43,000
4,000		MK-1	124,000	43,000
4,200		MK-1	124,000	43,000
4,250		MK-1	124,000	43,000
4,300		MK-1	128,000	47,000
4,370	11/64	MK-1	128,000	47,000
4,400		MK-1	128,000	47,000
4,500		MK-1	128,000	47,000
4,600		MK-1	128,000	47,000
4,750		MK-1	128,000	47,000
4,760	3/16	MK-1	133,000	52,000
4,800		MK-1	133,000	52,000
5,000		MK-1	133,000	52,000
5,100		MK-1	133,000	52,000
5,160	13/64	MK-1	133,000	52,000
5,200		MK-1	133,000	52,000
5,250		MK-1	133,000	52,000
5,300		MK-1	133,000	52,000
5,500		MK-1	138,000	57,000
5,560	7/32	MK-1	138,000	57,000
5,600		MK-1	138,000	57,000
5,700		MK-1	138,000	57,000
5,750		MK-1	138,000	57,000
5,800		MK-1	138,000	57,000
5,900		MK-1	138,000	57,000

d1 mm	d1 inch	S	l1 mm	l2 mm
5,950	15/64	MK-1	138,000	57,000
6,000		MK-1	138,000	57,000
6,050		MK-1	144,000	63,000
6,100		MK-1	144,000	63,000
6,200		MK-1	144,000	63,000
6,300		MK-1	144,000	63,000
6,350	1/4	MK-1	144,000	63,000
6,400		MK-1	144,000	63,000
6,500		MK-1	144,000	63,000
6,600		MK-1	144,000	63,000
6,700		MK-1	144,000	63,000
6,750	17/64	MK-1	150,000	69,000
6,800		MK-1	150,000	69,000
6,900		MK-1	150,000	69,000
7,000		MK-1	150,000	69,000
7,140	9/32	MK-1	150,000	69,000
7,200		MK-1	150,000	69,000
7,250		MK-1	150,000	69,000
7,300		MK-1	150,000	69,000
7,400		MK-1	150,000	69,000
7,500		MK-1	150,000	69,000
7,540	19/64	MK-1	156,000	75,000
7,600		MK-1	156,000	75,000
7,700		MK-1	156,000	75,000
7,750		MK-1	156,000	75,000
7,800		MK-1	156,000	75,000
7,900		MK-1	156,000	75,000
7,940	5/16	MK-1	156,000	75,000
8,000		MK-1	156,000	75,000
8,050		MK-1	156,000	75,000
8,100		MK-1	156,000	75,000
8,200		MK-1	156,000	75,000
8,250		MK-1	156,000	75,000
8,300		MK-1	156,000	75,000
8,330	21/64	MK-1	156,000	75,000
8,400		MK-1	156,000	75,000
8,500		MK-1	156,000	75,000
8,600		MK-1	162,000	81,000
8,700		MK-1	162,000	81,000
8,730	11/32	MK-1	162,000	81,000
8,750		MK-1	162,000	81,000
8,800		MK-1	162,000	81,000

d1		S	l1	l2
mm	inch		mm	mm
8,900		MK-1	162,000	81,000
9,000		MK-1	162,000	81,000
9,050		MK-1	162,000	81,000
9,100		MK-1	162,000	81,000
9,130	23/64	MK-1	162,000	81,000
9,200		MK-1	162,000	81,000
9,250		MK-1	162,000	81,000
9,300		MK-1	162,000	81,000
9,500		MK-1	162,000	81,000
9,520	3/8	MK-1	168,000	87,000
9,750		MK-1	168,000	87,000
9,800		MK-1	168,000	87,000
9,900		MK-1	168,000	87,000
9,920	25/64	MK-1	168,000	87,000
10,000		MK-1	168,000	87,000
10,100		MK-1	168,000	87,000
10,200		MK-1	168,000	87,000
10,250		MK-1	168,000	87,000
10,300		MK-1	168,000	87,000
10,320	13/32	MK-1	168,000	87,000
10,400		MK-1	168,000	87,000
10,500		MK-1	168,000	87,000
10,520		MK-1	168,000	87,000
10,600		MK-1	168,000	87,000
10,700		MK-1	175,000	94,000
10,720	27/64	MK-1	175,000	94,000
10,750		MK-1	175,000	94,000
10,800		MK-1	175,000	94,000
10,900		MK-1	175,000	94,000
11,000		MK-1	175,000	94,000
11,100		MK-1	175,000	94,000
11,110	7/16	MK-1	175,000	94,000
11,200		MK-1	175,000	94,000
11,250		MK-1	175,000	94,000
11,300		MK-1	175,000	94,000
11,500		MK-1	175,000	94,000
11,600		MK-1	175,000	94,000
11,700		MK-1	175,000	94,000
11,750		MK-1	175,000	94,000
11,800		MK-1	175,000	94,000
11,900		MK-1	182,000	101,000
11,910	15/32	MK-1	182,000	101,000
12,000		MK-1	182,000	101,000
12,100		MK-1	182,000	101,000
12,200		MK-1	182,000	101,000
12,250		MK-1	182,000	101,000
12,300	31/64	MK-1	182,000	101,000
12,500		MK-1	182,000	101,000
12,550		MK-1	182,000	101,000
12,600		MK-1	182,000	101,000
12,700	1/2	MK-1	182,000	101,000
12,750		MK-1	182,000	101,000
12,800		MK-1	182,000	101,000
12,900		MK-1	182,000	101,000
13,000		MK-1	182,000	101,000
13,100	33/64	MK-1	182,000	101,000
13,200		MK-1	182,000	101,000
13,250		MK-1	189,000	108,000
13,300		MK-1	189,000	108,000
13,490	17/32	MK-1	189,000	108,000
13,500		MK-1	189,000	108,000
13,600		MK-1	189,000	108,000
13,700		MK-1	189,000	108,000
13,750		MK-1	189,000	108,000
13,800		MK-1	189,000	108,000
13,890	35/64	MK-1	189,000	108,000
14,000		MK-1	189,000	108,000
14,050		MK-2	212,000	114,000
14,100		MK-2	212,000	114,000
14,200		MK-2	212,000	114,000
14,250		MK-2	212,000	114,000
14,290	9/16	MK-2	212,000	114,000

d1		S	l1	l2
mm	inch		mm	mm
14,300		MK-2	212,000	114,000
14,400		MK-2	212,000	114,000
14,500		MK-2	212,000	114,000
14,600		MK-2	212,000	114,000
14,680	37/64	MK-2	212,000	114,000
14,700		MK-2	212,000	114,000
14,750		MK-2	212,000	114,000
14,800		MK-2	212,000	114,000
14,900		MK-2	212,000	114,000
15,000		MK-2	212,000	114,000
15,080	19/32	MK-2	218,000	120,000
15,100		MK-2	218,000	120,000
15,200		MK-2	218,000	120,000
15,250		MK-2	218,000	120,000
15,300		MK-2	218,000	120,000
15,400		MK-2	218,000	120,000
15,500		MK-2	218,000	120,000
15,600		MK-2	218,000	120,000
15,700		MK-2	218,000	120,000
15,750		MK-2	218,000	120,000
15,800		MK-2	218,000	120,000
15,870	5/8	MK-2	218,000	120,000
15,900		MK-2	218,000	120,000
16,000		MK-2	218,000	120,000
16,100		MK-2	223,000	125,000
16,200		MK-2	223,000	125,000
16,250		MK-2	223,000	125,000
16,270	41/64	MK-2	223,000	125,000
16,300		MK-2	223,000	125,000
16,400		MK-2	223,000	125,000
16,500		MK-2	223,000	125,000
16,670	21/32	MK-2	223,000	125,000
16,700		MK-2	223,000	125,000
16,750		MK-2	223,000	125,000
16,800		MK-2	223,000	125,000
17,000		MK-2	223,000	125,000
17,070	43/64	MK-2	228,000	130,000
17,100		MK-2	228,000	130,000
17,250		MK-2	228,000	130,000
17,300		MK-2	228,000	130,000
17,400		MK-2	228,000	130,000
17,460	11/16	MK-2	228,000	130,000
17,500		MK-2	228,000	130,000
17,600		MK-2	228,000	130,000
17,700		MK-2	228,000	130,000
17,750		MK-2	228,000	130,000
17,800		MK-2	228,000	130,000
17,860	45/64	MK-2	228,000	130,000
17,900		MK-2	228,000	130,000
18,000		MK-2	228,000	130,000
18,100		MK-2	233,000	135,000
18,200		MK-2	233,000	135,000
18,250		MK-2	233,000	135,000
18,260	23/32	MK-2	233,000	135,000
18,300		MK-2	233,000	135,000
18,500		MK-2	233,000	135,000
18,650	47/64	MK-2	233,000	135,000
18,750		MK-2	233,000	135,000
18,800		MK-2	233,000	135,000
18,900		MK-2	233,000	135,000
19,000		MK-2	233,000	135,000
19,050	3/4	MK-2	238,000	140,000
19,100		MK-2	238,000	140,000
19,200		MK-2	238,000	140,000
19,250		MK-2	238,000	140,000
19,450	49/64	MK-2	238,000	140,000
19,500		MK-2	238,000	140,000
19,700		MK-2	238,000	140,000
19,750		MK-2	238,000	140,000
19,800		MK-2	238,000	140,000
19,840	25/32	MK-2	238,000	140,000
20,000		MK-2	238,000	140,000

d1		S	l1	l2
mm	inch		mm	mm
20,100		MK-2	243,000	145,000
20,200		MK-2	243,000	145,000
20,250		MK-2	243,000	145,000
20,300		MK-2	243,000	145,000
20,400		MK-2	243,000	145,000
20,500		MK-2	243,000	145,000
20,640	13/16	MK-2	243,000	145,000
20,750		MK-2	243,000	145,000
21,000		MK-2	243,000	145,000
21,030	53/64	MK-2	243,000	145,000
21,100		MK-2	243,000	145,000
21,200		MK-2	243,000	145,000
21,250		MK-2	248,000	150,000
21,430	27/32	MK-2	248,000	150,000
21,500		MK-2	248,000	150,000
21,750		MK-2	248,000	150,000
21,830	55/64	MK-2	248,000	150,000
22,000		MK-2	248,000	150,000
22,100		MK-2	248,000	150,000
22,200		MK-2	248,000	150,000
22,220	7/8	MK-2	248,000	150,000
22,250		MK-2	248,000	150,000
22,400		MK-2	248,000	150,000
22,500		MK-2	253,000	155,000
22,620	57/64	MK-2	253,000	155,000
22,750		MK-2	253,000	155,000
23,000		MK-2	253,000	155,000
23,020	29/32	MK-2	253,000	155,000
23,250		MK-3	276,000	155,000
23,420	59/64	MK-3	276,000	155,000
23,500		MK-3	276,000	155,000
23,750		MK-3	281,000	160,000
23,810	15/16	MK-3	281,000	160,000
23,900		MK-3	281,000	160,000
24,000		MK-3	281,000	160,000
24,100		MK-3	281,000	160,000
24,210	61/64	MK-3	281,000	160,000
24,250		MK-3	281,000	160,000
24,500		MK-3	281,000	160,000
24,610	31/32	MK-3	281,000	160,000
24,750		MK-3	281,000	160,000
25,000	63/64	MK-3	281,000	160,000
25,100		MK-3	286,000	165,000
25,200		MK-3	286,000	165,000
25,250		MK-3	286,000	165,000
25,400	1	MK-3	286,000	165,000
25,500		MK-3	286,000	165,000
25,750		MK-3	286,000	165,000
25,800	1 1/64	MK-3	286,000	165,000
26,000		MK-3	286,000	165,000
26,190	1 1/32	MK-3	286,000	165,000
26,250		MK-3	286,000	165,000
26,500		MK-3	286,000	165,000
26,590	1 3/64	MK-3	291,000	170,000
26,750		MK-3	291,000	170,000
26,990	1 1/16	MK-3	291,000	170,000
27,000		MK-3	291,000	170,000
27,500		MK-3	291,000	170,000
27,750		MK-3	291,000	170,000
27,780	1 3/32	MK-3	291,000	170,000
28,000		MK-3	291,000	170,000
28,250		MK-3	296,000	175,000
28,500		MK-3	296,000	175,000
28,570	1 1/8	MK-3	296,000	175,000
28,750		MK-3	296,000	175,000
29,000		MK-3	296,000	175,000
29,250		MK-3	296,000	175,000
29,500		MK-3	296,000	175,000
29,750		MK-3	296,000	175,000
30,000		MK-3	296,000	175,000
30,100		MK-3	301,000	180,000
30,160	1 3/16	MK-3	301,000	180,000

d1		S	l1	l2
mm	inch		mm	mm
30,250		MK-3	301,000	180,000
30,500		MK-3	301,000	180,000
30,560	1 13/64	MK-3	301,000	180,000
30,750		MK-3	301,000	180,000
31,000		MK-3	301,000	180,000
31,250		MK-3	301,000	180,000
31,500		MK-3	301,000	180,000
31,750	1 1/4	MK-3	306,000	185,000
32,000		MK-4	334,000	185,000
32,150	1 17/64	MK-4	334,000	185,000
32,250		MK-4	334,000	185,000
32,500		MK-4	334,000	185,000
32,750		MK-4	334,000	185,000
33,000		MK-4	334,000	185,000
33,340	1 5/16	MK-4	334,000	185,000
33,500		MK-4	334,000	185,000
34,000		MK-4	339,000	190,000
34,500		MK-4	339,000	190,000
34,750		MK-4	339,000	190,000
34,920	1 3/8	MK-4	339,000	190,000
35,000		MK-4	339,000	190,000
35,500		MK-4	339,000	190,000
36,000		MK-4	344,000	195,000
36,500		MK-4	344,000	195,000
36,750		MK-4	344,000	195,000
37,000		MK-4	344,000	195,000
37,310	1 15/32	MK-4	344,000	195,000
37,500		MK-4	344,000	195,000
37,700	1 31/64	MK-4	349,000	200,000
38,000		MK-4	349,000	200,000
38,100	1 1/2	MK-4	349,000	200,000
38,500	1 33/64	MK-4	349,000	200,000
39,000		MK-4	349,000	200,000
39,500		MK-4	349,000	200,000
39,690	1 9/16	MK-4	349,000	200,000
40,000		MK-4	349,000	200,000
40,500		MK-4	354,000	205,000
40,750		MK-4	354,000	205,000
40,800		MK-4	354,000	205,000
41,000		MK-4	354,000	205,000
41,270	1 5/8	MK-4	354,000	205,000
41,500		MK-4	354,000	205,000
42,000		MK-4	354,000	205,000
42,500		MK-4	354,000	205,000
43,000		MK-4	359,000	210,000
43,500		MK-4	359,000	210,000
44,000		MK-4	359,000	210,000
44,450	1 3/4	MK-4	359,000	210,000
44,500		MK-4	359,000	210,000
45,000		MK-4	359,000	210,000
45,500		MK-4	364,000	215,000
46,000		MK-4	364,000	215,000
46,430	1 53/64	MK-4	364,000	215,000
46,500		MK-4	364,000	215,000
47,000		MK-4	364,000	215,000
47,230	1 55/64	MK-4	364,000	215,000
47,500		MK-4	364,000	215,000
47,620	1 7/8	MK-4	369,000	220,000
48,000		MK-4	369,000	220,000
48,020	1 57/64	MK-4	369,000	220,000
48,500		MK-4	369,000	220,000
48,820	1 59/64	MK-4	369,000	220,000
49,000		MK-4	369,000	220,000
49,500		MK-4	369,000	220,000
49,610	1 61/64	MK-4	369,000	220,000
50,000		MK-4	369,000	220,000
50,500		MK-4	374,000	225,000
50,800	2	MK-4	374,000	225,000
51,000		MK-5	412,000	225,000
52,000		MK-5	412,000	225,000
53,000		MK-5	412,000	225,000
53,390		MK-5	417,000	230,000

d1		S	l1	l2
mm	inch		mm	mm
53,400		MK-5	417,000	230,000
54,000		MK-5	417,000	230,000
55,000		MK-5	417,000	230,000
56,000		MK-5	417,000	230,000
57,000		MK-5	422,000	235,000
58,000		MK-5	422,000	235,000
59,000		MK-5	422,000	235,000
60,000		MK-5	422,000	235,000
61,000		MK-5	427,000	240,000
62,000		MK-5	427,000	240,000
63,000		MK-5	427,000	240,000
63,500	2 1/2	MK-5	432,000	245,000
65,000		MK-5	432,000	245,000
66,670	2 5/8	MK-5	432,000	245,000
67,500		MK-5	437,000	250,000
68,000		MK-5	437,000	250,000
69,850	2 3/4	MK-5	437,000	250,000
70,000		MK-5	437,000	250,000

d1		S	l1	l2
mm	inch		mm	mm
71,500		MK-5	442,000	255,000
72,000		MK-5	442,000	255,000
75,000		MK-5	442,000	255,000
76,990	3 1/32	MK-6	514,000	260,000
77,000		MK-6	514,000	260,000
77,790	3 1/16	MK-6	514,000	260,000
78,580	3 3/32	MK-6	514,000	260,000
79,500		MK-6	514,000	260,000
87,310	3 7/16	MK-6	524,000	270,000
89,000		MK-6	524,000	270,000
92,500		MK-6	529,000	275,000
93,000		MK-6	529,000	275,000
94,000		MK-6	529,000	275,000
94,500		MK-6	529,000	275,000
95,250	3 3/4	MK-6	534,000	280,000
95,500		MK-6	534,000	280,000
96,000		MK-6	534,000	280,000

Brocas espirales

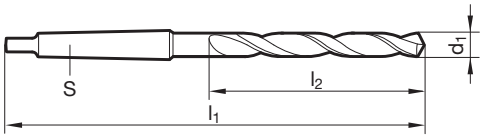
~5xD | DIN 345 | N | 118° | h8

Material de corte	HSS
Acabado	>Ø 16,0
Dirección de corte	R

P	•	vaciado de punta ≥Ø 10,000 • entrada cónica • para trabajos duros en forjas
M		
K	•	
N	○	aceros y fundición de aceros (aleados y sin alear)
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 778



Artículo N° **592**

d1 mm	d1 inch	S	l1 mm	l2 mm
10,000		MK-1	168,000	87,000
10,320	13/32	MK-1	168,000	87,000
11,000		MK-1	175,000	94,000
11,110	7/16	MK-1	175,000	94,000
11,500		MK-1	175,000	94,000
11,910	15/32	MK-1	182,000	101,000
12,000		MK-1	182,000	101,000
12,700	1/2	MK-1	182,000	101,000
13,000		MK-1	182,000	101,000
13,490	17/32	MK-1	189,000	108,000
13,500		MK-1	189,000	108,000
14,000		MK-1	189,000	108,000

d1 mm	d1 inch	S	l1 mm	l2 mm
14,290	9/16	MK-2	212,000	114,000
15,080	19/32	MK-2	218,000	120,000
17,000		MK-2	223,000	125,000
18,000		MK-2	228,000	130,000
19,050	3/4	MK-2	238,000	140,000
19,840	25/32	MK-2	238,000	140,000
20,000		MK-2	238,000	140,000
21,430	27/32	MK-2	248,000	150,000
22,000		MK-2	248,000	150,000
23,000		MK-2	253,000	155,000
28,000		MK-3	291,000	170,000

Brocas espirales

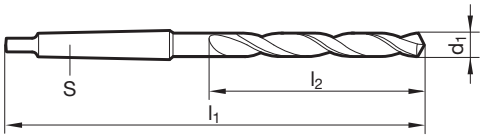
~5xD | DIN 345 | N | 118° | h8

Material de corte	HSS
Acabado	S
Dirección de corte	R

P	•	vaciado de punta ≥Ø 3,000 • entrada cónica
M		
K	•	
N	○	aceros y fundición de aceros (aleados y sin alear) • fundición gris, fundición maleable, fundición esferica • hierro sinterizado, argentón y grafito
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 780



Artículo N° **654**

d1 mm	inch	S	l1 mm	l2 mm
3,000		MK-1	114,000	33,000
3,170	1/8	MK-1	117,000	36,000
3,500		MK-1	120,000	39,000
3,970	5/32	MK-1	124,000	43,000
4,000		MK-1	124,000	43,000
4,100		MK-1	124,000	43,000
4,370	11/64	MK-1	128,000	47,000
4,500		MK-1	128,000	47,000
4,760	3/16	MK-1	133,000	52,000
5,000		MK-1	133,000	52,000
5,160	13/64	MK-1	133,000	52,000
5,560	7/32	MK-1	138,000	57,000
6,000		MK-1	138,000	57,000
6,500		MK-1	144,000	63,000
6,750	17/64	MK-1	150,000	69,000
6,800		MK-1	150,000	69,000
7,000		MK-1	150,000	69,000
7,100		MK-1	150,000	69,000
7,140	9/32	MK-1	150,000	69,000
7,400		MK-1	150,000	69,000
7,700		MK-1	156,000	75,000
8,000		MK-1	156,000	75,000
8,500		MK-1	156,000	75,000
8,730	11/32	MK-1	162,000	81,000
8,800		MK-1	162,000	81,000
9,000		MK-1	162,000	81,000
9,400		MK-1	162,000	81,000
9,520	3/8	MK-1	168,000	87,000
9,600		MK-1	168,000	87,000
9,750		MK-1	168,000	87,000
9,800		MK-1	168,000	87,000
10,000		MK-1	168,000	87,000
10,200		MK-1	168,000	87,000
10,250		MK-1	168,000	87,000
10,300		MK-1	168,000	87,000
10,320	13/32	MK-1	168,000	87,000
10,400		MK-1	168,000	87,000
10,500		MK-1	168,000	87,000
10,720	27/64	MK-1	175,000	94,000
10,750		MK-1	175,000	94,000
10,800		MK-1	175,000	94,000
11,000		MK-1	175,000	94,000

d1 mm	inch	S	l1 mm	l2 mm
11,110	7/16	MK-1	175,000	94,000
11,200		MK-1	175,000	94,000
11,250		MK-1	175,000	94,000
11,500		MK-1	175,000	94,000
11,510	29/64	MK-1	175,000	94,000
11,750		MK-1	175,000	94,000
11,910	15/32	MK-1	182,000	101,000
12,000		MK-1	182,000	101,000
12,200		MK-1	182,000	101,000
12,400		MK-1	182,000	101,000
12,500		MK-1	182,000	101,000
12,700	1/2	MK-1	182,000	101,000
12,750		MK-1	182,000	101,000
13,000		MK-1	182,000	101,000
13,250		MK-1	189,000	108,000
13,490	17/32	MK-1	189,000	108,000
13,500		MK-1	189,000	108,000
13,890	35/64	MK-1	189,000	108,000
14,000		MK-1	189,000	108,000
14,200		MK-2	212,000	114,000
14,250		MK-2	212,000	114,000
14,290	9/16	MK-2	212,000	114,000
14,500		MK-2	212,000	114,000
14,680	37/64	MK-2	212,000	114,000
14,750		MK-2	212,000	114,000
14,900		MK-2	212,000	114,000
15,000		MK-2	212,000	114,000
15,250		MK-2	218,000	120,000
15,500		MK-2	218,000	120,000
15,750		MK-2	218,000	120,000
15,870	5/8	MK-2	218,000	120,000
16,000		MK-2	218,000	120,000
16,200		MK-2	223,000	125,000
16,500		MK-2	223,000	125,000
17,000		MK-2	223,000	125,000
17,070	43/64	MK-2	228,000	130,000
17,250		MK-2	228,000	130,000
17,500		MK-2	228,000	130,000
17,750		MK-2	228,000	130,000
18,000		MK-2	228,000	130,000
18,250		MK-2	233,000	135,000
18,260	23/32	MK-2	233,000	135,000

d1		S	l1	l2
mm	inch		mm	mm
18,500		MK-2	233,000	135,000
18,650	47/64	MK-2	233,000	135,000
19,000		MK-2	233,000	135,000
19,050	3/4	MK-2	238,000	140,000
19,450	49/64	MK-2	238,000	140,000
19,500		MK-2	238,000	140,000
19,750		MK-2	238,000	140,000
19,840	25/32	MK-2	238,000	140,000
20,000		MK-2	238,000	140,000
20,250		MK-2	243,000	145,000
20,500		MK-2	243,000	145,000
20,640	13/16	MK-2	243,000	145,000
20,750		MK-2	243,000	145,000
21,000		MK-2	243,000	145,000
21,250		MK-2	248,000	150,000
21,500		MK-2	248,000	150,000
21,750		MK-2	248,000	150,000
21,830	55/64	MK-2	248,000	150,000
22,000		MK-2	248,000	150,000
22,220	7/8	MK-2	248,000	150,000
22,500		MK-2	253,000	155,000
23,000		MK-2	253,000	155,000
23,500		MK-3	276,000	155,000
23,750		MK-3	281,000	160,000

d1		S	l1	l2
mm	inch		mm	mm
24,000		MK-3	281,000	160,000
24,500		MK-3	281,000	160,000
24,750		MK-3	281,000	160,000
25,000	63/64	MK-3	281,000	160,000
25,400	1	MK-3	286,000	165,000
25,500		MK-3	286,000	165,000
26,000		MK-3	286,000	165,000
26,500		MK-3	286,000	165,000
26,990	1 1/16	MK-3	291,000	170,000
27,000		MK-3	291,000	170,000
27,380	1 5/64	MK-3	291,000	170,000
28,000		MK-3	291,000	170,000
28,500		MK-3	296,000	175,000
28,570	1 1/8	MK-3	296,000	175,000
29,000		MK-3	296,000	175,000
29,500		MK-3	296,000	175,000
29,750		MK-3	296,000	175,000
30,000		MK-3	296,000	175,000
30,500		MK-3	301,000	180,000
31,000		MK-3	301,000	180,000

Brocas espirales

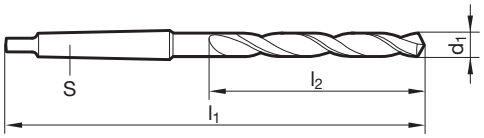
~5xD | DIN 345 | N | 118° | h8

Material de corte	HSS
Acabado	
Dirección de corte	

P	•	vaciado de punta ≥Ø 14,750 • entrada cónica
M		
K	•	
N	○	aceros y fundición de aceros (aleados y sin alear) • fundición gris, fundición maleable, fundición esferica • hierro sinterizado, argentón y grafito
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 778



Artículo N° **248**

d1 mm	d1 inch	S	l1 mm	l2 mm
6,000		MK-1	138,000	57,000
8,000		MK-1	156,000	75,000
8,100		MK-1	156,000	75,000
8,400		MK-1	156,000	75,000
8,500		MK-1	156,000	75,000
9,000		MK-1	162,000	81,000
10,500		MK-1	168,000	87,000
11,000		MK-1	175,000	94,000
11,500		MK-1	175,000	94,000
13,000		MK-1	182,000	101,000
14,000		MK-1	189,000	108,000
15,000		MK-2	212,000	114,000
17,200		MK-2	228,000	130,000
18,000		MK-2	228,000	130,000
20,000		MK-2	238,000	140,000
20,500		MK-2	243,000	145,000
25,500		MK-3	286,000	165,000
28,000		MK-3	291,000	170,000

d1 mm	d1 inch	S	l1 mm	l2 mm
29,000		MK-3	296,000	175,000
30,500		MK-3	301,000	180,000
32,500		MK-4	334,000	185,000
33,000		MK-4	334,000	185,000
34,000		MK-4	339,000	190,000
38,000		MK-4	349,000	200,000
40,000		MK-4	349,000	200,000
60,000		MK-5	422,000	235,000

Brocas espirales

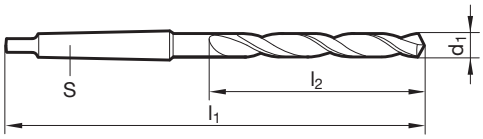
~5xD | DIN 345 | N | 118° | h8

Material de corte	HSS
Acabado	
Dirección de corte	R

P	•	vaciado de punta ≥Ø 8,500 • entrada cónica • mejor rompevirutas • muy adecuado para máquinas revolver
M		
K	•	
N	○	materiales de viruta larga
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 778



Artículo Nº **229**

d1 mm	inch	S	l1 mm	l2 mm
8,500		MK-1	156,000	75,000
8,730	11/32	MK-1	162,000	81,000
9,000		MK-1	162,000	81,000
9,500		MK-1	162,000	81,000
9,520	3/8	MK-1	168,000	87,000
11,000		MK-1	175,000	94,000
11,910	15/32	MK-1	182,000	101,000
12,250		MK-1	182,000	101,000
12,500		MK-1	182,000	101,000
13,000		MK-1	182,000	101,000
13,250		MK-1	189,000	108,000
13,490	17/32	MK-1	189,000	108,000
14,000		MK-1	189,000	108,000
14,290	9/16	MK-2	212,000	114,000
14,500		MK-2	212,000	114,000
15,000		MK-2	212,000	114,000
15,080	19/32	MK-2	218,000	120,000
16,000		MK-2	218,000	120,000
18,000		MK-2	228,000	130,000
18,250		MK-2	233,000	135,000
19,500		MK-2	238,000	140,000
19,840	25/32	MK-2	238,000	140,000
20,000		MK-2	238,000	140,000
20,640	13/16	MK-2	243,000	145,000

d1 mm	inch	S	l1 mm	l2 mm
21,000		MK-2	243,000	145,000
22,000		MK-2	248,000	150,000
22,220	7/8	MK-2	248,000	150,000
23,810	15/16	MK-3	281,000	160,000
25,000	63/64	MK-3	281,000	160,000
25,400	1	MK-3	286,000	165,000
26,000		MK-3	286,000	165,000
26,190	1 1/32	MK-3	286,000	165,000
26,500		MK-3	286,000	165,000
35,000		MK-4	339,000	190,000
39,500		MK-4	349,000	200,000
42,500		MK-4	354,000	205,000
43,500		MK-4	359,000	210,000
46,040	1 13/16	MK-4	364,000	215,000
46,500		MK-4	364,000	215,000
47,500		MK-4	364,000	215,000
56,000		MK-5	417,000	230,000
57,000		MK-5	422,000	235,000
58,000		MK-5	422,000	235,000
59,000		MK-5	422,000	235,000

Brocas espirales

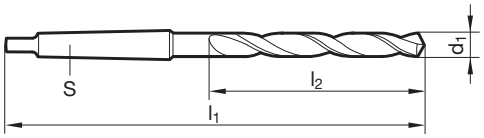
~5xD | DIN 345 | H | 118° | h8

Material de corte	HSS
Acabado	○
Dirección de corte	R

P		vaciado de punta ≥Ø 14,500 • entrada cónica
M		
K		
N	•	materiales duros y quebradizos • latón, aleaciones de magnesio • bronce y bronce al fósforo • pizarra, mica, Pertinax
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 778



Artículo N° **246**

d1 mm	inch	S	l1 mm	l2 mm
6,700		MK-1	144,000	63,000
8,200		MK-1	156,000	75,000
11,000		MK-1	175,000	94,000
11,750		MK-1	175,000	94,000
12,600		MK-1	182,000	101,000
12,800		MK-1	182,000	101,000
13,750		MK-1	189,000	108,000
14,500		MK-2	212,000	114,000
15,000		MK-2	212,000	114,000
15,500		MK-2	218,000	120,000
16,000		MK-2	218,000	120,000
16,500		MK-2	223,000	125,000

d1 mm	inch	S	l1 mm	l2 mm
17,000		MK-2	223,000	125,000
20,500		MK-2	243,000	145,000
22,000		MK-2	248,000	150,000
22,250		MK-2	248,000	150,000
23,000		MK-2	253,000	155,000
25,000	63/64	MK-3	281,000	160,000
25,250		MK-3	286,000	165,000

Brocas espirales

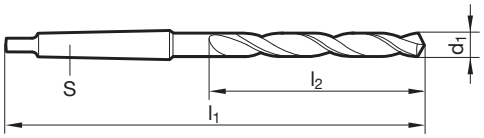
~5xD | DIN 345 | W | 130° | h8

Material de corte	HSS
Acabado	◯
Dirección de corte	Ⓡ

P		vaciado de punta ≥Ø 14,100 • entrada cónica
M		
K		
N	•	mat. blandos y de viruta larga • aluminio, alea. de alum. (de vir. larga) • zink, cobre fino, siluminio, electrón
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 778



Artículo N° **247**

d1 mm	inch	S	l1 mm	l2 mm
3,200		MK-1	117,000	36,000
3,300		MK-1	117,000	36,000
3,800		MK-1	124,000	43,000
4,000		MK-1	124,000	43,000
5,000		MK-1	133,000	52,000
5,400		MK-1	138,000	57,000
5,500		MK-1	138,000	57,000
6,000		MK-1	138,000	57,000
6,300		MK-1	144,000	63,000
6,500		MK-1	144,000	63,000
6,600		MK-1	144,000	63,000
6,750	17/64	MK-1	150,000	69,000
6,800		MK-1	150,000	69,000
7,000		MK-1	150,000	69,000
7,500		MK-1	150,000	69,000
7,750		MK-1	156,000	75,000
8,000		MK-1	156,000	75,000
9,200		MK-1	162,000	81,000
9,500		MK-1	162,000	81,000
9,750		MK-1	168,000	87,000
9,800		MK-1	168,000	87,000
12,000		MK-1	182,000	101,000
12,500		MK-1	182,000	101,000
13,000		MK-1	182,000	101,000

d1 mm	inch	S	l1 mm	l2 mm
13,200		MK-1	182,000	101,000
14,000		MK-1	189,000	108,000
16,000		MK-2	218,000	120,000
17,000		MK-2	223,000	125,000
18,000		MK-2	228,000	130,000
18,500		MK-2	233,000	135,000
19,000		MK-2	233,000	135,000
20,000		MK-2	238,000	140,000
21,000		MK-2	243,000	145,000
22,000		MK-2	248,000	150,000
23,000		MK-2	253,000	155,000
27,000		MK-3	291,000	170,000
27,200		MK-3	291,000	170,000
27,250		MK-3	291,000	170,000
27,500		MK-3	291,000	170,000
28,000		MK-3	291,000	170,000
28,500		MK-3	296,000	175,000
30,300		MK-3	301,000	180,000
30,500		MK-3	301,000	180,000
31,000		MK-3	301,000	180,000
31,500		MK-3	301,000	180,000
32,000		MK-4	334,000	185,000

Brocas espirales

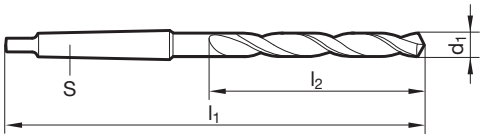
~5xD | DIN 345 | GT 100 | 130° | h8

Material de corte	HSS
Acabado	>Ø 16,0
Dirección de corte	R

P	•	vaciado de punta ≥Ø 7,940 • entrada cónica • ranuras amplias • ideal para prof. de taladro sup. a 3xD
M		
K	•	
N	•	fundición gris y aceros hasta máx. 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 778



Artículo N° **558**

d1 mm	d1 inch	S	l1 mm	l2 mm
7,940	5/16	MK-1	156,000	75,000
8,000		MK-1	156,000	75,000
8,250		MK-1	156,000	75,000
9,500		MK-1	162,000	81,000
10,000		MK-1	168,000	87,000
10,250		MK-1	168,000	87,000
11,000		MK-1	175,000	94,000
11,110	7/16	MK-1	175,000	94,000
12,700	1/2	MK-1	182,000	101,000
12,750		MK-1	182,000	101,000
13,000		MK-1	182,000	101,000
13,250		MK-1	189,000	108,000
14,000		MK-1	189,000	108,000
14,290	9/16	MK-2	212,000	114,000
14,500		MK-2	212,000	114,000
17,500		MK-2	228,000	130,000
18,000		MK-2	228,000	130,000
19,500		MK-2	238,000	140,000

d1 mm	d1 inch	S	l1 mm	l2 mm
20,000		MK-2	238,000	140,000
20,500		MK-2	243,000	145,000
21,000		MK-2	243,000	145,000
21,250		MK-2	248,000	150,000
27,500		MK-3	291,000	170,000
28,500		MK-3	296,000	175,000
28,570	1 1/8	MK-3	296,000	175,000
29,500		MK-3	296,000	175,000
30,160	1 3/16	MK-3	301,000	180,000
30,500		MK-3	301,000	180,000
31,500		MK-3	301,000	180,000
31,750	1 1/4	MK-3	306,000	185,000

Brocas espirales

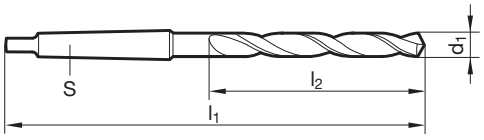
~5xD | DIN 345 | GT 100 | 130° | h8

Material de corte	HSS
Acabado	S
Dirección de corte	R

P	•	vaciado de punta ≥Ø 7,940 • entrada cónica • ranuras amplias • ideal para prof. de taladro sup. a 3xD
M		
K	•	
N	•	fundición gris y aceros hasta máx. 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 780



Artículo N° **606**

d1		S	l1	l2
mm	inch		mm	mm
7,940	5/16	MK-1	156,000	75,000
8,750		MK-1	162,000	81,000
9,000		MK-1	162,000	81,000
9,520	3/8	MK-1	168,000	87,000
10,000		MK-1	168,000	87,000
11,110	7/16	MK-1	175,000	94,000
12,250		MK-1	182,000	101,000
12,500		MK-1	182,000	101,000
12,750		MK-1	182,000	101,000
14,000		MK-1	189,000	108,000
14,500		MK-2	212,000	114,000
15,750		MK-2	218,000	120,000

d1		S	l1	l2
mm	inch		mm	mm
15,870	5/8	MK-2	218,000	120,000
17,500		MK-2	228,000	130,000
23,500		MK-3	276,000	155,000
23,810	15/16	MK-3	281,000	160,000
25,400	1	MK-3	286,000	165,000
26,990	1 1/16	MK-3	291,000	170,000
28,500		MK-3	296,000	175,000
28,570	1 1/8	MK-3	296,000	175,000
29,000		MK-3	296,000	175,000
31,500		MK-3	301,000	180,000

Brocas espirales

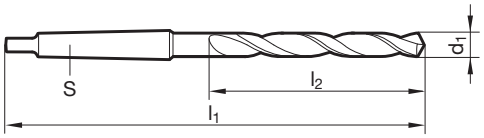
~5xD | DIN 345 | N | 118° | h8

Material de corte	HSCO
Acabado	
Dirección de corte	R

P	•	vaciado de punta ≥Ø 3,000 • entrada cónica • acero rápido al cobalto • más resistencia al desgaste
M	○	
K	•	
N	○	aceros aleados y no aleados y fundición de dureza sup. a 800 N/mm² • aceros para trab. en frío y en caliente • aceros para rodamientos • aceros altamente aleados • aceros de cementación, de bonificación
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 780



Artículo Nº **345**

d1 mm	inch	S	l1 mm	l2 mm
4,000		MK-1	124,000	43,000
5,000		MK-1	133,000	52,000
5,200		MK-1	133,000	52,000
5,500		MK-1	138,000	57,000
6,000		MK-1	138,000	57,000
6,500		MK-1	144,000	63,000
6,700		MK-1	144,000	63,000
6,750	17/64	MK-1	150,000	69,000
6,800		MK-1	150,000	69,000
7,000		MK-1	150,000	69,000
7,500		MK-1	150,000	69,000
8,000		MK-1	156,000	75,000
8,200		MK-1	156,000	75,000
8,500		MK-1	156,000	75,000
8,700		MK-1	162,000	81,000
9,000		MK-1	162,000	81,000
9,500		MK-1	162,000	81,000
9,520	3/8	MK-1	168,000	87,000
10,000		MK-1	168,000	87,000
10,100		MK-1	168,000	87,000
10,150		MK-1	168,000	87,000
10,200		MK-1	168,000	87,000
10,250		MK-1	168,000	87,000
10,320	13/32	MK-1	168,000	87,000
10,500		MK-1	168,000	87,000
10,700		MK-1	175,000	94,000
10,720	27/64	MK-1	175,000	94,000
10,750		MK-1	175,000	94,000
10,800		MK-1	175,000	94,000
11,000		MK-1	175,000	94,000
11,110	7/16	MK-1	175,000	94,000
11,200		MK-1	175,000	94,000
11,500		MK-1	175,000	94,000
11,600		MK-1	175,000	94,000
11,750		MK-1	175,000	94,000
11,800		MK-1	175,000	94,000
11,900		MK-1	182,000	101,000
12,000		MK-1	182,000	101,000
12,100		MK-1	182,000	101,000
12,200		MK-1	182,000	101,000
12,250		MK-1	182,000	101,000
12,500		MK-1	182,000	101,000

d1 mm	inch	S	l1 mm	l2 mm
12,700	1/2	MK-1	182,000	101,000
12,750		MK-1	182,000	101,000
13,000		MK-1	182,000	101,000
13,100	33/64	MK-1	182,000	101,000
13,200		MK-1	182,000	101,000
13,250		MK-1	189,000	108,000
13,490	17/32	MK-1	189,000	108,000
13,500		MK-1	189,000	108,000
13,700		MK-1	189,000	108,000
13,750		MK-1	189,000	108,000
13,800		MK-1	189,000	108,000
13,900		MK-1	189,000	108,000
14,000		MK-1	189,000	108,000
14,100		MK-2	212,000	114,000
14,200		MK-2	212,000	114,000
14,250		MK-2	212,000	114,000
14,290	9/16	MK-2	212,000	114,000
14,500		MK-2	212,000	114,000
14,750		MK-2	212,000	114,000
15,000		MK-2	212,000	114,000
15,080	19/32	MK-2	218,000	120,000
15,250		MK-2	218,000	120,000
15,500		MK-2	218,000	120,000
15,750		MK-2	218,000	120,000
15,870	5/8	MK-2	218,000	120,000
16,000		MK-2	218,000	120,000
16,100		MK-2	223,000	125,000
16,250		MK-2	223,000	125,000
16,270	41/64	MK-2	223,000	125,000
16,500		MK-2	223,000	125,000
16,670	21/32	MK-2	223,000	125,000
16,750		MK-2	223,000	125,000
17,000		MK-2	223,000	125,000
17,460	11/16	MK-2	228,000	130,000
17,500		MK-2	228,000	130,000
17,750		MK-2	228,000	130,000
17,860	45/64	MK-2	228,000	130,000
18,000		MK-2	228,000	130,000
18,200		MK-2	233,000	135,000
18,250		MK-2	233,000	135,000
18,260	23/32	MK-2	233,000	135,000
18,500		MK-2	233,000	135,000

d1		S	l1	l2
mm	inch		mm	mm
18,650	47/64	MK-2	233,000	135,000
18,750		MK-2	233,000	135,000
19,000		MK-2	233,000	135,000
19,050	3/4	MK-2	238,000	140,000
19,250		MK-2	238,000	140,000
19,500		MK-2	238,000	140,000
19,750		MK-2	238,000	140,000
19,840	25/32	MK-2	238,000	140,000
20,000		MK-2	238,000	140,000
20,250		MK-2	243,000	145,000
20,500		MK-2	243,000	145,000
20,640	13/16	MK-2	243,000	145,000
20,750		MK-2	243,000	145,000
21,000		MK-2	243,000	145,000
21,250		MK-2	248,000	150,000
21,500		MK-2	248,000	150,000
22,000		MK-2	248,000	150,000
22,220	7/8	MK-2	248,000	150,000
22,250		MK-2	248,000	150,000
22,500		MK-2	253,000	155,000
22,620	57/64	MK-2	253,000	155,000
23,000		MK-2	253,000	155,000
23,020	29/32	MK-2	253,000	155,000
23,500		MK-3	276,000	155,000
24,000		MK-3	281,000	160,000
24,210	61/64	MK-3	281,000	160,000
24,500		MK-3	281,000	160,000
25,000	63/64	MK-3	281,000	160,000
25,250		MK-3	286,000	165,000
25,400	1	MK-3	286,000	165,000

d1		S	l1	l2
mm	inch		mm	mm
25,500		MK-3	286,000	165,000
26,000		MK-3	286,000	165,000
26,500		MK-3	286,000	165,000
27,000		MK-3	291,000	170,000
27,500		MK-3	291,000	170,000
28,000		MK-3	291,000	170,000
28,500		MK-3	296,000	175,000
28,570	1 1/8	MK-3	296,000	175,000
29,000		MK-3	296,000	175,000
29,500		MK-3	296,000	175,000
30,000		MK-3	296,000	175,000
30,500		MK-3	301,000	180,000
31,000		MK-3	301,000	180,000
31,500		MK-3	301,000	180,000
31,750	1 1/4	MK-3	306,000	185,000
32,000		MK-4	334,000	185,000
32,500		MK-4	334,000	185,000
33,000		MK-4	334,000	185,000
34,000		MK-4	339,000	190,000
35,000		MK-4	339,000	190,000
36,000		MK-4	344,000	195,000
37,000		MK-4	344,000	195,000
38,000		MK-4	349,000	200,000
39,000		MK-4	349,000	200,000
40,000		MK-4	349,000	200,000
42,000		MK-4	354,000	205,000
42,070	1 21/32	MK-4	354,000	205,000
43,000		MK-4	359,000	210,000
45,000		MK-4	359,000	210,000
50,000		MK-4	369,000	220,000

Brocas espirales

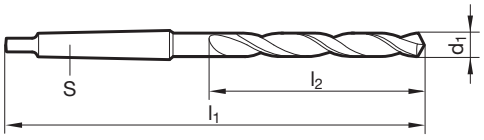
~5xD | DIN 345 | N | 118° | h8

Material de corte	HSCO
Acabado	S
Dirección de corte	R

P	•	vaciado de punta ≥Ø 7,940 • entrada cónica • acero rápido al cobalto • resistencia más alta al desgaste
M	○	
K	•	
N	○	aceros aleados y no aleados y fundición de dureza sup. a 800 N/mm² • aceros para trab. en frío y en caliente • aceros para rodamientos • aceros altamente aleados • aceros de cementación, de bonificación
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 782



Artículo N° **661**

d1 mm	inch	S	l1 mm	l2 mm
8,000		MK-1	156,000	75,000
8,500		MK-1	156,000	75,000
9,000		MK-1	162,000	81,000
9,500		MK-1	162,000	81,000
9,520	3/8	MK-1	168,000	87,000
10,000		MK-1	168,000	87,000
11,000		MK-1	175,000	94,000
12,000		MK-1	182,000	101,000
12,500		MK-1	182,000	101,000
12,700	1/2	MK-1	182,000	101,000
13,000		MK-1	182,000	101,000
13,500		MK-1	189,000	108,000
14,000		MK-1	189,000	108,000
14,500		MK-2	212,000	114,000
15,000		MK-2	212,000	114,000
16,000		MK-2	218,000	120,000
17,000		MK-2	223,000	125,000
17,070	43/64	MK-2	228,000	130,000

d1 mm	inch	S	l1 mm	l2 mm
17,460	11/16	MK-2	228,000	130,000
17,500		MK-2	228,000	130,000
18,000		MK-2	228,000	130,000
19,000		MK-2	233,000	135,000
19,500		MK-2	238,000	140,000
20,000		MK-2	238,000	140,000
21,000		MK-2	243,000	145,000
22,000		MK-2	248,000	150,000
23,000		MK-2	253,000	155,000
23,810	15/16	MK-3	281,000	160,000
25,000	63/64	MK-3	281,000	160,000
26,000		MK-3	286,000	165,000
26,500		MK-3	286,000	165,000
26,990	1 1/16	MK-3	291,000	170,000
29,000		MK-3	296,000	175,000
30,000		MK-3	296,000	175,000

Brocas espirales

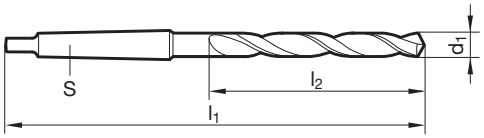
~5xD | DIN 345 | GT 100 | 130° | h8

Material de corte	HSCO
Acabado	>Ø 16,0
Dirección de corte	R

P	•	vaciado de punta ≥Ø 9,520 • entrada cónica • acero rápido al cobalto • ranuras amplias • resistencia más alta al desgaste • ideal para prof. de taladro sup. a 3xD
M	○	
K	•	
N	○	aceros aleados y no aleados fundición de dureza sup. a 1000 N/mm² • aceros para trab. en frío y en caliente • aceros para rodamientos • aceros altamente aleados • aceros de cementación, de bonificación
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 780



Artículo N° **645**

d1 mm	d1 inch	S	l1 mm	l2 mm
10,000		MK-1	168,000	87,000
10,100		MK-1	168,000	87,000
10,200		MK-1	168,000	87,000
10,500		MK-1	168,000	87,000
10,720	27/64	MK-1	175,000	94,000
10,800		MK-1	175,000	94,000
11,000		MK-1	175,000	94,000
11,500		MK-1	175,000	94,000
11,510	29/64	MK-1	175,000	94,000
12,000		MK-1	182,000	101,000
12,500		MK-1	182,000	101,000
13,000		MK-1	182,000	101,000
13,300		MK-1	189,000	108,000
13,500		MK-1	189,000	108,000
14,000		MK-1	189,000	108,000
14,250		MK-2	212,000	114,000
14,290	9/16	MK-2	212,000	114,000
14,500		MK-2	212,000	114,000
15,000		MK-2	212,000	114,000
15,250		MK-2	218,000	120,000
15,500		MK-2	218,000	120,000
15,750		MK-2	218,000	120,000
16,000		MK-2	218,000	120,000
16,500		MK-2	223,000	125,000
16,670	21/32	MK-2	223,000	125,000
17,000		MK-2	223,000	125,000
17,250		MK-2	228,000	130,000
17,460	11/16	MK-2	228,000	130,000
17,500		MK-2	228,000	130,000
18,000		MK-2	228,000	130,000

d1 mm	d1 inch	S	l1 mm	l2 mm
18,250		MK-2	233,000	135,000
18,500		MK-2	233,000	135,000
19,000		MK-2	233,000	135,000
20,000		MK-2	238,000	140,000
20,500		MK-2	243,000	145,000
21,000		MK-2	243,000	145,000
22,000		MK-2	248,000	150,000
22,220	7/8	MK-2	248,000	150,000
22,620	57/64	MK-2	253,000	155,000
23,000		MK-2	253,000	155,000
24,000		MK-3	281,000	160,000
24,210	61/64	MK-3	281,000	160,000
24,610	31/32	MK-3	281,000	160,000
25,000	63/64	MK-3	281,000	160,000
26,000		MK-3	286,000	165,000
26,500		MK-3	286,000	165,000
27,780	1 3/32	MK-3	291,000	170,000
28,570	1 1/8	MK-3	296,000	175,000
30,000		MK-3	296,000	175,000
31,000		MK-3	301,000	180,000
33,000		MK-4	334,000	185,000
35,000		MK-4	339,000	190,000
37,000		MK-4	344,000	195,000
38,000		MK-4	349,000	200,000
39,000		MK-4	349,000	200,000

Brocas espirales

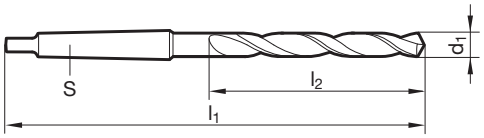
~5xD | DIN 345 | GT 100 | 130° | h8

Material de corte	HSCO
Acabado	S
Dirección de corte	R

P	•	vaciado de punta ≥Ø 10,000 • entrada cónica • acero rápido al cobalto • ranuras amplias • resistencia más alta al desgaste • ideal para prof. de taladro sup. a 3xD
M	○	
K	•	
N	○	aceros aleados y no aleados fundición de dureza sup. a 1000 N/mm² • aceros para trab. en frío y en caliente • aceros para rodamientos • aceros altamente aleados • aceros de cementación, de bonificación
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 782



Artículo N° **662**

d1 mm	d1 inch	S	l1 mm	l2 mm
10,000		MK-1	168,000	87,000
10,200		MK-1	168,000	87,000
11,000		MK-1	175,000	94,000
11,110	7/16	MK-1	175,000	94,000
11,400		MK-1	175,000	94,000
12,200		MK-1	182,000	101,000
12,300	31/64	MK-1	182,000	101,000
12,500		MK-1	182,000	101,000
13,000		MK-1	182,000	101,000
14,000		MK-1	189,000	108,000
14,290	9/16	MK-2	212,000	114,000
15,000		MK-2	212,000	114,000

d1 mm	d1 inch	S	l1 mm	l2 mm
16,000		MK-2	218,000	120,000
17,460	11/16	MK-2	228,000	130,000
17,500		MK-2	228,000	130,000
18,000		MK-2	228,000	130,000
20,000		MK-2	238,000	140,000
20,500		MK-2	243,000	145,000
21,000		MK-2	243,000	145,000
22,000		MK-2	248,000	150,000
23,000		MK-2	253,000	155,000
23,500		MK-3	276,000	155,000
23,810	15/16	MK-3	281,000	160,000

Brocas espirales

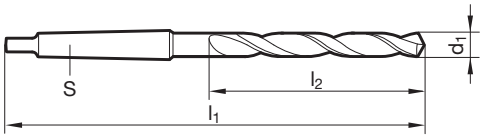
~5xD | DIN 345 | GT 100 | 130° | h8

Material de corte	HSCO
Acabado	C
Dirección de corte	R

P	•	vaciado de punta ≥Ø 10,000 • entrada cónica • acero rápido al cobalto • ranuras amplias • resistencia más alta al desgaste • ideal para prof. de taladro sup. a 3xD
M		
K	○	
N		aceros aleados y no aleados fundición de dureza sup. a 1000 N/mm² • aceros para trab. en frío y en caliente • aceros para rodamientos • aceros altamente aleados • aceros de cementación, de bonificación
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 782



Artículo N° **1222**

d1 mm	d1 inch	S	l1 mm	l2 mm
10,000		MK-1	168,000	87,000
10,200		MK-1	168,000	87,000
11,000		MK-1	175,000	94,000
11,110	7/16	MK-1	175,000	94,000
12,500		MK-1	182,000	101,000
12,700	1/2	MK-1	182,000	101,000
14,200		MK-2	212,000	114,000
15,870	5/8	MK-2	218,000	120,000
16,500		MK-2	223,000	125,000
16,670	21/32	MK-2	223,000	125,000
17,460	11/16	MK-2	228,000	130,000
19,500		MK-2	238,000	140,000

d1 mm	d1 inch	S	l1 mm	l2 mm
23,500		MK-3	276,000	155,000
23,810	15/16	MK-3	281,000	160,000
25,500		MK-3	286,000	165,000
26,990	1 1/16	MK-3	291,000	170,000
27,500		MK-3	291,000	170,000
29,500		MK-3	296,000	175,000
30,160	1 3/16	MK-3	301,000	180,000

Brocas espirales

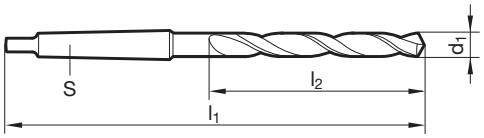
~5xD | DIN 345 | GT 100 | 130° | h8

Material de corte	HSCO
Acabado	A
Dirección de corte	R

P	○	vaciado de punta ≥Ø 10,400 • entrada cónica • acero rápido al cobalto • ranuras amplias • resistencia más alta al desgaste • ideal para prof. de taladro sup. a 3xD
M		
K	•	
N	○	aceros aleados y no aleados fundición de dureza sup. a 1000 N/mm² • aceros para trab. en frío y en caliente • aceros para rodamientos • aceros altamente aleados • aceros de cementación, de bonificación
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 782



Artículo N° **1224**

d1 mm	d1 inch	S	l1 mm	l2 mm
10,400		MK-1	168,000	87,000
11,110	7/16	MK-1	175,000	94,000
12,300	31/64	MK-1	182,000	101,000
12,700	1/2	MK-1	182,000	101,000
14,200		MK-2	212,000	114,000
14,290	9/16	MK-2	212,000	114,000
15,870	5/8	MK-2	218,000	120,000
16,000		MK-2	218,000	120,000
16,500		MK-2	223,000	125,000
19,000		MK-2	233,000	135,000
19,500		MK-2	238,000	140,000
23,810	15/16	MK-3	281,000	160,000

d1 mm	d1 inch	S	l1 mm	l2 mm
25,500		MK-3	286,000	165,000
26,990	1 1/16	MK-3	291,000	170,000
27,000		MK-3	291,000	170,000
28,000		MK-3	291,000	170,000
28,500		MK-3	296,000	175,000
29,000		MK-3	296,000	175,000
29,500		MK-3	296,000	175,000
30,160	1 3/16	MK-3	301,000	180,000

Brocas espirales

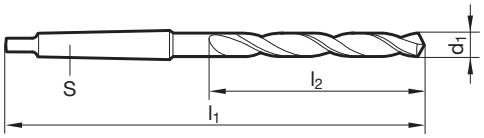
~5xD | DIN 345 | VA | 130° | h8

Material de corte	HSCO
Acabado	◯
Dirección de corte	Ⓡ

P	○	entrada cónica • acero rápido al cobalto • más resistencia al desgaste
M	•	
K		
N	○	aceros austeníticos inoxidables y resistentes a los ácidos y al calor (V2A y V4A)
S	○	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 780



Artículo N° **1262**

d1 mm	inch	S	l1 mm	l2 mm
10,000		MK-1	168,000	87,000
10,200		MK-1	168,000	87,000
10,500		MK-1	168,000	87,000
10,800		MK-1	175,000	94,000
11,000		MK-1	175,000	94,000
11,200		MK-1	175,000	94,000
11,800		MK-1	175,000	94,000
12,000		MK-1	182,000	101,000
12,300	31/64	MK-1	182,000	101,000
12,500		MK-1	182,000	101,000
13,000		MK-1	182,000	101,000
13,490	17/32	MK-1	189,000	108,000
13,500		MK-1	189,000	108,000
13,800		MK-1	189,000	108,000
14,000		MK-1	189,000	108,000
14,250		MK-2	212,000	114,000
14,500		MK-2	212,000	114,000
14,750		MK-2	212,000	114,000
15,000		MK-2	212,000	114,000
15,250		MK-2	218,000	120,000
15,480	39/64	MK-2	218,000	120,000
15,500		MK-2	218,000	120,000
16,000		MK-2	218,000	120,000
16,250		MK-2	223,000	125,000
16,500		MK-2	223,000	125,000
17,000		MK-2	223,000	125,000
17,500		MK-2	228,000	130,000
18,000		MK-2	228,000	130,000
18,500		MK-2	233,000	135,000
19,000		MK-2	233,000	135,000

d1 mm	inch	S	l1 mm	l2 mm
19,500		MK-2	238,000	140,000
20,000		MK-2	238,000	140,000
20,500		MK-2	243,000	145,000
21,000		MK-2	243,000	145,000
21,500		MK-2	248,000	150,000
21,750		MK-2	248,000	150,000
22,000		MK-2	248,000	150,000
22,500		MK-2	253,000	155,000
23,000		MK-2	253,000	155,000
23,420	59/64	MK-3	276,000	155,000
24,000		MK-3	281,000	160,000
24,500		MK-3	281,000	160,000
25,000	63/64	MK-3	281,000	160,000
25,500		MK-3	286,000	165,000
26,000		MK-3	286,000	165,000
26,500		MK-3	286,000	165,000
27,000		MK-3	291,000	170,000
27,500		MK-3	291,000	170,000
28,000		MK-3	291,000	170,000
28,500		MK-3	296,000	175,000
29,000		MK-3	296,000	175,000
30,000		MK-3	296,000	175,000
32,000		MK-4	334,000	185,000
34,000		MK-4	339,000	190,000

Brocas espirales

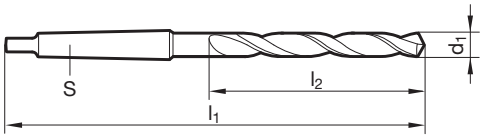
~5xD | DIN 346 | N | 118° | h8

Material de corte	HSS
Acabado	
Dirección de corte	R

P	•	vaciado de punta ≥Ø 14,200 • entrada cónica • con cono morse reforzado
M		
K	•	
N	○	aceros y fundición de aceros (aleados y no aleados) • fundición gris, fundición maleable, fundición esferica • hierro sinterizado, argentón y grafito
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 778



Artículo N° **251**

d1 mm	d1 inch	S	l1 mm	l2 mm
10,000		MK-2	185,000	87,000
10,500		MK-2	185,000	87,000
11,000		MK-2	192,000	94,000
11,910	15/32	MK-2	199,000	101,000
12,000		MK-2	199,000	101,000
12,250		MK-2	199,000	101,000
12,500		MK-2	199,000	101,000
13,000		MK-2	199,000	101,000
13,100	33/64	MK-2	199,000	101,000
13,250		MK-2	206,000	108,000
13,490	17/32	MK-2	206,000	108,000
13,500		MK-2	206,000	108,000
13,890	35/64	MK-2	206,000	108,000
14,000		MK-2	206,000	108,000
16,700		MK-3	246,000	125,000
17,000		MK-3	246,000	125,000
17,250		MK-3	251,000	130,000
18,250		MK-3	256,000	135,000
18,260	23/32	MK-3	256,000	135,000
18,650	47/64	MK-3	256,000	135,000
18,750		MK-3	256,000	135,000
19,000		MK-3	256,000	135,000
19,050	3/4	MK-3	261,000	140,000
19,450	49/64	MK-3	261,000	140,000
19,840	25/32	MK-3	261,000	140,000
20,000		MK-3	261,000	140,000
20,250		MK-3	266,000	145,000
20,640	13/16	MK-3	266,000	145,000
21,000		MK-3	266,000	145,000
21,030	53/64	MK-3	266,000	145,000

d1 mm	d1 inch	S	l1 mm	l2 mm
21,430	27/32	MK-3	271,000	150,000
21,500		MK-3	271,000	150,000
22,000		MK-3	271,000	150,000
22,220	7/8	MK-3	271,000	150,000
23,000		MK-3	276,000	155,000
23,020	29/32	MK-3	276,000	155,000
27,500		MK-4	319,000	170,000
27,750		MK-4	319,000	170,000
27,780	1 3/32	MK-4	319,000	170,000
28,000		MK-4	319,000	170,000
28,180	1 7/64	MK-4	324,000	175,000
28,500		MK-4	324,000	175,000
28,570	1 1/8	MK-4	324,000	175,000
28,970	1 9/64	MK-4	324,000	175,000
29,770	1 11/64	MK-4	324,000	175,000
31,500		MK-4	329,000	180,000
32,000		MK-5	372,000	185,000
36,000		MK-5	382,000	195,000
40,080	1 37/64	MK-5	392,000	205,000
41,000		MK-5	392,000	205,000
41,500		MK-5	392,000	205,000
42,070	1 21/32	MK-5	392,000	205,000
44,050	1 47/64	MK-5	397,000	210,000
45,000		MK-5	397,000	210,000
46,040	1 13/16	MK-5	402,000	215,000
47,000		MK-5	402,000	215,000
49,000		MK-5	407,000	220,000
49,500		MK-5	407,000	220,000
73,000		MK-6	509,000	255,000

Brocas espirales

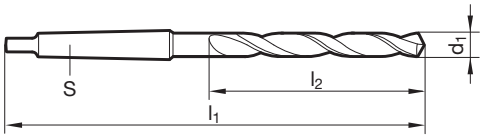
~5xD | DIN 346 | N | 118° | h8

Material de corte	HSCO
Acabado	
Dirección de corte	R

P	•	vaciado de punta ≥Ø 10,000 • entrada cónica • acero rápido al cobalto • resistencia más alta al desgaste • con cono morse reforzado
M	○	
K	•	
N	•	aceros aleados y no aleados y fundición de dureza sup. a 800 N/mm² • aceros para trab. en frío y en caliente • aceros para rodamientos • aceros altamente aleados • aceros de cementación, de bonificación
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 780



Artículo N° **351**

d1 mm	d1 inch	S	l1 mm	l2 mm
12,000		MK-2	199,000	101,000
13,000		MK-2	199,000	101,000
14,000		MK-2	206,000	108,000
17,500		MK-3	251,000	130,000
18,500		MK-3	256,000	135,000
20,000		MK-3	261,000	140,000
21,000		MK-3	266,000	145,000
21,500		MK-3	271,000	150,000
22,750		MK-3	276,000	155,000
23,000		MK-3	276,000	155,000
29,000		MK-4	324,000	175,000
30,000		MK-4	324,000	175,000

d1 mm	d1 inch	S	l1 mm	l2 mm
31,000		MK-4	329,000	180,000
31,500		MK-4	329,000	180,000

Brocas para casquillos

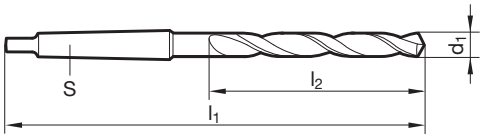
~10xD | DIN 341 | N | 118° | h8

Material de corte	HSS
Acabado	
Dirección de corte	R

P	•	vaciado de punta ≥Ø 14,100 • entrada cónica • para taladrar casquillos
M		
K	•	
N	○	aceros y fundición de aceros (aleados y sin alear) • fundición gris, fundición maleable, fundición esferica • hierro sinterizado, argentón y grafito
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 786



Artículo N° **257**

d1 mm	inch	S	l1 mm	l2 mm
2,900		MK-1	132,000	51,000
3,900		MK-1	145,000	64,000
4,000		MK-1	145,000	64,000
4,100		MK-1	145,000	64,000
4,200		MK-1	145,000	64,000
4,500		MK-1	150,000	69,000
4,700		MK-1	150,000	69,000
5,000		MK-1	155,000	74,000
5,100		MK-1	155,000	74,000
5,200		MK-1	155,000	74,000
5,250		MK-1	155,000	74,000
5,500		MK-1	161,000	80,000
5,800		MK-1	161,000	80,000
6,000		MK-1	161,000	80,000
6,500		MK-1	167,000	86,000
6,700		MK-1	167,000	86,000
6,800		MK-1	174,000	93,000
7,000		MK-1	174,000	93,000
7,100		MK-1	174,000	93,000
7,200		MK-1	174,000	93,000
7,300		MK-1	174,000	93,000
7,400		MK-1	174,000	93,000
7,500		MK-1	174,000	93,000
7,600		MK-1	181,000	100,000
7,800		MK-1	181,000	100,000
8,000		MK-1	181,000	100,000
8,050		MK-1	181,000	100,000
8,200		MK-1	181,000	100,000
8,250		MK-1	181,000	100,000
8,500		MK-1	181,000	100,000
8,600		MK-1	188,000	107,000
8,750		MK-1	188,000	107,000
8,800		MK-1	188,000	107,000
8,900		MK-1	188,000	107,000
9,000		MK-1	188,000	107,000
9,100		MK-1	188,000	107,000
9,300		MK-1	188,000	107,000
9,400		MK-1	188,000	107,000
9,500		MK-1	188,000	107,000
9,600		MK-1	197,000	116,000
9,700		MK-1	197,000	116,000
9,800		MK-1	197,000	116,000

d1 mm	inch	S	l1 mm	l2 mm
9,900		MK-1	197,000	116,000
10,000		MK-1	197,000	116,000
10,050		MK-1	197,000	116,000
10,100		MK-1	197,000	116,000
10,200		MK-1	197,000	116,000
10,250		MK-1	197,000	116,000
10,300		MK-1	197,000	116,000
10,400		MK-1	197,000	116,000
10,500		MK-1	197,000	116,000
10,600		MK-1	197,000	116,000
10,700		MK-1	206,000	125,000
10,750		MK-1	206,000	125,000
10,800		MK-1	206,000	125,000
10,900		MK-1	206,000	125,000
11,000		MK-1	206,000	125,000
11,250		MK-1	206,000	125,000
11,400		MK-1	206,000	125,000
11,500		MK-1	206,000	125,000
11,750		MK-1	206,000	125,000
11,800		MK-1	206,000	125,000
12,000		MK-1	215,000	134,000
12,100		MK-1	215,000	134,000
12,200		MK-1	215,000	134,000
12,250		MK-1	215,000	134,000
12,300	31/64	MK-1	215,000	134,000
12,400		MK-1	215,000	134,000
12,500		MK-1	215,000	134,000
12,600		MK-1	215,000	134,000
13,000		MK-1	215,000	134,000
13,100	33/64	MK-1	215,000	134,000
13,200		MK-1	215,000	134,000
13,490	17/32	MK-1	223,000	142,000
13,500		MK-1	223,000	142,000
13,750		MK-1	223,000	142,000
13,900		MK-1	223,000	142,000
14,000		MK-1	223,000	142,000
14,100		MK-2	245,000	147,000
14,250		MK-2	245,000	147,000
14,290	9/16	MK-2	245,000	147,000
14,300		MK-2	245,000	147,000
14,400		MK-2	245,000	147,000
14,500		MK-2	245,000	147,000

d1		S	l1	l2
mm	inch		mm	mm
14,750		MK-2	245,000	147,000
14,900		MK-2	245,000	147,000
15,000		MK-2	245,000	147,000
15,200		MK-2	251,000	153,000
15,250		MK-2	251,000	153,000
15,500		MK-2	251,000	153,000
15,600		MK-2	251,000	153,000
15,750		MK-2	251,000	153,000
16,000		MK-2	251,000	153,000
16,100		MK-2	257,000	159,000
16,200		MK-2	257,000	159,000
16,250		MK-2	257,000	159,000
16,500		MK-2	257,000	159,000
16,670	21/32	MK-2	257,000	159,000
16,750		MK-2	257,000	159,000
17,000		MK-2	257,000	159,000
17,250		MK-2	263,000	165,000
17,460	11/16	MK-2	263,000	165,000
17,500		MK-2	263,000	165,000
17,750		MK-2	263,000	165,000
18,000		MK-2	263,000	165,000
18,250		MK-2	269,000	171,000
18,500		MK-2	269,000	171,000
18,750		MK-2	269,000	171,000
19,000		MK-2	269,000	171,000
19,500		MK-2	275,000	177,000
19,750		MK-2	275,000	177,000
19,840	25/32	MK-2	275,000	177,000
20,000		MK-2	275,000	177,000
20,250		MK-2	282,000	184,000
20,500		MK-2	282,000	184,000
20,640	13/16	MK-2	282,000	184,000
21,000		MK-2	282,000	184,000
21,500		MK-2	289,000	191,000
21,750		MK-2	289,000	191,000
21,830	55/64	MK-2	289,000	191,000
22,000		MK-2	289,000	191,000
22,220	7/8	MK-2	289,000	191,000
22,250		MK-2	289,000	191,000
22,500		MK-2	296,000	198,000
23,000		MK-2	296,000	198,000
23,500		MK-3	319,000	198,000
23,750		MK-3	327,000	206,000
23,810	15/16	MK-3	327,000	206,000
24,000		MK-3	327,000	206,000
24,250		MK-3	327,000	206,000
24,500		MK-3	327,000	206,000
25,000	63/64	MK-3	327,000	206,000

d1		S	l1	l2
mm	inch		mm	mm
25,250		MK-3	335,000	214,000
25,500		MK-3	335,000	214,000
26,000		MK-3	335,000	214,000
26,500		MK-3	335,000	214,000
26,590	1 3/64	MK-3	343,000	222,000
26,990	1 1/16	MK-3	343,000	222,000
27,000		MK-3	343,000	222,000
27,380	1 5/64	MK-3	343,000	222,000
27,500		MK-3	343,000	222,000
28,000		MK-3	343,000	222,000
28,500		MK-3	351,000	230,000
29,000		MK-3	351,000	230,000
29,500		MK-3	351,000	230,000
30,000		MK-3	351,000	230,000
30,500		MK-3	360,000	239,000
31,000		MK-3	360,000	239,000
32,000		MK-4	397,000	248,000
33,000		MK-4	397,000	248,000
33,500		MK-4	397,000	248,000
34,000		MK-4	406,000	257,000
35,000		MK-4	406,000	257,000
36,000		MK-4	416,000	267,000
36,120	1 27/64	MK-4	416,000	267,000
36,910	1 29/64	MK-4	416,000	267,000
37,000		MK-4	416,000	267,000
37,500		MK-4	416,000	267,000
38,000		MK-4	426,000	277,000
39,000		MK-4	426,000	277,000
39,500		MK-4	426,000	277,000
40,000		MK-4	426,000	277,000
40,080	1 37/64	MK-4	436,000	287,000
40,880	1 39/64	MK-4	436,000	287,000
41,000		MK-4	436,000	287,000
41,670	1 41/64	MK-4	436,000	287,000
42,000		MK-4	436,000	287,000
43,000		MK-4	447,000	298,000
43,660	1 23/32	MK-4	447,000	298,000
44,000		MK-4	447,000	298,000
45,000		MK-4	447,000	298,000
46,830	1 27/32	MK-4	459,000	310,000
48,000		MK-4	470,000	321,000
49,000		MK-4	470,000	321,000
50,000		MK-4	470,000	321,000

Brocas espirales cil., cortas

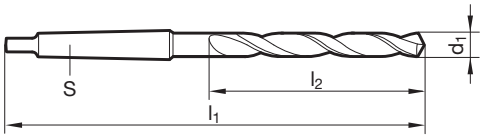
~10xD | DIN 341 | N | 118° | h8

Material de corte	HSS
Acabado	S
Dirección de corte	R

P	•	vaciado de punta ≥Ø 4,000 • entrada cónica • para taladrar casquillos
M		
K	•	
N	○	aceros y fundición de aceros (aleados y sin alear) • fundición gris, fundición maleable, fundición esferica • hierro sinterizado, argentón y grafito
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 786



Artículo N° **655**

d1 mm	inch	S	l1 mm	l2 mm
5,500		MK-1	161,000	80,000
6,000		MK-1	161,000	80,000
6,800		MK-1	174,000	93,000
7,000		MK-1	174,000	93,000
7,300		MK-1	174,000	93,000
8,000		MK-1	181,000	100,000
8,200		MK-1	181,000	100,000
8,400		MK-1	181,000	100,000
8,500		MK-1	181,000	100,000
8,600		MK-1	188,000	107,000
8,700		MK-1	188,000	107,000
8,800		MK-1	188,000	107,000
9,000		MK-1	188,000	107,000
9,500		MK-1	188,000	107,000
10,000		MK-1	197,000	116,000
10,050		MK-1	197,000	116,000
10,100		MK-1	197,000	116,000
10,200		MK-1	197,000	116,000
10,400		MK-1	197,000	116,000
10,500		MK-1	197,000	116,000
11,000		MK-1	206,000	125,000
11,400		MK-1	206,000	125,000
11,500		MK-1	206,000	125,000
11,750		MK-1	206,000	125,000

d1 mm	inch	S	l1 mm	l2 mm
12,000		MK-1	215,000	134,000
12,500		MK-1	215,000	134,000
13,000		MK-1	215,000	134,000
13,500		MK-1	223,000	142,000
14,000		MK-1	223,000	142,000
14,250		MK-2	245,000	147,000
14,500		MK-2	245,000	147,000
14,750		MK-2	245,000	147,000
15,000		MK-2	245,000	147,000
15,250		MK-2	251,000	153,000
15,870	5/8	MK-2	251,000	153,000
17,000		MK-2	257,000	159,000
17,500		MK-2	263,000	165,000
18,000		MK-2	263,000	165,000
21,000		MK-2	282,000	184,000
22,000		MK-2	289,000	191,000

Brocas para casquillos

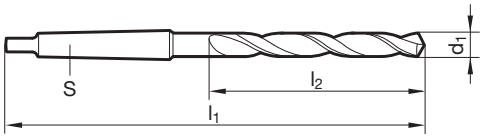
~10xD | DIN 341 | GT 100 | 130° | h8

Material de corte	HSS
Acabado	>Ø 16,0
Dirección de corte	R

P	•	vaciado de punta ≥Ø 5,500 • entrada cónica • ranuras amplias • con desalojo de viruta difícil
M		
K	•	
N	•	fundición gris y aceros hasta máx. 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 786



Artículo N° **551**

d1 mm	d1 inch	S	l1 mm	l2 mm
5,500		MK-1	161,000	80,000
5,550		MK-1	161,000	80,000
6,350	1/4	MK-1	167,000	86,000
6,500		MK-1	167,000	86,000
6,750	17/64	MK-1	174,000	93,000
6,800		MK-1	174,000	93,000
7,000		MK-1	174,000	93,000
7,500		MK-1	174,000	93,000
7,940	5/16	MK-1	181,000	100,000
8,000		MK-1	181,000	100,000
8,100		MK-1	181,000	100,000
8,200		MK-1	181,000	100,000
8,300		MK-1	181,000	100,000
8,330	21/64	MK-1	181,000	100,000
8,500		MK-1	181,000	100,000
8,600		MK-1	188,000	107,000
8,700		MK-1	188,000	107,000
8,750		MK-1	188,000	107,000
9,000		MK-1	188,000	107,000
9,500		MK-1	188,000	107,000
9,520	3/8	MK-1	197,000	116,000
9,800		MK-1	197,000	116,000
9,900		MK-1	197,000	116,000
9,920	25/64	MK-1	197,000	116,000
10,000		MK-1	197,000	116,000
10,200		MK-1	197,000	116,000
10,250		MK-1	197,000	116,000
10,320	13/32	MK-1	197,000	116,000
10,500		MK-1	197,000	116,000
10,750		MK-1	206,000	125,000
11,000		MK-1	206,000	125,000
11,110	7/16	MK-1	206,000	125,000
11,500		MK-1	206,000	125,000
11,510	29/64	MK-1	206,000	125,000
11,750		MK-1	206,000	125,000
11,800		MK-1	206,000	125,000
12,000		MK-1	215,000	134,000
12,300	31/64	MK-1	215,000	134,000
12,500		MK-1	215,000	134,000
12,700	1/2	MK-1	215,000	134,000
12,800		MK-1	215,000	134,000
13,000		MK-1	215,000	134,000

d1 mm	d1 inch	S	l1 mm	l2 mm
13,100	33/64	MK-1	215,000	134,000
13,490	17/32	MK-1	223,000	142,000
13,500		MK-1	223,000	142,000
13,800		MK-1	223,000	142,000
13,890	35/64	MK-1	223,000	142,000
14,000		MK-1	223,000	142,000
14,200		MK-2	245,000	147,000
14,250		MK-2	245,000	147,000
14,290	9/16	MK-2	245,000	147,000
14,500		MK-2	245,000	147,000
14,750		MK-2	245,000	147,000
15,000		MK-2	245,000	147,000
15,250		MK-2	251,000	153,000
15,480	39/64	MK-2	251,000	153,000
15,750		MK-2	251,000	153,000
16,000		MK-2	251,000	153,000
16,500		MK-2	257,000	159,000
16,670	21/32	MK-2	257,000	159,000
17,000		MK-2	257,000	159,000
17,460	11/16	MK-2	263,000	165,000
17,500		MK-2	263,000	165,000
18,000		MK-2	263,000	165,000
18,260	23/32	MK-2	269,000	171,000
19,000		MK-2	269,000	171,000
19,500		MK-2	275,000	177,000
19,840	25/32	MK-2	275,000	177,000
20,000		MK-2	275,000	177,000
21,000		MK-2	282,000	184,000
22,000		MK-2	289,000	191,000
23,000		MK-2	296,000	198,000
23,020	29/32	MK-2	296,000	198,000
23,500		MK-3	319,000	198,000
24,000		MK-3	327,000	206,000
25,000	63/64	MK-3	327,000	206,000
26,000		MK-3	335,000	214,000
26,590	1 3/64	MK-3	343,000	222,000
28,570	1 1/8	MK-3	351,000	230,000
28,900		MK-3	351,000	230,000
28,970	1 9/64	MK-3	351,000	230,000
29,000		MK-3	351,000	230,000
30,000		MK-3	351,000	230,000
30,500		MK-3	360,000	239,000

d1		S	l1	l2
mm	inch		mm	mm
30,560	1 13/64	MK-3	360,000	239,000
30,960	1 7/32	MK-3	360,000	239,000
31,000		MK-3	360,000	239,000
31,500		MK-3	360,000	239,000
32,000		MK-4	397,000	248,000

d1		S	l1	l2
mm	inch		mm	mm

Brocas para casquillos

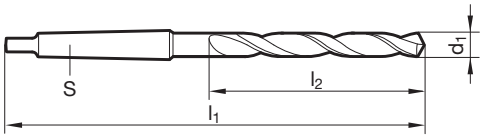
~10xD | DIN 341 | GT 100 | 130° | h8

Material de corte	HSS
Acabado	S
Dirección de corte	R

P	•	vaciado de punta ≥Ø 5,600 • entrada cónica • ranuras amplias • con desalojo de viruta difícil
M		
K	•	
N	•	fundición gris y aceros hasta máx. 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 786



Artículo N° **656**

d1 mm	d1 inch	S	l1 mm	l2 mm
7,000		MK-1	174,000	93,000
9,000		MK-1	188,000	107,000
9,500		MK-1	188,000	107,000
9,920	25/64	MK-1	197,000	116,000
10,000		MK-1	197,000	116,000
10,200		MK-1	197,000	116,000
10,320	13/32	MK-1	197,000	116,000
10,500		MK-1	197,000	116,000
11,000		MK-1	206,000	125,000
11,110	7/16	MK-1	206,000	125,000
11,500		MK-1	206,000	125,000
12,000		MK-1	215,000	134,000
12,500		MK-1	215,000	134,000
13,000		MK-1	215,000	134,000
13,800		MK-1	223,000	142,000
14,000		MK-1	223,000	142,000
14,500		MK-2	245,000	147,000
15,000		MK-2	245,000	147,000

d1 mm	d1 inch	S	l1 mm	l2 mm
16,000		MK-2	251,000	153,000
16,670	21/32	MK-2	257,000	159,000
17,460	11/16	MK-2	263,000	165,000
17,500		MK-2	263,000	165,000
18,000		MK-2	263,000	165,000
19,050	3/4	MK-2	275,000	177,000
20,500		MK-2	282,000	184,000
20,640	13/16	MK-2	282,000	184,000
21,500		MK-2	289,000	191,000
23,000		MK-2	296,000	198,000

Brocas para casquillos

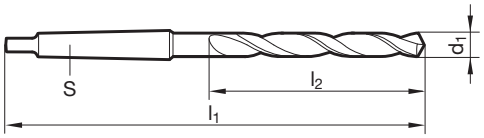
~10xD | DIN 341 | GT 50 | 130° | h8

Material de corte	HSS
Acabado	○
Dirección de corte	R

P	○	vaciado de punta ≥Ø 4,200 • entrada cónica • ranura muy grande
M		
K		
N	•	mat. blandos y de viruta larga de hasta a 500 N/mm² • aceros blandos para automáticos • aluminio, alea. de alum. (de vir. larga) • zink, cobre fino, siluminio, electrón • zamak, argalio plásticos (blandos) y madera
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 786



Artículo N° **505**

d1 mm	d1 inch	S	l1 mm	l2 mm
5,500		MK-1	161,000	80,000
5,600		MK-1	161,000	80,000
5,800		MK-1	161,000	80,000
6,000		MK-1	161,000	80,000
6,100		MK-1	167,000	86,000
6,300		MK-1	167,000	86,000
6,500		MK-1	167,000	86,000
6,700		MK-1	167,000	86,000
6,800		MK-1	174,000	93,000
7,000		MK-1	174,000	93,000
7,200		MK-1	174,000	93,000
7,300		MK-1	174,000	93,000
7,500		MK-1	174,000	93,000
7,700		MK-1	181,000	100,000
7,950		MK-1	181,000	100,000
8,000		MK-1	181,000	100,000
8,200		MK-1	181,000	100,000
8,300		MK-1	181,000	100,000
8,400		MK-1	181,000	100,000
8,500		MK-1	181,000	100,000
8,600		MK-1	188,000	107,000
9,050		MK-1	188,000	107,000
9,300		MK-1	188,000	107,000
9,500		MK-1	188,000	107,000
9,600		MK-1	197,000	116,000
9,700		MK-1	197,000	116,000
9,800		MK-1	197,000	116,000
10,000		MK-1	197,000	116,000
10,200		MK-1	197,000	116,000
10,250		MK-1	197,000	116,000

d1 mm	d1 inch	S	l1 mm	l2 mm
10,700		MK-1	206,000	125,000
10,750		MK-1	206,000	125,000
10,800		MK-1	206,000	125,000
11,200		MK-1	206,000	125,000
11,500		MK-1	206,000	125,000
11,800		MK-1	206,000	125,000
12,000		MK-1	215,000	134,000
12,200		MK-1	215,000	134,000
12,500		MK-1	215,000	134,000
12,700	1/2	MK-1	215,000	134,000
12,800		MK-1	215,000	134,000
13,250		MK-1	223,000	142,000
13,750		MK-1	223,000	142,000
13,800		MK-1	223,000	142,000
14,200		MK-2	245,000	147,000
14,250		MK-2	245,000	147,000
14,300		MK-2	245,000	147,000
14,500		MK-2	245,000	147,000
15,000		MK-2	245,000	147,000
16,000		MK-2	251,000	153,000
16,500		MK-2	257,000	159,000
16,800		MK-2	257,000	159,000
18,500		MK-2	269,000	171,000
19,250		MK-2	275,000	177,000
21,000		MK-2	282,000	184,000
23,500		MK-3	319,000	198,000
24,000		MK-3	327,000	206,000
29,000		MK-3	351,000	230,000
29,500		MK-3	351,000	230,000

Brocas para casquillos

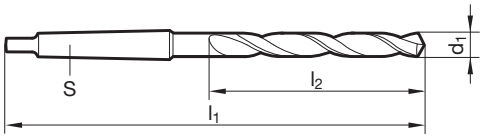
~10xD | DIN 341 | N | 118° | h8

Material de corte	HSCO
Acabado	
Dirección de corte	R

P	•	vaciado de punta ≥Ø 4,750 • entrada cónica • acero rápido al cobalto • más resistencia al desgaste • para taladrar casquillos
M	○	
K	•	
N	•	aceros aleados y no aleados fundición de dureza sup. a 800 N/mm² • aceros para trab. en frío y en caliente • aceros para rodamientos • aceros altamente aleados • aceros de cementación, de bonificación
S	○	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 792



Artículo N° **357**

d1 mm	inch	S	l1 mm	l2 mm
4,750		MK-1	150,000	69,000
5,000		MK-1	155,000	74,000
5,400		MK-1	161,000	80,000
6,000		MK-1	161,000	80,000
6,750	17/64	MK-1	174,000	93,000
6,800		MK-1	174,000	93,000
7,000		MK-1	174,000	93,000
8,000		MK-1	181,000	100,000
8,200		MK-1	181,000	100,000
8,500		MK-1	181,000	100,000
8,800		MK-1	188,000	107,000
9,000		MK-1	188,000	107,000
9,500		MK-1	188,000	107,000
9,800		MK-1	197,000	116,000
10,000		MK-1	197,000	116,000
10,200		MK-1	197,000	116,000
10,250		MK-1	197,000	116,000
10,500		MK-1	197,000	116,000
11,000		MK-1	206,000	125,000
11,500		MK-1	206,000	125,000
12,000		MK-1	215,000	134,000
12,250		MK-1	215,000	134,000
12,500		MK-1	215,000	134,000
13,000		MK-1	215,000	134,000

d1 mm	inch	S	l1 mm	l2 mm
13,500		MK-1	223,000	142,000
14,000		MK-1	223,000	142,000
14,500		MK-2	245,000	147,000
14,750		MK-2	245,000	147,000
15,000		MK-2	245,000	147,000
15,500		MK-2	251,000	153,000
16,000		MK-2	251,000	153,000
16,750		MK-2	257,000	159,000
17,000		MK-2	257,000	159,000
17,500		MK-2	263,000	165,000
18,000		MK-2	263,000	165,000
20,000		MK-2	275,000	177,000
21,000		MK-2	282,000	184,000
22,000		MK-2	289,000	191,000
23,000		MK-2	296,000	198,000
24,000		MK-3	327,000	206,000
25,000	63/64	MK-3	327,000	206,000
26,000		MK-3	335,000	214,000
26,500		MK-3	335,000	214,000
27,000		MK-3	343,000	222,000
28,000		MK-3	343,000	222,000
30,000		MK-3	351,000	230,000
33,000		MK-4	397,000	248,000
40,000		MK-4	426,000	277,000

Brocas para casquillos

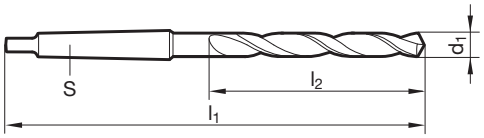
~10xD | DIN 341 | GT 100 | 130° | h8

Material de corte	HSCO
Acabado	>Ø 16,0
Dirección de corte	R

P	•	vaciado de punta ≥Ø 10,000 • entrada cónica • acero rápido al cobalto • ranuras amplias • más resistencia al desgaste • con desalojo de viruta difícil
M	•	
K	•	
N	•	aceros aleados y no aleados y fundición de dureza sup. a 800 N/mm² • aceros para trab. en frío y en caliente • aceros para rodamientos • aceros altamente aleados • aceros de cementación, de bonificación
S		
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 792



Artículo N° **623**

d1 mm	inch	S	l1 mm	l2 mm
10,000		MK-1	197,000	116,000
10,200		MK-1	197,000	116,000
10,320	13/32	MK-1	197,000	116,000
10,500		MK-1	197,000	116,000
10,800		MK-1	206,000	125,000
11,000		MK-1	206,000	125,000
11,200		MK-1	206,000	125,000
11,500		MK-1	206,000	125,000
11,510	29/64	MK-1	206,000	125,000
11,800		MK-1	206,000	125,000
12,000		MK-1	215,000	134,000
12,200		MK-1	215,000	134,000
12,400		MK-1	215,000	134,000
12,500		MK-1	215,000	134,000
13,000		MK-1	215,000	134,000
13,490	17/32	MK-1	223,000	142,000
13,500		MK-1	223,000	142,000
13,890	35/64	MK-1	223,000	142,000
14,000		MK-1	223,000	142,000
14,200		MK-2	245,000	147,000
14,290	9/16	MK-2	245,000	147,000
14,500		MK-2	245,000	147,000
14,680	37/64	MK-2	245,000	147,000
15,000		MK-2	245,000	147,000

d1 mm	inch	S	l1 mm	l2 mm
15,500		MK-2	251,000	153,000
16,000		MK-2	251,000	153,000
16,500		MK-2	257,000	159,000
17,000		MK-2	257,000	159,000
17,460	11/16	MK-2	263,000	165,000
17,500		MK-2	263,000	165,000
18,000		MK-2	263,000	165,000
18,500		MK-2	269,000	171,000
19,000		MK-2	269,000	171,000
19,500		MK-2	275,000	177,000
20,000		MK-2	275,000	177,000
20,500		MK-2	282,000	184,000
21,000		MK-2	282,000	184,000
22,000		MK-2	289,000	191,000
22,500		MK-2	296,000	198,000
24,000		MK-3	327,000	206,000
25,000	63/64	MK-3	327,000	206,000
26,000		MK-3	335,000	214,000

Brocas para casquillos

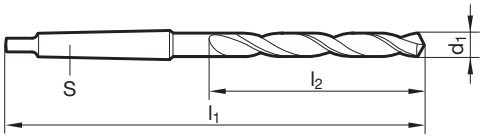
~10xD | WN | N | 118° | h8

Material de corte	HSS
Acabado	
Dirección de corte	R

P	•	vaciado de punta ≥Ø 16,500 • entrada cónica • con cono morse reforzado • para taladrar casquillos
M		
K	•	
N	○	aceros y fundición de aceros (aleados y sin alear) • fundición gris, fundición maleable, fundición esferica • hierro sinterizado, argentón y grafito
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 786



Artículo N° **523**

d1 mm	d1 inch	S	l1 mm	l2 mm
10,000		MK-2	214,000	116,000
11,000		MK-2	223,000	125,000
12,300	31/64	MK-2	232,000	134,000
12,500		MK-2	232,000	134,000
14,000		MK-2	240,000	142,000
21,000		MK-3	305,000	184,000
23,000		MK-3	319,000	198,000
29,000		MK-4	379,000	230,000

Brocas espirales, extra largas, serie 1

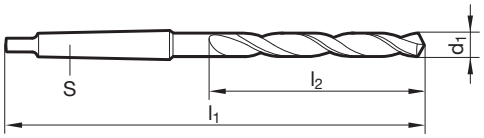
~15xD | DIN 1870 | N | 118° | h8

Material de corte	HSS
Acabado	
Dirección de corte	R

P	•	vaciado de punta ≥Ø 7,800 • entrada cónica • para taladros muy profundos
M		
K	•	
N	○	aceros y fundición de aceros (aleados y sin alear) • fundición gris, fundición maleable, fundición esferica • hierro sinterizado, argentón y grafito
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 788



Artículo N° **266**

d1 mm	inch	S	l1 mm	l2 mm
8,000		MK-1	265,000	165,000
8,500		MK-1	265,000	165,000
9,000		MK-1	275,000	175,000
9,500		MK-1	275,000	175,000
10,000		MK-1	285,000	185,000
10,200		MK-1	285,000	185,000
10,250		MK-1	285,000	185,000
10,500		MK-1	285,000	185,000
11,000		MK-1	300,000	195,000
11,400		MK-1	300,000	195,000
11,500		MK-1	300,000	195,000
11,750		MK-1	300,000	195,000
11,800		MK-1	300,000	195,000
12,000		MK-1	310,000	205,000
12,200		MK-1	310,000	205,000
12,500		MK-1	310,000	205,000
12,700	1/2	MK-1	310,000	205,000
13,000		MK-1	310,000	205,000
13,500		MK-1	325,000	220,000
13,750		MK-1	325,000	220,000
14,000		MK-1	325,000	220,000
14,290	9/16	MK-2	340,000	220,000
14,500		MK-2	340,000	220,000
15,000		MK-2	340,000	220,000
15,250		MK-2	355,000	230,000
15,500		MK-2	355,000	230,000
15,750		MK-2	355,000	230,000
15,800		MK-2	355,000	230,000
16,000		MK-2	355,000	230,000
16,250		MK-2	355,000	230,000
16,500		MK-2	355,000	230,000
16,670	21/32	MK-2	355,000	230,000
17,000		MK-2	355,000	230,000
17,500		MK-2	370,000	245,000
17,750		MK-2	370,000	245,000
18,000		MK-2	370,000	245,000
18,500		MK-2	370,000	245,000
18,650	47/64	MK-2	370,000	245,000
19,000		MK-2	370,000	245,000
19,500		MK-2	385,000	260,000
19,750		MK-2	385,000	260,000
20,000		MK-2	385,000	260,000

d1 mm	inch	S	l1 mm	l2 mm
20,500		MK-2	385,000	260,000
20,640	13/16	MK-2	385,000	260,000
21,000		MK-2	385,000	260,000
21,430	27/32	MK-2	405,000	270,000
21,500		MK-2	405,000	270,000
22,000		MK-2	405,000	270,000
22,500		MK-2	405,000	270,000
23,000		MK-2	405,000	270,000
23,020	29/32	MK-2	405,000	270,000
23,500		MK-3	425,000	270,000
24,000		MK-3	440,000	290,000
24,500		MK-3	440,000	290,000
25,000	63/64	MK-3	440,000	290,000
26,000		MK-3	440,000	290,000
26,500		MK-3	440,000	290,000
27,000		MK-3	460,000	305,000
28,000		MK-3	460,000	305,000
30,000		MK-3	460,000	305,000
30,500		MK-3	480,000	320,000
31,000		MK-3	480,000	320,000
32,000		MK-4	505,000	320,000
33,000		MK-4	505,000	320,000
34,000		MK-4	530,000	340,000
35,000		MK-4	530,000	340,000
36,000		MK-4	530,000	340,000
38,000		MK-4	555,000	360,000
39,000		MK-4	555,000	360,000
40,000		MK-4	555,000	360,000
42,000		MK-4	555,000	360,000
45,000		MK-4	585,000	385,000
45,240	1 25/32	MK-4	585,000	385,000
48,000		MK-4	605,000	405,000
50,000		MK-4	605,000	405,000

Brocas espirales, extra largas, serie 1

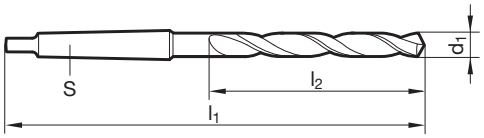
~15xD | DIN 1870 | GT 100 | 130° | h8

Material de corte	HSS
Acabado	>Ø 16,0
Dirección de corte	R

P	•	vaciado de punta ≥Ø 5,800 • entrada cónica • ranuras amplias • para taladros muy profundos • con desalojo de viruta difícil
M		
K	•	
N	•	fundición gris y aceros hasta máx. 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 790



Artículo N° **526**

d1 mm	d1 inch	S	l1 mm	l2 mm
8,000		MK-1	265,000	165,000
8,500		MK-1	265,000	165,000
8,600		MK-1	275,000	175,000
8,700		MK-1	275,000	175,000
9,000		MK-1	275,000	175,000
9,500		MK-1	275,000	175,000
9,520	3/8	MK-1	285,000	185,000
9,800		MK-1	285,000	185,000
10,000		MK-1	285,000	185,000
10,200		MK-1	285,000	185,000
10,500		MK-1	285,000	185,000
10,720	27/64	MK-1	300,000	195,000
11,000		MK-1	300,000	195,000
11,110	7/16	MK-1	300,000	195,000
11,500		MK-1	300,000	195,000
11,510	29/64	MK-1	300,000	195,000
11,750		MK-1	300,000	195,000
12,000		MK-1	310,000	205,000
12,500		MK-1	310,000	205,000
12,700	1/2	MK-1	310,000	205,000
12,800		MK-1	310,000	205,000
13,000		MK-1	310,000	205,000
13,490	17/32	MK-1	325,000	220,000
13,500		MK-1	325,000	220,000
14,000		MK-1	325,000	220,000
14,200		MK-2	340,000	220,000
14,290	9/16	MK-2	340,000	220,000
14,500		MK-2	340,000	220,000
15,000		MK-2	340,000	220,000
15,500		MK-2	355,000	230,000

d1 mm	d1 inch	S	l1 mm	l2 mm
15,870	5/8	MK-2	355,000	230,000
16,000		MK-2	355,000	230,000
16,500		MK-2	355,000	230,000
17,000		MK-2	355,000	230,000
17,460	11/16	MK-2	370,000	245,000
17,500		MK-2	370,000	245,000
18,000		MK-2	370,000	245,000
18,500		MK-2	370,000	245,000
19,000		MK-2	370,000	245,000
19,500		MK-2	385,000	260,000
20,000		MK-2	385,000	260,000
20,500		MK-2	385,000	260,000
21,000		MK-2	385,000	260,000
21,500		MK-2	405,000	270,000
22,000		MK-2	405,000	270,000
23,000		MK-2	405,000	270,000
24,000		MK-3	440,000	290,000
25,000	63/64	MK-3	440,000	290,000
26,000		MK-3	440,000	290,000
26,500		MK-3	440,000	290,000
28,000		MK-3	460,000	305,000
28,500		MK-3	460,000	305,000
29,000		MK-3	460,000	305,000
30,000		MK-3	460,000	305,000

Brocas espirales, extra largas, serie 1

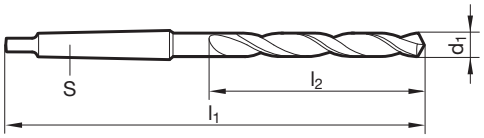
~15xD | DIN 1870 | GT 50 | 130° | h8

Material de corte	HSS
Acabado	○
Dirección de corte	R

P	○	vaciado de punta ≥Ø 7,900 • entrada cónica • para taladros muy profundos • para mat. blandos y de viruta larga
M		
K		
N	•	mat. blandos y de viruta larga de hasta a 500 N/mm² • aceros blandos para automáticos • aluminio, alea. de alum. (de vir. larga) • zink, cobre fino, siluminio, electrón • zamak, argalio plásticos (blandos) y madera
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 788



Artículo N° **525**

d1 mm	d1 inch	S	l1 mm	l2 mm
8,500		MK-1	265,000	165,000
8,700		MK-1	275,000	175,000
9,000		MK-1	275,000	175,000
9,500		MK-1	275,000	175,000
10,000		MK-1	285,000	185,000
10,500		MK-1	285,000	185,000
11,000		MK-1	300,000	195,000
12,000		MK-1	310,000	205,000
12,500		MK-1	310,000	205,000
13,000		MK-1	310,000	205,000
13,500		MK-1	325,000	220,000
14,000		MK-1	325,000	220,000
15,000		MK-2	340,000	220,000
15,500		MK-2	355,000	230,000
16,000		MK-2	355,000	230,000
18,000		MK-2	370,000	245,000
19,500		MK-2	385,000	260,000
21,000		MK-2	385,000	260,000

d1 mm	d1 inch	S	l1 mm	l2 mm
23,000		MK-2	405,000	270,000
24,000		MK-3	440,000	290,000
24,300		MK-3	440,000	290,000
24,380		MK-3	440,000	290,000
24,500		MK-3	440,000	290,000
25,500		MK-3	440,000	290,000
26,500		MK-3	440,000	290,000
27,500		MK-3	460,000	305,000
28,000		MK-3	460,000	305,000
29,000		MK-3	460,000	305,000
31,000		MK-3	480,000	320,000
33,000		MK-4	505,000	320,000

Brocas espirales, extra largas, serie 1

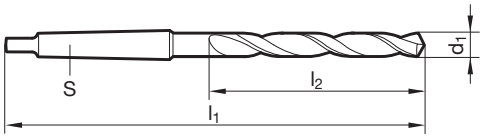
~15xD | DIN 1870 | GT 100 | 130° | h8

Material de corte	HSCO
Acabado	>Ø 16,0
Dirección de corte	R

P	•	vaciado de punta ≥Ø 9,520 • entrada cónica • acero rápido al cobalto • ranuras amplias • más resistencia al desgaste • para taladros muy profundos • con desalojo de viruta difícil
M	•	
K	•	
N	•	aceros y fundición de acero de gran dureza • fundición gris, fundición maleable, fundición esferica
S	•	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 794



Artículo N° **620**

d1 mm	d1 inch	S	l1 mm	l2 mm
9,520	3/8	MK-1	285,000	185,000
10,000		MK-1	285,000	185,000
10,200		MK-1	285,000	185,000
10,320	13/32	MK-1	285,000	185,000
10,500		MK-1	285,000	185,000
11,000		MK-1	300,000	195,000
11,110	7/16	MK-1	300,000	195,000
11,500		MK-1	300,000	195,000
11,510	29/64	MK-1	300,000	195,000
12,000		MK-1	310,000	205,000
12,300	31/64	MK-1	310,000	205,000
12,500		MK-1	310,000	205,000
12,700	1/2	MK-1	310,000	205,000
13,000		MK-1	310,000	205,000
13,500		MK-1	325,000	220,000
14,000		MK-1	325,000	220,000
14,290	9/16	MK-2	340,000	220,000
14,500		MK-2	340,000	220,000
15,000		MK-2	340,000	220,000
15,080	19/32	MK-2	355,000	230,000
15,500		MK-2	355,000	230,000
16,000		MK-2	355,000	230,000
16,500		MK-2	355,000	230,000
17,000		MK-2	355,000	230,000

d1 mm	d1 inch	S	l1 mm	l2 mm
17,500		MK-2	370,000	245,000
18,000		MK-2	370,000	245,000
18,500		MK-2	370,000	245,000
19,000		MK-2	370,000	245,000
20,000		MK-2	385,000	260,000
21,000		MK-2	385,000	260,000
21,830		MK-2	405,000	270,000
22,000		MK-2	405,000	270,000
22,620		MK-2	405,000	270,000
23,000		MK-2	405,000	270,000
25,500		MK-3	440,000	290,000
26,000		MK-3	440,000	290,000
27,180		MK-3	460,000	305,000
29,370	1 5/32	MK-3	460,000	305,000
30,000		MK-3	460,000	305,000

Brocas espirales, extra largas, serie 2

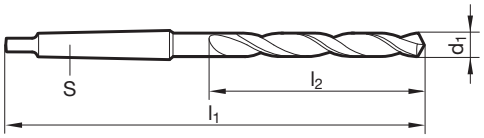
~20xD | DIN 1870 | N | 118° | h8

Material de corte	HSS
Acabado	
Dirección de corte	R

P	•	vaciado de punta ≥Ø 7,700 • entrada cónica • para taladros muy profundos
M		
K	•	
N	○	aceros y fundición de aceros (aleados y sin alear) • fundición gris, fundición maleable, fundición esferica • hierro sinterizado, argentón y grafito
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 788



Artículo N° **267**

d1 mm	inch	S	l1 mm	l2 mm
8,000		MK-1	330,000	210,000
8,500		MK-1	330,000	210,000
9,000		MK-1	345,000	220,000
10,000		MK-1	360,000	235,000
10,200		MK-1	360,000	235,000
10,500		MK-1	360,000	235,000
11,000		MK-1	375,000	250,000
11,500		MK-1	375,000	250,000
11,750		MK-1	375,000	250,000
11,800		MK-1	375,000	250,000
12,000		MK-1	395,000	260,000
13,000		MK-1	395,000	260,000
13,490	17/32	MK-1	410,000	275,000
13,500		MK-1	410,000	275,000
14,000		MK-1	410,000	275,000
14,500		MK-2	425,000	275,000
15,000		MK-2	425,000	275,000
15,480	39/64	MK-2	445,000	295,000
15,500		MK-2	445,000	295,000
16,000		MK-2	445,000	295,000
16,500		MK-2	445,000	295,000
17,000		MK-2	445,000	295,000
17,070	43/64	MK-2	465,000	310,000
17,500		MK-2	465,000	310,000
18,000		MK-2	465,000	310,000
18,500		MK-2	465,000	310,000
19,000		MK-2	465,000	310,000
19,050	3/4	MK-2	490,000	325,000
19,500		MK-2	490,000	325,000
20,000		MK-2	490,000	325,000

d1 mm	inch	S	l1 mm	l2 mm
20,640	13/16	MK-2	490,000	325,000
21,000		MK-2	490,000	325,000
21,430	27/32	MK-2	515,000	345,000
21,500		MK-2	515,000	345,000
21,830	55/64	MK-2	515,000	345,000
22,000		MK-2	515,000	345,000
22,800		MK-2	515,000	345,000
23,000		MK-2	515,000	345,000
23,020	29/32	MK-2	515,000	345,000
23,750		MK-3	555,000	365,000
23,810	15/16	MK-3	555,000	365,000
24,000		MK-3	555,000	365,000
24,500		MK-3	555,000	365,000
25,000	63/64	MK-3	555,000	365,000
26,000		MK-3	555,000	365,000
28,000		MK-3	580,000	385,000
29,500		MK-3	580,000	385,000
30,000		MK-3	580,000	385,000
31,000		MK-3	610,000	410,000
32,000		MK-4	635,000	410,000
34,000		MK-4	665,000	430,000
40,000		MK-4	695,000	460,000
45,000		MK-4	735,000	490,000

Brocas espirales, extra largas, serie 2

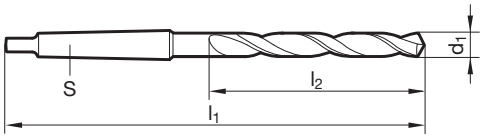
~20xD | DIN 1870 | GT 100 | 130° | h8

Material de corte	HSS
Acabado	>Ø 16,0
Dirección de corte	R

P	•	vaciado de punta ≥Ø 7,800 • entrada cónica • ranuras amplias • con desalojo de viruta difícil • para taladros muy profundos
M		
K	•	
N	•	fundición gris y aceros hasta máx. 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 790



Artículo N° **527**

d1 mm	d1 inch	S	l1 mm	l2 mm
8,000		MK-1	330,000	210,000
8,400		MK-1	330,000	210,000
8,500		MK-1	330,000	210,000
9,000		MK-1	345,000	220,000
9,500		MK-1	345,000	220,000
10,000		MK-1	360,000	235,000
10,500		MK-1	360,000	235,000
11,000		MK-1	375,000	250,000
11,110	7/16	MK-1	375,000	250,000
11,500		MK-1	375,000	250,000
11,510	29/64	MK-1	375,000	250,000
11,800		MK-1	375,000	250,000
11,910	15/32	MK-1	395,000	260,000
12,000		MK-1	395,000	260,000
12,500		MK-1	395,000	260,000
12,700	1/2	MK-1	395,000	260,000
13,000		MK-1	395,000	260,000
13,500		MK-1	410,000	275,000
13,700		MK-1	410,000	275,000
13,800		MK-1	410,000	275,000
13,890	35/64	MK-1	410,000	275,000
14,000		MK-1	410,000	275,000
14,290	9/16	MK-2	425,000	275,000
14,500		MK-2	425,000	275,000
15,000		MK-2	425,000	275,000
15,500		MK-2	445,000	295,000
16,000		MK-2	445,000	295,000
16,500		MK-2	445,000	295,000
17,000		MK-2	445,000	295,000
17,070	43/64	MK-2	465,000	310,000

d1 mm	d1 inch	S	l1 mm	l2 mm
17,500		MK-2	465,000	310,000
17,800		MK-2	465,000	310,000
18,000		MK-2	465,000	310,000
18,500		MK-2	465,000	310,000
19,000		MK-2	465,000	310,000
19,450	49/64	MK-2	490,000	325,000
19,500		MK-2	490,000	325,000
20,000		MK-2	490,000	325,000
20,500		MK-2	490,000	325,000
21,000		MK-2	490,000	325,000
21,030	53/64	MK-2	490,000	325,000
21,430	27/32	MK-2	515,000	345,000
22,000		MK-2	515,000	345,000
23,000		MK-2	515,000	345,000
23,020	29/32	MK-2	515,000	345,000
23,810	15/16	MK-3	555,000	365,000
24,000		MK-3	555,000	365,000
24,210	61/64	MK-3	555,000	365,000
25,000	63/64	MK-3	555,000	365,000
26,000		MK-3	555,000	365,000
26,190	1 1/32	MK-3	555,000	365,000
26,500		MK-3	555,000	365,000
27,000		MK-3	580,000	385,000
28,000		MK-3	580,000	385,000
28,750		MK-3	580,000	385,000
29,000		MK-3	580,000	385,000
29,500		MK-3	580,000	385,000
30,000		MK-3	580,000	385,000

Brocas espirales, extra largas, serie 2

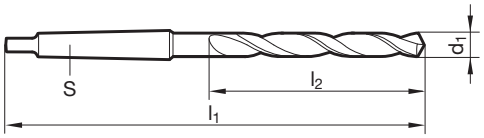
~20xD | DIN 1870 | GT 50 | 130° | h8

Material de corte	HSS
Acabado	○
Dirección de corte	Ⓡ

P	○	vaciado de punta ≥Ø 8,000 • entrada cónica • para taladros muy profundos
M		
K		
N	•	mat. blandos y de viruta larga de hasta a 500 N/mm² • aceros blandos para automáticos • aluminio, alea. de alum. (de vir. larga) • zink, cobre fino, siluminio, electrón • zamak, argalio plásticos (blandos) y madera
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 788



Artículo N° **542**

d1 mm	d1 inch	S	l1 mm	l2 mm
8,500		MK-1	330,000	210,000
8,600		MK-1	345,000	220,000
8,800		MK-1	345,000	220,000
9,000		MK-1	345,000	220,000
9,500		MK-1	345,000	220,000
10,500		MK-1	360,000	235,000
10,700		MK-1	375,000	250,000
11,000		MK-1	375,000	250,000
11,500		MK-1	375,000	250,000
12,000		MK-1	395,000	260,000
12,500		MK-1	395,000	260,000
13,000		MK-1	395,000	260,000
13,500		MK-1	410,000	275,000
14,500		MK-2	425,000	275,000
15,000		MK-2	425,000	275,000
17,000		MK-2	445,000	295,000
17,500		MK-2	465,000	310,000
20,500		MK-2	490,000	325,000

d1 mm	d1 inch	S	l1 mm	l2 mm
21,000		MK-2	490,000	325,000
21,500		MK-2	515,000	345,000
22,000		MK-2	515,000	345,000
23,000		MK-2	515,000	345,000
24,000		MK-3	555,000	365,000
24,500		MK-3	555,000	365,000
25,500		MK-3	555,000	365,000
26,000		MK-3	555,000	365,000
26,500		MK-3	555,000	365,000
27,500		MK-3	580,000	385,000
28,000		MK-3	580,000	385,000
29,000		MK-3	580,000	385,000
29,500		MK-3	580,000	385,000
30,000		MK-3	580,000	385,000
31,000		MK-3	610,000	410,000

Brocas espirales, extra largas, serie 2

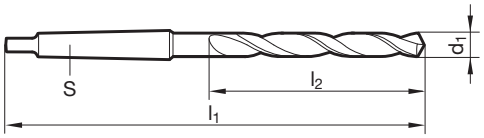
~20xD | DIN 1870 | GT 100 | 130° | h8

Material de corte	HSCO
Acabado	>Ø 16,0
Dirección de corte	R

P	•	vaciado de punta ≥Ø 9,520 • entrada cónica • acero rápido al cobalto • ranuras amplias • resistencia más alta al desgaste
M	•	• con desalojo de viruta difícil
K	•	• para taladros muy profundos
N	•	aceros y fundición de acero de gran dureza • fundición gris, fundición maleable, fundición esferica
S	•	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 794



Artículo N° **621**

d1 mm	d1 inch	S	l1 mm	l2 mm
9,520	3/8	MK-1	360,000	235,000
10,000		MK-1	360,000	235,000
10,500		MK-1	360,000	235,000
10,720	27/64	MK-1	375,000	250,000
11,000		MK-1	375,000	250,000
11,500		MK-1	375,000	250,000
11,510	29/64	MK-1	375,000	250,000
12,000		MK-1	395,000	260,000
12,500		MK-1	395,000	260,000
12,700	1/2	MK-1	395,000	260,000
13,000		MK-1	395,000	260,000
13,500		MK-1	410,000	275,000

d1 mm	d1 inch	S	l1 mm	l2 mm
14,000		MK-1	410,000	275,000
14,500		MK-2	425,000	275,000
15,000		MK-2	425,000	275,000
16,000		MK-2	445,000	295,000
16,270		MK-2	445,000	295,000
18,000		MK-2	465,000	310,000
18,500		MK-2	465,000	310,000
19,000		MK-2	465,000	310,000
20,000		MK-2	490,000	325,000
21,430	27/32	MK-2	515,000	345,000
23,420	59/64	MK-3	535,000	345,000

Brocas espirales, largo especial

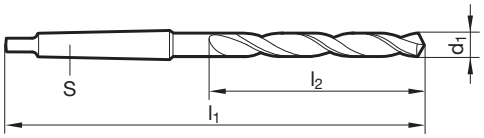
>20xD | WN | GT 100 | 130° | h8

Material de corte	HSS
Acabado	
Dirección de corte	R

P	•	vaciado de punta ≥Ø 6,000 • entrada cónica • ranuras amplias • con desalojo de viruta difícil • para taladros muy profundos
M		
K	•	
N	•	fundición gris y aceros hasta máx. 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 790



Artículo N° **563**

d1		S	l1	l2
mm	inch		mm	mm
6,000		MK-1	200,000	120,000
6,500		MK-1	200,000	120,000
7,000		MK-1	200,000	120,000
7,500		MK-1	200,000	120,000

d1		S	l1	l2
mm	inch		mm	mm

Brocas espirales, largo especial

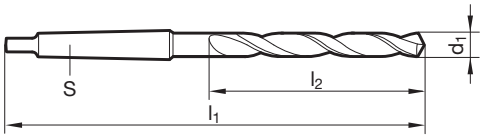
>20xD | WN | GT 100 | 130° | h8

Material de corte	HSS
Acabado	
Dirección de corte	R

P	•	vaciado de punta ≥Ø 6,000 • entrada cónica • ranuras amplias • con desalojo de viruta difícil • para taladros muy profundos
M		
K	•	
N	•	fundición gris y aceros hasta máx. 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 790



Artículo N° **564**

d1		S	l1	l2
mm	inch		mm	mm
6,000		MK-1	300,000	220,000
6,500		MK-1	300,000	220,000
7,000		MK-1	300,000	220,000
8,000		MK-1	350,000	270,000
8,500		MK-1	350,000	270,000
9,000		MK-1	350,000	270,000

d1		S	l1	l2
mm	inch		mm	mm
10,000		MK-1	350,000	270,000

Brocas espirales, largo especial

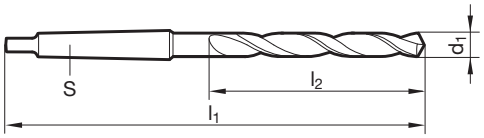
>20xD | WN | GT 100 | 130° | h8

Material de corte	HSS
Acabado	>Ø 16,0
Dirección de corte	R

P	•	vaciado de punta ≥Ø 6,000 • entrada cónica • ranuras amplias • con desalojo de viruta difícil • para taladros muy profundos
M		
K	•	
N	•	fundición gris y aceros hasta máx. 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 790



Artículo N° **565**

d1		S	l1	l2
mm	inch		mm	mm
6,000		MK-1	425,000	345,000
6,500		MK-1	425,000	345,000
7,000		MK-1	425,000	345,000
7,500		MK-1	425,000	345,000
8,000		MK-1	425,000	345,000
8,500		MK-1	425,000	345,000
9,000		MK-1	425,000	345,000
10,000		MK-1	425,000	345,000
11,000		MK-1	425,000	345,000
12,000		MK-1	425,000	345,000
13,000		MK-1	425,000	345,000
14,000		MK-1	425,000	345,000

d1		S	l1	l2
mm	inch		mm	mm
15,000		MK-2	425,000	325,000
16,000		MK-2	425,000	325,000
17,000		MK-2	425,000	325,000

Brocas espirales, largo especial

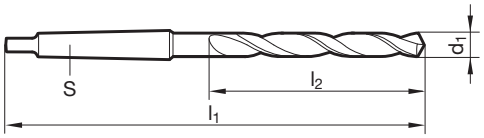
>20xD | WN | GT 100 | 130° | h8

Material de corte	HSS
Acabado	>Ø 16,0
Dirección de corte	R

P	•	vaciado de punta ≥Ø 8,000 • entrada cónica • ranuras amplias • con desalojo de viruta difícil • para taladros muy profundos
M		
K	•	
N	•	fundición gris y aceros hasta máx. 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 790



Artículo N° **566**

d1		S	l1	l2
mm	inch		mm	mm
8,000		MK-1	500,000	420,000
8,500		MK-1	500,000	420,000
9,000		MK-1	500,000	420,000
9,500		MK-1	500,000	420,000
10,000		MK-1	500,000	420,000
11,000		MK-1	500,000	420,000
12,000		MK-1	500,000	420,000
13,000		MK-1	500,000	420,000
14,000		MK-1	500,000	420,000
15,000		MK-2	500,000	400,000
16,000		MK-2	500,000	400,000
17,000		MK-2	500,000	400,000

d1		S	l1	l2
mm	inch		mm	mm
18,000		MK-2	500,000	400,000
19,000		MK-2	500,000	400,000
20,000		MK-2	500,000	400,000
21,000		MK-2	500,000	400,000
22,000		MK-2	500,000	400,000
35,000		MK-4	500,000	350,000
40,000		MK-4	500,000	350,000

Brocas espirales, largo especial

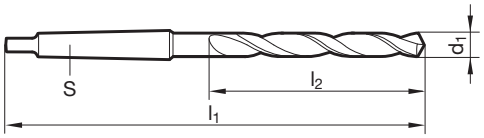
>20xD | WN | GT 100 | 130° | h8

Material de corte	HSS
Acabado	>Ø 16,0
Dirección de corte	R

P	•	vaciado de punta ≥Ø 14,000 • entrada cónica • ranuras amplias • con desalojo de viruta difícil • para taladros muy profundos
M		
K	•	
N	•	fundición gris y aceros hasta máx. 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 790



Artículo N° **293**

d1 mm	d1 inch	S	l1 mm	l2 mm
14,000		MK-1	600,000	500,000
15,000		MK-2	600,000	500,000
16,000		MK-2	600,000	500,000
17,000		MK-2	600,000	500,000
18,000		MK-2	600,000	500,000
19,000		MK-2	600,000	500,000
20,000		MK-2	600,000	500,000
21,000		MK-2	600,000	500,000
22,000		MK-2	600,000	500,000
23,000		MK-2	600,000	500,000
24,000		MK-3	600,000	475,000
25,000	63/64	MK-3	600,000	475,000

d1 mm	d1 inch	S	l1 mm	l2 mm
26,000		MK-3	600,000	475,000
28,000		MK-3	600,000	475,000
30,000		MK-3	600,000	475,000
32,000		MK-4	600,000	450,000
35,000		MK-4	600,000	450,000
38,000		MK-4	600,000	450,000
40,000		MK-4	600,000	450,000

Brocas espirales, largo especial

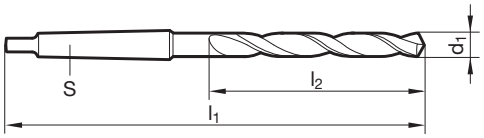
>20xD | WN | GT 100 | 130° | h8

Material de corte	HSS
Acabado	◯
Dirección de corte	R

P	•	vaciado de punta ≥Ø 14,000 • entrada cónica • ranuras amplias • con desalojo de viruta difícil • para taladros muy profundos
M		
K	•	
N	•	fundición gris y aceros hasta máx. 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 790



Artículo N° **298**

d1		S	l1	l2
mm	inch		mm	mm
14,000		MK-1	750,000	650,000
15,000		MK-2	750,000	650,000
16,000		MK-2	750,000	650,000
18,000		MK-2	750,000	650,000

d1		S	l1	l2
mm	inch		mm	mm

Brocas espirales, largo especial

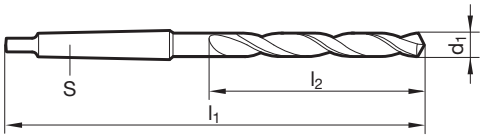
>20xD | WN | GT 100 | 130° | h8

Material de corte	HSS
Acabado	○
Dirección de corte	R

P	•	vaciado de punta ≥Ø 14,000 • entrada cónica • ranuras amplias • con desalojo de viruta difícil • para taladros muy profundos
M		
K	•	
N	•	fundición gris y aceros hasta máx. 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 790



Artículo N° **299**

d1		S	l1	l2
mm	inch		mm	mm
14,000		MK-1	1000,000	850,000
15,000		MK-2	1000,000	850,000
16,000		MK-2	1000,000	850,000
18,000		MK-2	1000,000	850,000

d1		S	l1	l2
mm	inch		mm	mm

Brocas con canal de refrigeración, corte

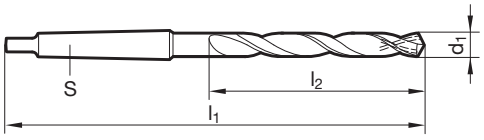
~7xD | WN | N | 118° | h8

Material de corte	HSS
Acabado	●
Dirección de corte	R

P	•	vaciado de punta ≥Ø 9,520 • entrada cónica • para taladrar casquillos • transmisión radial por mediación de aros de refrigeración Gühring
M	○	
K	•	
N	•	paquetes de chapas • aceros y fundición de aceros, fundición gris • aceros austeníticos hasta aprox. 800 N/mm²
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 788



Artículo N° **269**

d1 mm	d1 inch	S	l1 mm	l2 mm
9,920	25/64	MK-1	197,000	101,000
10,320	13/32	MK-1	197,000	101,000
10,500		MK-1	197,000	101,000
11,000		MK-1	206,000	110,000
11,110	7/16	MK-1	206,000	110,000
11,500		MK-1	206,000	110,000
12,500		MK-1	215,000	119,000
12,700	1/2	MK-1	215,000	119,000
12,800		MK-1	215,000	119,000
13,000		MK-1	215,000	119,000
13,200		MK-1	215,000	119,000
13,490	17/32	MK-1	223,000	127,000
13,500		MK-1	223,000	127,000
13,800		MK-1	223,000	127,000
14,000		MK-1	223,000	127,000
14,250		MK-2	245,000	133,000
14,290	9/16	MK-2	245,000	133,000
14,500		MK-2	245,000	133,000
15,000		MK-2	245,000	133,000
15,080	19/32	MK-2	251,000	139,000
15,150		MK-2	251,000	139,000
15,180		MK-2	251,000	139,000
15,250		MK-2	251,000	139,000
15,870	5/8	MK-2	251,000	139,000
16,000		MK-2	251,000	139,000
16,500		MK-2	257,000	145,000
16,670	21/32	MK-2	257,000	145,000
16,750		MK-2	257,000	145,000
17,000		MK-2	257,000	145,000
17,100		MK-2	263,000	151,000

d1 mm	d1 inch	S	l1 mm	l2 mm
17,460	11/16	MK-2	263,000	151,000
17,500		MK-2	263,000	151,000
17,750		MK-2	263,000	151,000
18,000		MK-2	263,000	151,000
18,260	23/32	MK-2	269,000	157,000
18,500		MK-2	269,000	157,000
19,000		MK-2	269,000	157,000
19,050	3/4	MK-2	275,000	163,000
19,200		MK-2	275,000	163,000
19,250		MK-2	275,000	163,000
19,500		MK-2	275,000	163,000
19,750		MK-2	275,000	163,000
19,840	25/32	MK-2	275,000	163,000
20,250		MK-2	282,000	170,000
20,640	13/16	MK-2	282,000	170,000
20,750		MK-2	282,000	170,000
21,000		MK-2	282,000	170,000
21,430	27/32	MK-2	289,000	177,000
21,500		MK-2	289,000	177,000
22,220	7/8	MK-2	289,000	177,000
23,020	29/32	MK-2	296,000	184,000

Brocas con canal de refrig., long. ranuras norma de fab.

WN | N | 118° | h8

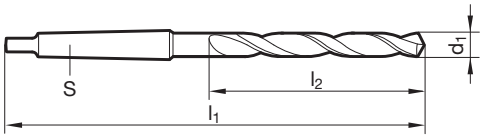
Material de corte	HSS
Acabado	●
Dirección de corte	R

NEW

P	•	vaciado de punta ≥Ø 8,000 • entrada cónica • refrigeración axial y radial por el cono morse (similar DIN 228 forma BK) • abrir y cerrar la refrigeración requerida posible con punzón suministrado en envío
M	○	
K	•	
N	•	optimizada para el mecanizado de bigas de acero en máquinas de serrar y taladrar • paquetes de chapas • aceros y fundición de aceros, fundición gris • aceros austeníticos hasta aprox. 800 N/mm²
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 788



Artículo N° **254**

d1 mm	inch	S	l1 mm	l2 mm
8,000		MK-2	268,000	116,000
9,000		MK-2	268,000	116,000
10,000		MK-3	268,000	116,000
10,500		MK-3	268,000	116,000
11,000		MK-3	278,000	125,000
12,000		MK-3	287,000	134,000
13,000		MK-3	287,000	134,000
13,500		MK-3	285,000	142,000
14,000		MK-3	285,000	142,000
15,000		MK-3	300,000	147,000
16,000		MK-3	306,000	153,000
17,000		MK-3	311,000	159,000
17,500		MK-3	318,000	165,000
18,000		MK-3	318,000	165,000
19,000		MK-3	324,000	171,000
20,000		MK-3	330,000	177,000
21,000		MK-3	343,000	184,000
22,000		MK-3	350,000	191,000
23,000		MK-3	357,000	198,000
24,000		MK-3	365,000	206,000
25,000	63/64	MK-3	365,000	206,000
26,000		MK-3	373,000	214,000
27,000		MK-4	407,000	222,000
28,000		MK-4	407,000	222,000

d1 mm	inch	S	l1 mm	l2 mm
29,000		MK-4	410,000	225,000
30,000		MK-4	410,000	225,000
31,000		MK-4	410,000	225,000
32,000		MK-4	410,000	225,000
33,000		MK-4	410,000	225,000
34,000		MK-4	410,000	225,000
35,000		MK-4	410,000	225,000
36,000		MK-4	410,000	225,000
37,000		MK-4	410,000	225,000
38,000		MK-4	410,000	225,000
39,000		MK-4	410,000	225,000
40,000		MK-4	410,000	225,000
41,000		MK-4	410,000	225,000
42,000		MK-4	410,000	225,000
43,000		MK-4	410,000	225,000
44,000		MK-4	410,000	225,000
45,000		MK-4	410,000	225,000
46,000		MK-4	410,000	225,000
47,000		MK-4	410,000	225,000
48,000		MK-4	410,000	225,000
49,000		MK-4	410,000	225,000
50,000		MK-4	410,000	225,000

Brocas con canal de refrig., long. ranuras norma de fab.

WN | N | 170° | h8

Material de corte	HSS
Acabado	●
Dirección de corte	R

NEW

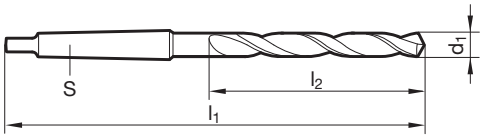
P	•
M	○
K	•
N	•
S	
H	

vaciado de punta ≥Ø 8,000 • entrada cónica • afilado de la punta especial con 170° y 90° en la punta de centrar • muy buen auto-centrado • refrigeración axial y radial por el cono morse (similar DIN 228 forma BK) • abrir y cerrar la refrigeración requerida posible con punzón suministrado en envío

optimizada para el mecanizado de bigas de acero en máquinas de serrar y taladrar • aceros y fundición de aceros, fundición gris • aceros austeníticos hasta aprox. 800 N/mm²

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 788



Artículo N° **255**

d1 mm	inch	S	l1 mm	l2 mm
8,000		MK-2	268,000	116,000
9,000		MK-2	268,000	116,000
10,000		MK-3	268,000	116,000
10,500		MK-3	268,000	116,000
11,000		MK-3	278,000	125,000
12,000		MK-3	287,000	134,000
13,000		MK-3	287,000	134,000
13,500		MK-3	285,000	142,000
14,000		MK-3	285,000	142,000
15,000		MK-3	300,000	147,000
16,000		MK-3	306,000	153,000
17,000		MK-3	311,000	159,000
17,500		MK-3	318,000	165,000
18,000		MK-3	318,000	165,000
19,000		MK-3	324,000	171,000
20,000		MK-3	330,000	177,000
21,000		MK-3	343,000	184,000
22,000		MK-3	350,000	191,000
23,000		MK-3	357,000	198,000
24,000		MK-3	365,000	206,000
25,000	63/64	MK-3	365,000	206,000
26,000		MK-3	373,000	214,000
27,000		MK-4	375,000	193,000
28,000		MK-4	375,000	193,000

d1 mm	inch	S	l1 mm	l2 mm
29,000		MK-4	375,000	193,000
30,000		MK-4	375,000	193,000
31,000		MK-4	375,000	193,000
32,000		MK-4	375,000	193,000
33,000		MK-4	375,000	193,000
34,000		MK-4	375,000	193,000
35,000		MK-4	375,000	193,000
36,000		MK-4	375,000	193,000
37,000		MK-4	375,000	193,000
38,000		MK-4	375,000	193,000
39,000		MK-4	375,000	193,000
40,000		MK-4	375,000	193,000
41,000		MK-4	375,000	193,000
42,000		MK-4	375,000	193,000

Brocas con canal de refrig., long. ranuras DIN 341

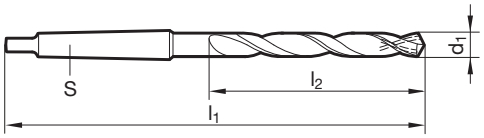
~10xD | WN | N | 118° | h8

Material de corte	HSS
Acabado	
Dirección de corte	R

P	•	vaciado de punta ≥Ø 10,000 • entrada cónica • Para taladrar con casquillos, refrigeración según DIN 228 Bk.
M	○	
K	•	
N	•	paquetes de chapas • aceros y fundición de aceros, fundición gris • aceros austeníticos hasta aprox. 800 N/mm²
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 788



Artículo N° **1101**

d1 mm	inch	S	l1 mm	l2 mm
10,000		MK-2	223,000	116,000
10,500		MK-2	223,000	116,000
11,000		MK-2	232,000	125,000
11,500		MK-2	232,000	125,000
12,000		MK-2	241,000	134,000
12,500		MK-2	241,000	134,000
13,000		MK-2	241,000	134,000
13,500		MK-2	249,000	142,000
14,000		MK-2	249,000	142,000
14,750		MK-2	254,000	147,000
15,000		MK-2	254,000	147,000
16,000		MK-2	260,000	153,000
16,250		MK-2	266,000	159,000
17,000		MK-2	266,000	159,000
17,500		MK-2	272,000	165,000
18,000		MK-2	272,000	165,000
19,000		MK-2	278,000	171,000
20,000		MK-2	284,000	177,000

d1 mm	inch	S	l1 mm	l2 mm
21,000		MK-2	291,000	184,000
22,000		MK-2	298,000	191,000
24,000		MK-3	332,000	206,000
25,000	63/64	MK-3	332,000	206,000
26,000		MK-3	340,000	214,000
28,000		MK-3	348,000	222,000
29,000		MK-3	356,000	230,000
30,000		MK-3	356,000	230,000
32,000		MK-4	409,000	248,000

Brocas con canal de refrig., long. ranuras DIN 341

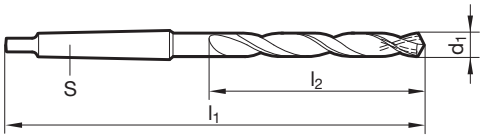
~10xD | WN | N | 118° | h8

Material de corte	HSS
Acabado	●
Dirección de corte	R

P	●	vaciado de punta ≥Ø 10,000 • entrada cónica • para taladrar casquillos • transmisión de refrigerante axial por el cono morse
M	○	
K	●	
N	●	paquetes de chapas • aceros y fundición de aceros, fundición gris • aceros austeníticos hasta aprox. 800 N/mm²
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 788



Artículo N° **270**

d1 mm	inch	S	l1 mm	l2 mm
10,000		MK-2	233,000	116,000
11,000		MK-2	242,000	125,000
12,000		MK-2	251,000	134,000
13,000		MK-2	251,000	134,000
13,200		MK-2	251,000	134,000
13,500		MK-2	259,000	142,000
14,000		MK-2	259,000	142,000
14,290	9/16	MK-2	264,000	147,000
15,000		MK-2	264,000	147,000
15,500		MK-2	270,000	153,000
16,000		MK-2	270,000	153,000
16,500		MK-2	276,000	159,000
17,000		MK-2	276,000	159,000
17,460	11/16	MK-2	282,000	165,000
17,500		MK-2	282,000	165,000
18,000		MK-2	282,000	165,000
18,500		MK-3	307,000	171,000
19,000		MK-3	307,000	171,000
19,500		MK-3	313,000	177,000
20,000		MK-3	313,000	177,000
20,500		MK-3	320,000	184,000
21,000		MK-3	320,000	184,000
22,000		MK-3	327,000	191,000
23,000		MK-3	334,000	198,000

d1 mm	inch	S	l1 mm	l2 mm
23,020	29/32	MK-3	334,000	198,000
24,000		MK-3	342,000	206,000
25,000	63/64	MK-3	342,000	206,000
26,000		MK-3	350,000	214,000
26,500		MK-3	350,000	214,000
27,000		MK-4	385,000	222,000
28,000		MK-4	385,000	222,000
29,000		MK-4	393,000	230,000
29,500		MK-4	393,000	230,000
30,000		MK-4	393,000	230,000
32,000		MK-4	421,000	248,000
33,000		MK-4	421,000	248,000
34,000		MK-4	430,000	257,000
35,000		MK-4	430,000	257,000
40,000		MK-4	450,000	277,000

Brocas con canal de refrig., long. ranuras DIN 341

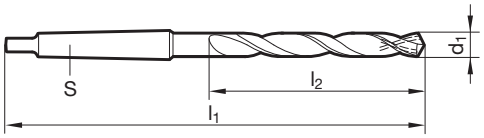
~10xD | WN | N | 118° | h8

Material de corte	HSS
Acabado	●
Dirección de corte	R

P	•	vaciado de punta ≥Ø 10,000 • entrada cónica • para taladrar casquillos • transmisión radial por mediación de aros de refrigeración Gühring
M	○	
K	•	
N	•	paquetes de chapas • aceros y fundición de aceros, fundición gris • aceros austeníticos hasta aprox. 800 N/mm²
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 788



Artículo N° **271**

d1 mm	d1 inch	S	l1 mm	l2 mm
10,000		MK-2	233,000	116,000
10,500		MK-2	233,000	116,000
10,720	27/64	MK-2	242,000	125,000
11,000		MK-2	242,000	125,000
11,510	29/64	MK-2	242,000	125,000
11,910	15/32	MK-2	251,000	134,000
12,300	31/64	MK-2	251,000	134,000
13,000		MK-2	251,000	134,000
13,800		MK-2	259,000	142,000
14,000		MK-2	259,000	142,000
14,250		MK-2	264,000	147,000
14,290	9/16	MK-2	264,000	147,000
14,500		MK-2	264,000	147,000
15,000		MK-2	264,000	147,000
15,080	19/32	MK-2	270,000	153,000
15,500		MK-2	270,000	153,000
16,000		MK-2	270,000	153,000
16,500		MK-2	276,000	159,000
17,000		MK-2	276,000	159,000
17,250		MK-2	282,000	165,000
17,500		MK-2	282,000	165,000
18,250		MK-3	307,000	171,000
18,500		MK-3	307,000	171,000
19,050	3/4	MK-3	313,000	177,000

d1 mm	d1 inch	S	l1 mm	l2 mm
19,500		MK-3	313,000	177,000
19,840	25/32	MK-3	313,000	177,000
20,000		MK-3	313,000	177,000
20,250		MK-3	320,000	184,000
22,500		MK-3	334,000	198,000
23,000		MK-3	334,000	198,000
23,750		MK-3	342,000	206,000
24,250		MK-3	342,000	206,000
24,610	31/32	MK-3	342,000	206,000
25,400	1	MK-3	350,000	214,000
26,000		MK-3	350,000	214,000
26,990	1 1/16	MK-4	385,000	222,000
27,780	1 3/32	MK-4	385,000	222,000
28,570	1 1/8	MK-4	393,000	230,000
28,750		MK-4	393,000	230,000
29,000		MK-4	393,000	230,000
29,500		MK-4	393,000	230,000
30,000		MK-4	393,000	230,000
30,500		MK-4	402,000	239,000
34,000		MK-4	430,000	257,000
44,450		MK-4	471,000	298,000

Brocas con canal de refrig., long. ranuras DIN 341

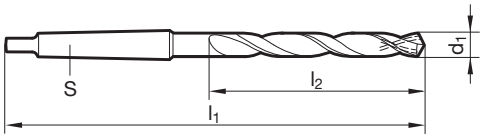
~10xD | WN | N | 118° | h8

Material de corte	HSS
Acabado	
Dirección de corte	R

P	•	vaciado de punta ≥Ø 10,000 • entrada cónica • para taladrar casquillos • transmisión de refrigerante radialmente al interior del cono morse
M	○	
K	•	
N	•	paquetes de chapas • aceros y fundición de aceros, fundición gris • aceros austeníticos hasta aprox. 800 N/mm²
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 788



Artículo N° **272**

d1		S	l1	l2
mm	inch		mm	mm
10,000		MK-2	233,000	116,000
12,500		MK-2	251,000	134,000
13,200		MK-2	251,000	134,000
13,500		MK-2	259,000	142,000
14,750		MK-2	264,000	147,000
15,500		MK-2	270,000	153,000
15,870	5/8	MK-2	270,000	153,000
16,500		MK-2	276,000	159,000
16,670	21/32	MK-2	276,000	159,000
17,000		MK-2	276,000	159,000
18,000		MK-2	282,000	165,000
18,500		MK-3	307,000	171,000

d1		S	l1	l2
mm	inch		mm	mm
20,000		MK-3	313,000	177,000
22,000		MK-3	327,000	191,000
22,500		MK-3	334,000	198,000
24,000		MK-3	342,000	206,000
26,000		MK-3	350,000	214,000
26,990	1 1/16	MK-4	385,000	222,000
29,500		MK-4	393,000	230,000
32,000		MK-4	421,000	248,000
44,450	1 3/4	MK-4	471,000	298,000

Brocas con canal de refrig., long. ranuras DIN 341

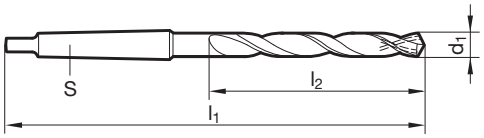
~10xD | WN | GT 100 | 130° | h8

Material de corte	HSCO
Acabado	
Dirección de corte	R

P	•	vaciado de punta ≥Ø 11,000 • entrada cónica • transmisión de refrigerante axial por el cono morse • acero rápido al cobalto • más resistencia al desgaste • para taladrar casquillos
M	•	
K	•	
N	•	aceros templados • aceros aleados, fundición gris • aceros inoxidables y resistentes al ácido y al calor • dureza con una resistencia de hasta 1400 N/mm²
S	•	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 794



Artículo N° **370**

d1 mm	d1 inch	S	l1 mm	l2 mm
11,000		MK-2	242,000	125,000
12,000		MK-2	251,000	134,000
12,500		MK-2	251,000	134,000
13,000		MK-2	251,000	134,000
13,500		MK-2	259,000	142,000
14,000		MK-2	259,000	142,000
15,000		MK-2	264,000	147,000
15,080	19/32	MK-2	270,000	153,000
16,000		MK-2	270,000	153,000
17,000		MK-2	276,000	159,000
17,500		MK-2	282,000	165,000
18,000		MK-2	282,000	165,000
18,500		MK-3	307,000	171,000
19,000		MK-3	307,000	171,000
20,000		MK-3	313,000	177,000
21,000		MK-3	320,000	184,000
21,500		MK-3	327,000	191,000
22,000		MK-3	327,000	191,000

d1 mm	d1 inch	S	l1 mm	l2 mm
24,000		MK-3	342,000	206,000
24,610	31/32	MK-3	342,000	206,000
29,370	1 5/32	MK-4	393,000	230,000
29,500		MK-4	393,000	230,000
30,000		MK-4	393,000	230,000
30,960	1 7/32	MK-4	402,000	239,000
31,000		MK-4	402,000	239,000
32,000		MK-4	421,000	248,000
32,250		MK-4	421,000	248,000
32,500		MK-4	421,000	248,000
32,540	1 9/32	MK-4	421,000	248,000
33,000		MK-4	421,000	248,000
34,130	1 11/32	MK-4	430,000	257,000
34,920	1 3/8	MK-4	430,000	257,000

Brocas con canal de refrig., long. ranuras DIN 341

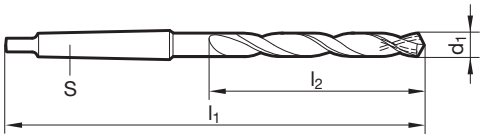
~10xD | WN | GT 100 | 130° | h8

Material de corte	HSCO
Acabado	●
Dirección de corte	R

P	●	vaciado de punta ≥Ø 11,000 • entrada cónica • transmisión radial por mediación de aros de refrigeración Gühring • acero rápido al cobalto • resistencia más alta al desgaste • para taladrar casquillos
M	●	
K	●	
N	●	aceros templados • aceros aleados, fundición gris • aceros inoxidables y resistentes al ácido y al calor • dureza con una resistencia de hasta 1400 N/mm²
S	●	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 794



Artículo N° **371**

d1 mm	d1 inch	S	l1 mm	l2 mm
11,000		MK-2	242,000	125,000
11,110	7/16	MK-2	242,000	125,000
11,500		MK-2	242,000	125,000
12,300	31/64	MK-2	251,000	134,000
12,500		MK-2	251,000	134,000
12,800		MK-2	251,000	134,000
13,000		MK-2	251,000	134,000
13,490	17/32	MK-2	259,000	142,000
13,500		MK-2	259,000	142,000
14,000		MK-2	259,000	142,000
14,290	9/16	MK-2	264,000	147,000
14,500		MK-2	264,000	147,000
15,000		MK-2	264,000	147,000
16,000		MK-2	270,000	153,000
16,500		MK-2	276,000	159,000
16,670	21/32	MK-2	276,000	159,000
17,000		MK-2	276,000	159,000
17,460	11/16	MK-2	282,000	165,000
18,260	23/32	MK-3	307,000	171,000
19,500		MK-3	313,000	177,000
19,840	25/32	MK-3	313,000	177,000
20,500		MK-3	320,000	184,000
20,640	13/16	MK-3	320,000	184,000
21,000		MK-3	320,000	184,000

d1 mm	d1 inch	S	l1 mm	l2 mm
21,500		MK-3	327,000	191,000
22,220	7/8	MK-3	327,000	191,000
22,500		MK-3	334,000	198,000
23,020	29/32	MK-3	334,000	198,000
23,810	15/16	MK-3	342,000	206,000
28,570	1 1/8	MK-4	393,000	230,000
29,000		MK-4	393,000	230,000
30,000		MK-4	393,000	230,000
30,960	1 7/32	MK-4	402,000	239,000
31,750	1 1/4	MK-4	411,000	248,000
32,000		MK-4	421,000	248,000
32,540	1 9/32	MK-4	421,000	248,000
33,340	1 5/16	MK-4	421,000	248,000
34,000		MK-4	430,000	257,000
34,920	1 3/8	MK-4	430,000	257,000

Brocas con canal de refrig., long. ranuras DIN 341

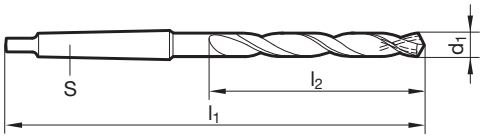
~10xD | WN | GT 100 | 130° | h8

Material de corte	HSCO
Acabado	●
Dirección de corte	R

P	●	vaciado de punta ≥Ø 11,500 • entrada cónica • transmisión de refrigerante radialmente al interior del cono morse • acero rápido al cobalto • resistencia más alta al desgaste • para taladrar casquillos
M	●	
K	●	
N	●	aceros templados • aceros aleados, fundición gris • aceros inoxidables y resistentes al ácido y al calor • dureza con una resistencia de hasta 1400 N/mm²
S	●	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 794



Artículo N° **372**

d1		S	l1	l2
mm	inch		mm	mm
12,500		MK-2	251,000	134,000
12,700	1/2	MK-2	251,000	134,000
14,000		MK-2	259,000	142,000
16,000		MK-2	270,000	153,000
17,000		MK-2	276,000	159,000
18,500		MK-3	307,000	171,000

d1		S	l1	l2
mm	inch		mm	mm
21,500		MK-3	327,000	191,000
23,810	15/16	MK-3	342,000	206,000
27,000		MK-4	385,000	222,000
30,000		MK-4	393,000	230,000
34,000		MK-4	430,000	257,000

Brocas con canal de refrig., long. ranuras DIN 1870

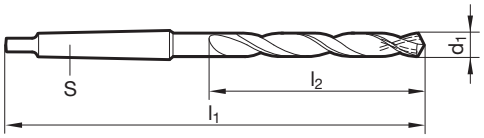
~15xD | WN | GT 100 | 130° | h8

Material de corte	HSCO
Acabado	●
Dirección de corte	R

P	●	vaciado de punta ≥Ø 11,000 • entrada cónica • transmisión de refrigerante axial por el cono morse • acero rápido al cobalto • más resistencia al desgaste • para taladrar casquillos
M	●	
K	●	
N	●	aceros templados • aceros aleados, fundición gris • aceros inoxidables y resistentes al ácido y al calor • dureza con una resistencia de hasta 1400 N/mm²
S	●	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 794



Artículo N° **374**

d1 mm	d1 inch	S	l1 mm	l2 mm
11,000		MK-2	312,000	195,000
12,000		MK-2	322,000	205,000
12,300	31/64	MK-2	322,000	205,000
12,500		MK-2	322,000	205,000
13,000		MK-2	322,000	205,000
14,000		MK-2	337,000	220,000
15,000		MK-2	337,000	220,000
16,000		MK-2	347,000	230,000
16,500		MK-2	347,000	230,000
17,500		MK-2	362,000	245,000
18,000		MK-2	362,000	245,000
18,500		MK-3	381,000	245,000
19,840	25/32	MK-3	396,000	260,000
20,000		MK-3	396,000	260,000
21,000		MK-3	396,000	260,000
21,430	27/32	MK-3	406,000	270,000
21,500		MK-3	406,000	270,000
24,610	31/32	MK-3	426,000	290,000

d1 mm	d1 inch	S	l1 mm	l2 mm
28,570	1 1/8	MK-4	468,000	305,000
28,750		MK-4	468,000	305,000
29,370	1 5/32	MK-4	468,000	305,000
30,960	1 7/32	MK-4	483,000	320,000
32,250		MK-4	493,000	320,000
32,540	1 9/32	MK-4	493,000	320,000
34,000		MK-4	513,000	340,000

Brocas con canal de refrig., long. ranuras DIN 1870

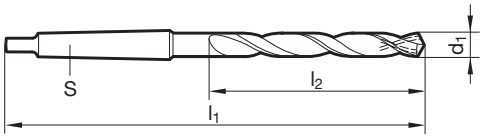
~15xD | WN | GT 100 | 130° | h8

Material de corte	HSCO
Acabado	●
Dirección de corte	R

P	●	vaciado de punta ≥Ø 11,000 • entrada cónica • transmisión radial por mediación de aros de refrigeración Gühring • acero rápido al cobalto • resistencia más alta al desgaste • para taladrar casquillos
M	●	
K	●	
N	●	aceros templados • aceros aleados, fundición gris • aceros inoxidables y resistentes al ácido y al calor • dureza con una resistencia de hasta 1400 N/mm²
S	●	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 794



Artículo N° **375**

d1 mm	d1 inch	S	l1 mm	l2 mm
11,000		MK-2	312,000	195,000
11,110	7/16	MK-2	312,000	195,000
11,510	29/64	MK-2	312,000	195,000
12,800		MK-2	322,000	205,000
13,500		MK-2	337,000	220,000
18,260	23/32	MK-3	381,000	245,000
19,000		MK-3	381,000	245,000
21,000		MK-3	396,000	260,000
21,430	27/32	MK-3	406,000	270,000
24,500		MK-3	426,000	290,000
25,000	63/64	MK-3	426,000	290,000
25,400	1	MK-3	426,000	290,000

d1 mm	d1 inch	S	l1 mm	l2 mm
26,500		MK-3	426,000	290,000
28,570	1 1/8	MK-4	468,000	305,000
30,960	1 7/32	MK-4	483,000	320,000
32,540	1 9/32	MK-4	493,000	320,000
33,340	1 5/16	MK-4	493,000	320,000
34,000		MK-4	513,000	340,000

Brocas con canal de refrig., long. ranuras DIN 1870

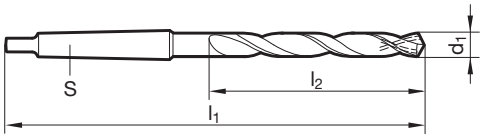
~15xD | WN | GT 100 | 130° | h8

Material de corte	HSCO
Acabado	●
Dirección de corte	R

P	●	vaciado de punta ≥Ø 11,000 • entrada cónica • transmisión de refrigerante radialmente al interior del cono morse • acero rápido al cobalto • resistencia más alta al desgaste • para taladrar casquillos
M	●	
K	●	
N	●	aceros templados • aceros aleados, fundición gris • aceros inoxidables y resistentes al ácido y al calor • dureza con una resistencia de hasta 1400 N/mm²
S	●	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 794



Artículo N° **376**

d1 mm	d1 inch	S	l1 mm	l2 mm
11,000		MK-2	312,000	195,000
13,000		MK-2	322,000	205,000
14,000		MK-2	337,000	220,000
16,500		MK-2	347,000	230,000
18,000		MK-2	362,000	245,000
19,840	25/32	MK-3	396,000	260,000

d1 mm	d1 inch	S	l1 mm	l2 mm
21,500		MK-3	406,000	270,000
27,780	1 3/32	MK-4	468,000	305,000
29,000		MK-4	468,000	305,000

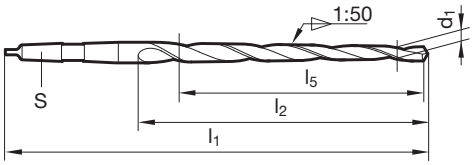
Brocas para pasadores cónicos

DIN 1898 | N | 118°

Material de corte	HSS
Acabado	
Dirección de corte	R

P	•
M	○
K	•
N	○
S	
H	

vaciado de punta ≥Ø 5,000 • entrada cónica • para taldros cónicos para pasadores según DIN 1 (nuevo: DIN EN 22339), DIN EN 28736), DIN 7977 (nuevo: DIN EN 28737) y DIN 258



Artículo N° **532**

d1	S	l1	l2	l5
mm		mm	mm	mm
5,000	MK-1	155,000	81,000	73,000
6,000	MK-1	187,000	108,000	105,000
8,000	MK-1	227,000	149,000	145,000
10,000	MK-1	257,000	180,000	175,000
12,000	MK-2	315,000	219,000	210,000
13,000	MK-2	325,000	229,000	220,000

d1	S	l1	l2	l5
mm		mm	mm	mm
14,000	MK-2	325,000	229,000	220,000
16,000	MK-2	335,000	239,000	230,000
20,000	MK-3	377,000	263,000	250,000
25,000	MK-3	427,000	311,000	300,000

Brocas espirales, placa MD soldada

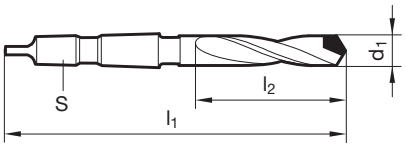
DIN 8041 | N | 118° | h8

Material de corte	Carbide
Acabado	○
Dirección de corte	R

P	○	vaciado de punta ≥Ø 8,000 • afilado plano • placa MD soldada
M		
K	○	
N		acero de muelles • fundición dura con más de 300 HB • molibdeno puro • bronce duro y tenaz
S		
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 776



Artículo N° **705**

d1 mm	d1 inch	S	l1 mm	l2 mm
8,000		MK-1	130,000	40,000
8,500		MK-1	135,000	45,000
10,000		MK-1	140,000	50,000
10,200		MK-1	140,000	50,000
10,500		MK-1	140,000	50,000
11,000		MK-1	140,000	50,000
11,500		MK-1	146,000	56,000
12,000		MK-1	146,000	56,000
13,000		MK-1	146,000	56,000
13,500		MK-2	168,000	63,000
14,000		MK-2	168,000	63,000
14,500		MK-2	168,000	63,000
15,000		MK-2	168,000	63,000
15,500		MK-2	175,000	70,000
16,000		MK-2	175,000	70,000
16,500		MK-2	175,000	70,000
17,000		MK-2	175,000	70,000
17,500		MK-2	185,000	80,000
18,000		MK-2	185,000	80,000
19,000		MK-2	185,000	80,000
19,500		MK-3	215,000	90,000
20,000		MK-3	215,000	90,000
21,000		MK-3	215,000	90,000
21,500		MK-3	215,000	90,000

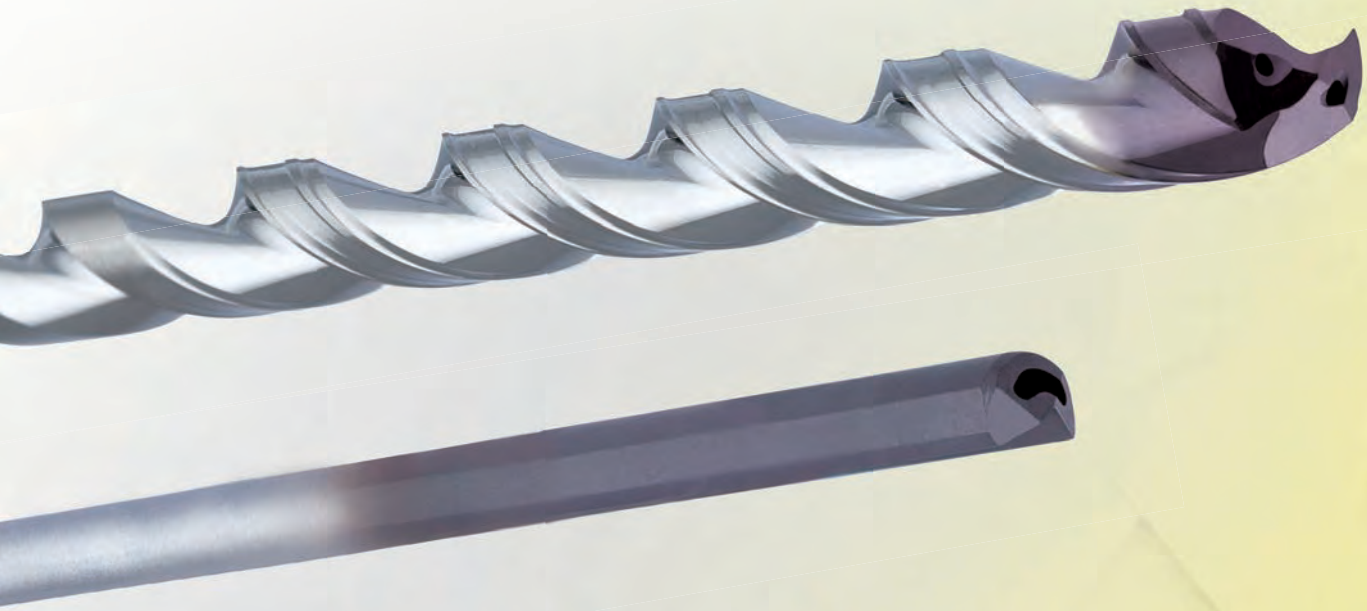
d1 mm	d1 inch	S	l1 mm	l2 mm
22,000		MK-3	215,000	90,000
23,000		MK-3	225,000	100,000
24,000		MK-3	225,000	100,000
24,500		MK-3	225,000	100,000
25,000	63/64	MK-3	225,000	100,000
26,000		MK-4	260,000	110,000
26,500		MK-4	260,000	110,000
27,000		MK-4	260,000	110,000
28,000		MK-4	260,000	110,000
30,000		MK-4	275,000	125,000
32,000		MK-4	275,000	125,000
33,000		MK-4	290,000	140,000
38,000		MK-4	310,000	160,000
40,000		MK-4	310,000	160,000

Porta-MK HSK-A

Para sujetar cono morse con tetilla de arrastre.

Encontrará mas información en nuestro catálogo GM300.

BROCAS PARA AGUJEROS PROFUNDOS



BROCAS CAÑÓN VHM ENTERIZAS ESPIRALIZADAS

BROCAS CAÑÓN VHM ENTERIZAS DE UN CORTE
EB 100

BROCAS CAÑÓN CON CABEZA SOLDADA DE UN CORTE
EB 80

BROCAS CAÑÓN CON CABEZA SOLDADA DE DOS CORTES
ZB 80

BROCAS CAÑÓN MODULARES E UN CORTE
EB 800

BROCAS CAÑÓN ESPIRALIZADAS HSS/HSCO

- brocas cañón para máximas velocidades de corte y avances
- profundidades de taladro desde 15xD hasta 40xD
- diámetro nominal 3,00mm hasta 14,00mm
- estabilidad y refrigeración de herramienta óptimas
- tiempos de mecanizado cortos y vida útil larga
- para casi todos los materiales

desde pág. 523

- brocas cañón de un labio para tolerancias de taladro muy estrechas
- se fabrica desde 0,9mm diámetro nominal
- diámetro nominal hasta 16,00mm
- longitud de corte hasta 500,00mm; pero máx. 100xD
- hasta 80xD con una sola herramienta
- para casi todos los materiales

desde pág. 529

- brocas cañón de un labio com cabeza HM soldada
- longitud total hasta 3000,00mm
- diámetro nominal 2,00mm hasta 40,00mm
- gran variación de tipos, p.ej. con radio completo o como broca escalonada especial
- para casi todos los materiales

desde pág. 540

- brocas cañón de dos labios con cabeza HM soldada
- diámetro nominal 6,00mm hasta 30,00mm
- perfecto para GG25, GGG40, GGV
- canales de refrigeración muy grandes
- geometría de la punta optimizada

desde pág. 551

- brocas cañón de un labio con plaquitas intercambiables y patines intercambiables
- diámetro nominal 12,00mm hasta 52,00mm
- según campo de cuerpo base modificables en 0,5mm
- cualquier combinación de metales duros y recubrimientos posible
- para casi todos los materiales

desde pág. 553

- brocas cañón HSS-/ HSCO espiralizadas para procesos de mecanizado muy seguros
- campo de diámetros 0,40mm hasta 50,00mm
- longitud de corte hasta 850mm
- disponible en mango cilíndrico o cónico
- apropiada para muchos materiales

desde pág. 580

Brocas Ratio con refrigeración interior

P	M	K	N	S	H	Presentación de herramientas	Profundidad	Norma	Tipo	Dirección de corte	Material de corte	Acabado	d1/mm	Artículo Nº	Cond. de corte pág.	Página
●	●	●	○	○	○		15xD	WN	RT 100 T	R	VHM	A	3,000 - 14,000	6509	760	523
●	●	●	○	○	○		20xD	WN	RT 100 T	R	VHM	A	3,000 - 14,000	6511	760	524
●	●	●	○	○	○		25xD	WN	RT 100 T	R	VHM	A	3,000 - 12,000	6512	760	525
●	●	●	○	○	○		30xD	WN	RT 100 T	R	VHM	A	3,000 - 10,000	6513	760	526
●	●	●	○	○	○		40xD	WN	RT 100 T	R	VHM	A	3,000 - 8,000	6514	760	527

Brocas monolabio EB 100

P	M	K	N	S	H	Presentación de herramientas	Profundidad	Norma	Tipo	Dirección de corte	Material de corte	Acabado	d1/mm	Artículo Nº	Cond. de corte pág.	Página
●	●	○		○	○		25xD	WN	EB 100	R	VHM	a	2,380 - 12,000	5646	808	529
●	●	○		○	○		50xD	WN	EB 100	R	VHM	a	2,380 - 8,000	5647	808	530
●	●	○		○	○		75xD	WN	EB 100	R	VHM	a	2,380 - 6,000	5648	808	531
○	○	○	●	●	○		45,00	WN	EB 100	R	VHM	○	1,200 - 3,200	5024	808	532
●	○	●	○	○	○		45,00	WN	EB 100	R	VHM	A	1,200 - 3,200	5632	808	533
○	○	○	●	●	○		80,00	WN	EB 100	R	VHM	○	1,200 - 5,000	5020	808	534
●	○	●	○	○	○		80,00	WN	EB 100	R	VHM	A	1,200 - 5,000	5633	808	535
○	○	○	●	●	○		120,00	WN	EB 100	R	VHM	○	1,500 - 5,000	5026	808	536
●	○	●	○	○	○		120,00	WN	EB 100	R	VHM	A	1,500 - 5,000	5637	808	537
○	○	○	●	●	○		160,00	WN	EB 100	R	VHM	○	1,500 - 8,000	5021	808	538
●	○	●	○	○	○		160,00	WN	EB 100	R	VHM	A	1,500 - 8,000	5638	808	539

Brocas monolabio EB 80

P	M	K	N	S	H	Presentación de herramientas	Profundidad	Norma	Tipo	Dirección de corte	Material de corte	Acabado	d1/mm	Artículo Nº	Cond. de corte pág.	Página
●	○	●	○	○	○		20xD	WN	EB 80	R	HM	S	4,000 - 12,000	5018	808	540
○	●	○		●	○		20xD	WN	EB 80	R	HM	C	3,970 - 12,700	5639	808	541
●	○	●	○	○	○		30xD	WN	EB 80	R	HM	S	4,000 - 12,000	5460	808	542
○	●	○		●	○		30xD	WN	EB 80	R	HM	C	3,970 - 12,700	5640	808	543
●	○	●	○	○	○		40xD	WN	EB 80	R	HM	○	4,000 - 12,000	5689	808	544
●	○	●	○	○	○		40xD	WN	EB 80	R	HM	S	4,000 - 12,000	5022	808	545
○	●	○		●	○		40xD	WN	EB 80	R	HM	C	3,970 - 12,700	5641	808	546

P	M	K	N	S	H	Presentación de herramientas	Profundidad	Norma	Tipo	Dirección de corte	Material de corte	Acabado	d1/mm	Artículo Nº	Cond. de corte	Página pág.
Brocas monolabio EB 80																
●	○	●	○	○	○		80xD	WN	EB 80	R	HM	○	3,970 - 11,950	5690	808	547
●	○	●	○	○	○		80xD	WN	EB 80	R	HM	S	4,950 - 11,950	5023	808	548
○	●	○		●	○		80xD	WN	EB 80	R	HM	C	4,950 - 12,650	5642	808	549
●	○	●	●	○	○		1100,00	WN	EB 80	R	HM	S	6,000 - 22,000	5164	808	550
Brocas de dos labios ZB 80																
			●				30xD	WN	ZB 80	R	HM	○	8,000 - 12,000	5019	808	551
		●					30xD	WN	ZB 80	R	HM	○	8,000 - 12,000	5643	808	552
Brocas de un labio EB 800 con plaquitas intercambiables																
●	○	○	●	○			30xD	WN	EB 800	R	HM	S	12,000 - 24,000	5644	808	555
Atornillador Torx																
								WN						1612		558
Llave dinamométrica																
								WN						4915		559
Adaptor exagonal																
								WN						4917		560
Tornillos de fijación																
								WN						4071		561
Casquillos																
								WN			VHM			5748		565
								WN			HSS			5747		566
Juntas para brocas monolabio																
								WN						5752		569
Casquillos para brocas monolabio																
								WN						5750		571
Casquillos para brocas monolabio y de dos labios																
								WN						5749		573

P	M	K	N	S	H	Presentación de herramientas	Profundidad	Norma	Tipo	Dirección de corte	Material de corte	Acabado	d1/mm	Artículo Nº	Cond. de corte pág.	Página
Juntas para brocas de dos labios																
								WN						5753		575
Casquillos para brocas de dos labios																
								WN						5751		576
Ajuste los tornillos																
								WN						5754		577
								WN						5755		578
Brocas espirales cil., largas																
●		●	○				~10xD	DIN 340	N	R	HSS	>Ø 2,36	0,400 - 36,510	217	786	580
●		●	○				~10xD	DIN 340	N	R	HSS	S	0,500 - 22,220	667	786	583
●		●	○				~10xD	DIN 340	N	L	HSS	>Ø 6,00	0,450 - 29,000	220	786	585
●		●	○				~10xD	DIN 340	N	R	HSS		2,950 - 25,250	204	786	587
			●				~10xD	DIN 340	H	R	HSS		0,500 - 16,000	218	786	588
			●				~10xD	DIN 340	H	L	HSS		0,450 - 15,000	221	786	590
			●				~10xD	DIN 340	W	R	HSS		0,500 - 20,640	219	786	591
●		●	●				~10xD	DIN 340	GT 100	R	HSS	>Ø 2,36	1,000 - 14,000	535	786	593
●		●	●				~10xD	DIN 340	GT 100	R	HSS	S	1,000 - 14,000	668	786	596
●		●	●				~10xD	DIN 340	GT 100	R	HSS	F	1,000 - 10,000	2462	786	598
●		●	●				~10xD	DIN 340	GT 100	L	HSS	>Ø 2,36	1,400 - 13,000	506	786	599
○			●				~10xD	DIN 340	GT 50	R	HSS		1,000 - 32,600	501	786	600
●	○	●	●	○			~10xD	DIN 340	N	R	HSCO	>Ø 2,36	0,500 - 22,000	317	792	602
●	●	●	●		○		~10xD	DIN 340	GT 100	R	HSCO	>Ø 2,36	1,000 - 16,000	336	792	604
●	●	●	●		○		~10xD	DIN 340	GT 100	R	HSCO	F	1,000 - 12,000	396	792	606
○	●			●			~10xD	DIN 340	Ti	R	HSCO		1,000 - 15,000	617	792	607
○	●			●			~10xD	DIN 340	Ti	R	HSCO	S	1,000 - 10,200	669	792	609
							~10xD	WN	N	R	VHM		0,500 - 1,450	706	792	611

P	M	K	N	S	H	Presentación de herramientas	Profundidad	Norma	Tipo	Dirección de corte	Material de corte	Acabado	d1/mm	Artículo Nº	Cond. de corte	Página pág.
Brocas espirales, extra largas, serie 1																
●		●	○				~15xD	DIN 1869	N	R	HSS	>Ø 2,36	1,600 - 13,000	235	788	612
●		●	●				~15xD	DIN 1869	GT 100	R	HSS	>Ø 2,36	1,950 - 13,000	502	790	614
●		●	●	○			~15xD	DIN 1869	GT 100	R	HSS	S	2,000 - 12,700	670	790	616
○			●				~15xD	DIN 1869	GT 50	R	HSS		2,000 - 12,700	524	788	617
●	●	●	●	●	○		~15xD	DIN 1869	GT 100	R	HSCO		2,700 - 10,000	618	794	619
Brocas espirales, extra largas, serie 2																
●		●	○				~20xD	DIN 1869	N	R	HSS		2,700 - 13,000	236	788	620
●		●	●				~20xD	DIN 1869	GT 100	R	HSS	>Ø 2,36	2,000 - 13,000	503	790	621
●		●	●	○			~20xD	DIN 1869	GT 100	R	HSS	S	2,700 - 8,500	671	790	623
○			●				~20xD	DIN 1869	GT 50	R	HSS		3,000 - 13,000	528	788	624
●	●	●	●	●	○		~20xD	DIN 1869	GT 100	R	HSCO		3,000 - 10,000	619	794	625
Brocas espirales, extra largas, serie 3																
●		●	○				~25xD	DIN 1869	N	R	HSS		3,500 - 13,000	237	788	626
●		●	●				~25xD	DIN 1869	GT 100	R	HSS		2,500 - 13,000	504	790	627
○			●				~25xD	DIN 1869	GT 50	R	HSS		2,500 - 10,000	529	788	628
●	●	●	●	●	○		~25xD	DIN 1869	GT 100	R	HSCO		2,500 - 13,000	571	794	629
Brocas espirales, largo especial																
●		●	●				>25xD	WN	GT 100	R	HSS		6,000 - 12,000	242	790	630
●		●	●				>25xD	WN	GT 100	R	HSS		8,000 - 12,000	243	790	631
●		●	●				>25xD	WN	GT 100	R	HSS		10,000 - 12,000	244	790	632
Brocas espirales, extra largas, serie 1																
●		●	○				~15xD	DIN 1870	N	R	HSS		8,000 - 50,000	266	788	633
●		●	●				~15xD	DIN 1870	GT 100	R	HSS	>Ø 16,0	8,000 - 30,000	526	790	634
○			●				~15xD	DIN 1870	GT 50	R	HSS		8,500 - 33,000	525	788	635
●	●	●	●	●	○		~15xD	DIN 1870	GT 100	R	HSCO	>Ø 16,0	9,520 - 30,000	620	794	636

Brocas espirales, extra largas, serie 2

P	M	K	N	S	H	Presentación de herramientas	Profundidad	Norma	Tipo	Dirección de corte	Material de corte	Acabado	d1/mm	Artículo Nº	Cond. de corte pág.	Página
●		●	○				~20xD	DIN 1870	N	R	HSS		8,000 - 45,000	267	788	637
●		●	●				~20xD	DIN 1870	GT 100	R	HSS	>Ø 16,0	8,000 - 30,000	527	790	638
○			●				~20xD	DIN 1870	GT 50	R	HSS		8,500 - 31,000	542	788	639
●	●	●	●	●	○		~20xD	DIN 1870	GT 100	R	HSCO	>Ø 16,0	9,520 - 23,420	621	794	640

Brocas con canal de refrig., long. ranuras DIN 1870

●	●	●	●	●	○		~15xD	WN	GT 100	R	HSCO		11,000 - 34,000	374	794	641
●	●	●	●	●	○		~15xD	WN	GT 100	R	HSCO		11,000 - 34,000	375	794	642
●	●	●	●	●	○		~15xD	WN	GT 100	R	HSCO		11,000 - 29,000	376	794	643

Brocas Ratio con refrigeración interior

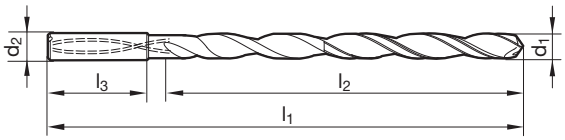
15xD | RT 100 T | WN | 135° | h7

Material de corte	**Metal duro**
Acabado	A
Forma del mango	HA

P	•	vaciado de punta ≥Ø 3,000 • entrada cónica • forma cóncava del corte principal • sección de ranura optimizada • sección máxima del canal de lubricación • vigilar presión del refrigerante
M	•	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • aceros inoxidables • fundición
S	○	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 760



Artículo Nº **6509**

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
3,000		6,000	95,000	55,000	36,000
3,170	1/8	6,000	106,000	67,000	36,000
3,500		6,000	116,000	76,000	36,000
3,570	9/64	6,000	116,000	76,000	36,000
3,970	5/32	6,000	116,000	76,000	36,000
4,000		6,000	116,000	76,000	36,000
4,370	11/64	6,000	133,000	93,000	36,000
4,500		6,000	133,000	93,000	36,000
4,760	3/16	6,000	133,000	93,000	36,000
5,000		6,000	133,000	93,000	36,000
5,100		6,000	150,000	110,000	36,000
5,160	13/64	6,000	150,000	110,000	36,000
5,410		6,000	150,000	110,000	36,000
5,500		6,000	150,000	110,000	36,000
5,560	7/32	6,000	150,000	110,000	36,000
5,950	15/64	6,000	150,000	110,000	36,000
6,000		6,000	150,000	110,000	36,000
6,350	1/4	8,000	167,000	127,000	36,000
6,500		8,000	167,000	127,000	36,000
6,750	17/64	8,000	167,000	127,000	36,000
7,000		8,000	167,000	127,000	36,000
7,140	9/32	8,000	183,000	143,000	36,000
7,500		8,000	183,000	143,000	36,000
7,540	19/64	8,000	183,000	143,000	36,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
7,940	5/16	8,000	183,000	143,000	36,000
8,000		8,000	183,000	143,000	36,000
8,330	21/64	10,000	204,000	160,000	40,000
8,500		10,000	204,000	160,000	40,000
8,730	11/32	10,000	204,000	160,000	40,000
9,000		10,000	204,000	160,000	40,000
9,130	23/64	10,000	221,000	177,000	40,000
9,520	3/8	10,000	221,000	177,000	40,000
9,920	25/64	10,000	221,000	177,000	40,000
10,000		10,000	221,000	177,000	40,000
10,320	13/32	12,000	247,000	198,000	45,000
10,720	27/64	12,000	247,000	198,000	45,000
11,000		12,000	247,000	198,000	45,000
11,110	7/16	12,000	263,000	214,000	45,000
11,510	29/64	12,000	263,000	214,000	45,000
11,910	15/32	12,000	263,000	214,000	45,000
12,000		12,000	263,000	214,000	45,000
12,300	31/64	14,000	297,000	248,000	45,000
12,700	1/2	14,000	297,000	248,000	45,000
13,100	33/64	14,000	297,000	248,000	45,000
13,490	17/32	14,000	297,000	248,000	45,000
13,890	35/64	14,000	297,000	248,000	45,000
14,000		14,000	297,000	248,000	45,000

Brocas Ratio con refrigeración interior

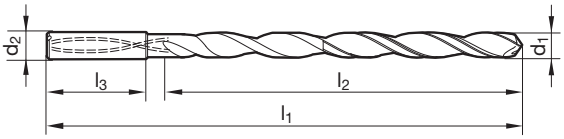
20xD | RT 100 T | WN | 135° | h7

Material de corte	**Metal duro**
Acabado	A
Forma del mango	HA

P	•	vaciado de punta ≥Ø 3,000 • entrada cónica • forma cóncava del corte principal • sección de ranura optimizada • sección máxima del canal de lubricación • vigilar presión del refrigerante
M	•	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • aceros inoxidables • fundición
S	○	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 760



Artículo Nº **6511**

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
3,000		6,000	110,000	70,000	36,000
3,100		6,000	123,000	83,000	36,000
3,170	1/8	6,000	123,000	83,000	36,000
3,500		6,000	136,000	96,000	36,000
3,570	9/64	6,000	136,000	96,000	36,000
3,970	5/32	6,000	136,000	96,000	36,000
4,000		6,000	136,000	96,000	36,000
4,200		6,000	158,000	118,000	36,000
4,370	11/64	6,000	158,000	118,000	36,000
4,500		6,000	158,000	118,000	36,000
4,760	3/16	6,000	158,000	118,000	36,000
5,000		6,000	158,000	118,000	36,000
5,100		6,000	180,000	140,000	36,000
5,160	13/64	6,000	180,000	140,000	36,000
5,410		6,000	180,000	140,000	36,000
5,500		6,000	180,000	140,000	36,000
5,560	7/32	6,000	180,000	140,000	36,000
5,950	15/64	6,000	180,000	140,000	36,000
6,000		6,000	180,000	140,000	36,000
6,350	1/4	8,000	202,000	162,000	36,000
6,500		8,000	202,000	162,000	36,000
6,750	17/64	8,000	202,000	162,000	36,000
7,000		8,000	202,000	162,000	36,000
7,140	9/32	8,000	223,000	183,000	36,000
7,500		8,000	223,000	183,000	36,000
7,540	19/64	8,000	223,000	183,000	36,000
7,940	5/16	8,000	223,000	183,000	36,000
8,000		8,000	223,000	183,000	36,000
8,330	21/64	10,000	249,000	205,000	40,000
8,500		10,000	249,000	205,000	40,000

d1 mm	d1 inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
8,730	11/32	10,000	249,000	205,000	40,000
9,000		10,000	249,000	205,000	40,000
9,130	23/64	10,000	271,000	227,000	40,000
9,520	3/8	10,000	271,000	227,000	40,000
9,920	25/64	10,000	271,000	227,000	40,000
10,000		10,000	271,000	227,000	40,000
10,320	13/32	12,000	302,000	253,000	45,000
10,720	27/64	12,000	302,000	253,000	45,000
11,000		12,000	302,000	253,000	45,000
11,110	7/16	12,000	323,000	274,000	45,000
11,510	29/64	12,000	323,000	274,000	45,000
11,910	15/32	12,000	323,000	274,000	45,000
12,000		12,000	323,000	274,000	45,000
12,300	31/64	14,000	367,000	318,000	45,000
12,700	1/2	14,000	367,000	318,000	45,000
13,100	33/64	14,000	367,000	318,000	45,000
13,490	17/32	14,000	367,000	318,000	45,000
13,890	35/64	14,000	367,000	318,000	45,000
14,000		14,000	367,000	318,000	45,000

Brocas Ratio con refrigeración interior

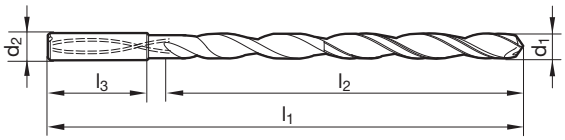
25xD | RT 100 T | WN | 135° | h7

Material de corte	**Metal duro**
Acabado	A
Forma del mango	HA

P	•	vaciado de punta ≥Ø 3,000 • entrada cónica • forma cóncava del corte principal • sección de ranura optimizada • sección máxima del canal de lubricación • vigilar presión del refrigerante
M	•	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • aceros inoxidables • fundición
S	○	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 760



Artículo Nº **6512**

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
3,000		6,000	125,000	85,000	36,000
3,100		6,000	141,000	101,000	36,000
3,170	1/8	6,000	141,000	101,000	36,000
3,500		6,000	156,000	116,000	36,000
3,570	9/64	6,000	156,000	116,000	36,000
3,800		6,000	156,000	116,000	36,000
3,970	5/32	6,000	156,000	116,000	36,000
4,000		6,000	156,000	116,000	36,000
4,200		6,000	183,000	143,000	36,000
4,370	11/64	6,000	183,000	143,000	36,000
4,500		6,000	183,000	143,000	36,000
4,760	3/16	6,000	183,000	143,000	36,000
5,000		6,000	183,000	143,000	36,000
5,100		6,000	210,000	170,000	36,000
5,160	13/64	6,000	210,000	170,000	36,000
5,410		6,000	210,000	170,000	36,000
5,500		6,000	210,000	170,000	36,000
5,560	7/32	6,000	210,000	170,000	36,000
5,950	15/64	6,000	210,000	170,000	36,000
6,000		6,000	210,000	170,000	36,000
6,300		8,000	237,000	197,000	36,000
6,350	1/4	8,000	237,000	197,000	36,000
6,500		8,000	237,000	197,000	36,000
6,750	17/64	8,000	237,000	197,000	36,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
7,000		8,000	237,000	197,000	36,000
7,140	9/32	8,000	263,000	223,000	36,000
7,500		8,000	263,000	223,000	36,000
7,540	19/64	8,000	263,000	223,000	36,000
7,940	5/16	8,000	263,000	223,000	36,000
8,000		8,000	263,000	223,000	36,000
8,330	21/64	10,000	294,000	250,000	40,000
8,500		10,000	294,000	250,000	40,000
8,730	11/32	10,000	294,000	250,000	40,000
8,800		10,000	294,000	250,000	40,000
9,000		10,000	294,000	250,000	40,000
9,130	23/64	10,000	321,000	277,000	40,000
9,520	3/8	10,000	321,000	277,000	40,000
9,920	25/64	10,000	321,000	277,000	40,000
10,000		10,000	321,000	277,000	40,000
10,320	13/32	12,000	359,000	310,000	45,000
10,720	27/64	12,000	359,000	310,000	45,000
11,000		12,000	359,000	310,000	45,000
11,110	7/16	12,000	386,000	337,000	45,000
11,510	29/64	12,000	386,000	337,000	45,000
11,910	15/32	12,000	386,000	337,000	45,000
12,000		12,000	386,000	337,000	45,000

Brocas Ratio con refrigeración interior

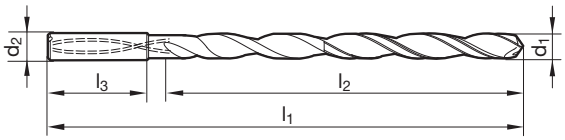
30xD | RT 100 T | WN | 135° | h7

Material de corte	**Metal duro**
Acabado	A
Forma del mango	HA

P	•	vaciado de punta ≥Ø 3,000 • entrada cónica • forma cóncava del corte principal • sección de ranura optimizada • sección máxima del canal de lubricación • vigilar presión del refrigerante
M	•	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • aceros inoxidables • fundición
S	○	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 760



Artículo Nº **6513**

d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
3,000		6,000	140,000	100,000	36,000
3,100		6,000	158,000	118,000	36,000
3,170	1/8	6,000	158,000	118,000	36,000
3,500		6,000	176,000	136,000	36,000
3,570	9/64	6,000	176,000	136,000	36,000
3,800		6,000	176,000	136,000	36,000
3,970	5/32	6,000	176,000	136,000	36,000
4,000		6,000	176,000	136,000	36,000
4,200		6,000	208,000	168,000	36,000
4,370	11/64	6,000	208,000	168,000	36,000
4,500		6,000	208,000	168,000	36,000
4,760	3/16	6,000	208,000	168,000	36,000
5,000		6,000	208,000	168,000	36,000
5,100		6,000	240,000	200,000	36,000
5,160	13/64	6,000	240,000	200,000	36,000
5,410		6,000	240,000	200,000	36,000
5,500		6,000	240,000	200,000	36,000
5,560	7/32	6,000	240,000	200,000	36,000
5,950	15/64	6,000	240,000	200,000	36,000
6,000		6,000	240,000	200,000	36,000
6,300		8,000	272,000	232,000	36,000
6,350	1/4	8,000	272,000	232,000	36,000
6,500		8,000	272,000	232,000	36,000
6,750	17/64	8,000	272,000	232,000	36,000

d1 mm	inch	d2 h6 mm	l1 mm	l2 mm	l3 mm
7,000		8,000	272,000	232,000	36,000
7,140	9/32	8,000	303,000	263,000	36,000
7,500		8,000	303,000	263,000	36,000
7,540	19/64	8,000	303,000	263,000	36,000
7,940	5/16	8,000	303,000	263,000	36,000
8,000		8,000	303,000	263,000	36,000
8,330	21/64	10,000	339,000	295,000	40,000
8,500		10,000	339,000	295,000	40,000
8,730	11/32	10,000	339,000	295,000	40,000
8,800		10,000	339,000	295,000	40,000
9,000		10,000	339,000	295,000	40,000
9,130	23/64	10,000	371,000	327,000	40,000
9,520	3/8	10,000	371,000	327,000	40,000
9,920	25/64	10,000	371,000	327,000	40,000
10,000		10,000	371,000	327,000	40,000

Brocas Ratio con refrigeración interior

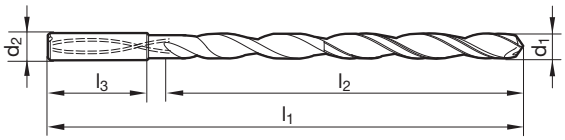
40xD | RT 100 T | WN | 135° | h7

Material de corte	**Metal duro**
Acabado	A
Forma del mango	HA

P	•	vaciado de punta ≥Ø 3,000 • entrada cónica • forma cóncava del corte principal • sección de ranura optimizada • sección máxima del canal de lubricación • vigilar presión del refrigerante
M	•	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • aceros inoxidables • fundición
S	○	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 760



Artículo Nº **6514**

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
3,000		6,000	170,000	130,000	36,000
3,100		6,000	193,000	153,000	36,000
3,170	1/8	6,000	193,000	153,000	36,000
3,500		6,000	193,000	153,000	36,000
3,570	9/64	6,000	216,000	176,000	36,000
3,800		6,000	216,000	176,000	36,000
3,970	5/32	6,000	216,000	176,000	36,000
4,000		6,000	216,000	176,000	36,000
4,200		6,000	238,000	198,000	36,000
4,370	11/64	6,000	238,000	198,000	36,000
4,500		6,000	238,000	198,000	36,000
4,760	3/16	6,000	258,000	218,000	36,000
5,000		6,000	258,000	218,000	36,000
5,100		6,000	280,000	240,000	36,000
5,160	13/64	6,000	280,000	240,000	36,000
5,410		6,000	280,000	240,000	36,000
5,500		6,000	280,000	240,000	36,000
5,560	7/32	6,000	300,000	260,000	36,000

d1		d2 h6	l1	l2	l3
mm	inch	mm	mm	mm	mm
5,950	15/64	6,000	300,000	260,000	36,000
6,000		6,000	300,000	260,000	36,000
6,300		8,000	322,000	282,000	36,000
6,350	1/4	8,000	322,000	282,000	36,000
6,500		8,000	322,000	282,000	36,000
6,750	17/64	8,000	342,000	302,000	36,000
7,000		8,000	342,000	302,000	36,000
7,140	9/32	8,000	363,000	323,000	36,000
7,500		8,000	363,000	323,000	36,000
7,540	19/64	8,000	383,000	343,000	36,000
7,940	5/16	8,000	383,000	343,000	36,000
8,000		8,000	383,000	343,000	36,000

Servicio rápido de broca cañón

Su broca cañón de un labio fabricada a medida en pocos días:
la acción super-rápida de Gühring.

EB 100

Las versiones posibles:

- longitud de corte:

45 mm	Ø 1,2 / 1,5 / 1,59 / 1,6 / 1,98 / 2,0 / 2,5 / 2,7 / 3,0 / 3,2
80 mm	Ø 1,5 / 1,59 / 1,6 / 1,98 / 2,0 / 2,5 / 2,7 / 3,0 / 3,2 / 3,5 / 4,0 / 4,2 / 4,5 / 5,0
120 mm	Ø 1,5 / 1,59 / 1,6 / 1,98 / 2,0 / 2,5 / 2,7 / 3,0 / 3,2 / 3,5 / 4,0 / 4,2 / 4,5 / 5,0
160 mm	Ø 1,5 / 1,59 / 1,6 / 1,98 / 2,0 / 2,5 / 2,7 / 3,0 / 3,2 / 3,5 / 4,0 / 4,2 / 4,5 / 5,0 / 6,0 / 8,0

- solución especial diámetro nominal 0,9 - 1,60 mm; longitud de corte max. 500 mm.
- calidad HM: K30/K40
- forma periférica: G
- blancas o recubiertas
- en combinación con mangos habituales

Herramientas especiales en 15 días habituales.

EB 80

Las versiones posibles:

- diámetro nominal 2,0 - 13,9 mm ascendente en 0,1 mm
- diámetro nominal 14,0 - 22,0 mm ascendente en 0,5 mm
- longitud total hasta 1.200 mm, longitud de corte min. 20xD
- forma periférica: G
- mango normalizado
- tipo de HM es K15
- blancas con afilado estándar para materiales de fundición y aluminio
- recubrimiento TIN con rompevirutas longitudinal para materiales de viruta larga
- en combinación con recubrimientos habituales

Herramientas especiales en 10 días habituales.

Brocas monolabio EB 100

25xD | EB 100 | WN | R | h5

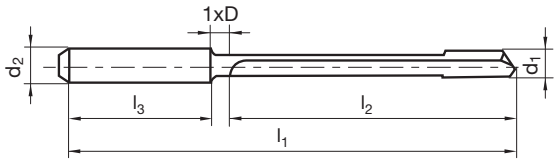
Material de corte	**Metal duro**
Acabado	a
Forma del mango	HA

P	•
M	•
K	○
N	
S	○
H	○

forma de circunferencia G • mango MMS con final cónico desde d1 = 3 mm es decir d2 = 6mm

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 808



Artículo Nº **5646**

d1 h5		d2 h6	l1	l2	l3	Código Nº
mm	inch	mm	mm	mm	mm	
2,380	3/32	4,000	100,000	70,000	28,000	2,380
2,500		4,000	115,000	85,000	28,000	2,500
2,780	7/64	4,000	115,000	85,000	28,000	2,780
3,000		6,000	145,000	105,000	36,000	3,000
3,170	1/8	6,000	145,000	105,000	36,000	3,170
3,500		6,000	145,000	105,000	36,000	3,500
3,570	9/64	6,000	160,000	120,000	36,000	3,570
3,970	5/32	6,000	160,000	120,000	36,000	3,970
4,000		6,000	160,000	120,000	36,000	4,000
4,370	11/64	6,000	220,000	180,000	36,000	4,370
4,760	3/16	6,000	220,000	180,000	36,000	4,760
5,000		6,000	220,000	180,000	36,000	5,000
5,160	13/64	6,000	220,000	180,000	36,000	5,160
5,560	7/32	6,000	220,000	180,000	36,000	5,560
5,950	15/64	6,000	220,000	180,000	36,000	5,950
6,000		6,000	220,000	180,000	36,000	6,000
6,350	1/4	8,000	260,000	210,000	36,000	6,350
6,750	17/64	8,000	260,000	210,000	36,000	6,750
7,000		8,000	260,000	210,000	36,000	7,000
7,140	9/32	8,000	285,000	240,000	36,000	7,140
7,540	19/64	8,000	285,000	240,000	36,000	7,540
7,940	5/16	8,000	285,000	240,000	36,000	7,940
8,000		8,000	285,000	240,000	36,000	8,000
9,000		10,000	350,000	300,000	40,000	9,000
10,000		10,000	350,000	300,000	40,000	10,000
11,000		12,000	420,000	360,000	45,000	11,000
12,000		12,000	420,000	360,000	45,000	12,000

Brocas monolabio EB 100

50xD | EB 100 | WN | R | h5

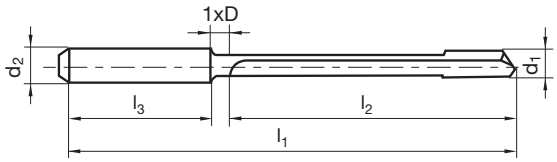
Material de corte	**Metal duro**
Acabado	a
Forma del mango	HA

P	•
M	•
K	○
N	
S	○
H	○

forma de circunferencia G • mango MMS con final cónico desde d1 = 3 mm es decir d2 = 6mm

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 808



Artículo Nº	**5647**

d1 h5		d2 h6	l1	l2	l3	Código Nº
mm	inch	mm	mm	mm	mm	
2,380	3/32	4,000	160,000	130,000	28,000	2,380
2,500		4,000	185,000	155,000	28,000	2,500
2,780	7/64	4,000	185,000	155,000	28,000	2,780
3,000		6,000	230,000	190,000	36,000	3,000
3,170	1/8	6,000	230,000	190,000	36,000	3,170
3,500		6,000	230,000	190,000	36,000	3,500
3,570	9/64	6,000	260,000	220,000	36,000	3,570
3,970	5/32	6,000	260,000	220,000	36,000	3,970
4,000		6,000	260,000	220,000	36,000	4,000
4,370	11/64	6,000	370,000	330,000	36,000	4,370
4,760	3/16	6,000	370,000	330,000	36,000	4,760
5,000		6,000	370,000	330,000	36,000	5,000
5,160	13/64	6,000	370,000	330,000	36,000	5,160
5,560	7/32	6,000	370,000	330,000	36,000	5,560
5,950	15/64	6,000	370,000	330,000	36,000	5,950
6,000		6,000	370,000	330,000	36,000	6,000
6,350	1/4	8,000	430,000	385,000	36,000	6,350
6,750	17/64	8,000	430,000	385,000	36,000	6,750
7,000		8,000	430,000	385,000	36,000	7,000
7,140	9/32	8,000	485,000	440,000	36,000	7,140
7,540	19/64	8,000	485,000	440,000	36,000	7,540
7,940	5/16	8,000	485,000	440,000	36,000	7,940
8,000		8,000	485,000	440,000	36,000	8,000

Brocas monolabio EB 100

75xD | EB 100 | WN | R | h5

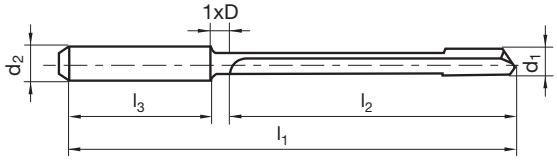
Material de corte	**Metal duro**
Acabado	a
Forma del mango	HA

P	•
M	•
K	○
N	
S	○
H	○

forma de circunferencia G • mango MMS con final cónico desde d1 = 3 mm es decir d2 = 6mm

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 808



Artículo Nº **5648**

d1 h5		d2 h6	l1	l2	l3	Código Nº
mm	inch	mm	mm	mm	mm	
2,380	3/32	4,000	220,000	190,000	28,000	2,380
2,500		4,000	255,000	220,000	28,000	2,500
2,780	7/64	4,000	255,000	220,000	28,000	2,780
3,000		6,000	320,000	280,000	36,000	3,000
3,170	1/8	6,000	320,000	280,000	36,000	3,170
3,500		6,000	320,000	280,000	36,000	3,500
3,570	9/64	6,000	360,000	320,000	36,000	3,570
3,970	5/32	6,000	360,000	320,000	36,000	3,970
4,000		6,000	360,000	320,000	36,000	4,000
4,370	11/64	6,000	525,000	485,000	36,000	4,370
4,760	3/16	6,000	525,000	485,000	36,000	4,760
5,000		6,000	525,000	485,000	36,000	5,000
5,160	13/64	6,000	525,000	485,000	36,000	5,160
5,560	7/32	6,000	525,000	485,000	36,000	5,560
5,950	15/64	6,000	525,000	485,000	36,000	5,950
6,000		6,000	525,000	485,000	36,000	6,000

Brocas monolabio EB 100

45,00 | EB 100 | WN | R | h5

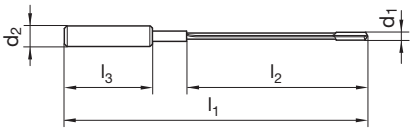
Material de corte	**Metal duro**
Acabado	◯
Forma del mango	HA

P	○
M	○
K	○
N	●
S	●
H	○

longitud de corte 45 mm • forma de circunferencia G

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 808



Artículo Nº **5024**

d1 h5		d2 h6	l1	l2	l3	Código Nº
mm	inch	mm	mm	mm	mm	
1,200		4,000	90,000	45,000	28,000	1,200
1,500		4,000	90,000	45,000	28,000	1,500
1,590	1/16	4,000	90,000	45,000	28,000	1,590
1,600		4,000	90,000	45,000	28,000	1,600
1,980	5/64	4,000	90,000	45,000	28,000	1,980
2,000		4,000	90,000	45,000	28,000	2,000
2,500		10,000	100,000	45,000	40,000	2,500
2,700		10,000	100,000	45,000	40,000	2,700
3,000		10,000	100,000	45,000	40,000	3,000
3,200		10,000	100,000	45,000	40,000	3,200

Brocas monolabio EB 100

45,00 | EB 100 | WN | R | h5

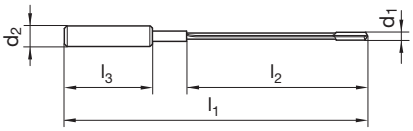
Material de corte	**Metal duro**
Acabado	A
Forma del mango	HA

P	•
M	○
K	•
N	○
S	○
H	○

longitud de corte 45 mm • forma de circunferencia G

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 808



Artículo Nº **5632**

d1 h5		d2 h6	l1	l2	l3	Código Nº
mm	inch	mm	mm	mm	mm	
1,200		4,000	90,000	45,000	28,000	1,200
1,500		4,000	90,000	45,000	28,000	1,500
1,590	1/16	4,000	90,000	45,000	28,000	1,590
1,600		4,000	90,000	45,000	28,000	1,600
1,980	5/64	4,000	90,000	45,000	28,000	1,980
2,000		4,000	90,000	45,000	28,000	2,000
2,500		10,000	100,000	45,000	40,000	2,500
2,700		10,000	100,000	45,000	40,000	2,700
3,000		10,000	100,000	45,000	40,000	3,000
3,200		10,000	100,000	45,000	40,000	3,200

Brocas monolabio EB 100

80,00 | EB 100 | WN | R | h5

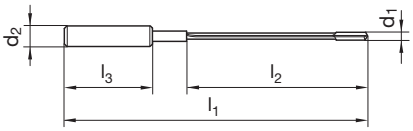
Material de corte	**Metal duro**
Acabado	◯
Forma del mango	HA

P	○
M	○
K	○
N	●
S	●
H	○

longitud de corte 80 mm • forma de circunferencia G

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 808



Artículo Nº **5020**

d1 h5		d2 h6	l1	l2	l3	Código Nº
mm	inch	mm	mm	mm	mm	
1,200		4,000	125,000	80,000	28,000	1,200
1,500		4,000	125,000	80,000	28,000	1,500
1,590	1/16	4,000	125,000	80,000	28,000	1,590
1,600		4,000	125,000	80,000	28,000	1,600
1,980	5/64	4,000	125,000	80,000	28,000	1,980
2,000		4,000	125,000	80,000	28,000	2,000
2,500		10,000	135,000	80,000	40,000	2,500
2,700		10,000	135,000	80,000	40,000	2,700
3,000		10,000	135,000	80,000	40,000	3,000
3,200		10,000	135,000	80,000	40,000	3,200
3,500		10,000	135,000	80,000	40,000	3,500
4,000		10,000	135,000	80,000	40,000	4,000
4,200		10,000	135,000	80,000	40,000	4,200
4,500		10,000	135,000	80,000	40,000	4,500
5,000		10,000	135,000	80,000	40,000	5,000

Brocas monolabio EB 100

80,00 | EB 100 | WN | R | h5

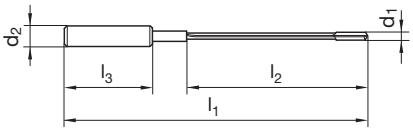
Material de corte	**Metal duro**
Acabado	A
Forma del mango	HA

P	•
M	○
K	•
N	○
S	○
H	○

longitud de corte 80 mm • forma de circunferencia G

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 808



Artículo Nº **5633**

d1 h5		d2 h6	l1	l2	l3	Código Nº
mm	inch	mm	mm	mm	mm	
1,200		4,000	125,000	80,000	28,000	1,200
1,500		4,000	125,000	80,000	28,000	1,500
1,590	1/16	4,000	125,000	80,000	28,000	1,590
1,600		4,000	125,000	80,000	28,000	1,600
1,980	5/64	4,000	125,000	80,000	28,000	1,980
2,000		4,000	125,000	80,000	28,000	2,000
2,500		10,000	135,000	80,000	40,000	2,500
2,700		10,000	135,000	80,000	40,000	2,700
3,000		10,000	135,000	80,000	40,000	3,000
3,200		10,000	135,000	80,000	40,000	3,200
3,500		10,000	135,000	80,000	40,000	3,500
4,000		10,000	135,000	80,000	40,000	4,000
4,200		10,000	135,000	80,000	40,000	4,200
4,500		10,000	135,000	80,000	40,000	4,500
5,000		10,000	135,000	80,000	40,000	5,000

Brocas monolabio EB 100

120,00 | EB 100 | WN | R | h5

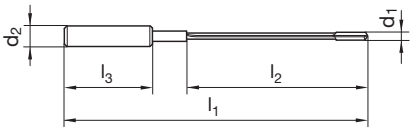
Material de corte	**Metal duro**
Acabado	◯
Forma del mango	HA

P	○
M	○
K	○
N	●
S	●
H	○

longitud de corte 120 mm • forma de circunferencia G

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 808



Artículo Nº **5026**

d1 h5		d2 h6	l1	l2	l3	Código Nº
mm	inch	mm	mm	mm	mm	
1,500		4,000	165,000	120,000	28,000	1,500
1,590	1/16	4,000	165,000	120,000	28,000	1,590
1,600		4,000	165,000	120,000	28,000	1,600
1,980	5/64	4,000	165,000	120,000	28,000	1,980
2,000		4,000	165,000	120,000	28,000	2,000
2,500		10,000	175,000	120,000	40,000	2,500
2,700		10,000	175,000	120,000	40,000	2,700
3,000		10,000	175,000	120,000	40,000	3,000
3,200		10,000	175,000	120,000	40,000	3,200
3,500		10,000	175,000	120,000	40,000	3,500
4,000		10,000	175,000	120,000	40,000	4,000
4,200		10,000	175,000	120,000	40,000	4,200
4,500		10,000	175,000	120,000	40,000	4,500
5,000		10,000	175,000	120,000	40,000	5,000

Brocas monolabio EB 100

120,00 | EB 100 | WN | R | h5

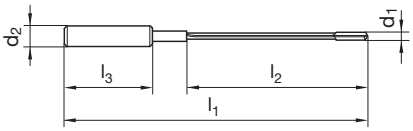
Material de corte	**Metal duro**
Acabado	A
Forma del mango	HA

P	•
M	○
K	•
N	○
S	○
H	○

longitud de corte 120 mm • forma de circunferencia G

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 808



Artículo Nº **5637**

d1 h5		d2 h6	l1	l2	l3	Código Nº
mm	inch	mm	mm	mm	mm	
1,500		4,000	165,000	120,000	28,000	1,500
1,590	1/16	4,000	165,000	120,000	28,000	1,590
1,600		4,000	165,000	120,000	28,000	1,600
1,980	5/64	4,000	165,000	120,000	28,000	1,980
2,000		4,000	165,000	120,000	28,000	2,000
2,500		10,000	175,000	120,000	40,000	2,500
2,700		10,000	175,000	120,000	40,000	2,700
3,000		10,000	175,000	120,000	40,000	3,000
3,200		10,000	175,000	120,000	40,000	3,200
3,500		10,000	175,000	120,000	40,000	3,500
4,000		10,000	175,000	120,000	40,000	4,000
4,200		10,000	175,000	120,000	40,000	4,200
4,500		10,000	175,000	120,000	40,000	4,500
5,000		10,000	175,000	120,000	40,000	5,000

Brocas monolabio EB 100

160,00 | EB 100 | WN | R | h5

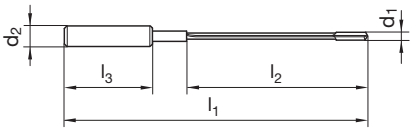
Material de corte	**Metal duro**
Acabado	◯
Forma del mango	HA

P	○
M	○
K	○
N	●
S	●
H	○

longitud de corte 160 mm • forma de circunferencia G

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 808



Artículo Nº **5021**

d1 h5		d2 h6	l1	l2	l3	Código Nº
mm	inch	mm	mm	mm	mm	
1,500		4,000	205,000	160,000	28,000	1,500
1,590	1/16	4,000	205,000	160,000	28,000	1,590
1,600		4,000	205,000	160,000	28,000	1,600
1,980	5/64	4,000	205,000	160,000	28,000	1,980
2,000		4,000	205,000	160,000	28,000	2,000
2,500		10,000	215,000	160,000	40,000	2,500
2,700		10,000	215,000	160,000	40,000	2,700
3,000		10,000	215,000	160,000	40,000	3,000
3,200		10,000	215,000	160,000	40,000	3,200
3,500		10,000	215,000	160,000	40,000	3,500
4,000		10,000	215,000	160,000	40,000	4,000
4,200		10,000	215,000	160,000	40,000	4,200
4,500		10,000	215,000	160,000	40,000	4,500
5,000		10,000	215,000	160,000	40,000	5,000
6,000		16,000	225,000	160,000	48,000	6,000
8,000		16,000	225,000	160,000	48,000	8,000

Brocas monolabio EB 100

160,00 | EB 100 | WN | R | h5

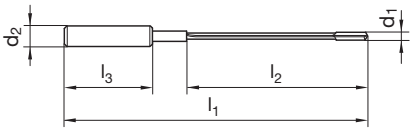
Material de corte	**Metal duro**
Acabado	A
Forma del mango	HA

P	•
M	○
K	•
N	○
S	○
H	○

longitud de corte 160 mm • forma de circunferencia G

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 808



Artículo Nº **5638**

d1 h5		d2 h6	l1	l2	l3	Código Nº
mm	inch	mm	mm	mm	mm	
1,500		4,000	205,000	160,000	28,000	1,500
1,590	1/16	4,000	205,000	160,000	28,000	1,590
1,600		4,000	205,000	160,000	28,000	1,600
1,980	5/64	4,000	205,000	160,000	28,000	1,980
2,000		4,000	205,000	160,000	28,000	2,000
2,500		10,000	215,000	160,000	40,000	2,500
2,700		10,000	215,000	160,000	40,000	2,700
3,000		10,000	215,000	160,000	40,000	3,000
3,200		10,000	215,000	160,000	40,000	3,200
3,500		10,000	215,000	160,000	40,000	3,500
4,000		10,000	215,000	160,000	40,000	4,000
4,200		10,000	215,000	160,000	40,000	4,200
4,500		10,000	215,000	160,000	40,000	4,500
5,000		10,000	215,000	160,000	40,000	5,000
6,000		16,000	225,000	160,000	48,000	6,000
8,000		16,000	225,000	160,000	48,000	8,000

Brocas monolabio EB 80

20xD | EB 80 | WN | R | h5

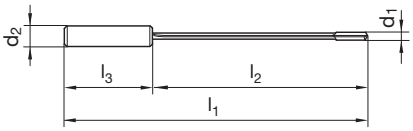
Material de corte	Carbide
Acabado	S
Forma del mango	HA

P	•
M	○
K	•
N	○
S	○
H	○

con mayor volumen para el aceite • forma de circunferencia G • con rompevirutas longitudinal

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 808



Artículo Nº **5018**

d1 h5		d2 h6	l1	l2	l3	Código Nº
mm	inch	mm	mm	mm	mm	
4,000		12,000	150,000	100,000	45,000	4,000
4,200		12,000	160,000	110,000	45,000	4,200
4,500		12,000	170,000	120,000	45,000	4,500
5,000		16,000	180,000	130,000	48,000	5,000
5,500		16,000	190,000	140,000	48,000	5,500
6,000		16,000	210,000	160,000	48,000	6,000
6,500		16,000	220,000	170,000	48,000	6,500
7,000		16,000	235,000	185,000	48,000	7,000
8,000		16,000	260,000	210,000	48,000	8,000
9,000		16,000	280,000	230,000	48,000	9,000
10,000		20,000	320,000	260,000	50,000	10,000
12,000		20,000	370,000	310,000	50,000	12,000

Brocas monolabio EB 80

20xD | EB 80 | WN | R | h5

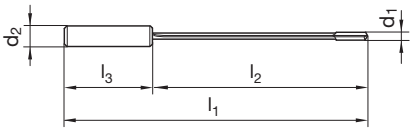
Material de corte	Carbide
Acabado	C
Forma del mango	HA

P	○
M	●
K	○
N	
S	●
H	○

forma de circunferencia G

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 808



Artículo Nº **5639**

d1 h5		d2 h6	l1	l2	l3	Código Nº
mm	inch	mm	mm	mm	mm	
3,970	5/32	10,000	150,000	100,000	40,000	3,970
4,000		12,000	150,000	100,000	45,000	4,000
5,000		16,000	180,000	130,000	48,000	5,000
5,156	13/64	16,000	180,000	130,000	48,000	5,156
6,000		16,000	210,000	160,000	48,000	6,000
6,350	1/4	16,000	220,000	170,000	48,000	6,350
7,000		16,000	235,000	185,000	48,000	7,000
7,938	5/16	16,000	260,000	210,000	48,000	7,938
8,000		16,000	260,000	210,000	48,000	8,000
9,000		16,000	280,000	230,000	48,000	9,000
9,525	3/8	16,000	290,000	240,000	48,000	9,525
10,000		20,000	320,000	260,000	50,000	10,000
11,000		20,000	340,000	290,000	50,000	11,000
11,113	7/16	20,000	340,000	290,000	50,000	11,113
12,000		20,000	370,000	310,000	50,000	12,000
12,700	1/2	20,000	385,000	330,000	50,000	12,700

Brocas monolabio EB 80

30xD | EB 80 | WN | R | h5

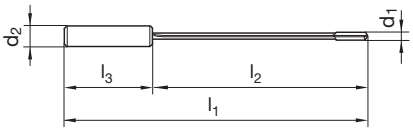
Material de corte	Carbide
Acabado	S
Forma del mango	HA

P	•
M	○
K	•
N	○
S	○
H	○

con mayor volumen para el aceite • forma de circunferencia G • con rompevirutas longitudinal

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 808



Artículo Nº **5460**

d1 h5		d2 h6	l1	l2	l3	Código Nº
mm	inch	mm	mm	mm	mm	
4,000		12,000	200,000	155,000	45,000	4,000
4,200		12,000	210,000	165,000	45,000	4,200
4,500		12,000	220,000	175,000	45,000	4,500
5,000		16,000	230,000	182,000	48,000	5,000
5,500		16,000	245,000	197,000	48,000	5,500
6,000		16,000	260,000	212,000	48,000	6,000
6,500		16,000	275,000	227,000	48,000	6,500
7,000		16,000	290,000	242,000	48,000	7,000
8,000		16,000	320,000	272,000	48,000	8,000
9,000		16,000	350,000	302,000	48,000	9,000
10,000		20,000	400,000	350,000	50,000	10,000
12,000		20,000	450,000	400,000	50,000	12,000

Brocas monolabio EB 80

30xD | EB 80 | WN | R | h5

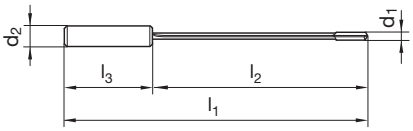
Material de corte	Carbide
Acabado	C
Forma del mango	HA

P	○
M	●
K	○
N	
S	●
H	○

forma de circunferencia G

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 808



Artículo Nº **5640**

d1 h5		d2 h6	l1	l2	l3	Código Nº
mm	inch	mm	mm	mm	mm	
3,970	5/32	10,000	200,000	155,000	40,000	3,970
4,000		12,000	200,000	155,000	45,000	4,000
5,000		16,000	230,000	182,000	48,000	5,000
5,156	13/64	16,000	230,000	182,000	48,000	5,156
6,000		16,000	260,000	212,000	48,000	6,000
6,350	1/4	16,000	275,000	227,000	48,000	6,350
7,000		16,000	290,000	242,000	48,000	7,000
7,938	5/16	16,000	320,000	272,000	48,000	7,938
8,000		16,000	320,000	272,000	48,000	8,000
9,000		16,000	350,000	302,000	48,000	9,000
9,525	3/8	16,000	380,000	330,000	48,000	9,525
10,000		20,000	400,000	350,000	50,000	10,000
11,000		20,000	430,000	380,000	50,000	11,000
11,113	7/16	20,000	430,000	380,000	50,000	11,113
12,000		20,000	450,000	400,000	50,000	12,000
12,700	1/2	20,000	500,000	450,000	50,000	12,700

Brocas monolabio EB 80

40xD | EB 80 | WN | R | h5

Material de corte	Carbide
Acabado	○
Forma del mango	HB

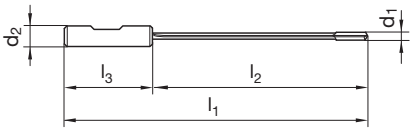
NEW

P	•
M	○
K	•
N	○
S	○
H	○

con mayor volumen para el aceite • forma de circunferencia G • con rompevirutas longitudinal

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 808



Artículo Nº **5689**

d1 h5		d2 h6	l1	l2	l3	Código Nº
mm	inch	mm	mm	mm	mm	
4,000		12,000	230,000	185,000	45,000	4,000
5,000		16,000	280,000	232,000	48,000	5,000
6,000		16,000	320,000	272,000	48,000	6,000
8,000		16,000	420,000	372,000	48,000	8,000
10,000		20,000	510,000	460,000	50,000	10,000
12,000		20,000	600,000	550,000	50,000	12,000

Brocas monolabio EB 80

40xD | EB 80 | WN | R | h5

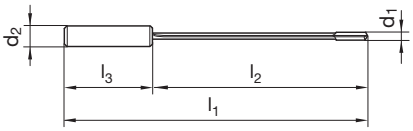
Material de corte	Carbide
Acabado	S
Forma del mango	HA

P	•
M	○
K	•
N	○
S	○
H	○

con mayor volumen para el aceite • forma de circunferencia G • con rompevirutas longitudinal

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 808



Artículo Nº **5022**

d1 h5		d2 h6	l1	l2	l3	Código Nº
mm	inch	mm	mm	mm	mm	
4,000		12,000	230,000	185,000	45,000	4,000
4,200		12,000	240,000	195,000	45,000	4,200
4,500		12,000	250,000	205,000	45,000	4,500
5,000		16,000	280,000	232,000	48,000	5,000
5,500		16,000	300,000	252,000	48,000	5,500
6,000		16,000	320,000	272,000	48,000	6,000
6,500		16,000	340,000	292,000	48,000	6,500
7,000		16,000	370,000	322,000	48,000	7,000
8,000		16,000	420,000	372,000	48,000	8,000
9,000		16,000	450,000	402,000	48,000	9,000
10,000		20,000	510,000	460,000	50,000	10,000
12,000		20,000	600,000	550,000	50,000	12,000

Brocas monolabio EB 80

40xD | EB 80 | WN | R | h5

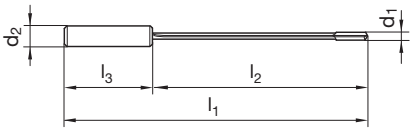
Material de corte	Carbide
Acabado	C
Forma del mango	HA

P	○
M	●
K	○
N	
S	●
H	○

forma de circunferencia G

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 808



Artículo Nº **5641**

d1 h5		d2 h6	l1	l2	l3	Código Nº
mm	inch	mm	mm	mm	mm	
3,970	5/32	10,000	230,000	185,000	40,000	3,970
4,000		12,000	230,000	185,000	45,000	4,000
5,000		16,000	280,000	232,000	48,000	5,000
5,156	13/64	16,000	280,000	232,000	48,000	5,156
6,000		16,000	320,000	272,000	48,000	6,000
6,350	1/4	16,000	340,000	292,000	48,000	6,350
7,000		16,000	370,000	322,000	48,000	7,000
7,938	5/16	16,000	420,000	372,000	48,000	7,938
8,000		16,000	420,000	372,000	48,000	8,000
9,000		16,000	450,000	402,000	48,000	9,000
9,525	3/8	16,000	480,000	432,000	48,000	9,525
10,000		20,000	510,000	460,000	50,000	10,000
11,000		20,000	550,000	500,000	50,000	11,000
11,113	7/16	20,000	550,000	500,000	50,000	11,113
12,000		20,000	600,000	550,000	50,000	12,000
12,700	1/2	20,000	635,000	585,000	50,000	12,700

Brocas monolabio EB 80

80xD | EB 80 | WN | R | h5

Material de corte	**Carbide**
Acabado	◯
Forma del mango	HB

NEW

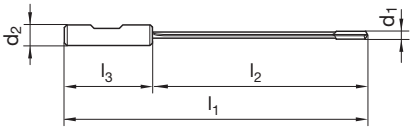
P	•
M	○
K	•
N	○
S	○
H	○

con mayor volumen para el aceite • forma de circunferencia G • con rompevirutas longitudinal

longitud máxima de corte por herramienta 40xD, en el caso de taladros más profundos utilizar primero la broca Art.-Nr. 5689

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 808



Artículo Nº **5690**

d1 h5		d2 h6	l1	l2	l3	Código Nº
mm	inch	mm	mm	mm	mm	
3,970	5/32	10,000	390,000	350,000	40,000	3,970
4,950		16,000	480,000	432,000	48,000	4,950
5,950	15/64	16,000	560,000	512,000	48,000	5,950
7,950		16,000	740,000	692,000	48,000	7,950
9,950		20,000	910,000	860,000	50,000	9,950
11,950		20,000	1080,000	1030,000	50,000	11,950

Brocas monolabio EB 80

80xD | EB 80 | WN | R | h5

Material de corte	Carbide
Acabado	S
Forma del mango	HA

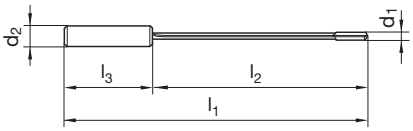
P	•
M	○
K	•
N	○
S	○
H	○

con mayor volumen para el aceite • forma de circunferencia G • con rompevirutas longitudinal

longitud máxima de corte por herramienta 40xD, en el caso de taladros más profundos utilizar primero la broca Art.-Nr. 5022

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 808



Artículo Nº **5023**

d1 h5		d2 h6	l1	l2	l3	Código Nº
mm	inch	mm	mm	mm	mm	
4,950		16,000	480,000	432,000	48,000	4,950
5,950	15/64	16,000	560,000	512,000	48,000	5,950
7,950		16,000	740,000	692,000	48,000	7,950
9,950		20,000	910,000	860,000	50,000	9,950
11,950		20,000	1080,000	1030,000	50,000	11,950

Brocas monolabio EB 80

80xD | EB 80 | WN | R | h5

Material de corte	Carbide
Acabado	C
Forma del mango	HA

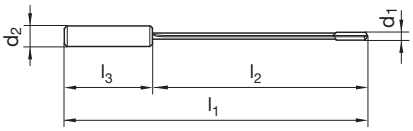
P	○
M	●
K	○
N	
S	●
H	○

forma de circunferencia G

longitud máxima de corte por herramienta 40xD, en el caso de taladros más profundos utilizar primero la broca Art.-Nr. 5641

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 808



Artículo Nº **5642**

d1 h5		d2 h6	l1	l2	l3	Código Nº
mm	inch	mm	mm	mm	mm	
4,950		16,000	480,000	432,000	48,000	4,950
5,106		16,000	480,000	432,000	48,000	5,106
5,950	15/64	16,000	560,000	512,000	48,000	5,950
6,300		16,000	590,000	542,000	48,000	6,300
6,950		16,000	650,000	602,000	48,000	6,950
7,888		16,000	740,000	692,000	48,000	7,888
7,950		16,000	740,000	692,000	48,000	7,950
8,950		16,000	820,000	772,000	48,000	8,950
9,475		16,000	870,000	822,000	48,000	9,475
9,950		20,000	910,000	860,000	50,000	9,950
10,950		20,000	995,000	945,000	50,000	10,950
11,063		20,000	995,000	945,000	50,000	11,063
11,950		20,000	1080,000	1030,000	50,000	11,950
12,650		20,000	1140,000	1090,000	50,000	12,650

Brocas monolabio EB 80

1100,00 | EB 80 | WN | R | h5

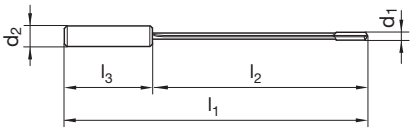
Material de corte	Carbide
Acabado	S
Forma del mango	cil.

P	•
M	○
K	•
N	•
S	○
H	○

Long. Total = 1100,00mm • forma de circunferencia G • mango para máquina broca cañón (T3.1)

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 808



Artículo Nº **5164**

d1 h5		d2 h6	l1	l2	l3	Código Nº
mm	inch	mm	mm	mm	mm	
6,000		25,000	1100,000	1010,000	70,000	6,000
7,000		25,000	1100,000	1010,000	70,000	7,000
8,000		25,000	1100,000	1010,000	70,000	8,000
10,000		25,000	1100,000	1010,000	70,000	10,000
12,000		25,000	1100,000	1010,000	70,000	12,000
16,000		25,000	1100,000	1010,000	70,000	16,000
20,000		25,000	1100,000	1010,000	70,000	20,000
22,000		25,000	1100,000	1000,000	70,000	22,000

Brocas de dos labios ZB 80

30xD | ZB 80 | WN | R | h5

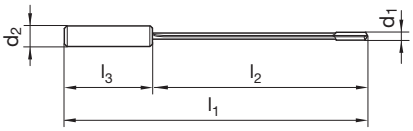
Material de corte	Carbide
Acabado	◯
Forma del mango	HA

P	
M	
K	
N	•
S	
H	

brocas cañón de 4 facetas • para aluminio

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 808



Artículo Nº **5019**

d1 h5	d2	l1	l2	l3	Código Nº
mm	mm	mm	mm	mm	
8,000	16,000	330,000	280,000	48,000	8,000
10,000	20,000	390,000	340,000	50,000	10,000
12,000	20,000	450,000	400,000	50,000	12,000

Brocas de dos labios ZB 80

30xD | ZB 80 | WN | R | h5

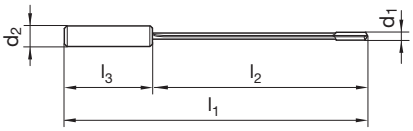
Material de corte	Carbide
Acabado	◯
Forma del mango	HA

P	
M	
K	•
N	
S	
H	

brocas cañón de 4 facetas • para fundición

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 808

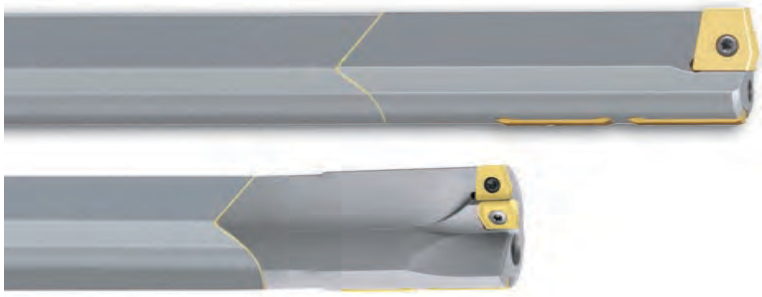


Artículo Nº **5643**

d1 h5	d2	l1	l2	l3	Código Nº
mm	mm	mm	mm	mm	
8,000	16,000	330,000	280,000	48,000	8,000
10,000	20,000	390,000	340,000	50,000	10,000
12,000	20,000	450,000	400,000	50,000	12,000

EB 800

- Como solución especial también hasta diámetro nominal 52,00 mm.
- Plaquitas y patines en medidas de 1/10 mm como estándar en 1/100 mm como especial.



Brocas cañón Gühring de un labio con plaquitas y patines guía intercambiables, solamente las producimos como herramientas especiales para aplicaciones específicas según necesidades de nuestros clientes. Son idóneas para mecanizar casi todos los materiales y disponemos de un campo de diámetros entre Ø 16,0 hasta 40,0 mm y longitud de corte máxima de 3000 mm.

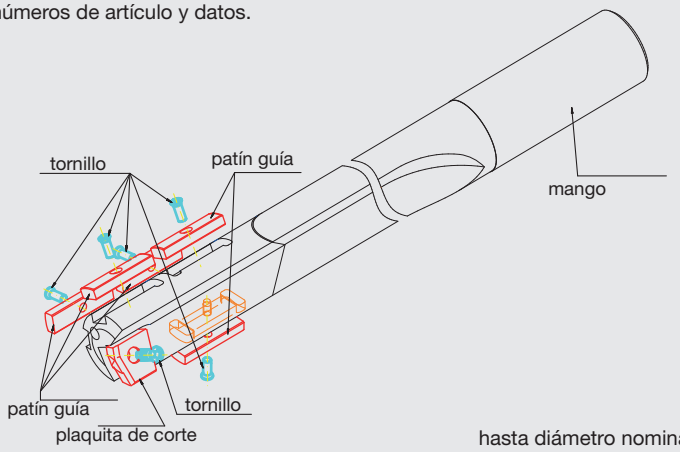
Ventajas especialmente interesantes son:

- Con la técnica de intercambiar plaquitas y patines guía es posible la combinación de tipos de metal duro y recubrimientos.
- Gracias a las plaquitas intercambiables y a los patines guías de precisión no es complicada su colocación.
- Elaboramos individualmente los patines guías de precisión para su broca cañón con metal duro de Gühring. Estos se pueden instalar sin problema y así se consigue dos rendimientos completos. Adicionalmente se pueden recubrir con cualquier recubrimiento Gühring.
- Los asientos de las plaquitas de precisión suponen un limitado número de partes cambiables. Por eso la construcción es muy estable.
- Las costosas interrupciones no tienen lugar porque se efectúa el cambio de la pieza de desgaste dentro de la máquina.
- Gracias a la técnica de las plaquitas intercambiables no es necesario el reafilado.
- La elección de la plaquita intercambiable más adecuada supone una óptima rotura de viruta incluso en materiales difíciles de mecanizar.
- Las plaquitas intercambiables de precisión de metal duro de Gühring se fabrican también especialmente para el trabajo a efectuar por Ud. con la broca cañón. Se pueden usar todos los recubrimientos Gühring adicionales
- El diámetro nominal dentro del campo de diámetro solo se puede alterar cambiando las “plaquitas”.
- El elemento de sujeción lo fabricamos con acero revenido según:
  - DIN 6535 HA
  - DIN 6535 HE
  - DIN 6535 HB
  - DIN 1835 E

También son posibles todas las formas para máquinas de taladros profundos.

Atención: - longitud de corte mínima 15 x D
- tolerancia posible IT9/IT10

Con cada oferta recibirá un plano con todos los números de artículo y datos.



hasta diámetro nominal 23,99 mm 4 patines guía
desde diámetro nominal 24,00 mm 5 patines guía

Momento dinamométrico-valores orientativos

Cortes exteriores plaquitas intercambiables

Tamaño	Diámetro en mm	Rosca métrica ISO en mm	Tamaño torx	Momento dinamométrico en Nm
0.	12,00 – 15,99	M2,5 x 5,2	T8	1,00
1.	16,00 – 19,99	M3,0 x 6,4	T9	1,40
2.	20,00 – 25,99	M4,0 x 7,7	T15	2,50
3.	26,00 – 29,99	M4,0 x 10,6	T15	2,50
4.	30,00 – 33,99	M4,0 x 10,6	T15	2,50
5.	34,00 – 37,99	M5,0 x 14,2	T20	5,00
6.	38,00 – 40,00	M5,0 x 14,2	T20	5,00
7.	40,01 – 43,99	M3,0 x 6,4	T9	1,40
8.	44,00 – 47,99	M4,0 x 7,7	T15	2,50
9.	48,00 – 52,00	M4,0 x 10,6	T15	2,50

Cortes interiores plaquitas intercambiables

Tamaño	Diámetro en mm	Rosca métrica ISO en mm	Tamaño torx	Momento dinamométrico en Nm
7. – 9.	40,01 – 52,00	M4,5 x 11,8	T15	3,00

Patines guía

Tamaño	Diámetro en mm	Rosca métrica ISO en mm	Tamaño torx	Momento dinamométrico en Nm
0.	12,00 – 15,99	M1,6 x 4,4	T5	0,40
1.	16,00 – 17,99	M2,2 x 4,6	T7	0,60
1.	18,00 – 19,99	M2,2 x 5,6	T7	0,60
2.	20,00 – 22,49	M2,5 x 5,2	T8	1,00
2.	22,50 – 25,99	M2,5 x 6,4	T8	1,00
3.	26,00 – 29,99	M2,5 x 6,4	T8	1,00
4. – 9.	30,00 – 52,00	M3,0 x 8,0	T9	1,40

Brocas de un labio EB 800 con plaquitas intercambiables

30xD | EB 800 | WN | R | h8

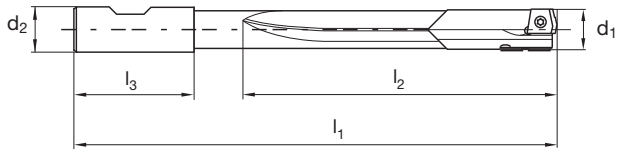
Material de corte	Carbide
Acabado	S
Forma del mango	HB

P	•
M	○
K	○
N	•
S	○
H	

con placa intercambiale • con patines guía intercambiables • con atornillador • con tornillos • aplicación universal • llave dinamométrica art.nº 4915 se debe pedir aparte

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 808



Artículo Nº **5644**

d1 h8		d2	l1	l2	l3	Código Nº
mm	inch	mm	mm	mm	mm	
12,000		20,000	446,000	384,000	50,000	12,000
12,700	1/2	20,000	468,000	406,000	50,000	12,700
14,000		20,000	510,000	448,000	50,000	14,000
15,000		25,000	548,000	480,000	56,000	15,000
16,000		25,000	580,000	512,000	56,000	16,000
18,000		25,000	644,000	576,000	56,000	18,000
20,000		32,000	712,000	640,000	60,000	20,000
24,000		32,000	840,000	768,000	60,000	24,000

Soluciones especiales desde 12,0-52,0mm, long. total max. 3.000mm

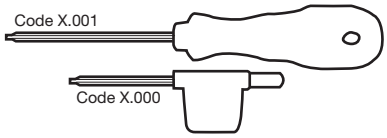
Tamaño porta	Campo de diámetros	Cuerpo base / porta	Plaquitas de corte: Cortes exteriores plaquitas intercambiables: Recubierto de TiN	Recubierto de FIRE	Recubierto de Signum	Recubierto de TiAlN nanoA	Tornillo	Atornillador
0.	Ø12.00 - Ø12.49 Ø12.50 - Ø12.99 Ø13.00 - Ø13.49 Ø13.50 - Ø13.99 Ø14.00 - Ø14.49 Ø14.50 - Ø14.99 Ø15.00 - Ø15.49 Ø15.50 - Ø15.99	Cuerpo base / porta individual para cada cliente. Longitud total hasta 3000mm, longitud de corte desde 10xD Alterantiva: programa estándar art. nº. 5644 desde diámetro 12,00mm hasta 24,00mm con medidas preferentes completo con plaquitas intercambiables TIN y patines TIN	P ● M ○ K ○ N ● S ○ H	P ● M ○ K ● N ○ S ○ H	P ● M ● K ● N S ● H ○	P ○ M ● K ○ N ○ S ● H ○	Art.nº 4071 2.502 T8 M2.5x 5.2	Art.nº 1612 8.001
1.	Ø16.00 - Ø16.49 Ø16.50 - Ø16.99 Ø17.00 - Ø17.49 Ø17.50 - Ø17.99 Ø18.00 - Ø18.49 Ø18.50 - Ø18.99 Ø19.00 - Ø19.49 Ø19.50 - Ø19.99						Art.nº 4071 3.002 T9 M3x6.4	Art.nº 1612 9.001
2.	Ø20.00 - Ø20.49 Ø20.50 - Ø20.99 Ø21.00 - Ø21.49 Ø21.50 - Ø21.99 Ø22.00 - Ø22.49 Ø22.50 - Ø22.99 Ø23.00 - Ø23.49 Ø23.50 - Ø23.99 Ø24.00 - Ø24.49 Ø24.50 - Ø24.99 Ø25.00 - Ø25.49 Ø25.50 - Ø25.99		Art.nº 5029 + diámetro nominal= nº art.	Art.nº 5704 + diámetro nominal= nº art.	Art.nº 5702 + diámetro nominal= nº art.	Art.nº 5706 + diámetro nominal= nº art.	Art.nº 4071 4.001 T15 M4x7.7	Art.nº 1612 15.001
3.	Ø26.00 - Ø26.49 Ø26.50 - Ø26.99 Ø27.00 - Ø27.49 Ø27.50 - Ø27.99 Ø28.00 - Ø28.49 Ø28.50 - Ø28.99 Ø29.00 - Ø29.49 Ø29.50 - Ø29.99						Art.nº 4071 4.002 T15 M4x10.6	
4.	Ø30.00 - Ø30.49 Ø30.50 - Ø30.99 Ø31.00 - Ø31.49 Ø31.50 - Ø31.99 Ø32.00 - Ø32.49 Ø32.50 - Ø32.99 Ø33.00 - Ø33.49 Ø33.50 - Ø33.99							
5.	Ø34.00 - Ø34.49 Ø34.50 - Ø34.99 Ø35.00 - Ø35.49 Ø35.50 - Ø35.99 Ø36.00 - Ø36.49 Ø36.50 - Ø36.99 Ø37.00 - Ø37.49 Ø37.50 - Ø37.99						Art.nº 4071 5.002 T20 M5x14.2	Art.nº 1612 20.001
6.	Ø38.00 - Ø38.49 Ø38.50 - Ø38.99 Ø39.00 - Ø39.49 Ø39.50 - Ø40.00							
7.	Ø40.01 - Ø40.49 Ø40.50 - Ø40.99 Ø41.00 - Ø41.49 Ø41.50 - Ø41.99 Ø42.00 - Ø42.49 Ø42.50 - Ø42.99 Ø43.00 - Ø43.49 Ø43.50 - Ø43.99		Sobo	Sobo	Sobo	Sobo	Art.nº 4071 3.002 TX9 M3x6.4	Art.nº 1612 9.001
8.	Ø44.00 - Ø44.49 Ø44.50 - Ø44.99 Ø45.00 - Ø45.49 Ø45.50 - Ø45.99 Ø46.00 - Ø46.49 Ø46.50 - Ø46.99 Ø47.00 - Ø47.49 Ø47.50 - Ø47.99						Art.nº 4071 4.001 TX15 M4x7.7	Art.nº 1612 15.001
9.	Ø48.00 - Ø48.49 Ø48.50 - Ø48.99 Ø49.00 - Ø49.49 Ø49.50 - Ø49.99 Ø50.00 - Ø50.49 Ø50.50 - Ø50.99 Ø51.00 - Ø51.49 Ø51.50 - Ø52.00						Art.nº 4071 4.002 TX15 M4x10.6	

			Patines guía					
Cortes int.	Tornillo	Atornillador	Patines guía				Tornillo	Atornillador
			Recubierto de TiN	Recubierto de FIRE	Recubierto de Signum	Recubierto de TiAlN nanoA		
			P ● M ○ K ○ N ● S ○ H	P ● M ○ K ● N ○ S ○ H	P ● M ● K ● N S ● H ○	P ○ M ● K ○ N ○ S ● H ○	Art.nº 4071 1.601 T5 M1.6x4.4	Art.nº 1612 5.001
							Art.nº 4071 2.203 T7 / M2.2x 4.6	Art.nº 1612 7.001
							Art.nº 4071 2.202 T7 / M2.2x5.6	
							Art.nº 4071 2.502 T8 M2.5x 5.2	Art.nº 1612 8.001
			Art.nº 5030 + diámetro nominal= nº art.	Art.nº 5705 + diámetro nominal= nº art.	Art.nº 5703 + diámetro nominal= nº art.	Art.nº 5707 + diámetro nominal= nº art.	Art.nº 4071 2.501 T8 M2.5x6.4	
blancas Sobo **TiN** Sobo **FIRE** Sobo	Art.nº 4071 4.501 T15 M4.5x11.8	Art.nº 1612 15.001	Sobo	Sobo	Sobo	Sobo	Art.nº 4071 3.003 T9 M3x8	Art.nº 1612 9.001

Brocas para agujeros profundos

Atornillador Torx

WN



Artículo Nº **1612**

Tamaño	Código Nº
T5	5,001
T7	7,001
T8	8,001
T9	9,001
T15	15,001
T20	20,001

Llave dinamométrica

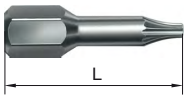
WN

Artículo Nº **4915**

Medida punta			Tipo	Código Nº
		Nm		
1/4”	hexágono	0,4-1	A	1,001
1/4”	hexágono	1-5	A	5,001

Adaptor exagonal

WN

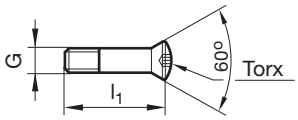


Artículo Nº **4917**

Medida punta		Torx	L	Código Nº
			mm	
1/4	hexágono	T5	25,000	5,000
1/4	hexágono	T7	25,000	7,000
1/4	hexágono	T8	25,000	8,000
1/4	hexágono	T9	25,000	9,000
1/4	hexágono	T15	25,000	15,000
1/4	hexágono	T20	25,000	20,000

Tornillos de fijación

WN



Artículo Nº **4071**

G	l1	Torx	Código Nº
	mm		
M1,6	4,400	T5	1,601
M2,2	5,600	T7	2,202
M2,2	4,600	T7	2,203
M2,5	6,400	T8	2,501
M2,5	5,200	T8	2,502
M3	6,400	T9	3,002
M3	8,000	T9	3,003
M4	7,700	T15	4,001
M4	10,600	T15	4,002
M5	14,200	T20	5,002

EQUIPAMIENTO PARA AFILAR
Y ACCESORIOS

Máquina para afilar brocas cañón TBM 116

TBM 116 es una afiladora manual universal. Es particularmente compacta y forma una unidad perfecta junto con el dispositivo de afilado de brocas monolabio Guhring y la doble muela Guhring. Es particularmente apta para el reafilado de cantidades pequeñas y medianas de distintos diámetros y largos. Además permite, entre otros, el montaje sencillo de un rompevirutas en brocas para agujeros profundos monolabio.

Volumen de suministro:
Una afiladora y dos lámparas de máquina de alta calidad, así como dos tomas de corriente 220 V para montar (el dispositivo de afilado y la muela se tienen que pedir por separado)

Datos de la máquina:
Tensión de servicio 380 V/50 Hz, velocidad de giro muela 2850 rpm, diámetro máx. muela 150 mm
Nº de artículo: 600 127 170

Dispositivo para afilar brocas cañón TBV 116 desde Día 3 hasta 30 mm

Este dispositivo está diseñado para el reafilado de brocas para agujeros profundos monolabio en una gama de diámetros de 3 mm a 30 mm. Realiza destalonados estándar y especiales. Gracias a la pinola corta no se necesita observar una longitud mínima de la ranura de sujeción. Para el apoyo de herramientas largas, el volumen de suministro comprende además una barra de apoyo. De este modo, el modelo TBV 116 se puede utilizar de forma universal y también en cada afiladora de herramientas manual corriente en el mercado. **Para esto recomendamos nuestra muela simple DSS 125.**
Atención:
Las brocas para agujeros profundos monolabio tienen un ángulo de apertura del espacio de virutas de 120°, por lo cual no se pueden sujetar en un aparato divisor con una pinza de sujeción. En este caso, la herramienta podría quedar destruida.
Nº de artículo: 600 127 171

Dispositivo para afilar brocas cañón TBV 216 desde Día 1 hasta 6 mm

El nuevo dispositivo universal de reafilado TBV 216, pensado especialmente para brocas cañón de un corte y con diámetros pequeños de 1,0 hasta 6.0mm y una longitud total de máximo 350mm, permite el reafilado o modificado de brocas cañón de un corte con poco y fácil trabajo en solo 4 operaciones.
El reafilado se realiza con un dispositivo oscilante de 3 ejes que permite varios ángulos de afilado. Todos los ángulos se pueden graduar o corregir por separado en cualquier momento.
Para esto recomendamos nuestra muela doble ESS 125.

Disponibilidad:
- Un juego de casquillos guía con los diámetros 1,0/1.5/2.0/2.5/3.0/3.5mm
- Varios intercaladores
- Microscopio para centrar
- Index de luz y lupa para medición

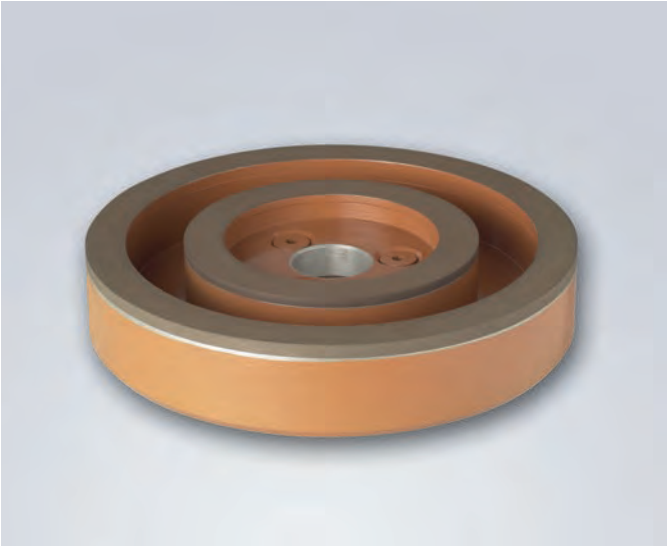
Nº de artículo: 600 132 346

Muela doble DSS 125

La muela doble DSS 125 es un conjunto de muelas atornillado y graduado como un solo modulo. Se trata de una muela de diamante externa gruesa, con la que se hace el desbaste y otra muela de diamante interior para el acabado fino de los cantos. Se aconseja limpiar el polvo de rectificado de vez en cuando con una piedra limpiadora para evitar que se genere demasiado calor y esto afecte al filo principal.

La muela DSS 125 se compone de:
- una muela exterior dia. 125mm, ancho útil 10mm, grueso útil 3mm, taladro dia. 20mm, grano D 126,
- una muela interior diámetro 75mm, ancho útil 10mm, grueso útil 2mm, taladro diámetro 20mm, grano D 46

Nº de artículo: 400 110 098

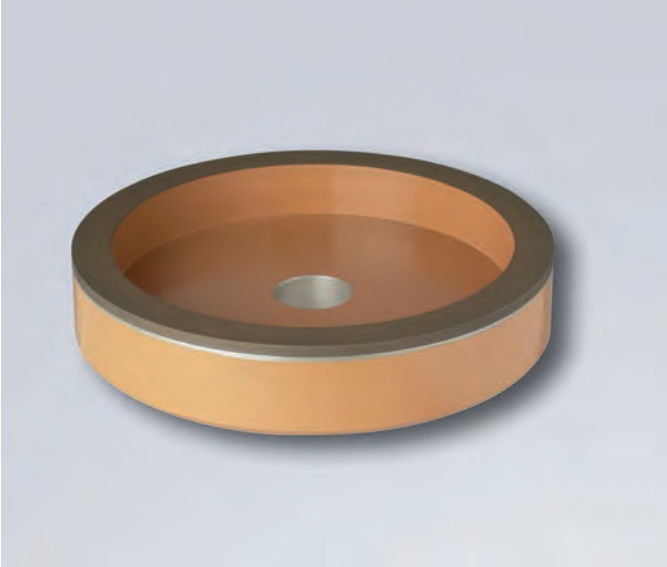


Muela simple ESS 125

La muela ESS 125 es una muela fina de diamante, con la que los cantos de corte reciben un buen acabado. Se recomienda eliminar el polvo de afilado regularamente de la muela con una piedra limpiadora para evitar temperaturas demasiado altas que pueden dañar los cortes de metal duro.

La ESS 125 se compone de:
- una muela Día 125 mm, ancho de capa 10 mm, grueso de capa 3 mm, taladro Día 20, Grano D 25

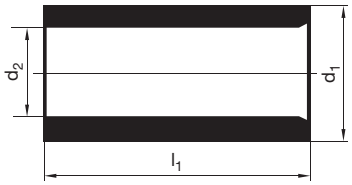
Nº de artículo: 400 119 203



Casquillos

WN

Material de corte **Metal duro**



Artículo Nº **5748**

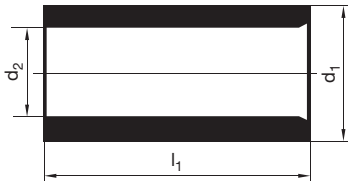
d2	d1	l1	Código Nº
mm	mm	mm	
0,900	3,000	9,000	0,900
1,590	4,000	9,000	1,590
1,600	4,000	9,000	1,600
1,605	4,000	9,000	1,605
2,000	5,000	9,000	2,000
2,030	5,000	9,000	2,030
2,040	5,000	9,000	2,040
2,500	5,000	9,000	2,500
3,000	6,000	12,000	3,000
3,500	7,000	12,000	3,500
3,750	7,000	12,000	3,750
4,000	7,000	12,000	4,000
4,500	8,000	12,000	4,500
5,000	8,000	12,000	5,000
5,200	10,000	16,000	5,200
5,500	10,000	16,000	5,500
5,515	10,000	16,000	5,515
5,525	10,000	16,000	5,525
6,000	10,000	16,000	6,000
6,100	12,000	16,000	6,100
6,900	12,000	16,000	6,900
7,100	12,000	16,000	7,100
8,000	12,000	16,000	8,000
8,015	12,000	16,000	8,015
8,510	15,000	20,000	8,510
10,000	15,000	20,000	10,000
10,920	18,000	20,000	10,920
11,000	18,000	20,000	11,000
12,000	18,000	20,000	12,000
12,030	18,000	20,000	12,030

d2	d1	l1	Código Nº
mm	mm	mm	
12,600	22,000	28,000	12,600
14,000	22,000	28,000	14,000
14,030	22,000	28,000	14,030
14,400	22,000	28,000	14,400
16,000	26,000	28,000	16,000
16,030	26,000	28,000	16,030
16,200	26,000	28,000	16,200
18,000	26,000	28,000	18,000
18,030	26,000	28,000	18,030
18,050	26,000	28,000	18,050
20,000	30,000	36,000	20,000
20,030	30,000	36,000	20,030
22,000	30,000	36,000	22,000
22,030	30,000	36,000	22,030
22,120	35,000	36,000	22,120
23,500	35,000	36,000	23,500
24,000	35,000	36,000	24,000
24,030	35,000	36,000	24,030
25,000	35,000	36,000	25,000
26,000	35,000	36,000	26,000
30,000	42,000	45,000	30,000
34,000	48,000	45,000	34,000
40,000	55,000	55,000	40,000

Casquillos

WN

Material de corte **HSS**



Artículo Nº **5747**

d2	d1	l1	Código Nº
mm	mm	mm	
0,900	3,000	9,000	0,900
1,600	4,000	9,000	1,600
2,000	5,000	9,000	2,000
2,200	5,000	9,000	2,200
2,340	5,000	9,000	2,340
2,700	6,000	12,000	2,700
3,000	6,000	12,000	3,000
3,100	6,000	12,000	3,100
3,255	6,000	12,000	3,255
3,300	6,000	12,000	3,300
3,400	7,000	12,000	3,400
3,500	7,000	12,000	3,500
3,650	7,000	12,000	3,650
3,700	7,000	12,000	3,700
3,800	7,000	12,000	3,800
4,000	7,000	12,000	4,000
4,100	8,000	12,000	4,100
4,300	8,000	12,000	4,300
4,500	8,000	12,000	4,500
4,600	8,000	12,000	4,600
4,760	8,000	12,000	4,760
4,763	8,000	12,000	4,763
4,800	8,000	12,000	4,800
5,000	8,000	12,000	5,000
5,020	8,000	12,000	5,020
5,100	10,000	16,000	5,100
5,200	10,000	16,000	5,200
5,300	10,000	16,000	5,300
5,500	10,000	16,000	5,500
5,600	10,000	16,000	5,600
5,800	10,000	16,000	5,800
6,000	10,000	16,000	6,000
6,050	10,000	16,000	6,050
6,100	12,000	16,000	6,100
6,300	12,000	16,000	6,300
6,350	12,000	16,000	6,350
6,370	12,000	16,000	6,370
6,502	12,000	16,000	6,502
6,600	12,000	16,000	6,600
6,730	12,000	16,000	6,730
6,731	12,000	16,000	6,731
6,750	12,000	16,000	6,750

d2	d1	l1	Código Nº
mm	mm	mm	
6,800	12,000	16,000	6,800
7,000	12,000	16,000	7,000
7,100	12,000	16,000	7,100
7,400	12,000	16,000	7,400
7,500	12,000	16,000	7,500
7,600	12,000	16,000	7,600
7,800	12,000	16,000	7,800
7,830	12,000	16,000	7,830
7,938	12,000	16,000	7,938
8,000	12,000	16,000	8,000
8,020	12,000	16,000	8,020
8,050	12,000	16,000	8,050
8,100	15,000	20,000	8,100
8,500	15,000	20,000	8,500
8,530	15,000	20,000	8,530
8,800	15,000	20,000	8,800
9,000	15,000	20,000	9,000
9,100	15,000	20,000	9,100
9,200	15,000	20,000	9,200
9,300	15,000	20,000	9,300
9,500	15,000	20,000	9,500
9,525	15,000	20,000	9,525
9,530	15,000	20,000	9,530
9,570	15,000	20,000	9,570
9,652	15,000	20,000	9,652
9,800	15,000	20,000	9,800
10,000	15,000	20,000	10,000
10,100	18,000	20,000	10,100
10,600	18,000	20,000	10,600
11,080	18,000	20,000	11,080
11,100	18,000	20,000	11,100
11,113	18,000	20,000	11,113
11,500	18,000	20,000	11,500
11,600	18,000	20,000	11,600
12,000	18,000	20,000	12,000
12,020	18,000	20,000	12,020
12,100	22,000	28,000	12,100
12,530	22,000	28,000	12,530
12,600	22,000	28,000	12,600
12,700	22,000	28,000	12,700
12,800	22,000	28,000	12,800
12,954	22,000	28,000	12,954

d2	d1	l1	Código Nº
mm	mm	mm	
13,000	22,000	28,000	13,000
13,400	22,000	28,000	13,400
13,500	22,000	28,000	13,500
13,700	22,000	28,000	13,700
13,800	22,000	28,000	13,800
14,000	22,000	28,000	14,000
14,310	22,000	28,000	14,310
14,620	22,000	28,000	14,620
14,770	22,000	28,000	14,770
15,000	22,000	28,000	15,000
15,875	26,000	28,000	15,875
16,000	26,000	28,000	16,000
16,330	26,000	28,000	16,330
17,040	26,000	28,000	17,040
17,080	26,000	28,000	17,080
18,000	26,000	28,000	18,000
18,255	30,000	36,000	18,255
18,450	30,000	36,000	18,450
19,000	30,000	36,000	19,000
19,050	30,000	36,000	19,050
19,300	30,000	36,000	19,300
19,700	30,000	36,000	19,700
20,000	30,000	36,000	20,000
21,050	30,000	36,000	21,050

d2	d1	l1	Código Nº
mm	mm	mm	
22,000	30,000	36,000	22,000
22,100	35,000	36,000	22,100
22,120	35,000	36,000	22,120
22,225	35,000	36,000	22,225
23,500	35,000	36,000	23,500
24,000	35,000	36,000	24,000
24,500	35,000	36,000	24,500
25,000	35,000	36,000	25,000
25,250	35,000	36,000	25,250
25,400	35,000	36,000	25,400
26,000	35,000	36,000	26,000
28,000	42,000	45,000	28,000
28,169	42,000	45,000	28,169
30,000	42,000	45,000	30,000
30,100	48,000	45,000	30,100
34,000	48,000	45,000	34,000
38,100	55,000	55,000	38,100
40,000	55,000	55,000	40,000

Accesorios para máquinas p. taladro profundo

Para el uso en máquinas especiales para taladro profundo, Guhring ofrece un amplio programa de accesorios. Éste comprende, entre otros, casquillos de taladro, discos de obturación, casquillos de luneta, etc.

Imagen puede ser distinta la original

Accesorios

Juntas y casquillos art.nº. 5749,5750,5751 y 5753, cubren el campo de diámetros nominales de las brocas cañón. Para hacer un pedido indíque siempre el nº de artículo y nº de código que encontrará en la tabla.

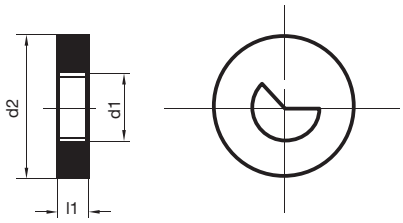
Tabla de códigos ♋ Diámetro de la broca cañón para accesorios

Code no.	para brocas cañón Día nominal d1	
	desde mm	hasta mm
1,900	2,000	2,099
2,000	2,100	2,199
2,100	2,200	2,299
2,200	2,300	2,399
2,300	2,400	2,499
2,400	2,500	2,599
2,500	2,600	2,699
2,600	2,700	2,799
2,700	2,800	2,899
2,800	2,900	3,099
3,000	3,100	3,359
3,200	3,360	3,459
3,300	3,460	3,559
3,400	3,560	3,799
3,600	3,800	3,959
3,700	3,960	4,259
4,000	4,260	4,499
4,200	4,500	4,749
4,500	4,750	4,999
4,700	5,000	5,249
5,000	5,250	5,499
5,200	5,500	5,749
5,500	5,750	5,999
5,700	6,000	6,249
6,000	6,250	6,449
6,200	6,450	6,749
6,500	6,750	6,999
6,700	7,000	7,299
7,000	7,300	7,599
7,300	7,600	7,799
7,500	7,800	7,999
7,700	8,000	8,299
8,000	8,300	8,699
8,400	8,700	8,999
8,700	9,000	9,299
9,000	9,300	9,699

Code no.	para brocas cañón Día nominal d1	
	desde mm	hasta mm
9,400	9,700	9,999
9,700	10,000	10,299
10,000	10,300	10,799
10,500	10,800	11,299
11,000	11,300	11,799
11,500	11,800	12,399
12,000	12,400	12,899
12,500	12,900	13,399
13,000	13,400	13,899
13,500	13,900	14,399
14,000	14,400	14,899
14,500	14,900	15,399
15,000	15,400	15,899
15,500	15,900	16,399
16,000	16,400	16,899
16,500	16,900	17,399
17,000	17,400	17,899
17,500	17,900	18,399
18,000	18,400	19,509
19,000	19,510	20,509
20,000	20,510	21,509
21,000	21,510	22,609
22,000	22,610	23,609
23,000	23,610	24,609
24,000	24,610	25,609
25,000	25,610	26,609
26,000	26,610	27,609
27,000	27,610	28,609
28,000	28,610	29,609
29,000	29,610	30,609
30,000	30,610	32,609
32,000	32,610	34,699
34,000	34,700	36,699
36,000	36,700	38,699
38,000	38,700	40,000

Juntas para brocas monolabio

WN



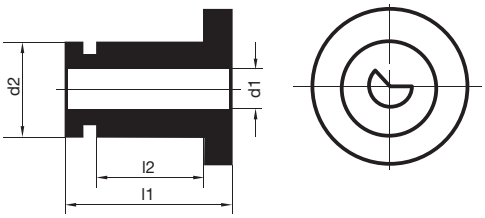
Artículo Nº **5752**

d1	Campo de dia.	d2	l1	Código Nº
mm		mm	mm	
2,100	2,200-2,299	20,000	4,000	2,100
2,200	2,300-2,399	20,000	4,000	2,200
2,600	2,700-2,799	20,000	4,000	2,600
2,800	2,900-3,099	20,000	4,000	2,800
3,000	3,100-3,359	20,000	4,000	3,000
3,300	3,460-3,559	20,000	4,000	3,300
3,400	3,560-3,799	20,000	4,000	3,400
3,600	3,800-3,959	20,000	4,000	3,600
3,700	3,960-4,259	20,000	4,000	3,700
4,000	4,260-4,499	20,000	4,000	4,000
4,200	4,500-4,749	20,000	4,000	4,200
4,500	4,750-4,999	20,000	4,000	4,500
4,700	5,000-5,249	20,000	4,000	4,700
5,000	5,250-5,499	32,000	4,000	5,000
5,200	5,500-5,749	32,000	4,000	5,200
5,500	5,750-5,999	32,000	4,000	5,500
5,700	6,000-6,249	32,000	4,000	5,700
6,000	6,250-6,449	32,000	4,000	6,000
6,200	6,450-6,749	32,000	4,000	6,200
6,500	6,750-6,999	32,000	4,000	6,500
6,700	7,000-7,299	32,000	4,000	6,700
7,000	7,300-7,599	32,000	4,000	7,000
7,300	7,600-7,799	32,000	4,000	7,300
7,500	7,800-7,999	32,000	4,000	7,500
7,700	8,000-8,299	32,000	4,000	7,700
8,000	8,300-8,699	32,000	4,000	8,000
8,400	8,700-8,999	32,000	4,000	8,400
8,700	9,000-9,299	32,000	4,000	8,700
9,000	9,300-9,699	32,000	4,000	9,000
9,400	9,700-9,999	32,000	4,000	9,400
9,700	10,000-10,299	32,000	4,000	9,700
10,000	11,300-11,799	32,000	4,000	10,000
10,500	10,800-11,299	32,000	4,000	10,500
11,000	11,300-11,799	32,000	4,000	11,000
11,500	11,800-12,399	32,000	4,000	11,500
12,000	12,400-12,899	32,000	4,000	12,000
12,500	12,900-13,399	32,000	4,000	12,500
13,500	13,900-14,399	32,000	4,000	13,500
14,000	14,400-14,899	32,000	4,000	14,000
14,500	14,900-15,399	32,000	4,000	14,500
15,000	15,400-15,899	32,000	4,000	15,000
15,500	15,900-16,399	40,000	4,000	15,500
16,500	16,900-17,399	40,000	4,000	16,500
17,000	17,400-17,899	40,000	4,000	17,000
17,500	17,900-18,399	40,000	4,000	17,500
18,000	18,400-19,509	40,000	4,000	18,000
19,000	19,510-20,509	40,000	4,000	19,000
20,000	20,510-21,509	40,000	4,000	20,000

d1	Campo de dia.	d2	l1	Código Nº
mm		mm	mm	
21,000	21,510-22,609	40,000	4,000	21,000
22,000	22,610-23,609	40,000	4,000	22,000
23,000	23,610-24,609	40,000	4,000	23,000
24,000	24,610-25,609	40,000	4,000	24,000
25,000	25,610-26,609	40,000	4,000	25,000
27,000	27,610-28,609	90,000	4,000	27,000
29,000	29,610-30,609	90,000	4,000	29,000
30,000	30,610-32,609	90,000	4,000	30,000
32,000	32,610-34,699	90,000	4,000	32,000
36,000	36,700-38,699	90,000	4,000	36,000
38,000	38,700-40,000	90,000	4,000	38,000

Casquillos para brocas monolabio

WN



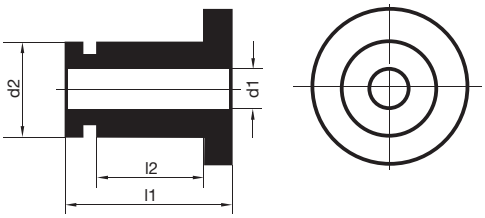
Artículo Nº **5750**

d1	Campo de dia.	d2	l1	l2	Código Nº
mm		mm	mm	mm	
2,100	2,200-2,299	20,000	20,000	12,000	202,100
2,600	2,700-2,799	20,000	20,000	12,000	202,600
2,800	2,900-3,099	20,000	20,000	12,000	202,800
3,000	3,100-3,359	20,000	20,000	12,000	203,000
3,300	3,460-3,559	20,000	20,000	12,000	203,300
3,700	3,960-4,259	20,000	20,000	12,000	203,700
4,700	5,000-5,249	20,000	20,000	12,000	204,700
5,700	6,000-6,249	20,000	20,000	12,000	205,700
6,700	7,000-7,299	20,000	20,000	12,000	206,700
7,700	8,000-8,299	20,000	20,000	12,000	207,700
8,000	8,300-8,699	20,000	20,000	12,000	208,000
8,700	9,000-9,299	20,000	20,000	12,000	208,700
9,700	10,000-10,299	20,000	20,000	12,000	209,700
11,500	11,800-12,399	20,000	20,000	12,000	211,500
3,700	3,960-4,259	30,000	26,000	13,000	303,700
4,000	4,260-4,499	30,000	26,000	13,000	304,000
4,200	4,500-4,749	30,000	26,000	13,000	304,200
4,500	4,750-4,999	30,000	26,000	13,000	304,500
4,700	5,000-5,249	30,000	26,000	13,000	304,700
5,000	5,250-5,499	30,000	26,000	13,000	305,000
5,200	5,500-5,749	30,000	26,000	13,000	305,200
5,500	5,750-5,999	30,000	26,000	13,000	305,500
5,700	6,000-6,249	30,000	26,000	13,000	305,700
6,000	6,250-6,449	30,000	26,000	13,000	306,000
6,200	6,450-6,749	30,000	26,000	13,000	306,200
6,500	6,750-6,999	30,000	26,000	13,000	306,500
6,700	7,000-7,299	30,000	26,000	13,000	306,700
7,000	7,300-7,599	30,000	26,000	13,000	307,000
7,300	7,600-7,799	30,000	26,000	13,000	307,300
7,500	7,800-7,999	30,000	26,000	13,000	307,500
7,700	8,000-8,299	30,000	26,000	13,000	307,700
8,000	8,300-8,699	30,000	26,000	13,000	308,000
8,400	8,700-8,999	30,000	26,000	13,000	308,400
8,700	9,000-9,299	30,000	26,000	13,000	308,700
9,000	9,300-9,699	30,000	26,000	13,000	309,000
9,400	9,700-9,999	30,000	26,000	13,000	309,400
9,700	10,000-10,299	30,000	26,000	13,000	309,700
10,000	10,300-10,799	30,000	26,000	13,000	310,000
10,500	10,800-11,299	30,000	26,000	13,000	310,500
11,000	11,300-11,799	30,000	26,000	13,000	311,000
11,500	11,800-12,399	30,000	26,000	13,000	311,500
12,000	12,400-12,899	30,000	26,000	13,000	312,000
12,500	12,900-13,399	30,000	26,000	13,000	312,500
13,500	13,900-14,399	30,000	26,000	13,000	313,500
14,000	14,400-14,899	30,000	26,000	13,000	314,000
14,500	14,900-15,399	30,000	26,000	13,000	314,500
15,000	15,400-15,899	30,000	26,000	13,000	315,000
15,500	15,900-16,399	30,000	26,000	13,000	315,500

d1	Campo de dia.	d2	l1	l2	Código Nº
mm		mm	mm	mm	
16,500	16,900-17,399	30,000	26,000	13,000	316,500
17,000	17,400-17,899	30,000	26,000	13,000	317,000
17,500	17,900-18,399	30,000	26,000	13,000	317,500
18,000	18,400-19,509	30,000	26,000	13,000	318,000
19,000	19,510-20,509	30,000	26,000	13,000	319,000
21,000	21,510-22,609	30,000	26,000	13,000	321,000
20,000	20,510-21,509	45,000	26,000	16,000	420,000
21,000	21,510-22,609	45,000	26,000	16,000	421,000
22,000	22,610-23,609	45,000	26,000	16,000	422,000
23,000	23,610-24,609	45,000	26,000	16,000	423,000
24,000	24,610-25,609	45,000	26,000	16,000	424,000
25,000	25,610-26,609	45,000	26,000	16,000	425,000
27,000	27,610-28,609	45,000	26,000	16,000	427,000
28,000	28,610-29,609	45,000	26,000	16,000	428,000
29,000	29,610-30,609	45,000	26,000	16,000	429,000
30,000	30,610-32,609	45,000	26,000	16,000	430,000
32,000	32,610-34,699	45,000	26,000	16,000	432,000
34,000	34,700-36,699	45,000	26,000	16,000	434,000

Casquillos para brocas monolabio y de dos labios

WN



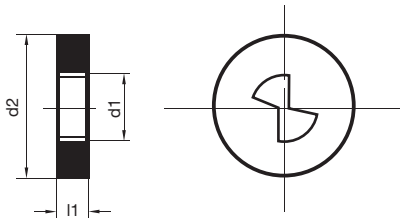
Artículo Nº **5749**

d1	Campo de dia.	d2	l1	l2	Código Nº
mm		mm	mm	mm	
3,000	3,100-3,359	20,000	22,000	12,000	203,000
3,700	3,960-4,259	20,000	22,000	12,000	203,700
4,500	4,750-4,999	20,000	22,000	12,000	204,500
4,700	5,000-5,249	20,000	22,000	12,000	204,700
5,700	6,000-6,249	20,000	22,000	12,000	205,700
8,000	8,300-8,699	20,000	22,000	12,000	208,000
9,700	10,000-10,299	20,000	22,000	12,000	209,700
2,200	2,300-2,399	30,000	26,000	13,000	302,200
3,000	3,100-3,359	30,000	26,000	13,000	303,000
3,300	3,460-3,559	30,000	26,000	13,000	303,300
3,400	3,560-3,799	30,000	26,000	13,000	303,400
3,600	3,800-3,959	30,000	26,000	13,000	303,600
3,700	3,960-4,259	30,000	26,000	13,000	303,700
4,000	4,260-4,499	30,000	26,000	13,000	304,000
4,200	4,500-4,749	30,000	26,000	13,000	304,200
4,500	4,750-4,999	30,000	26,000	13,000	304,500
4,700	5,000-5,249	30,000	26,000	13,000	304,700
5,000	5,250-5,499	30,000	26,000	13,000	305,000
5,200	5,500-5,749	30,000	26,000	13,000	305,200
5,500	5,750-5,999	30,000	26,000	13,000	305,500
5,700	6,000-6,249	30,000	26,000	13,000	305,700
6,000	6,250-6,449	30,000	26,000	13,000	306,000
6,200	6,450-6,749	30,000	26,000	13,000	306,200
6,700	7,000-7,299	30,000	26,000	13,000	306,700
7,500	7,800-7,999	30,000	26,000	13,000	307,500
7,700	8,000-8,299	30,000	26,000	13,000	307,700
8,700	9,000-9,299	30,000	26,000	13,000	308,700
9,000	9,300-9,699	30,000	26,000	13,000	309,000
9,700	10,000-10,299	30,000	26,000	13,000	309,700
10,000	10,300-10,799	30,000	26,000	13,000	310,000
10,500	10,800-11,299	30,000	26,000	13,000	310,500
11,000	11,300-11,799	30,000	26,000	13,000	311,000
11,500	11,800-12,399	30,000	26,000	13,000	311,500
12,000	12,400-12,899	30,000	26,000	13,000	312,000
12,500	12,900-13,399	30,000	26,000	13,000	312,500
13,500	13,900-14,399	30,000	26,000	13,000	313,500
14,000	14,400-14,899	30,000	26,000	13,000	314,000
14,500	14,900-15,399	30,000	26,000	13,000	314,500
15,000	15,400-15,899	30,000	26,000	13,000	315,000
15,500	15,900-16,399	30,000	26,000	13,000	315,500
16,600	17,900-18,399	30,000	26,000	13,000	316,600
17,000	17,400-17,899	30,000	26,000	13,000	317,000
17,500	17,900-18,399	30,000	26,000	13,000	317,500
18,000	18,400-19,509	30,000	26,000	13,000	318,000
19,000	19,510-20,509	30,000	26,000	13,000	319,000
20,000	20,510-21,509	30,000	26,000	13,000	320,000
21,000	21,510-22,609	30,000	26,000	13,000	321,000
22,000	22,610-23,609	30,000	26,000	13,000	322,000

d1	Campo de dia.	d2	l1	l2	Código Nº
mm		mm	mm	mm	
23,000	23,610-24,609	30,000	26,000	13,000	323,000
24,000	24,610-25,609	30,000	26,000	13,000	324,000
4,700	5,000-5,249	45,000	26,000	16,000	404,700
6,200	6,450-6,749	45,000	26,000	16,000	406,200
7,500	7,800-7,999	45,000	26,000	16,000	407,500
7,700	8,000-8,299	45,000	26,000	16,000	407,700
9,000	9,300-9,699	45,000	26,000	16,000	409,000
9,400	9,700-9,999	45,000	26,000	16,000	409,400
9,700	10,000-10,299	45,000	26,000	16,000	409,700
11,500	11,800-12,399	45,000	26,000	16,000	411,500
14,000	14,400-14,899	45,000	26,000	16,000	414,000
15,000	15,400-15,899	45,000	26,000	16,000	415,000
15,500	15,900-16,399	45,000	26,000	16,000	415,500
17,500	17,900-18,399	45,000	26,000	16,000	417,500
18,000	18,400-19,509	45,000	26,000	16,000	418,000
19,000	19,510-20,509	45,000	26,000	16,000	419,000
21,000	21,510-22,609	45,000	26,000	16,000	421,000
24,000	24,610-25,609	45,000	26,000	16,000	424,000
25,000	25,610-26,609	45,000	26,000	16,000	425,000
26,000	26,610-27,609	45,000	26,000	16,000	426,000
27,000	27,610-28,609	45,000	26,000	16,000	427,000
29,000	29,610-30,609	45,000	26,000	16,000	429,000
32,000	32,610-34,699	45,000	26,000	16,000	432,000

Juntas para brocas de dos labios

WN

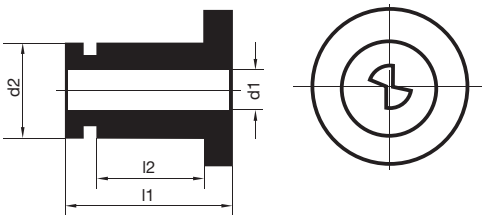


Artículo Nº **5753**

d1	Campo de dia.	d2	l1	Código Nº
mm		mm	mm	
5,700	6,000-6,249	32,000	4,000	5,700
7,700	8,000-8,299	32,000	4,000	7,700
8,700	9,000-9,299	32,000	4,000	8,700
9,000	9,300-9,699	32,000	4,000	9,000
9,700	10,000-10,299	32,000	4,000	9,700
11,500	11,800-12,399	32,000	4,000	11,500
13,500	13,900-14,399	32,000	4,000	13,500
15,500	15,900-16,399	40,000	4,000	15,500
19,000	19,510-20,509	40,000	4,000	19,000
23,000	23,610-24,609	40,000	4,000	23,000
25,000	25,610-26,609	40,000	4,000	25,000

Casquillos para brocas de dos labios

WN



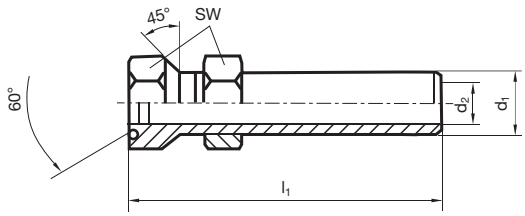
Artículo Nº **5751**

d1	Campo de dia.	d2	l1	l2	Código Nº
mm		mm	mm	mm	
5,700	6,000-6,249	20,000	20,000	12,000	205,700
9,700	10,000-10,299	20,000	20,000	12,000	209,700
6,500	6,750-6,999	30,000	26,000	13,000	306,500
6,700	7,000-7,299	30,000	26,000	13,000	306,700
7,700	8,000-8,299	30,000	26,000	13,000	307,700
9,400	9,700-9,999	30,000	26,000	13,000	309,400
9,700	10,000-10,299	30,000	26,000	13,000	309,700
11,500	11,800-12,399	30,000	26,000	13,000	311,500
15,000	15,400-15,899	30,000	26,000	13,000	315,000
15,500	15,900-16,399	30,000	26,000	13,000	315,500
16,600	17,900-18,399	30,000	26,000	13,000	316,600
17,000	17,400-17,899	30,000	26,000	13,000	317,000
17,500	17,900-18,399	30,000	26,000	13,000	317,500
8,700	9,000-9,299	45,000	26,000	16,000	408,700
13,500	13,900-14,399	45,000	26,000	16,000	413,500
19,000	19,510-20,509	45,000	26,000	16,000	419,000
23,000	23,610-24,609	45,000	26,000	16,000	423,000
24,000	24,610-25,609	45,000	26,000	16,000	424,000
25,000	25,610-26,609	45,000	26,000	16,000	425,000
26,000	26,610-27,609	45,000	26,000	16,000	426,000
27,000	27,610-28,609	45,000	26,000	16,000	427,000

Ajuste los tornillos

WN

Ajuste los tornillos sin el elemento de cierre



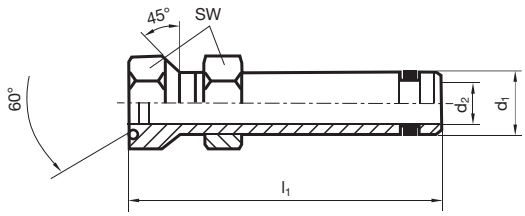
Artículo Nº **5754**

d1	d2	l1	SW	Código Nº
	mm	mm	mm	
M6 x 0,5	3,500	26,000	9,000	6,000
M10 x 1	6,000	38,000	13,000	10,000
M16 x 1,5	10,000	57,000	22,000	16,000

Ajuste los tornillos

WN

Tornillos de regulación con elemento de junta

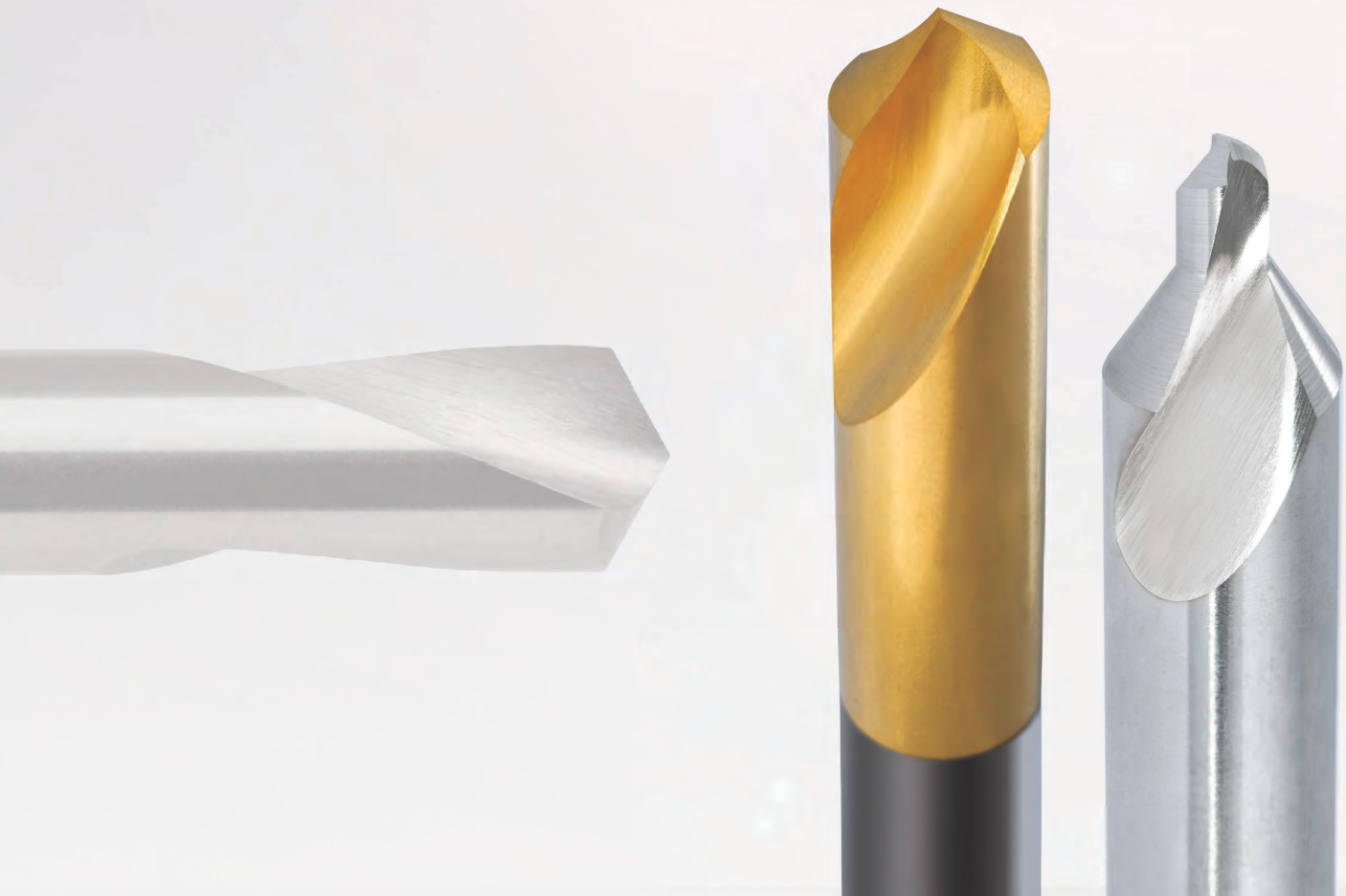


Artículo Nº **5755**

d1	d2	l1	SW	Código Nº
	mm	mm	mm	
M6 x 0,5	3,500	45,000	9,000	6,000
M10 x 1	6,000	50,000	13,000	10,000
M16 x 1,5	10,000	65,000	22,000	16,000
M24X1,5	16,000	90,000	30,000	24,000

Brocas de puntear NC y brocas de centrar

Recomendamos realizar un punto de centrado en la aplicación de brocas largas. Para esto nuestras brocas de puntear NC son muy apropiadas. Recomendamos nuestras brocas de centrar para la fabricación de taladros de forma.



Brocas espirales cil., largas

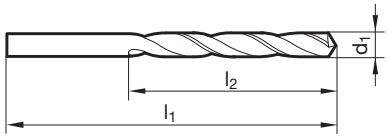
~10xD | DIN 340 | N | 118° | h8

Material de corte	HSS
Acabado	>Ø 2,36
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,000 • entrada cónica • para taladros profundos
M		
K	•	
N	○	aceros y fundición de aceros (aleados y sin alear) • fundición gris, fundición maleable, fundición esferica • hierro sinterizado, argentón y grafito
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 786



Artículo N° **217**

d1		l1	l2
mm	inch	mm	mm
0,400	1/64	30,000	10,000
0,440		30,000	10,000
0,450		30,000	10,000
0,470		30,000	10,000
0,500		32,000	12,000
0,520		32,000	12,000
0,550		35,000	15,000
0,570		35,000	15,000
0,600		35,000	15,000
0,620		38,000	18,000
0,650		38,000	18,000
0,700		42,000	21,000
0,730		42,000	21,000
0,750		42,000	21,000
0,760		46,000	25,000
0,790	1/32	46,000	25,000
0,800		46,000	25,000
0,820		46,000	25,000
0,850		46,000	25,000
0,900		51,000	29,000
0,910		51,000	29,000
0,920		51,000	29,000
0,950		51,000	29,000
0,970		56,000	33,000
1,000		56,000	33,000
1,040		56,000	33,000
1,050		56,000	33,000
1,080		60,000	37,000
1,090		60,000	37,000
1,100		60,000	37,000
1,120		60,000	37,000
1,130		60,000	37,000
1,150		60,000	37,000
1,180		60,000	37,000
1,190	3/64	65,000	41,000
1,200		65,000	41,000
1,250		65,000	41,000
1,300		65,000	41,000
1,350		70,000	45,000
1,400		70,000	45,000
1,450		70,000	45,000
1,490		70,000	45,000

d1		l1	l2
mm	inch	mm	mm
1,500		70,000	45,000
1,510		76,000	50,000
1,550		76,000	50,000
1,590	1/16	76,000	50,000
1,600		76,000	50,000
1,610		76,000	50,000
1,650		76,000	50,000
1,700		76,000	50,000
1,750		80,000	53,000
1,780		80,000	53,000
1,800		80,000	53,000
1,850		80,000	53,000
1,900		80,000	53,000
1,930		85,000	56,000
1,950		85,000	56,000
1,980	5/64	85,000	56,000
2,000		85,000	56,000
2,030		85,000	56,000
2,050		85,000	56,000
2,060		85,000	56,000
2,080		85,000	56,000
2,100		85,000	56,000
2,150		90,000	59,000
2,200		90,000	59,000
2,250		90,000	59,000
2,260		90,000	59,000
2,300		90,000	59,000
2,350		90,000	59,000
2,370		95,000	62,000
2,380	3/32	95,000	62,000
2,400		95,000	62,000
2,420		95,000	62,000
2,440		95,000	62,000
2,450		95,000	62,000
2,490		95,000	62,000
2,500		95,000	62,000
2,550		95,000	62,000
2,580		95,000	62,000
2,600		95,000	62,000
2,620		95,000	62,000
2,640		95,000	62,000
2,650		95,000	62,000

d1		l1	l2
mm	inch	mm	mm
2,700		100,000	66,000
2,710		100,000	66,000
2,750		100,000	66,000
2,780	7/64	100,000	66,000
2,790		100,000	66,000
2,800		100,000	66,000
2,820		100,000	66,000
2,850		100,000	66,000
2,870		100,000	66,000
2,900		100,000	66,000
2,950		100,000	66,000
3,000		100,000	66,000
3,030		106,000	69,000
3,050		106,000	69,000
3,100		106,000	69,000
3,150		106,000	69,000
3,170	1/8	106,000	69,000
3,200		106,000	69,000
3,250		106,000	69,000
3,260		106,000	69,000
3,300		106,000	69,000
3,350		106,000	69,000
3,400		112,000	73,000
3,450		112,000	73,000
3,500		112,000	73,000
3,550		112,000	73,000
3,570	9/64	112,000	73,000
3,600		112,000	73,000
3,650		112,000	73,000
3,660		112,000	73,000
3,700		112,000	73,000
3,750		112,000	73,000
3,800		119,000	78,000
3,850		119,000	78,000
3,860		119,000	78,000
3,900		119,000	78,000
3,910		119,000	78,000
3,950		119,000	78,000
3,970	5/32	119,000	78,000
3,990		119,000	78,000
4,000		119,000	78,000
4,030		119,000	78,000
4,040		119,000	78,000
4,050		119,000	78,000
4,090		119,000	78,000
4,100		119,000	78,000
4,150		119,000	78,000
4,200		119,000	78,000
4,220		119,000	78,000
4,250		119,000	78,000
4,300		126,000	82,000
4,350		126,000	82,000
4,370	11/64	126,000	82,000
4,390		126,000	82,000
4,400		126,000	82,000
4,450		126,000	82,000
4,500		126,000	82,000
4,570		126,000	82,000
4,600		126,000	82,000
4,650		126,000	82,000
4,700		126,000	82,000
4,750		126,000	82,000
4,760	3/16	132,000	87,000
4,800		132,000	87,000
4,850		132,000	87,000
4,900		132,000	87,000
4,920		132,000	87,000
4,950		132,000	87,000
4,980		132,000	87,000
5,000		132,000	87,000
5,030		132,000	87,000
5,050		132,000	87,000

d1		l1	l2
mm	inch	mm	mm
5,060		132,000	87,000
5,100		132,000	87,000
5,110		132,000	87,000
5,150		132,000	87,000
5,160	13/64	132,000	87,000
5,180		132,000	87,000
5,200		132,000	87,000
5,220		132,000	87,000
5,250		132,000	87,000
5,300		132,000	87,000
5,310		139,000	91,000
5,350		139,000	91,000
5,400		139,000	91,000
5,410		139,000	91,000
5,450		139,000	91,000
5,500		139,000	91,000
5,550		139,000	91,000
5,560	7/32	139,000	91,000
5,600		139,000	91,000
5,650		139,000	91,000
5,700		139,000	91,000
5,750		139,000	91,000
5,790		139,000	91,000
5,800		139,000	91,000
5,900		139,000	91,000
5,950	15/64	139,000	91,000
6,000		139,000	91,000
6,060		148,000	97,000
6,100		148,000	97,000
6,200		148,000	97,000
6,250		148,000	97,000
6,300		148,000	97,000
6,350	1/4	148,000	97,000
6,400		148,000	97,000
6,500		148,000	97,000
6,600		148,000	97,000
6,700		148,000	97,000
6,750	17/64	156,000	102,000
6,800		156,000	102,000
6,900		156,000	102,000
7,000		156,000	102,000
7,100		156,000	102,000
7,140	9/32	156,000	102,000
7,200		156,000	102,000
7,250		156,000	102,000
7,300		156,000	102,000
7,400		156,000	102,000
7,500		156,000	102,000
7,540	19/64	165,000	109,000
7,600		165,000	109,000
7,700		165,000	109,000
7,750		165,000	109,000
7,800		165,000	109,000
7,900		165,000	109,000
7,940	5/16	165,000	109,000
8,000		165,000	109,000
8,100		165,000	109,000
8,200		165,000	109,000
8,250		165,000	109,000
8,300		165,000	109,000
8,330	21/64	165,000	109,000
8,400		165,000	109,000
8,500		165,000	109,000
8,600		175,000	115,000
8,700		175,000	115,000
8,730	11/32	175,000	115,000
8,750		175,000	115,000
8,800		175,000	115,000
8,900		175,000	115,000
9,000		175,000	115,000
9,100		175,000	115,000
9,130	23/64	175,000	115,000

d1		l1	l2
mm	inch	mm	mm
9,200		175,000	115,000
9,300		175,000	115,000
9,400		175,000	115,000
9,500		175,000	115,000
9,520	3/8	184,000	121,000
9,600		184,000	121,000
9,700		184,000	121,000
9,750		184,000	121,000
9,800		184,000	121,000
9,900		184,000	121,000
9,920	25/64	184,000	121,000
10,000		184,000	121,000
10,100		184,000	121,000
10,200		184,000	121,000
10,250		184,000	121,000
10,300		184,000	121,000
10,320	13/32	184,000	121,000
10,400		184,000	121,000
10,500		184,000	121,000
10,700		195,000	128,000
10,720	27/64	195,000	128,000
10,750		195,000	128,000
10,800		195,000	128,000
11,000		195,000	128,000
11,110	7/16	195,000	128,000
11,200		195,000	128,000
11,400		195,000	128,000
11,500		195,000	128,000
11,510	29/64	195,000	128,000
11,600		195,000	128,000
11,700		195,000	128,000
11,750		195,000	128,000
11,800		195,000	128,000
11,910	15/32	205,000	134,000
12,000		205,000	134,000
12,100		205,000	134,000
12,200		205,000	134,000
12,300	31/64	205,000	134,000
12,500		205,000	134,000
12,700	1/2	205,000	134,000
12,800		205,000	134,000
13,000		205,000	134,000
13,200		205,000	134,000
13,490	17/32	214,000	140,000
13,500		214,000	140,000
13,800		214,000	140,000
13,890	35/64	214,000	140,000
14,000		214,000	140,000
14,200		220,000	144,000
14,250		220,000	144,000
14,290	9/16	220,000	144,000
14,490		220,000	144,000
14,500		220,000	144,000
14,900		220,000	144,000

d1		l1	l2
mm	inch	mm	mm
15,000		220,000	144,000
15,080	19/32	227,000	149,000
15,200		227,000	149,000
15,250		227,000	149,000
15,400		227,000	149,000
15,480	39/64	227,000	149,000
15,500		227,000	149,000
15,600		227,000	149,000
15,870	5/8	227,000	149,000
16,000		227,000	149,000
16,270	41/64	235,000	154,000
16,500		235,000	154,000
16,670	21/32	235,000	154,000
17,000		235,000	154,000
17,070	43/64	241,000	158,000
17,460	11/16	241,000	158,000
17,500		241,000	158,000
18,000		241,000	158,000
18,500		247,000	162,000
18,650	47/64	247,000	162,000
19,000		247,000	162,000
19,050	3/4	254,000	166,000
19,500		254,000	166,000
20,000		254,000	166,000
20,500		261,000	171,000
20,640	13/16	261,000	171,000
21,000		261,000	171,000
21,500		268,000	176,000
22,000		268,000	176,000
23,300		275,000	180,000
23,810	15/16	282,000	185,000
24,000		282,000	185,000
25,000	63/64	282,000	185,000
26,190	1 1/32	290,000	190,000
26,500		290,000	190,000
26,990	1 1/16	298,000	195,000
28,570	1 1/8	307,000	201,000
29,000		307,000	201,000
29,370	1 5/32	307,000	201,000
29,500		307,000	201,000
30,160	1 3/16	316,000	207,000
30,960	1 7/32	316,000	207,000
31,000		316,000	207,000
36,510	1 7/16	345,000	225,000

Brocas espirales cil., largas

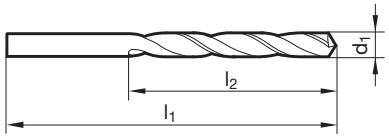
~10xD | DIN 340 | N | 118° | h8

Material de corte	HSS
Acabado	S
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,000 • entrada cónica • para taladros profundos • para taladrar casquillos
M		
K	•	
N	○	aceros y fundición de aceros (aleados y sin alear) • fundición gris, fundición maleable, fundición esferica • hierro sinterizado, argentón y grafito
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 786



Artículo N° **667**

d1 mm	inch	l1 mm	l2 mm
0,500		32,000	12,000
0,600		35,000	15,000
0,700		42,000	21,000
0,750		42,000	21,000
0,800		46,000	25,000
0,900		51,000	29,000
0,950		51,000	29,000
1,000		56,000	33,000
1,100		60,000	37,000
1,150		60,000	37,000
1,200		65,000	41,000
1,250		65,000	41,000
1,300		65,000	41,000
1,350		70,000	45,000
1,400		70,000	45,000
1,450		70,000	45,000
1,500		70,000	45,000
1,550		76,000	50,000
1,590	1/16	76,000	50,000
1,600		76,000	50,000
1,650		76,000	50,000
1,700		76,000	50,000
1,800		80,000	53,000
1,850		80,000	53,000
1,900		80,000	53,000
1,950		85,000	56,000
1,980	5/64	85,000	56,000
2,000		85,000	56,000
2,100		85,000	56,000
2,200		90,000	59,000
2,300		90,000	59,000
2,350		90,000	59,000
2,370		95,000	62,000
2,380	3/32	95,000	62,000
2,440		95,000	62,000
2,450		95,000	62,000
2,500		95,000	62,000
2,530		95,000	62,000
2,650		95,000	62,000
2,700		100,000	66,000
2,750		100,000	66,000
2,780	7/64	100,000	66,000

d1 mm	inch	l1 mm	l2 mm
2,800		100,000	66,000
2,850		100,000	66,000
2,870		100,000	66,000
2,900		100,000	66,000
3,000		100,000	66,000
3,030		106,000	69,000
3,050		106,000	69,000
3,100		106,000	69,000
3,170	1/8	106,000	69,000
3,200		106,000	69,000
3,250		106,000	69,000
3,260		106,000	69,000
3,300		106,000	69,000
3,350		106,000	69,000
3,400		112,000	73,000
3,500		112,000	73,000
3,570	9/64	112,000	73,000
3,600		112,000	73,000
3,650		112,000	73,000
3,700		112,000	73,000
3,730		112,000	73,000
3,750		112,000	73,000
3,800		119,000	78,000
3,850		119,000	78,000
3,900		119,000	78,000
3,950		119,000	78,000
3,970	5/32	119,000	78,000
4,000		119,000	78,000
4,050		119,000	78,000
4,100		119,000	78,000
4,200		119,000	78,000
4,250		119,000	78,000
4,300		126,000	82,000
4,370	11/64	126,000	82,000
4,400		126,000	82,000
4,500		126,000	82,000
4,570		126,000	82,000
4,600		126,000	82,000
4,620		126,000	82,000
4,650		126,000	82,000
4,700		126,000	82,000
4,750		126,000	82,000

d1		l1	l2
mm	inch	mm	mm
4,760	3/16	132,000	87,000
4,850		132,000	87,000
4,900		132,000	87,000
5,000		132,000	87,000
5,100		132,000	87,000
5,160	13/64	132,000	87,000
5,200		132,000	87,000
5,250		132,000	87,000
5,300		132,000	87,000
5,310		139,000	91,000
5,400		139,000	91,000
5,410		139,000	91,000
5,500		139,000	91,000
5,560	7/32	139,000	91,000
5,600		139,000	91,000
5,610		139,000	91,000
5,700		139,000	91,000
5,790		139,000	91,000
5,900		139,000	91,000
6,000		139,000	91,000
6,100		148,000	97,000
6,200		148,000	97,000
6,250		148,000	97,000
6,350	1/4	148,000	97,000
6,400		148,000	97,000
6,500		148,000	97,000
6,600		148,000	97,000
6,750	17/64	156,000	102,000
6,800		156,000	102,000
7,000		156,000	102,000
7,100		156,000	102,000
7,140	9/32	156,000	102,000
7,200		156,000	102,000
7,250		156,000	102,000
7,300		156,000	102,000
7,370		156,000	102,000
7,400		156,000	102,000
7,500		156,000	102,000
7,540	19/64	165,000	109,000
7,700		165,000	109,000
7,940	5/16	165,000	109,000
8,000		165,000	109,000
8,050		165,000	109,000
8,100		165,000	109,000
8,200		165,000	109,000
8,250		165,000	109,000
8,300		165,000	109,000
8,400		165,000	109,000
8,500		165,000	109,000
8,700		175,000	115,000
8,730	11/32	175,000	115,000
8,800		175,000	115,000
8,900		175,000	115,000
9,000		175,000	115,000

d1		l1	l2
mm	inch	mm	mm
9,100		175,000	115,000
9,300		175,000	115,000
9,400		175,000	115,000
9,500		175,000	115,000
9,520	3/8	184,000	121,000
9,700		184,000	121,000
9,900		184,000	121,000
9,920	25/64	184,000	121,000
10,000		184,000	121,000
10,200		184,000	121,000
10,320	13/32	184,000	121,000
10,500		184,000	121,000
10,720	27/64	195,000	128,000
10,800		195,000	128,000
10,900		195,000	128,000
11,000		195,000	128,000
11,110	7/16	195,000	128,000
11,500		195,000	128,000
11,750		195,000	128,000
11,910	15/32	205,000	134,000
12,000		205,000	134,000
12,500		205,000	134,000
12,700	1/2	205,000	134,000
13,000		205,000	134,000
13,490	17/32	214,000	140,000
13,500		214,000	140,000
13,800		214,000	140,000
13,890	35/64	214,000	140,000
14,000		214,000	140,000
14,290	9/16	220,000	144,000
14,500		220,000	144,000
14,750		220,000	144,000
14,800		220,000	144,000
14,900		220,000	144,000
15,000		220,000	144,000
15,080	19/32	227,000	149,000
16,000		227,000	149,000
16,500		235,000	154,000
16,670	21/32	235,000	154,000
16,750		235,000	154,000
17,000		235,000	154,000
17,460	11/16	241,000	158,000
18,000		241,000	158,000
18,250		247,000	162,000
22,220	7/8	268,000	176,000

Brocas espirales cil., largas

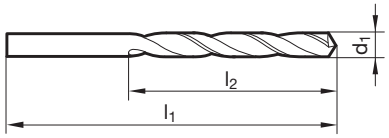
~10xD | DIN 340 | N | 118° | h8

Material de corte	HSS
Acabado	>Ø 6,00
Dirección de corte	L

P	•	vaciado de punta ≥Ø 14,750 • entrada cónica • para taladros profundos • para taladrar casquillos
M		
K	•	
N	○	aceros y fundición de aceros (aleados y sin alear) • fundición gris, fundición maleable, fundición esferica • hierro sinterizado, argentón y grafito
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 786



Artículo N° **220**

d1 mm	inch	l1 mm	l2 mm
0,450		30,000	10,000
0,470		30,000	10,000
0,900		51,000	29,000
0,950		51,000	29,000
1,100		60,000	37,000
1,150		60,000	37,000
1,200		65,000	41,000
1,250		65,000	41,000
1,400		70,000	45,000
1,450		70,000	45,000
1,500		70,000	45,000
1,600		76,000	50,000
1,630		76,000	50,000
1,660		76,000	50,000
1,730		80,000	53,000
1,800		80,000	53,000
1,850		80,000	53,000
1,900		80,000	53,000
2,000		85,000	56,000
2,300		90,000	59,000
2,500		95,000	62,000
2,700		100,000	66,000
2,750		100,000	66,000
2,900		100,000	66,000
2,950		100,000	66,000
3,000		100,000	66,000
3,050		106,000	69,000
3,070		106,000	69,000
3,100		106,000	69,000
3,250		106,000	69,000
3,300		106,000	69,000
3,350		106,000	69,000
3,400		112,000	73,000
3,500		112,000	73,000
3,550		112,000	73,000
3,600		112,000	73,000
3,700		112,000	73,000
3,800		119,000	78,000
4,000		119,000	78,000
4,050		119,000	78,000
4,250		119,000	78,000
4,300		126,000	82,000

d1 mm	inch	l1 mm	l2 mm
4,500		126,000	82,000
4,600		126,000	82,000
4,780		132,000	87,000
4,800		132,000	87,000
4,950		132,000	87,000
5,000		132,000	87,000
5,100		132,000	87,000
5,200		132,000	87,000
5,600		139,000	91,000
5,700		139,000	91,000
6,000		139,000	91,000
6,050		148,000	97,000
6,100		148,000	97,000
6,400		148,000	97,000
6,500		148,000	97,000
6,600		148,000	97,000
6,800		156,000	102,000
7,200		156,000	102,000
7,500		156,000	102,000
7,800		165,000	109,000
8,000		165,000	109,000
8,100		165,000	109,000
8,250		165,000	109,000
8,400		165,000	109,000
8,800		175,000	115,000
9,000		175,000	115,000
9,520	3/8	184,000	121,000
9,700		184,000	121,000
9,800		184,000	121,000
9,900		184,000	121,000
10,000		184,000	121,000
10,100		184,000	121,000
10,500		184,000	121,000
11,000		195,000	128,000
11,500		195,000	128,000
11,900		205,000	134,000
12,000		205,000	134,000
12,200		205,000	134,000
12,500		205,000	134,000
13,000		205,000	134,000
13,500		214,000	140,000
14,750		220,000	144,000

d1		l1	l2
mm	inch	mm	mm
19,000		247,000	162,000
20,000		254,000	166,000
22,000		268,000	176,000
25,000	63/64	282,000	185,000
25,500		290,000	190,000
29,000		307,000	201,000

d1		l1	l2
mm	inch	mm	mm

Brocas espirales cil., largas

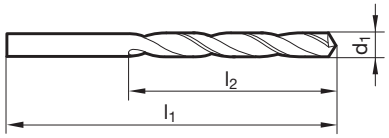
~10xD | DIN 340 | N | 118° | h8

Material de corte	HSS
Acabado	
Dirección de corte	R

P	•	vaciado de punta ≥Ø 2,950 • entrada cónica • con arrastre
M		
K	•	
N	○	aceros y fundición de aceros (aleados y sin alear) • fundición gris, fundición maleable, fundición esferica • hierro sinterizado, argentón y grafito
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 786



Artículo N° **204**

d1		l1	l2
mm	inch	mm	mm
2,950		100,000	66,000
3,000		100,000	66,000
3,100		106,000	69,000
3,170	1/8	106,000	69,000
3,200		106,000	69,000
3,300		106,000	69,000
3,400		112,000	73,000
3,500		112,000	73,000
3,600		112,000	73,000
3,800		119,000	78,000
3,900		119,000	78,000
4,000		119,000	78,000
4,050		119,000	78,000
4,100		119,000	78,000
4,200		119,000	78,000
4,250		119,000	78,000
4,300		126,000	82,000
4,400		126,000	82,000
4,500		126,000	82,000
4,760	3/16	132,000	87,000
4,800		132,000	87,000
5,000		132,000	87,000
5,080		132,000	87,000
5,100		132,000	87,000
5,200		132,000	87,000
5,500		139,000	91,000
5,600		139,000	91,000
5,800		139,000	91,000
5,850		139,000	91,000
5,900		139,000	91,000
6,000		139,000	91,000
6,100		148,000	97,000
6,200		148,000	97,000
6,300		148,000	97,000
6,350	1/4	148,000	97,000
6,400		148,000	97,000
6,500		148,000	97,000
6,600		148,000	97,000
6,700		148,000	97,000
6,750	17/64	156,000	102,000
6,800		156,000	102,000
6,900		156,000	102,000

d1		l1	l2
mm	inch	mm	mm
7,000		156,000	102,000
7,400		156,000	102,000
7,500		156,000	102,000
7,600		165,000	109,000
7,700		165,000	109,000
7,800		165,000	109,000
8,000		165,000	109,000
8,100		165,000	109,000
8,200		165,000	109,000
8,250		165,000	109,000
8,400		165,000	109,000
8,450		165,000	109,000
8,500		165,000	109,000
8,600		175,000	115,000
8,750		175,000	115,000
8,800		175,000	115,000
9,000		175,000	115,000
9,300		175,000	115,000
9,400		175,000	115,000
9,700		184,000	121,000
9,800		184,000	121,000
9,900		184,000	121,000
10,000		184,000	121,000
10,200		184,000	121,000
10,300		184,000	121,000
10,400		184,000	121,000
10,500		184,000	121,000
10,800		195,000	128,000
11,600		195,000	128,000
12,000		205,000	134,000
13,000		205,000	134,000
25,250		290,000	190,000

Brocas espirales cil., largas

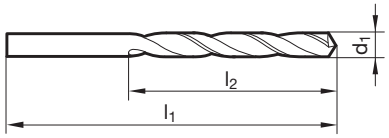
~10xD | DIN 340 | H | 118° | h8

Material de corte	HSS
Acabado	○
Dirección de corte	R

P		vaciado de punta ≥Ø 15,000 • entrada cónica • para taladros profundos
M		
K		
N	•	materiales duros y quebradizos • latón, aleaciones de magnesio • bronce y bronce al fósforo • pizarra, mica, Pertinax
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 786



Artículo N° **218**

d1 mm	inch	l1 mm	l2 mm	d1 mm	inch	l1 mm	l2 mm
0,500		32,000	12,000	2,300		90,000	59,000
0,520		32,000	12,000	2,350		90,000	59,000
0,550		35,000	15,000	2,400		95,000	62,000
0,600		35,000	15,000	2,500		95,000	62,000
0,650		38,000	18,000	2,550		95,000	62,000
0,700		42,000	21,000	2,600		95,000	62,000
0,750		42,000	21,000	2,650		95,000	62,000
0,800		46,000	25,000	2,700		100,000	66,000
0,820		46,000	25,000	2,800		100,000	66,000
0,840		46,000	25,000	2,830		100,000	66,000
0,850		46,000	25,000	2,870		100,000	66,000
0,900		51,000	29,000	2,900		100,000	66,000
0,950		51,000	29,000	2,940		100,000	66,000
0,970		56,000	33,000	3,000		100,000	66,000
1,000		56,000	33,000	3,020		106,000	69,000
1,050		56,000	33,000	3,050		106,000	69,000
1,100		60,000	37,000	3,060		106,000	69,000
1,150		60,000	37,000	3,100		106,000	69,000
1,200		65,000	41,000	3,150		106,000	69,000
1,250		65,000	41,000	3,180		106,000	69,000
1,300		65,000	41,000	3,200		106,000	69,000
1,400		70,000	45,000	3,250		106,000	69,000
1,500		70,000	45,000	3,270		106,000	69,000
1,550		76,000	50,000	3,300		106,000	69,000
1,560		76,000	50,000	3,400		112,000	73,000
1,570		76,000	50,000	3,500		112,000	73,000
1,580		76,000	50,000	3,550		112,000	73,000
1,600		76,000	50,000	3,600		112,000	73,000
1,650		76,000	50,000	3,800		119,000	78,000
1,700		76,000	50,000	3,900		119,000	78,000
1,750		80,000	53,000	4,000		119,000	78,000
1,800		80,000	53,000	4,030		119,000	78,000
1,820		80,000	53,000	4,100		119,000	78,000
1,850		80,000	53,000	4,200		119,000	78,000
1,900		80,000	53,000	4,300		126,000	82,000
1,950		85,000	56,000	4,400		126,000	82,000
2,000		85,000	56,000	4,500		126,000	82,000
2,050		85,000	56,000	4,600		126,000	82,000
2,100		85,000	56,000	4,700		126,000	82,000
2,180		90,000	59,000	4,760	3/16	132,000	87,000
2,200		90,000	59,000	4,800		132,000	87,000
2,250		90,000	59,000	4,900		132,000	87,000

d1		l1	l2
mm	inch	mm	mm
5,000		132,000	87,000
5,100		132,000	87,000
5,200		132,000	87,000
5,300		132,000	87,000
5,400		139,000	91,000
5,450		139,000	91,000
5,500		139,000	91,000
5,600		139,000	91,000
5,900		139,000	91,000
5,950	15/64	139,000	91,000
6,000		139,000	91,000
6,100		148,000	97,000
6,200		148,000	97,000
6,300		148,000	97,000
6,420		148,000	97,000
6,500		148,000	97,000
6,600		148,000	97,000
6,700		148,000	97,000
6,800		156,000	102,000
6,900		156,000	102,000
7,000		156,000	102,000
7,200		156,000	102,000
7,350		156,000	102,000
7,500		156,000	102,000

d1		l1	l2
mm	inch	mm	mm
8,000		165,000	109,000
8,200		165,000	109,000
8,300		165,000	109,000
8,700		175,000	115,000
9,000		175,000	115,000
9,500		175,000	115,000
9,700		184,000	121,000
9,900		184,000	121,000
10,000		184,000	121,000
11,250		195,000	128,000
12,100		205,000	134,000
14,000		214,000	140,000
15,000		220,000	144,000
16,000		227,000	149,000

Brocas espirales cil., largas

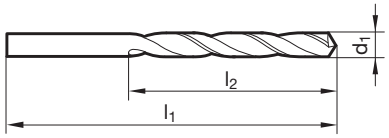
~10xD | DIN 340 | H | 118° | h8

Material de corte	HSS
Acabado	○
Dirección de corte	L

P		vaciado de punta ≥Ø 15,000 • entrada cónica • para taladros profundos
M		
K		
N	•	materiales duros y quebradizos • latón, aleaciones de magnesio • bronce y bronce al fósforo • pizarra, mica, Pertinax
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 786



Artículo N° **221**

d1 mm	inch	l1 mm	l2 mm
0,450		30,000	10,000
0,600		35,000	15,000
0,650		38,000	18,000
0,900		51,000	29,000
1,100		60,000	37,000
1,240		65,000	41,000
1,300		65,000	41,000
1,320		65,000	41,000
1,370		70,000	45,000
1,400		70,000	45,000
1,500		70,000	45,000
1,550		76,000	50,000
1,800		80,000	53,000
1,850		80,000	53,000
2,000		85,000	56,000
2,160		90,000	59,000
2,180		90,000	59,000
2,200		90,000	59,000
2,270		90,000	59,000
2,350		90,000	59,000
2,850		100,000	66,000
2,900		100,000	66,000
2,950		100,000	66,000
3,000		100,000	66,000
3,170	1/8	106,000	69,000
3,200		106,000	69,000
3,250		106,000	69,000
3,400		112,000	73,000
3,450		112,000	73,000
3,500		112,000	73,000

d1 mm	inch	l1 mm	l2 mm
3,510		112,000	73,000
3,700		112,000	73,000
4,100		119,000	78,000
4,200		119,000	78,000
4,400		126,000	82,000
4,500		126,000	82,000
4,900		132,000	87,000
5,000		132,000	87,000
5,050		132,000	87,000
5,100		132,000	87,000
5,400		139,000	91,000
5,600		139,000	91,000
5,900		139,000	91,000
6,000		139,000	91,000
6,800		156,000	102,000
8,000		165,000	109,000
9,000		175,000	115,000
12,800		205,000	134,000
15,000		220,000	144,000

Brocas espirales cil., largas

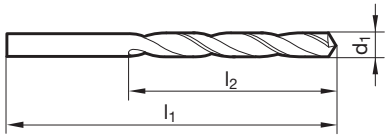
~10xD | DIN 340 | W | 130° | h8

Material de corte	HSS
Acabado	○
Dirección de corte	R

P		vaciado de punta ≥Ø 14,500 • entrada cónica • para taladros profundos
M		
K		
N	•	mat. blandos y de viruta larga • aluminio, alea. de alum. (de vir. larga) • zink, cobre fino, siluminio, electrón • plásticos (blandos), madera
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 786



Artículo N° **219**

d1 mm	inch	l1 mm	l2 mm	d1 mm	inch	l1 mm	l2 mm
0,500		32,000	12,000	2,100		85,000	56,000
0,600		35,000	15,000	2,150		90,000	59,000
0,650		38,000	18,000	2,200		90,000	59,000
0,700		42,000	21,000	2,250		90,000	59,000
0,740		42,000	21,000	2,300		90,000	59,000
0,750		42,000	21,000	2,350		90,000	59,000
0,800		46,000	25,000	2,380	3/32	95,000	62,000
0,850		46,000	25,000	2,400		95,000	62,000
0,900		51,000	29,000	2,430		95,000	62,000
0,950		51,000	29,000	2,450		95,000	62,000
0,970		56,000	33,000	2,490		95,000	62,000
0,980		56,000	33,000	2,500		95,000	62,000
1,000		56,000	33,000	2,550		95,000	62,000
1,100		60,000	37,000	2,600		95,000	62,000
1,180		60,000	37,000	2,650		95,000	62,000
1,190	3/64	65,000	41,000	2,700		100,000	66,000
1,200		65,000	41,000	2,710		100,000	66,000
1,220		65,000	41,000	2,750		100,000	66,000
1,250		65,000	41,000	2,800		100,000	66,000
1,300		65,000	41,000	2,850		100,000	66,000
1,350		70,000	45,000	2,880		100,000	66,000
1,370		70,000	45,000	2,900		100,000	66,000
1,400		70,000	45,000	2,950		100,000	66,000
1,440		70,000	45,000	3,000		100,000	66,000
1,500		70,000	45,000	3,100		106,000	69,000
1,520		76,000	50,000	3,170	1/8	106,000	69,000
1,600		76,000	50,000	3,180		106,000	69,000
1,610		76,000	50,000	3,200		106,000	69,000
1,650		76,000	50,000	3,250		106,000	69,000
1,700		76,000	50,000	3,260		106,000	69,000
1,750		80,000	53,000	3,300		106,000	69,000
1,760		80,000	53,000	3,350		106,000	69,000
1,770		80,000	53,000	3,400		112,000	73,000
1,780		80,000	53,000	3,500		112,000	73,000
1,800		80,000	53,000	3,550		112,000	73,000
1,850		80,000	53,000	3,600		112,000	73,000
1,900		80,000	53,000	3,650		112,000	73,000
1,950		85,000	56,000	3,700		112,000	73,000
1,970		85,000	56,000	3,750		112,000	73,000
2,000		85,000	56,000	3,800		119,000	78,000
2,050		85,000	56,000	3,830		119,000	78,000
2,070		85,000	56,000	3,900		119,000	78,000

d1		l1	l2
mm	inch	mm	mm
3,920		119,000	78,000
3,990		119,000	78,000
4,000		119,000	78,000
4,100		119,000	78,000
4,150		119,000	78,000
4,200		119,000	78,000
4,250		119,000	78,000
4,300		126,000	82,000
4,400		126,000	82,000
4,500		126,000	82,000
4,700		126,000	82,000
4,800		132,000	87,000
4,830		132,000	87,000
4,870		132,000	87,000
4,900		132,000	87,000
4,950		132,000	87,000
5,000		132,000	87,000
5,100		132,000	87,000
5,200		132,000	87,000
5,300		132,000	87,000
5,400		139,000	91,000
5,430		139,000	91,000
5,500		139,000	91,000
5,650		139,000	91,000
5,700		139,000	91,000
5,800		139,000	91,000
5,900		139,000	91,000
5,980		139,000	91,000
6,000		139,000	91,000
6,100		148,000	97,000
6,250		148,000	97,000
6,300		148,000	97,000
6,400		148,000	97,000
6,500		148,000	97,000
6,600		148,000	97,000
6,700		148,000	97,000
6,800		156,000	102,000
6,900		156,000	102,000
7,000		156,000	102,000
7,100		156,000	102,000
7,300		156,000	102,000
7,400		156,000	102,000
7,450		156,000	102,000
7,500		156,000	102,000
7,540	19/64	165,000	109,000
7,550		165,000	109,000
7,670		165,000	109,000
7,700		165,000	109,000

d1		l1	l2
mm	inch	mm	mm
7,850		165,000	109,000
7,900		165,000	109,000
7,950		165,000	109,000
8,000		165,000	109,000
8,200		165,000	109,000
8,300		165,000	109,000
8,500		165,000	109,000
8,550		175,000	115,000
8,600		175,000	115,000
8,700		175,000	115,000
8,750		175,000	115,000
8,800		175,000	115,000
8,900		175,000	115,000
9,000		175,000	115,000
9,100		175,000	115,000
9,500		175,000	115,000
9,700		184,000	121,000
9,800		184,000	121,000
9,900		184,000	121,000
10,000		184,000	121,000
10,300		184,000	121,000
10,700		195,000	128,000
10,750		195,000	128,000
11,000		195,000	128,000
11,300		195,000	128,000
11,400		195,000	128,000
12,000		205,000	134,000
13,100	33/64	205,000	134,000
13,500		214,000	140,000
13,750		214,000	140,000
14,000		214,000	140,000
14,500		220,000	144,000
15,000		220,000	144,000
15,500		227,000	149,000
17,000		235,000	154,000
18,000		241,000	158,000
18,250		247,000	162,000
19,000		247,000	162,000
19,840	25/32	254,000	166,000
20,000		254,000	166,000
20,640	13/16	261,000	171,000

Brocas espirales cil., largas

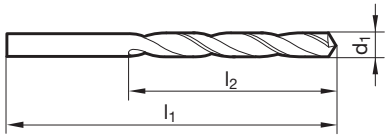
~10xD | DIN 340 | GT 100 | 130° | h8

Material de corte	HSS
Acabado	>Ø 2,36
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,000 • entrada cónica • ranuras amplias • con desalojo de viruta difícil
M		
K	•	
N	•	fundición gris y aceros hasta máx. 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 786



Artículo N° **535**

d1 mm	inch	l1 mm	l2 mm
1,000		56,000	33,000
1,020		56,000	33,000
1,040		56,000	33,000
1,050		56,000	33,000
1,070		60,000	37,000
1,090		60,000	37,000
1,100		60,000	37,000
1,150		60,000	37,000
1,180		60,000	37,000
1,190	3/64	65,000	41,000
1,200		65,000	41,000
1,250		65,000	41,000
1,300		65,000	41,000
1,320		65,000	41,000
1,350		70,000	45,000
1,400		70,000	45,000
1,450		70,000	45,000
1,500		70,000	45,000
1,510		76,000	50,000
1,520		76,000	50,000
1,550		76,000	50,000
1,590	1/16	76,000	50,000
1,600		76,000	50,000
1,650		76,000	50,000
1,670		76,000	50,000
1,700		76,000	50,000
1,750		80,000	53,000
1,780		80,000	53,000
1,800		80,000	53,000
1,850		80,000	53,000
1,900		80,000	53,000
1,930		85,000	56,000
1,950		85,000	56,000
1,980	5/64	85,000	56,000
1,990		85,000	56,000
2,000		85,000	56,000
2,050		85,000	56,000
2,060		85,000	56,000
2,080		85,000	56,000
2,100		85,000	56,000
2,150		90,000	59,000
2,180		90,000	59,000

d1 mm	inch	l1 mm	l2 mm
2,200		90,000	59,000
2,250		90,000	59,000
2,260		90,000	59,000
2,300		90,000	59,000
2,350		90,000	59,000
2,370		95,000	62,000
2,380	3/32	95,000	62,000
2,400		95,000	62,000
2,440		95,000	62,000
2,450		95,000	62,000
2,480		95,000	62,000
2,490		95,000	62,000
2,500		95,000	62,000
2,530		95,000	62,000
2,550		95,000	62,000
2,580		95,000	62,000
2,600		95,000	62,000
2,640		95,000	62,000
2,650		95,000	62,000
2,700		100,000	66,000
2,710		100,000	66,000
2,750		100,000	66,000
2,780	7/64	100,000	66,000
2,790		100,000	66,000
2,800		100,000	66,000
2,820		100,000	66,000
2,830		100,000	66,000
2,850		100,000	66,000
2,870		100,000	66,000
2,900		100,000	66,000
2,940		100,000	66,000
2,950		100,000	66,000
3,000		100,000	66,000
3,050		106,000	69,000
3,100		106,000	69,000
3,150		106,000	69,000
3,170	1/8	106,000	69,000
3,200		106,000	69,000
3,250		106,000	69,000
3,260		106,000	69,000
3,270		106,000	69,000
3,300		106,000	69,000

d1		l1	l2
mm	inch	mm	mm
3,400		112,000	73,000
3,450		112,000	73,000
3,500		112,000	73,000
3,550		112,000	73,000
3,570	9/64	112,000	73,000
3,600		112,000	73,000
3,660		112,000	73,000
3,700		112,000	73,000
3,730		112,000	73,000
3,750		112,000	73,000
3,800		119,000	78,000
3,860		119,000	78,000
3,900		119,000	78,000
3,910		119,000	78,000
3,970	5/32	119,000	78,000
3,990		119,000	78,000
4,000		119,000	78,000
4,040		119,000	78,000
4,050		119,000	78,000
4,090		119,000	78,000
4,100		119,000	78,000
4,130		119,000	78,000
4,150		119,000	78,000
4,200		119,000	78,000
4,220		119,000	78,000
4,250		119,000	78,000
4,300		126,000	82,000
4,350		126,000	82,000
4,370	11/64	126,000	82,000
4,390		126,000	82,000
4,400		126,000	82,000
4,500		126,000	82,000
4,570		126,000	82,000
4,600		126,000	82,000
4,620		126,000	82,000
4,700		126,000	82,000
4,750		126,000	82,000
4,760	3/16	132,000	87,000
4,800		132,000	87,000
4,850		132,000	87,000
4,900		132,000	87,000
4,920		132,000	87,000
4,980		132,000	87,000
5,000		132,000	87,000
5,050		132,000	87,000
5,060		132,000	87,000
5,100		132,000	87,000
5,110		132,000	87,000
5,160	13/64	132,000	87,000
5,180		132,000	87,000
5,200		132,000	87,000
5,220		132,000	87,000
5,250		132,000	87,000
5,300		132,000	87,000
5,310		139,000	91,000
5,400		139,000	91,000
5,410		139,000	91,000
5,500		139,000	91,000
5,560	7/32	139,000	91,000
5,600		139,000	91,000
5,610		139,000	91,000
5,700		139,000	91,000
5,750		139,000	91,000
5,790		139,000	91,000
5,800		139,000	91,000
5,900		139,000	91,000
5,940		139,000	91,000
5,950	15/64	139,000	91,000
6,000		139,000	91,000
6,040		148,000	97,000
6,050		148,000	97,000
6,100		148,000	97,000

d1		l1	l2
mm	inch	mm	mm
6,150		148,000	97,000
6,200		148,000	97,000
6,250		148,000	97,000
6,300		148,000	97,000
6,350	1/4	148,000	97,000
6,400		148,000	97,000
6,500		148,000	97,000
6,530		148,000	97,000
6,600		148,000	97,000
6,630		148,000	97,000
6,700		148,000	97,000
6,750	17/64	156,000	102,000
6,800		156,000	102,000
6,900		156,000	102,000
6,910		156,000	102,000
7,000		156,000	102,000
7,030		156,000	102,000
7,040		156,000	102,000
7,100		156,000	102,000
7,140	9/32	156,000	102,000
7,200		156,000	102,000
7,300		156,000	102,000
7,370		156,000	102,000
7,400		156,000	102,000
7,490		156,000	102,000
7,500		156,000	102,000
7,540	19/64	165,000	109,000
7,600		165,000	109,000
7,670		165,000	109,000
7,700		165,000	109,000
7,750		165,000	109,000
7,800		165,000	109,000
7,850		165,000	109,000
7,900		165,000	109,000
7,940	5/16	165,000	109,000
8,000		165,000	109,000
8,030		165,000	109,000
8,100		165,000	109,000
8,200		165,000	109,000
8,250		165,000	109,000
8,300		165,000	109,000
8,330	21/64	165,000	109,000
8,400		165,000	109,000
8,430		165,000	109,000
8,500		165,000	109,000
8,600		175,000	115,000
8,610		175,000	115,000
8,700		175,000	115,000
8,730	11/32	175,000	115,000
8,800		175,000	115,000
8,840		175,000	115,000
8,900		175,000	115,000
9,000		175,000	115,000
9,090		175,000	115,000
9,100		175,000	115,000
9,130	23/64	175,000	115,000
9,200		175,000	115,000
9,300		175,000	115,000
9,340		175,000	115,000
9,350		175,000	115,000
9,400		175,000	115,000
9,500		175,000	115,000
9,520	3/8	184,000	121,000
9,600		184,000	121,000
9,700		184,000	121,000
9,800		184,000	121,000
9,900		184,000	121,000
9,920	25/64	184,000	121,000
10,000		184,000	121,000
10,080		184,000	121,000
10,100		184,000	121,000
10,200		184,000	121,000

d1		l1	l2
mm	inch	mm	mm
10,300		184,000	121,000
10,320	13/32	184,000	121,000
10,400		184,000	121,000
10,490		184,000	121,000
10,500		184,000	121,000
10,600		184,000	121,000
10,720	27/64	195,000	128,000
10,800		195,000	128,000
10,900		195,000	128,000
11,000		195,000	128,000
11,100		195,000	128,000
11,110	7/16	195,000	128,000
11,300		195,000	128,000
11,400		195,000	128,000
11,500		195,000	128,000
11,800		195,000	128,000
11,900		205,000	134,000
11,910	15/32	205,000	134,000

d1		l1	l2
mm	inch	mm	mm
12,000		205,000	134,000
12,150		205,000	134,000
12,300	31/64	205,000	134,000
12,500		205,000	134,000
12,600		205,000	134,000
12,700	1/2	205,000	134,000
13,000		205,000	134,000
13,100	33/64	205,000	134,000
13,490	17/32	214,000	140,000
13,500		214,000	140,000
13,700		214,000	140,000
13,890	35/64	214,000	140,000
13,900		214,000	140,000
14,000		214,000	140,000

Brocas espirales cil., largas

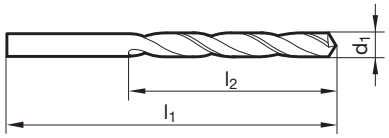
~10xD | DIN 340 | GT 100 | 130° | h8

Material de corte	HSS
Acabado	S
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,000 • entrada cónica • ranuras amplias • con desalojo de viruta difícil
M		
K	•	
N	•	fundición gris y aceros hasta máx. 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 786



Artículo N° **668**

d1 mm	inch	l1 mm	l2 mm
1,000		56,000	33,000
1,090		60,000	37,000
1,100		60,000	37,000
1,180		60,000	37,000
1,190	3/64	65,000	41,000
1,200		65,000	41,000
1,300		65,000	41,000
1,320		65,000	41,000
1,400		70,000	45,000
1,500		70,000	45,000
1,510		76,000	50,000
1,590	1/16	76,000	50,000
1,600		76,000	50,000
1,650		76,000	50,000
1,700		76,000	50,000
1,800		80,000	53,000
1,850		80,000	53,000
1,900		80,000	53,000
1,930		85,000	56,000
1,950		85,000	56,000
1,980	5/64	85,000	56,000
1,990		85,000	56,000
2,000		85,000	56,000
2,060		85,000	56,000
2,080		85,000	56,000
2,100		85,000	56,000
2,180		90,000	59,000
2,200		90,000	59,000
2,260		90,000	59,000
2,300		90,000	59,000
2,380	3/32	95,000	62,000
2,400		95,000	62,000
2,490		95,000	62,000
2,500		95,000	62,000
2,530		95,000	62,000
2,550		95,000	62,000
2,580		95,000	62,000
2,600		95,000	62,000
2,640		95,000	62,000
2,700		100,000	66,000
2,710		100,000	66,000
2,780	7/64	100,000	66,000

d1 mm	inch	l1 mm	l2 mm
2,800		100,000	66,000
2,820		100,000	66,000
2,850		100,000	66,000
2,870		100,000	66,000
2,900		100,000	66,000
2,950		100,000	66,000
3,000		100,000	66,000
3,050		106,000	69,000
3,100		106,000	69,000
3,170	1/8	106,000	69,000
3,200		106,000	69,000
3,250		106,000	69,000
3,260		106,000	69,000
3,300		106,000	69,000
3,400		112,000	73,000
3,450		112,000	73,000
3,500		112,000	73,000
3,570	9/64	112,000	73,000
3,600		112,000	73,000
3,700		112,000	73,000
3,730		112,000	73,000
3,750		112,000	73,000
3,800		119,000	78,000
3,860		119,000	78,000
3,870		119,000	78,000
3,900		119,000	78,000
3,910		119,000	78,000
3,970	5/32	119,000	78,000
4,000		119,000	78,000
4,040		119,000	78,000
4,090		119,000	78,000
4,100		119,000	78,000
4,200		119,000	78,000
4,220		119,000	78,000
4,300		126,000	82,000
4,370	11/64	126,000	82,000
4,400		126,000	82,000
4,500		126,000	82,000
4,600		126,000	82,000
4,700		126,000	82,000
4,760	3/16	132,000	87,000
4,800		132,000	87,000

d1		l1	l2
mm	inch	mm	mm
4,850		132,000	87,000
4,900		132,000	87,000
4,910		132,000	87,000
4,920		132,000	87,000
5,000		132,000	87,000
5,060		132,000	87,000
5,100		132,000	87,000
5,160	13/64	132,000	87,000
5,200		132,000	87,000
5,300		132,000	87,000
5,400		139,000	91,000
5,500		139,000	91,000
5,560	7/32	139,000	91,000
5,600		139,000	91,000
5,700		139,000	91,000
5,800		139,000	91,000
5,900		139,000	91,000
5,950	15/64	139,000	91,000
6,000		139,000	91,000
6,040		148,000	97,000
6,100		148,000	97,000
6,150		148,000	97,000
6,200		148,000	97,000
6,250		148,000	97,000
6,300		148,000	97,000
6,350	1/4	148,000	97,000
6,400		148,000	97,000
6,500		148,000	97,000
6,530		148,000	97,000
6,600		148,000	97,000
6,630		148,000	97,000
6,700		148,000	97,000
6,750	17/64	156,000	102,000
6,760		156,000	102,000
6,800		156,000	102,000
6,900		156,000	102,000
7,000		156,000	102,000
7,100		156,000	102,000
7,140	9/32	156,000	102,000
7,250		156,000	102,000
7,300		156,000	102,000
7,370		156,000	102,000
7,490		156,000	102,000
7,500		156,000	102,000
7,600		165,000	109,000
7,700		165,000	109,000
7,800		165,000	109,000
7,900		165,000	109,000

d1		l1	l2
mm	inch	mm	mm
7,940	5/16	165,000	109,000
8,000		165,000	109,000
8,200		165,000	109,000
8,300		165,000	109,000
8,400		165,000	109,000
8,430		165,000	109,000
8,500		165,000	109,000
8,600		175,000	115,000
8,610		175,000	115,000
8,700		175,000	115,000
8,730	11/32	175,000	115,000
8,800		175,000	115,000
8,900		175,000	115,000
9,000		175,000	115,000
9,130	23/64	175,000	115,000
9,200		175,000	115,000
9,340		175,000	115,000
9,400		175,000	115,000
9,500		175,000	115,000
9,520	3/8	184,000	121,000
9,700		184,000	121,000
9,900		184,000	121,000
9,920	25/64	184,000	121,000
10,000		184,000	121,000
10,100		184,000	121,000
10,200		184,000	121,000
10,320	13/32	184,000	121,000
10,500		184,000	121,000
11,000		195,000	128,000
11,110	7/16	195,000	128,000
11,500		195,000	128,000
11,510	29/64	195,000	128,000
11,910	15/32	205,000	134,000
12,000		205,000	134,000
12,300	31/64	205,000	134,000
12,700	1/2	205,000	134,000
13,000		205,000	134,000
14,000		214,000	140,000

Brocas espirales cil., largas

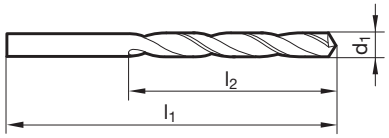
~10xD | DIN 340 | GT 100 | 130° | h8

Material de corte	HSS
Acabado	F
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,000 • entrada cónica • ranuras amplias • con desalojo de viruta difícil
M		
K	•	
N	•	fundición gris y aceros hasta máx. 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 786



Artículo N° **2462**

d1		l1	l2
mm	inch	mm	mm
1,000		56,000	33,000
1,100		60,000	37,000
1,200		65,000	41,000
1,300		65,000	41,000
1,500		70,000	45,000
1,600		76,000	50,000
1,700		76,000	50,000
1,800		80,000	53,000
1,900		80,000	53,000
2,000		85,000	56,000
2,100		85,000	56,000
2,200		90,000	59,000
2,300		90,000	59,000
2,400		95,000	62,000
2,500		95,000	62,000
2,600		95,000	62,000
2,800		100,000	66,000
2,900		100,000	66,000
3,000		100,000	66,000
3,100		106,000	69,000
3,200		106,000	69,000
3,300		106,000	69,000
3,400		112,000	73,000
3,500		112,000	73,000

d1		l1	l2
mm	inch	mm	mm
3,800		119,000	78,000
4,000		119,000	78,000
4,200		119,000	78,000
4,300		126,000	82,000
4,500		126,000	82,000
4,800		132,000	87,000
5,000		132,000	87,000
5,200		132,000	87,000
5,400		139,000	91,000
5,500		139,000	91,000
6,000		139,000	91,000
6,100		148,000	97,000
6,200		148,000	97,000
6,500		148,000	97,000
6,600		148,000	97,000
6,800		156,000	102,000
7,000		156,000	102,000
7,200		156,000	102,000
7,300		156,000	102,000
7,600		165,000	109,000
8,000		165,000	109,000
9,000		175,000	115,000
10,000		184,000	121,000

Brocas espirales cil., largas

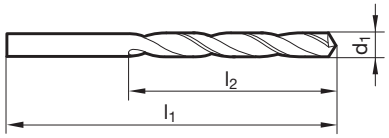
~10xD | DIN 340 | GT 100 | 130° | h8

Material de corte	HSS
Acabado	>Ø 2,36
Dirección de corte	L

P	•	vaciado de punta ≥Ø 1,400 • entrada cónica • ranuras amplias • con desalojo de viruta difícil
M		
K	•	
N	•	fundición gris y aceros hasta máx. 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 786



Artículo N° **506**

d1 mm	inch	l1 mm	l2 mm
1,400		70,000	45,000
1,500		70,000	45,000
1,600		76,000	50,000
1,680		76,000	50,000
1,800		80,000	53,000
1,850		80,000	53,000
2,000		85,000	56,000
2,200		90,000	59,000
2,300		90,000	59,000
2,350		90,000	59,000
2,500		95,000	62,000
2,800		100,000	66,000
3,000		100,000	66,000
3,050		106,000	69,000
3,200		106,000	69,000
3,300		106,000	69,000
3,400		112,000	73,000
3,500		112,000	73,000
3,550		112,000	73,000
3,800		119,000	78,000
3,950		119,000	78,000
4,000		119,000	78,000
4,400		126,000	82,000
4,500		126,000	82,000

d1 mm	inch	l1 mm	l2 mm
4,600		126,000	82,000
4,760	3/16	132,000	87,000
4,800		132,000	87,000
4,950		132,000	87,000
5,160	13/64	132,000	87,000
5,200		132,000	87,000
5,400		139,000	91,000
5,600		139,000	91,000
5,700		139,000	91,000
5,800		139,000	91,000
5,900		139,000	91,000
6,000		139,000	91,000
7,400		156,000	102,000
7,800		165,000	109,000
8,500		165,000	109,000
9,000		175,000	115,000
9,900		184,000	121,000
10,320	13/32	184,000	121,000
11,000		195,000	128,000
11,500		195,000	128,000
11,600		195,000	128,000
12,000		205,000	134,000
12,500		205,000	134,000
13,000		205,000	134,000

Brocas espirales cil., largas

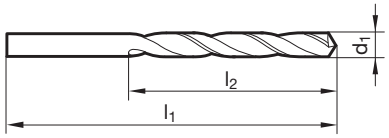
~10xD | DIN 340 | GT 50 | 130° | h8

Material de corte	HSS
Acabado	○
Dirección de corte	R

P	○	vaciado de punta ≥Ø 2,370 • entrada cónica • ranura muy grande
M		
K		
N	•	mat. blandos y de viruta larga de hasta a 500 N/mm² • aceros blandos para automáticos • aluminio, alea. de alum. (de vir. larga) • zink, cobre fino, siluminio, electrón • zamak, argalio plásticos (blandos) y madera
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 786



Artículo N° **501**

d1 mm	inch	l1 mm	l2 mm
1,000		56,000	33,000
1,020		56,000	33,000
1,030		56,000	33,000
1,040		56,000	33,000
1,070		60,000	37,000
1,090		60,000	37,000
1,100		60,000	37,000
1,180		60,000	37,000
1,190	3/64	65,000	41,000
1,200		65,000	41,000
1,250		65,000	41,000
1,300		65,000	41,000
1,320		65,000	41,000
1,400		70,000	45,000
1,450		70,000	45,000
1,480		70,000	45,000
1,500		70,000	45,000
1,510		76,000	50,000
1,550		76,000	50,000
1,590	1/16	76,000	50,000
1,600		76,000	50,000
1,610		76,000	50,000
1,700		76,000	50,000
1,750		80,000	53,000
1,780		80,000	53,000
1,800		80,000	53,000
1,850		80,000	53,000
1,900		80,000	53,000
1,930		85,000	56,000
1,950		85,000	56,000
1,980	5/64	85,000	56,000
1,990		85,000	56,000
2,000		85,000	56,000
2,050		85,000	56,000
2,060		85,000	56,000
2,080		85,000	56,000
2,100		85,000	56,000
2,180		90,000	59,000
2,200		90,000	59,000
2,250		90,000	59,000
2,260		90,000	59,000
2,300		90,000	59,000

d1 mm	inch	l1 mm	l2 mm
2,350		90,000	59,000
2,370		95,000	62,000
2,380	3/32	95,000	62,000
2,400		95,000	62,000
2,440		95,000	62,000
2,450		95,000	62,000
2,490		95,000	62,000
2,500		95,000	62,000
2,520		95,000	62,000
2,530		95,000	62,000
2,550		95,000	62,000
2,580		95,000	62,000
2,600		95,000	62,000
2,640		95,000	62,000
2,650		95,000	62,000
2,700		100,000	66,000
2,710		100,000	66,000
2,750		100,000	66,000
2,780	7/64	100,000	66,000
2,790		100,000	66,000
2,800		100,000	66,000
2,820		100,000	66,000
2,850		100,000	66,000
2,870		100,000	66,000
2,900		100,000	66,000
2,950		100,000	66,000
3,000		100,000	66,000
3,050		106,000	69,000
3,100		106,000	69,000
3,170	1/8	106,000	69,000
3,200		106,000	69,000
3,250		106,000	69,000
3,260		106,000	69,000
3,300		106,000	69,000
3,350		106,000	69,000
3,400		112,000	73,000
3,450		112,000	73,000
3,500		112,000	73,000
3,570	9/64	112,000	73,000
3,600		112,000	73,000
3,650		112,000	73,000
3,660		112,000	73,000

d1		l1	l2
mm	inch	mm	mm
3,700		112,000	73,000
3,800		119,000	78,000
3,860		119,000	78,000
3,900		119,000	78,000
3,910		119,000	78,000
3,970	5/32	119,000	78,000
3,990		119,000	78,000
4,000		119,000	78,000
4,040		119,000	78,000
4,050		119,000	78,000
4,090		119,000	78,000
4,100		119,000	78,000
4,200		119,000	78,000
4,220		119,000	78,000
4,250		119,000	78,000
4,300		126,000	82,000
4,350		126,000	82,000
4,370	11/64	126,000	82,000
4,400		126,000	82,000
4,500		126,000	82,000
4,570		126,000	82,000
4,600		126,000	82,000
4,620		126,000	82,000
4,700		126,000	82,000
4,750		126,000	82,000
4,760	3/16	132,000	87,000
4,800		132,000	87,000
4,850		132,000	87,000
4,900		132,000	87,000
4,920		132,000	87,000
4,980		132,000	87,000
5,000		132,000	87,000
5,060		132,000	87,000
5,100		132,000	87,000
5,110		132,000	87,000
5,160	13/64	132,000	87,000
5,180		132,000	87,000
5,200		132,000	87,000
5,300		132,000	87,000
5,310		139,000	91,000
5,400		139,000	91,000
5,410		139,000	91,000
5,500		139,000	91,000
5,560	7/32	139,000	91,000
5,600		139,000	91,000
5,610		139,000	91,000
5,650		139,000	91,000
5,700		139,000	91,000
5,790		139,000	91,000
5,800		139,000	91,000
5,900		139,000	91,000
5,940		139,000	91,000
5,950	15/64	139,000	91,000
6,000		139,000	91,000
6,030		148,000	97,000
6,040		148,000	97,000
6,150		148,000	97,000
6,200		148,000	97,000
6,250		148,000	97,000
6,300		148,000	97,000
6,350	1/4	148,000	97,000
6,400		148,000	97,000
6,500		148,000	97,000
6,530		148,000	97,000
6,600		148,000	97,000
6,630		148,000	97,000
6,700		148,000	97,000
6,750	17/64	156,000	102,000
6,800		156,000	102,000
6,900		156,000	102,000
7,000		156,000	102,000
7,040		156,000	102,000

d1		l1	l2
mm	inch	mm	mm
7,100		156,000	102,000
7,140	9/32	156,000	102,000
7,300		156,000	102,000
7,370		156,000	102,000
7,490		156,000	102,000
7,500		156,000	102,000
7,540	19/64	165,000	109,000
7,600		165,000	109,000
7,670		165,000	109,000
7,900		165,000	109,000
7,940	5/16	165,000	109,000
8,000		165,000	109,000
8,025		165,000	109,000
8,030		165,000	109,000
8,100		165,000	109,000
8,200		165,000	109,000
8,330	21/64	165,000	109,000
8,430		165,000	109,000
8,500		165,000	109,000
8,600		175,000	115,000
8,610		175,000	115,000
8,700		175,000	115,000
8,730	11/32	175,000	115,000
8,750		175,000	115,000
8,900		175,000	115,000
9,000		175,000	115,000
9,090		175,000	115,000
9,100		175,000	115,000
9,130	23/64	175,000	115,000
9,300		175,000	115,000
9,340		175,000	115,000
9,350		175,000	115,000
9,400		175,000	115,000
9,500		175,000	115,000
9,520	3/8	184,000	121,000
9,580		184,000	121,000
9,600		184,000	121,000
9,800		184,000	121,000
9,900		184,000	121,000
9,920	25/64	184,000	121,000
10,000		184,000	121,000
10,080		184,000	121,000
10,200		184,000	121,000
10,260		184,000	121,000
10,320	13/32	184,000	121,000
10,500		184,000	121,000
10,600		184,000	121,000
10,700		195,000	128,000
10,720	27/64	195,000	128,000
10,800		195,000	128,000
11,000		195,000	128,000
11,110	7/16	195,000	128,000
11,200		195,000	128,000
11,400		195,000	128,000
11,500		195,000	128,000
11,510	29/64	195,000	128,000
11,750		195,000	128,000
11,800		195,000	128,000
11,900		205,000	134,000
11,910	15/32	205,000	134,000
12,000		205,000	134,000
12,200		205,000	134,000
12,300	31/64	205,000	134,000
12,500		205,000	134,000
12,700	1/2	205,000	134,000
13,000		205,000	134,000
13,100	33/64	205,000	134,000
13,490	17/32	214,000	140,000
14,000		214,000	140,000
32,600		325,000	213,000

Brocas espirales cil., largas

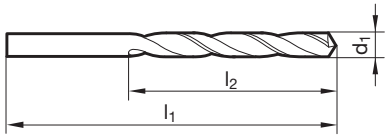
~10xD | DIN 340 | N | 118° | h8

Material de corte	HSCO
Acabado	>Ø 2,36
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,000 • entrada cónica • acero rápido al cobalto • más resistencia al desgaste
M	○	
K	•	
N	•	aceros aleados y no aleados fundición de dureza sup. a 800 N/mm² • aceros para trab. en frío y en caliente • aceros para rodamientos • aceros altamente aleados • aceros de cementación, de bonificación
S	○	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 792



Artículo Nº **317**

d1 mm	inch	l1 mm	l2 mm
0,500		32,000	12,000
0,600		35,000	15,000
0,700		42,000	21,000
0,750		42,000	21,000
0,800		46,000	25,000
0,850		46,000	25,000
0,900		51,000	29,000
0,950		51,000	29,000
0,960		56,000	33,000
1,000		56,000	33,000
1,020		56,000	33,000
1,050		56,000	33,000
1,100		60,000	37,000
1,150		60,000	37,000
1,190	3/64	65,000	41,000
1,200		65,000	41,000
1,250		65,000	41,000
1,300		65,000	41,000
1,350		70,000	45,000
1,400		70,000	45,000
1,450		70,000	45,000
1,500		70,000	45,000
1,510		76,000	50,000
1,550		76,000	50,000
1,590	1/16	76,000	50,000
1,600		76,000	50,000
1,650		76,000	50,000
1,700		76,000	50,000
1,780		80,000	53,000
1,800		80,000	53,000
1,850		80,000	53,000
1,900		80,000	53,000
1,950		85,000	56,000
1,980	5/64	85,000	56,000
2,000		85,000	56,000
2,050		85,000	56,000
2,060		85,000	56,000
2,100		85,000	56,000
2,200		90,000	59,000
2,300		90,000	59,000
2,380	3/32	95,000	62,000
2,400		95,000	62,000

d1 mm	inch	l1 mm	l2 mm
2,500		95,000	62,000
2,600		95,000	62,000
2,700		100,000	66,000
2,780	7/64	100,000	66,000
2,800		100,000	66,000
2,900		100,000	66,000
3,000		100,000	66,000
3,050		106,000	69,000
3,100		106,000	69,000
3,170	1/8	106,000	69,000
3,200		106,000	69,000
3,250		106,000	69,000
3,300		106,000	69,000
3,400		112,000	73,000
3,500		112,000	73,000
3,550		112,000	73,000
3,570	9/64	112,000	73,000
3,600		112,000	73,000
3,700		112,000	73,000
3,800		119,000	78,000
3,900		119,000	78,000
3,970	5/32	119,000	78,000
4,000		119,000	78,000
4,040		119,000	78,000
4,100		119,000	78,000
4,200		119,000	78,000
4,300		126,000	82,000
4,370	11/64	126,000	82,000
4,400		126,000	82,000
4,500		126,000	82,000
4,600		126,000	82,000
4,700		126,000	82,000
4,760	3/16	132,000	87,000
4,800		132,000	87,000
4,850		132,000	87,000
4,900		132,000	87,000
5,000		132,000	87,000
5,050		132,000	87,000
5,100		132,000	87,000
5,160	13/64	132,000	87,000
5,200		132,000	87,000
5,300		132,000	87,000

d1		l1	l2
mm	inch	mm	mm
5,400		139,000	91,000
5,500		139,000	91,000
5,560	7/32	139,000	91,000
5,600		139,000	91,000
5,700		139,000	91,000
5,800		139,000	91,000
5,900		139,000	91,000
5,950	15/64	139,000	91,000
6,000		139,000	91,000
6,100		148,000	97,000
6,200		148,000	97,000
6,300		148,000	97,000
6,350	1/4	148,000	97,000
6,400		148,000	97,000
6,500		148,000	97,000
6,600		148,000	97,000
6,630		148,000	97,000
6,750	17/64	156,000	102,000
6,800		156,000	102,000
6,900		156,000	102,000
7,000		156,000	102,000
7,140	9/32	156,000	102,000
7,200		156,000	102,000
7,500		156,000	102,000
7,540	19/64	165,000	109,000
7,600		165,000	109,000
7,700		165,000	109,000
7,800		165,000	109,000
7,940	5/16	165,000	109,000
8,000		165,000	109,000
8,200		165,000	109,000
8,330	21/64	165,000	109,000
8,430		165,000	109,000
8,500		165,000	109,000
8,600		175,000	115,000
8,730	11/32	175,000	115,000
8,800		175,000	115,000
9,000		175,000	115,000
9,130	23/64	175,000	115,000
9,200		175,000	115,000
9,300		175,000	115,000
9,500		175,000	115,000

d1		l1	l2
mm	inch	mm	mm
9,520	3/8	184,000	121,000
9,700		184,000	121,000
9,920	25/64	184,000	121,000
10,000		184,000	121,000
10,100		184,000	121,000
10,200		184,000	121,000
10,320	13/32	184,000	121,000
10,500		184,000	121,000
10,720	27/64	195,000	128,000
10,750		195,000	128,000
10,800		195,000	128,000
11,000		195,000	128,000
11,110	7/16	195,000	128,000
11,200		195,000	128,000
11,500		195,000	128,000
11,510	29/64	195,000	128,000
11,910	15/32	205,000	134,000
12,000		205,000	134,000
12,300	31/64	205,000	134,000
12,500		205,000	134,000
12,700	1/2	205,000	134,000
13,000		205,000	134,000
13,100	33/64	205,000	134,000
13,500		214,000	140,000
13,700		214,000	140,000
13,890	35/64	214,000	140,000
13,900		214,000	140,000
14,000		214,000	140,000
14,290	9/16	220,000	144,000
14,400		220,000	144,000
14,600		220,000	144,000
14,680	37/64	220,000	144,000
14,700		220,000	144,000
14,750		220,000	144,000
14,900		220,000	144,000
15,000		220,000	144,000
15,080	19/32	227,000	149,000
15,480	39/64	227,000	149,000
15,800		227,000	149,000
15,870	5/8	227,000	149,000
16,000		227,000	149,000
22,000		268,000	176,000

Brocas espirales cil., largas

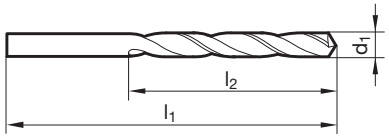
~10xD | DIN 340 | GT 100 | 130° | h8

Material de corte	HSCO
Acabado	>Ø 2,36
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,000 • entrada cónica • acero rápido al cobalto • ranuras amplias • más resistencia al desgaste • con desalojo de viruta difícil
M	•	
K	•	
N	•	aceros aleados y no aleados fundición de dureza sup. a 800 N/mm² • aceros para trab. en frío y en caliente • aceros para rodamientos • aceros altamente aleados • aceros de cementación, de bonificación
S		
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 792



Artículo N° **336**

d1 mm	inch	l1 mm	l2 mm
1,000		56,000	33,000
1,020		56,000	33,000
1,040		56,000	33,000
1,070		60,000	37,000
1,090		60,000	37,000
1,100		60,000	37,000
1,180		60,000	37,000
1,190	3/64	65,000	41,000
1,200		65,000	41,000
1,250		65,000	41,000
1,300		65,000	41,000
1,320		65,000	41,000
1,400		70,000	45,000
1,500		70,000	45,000
1,510		76,000	50,000
1,550		76,000	50,000
1,590	1/16	76,000	50,000
1,600		76,000	50,000
1,610		76,000	50,000
1,700		76,000	50,000
1,750		80,000	53,000
1,780		80,000	53,000
1,800		80,000	53,000
1,850		80,000	53,000
1,900		80,000	53,000
1,930		85,000	56,000
1,980	5/64	85,000	56,000
1,990		85,000	56,000
2,000		85,000	56,000
2,050		85,000	56,000
2,060		85,000	56,000
2,080		85,000	56,000
2,100		85,000	56,000
2,180		90,000	59,000
2,200		90,000	59,000
2,250		90,000	59,000
2,260		90,000	59,000
2,300		90,000	59,000
2,350		90,000	59,000
2,370		95,000	62,000
2,380	3/32	95,000	62,000
2,400		95,000	62,000

d1 mm	inch	l1 mm	l2 mm
2,440		95,000	62,000
2,450		95,000	62,000
2,490		95,000	62,000
2,500		95,000	62,000
2,530		95,000	62,000
2,550		95,000	62,000
2,580		95,000	62,000
2,600		95,000	62,000
2,640		95,000	62,000
2,700		100,000	66,000
2,710		100,000	66,000
2,750		100,000	66,000
2,780	7/64	100,000	66,000
2,790		100,000	66,000
2,800		100,000	66,000
2,820		100,000	66,000
2,850		100,000	66,000
2,870		100,000	66,000
2,900		100,000	66,000
2,950		100,000	66,000
3,000		100,000	66,000
3,050		106,000	69,000
3,100		106,000	69,000
3,170	1/8	106,000	69,000
3,200		106,000	69,000
3,260		106,000	69,000
3,300		106,000	69,000
3,400		112,000	73,000
3,440		112,000	73,000
3,450		112,000	73,000
3,500		112,000	73,000
3,570	9/64	112,000	73,000
3,600		112,000	73,000
3,660		112,000	73,000
3,700		112,000	73,000
3,730		112,000	73,000
3,750		112,000	73,000
3,800		119,000	78,000
3,860		119,000	78,000
3,900		119,000	78,000
3,910		119,000	78,000
3,970	5/32	119,000	78,000

d1		l1	l2
mm	inch	mm	mm
3,990		119,000	78,000
4,000		119,000	78,000
4,040		119,000	78,000
4,090		119,000	78,000
4,100		119,000	78,000
4,200		119,000	78,000
4,220		119,000	78,000
4,300		126,000	82,000
4,370	11/64	126,000	82,000
4,390		126,000	82,000
4,400		126,000	82,000
4,500		126,000	82,000
4,570		126,000	82,000
4,600		126,000	82,000
4,620		126,000	82,000
4,700		126,000	82,000
4,760	3/16	132,000	87,000
4,800		132,000	87,000
4,850		132,000	87,000
4,900		132,000	87,000
4,920		132,000	87,000
4,980		132,000	87,000
5,000		132,000	87,000
5,060		132,000	87,000
5,100		132,000	87,000
5,110		132,000	87,000
5,160	13/64	132,000	87,000
5,180		132,000	87,000
5,200		132,000	87,000
5,220		132,000	87,000
5,300		132,000	87,000
5,310		139,000	91,000
5,400		139,000	91,000
5,410		139,000	91,000
5,500		139,000	91,000
5,560	7/32	139,000	91,000
5,600		139,000	91,000
5,610		139,000	91,000
5,700		139,000	91,000
5,790		139,000	91,000
5,800		139,000	91,000
5,900		139,000	91,000
5,940		139,000	91,000
5,950	15/64	139,000	91,000
6,000		139,000	91,000
6,040		148,000	97,000
6,100		148,000	97,000
6,150		148,000	97,000
6,200		148,000	97,000
6,250		148,000	97,000
6,300		148,000	97,000
6,350	1/4	148,000	97,000
6,400		148,000	97,000
6,500		148,000	97,000
6,530		148,000	97,000
6,600		148,000	97,000
6,630		148,000	97,000
6,700		148,000	97,000
6,750	17/64	156,000	102,000
6,800		156,000	102,000

d1		l1	l2
mm	inch	mm	mm
6,900		156,000	102,000
7,000		156,000	102,000
7,030		156,000	102,000
7,100		156,000	102,000
7,140	9/32	156,000	102,000
7,200		156,000	102,000
7,300		156,000	102,000
7,370		156,000	102,000
7,400		156,000	102,000
7,490		156,000	102,000
7,500		156,000	102,000
7,540	19/64	165,000	109,000
7,670		165,000	109,000
7,700		165,000	109,000
7,800		165,000	109,000
7,900		165,000	109,000
7,940	5/16	165,000	109,000
8,000		165,000	109,000
8,030		165,000	109,000
8,100		165,000	109,000
8,200		165,000	109,000
8,300		165,000	109,000
8,400		165,000	109,000
8,500		165,000	109,000
8,600		175,000	115,000
8,610		175,000	115,000
8,700		175,000	115,000
8,730	11/32	175,000	115,000
8,800		175,000	115,000
8,840		175,000	115,000
8,900		175,000	115,000
9,000		175,000	115,000
9,090		175,000	115,000
9,100		175,000	115,000
9,200		175,000	115,000
9,300		175,000	115,000
9,350		175,000	115,000
9,400		175,000	115,000
9,500		175,000	115,000
9,520	3/8	184,000	121,000
9,700		184,000	121,000
9,750		184,000	121,000
9,800		184,000	121,000
9,900		184,000	121,000
10,000		184,000	121,000
10,200		184,000	121,000
10,500		184,000	121,000
10,750		195,000	128,000
10,800		195,000	128,000
10,900		195,000	128,000
11,000		195,000	128,000
11,500		195,000	128,000
11,800		195,000	128,000
12,000		205,000	134,000
12,500		205,000	134,000
13,000		205,000	134,000
15,500		227,000	149,000
16,000		227,000	149,000

Brocas espirales cil., largas

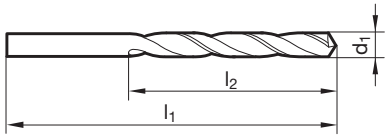
~10xD | DIN 340 | GT 100 | 130° | h8

Material de corte	HSCO
Acabado	F
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,000 • entrada cónica • acero rápido al cobalto • ranuras amplias • alta resistencia al desgaste • con desalojo de viruta difícil
M	•	
K	•	
N	•	aceros aleados y no aleados fundición de dureza sup. a 800 N/mm² • aceros para trab. en frío y en caliente • aceros para rodamientos • aceros altamente aleados • aceros de cementación, de bonificación
S		
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 792



Artículo N° **396**

d1		l1	l2
mm	inch	mm	mm
1,000		56,000	33,000
1,100		60,000	37,000
1,200		65,000	41,000
1,300		65,000	41,000
1,500		70,000	45,000
1,600		76,000	50,000
1,800		80,000	53,000
1,900		80,000	53,000
2,000		85,000	56,000
2,100		85,000	56,000
2,200		90,000	59,000
2,300		90,000	59,000
2,400		95,000	62,000
2,500		95,000	62,000
2,700		100,000	66,000
2,800		100,000	66,000
2,900		100,000	66,000
3,000		100,000	66,000
3,100		106,000	69,000
3,200		106,000	69,000
3,300		106,000	69,000
3,400		112,000	73,000
3,500		112,000	73,000
3,600		112,000	73,000
3,800		119,000	78,000
3,900		119,000	78,000
4,000		119,000	78,000
4,100		119,000	78,000
4,200		119,000	78,000
4,500		126,000	82,000
4,800		132,000	87,000
5,000		132,000	87,000
5,100		132,000	87,000
5,200		132,000	87,000
5,400		139,000	91,000
5,500		139,000	91,000

d1		l1	l2
mm	inch	mm	mm
5,800		139,000	91,000
5,900		139,000	91,000
6,000		139,000	91,000
6,200		148,000	97,000
6,500		148,000	97,000
6,700		148,000	97,000
6,800		156,000	102,000
7,000		156,000	102,000
7,200		156,000	102,000
7,400		156,000	102,000
7,500		156,000	102,000
7,600		165,000	109,000
7,700		165,000	109,000
7,800		165,000	109,000
7,900		165,000	109,000
8,000		165,000	109,000
8,200		165,000	109,000
8,300		165,000	109,000
8,500		165,000	109,000
8,600		175,000	115,000
8,800		175,000	115,000
8,900		175,000	115,000
9,000		175,000	115,000
9,100		175,000	115,000
9,200		175,000	115,000
9,300		175,000	115,000
9,500		175,000	115,000
9,600		184,000	121,000
9,700		184,000	121,000
10,000		184,000	121,000
10,200		184,000	121,000
10,500		184,000	121,000
11,000		195,000	128,000
11,500		195,000	128,000
12,000		205,000	134,000

Brocas espirales cil., largas

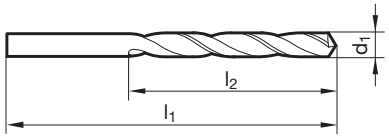
~10xD | DIN 340 | Ti | 130° | h8

Material de corte	HSCO
Acabado	○
Dirección de corte	Ⓡ

P	○	vaciado de punta ≥Ø 1,000 • entrada cónica • acero rápido al cobalto • más resistencia al desgaste
M	•	
K		
N		titanio y aleaciones de titanio
S	•	• aceros austeníticos inoxidables y resistentes a los ácidos y al calor • aceros de gran resistencia a partir de 900 N/mm² y cifras más elevadas • aceros para rodamientos
H		• Hastelloy, Inconel, Nimonic

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 792



Artículo N° **617**

d1 mm	inch	l1 mm	l2 mm
1,000		56,000	33,000
1,100		60,000	37,000
1,200		65,000	41,000
1,300		65,000	41,000
1,400		70,000	45,000
1,450		70,000	45,000
1,500		70,000	45,000
1,590	1/16	76,000	50,000
1,600		76,000	50,000
1,610		76,000	50,000
1,650		76,000	50,000
1,700		76,000	50,000
1,750		80,000	53,000
1,800		80,000	53,000
1,850		80,000	53,000
1,900		80,000	53,000
1,930		85,000	56,000
1,950		85,000	56,000
1,980	5/64	85,000	56,000
2,000		85,000	56,000
2,050		85,000	56,000
2,100		85,000	56,000
2,150		90,000	59,000
2,200		90,000	59,000
2,260		90,000	59,000
2,300		90,000	59,000
2,380	3/32	95,000	62,000
2,400		95,000	62,000
2,450		95,000	62,000
2,500		95,000	62,000
2,550		95,000	62,000
2,600		95,000	62,000
2,700		100,000	66,000
2,780	7/64	100,000	66,000
2,800		100,000	66,000
2,900		100,000	66,000
3,000		100,000	66,000
3,050		106,000	69,000
3,100		106,000	69,000
3,170	1/8	106,000	69,000
3,200		106,000	69,000
3,250		106,000	69,000

d1 mm	inch	l1 mm	l2 mm
3,300		106,000	69,000
3,400		112,000	73,000
3,450		112,000	73,000
3,500		112,000	73,000
3,570	9/64	112,000	73,000
3,600		112,000	73,000
3,700		112,000	73,000
3,800		119,000	78,000
3,900		119,000	78,000
3,970	5/32	119,000	78,000
4,000		119,000	78,000
4,050		119,000	78,000
4,100		119,000	78,000
4,200		119,000	78,000
4,300		126,000	82,000
4,400		126,000	82,000
4,500		126,000	82,000
4,600		126,000	82,000
4,700		126,000	82,000
4,760	3/16	132,000	87,000
4,800		132,000	87,000
4,900		132,000	87,000
4,950		132,000	87,000
5,000		132,000	87,000
5,100		132,000	87,000
5,160	13/64	132,000	87,000
5,200		132,000	87,000
5,300		132,000	87,000
5,400		139,000	91,000
5,500		139,000	91,000
5,600		139,000	91,000
5,700		139,000	91,000
5,800		139,000	91,000
6,000		139,000	91,000
6,100		148,000	97,000
6,200		148,000	97,000
6,300		148,000	97,000
6,350	1/4	148,000	97,000
6,400		148,000	97,000
6,500		148,000	97,000
6,600		148,000	97,000
6,700		148,000	97,000

d1		l1	l2
mm	inch	mm	mm
6,750	17/64	156,000	102,000
6,800		156,000	102,000
6,900		156,000	102,000
7,000		156,000	102,000
7,100		156,000	102,000
7,140	9/32	156,000	102,000
7,250		156,000	102,000
7,400		156,000	102,000
7,500		156,000	102,000
7,540	19/64	165,000	109,000
7,700		165,000	109,000
7,800		165,000	109,000
7,940	5/16	165,000	109,000
8,000		165,000	109,000
8,100		165,000	109,000
8,200		165,000	109,000
8,300		165,000	109,000
8,330	21/64	165,000	109,000
8,400		165,000	109,000
8,500		165,000	109,000
8,600		175,000	115,000
8,700		175,000	115,000
8,730	11/32	175,000	115,000
8,800		175,000	115,000

d1		l1	l2
mm	inch	mm	mm
9,000		175,000	115,000
9,100		175,000	115,000
9,500		175,000	115,000
9,520	3/8	184,000	121,000
9,800		184,000	121,000
10,000		184,000	121,000
10,200		184,000	121,000
10,500		184,000	121,000
11,000		195,000	128,000
11,110	7/16	195,000	128,000
11,510	29/64	195,000	128,000
12,000		205,000	134,000
12,500		205,000	134,000
13,000		205,000	134,000
15,000		220,000	144,000

Brocas espirales cil., largas

~10xD | DIN 340 | Ti | 130° | h8

Material de corte	HSCO
Acabado	S
Dirección de corte	R

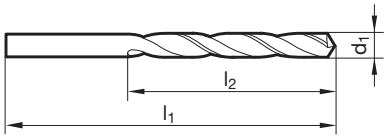
P	○
M	•
K	
N	
S	•
H	

vaciado de punta ≥Ø 1,000 • entrada cónica • acero rápido al cobalto • más resistencia al desgaste

titanio y aleaciones de titanio • aceros austeníticos inoxidables y resistentes a los ácidos y al calor • aceros de gran resistencia a partir de 900 N/mm² y cifras más elevadas • aceros para rodamientos • Hastelloy, Inconel, Nimonic

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 792



Artículo Nº **669**

d1 mm	inch	l1 mm	l2 mm
1,000		56,000	33,000
1,200		65,000	41,000
1,300		65,000	41,000
1,400		70,000	45,000
1,500		70,000	45,000
1,590	1/16	76,000	50,000
1,600		76,000	50,000
1,700		76,000	50,000
1,800		80,000	53,000
1,900		80,000	53,000
1,980	5/64	85,000	56,000
2,000		85,000	56,000
2,050		85,000	56,000
2,100		85,000	56,000
2,200		90,000	59,000
2,300		90,000	59,000
2,380	3/32	95,000	62,000
2,400		95,000	62,000
2,500		95,000	62,000
2,600		95,000	62,000
2,700		100,000	66,000
2,750		100,000	66,000
2,780	7/64	100,000	66,000
2,800		100,000	66,000
2,900		100,000	66,000
3,000		100,000	66,000
3,100		106,000	69,000
3,170	1/8	106,000	69,000
3,200		106,000	69,000
3,250		106,000	69,000
3,300		106,000	69,000
3,400		112,000	73,000
3,500		112,000	73,000
3,570	9/64	112,000	73,000
3,600		112,000	73,000
3,700		112,000	73,000
3,800		119,000	78,000
3,900		119,000	78,000
3,970	5/32	119,000	78,000
4,000		119,000	78,000
4,100		119,000	78,000
4,200		119,000	78,000

d1 mm	inch	l1 mm	l2 mm
4,300		126,000	82,000
4,370	11/64	126,000	82,000
4,400		126,000	82,000
4,500		126,000	82,000
4,700		126,000	82,000
4,760	3/16	132,000	87,000
4,800		132,000	87,000
5,000		132,000	87,000
5,100		132,000	87,000
5,160	13/64	132,000	87,000
5,200		132,000	87,000
5,300		132,000	87,000
5,500		139,000	91,000
5,600		139,000	91,000
5,700		139,000	91,000
5,800		139,000	91,000
6,000		139,000	91,000
6,100		148,000	97,000
6,200		148,000	97,000
6,300		148,000	97,000
6,350	1/4	148,000	97,000
6,400		148,000	97,000
6,500		148,000	97,000
6,700		148,000	97,000
6,750	17/64	156,000	102,000
6,800		156,000	102,000
7,000		156,000	102,000
7,100		156,000	102,000
7,140	9/32	156,000	102,000
7,200		156,000	102,000
7,400		156,000	102,000
7,500		156,000	102,000
7,540	19/64	165,000	109,000
7,800		165,000	109,000
7,900		165,000	109,000
7,940	5/16	165,000	109,000
8,000		165,000	109,000
8,200		165,000	109,000
8,500		165,000	109,000
8,730	11/32	175,000	115,000
9,000		175,000	115,000
9,130	23/64	175,000	115,000

d1		l1	l2
mm	inch	mm	mm
9,300		175,000	115,000
9,500		175,000	115,000
9,520	3/8	184,000	121,000
10,000		184,000	121,000
10,200		184,000	121,000

d1		l1	l2
mm	inch	mm	mm

Brocas espirales cil., largas

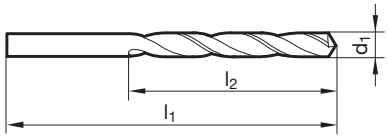
~10xD | WN | N | 130° | h7

Material de corte	**Metal duro**
Acabado	◯
Dirección de corte	Ⓡ

P	afilado plano • forma recta del corte principal
M	
K	
N	plásticos reforzados con fibra de vidrio • placas de circ. impresos que pueden ocasionar un rápido desgaste en las superficies y bordes de corte de la broca
S	
H	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 792



Artículo N° **706**

d1		l1	l2
mm	inch	mm	mm
0,500		38,000	8,500
0,600		38,000	9,500
0,650		38,000	10,500
0,700		38,000	10,500
0,750		38,000	12,500
0,800		38,000	12,500
0,850		38,000	14,500
0,900		38,000	14,500
1,000		38,000	17,000
1,050		38,000	17,000
1,100		38,000	17,000
1,400		38,000	17,000

d1		l1	l2
mm	inch	mm	mm
1,450		38,000	17,000

Brocas espirales, extra largas, serie 1

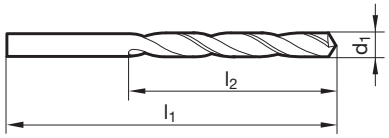
~15xD | DIN 1869 | N | 118° | h8

Material de corte	HSS
Acabado	>Ø 2,36
Dirección de corte	R

P	•	vaciado de punta ≥Ø 2,380 • entrada cónica • para taladros muy profundos
M		
K	•	
N	○	aceros y fundición de aceros (aleados y sin alear) • fundición gris, fundición maleable, fundición esferica • hierro sinterizado, argentón y grafito
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 788



Artículo N° **235**

d1 mm	inch	l1 mm	l2 mm	d1 mm	inch	l1 mm	l2 mm
1,600		115,000	75,000	4,600		185,000	125,000
1,700		115,000	75,000	4,700		185,000	125,000
1,800		120,000	80,000	4,760	3/16	195,000	135,000
1,900		120,000	80,000	4,800		195,000	135,000
1,930		125,000	85,000	4,900		195,000	135,000
1,950		125,000	85,000	5,000		195,000	135,000
2,000		125,000	85,000	5,100		195,000	135,000
2,050		125,000	85,000	5,200		195,000	135,000
2,100		125,000	85,000	5,300		195,000	135,000
2,200		135,000	90,000	5,340		205,000	140,000
2,300		135,000	90,000	5,400		205,000	140,000
2,350		135,000	90,000	5,500		205,000	140,000
2,380	3/32	140,000	95,000	5,560	7/32	205,000	140,000
2,400		140,000	95,000	5,600		205,000	140,000
2,500		140,000	95,000	5,700		205,000	140,000
2,600		140,000	95,000	5,800		205,000	140,000
2,700		150,000	100,000	5,900		205,000	140,000
2,800		150,000	100,000	6,000		205,000	140,000
2,900		150,000	100,000	6,100		215,000	150,000
3,000		150,000	100,000	6,200		215,000	150,000
3,100		155,000	105,000	6,250		215,000	150,000
3,170	1/8	155,000	105,000	6,300		215,000	150,000
3,200		155,000	105,000	6,350	1/4	215,000	150,000
3,250		155,000	105,000	6,400		215,000	150,000
3,300		155,000	105,000	6,500		215,000	150,000
3,400		165,000	115,000	6,600		215,000	150,000
3,500		165,000	115,000	6,700		215,000	150,000
3,570	9/64	165,000	115,000	6,750	17/64	225,000	155,000
3,600		165,000	115,000	6,800		225,000	155,000
3,650		165,000	115,000	7,000		225,000	155,000
3,700		165,000	115,000	7,200		225,000	155,000
3,750		165,000	115,000	7,400		225,000	155,000
3,800		175,000	120,000	7,500		225,000	155,000
3,900		175,000	120,000	7,700		240,000	165,000
3,970	5/32	175,000	120,000	7,800		240,000	165,000
4,000		175,000	120,000	7,900		240,000	165,000
4,100		175,000	120,000	7,940	5/16	240,000	165,000
4,200		175,000	120,000	8,000		240,000	165,000
4,300		185,000	125,000	8,100		240,000	165,000
4,370	11/64	185,000	125,000	8,200		240,000	165,000
4,400		185,000	125,000	8,330	21/64	240,000	165,000
4,500		185,000	125,000	8,400		240,000	165,000

d1		l1	l2
mm	inch	mm	mm
8,500		240,000	165,000
8,700		250,000	175,000
8,730	11/32	250,000	175,000
8,800		250,000	175,000
8,900		250,000	175,000
9,000		250,000	175,000
9,130	23/64	250,000	175,000
9,500		250,000	175,000
9,520	3/8	265,000	185,000
9,600		265,000	185,000
9,700		265,000	185,000
9,800		265,000	185,000
9,900		265,000	185,000
9,920	25/64	265,000	185,000
10,000		265,000	185,000
10,100		265,000	185,000
10,200		265,000	185,000
10,250		265,000	185,000

d1		l1	l2
mm	inch	mm	mm
10,320	13/32	265,000	185,000
10,500		265,000	185,000
11,000		280,000	195,000
11,500		280,000	195,000
11,510	29/64	280,000	195,000
11,800		280,000	195,000
12,000		295,000	205,000
12,100		295,000	205,000
12,250		295,000	205,000
12,300	31/64	295,000	205,000
12,500		295,000	205,000
12,700	1/2	295,000	205,000
13,000		295,000	205,000

Brocas espirales, extra largas, serie 1

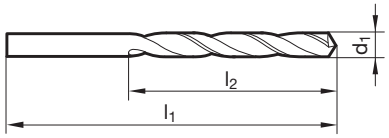
~15xD | DIN 1869 | GT 100 | 130° | h8

Material de corte	HSS
Acabado	>Ø 2,36
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,950 • entrada cónica • ranuras amplias • para taladros muy profundos • con desalojo de viruta difícil
M		
K	•	
N	•	fundición gris y aceros hasta máx. 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 790



Artículo N° **502**

d1 mm	inch	l1 mm	l2 mm
1,950		125,000	85,000
2,000		125,000	85,000
2,050		125,000	85,000
2,100		125,000	85,000
2,200		135,000	90,000
2,300		135,000	90,000
2,370		140,000	95,000
2,380	3/32	140,000	95,000
2,400		140,000	95,000
2,500		140,000	95,000
2,550		140,000	95,000
2,580		140,000	95,000
2,600		140,000	95,000
2,700		150,000	100,000
2,780	7/64	150,000	100,000
2,800		150,000	100,000
2,850		150,000	100,000
2,870		150,000	100,000
2,900		150,000	100,000
2,950		150,000	100,000
3,000		150,000	100,000
3,030		155,000	105,000
3,100		155,000	105,000
3,170	1/8	155,000	105,000
3,200		155,000	105,000
3,250		155,000	105,000
3,300		155,000	105,000
3,400		165,000	115,000
3,500		165,000	115,000
3,570	9/64	165,000	115,000
3,600		165,000	115,000
3,700		165,000	115,000
3,750		165,000	115,000
3,800		175,000	120,000
3,860		175,000	120,000
3,900		175,000	120,000
3,970	5/32	175,000	120,000
4,000		175,000	120,000
4,100		175,000	120,000
4,200		175,000	120,000
4,300		185,000	125,000
4,370	11/64	185,000	125,000

d1 mm	inch	l1 mm	l2 mm
4,400		185,000	125,000
4,500		185,000	125,000
4,570		185,000	125,000
4,600		185,000	125,000
4,700		185,000	125,000
4,760	3/16	195,000	135,000
4,800		195,000	135,000
4,900		195,000	135,000
5,000		195,000	135,000
5,100		195,000	135,000
5,110		195,000	135,000
5,160	13/64	195,000	135,000
5,200		195,000	135,000
5,300		195,000	135,000
5,400		205,000	140,000
5,500		205,000	140,000
5,560	7/32	205,000	140,000
5,600		205,000	140,000
5,700		205,000	140,000
5,750		205,000	140,000
5,800		205,000	140,000
5,900		205,000	140,000
5,950	15/64	205,000	140,000
6,000		205,000	140,000
6,100		215,000	150,000
6,200		215,000	150,000
6,250		215,000	150,000
6,300		215,000	150,000
6,350	1/4	215,000	150,000
6,400		215,000	150,000
6,500		215,000	150,000
6,600		215,000	150,000
6,700		215,000	150,000
6,750	17/64	225,000	155,000
6,800		225,000	155,000
6,900		225,000	155,000
7,000		225,000	155,000
7,100		225,000	155,000
7,200		225,000	155,000
7,300		225,000	155,000
7,500		225,000	155,000
7,540	19/64	240,000	165,000

d1		l1	l2
mm	inch	mm	mm
7,700		240,000	165,000
7,750		240,000	165,000
7,800		240,000	165,000
7,900		240,000	165,000
7,940	5/16	240,000	165,000
8,000		240,000	165,000
8,100		240,000	165,000
8,200		240,000	165,000
8,300		240,000	165,000
8,330	21/64	240,000	165,000
8,400		240,000	165,000
8,430		240,000	165,000
8,500		240,000	165,000
8,600		250,000	175,000
8,700		250,000	175,000
8,730	11/32	250,000	175,000
8,800		250,000	175,000
9,000		250,000	175,000
9,200		250,000	175,000
9,300		250,000	175,000
9,400		250,000	175,000
9,500		250,000	175,000
9,520	3/8	265,000	185,000
9,600		265,000	185,000

d1		l1	l2
mm	inch	mm	mm
9,700		265,000	185,000
9,800		265,000	185,000
9,900		265,000	185,000
9,920	25/64	265,000	185,000
10,000		265,000	185,000
10,200		265,000	185,000
10,320	13/32	265,000	185,000
10,500		265,000	185,000
10,720	27/64	280,000	195,000
11,000		280,000	195,000
11,110	7/16	280,000	195,000
11,200		280,000	195,000
11,500		280,000	195,000
11,510	29/64	280,000	195,000
11,750		280,000	195,000
11,800		280,000	195,000
12,000		295,000	205,000
12,500		295,000	205,000
12,700	1/2	295,000	205,000
13,000		295,000	205,000

Brocas espirales, extra largas, serie 1

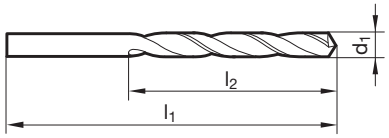
~15xD | DIN 1869 | GT 100 | 130° | h8

Material de corte	HSS
Acabado	S
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,980 • entrada cónica • ranuras amplias • para taladros muy profundos • con desalojo de viruta difícil
M		
K	•	
N	•	fundición gris y aceros hasta máx. 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S	○	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 790



Artículo N° **670**

d1 mm	inch	l1 mm	l2 mm
2,000		125,000	85,000
2,100		125,000	85,000
2,200		135,000	90,000
2,300		135,000	90,000
2,380	3/32	140,000	95,000
2,400		140,000	95,000
2,500		140,000	95,000
2,780	7/64	150,000	100,000
2,800		150,000	100,000
2,950		150,000	100,000
3,000		150,000	100,000
3,100		155,000	105,000
3,170	1/8	155,000	105,000
3,200		155,000	105,000
3,300		155,000	105,000
3,500		165,000	115,000
3,570	9/64	165,000	115,000
3,600		165,000	115,000
3,800		175,000	120,000
3,970	5/32	175,000	120,000
4,000		175,000	120,000
4,200		175,000	120,000
4,370	11/64	185,000	125,000
4,500		185,000	125,000
4,600		185,000	125,000
4,760	3/16	195,000	135,000
4,800		195,000	135,000
5,000		195,000	135,000
5,100		195,000	135,000
5,160	13/64	195,000	135,000
5,200		195,000	135,000
5,500		205,000	140,000
5,560	7/32	205,000	140,000
6,000		205,000	140,000
6,100		215,000	150,000
6,200		215,000	150,000

d1 mm	inch	l1 mm	l2 mm
6,350	1/4	215,000	150,000
6,500		215,000	150,000
6,600		215,000	150,000
6,800		225,000	155,000
7,000		225,000	155,000
7,140	9/32	225,000	155,000
7,500		225,000	155,000
7,540	19/64	240,000	165,000
7,940	5/16	240,000	165,000
8,000		240,000	165,000
8,200		240,000	165,000
8,500		240,000	165,000
8,730	11/32	250,000	175,000
9,000		250,000	175,000
9,520	3/8	265,000	185,000
9,600		265,000	185,000
9,920	25/64	265,000	185,000
10,000		265,000	185,000
10,900		280,000	195,000
11,000		280,000	195,000
11,900		295,000	205,000
11,910	15/32	295,000	205,000
12,000		295,000	205,000
12,500		295,000	205,000
12,700	1/2	295,000	205,000

Brocas espirales, extra largas, serie 1

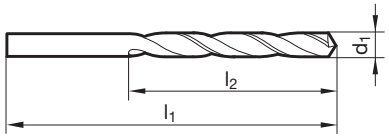
~15xD | DIN 1869 | GT 50 | 130° | h8

Material de corte	HSS
Acabado	○
Dirección de corte	R

P	○	vaciado de punta ≥Ø 2,380 • entrada cónica • para taladros muy profundos
M		
K		
N	•	mat. blandos y de viruta larga de hasta a 500 N/mm² • aceros blandos para automáticos • aluminio, alea. de alum. (de vir. larga) • zink, cobre fino, siluminio, electrón • zamak, argalio plásticos (blandos) y madera
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 788



Artículo N° **524**

d1 mm	inch	l1 mm	l2 mm
2,000		125,000	85,000
2,100		125,000	85,000
2,200		135,000	90,000
2,300		135,000	90,000
2,350		135,000	90,000
2,380	3/32	140,000	95,000
2,400		140,000	95,000
2,450		140,000	95,000
2,500		140,000	95,000
2,600		140,000	95,000
2,780	7/64	150,000	100,000
2,800		150,000	100,000
2,900		150,000	100,000
2,950		150,000	100,000
3,000		150,000	100,000
3,100		155,000	105,000
3,170	1/8	155,000	105,000
3,200		155,000	105,000
3,300		155,000	105,000
3,350		155,000	105,000
3,400		165,000	115,000
3,450		165,000	115,000
3,500		165,000	115,000
3,530		165,000	115,000
3,570	9/64	165,000	115,000
3,600		165,000	115,000
3,800		175,000	120,000
3,900		175,000	120,000
3,970	5/32	175,000	120,000
4,000		175,000	120,000
4,100		175,000	120,000
4,200		175,000	120,000
4,250		175,000	120,000
4,300		185,000	125,000
4,370	11/64	185,000	125,000
4,400		185,000	125,000
4,500		185,000	125,000
4,760	3/16	195,000	135,000
4,900		195,000	135,000
5,000		195,000	135,000
5,100		195,000	135,000
5,160	13/64	195,000	135,000

d1 mm	inch	l1 mm	l2 mm
5,200		195,000	135,000
5,400		205,000	140,000
5,600		205,000	140,000
5,700		205,000	140,000
5,800		205,000	140,000
5,900		205,000	140,000
5,950	15/64	205,000	140,000
6,000		205,000	140,000
6,100		215,000	150,000
6,350	1/4	215,000	150,000
6,400		215,000	150,000
6,500		215,000	150,000
6,600		215,000	150,000
6,750	17/64	225,000	155,000
6,800		225,000	155,000
7,000		225,000	155,000
7,100		225,000	155,000
7,140	9/32	225,000	155,000
7,300		225,000	155,000
7,400		225,000	155,000
7,500		225,000	155,000
7,540	19/64	240,000	165,000
7,800		240,000	165,000
7,900		240,000	165,000
7,940	5/16	240,000	165,000
8,000		240,000	165,000
8,100		240,000	165,000
8,330	21/64	240,000	165,000
8,600		250,000	175,000
8,730	11/32	250,000	175,000
8,900		250,000	175,000
9,000		250,000	175,000
9,130	23/64	250,000	175,000
9,200		250,000	175,000
9,500		250,000	175,000
9,520	3/8	265,000	185,000
9,920	25/64	265,000	185,000
10,000		265,000	185,000
10,320	13/32	265,000	185,000
10,500		265,000	185,000
11,000		280,000	195,000
11,110	7/16	280,000	195,000

d1		l1	l2
mm	inch	mm	mm
11,500		280,000	195,000
11,910	15/32	295,000	205,000
12,000		295,000	205,000
12,700	1/2	295,000	205,000

d1		l1	l2
mm	inch	mm	mm

Brocas espirales, extra largas, serie 1

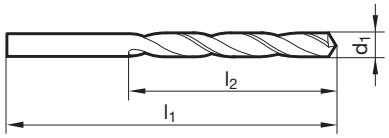
~15xD | DIN 1869 | GT 100 | 130° | h8

Material de corte	HSCO
Acabado	
Dirección de corte	R

P	•	vaciado de punta ≥Ø 2,700 • entrada cónica • acero rápido al cobalto • ranuras amplias • más resistencia al desgaste • para taladros muy profundos • con desalojo de viruta difícil
M	•	
K	•	
N	•	aceros y fundición de acero de gran dureza • fundición gris, fundición maleable, fundición esferica
S	•	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 794



Artículo N° **618**

d1 mm	inch	l1 mm	l2 mm
2,700		150,000	100,000
2,900		150,000	100,000
3,000		150,000	100,000
3,100		155,000	105,000
3,170	1/8	155,000	105,000
3,200		155,000	105,000
3,300		155,000	105,000
3,400		165,000	115,000
3,500		165,000	115,000
3,570	9/64	165,000	115,000
3,600		165,000	115,000
3,700		165,000	115,000
3,750		165,000	115,000
3,800		175,000	120,000
3,970	5/32	175,000	120,000
4,000		175,000	120,000
4,100		175,000	120,000
4,200		175,000	120,000
4,300		185,000	125,000
4,370	11/64	185,000	125,000
4,400		185,000	125,000
4,500		185,000	125,000
4,600		185,000	125,000
4,760	3/16	195,000	135,000
4,800		195,000	135,000
4,850		195,000	135,000
5,000		195,000	135,000
5,100		195,000	135,000
5,160	13/64	195,000	135,000
5,200		195,000	135,000
5,300		195,000	135,000
5,400		205,000	140,000
5,500		205,000	140,000
5,560	7/32	205,000	140,000
5,600		205,000	140,000
5,700		205,000	140,000

d1 mm	inch	l1 mm	l2 mm
5,800		205,000	140,000
6,000		205,000	140,000
6,100		215,000	150,000
6,200		215,000	150,000
6,300		215,000	150,000
6,350	1/4	215,000	150,000
6,400		215,000	150,000
6,500		215,000	150,000
6,600		215,000	150,000
6,700		215,000	150,000
6,750	17/64	225,000	155,000
6,800		225,000	155,000
7,000		225,000	155,000
7,140	9/32	225,000	155,000
7,400		225,000	155,000
7,500		225,000	155,000
7,540	19/64	240,000	165,000
7,700		240,000	165,000
7,800		240,000	165,000
7,940	5/16	240,000	165,000
8,000		240,000	165,000
8,200		240,000	165,000
8,330	21/64	240,000	165,000
8,500		240,000	165,000
8,700		250,000	175,000
8,730	11/32	250,000	175,000
8,800		250,000	175,000
9,000		250,000	175,000
9,130	23/64	250,000	175,000
9,400		250,000	175,000
9,500		250,000	175,000
9,520	3/8	265,000	185,000
9,700		265,000	185,000
10,000		265,000	185,000

Brocas espirales, extra largas, serie 2

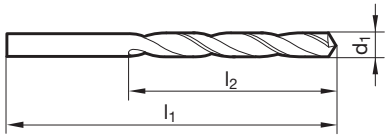
~20xD | DIN 1869 | N | 118° | h8

Material de corte	HSS
Acabado	
Dirección de corte	R

P	•	vaciado de punta ≥Ø 2,700 • entrada cónica • para taladros muy profundos
M		
K	•	
N	○	aceros y fundición de aceros (aleados y sin alear) • fundición gris, fundición maleable, fundición esferica • hierro sinterizado, argentón y grafito
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 788



Artículo N° **236**

d1 mm	inch	l1 mm	l2 mm
2,700		190,000	130,000
2,800		190,000	130,000
2,900		190,000	130,000
3,000		190,000	130,000
3,100		200,000	135,000
3,170	1/8	200,000	135,000
3,200		200,000	135,000
3,300		200,000	135,000
3,500		210,000	145,000
3,570	9/64	210,000	145,000
3,600		210,000	145,000
3,800		220,000	150,000
3,970	5/32	220,000	150,000
4,000		220,000	150,000
4,100		220,000	150,000
4,200		220,000	150,000
4,500		235,000	160,000
4,760	3/16	245,000	170,000
4,800		245,000	170,000
4,900		245,000	170,000
5,000		245,000	170,000
5,200		245,000	170,000
5,500		260,000	180,000
5,560	7/32	260,000	180,000
5,800		260,000	180,000
5,900		260,000	180,000
5,950	15/64	260,000	180,000
6,000		260,000	180,000
6,200		275,000	190,000
6,350	1/4	275,000	190,000

d1 mm	inch	l1 mm	l2 mm
6,500		275,000	190,000
6,700		275,000	190,000
6,800		290,000	200,000
7,000		290,000	200,000
7,140	9/32	290,000	200,000
7,500		290,000	200,000
7,540	19/64	305,000	210,000
7,800		305,000	210,000
7,940	5/16	305,000	210,000
8,000		305,000	210,000
8,100		305,000	210,000
8,500		305,000	210,000
8,700		320,000	220,000
8,730	11/32	320,000	220,000
8,800		320,000	220,000
8,900		320,000	220,000
9,000		320,000	220,000
9,130	23/64	320,000	220,000
9,500		320,000	220,000
9,800		340,000	235,000
10,000		340,000	235,000
10,200		340,000	235,000
10,500		340,000	235,000
11,000		365,000	250,000
11,110	7/16	365,000	250,000
11,500		365,000	250,000
11,510	29/64	365,000	250,000
11,750		365,000	250,000
12,000		375,000	260,000
13,000		375,000	260,000

Brocas espirales, extra largas, serie 2

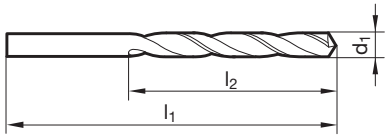
~20xD | DIN 1869 | GT 100 | 130° | h8

Material de corte	HSS
Acabado	>Ø 2,36
Dirección de corte	R

P	•	vaciado de punta ≥Ø 2,000 • entrada cónica • ranuras amplias • para taladros muy profundos • con desalojo de viruta difícil
M		
K	•	
N	•	fundición gris y aceros hasta máx. 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 790



Artículo N° **503**

d1 mm	inch	l1 mm	l2 mm
2,000		160,000	110,000
2,200		170,000	115,000
2,300		170,000	115,000
2,500		180,000	120,000
2,800		190,000	130,000
3,000		190,000	130,000
3,030		200,000	135,000
3,100		200,000	135,000
3,170	1/8	200,000	135,000
3,200		200,000	135,000
3,300		200,000	135,000
3,400		210,000	145,000
3,500		210,000	145,000
3,570	9/64	210,000	145,000
3,600		210,000	145,000
3,700		210,000	145,000
3,800		220,000	150,000
3,900		220,000	150,000
3,970	5/32	220,000	150,000
4,000		220,000	150,000
4,100		220,000	150,000
4,200		220,000	150,000
4,300		235,000	160,000
4,370	11/64	235,000	160,000
4,400		235,000	160,000
4,500		235,000	160,000
4,760	3/16	245,000	170,000
4,800		245,000	170,000
4,900		245,000	170,000
5,000		245,000	170,000
5,100		245,000	170,000
5,160	13/64	245,000	170,000
5,200		245,000	170,000
5,300		245,000	170,000
5,400		260,000	180,000
5,500		260,000	180,000
5,560	7/32	260,000	180,000
5,700		260,000	180,000
5,800		260,000	180,000
5,900		260,000	180,000
5,950	15/64	260,000	180,000
6,000		260,000	180,000

d1 mm	inch	l1 mm	l2 mm
6,100		275,000	190,000
6,150		275,000	190,000
6,200		275,000	190,000
6,350	1/4	275,000	190,000
6,400		275,000	190,000
6,500		275,000	190,000
6,600		275,000	190,000
6,700		275,000	190,000
6,750	17/64	290,000	200,000
6,800		290,000	200,000
6,900		290,000	200,000
7,000		290,000	200,000
7,140	9/32	290,000	200,000
7,500		290,000	200,000
7,540	19/64	305,000	210,000
7,800		305,000	210,000
7,940	5/16	305,000	210,000
8,000		305,000	210,000
8,200		305,000	210,000
8,330	21/64	305,000	210,000
8,500		305,000	210,000
8,600		320,000	220,000
8,730	11/32	320,000	220,000
8,800		320,000	220,000
9,000		320,000	220,000
9,100		320,000	220,000
9,130	23/64	320,000	220,000
9,500		320,000	220,000
9,520	3/8	340,000	235,000
9,700		340,000	235,000
9,800		340,000	235,000
9,920	25/64	340,000	235,000
10,000		340,000	235,000
10,200		340,000	235,000
10,500		340,000	235,000
10,720	27/64	365,000	250,000
11,000		365,000	250,000
11,110	7/16	365,000	250,000
11,500		365,000	250,000
11,510	29/64	365,000	250,000
11,750		365,000	250,000
11,910	15/32	375,000	260,000

d1		l1	l2
mm	inch	mm	mm
12,000		375,000	260,000
12,300	31/64	375,000	260,000
12,500		375,000	260,000
12,700	1/2	375,000	260,000
13,000		375,000	260,000

d1		l1	l2
mm	inch	mm	mm

Brocas espirales, extra largas, serie 2

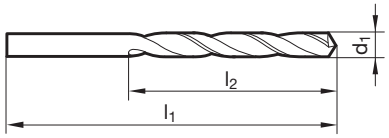
~20xD | DIN 1869 | GT 100 | 130° | h8

Material de corte	HSS
Acabado	S
Dirección de corte	R

P	•	vaciado de punta ≥Ø 2,300 • entrada cónica • ranuras amplias • para taladros muy profundos
M		• con desalojo de viruta difícil
K	•	
N	•	fundición gris y aceros hasta máx. 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S	○	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 790



Artículo N° **671**

d1 mm	inch	l1 mm	l2 mm
2,700		190,000	130,000
2,800		190,000	130,000
3,000		190,000	130,000
3,100		200,000	135,000
3,170	1/8	200,000	135,000
3,200		200,000	135,000
3,500		210,000	145,000
3,570	9/64	210,000	145,000
3,970	5/32	220,000	150,000
4,000		220,000	150,000
4,090		220,000	150,000
4,370	11/64	235,000	160,000
4,400		235,000	160,000
4,500		235,000	160,000
4,600		235,000	160,000
4,760	3/16	245,000	170,000
4,800		245,000	170,000
5,000		245,000	170,000

d1 mm	inch	l1 mm	l2 mm
5,300		245,000	170,000
5,500		260,000	180,000
5,560	7/32	260,000	180,000
6,000		260,000	180,000
6,350	1/4	275,000	190,000
6,500		275,000	190,000
6,750	17/64	290,000	200,000
6,800		290,000	200,000
7,000		290,000	200,000
7,140	9/32	290,000	200,000
7,500		290,000	200,000
7,940	5/16	305,000	210,000
8,000		305,000	210,000
8,500		305,000	210,000

Brocas espirales, extra largas, serie 2

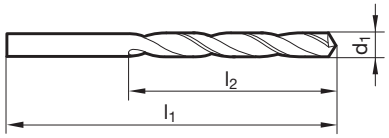
~20xD | DIN 1869 | GT 50 | 130° | h8

Material de corte	HSS
Acabado	○
Dirección de corte	R

P	○	vaciado de punta ≥Ø 2,800 • entrada cónica • para taladros muy profundos
M		
K		
N	•	mat. blandos y de viruta larga de hasta a 500 N/mm² • aceros blandos para automáticos • aluminio, alea. de alum. (de vir. larga) • zink, cobre fino, siluminio, electrón • zamak, argalio plásticos (blandos) y madera
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 788



Artículo N° **528**

d1 mm	inch	l1 mm	l2 mm
3,000		190,000	130,000
3,030		200,000	135,000
3,100		200,000	135,000
3,170	1/8	200,000	135,000
3,500		210,000	145,000
3,650		210,000	145,000
3,800		220,000	150,000
4,000		220,000	150,000
4,200		220,000	150,000
4,500		235,000	160,000
4,760	3/16	245,000	170,000
4,800		245,000	170,000
5,000		245,000	170,000
5,110		245,000	170,000
5,500		260,000	180,000
5,800		260,000	180,000
6,000		260,000	180,000
7,000		290,000	200,000

d1 mm	inch	l1 mm	l2 mm
7,500		290,000	200,000
8,000		305,000	210,000
8,500		305,000	210,000
9,000		320,000	220,000
10,000		340,000	235,000
10,500		340,000	235,000
11,500		365,000	250,000
13,000		375,000	260,000

Brocas espirales, extra largas, serie 2

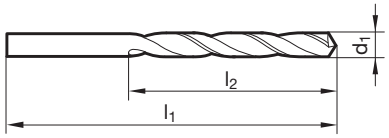
~20xD | DIN 1869 | GT 100 | 130° | h8

Material de corte	HSCO
Acabado	
Dirección de corte	R

P	•	vaciado de punta ≥Ø 3,000 • entrada cónica • acero rápido al cobalto • ranuras amplias • más resistencia al desgaste • para taladros muy profundos • con desalojo de viruta difícil
M	•	
K	•	
N	•	aceros y fundición de acero de gran dureza • fundición gris, fundición maleable, fundición esferica
S	•	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 794



Artículo N° **619**

d1 mm	inch	l1 mm	l2 mm
3,000		190,000	130,000
3,170	1/8	200,000	135,000
3,200		200,000	135,000
3,300		200,000	135,000
3,500		210,000	145,000
3,570	9/64	210,000	145,000
3,970	5/32	220,000	150,000
4,000		220,000	150,000
4,100		220,000	150,000
4,200		220,000	150,000
4,370	11/64	235,000	160,000
4,500		235,000	160,000
4,760	3/16	245,000	170,000
4,800		245,000	170,000
4,900		245,000	170,000
5,000		245,000	170,000
5,200		245,000	170,000
5,500		260,000	180,000
5,560	7/32	260,000	180,000
5,950	15/64	260,000	180,000
6,000		260,000	180,000
6,100		275,000	190,000
6,200		275,000	190,000
6,350	1/4	275,000	190,000

d1 mm	inch	l1 mm	l2 mm
6,500		275,000	190,000
6,750	17/64	290,000	200,000
6,800		290,000	200,000
7,000		290,000	200,000
7,140	9/32	290,000	200,000
7,400		290,000	200,000
7,500		290,000	200,000
7,540	19/64	305,000	210,000
7,600		305,000	210,000
7,940	5/16	305,000	210,000
8,000		305,000	210,000
8,200		305,000	210,000
8,500		305,000	210,000
8,730	11/32	320,000	220,000
9,000		320,000	220,000
9,130	23/64	320,000	220,000
9,500		320,000	220,000
9,520	3/8	340,000	235,000
9,600		340,000	235,000
9,900		340,000	235,000
10,000		340,000	235,000

Brocas espirales, extra largas, serie 3

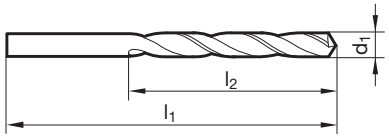
~25xD | DIN 1869 | N | 118° | h8

Material de corte	HSS
Acabado	●
Dirección de corte	R

P	•	vaciado de punta ≥Ø 3,500 • entrada cónica • para taladros muy profundos
M		
K	•	
N	○	aceros y fundición de aceros (aleados y sin alear) • fundición gris, fundición maleable, fundición esferica • hierro sinterizado, argentón y grafito
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 788



Artículo N° **237**

d1		l1	l2
mm	inch	mm	mm
3,500		265,000	180,000
3,800		280,000	190,000
4,000		280,000	190,000
4,100		280,000	190,000
4,200		280,000	190,000
4,500		295,000	200,000
5,000		315,000	210,000
5,200		315,000	210,000
5,500		330,000	225,000
5,800		330,000	225,000
5,900		330,000	225,000
6,000		330,000	225,000
6,100		350,000	235,000
6,200		350,000	235,000
6,500		350,000	235,000
6,700		350,000	235,000
6,800		370,000	250,000
7,000		370,000	250,000

d1		l1	l2
mm	inch	mm	mm
7,500		370,000	250,000
7,800		390,000	265,000
8,000		390,000	265,000
8,500		390,000	265,000
9,000		410,000	280,000
9,500		410,000	280,000
9,800		430,000	295,000
10,000		430,000	295,000
10,300		430,000	295,000
10,500		430,000	295,000
11,000		455,000	310,000
11,500		455,000	310,000
11,750		455,000	310,000
12,000		480,000	330,000
12,500		480,000	330,000
13,000		480,000	330,000

Brocas espirales, extra largas, serie 3

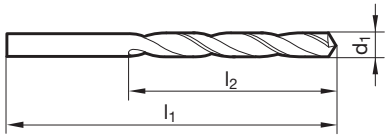
~25xD | DIN 1869 | GT 100 | 130° | h8

Material de corte	HSS
Acabado	
Dirección de corte	R

P	•	vaciado de punta ≥Ø 2,500 • entrada cónica • ranuras amplias • con desalojo de viruta difícil • para taladros muy profundos
M		
K	•	
N	•	fundición gris y aceros hasta máx. 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 790



Artículo N° **504**

d1 mm	inch	l1 mm	l2 mm
2,500		225,000	150,000
3,000		240,000	160,000
3,100		250,000	170,000
3,170	1/8	250,000	170,000
3,200		250,000	170,000
3,300		250,000	170,000
3,400		265,000	180,000
3,500		265,000	180,000
3,570	9/64	265,000	180,000
3,600		265,000	180,000
3,700		265,000	180,000
3,800		280,000	190,000
3,900		280,000	190,000
3,970	5/32	280,000	190,000
4,000		280,000	190,000
4,100		280,000	190,000
4,200		280,000	190,000
4,300		295,000	200,000
4,370	11/64	295,000	200,000
4,400		295,000	200,000
4,500		295,000	200,000
4,600		295,000	200,000
4,760	3/16	315,000	210,000
4,800		315,000	210,000
4,900		315,000	210,000
5,000		315,000	210,000
5,100		315,000	210,000
5,200		315,000	210,000
5,500		330,000	225,000
5,560	7/32	330,000	225,000
5,800		330,000	225,000
5,950	15/64	330,000	225,000
6,000		330,000	225,000
6,100		350,000	235,000
6,200		350,000	235,000
6,300		350,000	235,000
6,350	1/4	350,000	235,000
6,400		350,000	235,000
6,500		350,000	235,000
6,700		350,000	235,000
6,750	17/64	370,000	250,000
6,800		370,000	250,000

d1 mm	inch	l1 mm	l2 mm
7,000		370,000	250,000
7,140	9/32	370,000	250,000
7,200		370,000	250,000
7,500		370,000	250,000
7,540	19/64	390,000	265,000
7,750		390,000	265,000
7,800		390,000	265,000
7,940	5/16	390,000	265,000
8,000		390,000	265,000
8,200		390,000	265,000
8,330	21/64	390,000	265,000
8,500		390,000	265,000
8,600		410,000	280,000
8,730	11/32	410,000	280,000
8,800		410,000	280,000
8,900		410,000	280,000
9,000		410,000	280,000
9,200		410,000	280,000
9,500		410,000	280,000
9,520	3/8	430,000	295,000
9,530		430,000	295,000
9,920	25/64	430,000	295,000
10,000		430,000	295,000
10,320	13/32	430,000	295,000
10,500		430,000	295,000
10,720	27/64	455,000	310,000
11,000		455,000	310,000
11,110	7/16	455,000	310,000
11,500		455,000	310,000
12,000		480,000	330,000
12,200		480,000	330,000
12,500		480,000	330,000
13,000		480,000	330,000

Brocas espirales, extra largas, serie 3

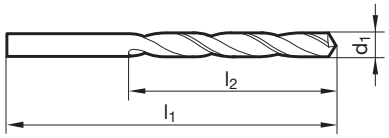
~25xD | DIN 1869 | GT 50 | 130° | h8

Material de corte	HSS
Acabado	○
Dirección de corte	R

P	○	vaciado de punta ≥Ø 2,500 • entrada cónica • para taladros muy profundos
M		
K		
N	•	mat. blandos y de viruta larga de hasta a 500 N/mm² • aceros blandos para automáticos • aluminio, alea. de alum. (de vir. larga) • zink, cobre fino, siluminio, electrón • zamak, argalio plásticos (blandos) y madera
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 788



Artículo N° **529**

d1		l1	l2
mm	inch	mm	mm
2,500		225,000	150,000
3,000		240,000	160,000
3,500		265,000	180,000
3,800		280,000	190,000
4,000		280,000	190,000
4,500		295,000	200,000
5,000		315,000	210,000
6,000		330,000	225,000
6,500		350,000	235,000
6,700		350,000	235,000
6,800		370,000	250,000
7,500		370,000	250,000

d1		l1	l2
mm	inch	mm	mm
8,000		390,000	265,000
9,500		410,000	280,000
10,000		430,000	295,000

Brocas espirales, extra largas, serie 3

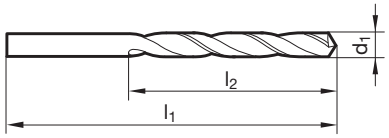
~25xD | DIN 1869 | GT 100 | 130° | h8

Material de corte	HSCO
Acabado	
Dirección de corte	R

P	•	vaciado de punta ≥Ø 2,500 • entrada cónica • acero rápido al cobalto • ranuras amplias • resistencia más alta al desgaste
M	•	• para taladros muy profundos
K	•	• con desalojo de viruta difícil
N	•	aceros y fundición de acero de gran dureza • fundición gris, fundición maleable, fundición esferica
S	•	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 794



Artículo N° **571**

d1		l1	l2
mm	inch	mm	mm
2,500		225,000	150,000
3,000		240,000	160,000
3,100		250,000	170,000
3,170	1/8	250,000	170,000
3,200		250,000	170,000
3,300		250,000	170,000
3,400		265,000	180,000
3,500		265,000	180,000
3,700		265,000	180,000
3,800		280,000	190,000
3,900		280,000	190,000
3,970	5/32	280,000	190,000
4,000		280,000	190,000
4,100		280,000	190,000
4,200		280,000	190,000
4,300		295,000	200,000
4,500		295,000	200,000
4,600		295,000	200,000
4,760	3/16	315,000	210,000
4,800		315,000	210,000
4,900		315,000	210,000
5,000		315,000	210,000
5,100		315,000	210,000
5,200		315,000	210,000
5,500		330,000	225,000
5,560	7/32	330,000	225,000
5,800		330,000	225,000
5,950	15/64	330,000	225,000
6,000		330,000	225,000
6,100		350,000	235,000
6,200		350,000	235,000
6,300		350,000	235,000
6,350	1/4	350,000	235,000
6,400		350,000	235,000
6,500		350,000	235,000
6,700		350,000	235,000

d1		l1	l2
mm	inch	mm	mm
6,750	17/64	370,000	250,000
6,800		370,000	250,000
7,000		370,000	250,000
7,140	9/32	370,000	250,000
7,200		370,000	250,000
7,500		370,000	250,000
7,750		390,000	265,000
7,800		390,000	265,000
7,940	5/16	390,000	265,000
8,000		390,000	265,000
8,200		390,000	265,000
8,500		390,000	265,000
8,600		410,000	280,000
8,730	11/32	410,000	280,000
8,800		410,000	280,000
9,000		410,000	280,000
9,500		410,000	280,000
9,520	3/8	430,000	295,000
10,000		430,000	295,000
10,320	13/32	430,000	295,000
10,500		430,000	295,000
10,720	27/64	455,000	310,000
11,000		455,000	310,000
11,110	7/16	455,000	310,000
11,500		455,000	310,000
12,000		480,000	330,000
12,200		480,000	330,000
12,500		480,000	330,000
13,000		480,000	330,000

Brocas espirales, largo especial

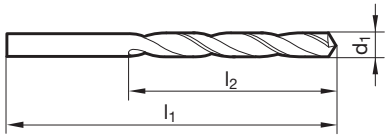
>25xD | WN | GT 100 | 130° | h8

Material de corte	HSS
Acabado	
Dirección de corte	R

P	•	vaciado de punta ≥Ø 6,000 • entrada cónica • ranuras amplias • para taladros muy profundos • con desalojo de viruta difícil
M		
K	•	
N	•	fundición gris y aceros hasta máx. 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 790



Artículo N° **242**

d1		l1	l2
mm	inch	mm	mm
6,000		500,000	400,000
8,000		500,000	400,000
10,000		600,000	500,000
11,000		600,000	500,000
12,000		600,000	500,000

d1		l1	l2
mm	inch	mm	mm

Brocas espirales, largo especial

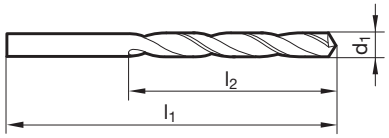
>25xD | WN | GT 100 | 130° | h8

Material de corte	HSS
Acabado	○
Dirección de corte	R

P	•	vaciado de punta ≥Ø 8,000 • entrada cónica • ranuras amplias • para taladros muy profundos • con desalojo de viruta difícil
M		
K	•	
N	•	fundición gris y aceros hasta máx. 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 790



Artículo N° **243**

d1		l1	l2
mm	inch	mm	mm
8,000		750,000	650,000
10,000		750,000	650,000
11,000		750,000	650,000
12,000		750,000	650,000

d1		l1	l2
mm	inch	mm	mm

Brocas espirales, largo especial

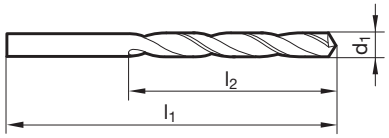
>25xD | WN | GT 100 | 130° | h8

Material de corte	HSS
Acabado	◯
Dirección de corte	R

P	•	vaciado de punta ≥Ø 10,000 • entrada cónica • ranuras amplias • para taladros muy profundos • con desalojo de viruta difícil
M		
K	•	
N	•	fundición gris y aceros hasta máx. 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 790



Artículo N° **244**

d1		l1	l2
mm	inch	mm	mm
10,000		1000,000	850,000
11,000		1000,000	850,000
12,000		1000,000	850,000

d1		l1	l2
mm	inch	mm	mm

Brocas espirales, extra largas, serie 1

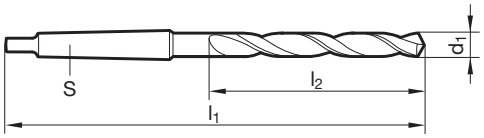
~15xD | DIN 1870 | N | 118° | h8

Material de corte	HSS
Acabado	
Dirección de corte	R

P	•	vaciado de punta ≥Ø 7,800 • entrada cónica • para taladros muy profundos
M		
K	•	
N	○	aceros y fundición de aceros (aleados y sin alear) • fundición gris, fundición maleable, fundición esferica • hierro sinterizado, argentón y grafito
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 788



Artículo N° **266**

d1 mm	inch	S	l1 mm	l2 mm
8,000		MK-1	265,000	165,000
8,500		MK-1	265,000	165,000
9,000		MK-1	275,000	175,000
9,500		MK-1	275,000	175,000
10,000		MK-1	285,000	185,000
10,200		MK-1	285,000	185,000
10,250		MK-1	285,000	185,000
10,500		MK-1	285,000	185,000
11,000		MK-1	300,000	195,000
11,400		MK-1	300,000	195,000
11,500		MK-1	300,000	195,000
11,750		MK-1	300,000	195,000
11,800		MK-1	300,000	195,000
12,000		MK-1	310,000	205,000
12,200		MK-1	310,000	205,000
12,500		MK-1	310,000	205,000
12,700	1/2	MK-1	310,000	205,000
13,000		MK-1	310,000	205,000
13,500		MK-1	325,000	220,000
13,750		MK-1	325,000	220,000
14,000		MK-1	325,000	220,000
14,290	9/16	MK-2	340,000	220,000
14,500		MK-2	340,000	220,000
15,000		MK-2	340,000	220,000
15,250		MK-2	355,000	230,000
15,500		MK-2	355,000	230,000
15,750		MK-2	355,000	230,000
15,800		MK-2	355,000	230,000
16,000		MK-2	355,000	230,000
16,250		MK-2	355,000	230,000
16,500		MK-2	355,000	230,000
16,670	21/32	MK-2	355,000	230,000
17,000		MK-2	355,000	230,000
17,500		MK-2	370,000	245,000
17,750		MK-2	370,000	245,000
18,000		MK-2	370,000	245,000
18,500		MK-2	370,000	245,000
18,650	47/64	MK-2	370,000	245,000
19,000		MK-2	370,000	245,000
19,500		MK-2	385,000	260,000
19,750		MK-2	385,000	260,000
20,000		MK-2	385,000	260,000

d1 mm	inch	S	l1 mm	l2 mm
20,500		MK-2	385,000	260,000
20,640	13/16	MK-2	385,000	260,000
21,000		MK-2	385,000	260,000
21,430	27/32	MK-2	405,000	270,000
21,500		MK-2	405,000	270,000
22,000		MK-2	405,000	270,000
22,500		MK-2	405,000	270,000
23,000		MK-2	405,000	270,000
23,020	29/32	MK-2	405,000	270,000
23,500		MK-3	425,000	270,000
24,000		MK-3	440,000	290,000
24,500		MK-3	440,000	290,000
25,000	63/64	MK-3	440,000	290,000
26,000		MK-3	440,000	290,000
26,500		MK-3	440,000	290,000
27,000		MK-3	460,000	305,000
28,000		MK-3	460,000	305,000
30,000		MK-3	460,000	305,000
30,500		MK-3	480,000	320,000
31,000		MK-3	480,000	320,000
32,000		MK-4	505,000	320,000
33,000		MK-4	505,000	320,000
34,000		MK-4	530,000	340,000
35,000		MK-4	530,000	340,000
36,000		MK-4	530,000	340,000
38,000		MK-4	555,000	360,000
39,000		MK-4	555,000	360,000
40,000		MK-4	555,000	360,000
42,000		MK-4	555,000	360,000
45,000		MK-4	585,000	385,000
45,240	1 25/32	MK-4	585,000	385,000
48,000		MK-4	605,000	405,000
50,000		MK-4	605,000	405,000

Brocas espirales, extra largas, serie 1

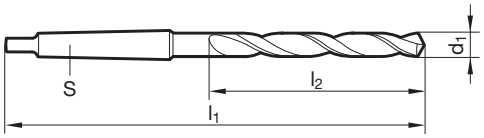
~15xD | DIN 1870 | GT 100 | 130° | h8

Material de corte	HSS
Acabado	>Ø 16,0
Dirección de corte	R

P	•	vaciado de punta ≥Ø 5,800 • entrada cónica • ranuras amplias • para taladros muy profundos • con desalojo de viruta difícil
M		
K	•	
N	•	fundición gris y aceros hasta máx. 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 790



Artículo N° **526**

d1 mm	d1 inch	S	l1 mm	l2 mm
8,000		MK-1	265,000	165,000
8,500		MK-1	265,000	165,000
8,600		MK-1	275,000	175,000
8,700		MK-1	275,000	175,000
9,000		MK-1	275,000	175,000
9,500		MK-1	275,000	175,000
9,520	3/8	MK-1	285,000	185,000
9,800		MK-1	285,000	185,000
10,000		MK-1	285,000	185,000
10,200		MK-1	285,000	185,000
10,500		MK-1	285,000	185,000
10,720	27/64	MK-1	300,000	195,000
11,000		MK-1	300,000	195,000
11,110	7/16	MK-1	300,000	195,000
11,500		MK-1	300,000	195,000
11,510	29/64	MK-1	300,000	195,000
11,750		MK-1	300,000	195,000
12,000		MK-1	310,000	205,000
12,500		MK-1	310,000	205,000
12,700	1/2	MK-1	310,000	205,000
12,800		MK-1	310,000	205,000
13,000		MK-1	310,000	205,000
13,490	17/32	MK-1	325,000	220,000
13,500		MK-1	325,000	220,000
14,000		MK-1	325,000	220,000
14,200		MK-2	340,000	220,000
14,290	9/16	MK-2	340,000	220,000
14,500		MK-2	340,000	220,000
15,000		MK-2	340,000	220,000
15,500		MK-2	355,000	230,000

d1 mm	d1 inch	S	l1 mm	l2 mm
15,870	5/8	MK-2	355,000	230,000
16,000		MK-2	355,000	230,000
16,500		MK-2	355,000	230,000
17,000		MK-2	355,000	230,000
17,460	11/16	MK-2	370,000	245,000
17,500		MK-2	370,000	245,000
18,000		MK-2	370,000	245,000
18,500		MK-2	370,000	245,000
19,000		MK-2	370,000	245,000
19,500		MK-2	385,000	260,000
20,000		MK-2	385,000	260,000
20,500		MK-2	385,000	260,000
21,000		MK-2	385,000	260,000
21,500		MK-2	405,000	270,000
22,000		MK-2	405,000	270,000
23,000		MK-2	405,000	270,000
24,000		MK-3	440,000	290,000
25,000	63/64	MK-3	440,000	290,000
26,000		MK-3	440,000	290,000
26,500		MK-3	440,000	290,000
28,000		MK-3	460,000	305,000
28,500		MK-3	460,000	305,000
29,000		MK-3	460,000	305,000
30,000		MK-3	460,000	305,000

Brocas espirales, extra largas, serie 1

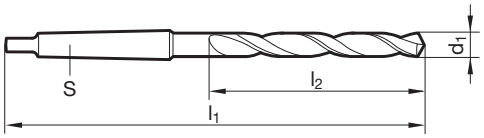
~15xD | DIN 1870 | GT 50 | 130° | h8

Material de corte	HSS
Acabado	○
Dirección de corte	R

P	○	vaciado de punta ≥Ø 7,900 • entrada cónica • para taladros muy profundos • para mat. blandos y de viruta larga
M		
K		
N	•	mat. blandos y de viruta larga de hasta a 500 N/mm² • aceros blandos para automáticos • aluminio, alea. de alum. (de vir. larga) • zink, cobre fino, siluminio, electrón • zamak, argalio plásticos (blandos) y madera
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 788



Artículo N° **525**

d1 mm	d1 inch	S	l1 mm	l2 mm
8,500		MK-1	265,000	165,000
8,700		MK-1	275,000	175,000
9,000		MK-1	275,000	175,000
9,500		MK-1	275,000	175,000
10,000		MK-1	285,000	185,000
10,500		MK-1	285,000	185,000
11,000		MK-1	300,000	195,000
12,000		MK-1	310,000	205,000
12,500		MK-1	310,000	205,000
13,000		MK-1	310,000	205,000
13,500		MK-1	325,000	220,000
14,000		MK-1	325,000	220,000
15,000		MK-2	340,000	220,000
15,500		MK-2	355,000	230,000
16,000		MK-2	355,000	230,000
18,000		MK-2	370,000	245,000
19,500		MK-2	385,000	260,000
21,000		MK-2	385,000	260,000

d1 mm	d1 inch	S	l1 mm	l2 mm
23,000		MK-2	405,000	270,000
24,000		MK-3	440,000	290,000
24,300		MK-3	440,000	290,000
24,380		MK-3	440,000	290,000
24,500		MK-3	440,000	290,000
25,500		MK-3	440,000	290,000
26,500		MK-3	440,000	290,000
27,500		MK-3	460,000	305,000
28,000		MK-3	460,000	305,000
29,000		MK-3	460,000	305,000
31,000		MK-3	480,000	320,000
33,000		MK-4	505,000	320,000

Brocas espirales, extra largas, serie 1

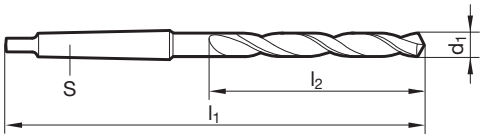
~15xD | DIN 1870 | GT 100 | 130° | h8

Material de corte	HSCO
Acabado	>Ø 16,0
Dirección de corte	R

P	•	vaciado de punta ≥Ø 9,520 • entrada cónica • acero rápido al cobalto • ranuras amplias • más resistencia al desgaste • para taladros muy profundos • con desalojo de viruta difícil
M	•	
K	•	
N	•	aceros y fundición de acero de gran dureza • fundición gris, fundición maleable, fundición esferica
S	•	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 794



Artículo N° **620**

d1 mm	inch	S	l1 mm	l2 mm
9,520	3/8	MK-1	285,000	185,000
10,000		MK-1	285,000	185,000
10,200		MK-1	285,000	185,000
10,320	13/32	MK-1	285,000	185,000
10,500		MK-1	285,000	185,000
11,000		MK-1	300,000	195,000
11,110	7/16	MK-1	300,000	195,000
11,500		MK-1	300,000	195,000
11,510	29/64	MK-1	300,000	195,000
12,000		MK-1	310,000	205,000
12,300	31/64	MK-1	310,000	205,000
12,500		MK-1	310,000	205,000
12,700	1/2	MK-1	310,000	205,000
13,000		MK-1	310,000	205,000
13,500		MK-1	325,000	220,000
14,000		MK-1	325,000	220,000
14,290	9/16	MK-2	340,000	220,000
14,500		MK-2	340,000	220,000
15,000		MK-2	340,000	220,000
15,080	19/32	MK-2	355,000	230,000
15,500		MK-2	355,000	230,000
16,000		MK-2	355,000	230,000
16,500		MK-2	355,000	230,000
17,000		MK-2	355,000	230,000

d1 mm	inch	S	l1 mm	l2 mm
17,500		MK-2	370,000	245,000
18,000		MK-2	370,000	245,000
18,500		MK-2	370,000	245,000
19,000		MK-2	370,000	245,000
20,000		MK-2	385,000	260,000
21,000		MK-2	385,000	260,000
21,830		MK-2	405,000	270,000
22,000		MK-2	405,000	270,000
22,620		MK-2	405,000	270,000
23,000		MK-2	405,000	270,000
25,500		MK-3	440,000	290,000
26,000		MK-3	440,000	290,000
27,180		MK-3	460,000	305,000
29,370	1 5/32	MK-3	460,000	305,000
30,000		MK-3	460,000	305,000

Brocas espirales, extra largas, serie 2

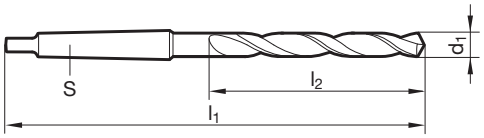
~20xD | DIN 1870 | N | 118° | h8

Material de corte	HSS
Acabado	
Dirección de corte	R

P	•	vaciado de punta ≥Ø 7,700 • entrada cónica • para taladros muy profundos
M		
K	•	
N	○	aceros y fundición de aceros (aleados y sin alear) • fundición gris, fundición maleable, fundición esferica • hierro sinterizado, argentón y grafito
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 788



Artículo N° **267**

d1 mm	inch	S	l1 mm	l2 mm
8,000		MK-1	330,000	210,000
8,500		MK-1	330,000	210,000
9,000		MK-1	345,000	220,000
10,000		MK-1	360,000	235,000
10,200		MK-1	360,000	235,000
10,500		MK-1	360,000	235,000
11,000		MK-1	375,000	250,000
11,500		MK-1	375,000	250,000
11,750		MK-1	375,000	250,000
11,800		MK-1	375,000	250,000
12,000		MK-1	395,000	260,000
13,000		MK-1	395,000	260,000
13,490	17/32	MK-1	410,000	275,000
13,500		MK-1	410,000	275,000
14,000		MK-1	410,000	275,000
14,500		MK-2	425,000	275,000
15,000		MK-2	425,000	275,000
15,480	39/64	MK-2	445,000	295,000
15,500		MK-2	445,000	295,000
16,000		MK-2	445,000	295,000
16,500		MK-2	445,000	295,000
17,000		MK-2	445,000	295,000
17,070	43/64	MK-2	465,000	310,000
17,500		MK-2	465,000	310,000
18,000		MK-2	465,000	310,000
18,500		MK-2	465,000	310,000
19,000		MK-2	465,000	310,000
19,050	3/4	MK-2	490,000	325,000
19,500		MK-2	490,000	325,000
20,000		MK-2	490,000	325,000

d1 mm	inch	S	l1 mm	l2 mm
20,640	13/16	MK-2	490,000	325,000
21,000		MK-2	490,000	325,000
21,430	27/32	MK-2	515,000	345,000
21,500		MK-2	515,000	345,000
21,830	55/64	MK-2	515,000	345,000
22,000		MK-2	515,000	345,000
22,800		MK-2	515,000	345,000
23,000		MK-2	515,000	345,000
23,020	29/32	MK-2	515,000	345,000
23,750		MK-3	555,000	365,000
23,810	15/16	MK-3	555,000	365,000
24,000		MK-3	555,000	365,000
24,500		MK-3	555,000	365,000
25,000	63/64	MK-3	555,000	365,000
26,000		MK-3	555,000	365,000
28,000		MK-3	580,000	385,000
29,500		MK-3	580,000	385,000
30,000		MK-3	580,000	385,000
31,000		MK-3	610,000	410,000
32,000		MK-4	635,000	410,000
34,000		MK-4	665,000	430,000
40,000		MK-4	695,000	460,000
45,000		MK-4	735,000	490,000

Brocas espirales, extra largas, serie 2

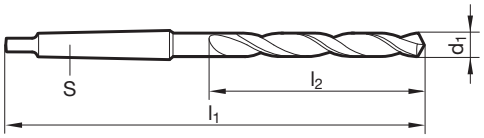
~20xD | DIN 1870 | GT 100 | 130° | h8

Material de corte	HSS
Acabado	>Ø 16,0
Dirección de corte	R

P	•	vaciado de punta ≥Ø 7,800 • entrada cónica • ranuras amplias • con desalojo de viruta difícil • para taladros muy profundos
M		
K	•	
N	•	fundición gris y aceros hasta máx. 1000 N/mm² • Excepción: aceros CrNi, aceros VA y materiales similares
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 790



Artículo N° **527**

d1 mm	inch	S	l1 mm	l2 mm
8,000		MK-1	330,000	210,000
8,400		MK-1	330,000	210,000
8,500		MK-1	330,000	210,000
9,000		MK-1	345,000	220,000
9,500		MK-1	345,000	220,000
10,000		MK-1	360,000	235,000
10,500		MK-1	360,000	235,000
11,000		MK-1	375,000	250,000
11,110	7/16	MK-1	375,000	250,000
11,500		MK-1	375,000	250,000
11,510	29/64	MK-1	375,000	250,000
11,800		MK-1	375,000	250,000
11,910	15/32	MK-1	395,000	260,000
12,000		MK-1	395,000	260,000
12,500		MK-1	395,000	260,000
12,700	1/2	MK-1	395,000	260,000
13,000		MK-1	395,000	260,000
13,500		MK-1	410,000	275,000
13,700		MK-1	410,000	275,000
13,800		MK-1	410,000	275,000
13,890	35/64	MK-1	410,000	275,000
14,000		MK-1	410,000	275,000
14,290	9/16	MK-2	425,000	275,000
14,500		MK-2	425,000	275,000
15,000		MK-2	425,000	275,000
15,500		MK-2	445,000	295,000
16,000		MK-2	445,000	295,000
16,500		MK-2	445,000	295,000
17,000		MK-2	445,000	295,000
17,070	43/64	MK-2	465,000	310,000

d1 mm	inch	S	l1 mm	l2 mm
17,500		MK-2	465,000	310,000
17,800		MK-2	465,000	310,000
18,000		MK-2	465,000	310,000
18,500		MK-2	465,000	310,000
19,000		MK-2	465,000	310,000
19,450	49/64	MK-2	490,000	325,000
19,500		MK-2	490,000	325,000
20,000		MK-2	490,000	325,000
20,500		MK-2	490,000	325,000
21,000		MK-2	490,000	325,000
21,030	53/64	MK-2	490,000	325,000
21,430	27/32	MK-2	515,000	345,000
22,000		MK-2	515,000	345,000
23,000		MK-2	515,000	345,000
23,020	29/32	MK-2	515,000	345,000
23,810	15/16	MK-3	555,000	365,000
24,000		MK-3	555,000	365,000
24,210	61/64	MK-3	555,000	365,000
25,000	63/64	MK-3	555,000	365,000
26,000		MK-3	555,000	365,000
26,190	1 1/32	MK-3	555,000	365,000
26,500		MK-3	555,000	365,000
27,000		MK-3	580,000	385,000
28,000		MK-3	580,000	385,000
28,750		MK-3	580,000	385,000
29,000		MK-3	580,000	385,000
29,500		MK-3	580,000	385,000
30,000		MK-3	580,000	385,000

Brocas espirales, extra largas, serie 2

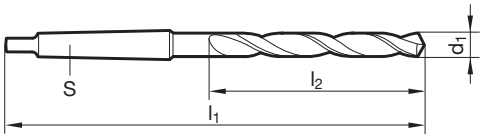
~20xD | DIN 1870 | GT 50 | 130° | h8

Material de corte	HSS
Acabado	○
Dirección de corte	R

P	○	vaciado de punta ≥Ø 8,000 • entrada cónica • para taladros muy profundos
M		
K		
N	•	mat. blandos y de viruta larga de hasta a 500 N/mm² • aceros blandos para automáticos • aluminio, alea. de alum. (de vir. larga) • zink, cobre fino, siluminio, electrón • zamak, argalio plásticos (blandos) y madera
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 788



Artículo N° **542**

d1 mm	inch	S	l1 mm	l2 mm
8,500		MK-1	330,000	210,000
8,600		MK-1	345,000	220,000
8,800		MK-1	345,000	220,000
9,000		MK-1	345,000	220,000
9,500		MK-1	345,000	220,000
10,500		MK-1	360,000	235,000
10,700		MK-1	375,000	250,000
11,000		MK-1	375,000	250,000
11,500		MK-1	375,000	250,000
12,000		MK-1	395,000	260,000
12,500		MK-1	395,000	260,000
13,000		MK-1	395,000	260,000
13,500		MK-1	410,000	275,000
14,500		MK-2	425,000	275,000
15,000		MK-2	425,000	275,000
17,000		MK-2	445,000	295,000
17,500		MK-2	465,000	310,000
20,500		MK-2	490,000	325,000

d1 mm	inch	S	l1 mm	l2 mm
21,000		MK-2	490,000	325,000
21,500		MK-2	515,000	345,000
22,000		MK-2	515,000	345,000
23,000		MK-2	515,000	345,000
24,000		MK-3	555,000	365,000
24,500		MK-3	555,000	365,000
25,500		MK-3	555,000	365,000
26,000		MK-3	555,000	365,000
26,500		MK-3	555,000	365,000
27,500		MK-3	580,000	385,000
28,000		MK-3	580,000	385,000
29,000		MK-3	580,000	385,000
29,500		MK-3	580,000	385,000
30,000		MK-3	580,000	385,000
31,000		MK-3	610,000	410,000

Brocas espirales, extra largas, serie 2

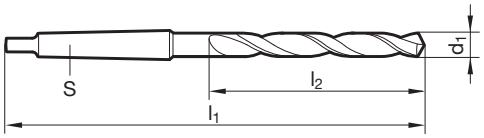
~20xD | DIN 1870 | GT 100 | 130° | h8

Material de corte	HSCO
Acabado	>Ø 16,0
Dirección de corte	R

P	•	vaciado de punta ≥Ø 9,520 • entrada cónica • acero rápido al cobalto • ranuras amplias • resistencia más alta al desgaste
M	•	• con desalojo de viruta difícil
K	•	• para taladros muy profundos
N	•	aceros y fundición de acero de gran dureza • fundición gris, fundición maleable, fundición esferica
S	•	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 794



Artículo N° **621**

d1		S	l1	l2
mm	inch		mm	mm
9,520	3/8	MK-1	360,000	235,000
10,000		MK-1	360,000	235,000
10,500		MK-1	360,000	235,000
10,720	27/64	MK-1	375,000	250,000
11,000		MK-1	375,000	250,000
11,500		MK-1	375,000	250,000
11,510	29/64	MK-1	375,000	250,000
12,000		MK-1	395,000	260,000
12,500		MK-1	395,000	260,000
12,700	1/2	MK-1	395,000	260,000
13,000		MK-1	395,000	260,000
13,500		MK-1	410,000	275,000

d1		S	l1	l2
mm	inch		mm	mm
14,000		MK-1	410,000	275,000
14,500		MK-2	425,000	275,000
15,000		MK-2	425,000	275,000
16,000		MK-2	445,000	295,000
16,270		MK-2	445,000	295,000
18,000		MK-2	465,000	310,000
18,500		MK-2	465,000	310,000
19,000		MK-2	465,000	310,000
20,000		MK-2	490,000	325,000
21,430	27/32	MK-2	515,000	345,000
23,420	59/64	MK-3	535,000	345,000

Brocas con canal de refrig., long. ranuras DIN 1870

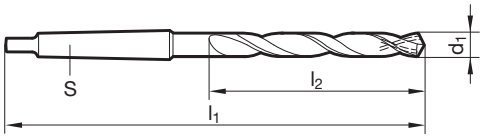
~15xD | WN | GT 100 | 130° | h8

Material de corte	HSCO
Acabado	●
Dirección de corte	R

P	●	vaciado de punta ≥Ø 11,000 • entrada cónica • transmisión de refrigerante axial por el cono morse • acero rápido al cobalto • más resistencia al desgaste • para taladrar casquillos
M	●	
K	●	
N	●	aceros templados • aceros aleados, fundición gris • aceros inoxidables y resistentes al ácido y al calor • dureza con una resistencia de hasta 1400 N/mm²
S	●	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 794



Artículo N° **374**

d1 mm	inch	S	l1 mm	l2 mm
11,000		MK-2	312,000	195,000
12,000		MK-2	322,000	205,000
12,300	31/64	MK-2	322,000	205,000
12,500		MK-2	322,000	205,000
13,000		MK-2	322,000	205,000
14,000		MK-2	337,000	220,000
15,000		MK-2	337,000	220,000
16,000		MK-2	347,000	230,000
16,500		MK-2	347,000	230,000
17,500		MK-2	362,000	245,000
18,000		MK-2	362,000	245,000
18,500		MK-3	381,000	245,000
19,840	25/32	MK-3	396,000	260,000
20,000		MK-3	396,000	260,000
21,000		MK-3	396,000	260,000
21,430	27/32	MK-3	406,000	270,000
21,500		MK-3	406,000	270,000
24,610	31/32	MK-3	426,000	290,000

d1 mm	inch	S	l1 mm	l2 mm
28,570	1 1/8	MK-4	468,000	305,000
28,750		MK-4	468,000	305,000
29,370	1 5/32	MK-4	468,000	305,000
30,960	1 7/32	MK-4	483,000	320,000
32,250		MK-4	493,000	320,000
32,540	1 9/32	MK-4	493,000	320,000
34,000		MK-4	513,000	340,000

Brocas con canal de refrig., long. ranuras DIN 1870

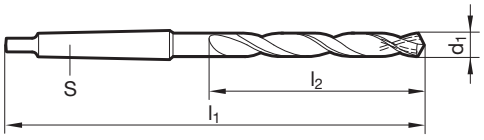
~15xD | WN | GT 100 | 130° | h8

Material de corte	HSCO
Acabado	●
Dirección de corte	R

P	●	vaciado de punta ≥Ø 11,000 • entrada cónica • transmisión radial por mediación de aros de refrigeración Gühring • acero rápido al cobalto • resistencia más alta al desgaste • para taladrar casquillos
M	●	
K	●	
N	●	aceros templados • aceros aleados, fundición gris • aceros inoxidables y resistentes al ácido y al calor • dureza con una resistencia de hasta 1400 N/mm²
S	●	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 794



Artículo N° **375**

d1		S	l1	l2
mm	inch		mm	mm
11,000		MK-2	312,000	195,000
11,110	7/16	MK-2	312,000	195,000
11,510	29/64	MK-2	312,000	195,000
12,800		MK-2	322,000	205,000
13,500		MK-2	337,000	220,000
18,260	23/32	MK-3	381,000	245,000
19,000		MK-3	381,000	245,000
21,000		MK-3	396,000	260,000
21,430	27/32	MK-3	406,000	270,000
24,500		MK-3	426,000	290,000
25,000	63/64	MK-3	426,000	290,000
25,400	1	MK-3	426,000	290,000

d1		S	l1	l2
mm	inch		mm	mm
26,500		MK-3	426,000	290,000
28,570	1 1/8	MK-4	468,000	305,000
30,960	1 7/32	MK-4	483,000	320,000
32,540	1 9/32	MK-4	493,000	320,000
33,340	1 5/16	MK-4	493,000	320,000
34,000		MK-4	513,000	340,000

Brocas con canal de refrig., long. ranuras DIN 1870

~15xD | WN | GT 100 | 130° | h8

Material de corte	HSCO
Acabado	●
Dirección de corte	R

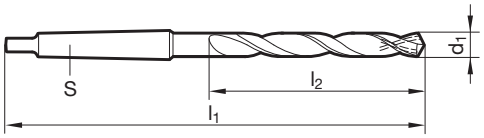
P	●
M	●
K	●
N	●
S	●
H	○

vaciado de punta ≥Ø 11,000 • entrada cónica • transmisión de refrigerante radialmente al interior del cono morse • acero rápido al cobalto • resistencia más alta al desgaste • para taladrar casquillos

aceros templados • aceros aleados, fundición gris • aceros inoxidables y resistentes al ácido y al calor • dureza con una resistencia de hasta 1400 N/mm²

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 794



Artículo N° **376**

d1 mm	d1 inch	S	l1 mm	l2 mm
11,000		MK-2	312,000	195,000
13,000		MK-2	322,000	205,000
14,000		MK-2	337,000	220,000
16,500		MK-2	347,000	230,000
18,000		MK-2	362,000	245,000
19,840	25/32	MK-3	396,000	260,000

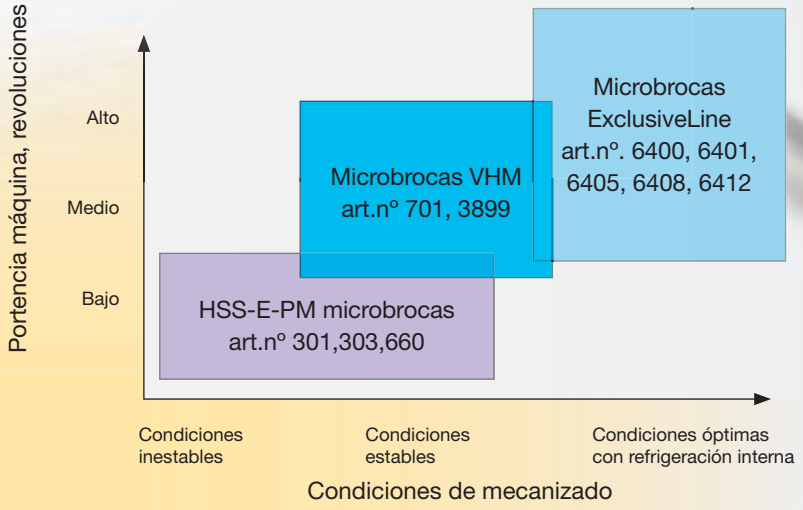
d1 mm	d1 inch	S	l1 mm	l2 mm
21,500		MK-3	406,000	270,000
27,780	1 3/32	MK-4	468,000	305,000
29,000		MK-4	468,000	305,000

MICROBROCAS

Tipos de microbrocas

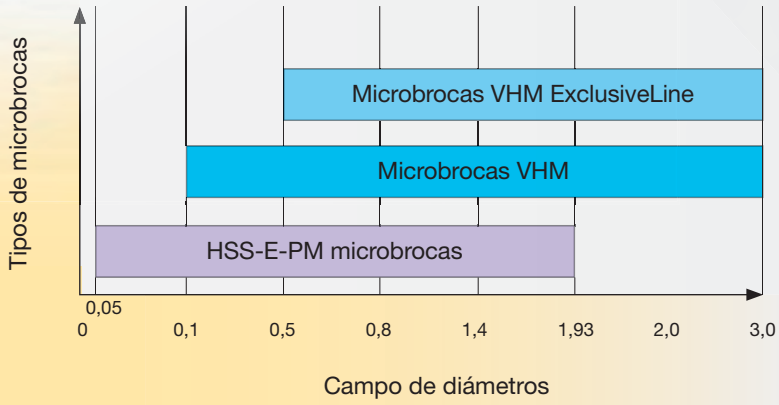
VENTAJAS Y CAMPOS DE APLICACIÓN

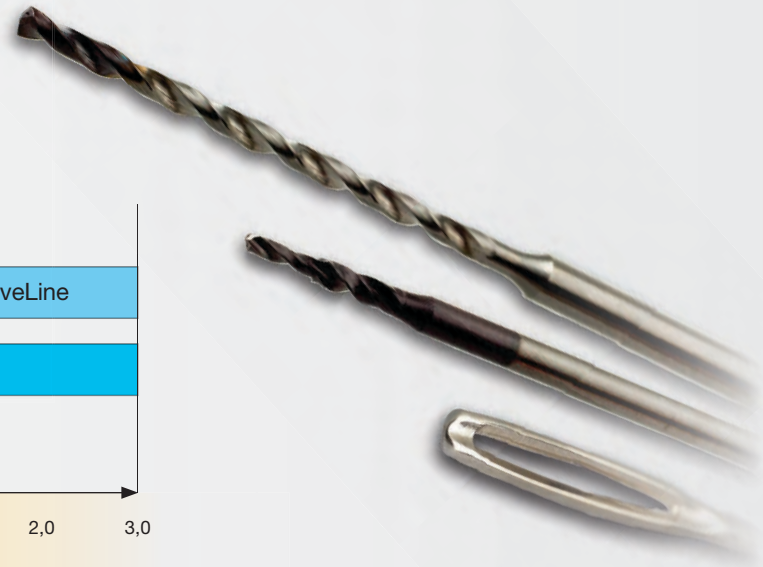
Gühring ofrece la mejor solución para la fabricación en serie de muchas piezas en máquinas con máximo rendimiento y refrigeración interna y en máquinas no tan sofisticadas y condiciones más precarias.



CAMPO DE PROGRAMA

El amplio programa de microbrocas Gühring en VHM y HSS-E-PM cubre todo el campo de diámetros desde 0,05mm hasta 3,00mm:





El programa de microbrocas de Gühring con herramientas de VHM y HSS-E-PM es óptimo para fabricar microtaladros de alta precisión en todos los campos de aplicación.
La fabricación de microtaladros de alta precisión requiere altísima calidad y es un mecanizado exigente.
Gühring ofrece la microbroca ideal para cada aplicación con su amplio programa estándar.

MICROBROCAS HSS-E-PM

Las microbrocas de Gühring fabricadas de polvo metalúrgico HSS-E de alto rendimiento destacan por su gran resistencia al desgaste una gran tenacidad y estabilidad de los cantos de corte lo que es muy importante en malas y difíciles condiciones de trabajo. El acero de polvo metalúrgico presenta una estructura muy homgenea que supone un rendimiento muy constante de las microbrocas.

Las microbrocas HSS-E-PM son ideales para la aplicación p. ej. en máquinas con limitación de revoluciones o para la fabricación de series cortas y medianas, ya que se consigue una gran calidad a un buen precio. Para altas exigencias en rendimiento y parámetros de corte Gühring ofrece las microbrocas HSS-E-PM también con recubrimiento TIN en su programa estándar. También para aplicaciones especiales en las que se necesitan herramientas de corte a izquierdas, Gühring ofrece una solución estándar.

MICROBROCAS VHM

Las micro-brocas VHM sin canales de refrigeración de Gühring abarcan el campo de diámetros desde 0,1mm hasta 3,00mm. Con las micro-brocas VHM en comparación a las HSS-E-PM, y en condiciones estables, se consiguen mayores rendimientos con condiciones de corte más altas. La razón es la utilización de metal duro ultrafino con una dureza muy alta, resistencia térmica y a la fatiga muy buena que hace que las micro-brocas VHM consigan un rendimiento enorme.

MICROBROCAS VHM EXCLUSIVLINE TAMBIÉN CON REFRIGERACIÓN INTERNA

Las microbrocas VHM ExclusiveLine que se fabrican con y sin refrigeración interna permiten mecanizados de alto rendimiento en casi todos los materiales. En el mecanizado de grandes series y buenas condiciones de máquina con posibilidad de revoluciones muy altas, estas microbrocas ofrecen todo su rendimiento. El afilado de dos caras por corte y la corrección de los cortes rectificada, permiten condiciones de corte altísimas y romper la viruta con facilidad. Los huecos de evacuación de viruta y el perfil de ranuras transportan la viruta con seguridad fuera del taladro. Para las profundidades de taladro de 4xD y 7xD están a disposición las microbrocas sin refrigeración interna en el campo de diámetros desde 0,5 hasta 3,00mm.

Especialmente en el mecanizado de aceros inoxidables u aleaciones especiales y en la fabricación de taladros profundos, las microbrocas VHM 5xD, 8xD y 15xD con refrigeración interna demuestran sus cualidades. Gracias a las geometrías de herramienta optimizadas en Gühring no es necesario desalojar viruta en taladros de 15xD. Las herramientas están diseñadas de tal forma que las microbrocas hasta 4xD sin refrigeración interna y hasta 5xD con refrigeración interna sirven como brocas piloto para la broca de 15xD con refrigeración interna.

SOLUCIÓN ESPECIAL SEGÚN DESEO DEL CLIENTE

Además de las mencionadas microbrocas estándar Gühring ofrece sobre oferta microbrocas especiales tanto en HSS-E-PM como en VHM.
Esto incluye:

- medidas intermedias fuera de programa
- herramientas escalonadas para taladros escalonados o con avellanado
- longitudes especiales hasta 30xD
- algunas variaciones en los mangos
- recubrimientos alternativos.

P	M	K	N	S	H	Presentación de herramientas	Profundidad	Norma	Tipo	Dirección de corte	Material de corte	Acabado	d1/mm	Artículo Nº	Cond. de corte pág.	Página
Microbrocas HSS-E-PM sin refrig. Interna																
•	•	•	•	○			~5xD	DIN 1899	N	R	HSS-E-PM	○	0,050 - 1,920	301	796	649
•	•	•	•	○			~5xD	DIN 1899	N	R	HSS-E-PM	S	0,160 - 1,900	660	796	652
•	•	•	•	○			~5xD	DIN 1899	N	L	HSS-E-PM	○	0,130 - 1,850	303	796	654
Microbrocas VHM sin refrig. Interna																
•	○	•	○	○	○		~5xD	WN	N	R	VHM	○	0,200 - 1,400	701	796	656
•		•						WN	N	R	VHM	A	0,100 - 3,000	3899	796	657
Microbrocas ExclusiveLine sin refrigeración interior																
•	•	•	○	○			4xD	WN	N	R	VHM	A	0,500 - 3,000	6400	796	659
•	•	•	○	○			7xD	WN	N	R	VHM	A	0,500 - 3,000	6401	796	660
Microbrocas ExclusiveLine con refrigeración interior																
•	•	•	○	○			5xD	WN	N	R	VHM	A	1,400 - 3,000	6405	796	661
•	•	•	○	○			8xD	WN	N	R	VHM	A	1,400 - 3,000	6408	796	662
•	•	•	○	○			15xD	WN	N	R	VHM	A	1,400 - 3,000	6412	796	663

Microbrocas HSS-E-PM sin refrig. Interna

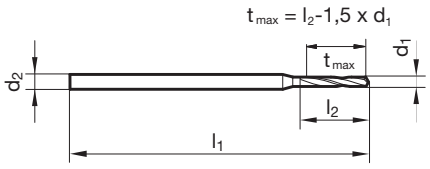
~5xD | DIN 1899 | N | 118° | 0/-0,004

Material de corte	HSS-E-PM
Acabado	○
Dirección de corte	Ⓡ

P	•	afilado plano • con mango reforzado • < Ø 0,15 mm acero rápido al cobalto
M	•	
K	•	
N	•	aceros altamente aleados
S	○	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 796



Artículo N° **301**

d1	d2	l1	l2	d1	d2	l1	l2
mm	mm	mm	mm	mm	mm	mm	mm
0,050	1,000	25,000	0,400	0,275	1,000	25,000	1,900
0,060	1,000	25,000	0,400	0,280	1,000	25,000	1,900
0,070	1,000	25,000	0,500	0,285	1,000	25,000	1,900
0,075	1,000	25,000	0,500	0,290	1,000	25,000	1,900
0,080	1,000	25,000	0,500	0,295	1,000	25,000	1,900
0,090	1,000	25,000	0,500	0,300	1,000	25,000	1,900
0,100	1,000	25,000	0,500	0,305	1,000	25,000	2,400
0,105	1,000	25,000	0,500	0,310	1,000	25,000	2,400
0,110	1,000	25,000	0,500	0,315	1,000	25,000	2,400
0,115	1,000	25,000	0,500	0,320	1,000	25,000	2,400
0,120	1,000	25,000	0,500	0,325	1,000	25,000	2,400
0,121	1,000	25,000	0,800	0,330	1,000	25,000	2,400
0,125	1,000	25,000	0,800	0,335	1,000	25,000	2,400
0,128	1,000	25,000	0,800	0,340	1,000	25,000	2,400
0,130	1,000	25,000	0,800	0,345	1,000	25,000	2,400
0,140	1,000	25,000	0,800	0,350	1,000	25,000	2,400
0,143	1,000	25,000	0,800	0,355	1,000	25,000	2,400
0,145	1,000	25,000	0,800	0,360	1,000	25,000	2,400
0,147	1,000	25,000	0,800	0,365	1,000	25,000	2,400
0,150	1,000	25,000	0,800	0,370	1,000	25,000	2,400
0,155	1,000	25,000	1,100	0,375	1,000	25,000	2,400
0,160	1,000	25,000	1,100	0,380	1,000	25,000	2,400
0,170	1,000	25,000	1,100	0,385	1,000	25,000	3,000
0,175	1,000	25,000	1,100	0,390	1,000	25,000	3,000
0,180	1,000	25,000	1,100	0,400	1,000	25,000	3,000
0,190	1,000	25,000	1,100	0,405	1,000	25,000	3,000
0,195	1,000	25,000	1,500	0,410	1,000	25,000	3,000
0,200	1,000	25,000	1,500	0,415	1,000	25,000	3,000
0,205	1,000	25,000	1,500	0,420	1,000	25,000	3,000
0,210	1,000	25,000	1,500	0,425	1,000	25,000	3,000
0,215	1,000	25,000	1,500	0,430	1,000	25,000	3,000
0,220	1,000	25,000	1,500	0,432	1,000	25,000	3,000
0,225	1,000	25,000	1,500	0,435	1,000	25,000	3,000
0,230	1,000	25,000	1,500	0,440	1,000	25,000	3,000
0,235	1,000	25,000	1,500	0,445	1,000	25,000	3,000
0,240	1,000	25,000	1,500	0,450	1,000	25,000	3,000
0,245	1,000	25,000	1,900	0,455	1,000	25,000	3,000
0,250	1,000	25,000	1,900	0,460	1,000	25,000	3,000
0,255	1,000	25,000	1,900	0,470	1,000	25,000	3,000
0,260	1,000	25,000	1,900	0,475	1,000	25,000	3,000
0,265	1,000	25,000	1,900	0,480	1,000	25,000	3,000
0,270	1,000	25,000	1,900	0,485	1,000	25,000	3,400

d1	d2	l1	l2
mm	mm	mm	mm
0,490	1,000	25,000	3,400
0,495	1,000	25,000	3,400
0,500	1,000	25,000	3,400
0,505	1,000	25,000	3,400
0,510	1,000	25,000	3,400
0,515	1,000	25,000	3,400
0,520	1,000	25,000	3,400
0,525	1,000	25,000	3,400
0,530	1,000	25,000	3,400
0,535	1,000	25,000	3,900
0,540	1,000	25,000	3,900
0,545	1,000	25,000	3,900
0,550	1,000	25,000	3,900
0,560	1,000	25,000	3,900
0,570	1,000	25,000	3,900
0,580	1,000	25,000	3,900
0,585	1,000	25,000	3,900
0,590	1,000	25,000	3,900
0,595	1,000	25,000	3,900
0,600	1,000	25,000	3,900
0,605	1,000	25,000	4,200
0,610	1,000	25,000	4,200
0,615	1,000	25,000	4,200
0,620	1,000	25,000	4,200
0,625	1,000	25,000	4,200
0,630	1,000	25,000	4,200
0,632	1,000	25,000	4,200
0,640	1,000	25,000	4,200
0,650	1,000	25,000	4,200
0,655	1,000	25,000	4,200
0,660	1,000	25,000	4,200
0,665	1,000	25,000	4,200
0,670	1,000	25,000	4,200
0,675	1,000	25,000	4,800
0,680	1,000	25,000	4,800
0,690	1,000	25,000	4,800
0,695	1,000	25,000	4,800
0,700	1,000	25,000	4,800
0,705	1,000	25,000	4,800
0,710	1,000	25,000	4,800
0,720	1,000	25,000	4,800
0,725	1,000	25,000	4,800
0,730	1,000	25,000	4,800
0,740	1,000	25,000	4,800
0,750	1,000	25,000	4,800
0,760	1,000	25,000	5,300
0,770	1,000	25,000	5,300
0,780	1,000	25,000	5,300
0,790	1,000	25,000	5,300
0,795	1,500	25,000	5,300
0,800	1,500	25,000	5,300
0,810	1,500	25,000	5,300
0,820	1,500	25,000	5,300
0,825	1,500	25,000	5,300
0,830	1,500	25,000	5,300
0,840	1,500	25,000	5,300
0,845	1,500	25,000	5,300
0,850	1,500	25,000	5,300
0,860	1,500	25,000	6,000
0,870	1,500	25,000	6,000
0,880	1,500	25,000	6,000
0,890	1,500	25,000	6,000
0,900	1,500	25,000	6,000
0,910	1,500	25,000	6,000
0,920	1,500	25,000	6,000
0,925	1,500	25,000	6,000
0,930	1,500	25,000	6,000
0,940	1,500	25,000	6,000
0,950	1,500	25,000	6,000
0,960	1,500	25,000	6,800
0,970	1,500	25,000	6,800
0,980	1,500	25,000	6,800

d1	d2	l1	l2
mm	mm	mm	mm
0,990	1,500	25,000	6,800
1,000	1,500	25,000	6,800
1,010	1,500	25,000	6,800
1,020	1,500	25,000	6,800
1,030	1,500	25,000	6,800
1,040	1,500	25,000	6,800
1,050	1,500	25,000	6,800
1,055	1,500	25,000	6,800
1,060	1,500	25,000	6,800
1,070	1,500	25,000	7,600
1,080	1,500	25,000	7,600
1,090	1,500	25,000	7,600
1,100	1,500	25,000	7,600
1,110	1,500	25,000	7,600
1,120	1,500	25,000	7,600
1,130	1,500	25,000	7,600
1,140	1,500	25,000	7,600
1,150	1,500	25,000	7,600
1,160	1,500	25,000	7,600
1,170	1,500	25,000	7,600
1,180	1,500	25,000	7,600
1,190	1,500	25,000	8,500
1,200	1,500	25,000	8,500
1,210	1,500	25,000	8,500
1,220	1,500	25,000	8,500
1,230	1,500	25,000	8,500
1,240	1,500	25,000	8,500
1,250	1,500	25,000	8,500
1,260	1,500	25,000	8,500
1,265	1,500	25,000	8,500
1,270	1,500	25,000	8,500
1,280	1,500	25,000	8,500
1,290	1,500	25,000	8,500
1,300	1,500	25,000	8,500
1,310	1,500	25,000	8,500
1,320	1,500	25,000	8,500
1,325	1,500	25,000	9,500
1,330	1,500	25,000	9,500
1,340	1,500	25,000	9,500
1,350	1,500	25,000	9,500
1,370	1,500	25,000	9,500
1,380	1,500	25,000	9,500
1,390	1,500	25,000	9,500
1,400	1,500	25,000	9,500
1,410	1,500	25,000	9,500
1,420	1,500	25,000	9,500
1,430	1,500	25,000	9,500
1,440	1,500	25,000	9,500
1,450	1,500	25,000	9,500
1,460	2,000	30,000	9,500
1,470	2,000	30,000	9,500
1,500	2,000	30,000	9,500
1,520	2,000	30,000	10,600
1,530	2,000	30,000	10,600
1,540	2,000	30,000	10,600
1,550	2,000	30,000	10,600
1,590	2,000	30,000	10,600
1,600	2,000	30,000	10,600
1,610	2,000	30,000	10,600
1,630	2,000	30,000	10,600
1,640	2,000	30,000	10,600
1,650	2,000	30,000	10,600
1,660	2,000	30,000	10,600
1,690	2,000	30,000	10,600
1,700	2,000	30,000	10,600
1,710	2,000	30,000	11,800
1,715	2,000	30,000	11,800
1,730	2,000	30,000	11,800
1,745	2,000	30,000	11,800
1,750	2,000	30,000	11,800
1,775	2,000	30,000	11,800
1,800	2,000	30,000	11,800

d1	d2	l1	l2
mm	mm	mm	mm
1,830	2,000	30,000	11,800
1,840	2,000	30,000	11,800
1,850	2,000	30,000	11,800
1,860	2,000	30,000	11,800
1,900	2,000	30,000	11,800
1,920	2,000	30,000	13,200

d1	d2	l1	l2
mm	mm	mm	mm

Microbrocas HSS-E-PM sin refrig. Interna

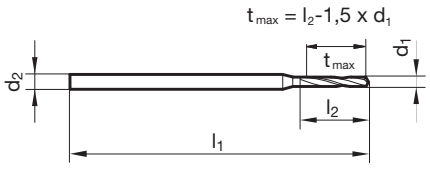
~5xD | DIN 1899 | N | 118° | 0/-0,004

Material de corte	HSS-E-PM
Acabado	S
Dirección de corte	R

P	•	afilado plano • con mango reforzado • más resistencia al desgaste
M	•	
K	•	
N	•	aceros altamente aleados
S	○	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 796



Artículo Nº **660**

d1	d2	l1	l2	d1	d2	l1	l2
mm	mm	mm	mm	mm	mm	mm	mm
0,160	1,000	25,000	1,100	0,530	1,000	25,000	3,400
0,170	1,000	25,000	1,100	0,540	1,000	25,000	3,900
0,180	1,000	25,000	1,100	0,550	1,000	25,000	3,900
0,190	1,000	25,000	1,100	0,560	1,000	25,000	3,900
0,200	1,000	25,000	1,500	0,570	1,000	25,000	3,900
0,210	1,000	25,000	1,500	0,580	1,000	25,000	3,900
0,220	1,000	25,000	1,500	0,590	1,000	25,000	3,900
0,230	1,000	25,000	1,500	0,600	1,000	25,000	3,900
0,240	1,000	25,000	1,500	0,610	1,000	25,000	4,200
0,250	1,000	25,000	1,900	0,620	1,000	25,000	4,200
0,255	1,000	25,000	1,900	0,630	1,000	25,000	4,200
0,260	1,000	25,000	1,900	0,640	1,000	25,000	4,200
0,265	1,000	25,000	1,900	0,650	1,000	25,000	4,200
0,270	1,000	25,000	1,900	0,660	1,000	25,000	4,200
0,280	1,000	25,000	1,900	0,670	1,000	25,000	4,200
0,290	1,000	25,000	1,900	0,680	1,000	25,000	4,800
0,295	1,000	25,000	1,900	0,690	1,000	25,000	4,800
0,300	1,000	25,000	1,900	0,700	1,000	25,000	4,800
0,305	1,000	25,000	2,400	0,710	1,000	25,000	4,800
0,310	1,000	25,000	2,400	0,720	1,000	25,000	4,800
0,320	1,000	25,000	2,400	0,730	1,000	25,000	4,800
0,325	1,000	25,000	2,400	0,740	1,000	25,000	4,800
0,330	1,000	25,000	2,400	0,750	1,000	25,000	4,800
0,340	1,000	25,000	2,400	0,760	1,000	25,000	5,300
0,350	1,000	25,000	2,400	0,770	1,000	25,000	5,300
0,360	1,000	25,000	2,400	0,780	1,000	25,000	5,300
0,370	1,000	25,000	2,400	0,790	1,000	25,000	5,300
0,380	1,000	25,000	2,400	0,800	1,500	25,000	5,300
0,390	1,000	25,000	3,000	0,810	1,500	25,000	5,300
0,400	1,000	25,000	3,000	0,820	1,500	25,000	5,300
0,410	1,000	25,000	3,000	0,830	1,500	25,000	5,300
0,420	1,000	25,000	3,000	0,840	1,500	25,000	5,300
0,430	1,000	25,000	3,000	0,850	1,500	25,000	5,300
0,440	1,000	25,000	3,000	0,860	1,500	25,000	6,000
0,450	1,000	25,000	3,000	0,870	1,500	25,000	6,000
0,460	1,000	25,000	3,000	0,880	1,500	25,000	6,000
0,470	1,000	25,000	3,000	0,900	1,500	25,000	6,000
0,480	1,000	25,000	3,000	0,910	1,500	25,000	6,000
0,490	1,000	25,000	3,400	0,920	1,500	25,000	6,000
0,500	1,000	25,000	3,400	0,940	1,500	25,000	6,000
0,510	1,000	25,000	3,400	0,950	1,500	25,000	6,000
0,520	1,000	25,000	3,400	0,960	1,500	25,000	6,800

d1	d2	l1	l2
mm	mm	mm	mm
0,970	1,500	25,000	6,800
0,980	1,500	25,000	6,800
1,000	1,500	25,000	6,800
1,020	1,500	25,000	6,800
1,040	1,500	25,000	6,800
1,050	1,500	25,000	6,800
1,070	1,500	25,000	7,600
1,080	1,500	25,000	7,600
1,100	1,500	25,000	7,600
1,150	1,500	25,000	7,600
1,180	1,500	25,000	7,600
1,190	1,500	25,000	8,500

d1	d2	l1	l2
mm	mm	mm	mm
1,200	1,500	25,000	8,500
1,220	1,500	25,000	8,500
1,250	1,500	25,000	8,500
1,300	1,500	25,000	8,500
1,350	1,500	25,000	9,500
1,390	1,500	25,000	9,500
1,400	1,500	25,000	9,500
1,420	1,500	25,000	9,500
1,450	1,500	25,000	9,500
1,500	2,000	30,000	9,500
1,800	2,000	30,000	11,800
1,900	2,000	30,000	11,800

Microbrocas HSS-E-PM sin refrig. Interna

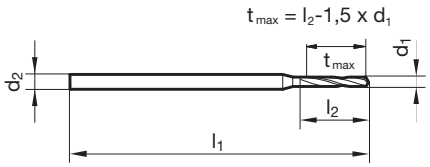
~5xD | DIN 1899 | N | 118° | 0/-0,004

Material de corte	HSS-E-PM
Acabado	○
Dirección de corte	

P	•	afilado plano • con mango reforzado • < Ø 0,15 mm acero rápido al cobalto
M	•	
K	•	
N	•	aceros altamente aleados
S	○	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 796



Artículo N° **303**

d1	d2	l1	l2	d1	d2	l1	l2
mm	mm	mm	mm	mm	mm	mm	mm
0,130	1,000	25,000	0,800	0,410	1,000	25,000	3,000
0,140	1,000	25,000	0,800	0,415	1,000	25,000	3,000
0,150	1,000	25,000	0,800	0,420	1,000	25,000	3,000
0,155	1,000	25,000	1,100	0,430	1,000	25,000	3,000
0,160	1,000	25,000	1,100	0,435	1,000	25,000	3,000
0,170	1,000	25,000	1,100	0,440	1,000	25,000	3,000
0,175	1,000	25,000	1,100	0,450	1,000	25,000	3,000
0,180	1,000	25,000	1,100	0,460	1,000	25,000	3,000
0,185	1,000	25,000	1,100	0,465	1,000	25,000	3,000
0,190	1,000	25,000	1,100	0,470	1,000	25,000	3,000
0,195	1,000	25,000	1,500	0,480	1,000	25,000	3,000
0,200	1,000	25,000	1,500	0,485	1,000	25,000	3,400
0,210	1,000	25,000	1,500	0,490	1,000	25,000	3,400
0,215	1,000	25,000	1,500	0,495	1,000	25,000	3,400
0,220	1,000	25,000	1,500	0,500	1,000	25,000	3,400
0,225	1,000	25,000	1,500	0,510	1,000	25,000	3,400
0,230	1,000	25,000	1,500	0,520	1,000	25,000	3,400
0,235	1,000	25,000	1,500	0,525	1,000	25,000	3,400
0,240	1,000	25,000	1,500	0,540	1,000	25,000	3,900
0,245	1,000	25,000	1,900	0,545	1,000	25,000	3,900
0,250	1,000	25,000	1,900	0,550	1,000	25,000	3,900
0,255	1,000	25,000	1,900	0,555	1,000	25,000	3,900
0,260	1,000	25,000	1,900	0,565	1,000	25,000	3,900
0,265	1,000	25,000	1,900	0,570	1,000	25,000	3,900
0,270	1,000	25,000	1,900	0,580	1,000	25,000	3,900
0,275	1,000	25,000	1,900	0,590	1,000	25,000	3,900
0,280	1,000	25,000	1,900	0,600	1,000	25,000	3,900
0,290	1,000	25,000	1,900	0,615	1,000	25,000	4,200
0,295	1,000	25,000	1,900	0,620	1,000	25,000	4,200
0,300	1,000	25,000	1,900	0,630	1,000	25,000	4,200
0,310	1,000	25,000	2,400	0,640	1,000	25,000	4,200
0,315	1,000	25,000	2,400	0,650	1,000	25,000	4,200
0,330	1,000	25,000	2,400	0,660	1,000	25,000	4,200
0,340	1,000	25,000	2,400	0,670	1,000	25,000	4,200
0,345	1,000	25,000	2,400	0,675	1,000	25,000	4,800
0,350	1,000	25,000	2,400	0,680	1,000	25,000	4,800
0,355	1,000	25,000	2,400	0,685	1,000	25,000	4,800
0,360	1,000	25,000	2,400	0,690	1,000	25,000	4,800
0,370	1,000	25,000	2,400	0,695	1,000	25,000	4,800
0,380	1,000	25,000	2,400	0,700	1,000	25,000	4,800
0,390	1,000	25,000	3,000	0,710	1,000	25,000	4,800
0,400	1,000	25,000	3,000	0,720	1,000	25,000	4,800

d1	d2	l1	l2
mm	mm	mm	mm
0,740	1,000	25,000	4,800
0,750	1,000	25,000	4,800
0,760	1,000	25,000	5,300
0,770	1,000	25,000	5,300
0,780	1,000	25,000	5,300
0,790	1,000	25,000	5,300
0,800	1,500	25,000	5,300
0,805	1,500	25,000	5,300
0,810	1,500	25,000	5,300
0,820	1,500	25,000	5,300
0,830	1,500	25,000	5,300
0,840	1,500	25,000	5,300
0,850	1,500	25,000	5,300
0,855	1,500	25,000	6,000
0,860	1,500	25,000	6,000
0,870	1,500	25,000	6,000
0,880	1,500	25,000	6,000
0,885	1,500	25,000	6,000
0,890	1,500	25,000	6,000
0,900	1,500	25,000	6,000
0,910	1,500	25,000	6,000
0,915	1,500	25,000	6,000
0,920	1,500	25,000	6,000
0,925	1,500	25,000	6,000
0,935	1,500	25,000	6,000
0,940	1,500	25,000	6,000
0,950	1,500	25,000	6,000
0,960	1,500	25,000	6,800
0,970	1,500	25,000	6,800
0,975	1,500	25,000	6,800
0,980	1,500	25,000	6,800
0,985	1,500	25,000	6,800
0,990	1,500	25,000	6,800
1,000	1,500	25,000	6,800
1,005	1,500	25,000	6,800
1,020	1,500	25,000	6,800

d1	d2	l1	l2
mm	mm	mm	mm
1,030	1,500	25,000	6,800
1,040	1,500	25,000	6,800
1,050	1,500	25,000	6,800
1,060	1,500	25,000	6,800
1,080	1,500	25,000	7,600
1,085	1,500	25,000	7,600
1,090	1,500	25,000	7,600
1,100	1,500	25,000	7,600
1,110	1,500	25,000	7,600
1,120	1,500	25,000	7,600
1,125	1,500	25,000	7,600
1,150	1,500	25,000	7,600
1,160	1,500	25,000	7,600
1,170	1,500	25,000	7,600
1,180	1,500	25,000	7,600
1,200	1,500	25,000	8,500
1,250	1,500	25,000	8,500
1,270	1,500	25,000	8,500
1,280	1,500	25,000	8,500
1,285	1,500	25,000	8,500
1,290	1,500	25,000	8,500
1,310	1,500	25,000	8,500
1,330	1,500	25,000	9,500
1,350	1,500	25,000	9,500
1,360	1,500	25,000	9,500
1,375	1,500	25,000	9,500
1,400	1,500	25,000	9,500
1,405	1,500	25,000	9,500
1,425	1,500	25,000	9,500
1,450	1,500	25,000	9,500
1,460	2,000	30,000	9,500
1,500	2,000	30,000	9,500
1,600	2,000	30,000	10,600
1,615	2,000	30,000	10,600
1,800	2,000	30,000	11,800
1,850	2,000	30,000	11,800

Microbrocas VHM sin refrig. Interna

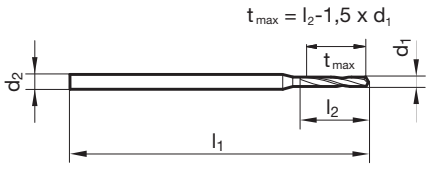
~5xD | WN | N | 130° | 0/-0,004

Material de corte	**Metal duro**
Acabado	◯
Dirección de corte	Ⓡ

P	•	vaciado de punta ≥Ø 0,800 • afilado plano • forma recta del corte principal
M	○	
K	•	
N	○	aceros de construcción y de cementación • fundición • bronce, latón • aluminio y sus aleaciones • magnesio y sus aleaciones • plásticos y plásticos con refuerzo de fibras
S	○	
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 796



Artículo N° **701**

d1	d2	l1	l2
mm	mm	mm	mm
0,200	1,000	25,000	1,500
0,220	1,000	25,000	1,500
0,250	1,000	25,000	1,900
0,260	1,000	25,000	1,900
0,280	1,000	25,000	1,900
0,300	1,000	25,000	1,900
0,330	1,000	25,000	2,400
0,350	1,000	25,000	2,400
0,400	1,000	25,000	3,000
0,450	1,000	25,000	3,000
0,500	1,000	25,000	3,400
0,600	1,000	25,000	3,900
0,650	1,000	25,000	4,200
0,700	1,000	25,000	4,800
0,750	1,000	25,000	4,800
0,800	1,500	25,000	5,300
0,810	1,500	25,000	5,300
0,830	1,500	25,000	5,300

d1	d2	l1	l2
mm	mm	mm	mm
0,850	1,500	25,000	5,300
0,900	1,500	25,000	6,000
1,000	1,500	25,000	6,800
1,050	1,500	25,000	6,800
1,100	1,500	25,000	7,600
1,150	1,500	25,000	7,600
1,200	1,500	25,000	8,500
1,250	1,500	25,000	8,500
1,300	1,500	25,000	8,500
1,350	1,500	25,000	9,500
1,400	1,500	25,000	9,500

Microbrocas VHM sin refrig. Interna

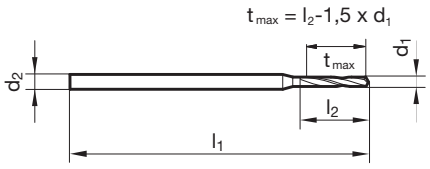
N | WN | 140° | ≥1,0 h7

Material de corte	**Metal duro**
Acabado	A
Dirección de corte	R

P	•	vaciado de punta ≥Ø 0,800 • afilado plano
M		
K	•	
N		aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • fundición
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 796



Artículo Nº **3899**

d1	d2 h6	l1	l2	d1	d2 h6	l1	l2
mm	mm	mm	mm	mm	mm	mm	mm
0,100	3,000	38,000	1,200	0,830	3,000	38,000	10,000
0,150	3,000	38,000	2,000	0,840	3,000	38,000	10,000
0,200	3,000	38,000	2,500	0,850	3,000	38,000	10,000
0,250	3,000	38,000	3,000	0,860	3,000	38,000	10,000
0,260	3,000	38,000	3,000	0,870	3,000	38,000	10,000
0,270	3,000	38,000	3,000	0,880	3,000	38,000	10,000
0,280	3,000	38,000	3,000	0,890	3,000	38,000	10,000
0,300	3,000	38,000	5,000	0,900	3,000	38,000	10,000
0,310	3,000	38,000	5,000	0,910	3,000	38,000	10,000
0,330	3,000	38,000	5,000	0,920	3,000	38,000	10,000
0,350	3,000	38,000	6,000	0,930	3,000	38,000	10,000
0,360	3,000	38,000	6,000	0,940	3,000	38,000	10,000
0,370	3,000	38,000	6,000	0,950	3,000	38,000	10,000
0,380	3,000	38,000	6,000	0,960	3,000	38,000	10,000
0,400	3,000	38,000	7,000	0,970	3,000	38,000	10,000
0,410	3,000	38,000	7,000	0,980	3,000	38,000	10,000
0,430	3,000	38,000	7,000	0,990	3,000	38,000	10,000
0,440	3,000	38,000	7,000	1,000	3,000	38,000	10,000
0,450	3,000	38,000	7,000	1,010	3,000	38,000	10,000
0,480	3,000	38,000	7,000	1,020	3,000	38,000	10,000
0,500	3,000	38,000	7,000	1,050	3,000	38,000	10,000
0,510	3,000	38,000	7,000	1,060	3,000	38,000	10,000
0,530	3,000	38,000	7,000	1,070	3,000	38,000	10,000
0,550	3,000	38,000	7,000	1,090	3,000	38,000	10,000
0,570	3,000	38,000	7,000	1,100	3,000	38,000	10,000
0,600	3,000	38,000	7,000	1,110	3,000	38,000	10,000
0,640	3,000	38,000	7,000	1,150	3,000	38,000	10,000
0,650	3,000	38,000	7,000	1,170	3,000	38,000	10,000
0,660	3,000	38,000	7,000	1,190	3,000	38,000	10,000
0,680	3,000	38,000	7,000	1,200	3,000	38,000	10,000
0,700	3,000	38,000	8,000	1,210	3,000	38,000	10,000
0,710	3,000	38,000	8,000	1,220	3,000	38,000	10,000
0,720	3,000	38,000	8,000	1,230	3,000	38,000	10,000
0,740	3,000	38,000	8,000	1,240	3,000	38,000	10,000
0,750	3,000	38,000	8,000	1,260	3,000	38,000	10,000
0,760	3,000	38,000	8,000	1,270	3,000	38,000	10,000
0,770	3,000	38,000	8,000	1,280	3,000	38,000	10,000
0,780	3,000	38,000	8,000	1,300	3,000	38,000	10,000
0,790	3,000	38,000	8,000	1,370	3,000	38,000	10,000
0,800	3,000	38,000	10,000	1,400	3,000	38,000	10,000
0,810	3,000	38,000	10,000	1,420	3,000	38,000	10,000
0,820	3,000	38,000	10,000	1,450	3,000	38,000	10,000

d1	d2 h6	l1	l2
mm	mm	mm	mm
1,490	3,000	38,000	10,000
1,500	3,000	38,000	10,000
1,510	3,000	38,000	10,000
1,520	3,000	38,000	10,000
1,550	3,000	38,000	10,000
1,560	3,000	38,000	10,000
1,580	3,000	38,000	10,000
1,590	3,000	38,000	10,000
1,600	3,000	38,000	12,000
1,630	3,000	38,000	12,000
1,650	3,000	38,000	12,000
1,700	3,000	38,000	12,000
1,750	3,000	38,000	12,000
1,800	3,000	38,000	12,000
1,810	3,000	38,000	12,000
1,820	3,000	38,000	12,000
1,830	3,000	38,000	12,000
1,840	3,000	38,000	12,000
1,850	3,000	38,000	12,000
1,860	3,000	38,000	12,000
1,900	3,000	38,000	12,000
1,920	3,000	38,000	12,000
1,950	3,000	38,000	12,000
1,980	3,000	38,000	12,000

d1	d2 h6	l1	l2
mm	mm	mm	mm
2,000	3,000	38,000	12,000
2,050	3,000	38,000	12,000
2,100	3,000	38,000	12,000
2,150	3,000	38,000	12,000
2,200	3,000	38,000	12,000
2,400	3,000	38,000	12,000
2,500	3,000	38,000	12,000
2,550	3,000	38,000	12,000
2,600	3,000	38,000	12,000
2,750	3,000	38,000	12,000
2,800	3,000	38,000	12,000
2,950	3,000	38,000	12,000
3,000	3,000	38,000	12,000

Microbrocas ExclusiveLine sin refrigeración interior

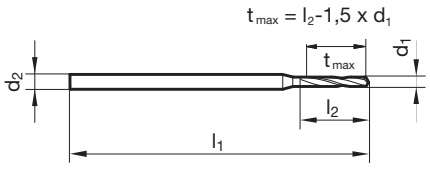
4xD | N | WN | 140° | m7

Material de corte	**Metal duro**
Acabado	A
Dirección de corte	R

P	•	vaciado de punta ≥Ø 0,500 • afilado plano • forma recta del corte principal • corrección de cantos rectificada
M	•	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • aceros inoxidables • fundición
S	○	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 796



Artículo N° **6400**

d1	d2 h6	l1	l2
mm	mm	mm	mm
0,500	3,000	47,000	3,000
0,550	3,000	47,000	3,300
0,600	3,000	47,000	3,600
0,650	3,000	47,000	3,900
0,700	3,000	47,000	4,200
0,750	3,000	47,000	4,500
0,800	3,000	47,000	4,800
0,850	3,000	47,000	5,100
0,900	3,000	47,000	5,400
0,950	3,000	47,000	5,700
1,000	3,000	47,000	6,000
1,050	3,000	47,000	6,300
1,100	3,000	47,000	6,600
1,150	3,000	47,000	6,900
1,200	3,000	47,000	7,200
1,250	3,000	47,000	7,500
1,300	3,000	47,000	7,800
1,350	3,000	47,000	8,100
1,400	3,000	47,000	8,400
1,450	3,000	47,000	8,700
1,500	3,000	47,000	9,000
1,550	3,000	47,000	9,300
1,590	3,000	47,000	9,600
1,600	3,000	47,000	9,600
1,650	3,000	47,000	9,900
1,700	3,000	47,000	10,200
1,750	3,000	47,000	10,500
1,800	3,000	52,000	10,800
1,850	3,000	52,000	11,100
1,900	3,000	52,000	11,400

d1	d2 h6	l1	l2
mm	mm	mm	mm
1,950	3,000	52,000	11,700
1,980	4,000	59,000	12,000
2,000	4,000	59,000	12,000
2,050	4,000	59,000	12,300
2,100	4,000	59,000	12,600
2,150	4,000	59,000	12,900
2,200	4,000	59,000	13,200
2,250	4,000	59,000	13,500
2,300	4,000	59,000	13,800
2,350	4,000	59,000	14,100
2,380	4,000	59,000	14,400
2,400	4,000	59,000	14,400
2,450	4,000	59,000	14,700
2,500	4,000	59,000	15,000
2,550	4,000	59,000	15,300
2,600	4,000	59,000	15,600
2,650	4,000	59,000	15,900
2,700	4,000	59,000	16,200
2,750	4,000	59,000	16,500
2,780	4,000	59,000	16,800
2,800	4,000	59,000	16,800
2,850	4,000	59,000	17,100
2,900	4,000	59,000	17,400
2,950	4,000	59,000	17,700
3,000	4,000	59,000	18,000

Microbrocas ExclusiveLine sin refrigeración interior

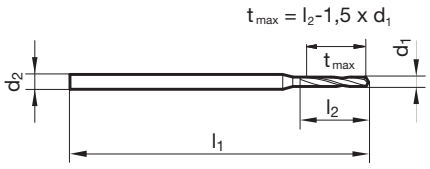
7xD | N | WN | 140° | m7

Material de corte	**Metal duro**
Acabado	A
Dirección de corte	R

P	•	vaciado de punta ≥Ø 0,500 • afilado plano • forma recta del corte principal • corrección de cantos rectificada
M	•	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • aceros inoxidables • fundición
S	○	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 796



Artículo N° **6401**

d1	d2 h6	l1	l2
mm	mm	mm	mm
0,500	3,000	47,000	4,000
0,550	3,000	47,000	4,400
0,600	3,000	47,000	4,800
0,650	3,000	47,000	5,200
0,700	3,000	47,000	5,600
0,750	3,000	47,000	6,000
0,800	3,000	47,000	6,400
0,850	3,000	47,000	6,800
0,900	3,000	47,000	7,200
0,950	3,000	47,000	7,600
1,000	3,000	47,000	8,000
1,050	3,000	47,000	8,400
1,100	3,000	47,000	8,800
1,150	3,000	47,000	9,200
1,200	3,000	52,000	10,800
1,250	3,000	52,000	11,300
1,300	3,000	52,000	11,700
1,350	3,000	52,000	12,200
1,400	3,000	52,000	12,600
1,450	3,000	52,000	13,100
1,500	3,000	52,000	13,500
1,550	3,000	52,000	14,000
1,590	3,000	52,000	14,400
1,600	3,000	52,000	14,400
1,650	3,000	52,000	14,900
1,700	3,000	52,000	15,300
1,750	3,000	52,000	15,800
1,800	3,000	52,000	16,200
1,850	3,000	52,000	16,700
1,900	3,000	52,000	17,100

d1	d2 h6	l1	l2
mm	mm	mm	mm
1,950	3,000	52,000	17,600
1,980	4,000	63,000	18,000
2,000	4,000	63,000	18,000
2,050	4,000	63,000	18,500
2,100	4,000	63,000	18,900
2,150	4,000	63,000	19,400
2,200	4,000	63,000	19,800
2,250	4,000	63,000	20,300
2,300	4,000	63,000	20,700
2,350	4,000	63,000	21,200
2,380	4,000	63,000	21,600
2,400	4,000	63,000	21,600
2,450	4,000	63,000	22,100
2,500	4,000	63,000	22,500
2,550	4,000	63,000	23,000
2,600	4,000	67,000	23,400
2,650	4,000	67,000	23,900
2,700	4,000	67,000	24,300
2,750	4,000	67,000	24,800
2,780	4,000	67,000	25,200
2,800	4,000	67,000	25,200
2,850	4,000	67,000	25,700
2,900	4,000	67,000	26,100
2,950	4,000	67,000	26,600
3,000	4,000	67,000	27,000

Microbrocas ExclusiveLine con refrigeración interior

5xD | N | WN | 140° | m7

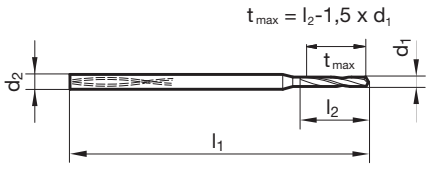
Material de corte	**Metal duro**
Acabado	A
Dirección de corte	R

NEW

P	•	vaciado de punta ≥Ø 1,400 • afilado plano • forma recta del corte principal • corrección de cantos rectificada
M	•	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • aceros inoxidables • fundición
S	○	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 796



Artículo N° **6405**

d1	d2 h6	l1	l2
mm	mm	mm	mm
1,400	4,000	52,000	11,000
1,450	4,000	52,000	12,000
1,500	4,000	52,000	12,000
1,550	4,000	52,000	12,000
1,590	4,000	52,000	13,000
1,600	4,000	52,000	13,000
1,650	4,000	52,000	13,000
1,700	4,000	56,000	14,000
1,750	4,000	56,000	14,000
1,800	4,000	56,000	14,000
1,850	4,000	56,000	15,000
1,900	4,000	56,000	15,000
1,950	4,000	56,000	16,000
1,980	4,000	56,000	16,000
2,000	4,000	56,000	16,000
2,050	4,000	56,000	16,000
2,100	4,000	62,000	17,000
2,150	4,000	62,000	17,000
2,200	4,000	62,000	18,000
2,250	4,000	62,000	18,000
2,300	4,000	62,000	18,000
2,350	4,000	62,000	19,000
2,380	4,000	62,000	19,000
2,400	4,000	62,000	19,000

d1	d2 h6	l1	l2
mm	mm	mm	mm
2,450	4,000	62,000	20,000
2,500	4,000	62,000	20,000
2,550	4,000	62,000	20,000
2,600	4,000	66,000	21,000
2,650	4,000	66,000	21,000
2,700	4,000	66,000	22,000
2,750	4,000	66,000	22,000
2,780	4,000	66,000	22,000
2,800	4,000	66,000	22,000
2,850	4,000	66,000	23,000
2,900	4,000	66,000	23,000
2,950	4,000	66,000	24,000
3,000	4,000	66,000	24,000

Microbrocas ExclusiveLine con refrigeración interior

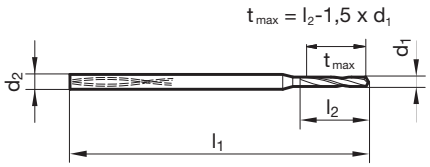
8xD | N | WN | 135° | h7

Material de corte	**Metal duro**
Acabado	A
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,400 • afilado plano • forma recta del corte principal • corrección de cantos rectificada
M	•	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • aceros inoxidables • fundición
S	○	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 796



Artículo N° **6408**

d1	d2 h6	l1	l2
mm	mm	mm	mm
1,400	4,000	52,000	15,000
1,450	4,000	52,000	16,000
1,500	4,000	52,000	17,000
1,550	4,000	52,000	17,000
1,590	4,000	52,000	18,000
1,600	4,000	52,000	18,000
1,650	4,000	52,000	18,000
1,700	4,000	56,000	19,000
1,750	4,000	56,000	19,000
1,800	4,000	56,000	20,000
1,850	4,000	56,000	20,000
1,900	4,000	56,000	21,000
1,950	4,000	56,000	21,000
1,980	4,000	56,000	22,000
2,000	4,000	56,000	22,000
2,050	4,000	56,000	23,000
2,100	4,000	62,000	23,000
2,150	4,000	62,000	24,000
2,200	4,000	62,000	24,000
2,250	4,000	62,000	25,000
2,300	4,000	62,000	25,000
2,320	4,000	62,000	26,000
2,350	4,000	62,000	26,000
2,380	4,000	62,000	26,000

d1	d2 h6	l1	l2
mm	mm	mm	mm
2,400	4,000	62,000	26,000
2,450	4,000	62,000	27,000
2,500	4,000	62,000	28,000
2,550	4,000	62,000	28,000
2,600	4,000	66,000	29,000
2,650	4,000	66,000	29,000
2,700	4,000	66,000	30,000
2,750	4,000	66,000	30,000
2,780	4,000	66,000	31,000
2,800	4,000	66,000	31,000
2,850	4,000	66,000	31,000
2,900	4,000	66,000	32,000
2,950	4,000	66,000	32,000
3,000	4,000	66,000	33,000

Microbrocas ExclusiveLine con refrigeración interior

15xD | N | WN | 135° | h7

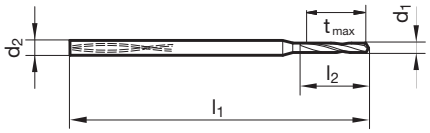
Material de corte	**Metal duro**
Acabado	A
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,400 • afilado plano • forma recta del corte principal • corrección de cantos rectificada
M	•	
K	•	
N	○	aceros de construcción y de cementación • aceros para tornos automáticos, aceros de bonificación • aceros aleados con una resistencia de hasta a 1200 N/mm² • aceros inoxidables • fundición
S	○	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 796

$t_{max} = l_2 - 1{,}5 \times d_1$

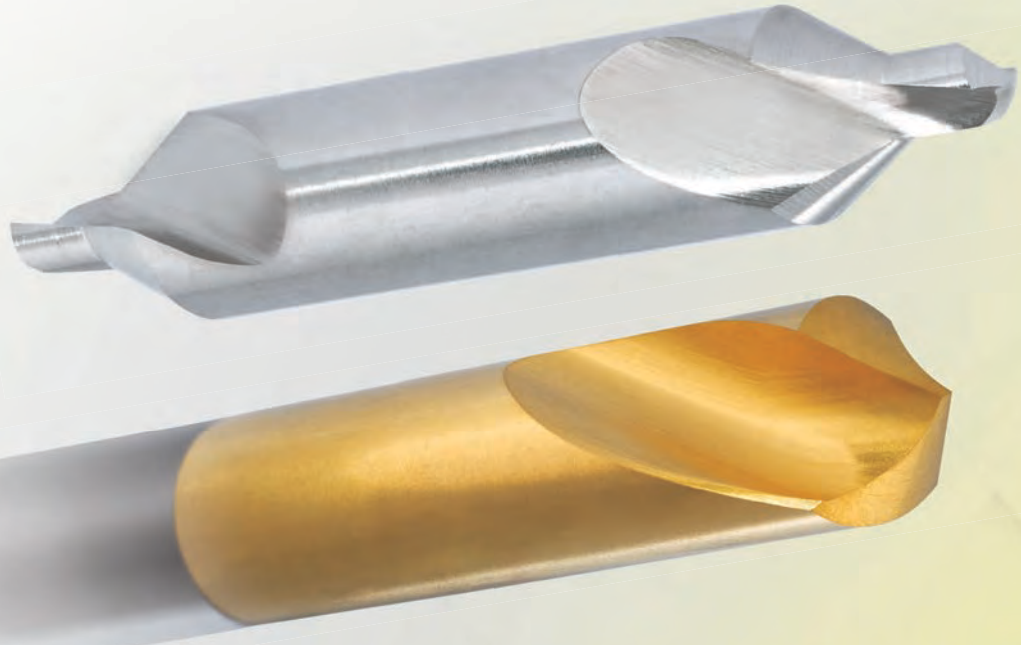


Artículo N° **6412**

d1	d2 h6	l1	l2
mm	mm	mm	mm
1,400	4,000	62,000	25,000
1,500	4,000	62,000	27,000
1,590	4,000	62,000	29,000
1,600	4,000	62,000	29,000
1,700	4,000	70,000	31,000
1,800	4,000	70,000	32,000
1,900	4,000	70,000	34,000
1,980	4,000	70,000	36,000
2,000	4,000	70,000	36,000
2,100	4,000	78,000	38,000
2,200	4,000	78,000	40,000
2,300	4,000	78,000	42,000

d1	d2 h6	l1	l2
mm	mm	mm	mm
2,380	4,000	78,000	44,000
2,400	4,000	78,000	44,000
2,500	4,000	78,000	45,000
2,600	4,000	87,000	47,000
2,700	4,000	87,000	48,000
2,780	4,000	87,000	50,000
2,800	4,000	87,000	50,000
2,900	4,000	87,000	52,000
3,000	4,000	87,000	54,000

BROCAS DE CENTRAR / BROCAS DE PUNTEAR NC



P	M	K	N	S	H	Presentación de herramientas	Forma del mango	Norma	Forma	Dirección de corte	Material de corte	Acabado	d1/mm	Artículo Nº	Cond. de corte pág.	Página
Brocas de centrar sin plano																
●	○	●	●	○			Cyl	DIN 333	A	R	HSS	○	0,500 - 12,500	581	802	668
●	○	●	●	○			Cyl	DIN 333	A	R	HSS	S	0,500 - 8,000	613	802	669
●	○	●	●	○			Cyl	DIN 333	A	L	HSS	○	0,500 - 12,500	582		670
●	○	●	●	○			Cyl	DIN 333	A	R	HSS	○	1,000 - 12,500	590		671
●	○	●	●	○			Cyl	DIN 333	R	R	HSS	○	0,500 - 12,500	583	802	672
●	○	●	●	○			Cyl	DIN 333	R	R	HSS	S	0,800 - 8,000	614	802	673
●	○	●	●	○			Cyl	DIN 333	R	L	HSS	○	0,800 - 5,000	584		674
●	○	●	●	○			Cyl	DIN 333	B	R	HSS	○	1,000 - 10,000	585	802	675
●	○	●	●	○			Cyl	DIN 333	B	L	HSS	○	1,000 - 10,000	586		676
●	○	●	●	○			Cyl	DIN 333	B	R	HSS	○	1,000 - 6,300	591		677
●	○	●	●	○			Cyl	ASME B94.11 M	A	R	HSS	○	1,190 - 7,940	594		678
●	○	●	●	○			Cyl	ASME B94.11 M	B	R	HSS	○	1,190 - 6,350	595		679
●	○	●	●	○			Cyl	BS 328	A	R	HSS	○	1,190 - 7,940	292	802	680
●	○	●	●	○			Cyl	BS 328	A	L	HSS	○	1,190 - 7,940	294		681
●	●	●	●	○			Cyl	DIN 333	A	R	HSCO	○	1,000 - 4,000	381	802	682
○	○	○	○	○	○		Cyl	WN	A	R	VHM	○	0,500 - 6,300	736		683
●	○	●	●	○			Cyl	WN	A	R	HSS	○	0,500 - 10,000	281		684
●	○	●	●	○			Cyl	WN	A	L	HSS	○	0,800 - 5,000	282		685
●	○	●	●	○			Cyl	WN	R	R	HSS	○	0,500 - 10,000	283		686
●	○	●	●	○			Cyl	WN	R	L	HSS	○	1,600 - 4,000	284		687
●	○	●	●	○			Cyl	WN	B	R	HSS	○	1,000 - 6,300	285		688
●	○	●	●	○			Cyl	WN	A	R	HSS	○	1,000 - 3,150	280	802	689
Brocas de centrar con plano																
●	○	●	●	○			Cyl	DIN 333	A	R	HSS	○	1,600 - 10,000	587	802	690

P	M	K	N	S	H	Presentación de herramientas	Forma del mango	Norma	Forma	Dirección de corte	Material de corte	Acabado	d1/mm	Artículo Nº	Cond. de corte pág.	Página
Brocas de centrar con plano																
●	○	●	●	○			Cyl	DIN 333	R	R	HSS	○	1,000 - 10,000	588	802	691
●	○	●	●	○			Cyl	DIN 333	B	R	HSS	○	1,600 - 8,000	589		692
●	○	●	●	○			Cyl	DIN 333	A	R	HSS	○	1,600 - 10,000	287		693
●	○	●	●	○			Cyl	DIN 333	R	R	HSS	○	2,000 - 8,000	288		694
●	○	●	●	○			Cyl	WN	B	R	HSS	○	1,600 - 5,000	289		695
Brocas de puntear NC 90°																
●	○	●	●	○			Cyl	WN		R	HSS	○	3,000 - 25,400	557	798	696
●	○	●	●	○			Cyl	WN		R	HSS	S	3,000 - 25,400	568	798	697
●	●	●	●	○			B	WN		R	HSCO	○	3,000 - 20,000	1136	798	698
●	●	●	●	○			B	WN		R	HSCO	F	3,000 - 20,000	1133	798	699
●	○	●	●	○			Cyl	WN		R	HSS	○	6,350 - 25,400	559	798	700
○	○	○	○	○	○		Cyl	WN		R	VHM	○	4,000 - 20,000	723		701
Brocas de puntear NC 120°																
●	○	●	●	○			Cyl	WN		R	HSS	○	3,000 - 25,400	556	798	702
●	○	●	●	○			Cyl	WN		R	HSS	S	3,000 - 25,000	567	798	703
●	●	●	●	○			B	WN		R	HSCO	○	3,000 - 20,000	1134	798	704
●	●	●	●	○			B	WN		R	HSCO	F	3,000 - 20,000	1135	798	705
○	○	○	○	○	○		HA	WN		R	VHM	○	5,000 - 20,000	724		706
Brocas de puntear NC 142°																
○	○	○	○	○	○		HB	WN		R	VHM	○	4,000 - 20,000	546		707
Brocas para carroceria																
●	○	●	●	○			Cyl	WN		R	HSS	>Ø 2,36	1,500 - 10,000	554		708

Brocas de centrar sin plano

DIN 333 | A | N | 118°

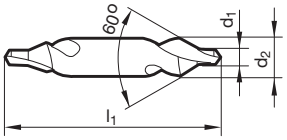
Material de corte	HSS
Acabado	○
Dirección de corte	®

P	•
M	○
K	•
N	•
S	○
H	

vaciado de punta ≥Ø 2,000 • entrada cónica • sin avellanado de protección • para centrajes según DIN 332 parte 1, forma A • d1≤0,8 mm: con una punta

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 802



Artículo N° **581**

d1	d2	l1
mm	mm	mm
0,500	3,150	25,000
0,800	3,150	25,000
1,000	3,150	31,500
1,250	3,150	31,500
1,600	4,000	35,500
2,000	5,000	40,000
2,500	6,300	45,000
3,150	8,000	50,000
4,000	10,000	56,000
5,000	12,500	63,000
6,300	16,000	71,000
8,000	20,000	80,000

d1	d2	l1
mm	mm	mm
10,000	25,000	100,000
12,500	31,500	125,000

Brocas de centrar sin plano

DIN 333 | A | N | 118°

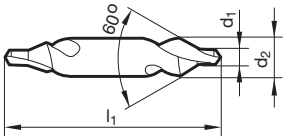
Material de corte	HSS
Acabado	S
Dirección de corte	R

P	•
M	○
K	•
N	•
S	○
H	

vaciado de punta ≥Ø 2,000 • entrada cónica • sin avellanado de protección • para centrajes según DIN 332 parte 1, forma A • d1≤0,8 mm: con una punta • más resistencia al desgaste

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 802



Artículo N° **613**

d1	d2	l1
mm	mm	mm
0,500	3,150	25,000
0,800	3,150	25,000
1,000	3,150	31,500
1,250	3,150	31,500
1,600	4,000	35,500
2,000	5,000	40,000

d1	d2	l1
mm	mm	mm
2,500	6,300	45,000
3,150	8,000	50,000
4,000	10,000	56,000
5,000	12,500	63,000
6,300	16,000	71,000
8,000	20,000	80,000

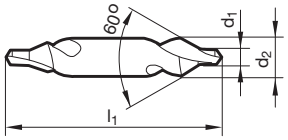
Brocas de centrar sin plano

DIN 333 | A | N | 118°

Material de corte	HSS
Acabado	○
Dirección de corte	L

P	•
M	○
K	•
N	•
S	○
H	

vaciado de punta ≥Ø 2,000 • entrada cónica • sin avellanado de protección • para centrajes según DIN 332 parte 1, forma A • d1≤0,8 mm: con una punta



Artículo N° **582**

d1	d2	l1
mm	mm	mm
0,500	3,150	25,000
0,800	3,150	25,000
1,000	3,150	31,500
1,250	3,150	31,500
1,600	4,000	35,500
2,000	5,000	40,000
2,500	6,300	45,000
3,150	8,000	50,000
4,000	10,000	56,000
5,000	12,500	63,000
6,300	16,000	71,000
8,000	20,000	80,000

d1	d2	l1
mm	mm	mm
10,000	25,000	100,000
12,500	31,500	125,000

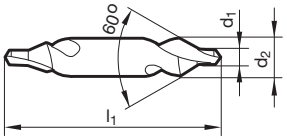
Brocas de centrar sin plano

DIN 333 | A | N | 118°

Material de corte	HSS
Acabado	○
Dirección de corte	Ⓡ

P	•
M	○
K	•
N	•
S	○
H	

vaciado de punta ≥Ø 2,000 • entrada cónica • con refuerzo contra roturas • sin avellanado de protección • hendidura en el paso de avellanado a taladrado para más alojamiento de lubricante • para centrajes según DIN 332 parte 1, forma A



Artículo N° **590**

d1	d2	l1
mm	mm	mm
1,000	3,150	31,500
1,250	3,150	31,500
1,600	4,000	35,500
2,000	5,000	40,000
2,500	6,300	45,000
3,150	8,000	50,000

d1	d2	l1
mm	mm	mm
4,000	10,000	56,000
5,000	12,500	63,000
6,300	16,000	71,000
8,000	20,000	80,000
10,000	25,000	100,000
12,500	31,500	125,000

Brocas de centrar sin plano

DIN 333 | R | N | 118°

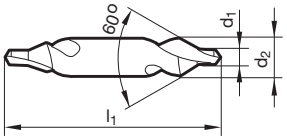
Material de corte	HSS
Acabado	○
Dirección de corte	R

P	•
M	○
K	•
N	•
S	○
H	

vaciado de punta ≥Ø 2,000 • entrada cónica • alineación correcta de las puntas de los granos • para taladros de centrado según DIN 332 Parte 1, Forma R • d1≤0,8 mm: con una punta

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 802



Artículo N° **583**

d1	d2	l1
mm	mm	mm
0,500	3,150	25,000
0,800	3,150	25,000
1,000	3,150	31,500
1,250	3,150	31,500
1,600	4,000	35,500
2,000	5,000	40,000
2,500	6,300	45,000
3,150	8,000	50,000
4,000	10,000	56,000
5,000	12,500	63,000
6,300	16,000	71,000
8,000	20,000	80,000

d1	d2	l1
mm	mm	mm
10,000	25,000	100,000
12,500	31,500	125,000

Brocas de centrar sin plano

DIN 333 | R | N | 118°

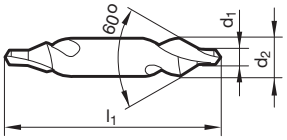
Material de corte	HSS
Acabado	S
Dirección de corte	R

P	•
M	○
K	•
N	•
S	○
H	

vaciado de punta ≥Ø 2,000 • entrada cónica • más resistencia al desgaste • alineación correcta de las puntas de los granos • para taladros de centrado según DIN 332 Parte 1, Forma R • d1≤0,8 mm: con una punta

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 802



Artículo N° **614**

d1	d2	l1
mm	mm	mm
0,800	3,150	25,000
1,000	3,150	31,500
1,250	3,150	31,500
1,600	4,000	35,500
2,000	5,000	40,000
2,500	6,300	45,000

d1	d2	l1
mm	mm	mm
3,150	8,000	50,000
4,000	10,000	56,000
5,000	12,500	63,000
6,300	16,000	71,000
8,000	20,000	80,000

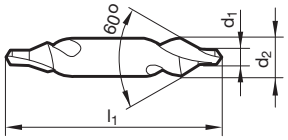
Brocas de centrar sin plano

DIN 333 | R | N | 118°

Material de corte	HSS
Acabado	○
Dirección de corte	L

P	•
M	○
K	•
N	•
S	○
H	

vaciado de punta ≥Ø 2,000 • entrada cónica • alineación correcta de las puntas de los granos • para taladros de centrado según DIN 332 Parte 1, Forma R • d1≤0,8 mm: con una punta



Artículo N° **584**

d1	d2	l1
mm	mm	mm
0,800	3,150	25,000
1,000	3,150	31,500
1,250	3,150	31,500
1,600	4,000	35,500
2,000	5,000	40,000
2,500	6,300	45,000

d1	d2	l1
mm	mm	mm
3,150	8,000	50,000
4,000	10,000	56,000
5,000	12,500	63,000

Brocas de centrar sin plano

DIN 333 | B | N | 118°

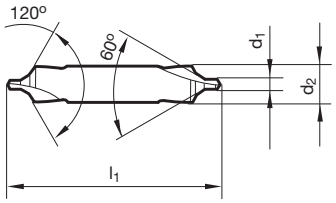
Material de corte	HSS
Acabado	○
Dirección de corte	Ⓡ

P	•
M	○
K	•
N	•
S	○
H	

vaciado de punta ≥Ø 2,000 • entrada cónica • según DIN 332, página 1, forma B • con avellanado de protección 120°

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 802



Artículo N° **585**

d1	d2	l1
mm	mm	mm
1,000	4,000	35,500
1,250	5,000	40,000
1,600	6,300	45,000
2,000	8,000	50,000
2,500	10,000	56,000
3,150	11,200	60,000

d1	d2	l1
mm	mm	mm
4,000	14,000	67,000
5,000	18,000	75,000
6,300	20,000	80,000
8,000	25,000	100,000
10,000	31,500	125,000

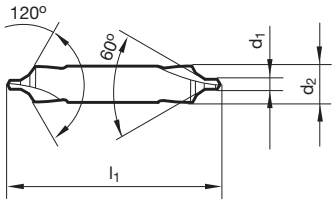
Brocas de centrar sin plano

DIN 333 | B | N | 118°

Material de corte	HSS
Acabado	○
Dirección de corte	L

P	•
M	○
K	•
N	•
S	○
H	

vaciado de punta ≥Ø 2,000 • entrada cónica • según DIN 332, página 1, forma B • con avellanado de protección 120°



Artículo N° **586**

d1	d2	l1
mm	mm	mm
1,000	4,000	35,500
1,250	5,000	40,000
1,600	6,300	45,000
2,000	8,000	50,000
2,500	10,000	56,000
3,150	11,200	60,000

d1	d2	l1
mm	mm	mm
4,000	14,000	67,000
5,000	18,000	75,000
6,300	20,000	80,000
8,000	25,000	100,000
10,000	31,500	125,000

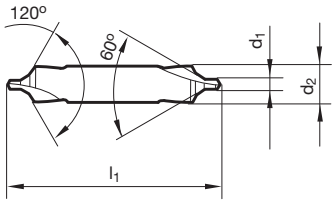
Brocas de centrar sin plano

DIN 333 | B | N | 118°

Material de corte	HSS
Acabado	○
Dirección de corte	Ⓡ

P	•
M	○
K	•
N	•
S	○
H	

vaciado de punta ≥Ø 2,000 • entrada cónica • con refuerzo contra roturas • hendidura en el paso de avellanado a taladrado para más alojamiento de lubricante • según DIN 332, página 1, forma B • con avellanado de protección 120°



Artículo N° **591**

d1	d2	l1
mm	mm	mm
1,000	4,000	35,500
1,600	6,300	45,000
2,000	8,000	50,000
2,500	10,000	56,000
3,150	11,200	60,000
4,000	14,000	67,000

d1	d2	l1
mm	mm	mm
5,000	18,000	75,000
6,300	20,000	80,000

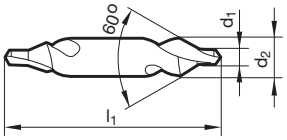
Brocas de centrar sin plano

ASME B94.11 M | A | N | 118°

Material de corte	HSS
Acabado	○
Dirección de corte	R

P	•
M	○
K	•
N	•
S	○
H	

vaciado de punta ≥Ø 1,980 • entrada cónica • forma A según norma americana para taladros de centraje



Artículo N° **594**

Tamaño	d1		d2	l1	Código N°
	mm	inch	mm	mm	
1	1,190	3/64	3,170	32,000	1,190
2	1,980	5/64	4,760	48,000	1,980
3	2,780	7/64	6,350	51,000	2,780
4	3,170	1/8	7,940	54,000	3,170
5	4,760	3/16	11,110	70,000	4,760
6	5,560	7/32	12,700	76,000	5,560

Tamaño	d1		d2	l1	Código N°
	mm	inch	mm	mm	
7	6,350	1/4	15,870	83,000	6,350
8	7,940	5/16	19,050	89,000	7,940

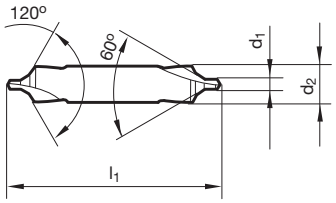
Brocas de centrar sin plano

ASME B94.11 M | B | N | 118°

Material de corte	HSS
Acabado	○
Dirección de corte	R

P	•
M	○
K	•
N	•
S	○
H	

vaciado de punta ≥Ø 2,380 • entrada cónica • forma B según norma americana para taladros de centraje



Artículo N° **595**

Tamaño	d1		d2	l1	Código N°
	mm	inch	mm	mm	
11	1,190	3/64	3,170	32,000	1,190
12	1,590	1/16	4,760	48,000	1,590
13	2,380	3/32	6,350	51,000	2,380
14	2,780	7/64	7,940	54,000	2,780
15	3,970	5/32	11,110	70,000	3,970
16	4,760	3/16	12,700	76,000	4,760

Tamaño	d1		d2	l1	Código N°
	mm	inch	mm	mm	
17	5,560	7/32	15,870	83,000	5,560
18	6,350	1/4	19,050	89,000	6,350

Brocas de centrar sin plano

BS 328 | A | N | 118°

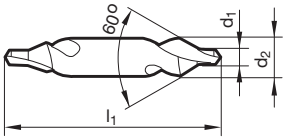
Material de corte	HSS
Acabado	○
Dirección de corte	R

P	•
M	○
K	•
N	•
S	○
H	

vaciado de punta ≥Ø 1,190 • entrada cónica • forma A según norma británica para taladros de centraje

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 802



Artículo N° **292**

Tamaño	d1		d2	l1	Código N°
	mm	inch	mm	mm	
1	1,190	3/64	3,170	38,000	1,190
2	1,590	1/16	4,760	44,000	1,590
3	2,380	3/32	6,350	51,000	2,380
4	3,170	1/8	7,940	57,000	3,170
5	4,760	3/16	11,110	63,000	4,760
6	6,350	1/4	15,870	76,000	6,350

Tamaño	d1		d2	l1	Código N°
	mm	inch	mm	mm	
7	7,940	5/16	19,050	89,000	7,940

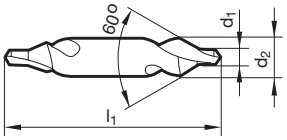
Brocas de centrar sin plano

BS 328 | A | N | 118°

Material de corte	HSS
Acabado	○
Dirección de corte	L

P	•
M	○
K	•
N	•
S	○
H	

vaciado de punta ≥Ø 1,190 • entrada cónica • forma A según norma británica para taladros de centraje



Artículo N° **294**

Tamaño	d1		d2	l1	Código N°
	mm	inch	mm	mm	
1	1,190	3/64	3,170	38,000	1,190
2	1,590	1/16	4,760	44,000	1,590
3	2,380	3/32	6,350	51,000	2,380
4	3,170	1/8	7,940	57,000	3,170
5	4,760	3/16	11,110	63,000	4,760
6	6,350	1/4	15,870	76,000	6,350

Tamaño	d1		d2	l1	Código N°
	mm	inch	mm	mm	
7	7,940	5/16	19,050	89,000	7,940

Brocas de centrar sin plano

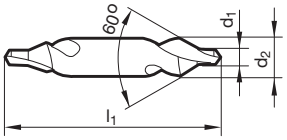
DIN 333 | A | N | 118°

Material de corte	HSCO
Acabado	◯
Dirección de corte	Ⓡ

P	•	vaciado de punta ≥Ø 2,000 • entrada cónica • sin avellanado de protección • más resistencia al desgaste • para centrajes según DIN 332 parte 1, forma A
M	•	
K	•	
N	•	materiales con una dureza superior a 800 N/mm² • aceros inox y resistentes al ácido y al calor, aceros CrNi
S	○	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 802



Artículo N° **381**

d1	d2	l1
mm	mm	mm
1,000	3,150	31,500
1,250	3,150	31,500
1,600	4,000	35,500
2,000	5,000	40,000
2,500	6,300	45,000
3,150	8,000	50,000

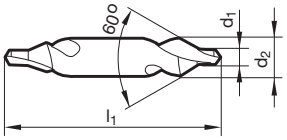
d1	d2	l1
mm	mm	mm
4,000	10,000	56,000

Brocas de centrar sin plano

WN | A | N | 118°

Material de corte	**Metal duro**
Acabado	◯
Dirección de corte	Ⓡ

P	○	vaciado de punta ≥Ø 2,000 • entrada cónica • sin avellanado de protección • para centrajes según DIN 332 parte 1, forma A • d1≤0,8 mm: con una punta
M	○	
K	○	
N	○	el tipo de material universales
S	○	
H	○	



Artículo N° **736**

d1	d2	l1
mm	mm	mm
0,500	3,150	25,000
0,800	3,150	25,000
1,000	3,150	31,500
1,250	3,150	31,500
1,600	4,000	35,500
2,000	5,000	40,000

d1	d2	l1
mm	mm	mm
2,500	6,300	45,000
3,150	8,000	50,000
4,000	10,000	56,000
5,000	12,500	63,000
6,300	16,000	71,000

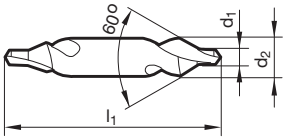
Brocas de centrar sin plano

WN | A | N | 118°

Material de corte	HSS
Acabado	○
Dirección de corte	Ⓡ

P	•
M	○
K	•
N	•
S	○
H	

vaciado de punta ≥Ø 2,000 • entrada cónica • sin avellanado de protección • para taladros de centrado según DIN 332, hoja 1 (edición 09,1960x retrocedida), Forma A • d1≤0,8 mm: con una punta



Artículo N° **281**

d1	d2	l1
mm	mm	mm
0,500	3,150	25,000
1,000	3,150	31,500
1,250	4,000	35,500
1,600	5,000	40,000
2,000	6,300	45,000
2,500	8,000	50,000

d1	d2	l1
mm	mm	mm
3,150	10,000	56,000
4,000	12,500	63,000
5,000	16,000	71,000
6,300	20,000	80,000
8,000	25,000	100,000
10,000	31,500	125,000

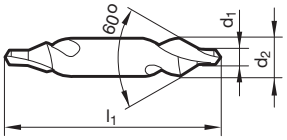
Brocas de centrar sin plano

WN | A | N | 118°

Material de corte	HSS
Acabado	○
Dirección de corte	L

P	•
M	○
K	•
N	•
S	○
H	

vaciado de punta ≥Ø 2,000 • entrada cónica • sin avellanado de protección • para taladros de centrado según DIN 332, hoja 1 (edición 09,1960x retrocedida), Forma A • d1≤0,8 mm: con una punta



Artículo N° **282**

d1	d2	l1
mm	mm	mm
0,800	3,150	25,000
1,250	4,000	35,500
1,600	5,000	40,000
2,000	6,300	45,000
2,500	8,000	50,000
3,150	10,000	56,000

d1	d2	l1
mm	mm	mm
4,000	12,500	63,000
5,000	16,000	71,000

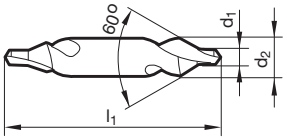
Brocas de centrar sin plano

WN | R | N | 118°

Material de corte	HSS
Acabado	○
Dirección de corte	Ⓡ

P	•
M	○
K	•
N	•
S	○
H	

vaciado de punta ≥Ø 2,000 • entrada cónica • alineación correcta de las puntas de los granos • para centrajes según DIN 332, página 1, forma R (edición 09,1968) • d1≤0,8 mm: con una punta



Artículo N° **283**

d1	d2	l1
mm	mm	mm
0,500	3,150	25,000
0,800	3,150	25,000
1,000	3,150	31,500
1,250	4,000	35,500
1,600	5,000	40,000
2,000	6,300	45,000
2,500	8,000	50,000
3,150	10,000	56,000
4,000	12,500	63,000
5,000	16,000	71,000
6,300	20,000	80,000
8,000	25,000	100,000

d1	d2	l1
mm	mm	mm
10,000	31,500	125,000

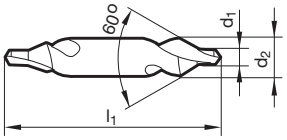
Brocas de centrar sin plano

WN | R | N | 118°

Material de corte	HSS
Acabado	○
Dirección de corte	L

P	•
M	○
K	•
N	•
S	○
H	

vaciado de punta ≥Ø 2,000 • entrada cónica • alineación correcta de las puntas de los granos • para centrajes según DIN 332, página 1, forma R (edición 09,1968)



Artículo N° **284**

d1	d2	l1
mm	mm	mm
1,600	5,000	40,000
2,000	6,300	45,000
2,500	8,000	50,000
3,150	10,000	56,000
4,000	12,500	63,000

d1	d2	l1
mm	mm	mm

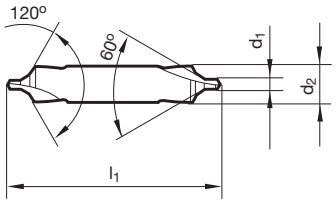
Brocas de centrar sin plano

WN | B | N | 118°

Material de corte	HSS
Acabado	○
Dirección de corte	R

P	•
M	○
K	•
N	•
S	○
H	

vaciado de punta ≥Ø 2,000 • entrada cónica • para taladros de centrado según DIN 332, hoja 1 (edición 09,1960x retrocedida), Forma B • con avellanado de protección 120°



Artículo N° **285**

d1	d2	l1
mm	mm	mm
1,000	6,300	40,000
1,600	8,000	50,000
2,000	10,000	56,000
2,500	11,200	63,000
3,150	14,000	71,000
4,000	16,000	80,000

d1	d2	l1
mm	mm	mm
5,000	20,000	90,000
6,300	25,000	100,000

Brocas de centrar sin plano

WN | A | N | 118°

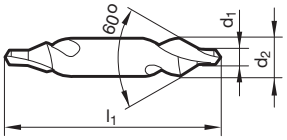
Material de corte	HSS
Acabado	○
Dirección de corte	Ⓡ

P	•
M	○
K	•
N	•
S	○
H	

vaciado de punta ≥Ø 2,000 • entrada cónica • brocas de centrar, extra largas • sin avellanado de protección • para taladros de centrar similares DIN 332 Hoja 1, Forma A • para puntos de centrar situados más bajos

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 802



Artículo N° **280**

d1	d2	l1
mm	mm	mm
1,000	4,000	120,000
1,600	5,000	120,000
2,000	6,000	120,000
2,500	8,000	120,000
3,150	10,000	120,000

d1	d2	l1
mm	mm	mm

Brocas de centrar con plano

DIN 333 | A | N | 118°

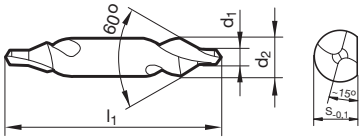
Material de corte	HSS
Acabado	○
Dirección de corte	R

P	•
M	○
K	•
N	•
S	○
H	

vaciado de punta ≥Ø 2,000 • entrada cónica • para centrajes según DIN 332 parte 1, forma A • sin avellanado de protección

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 802



Artículo N° **587**

d1	d2	l1	S
mm	mm	mm	mm
1,600	4,000	35,500	3,250
2,000	5,000	40,000	4,200
2,500	6,300	45,000	5,350
3,150	8,000	50,000	6,950
4,000	10,000	56,000	8,400
5,000	12,500	63,000	10,950

d1	d2	l1	S
mm	mm	mm	mm
6,300	16,000	71,000	14,000
8,000	20,000	80,000	17,900
10,000	25,000	100,000	22,500

Brocas de centrar con plano

DIN 333 | R | N | 118°

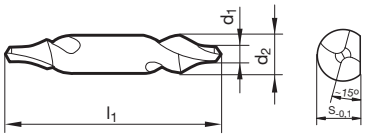
Material de corte	HSS
Acabado	○
Dirección de corte	R

P	•
M	○
K	•
N	•
S	○
H	

vaciado de punta ≥Ø 2,000 • entrada cónica • alineación correcta de las puntas de los granos • para taladros de centrado según DIN 332 Parte 1, Forma R

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 802



Artículo N° **588**

d1	d2	l1	S
mm	mm	mm	mm
1,000	3,150	31,500	2,350
2,000	5,000	40,000	4,200
2,500	6,300	45,000	5,350
3,150	8,000	50,000	6,950
4,000	10,000	56,000	8,400
5,000	12,500	63,000	10,950

d1	d2	l1	S
mm	mm	mm	mm
6,300	16,000	71,000	14,000
8,000	20,000	80,000	17,900
10,000	25,000	100,000	22,500

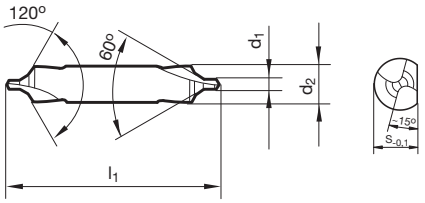
Brocas de centrar con plano

DIN 333 | B | N | 118°

Material de corte	HSS
Acabado	○
Dirección de corte	R

P	•
M	○
K	•
N	•
S	○
H	

vaciado de punta ≥Ø 2,000 • entrada cónica • según DIN 332, página 1, forma B • con avellanado de protección 120°



Artículo N° **589**

d1	d2	l1	S
mm	mm	mm	mm
1,600	6,300	45,000	5,350
2,000	8,000	50,000	6,950
2,500	10,000	56,000	8,400
3,150	11,200	60,000	10,000
4,000	14,000	67,000	12,650
5,000	18,000	75,000	16,400

d1	d2	l1	S
mm	mm	mm	mm
6,300	20,000	80,000	17,900
8,000	25,000	100,000	22,500

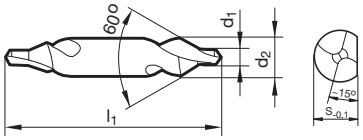
Brocas de centrar con plano

DIN 333 | A | N | 118°

Material de corte	HSS
Acabado	○
Dirección de corte	R

P	•
M	○
K	•
N	•
S	○
H	

vaciado de punta ≥Ø 2,000 • entrada cónica • sin avellanado de protección • para taladros de centrado según DIN 332, hoja 1 (edición 09,1960x retrocedida), Forma A



Artículo N° **287**

d1	d2	l1	S
mm	mm	mm	mm
1,600	5,000	40,000	4,200
2,000	6,300	45,000	5,350
2,500	8,000	50,000	6,850
3,150	10,000	56,000	8,400
4,000	12,500	63,000	10,650
5,000	16,000	71,000	13,650

d1	d2	l1	S
mm	mm	mm	mm
6,300	20,000	80,000	17,400
8,000	25,000	100,000	21,900
10,000	31,500	125,000	27,100

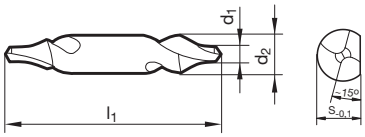
Brocas de centrar con plano

DIN 333 | R | N | 118°

Material de corte	HSS
Acabado	○
Dirección de corte	R

P	•
M	○
K	•
N	•
S	○
H	

vaciado de punta ≥Ø 2,000 • entrada cónica • alineación correcta de las puntas de los granos • para centrajes según DIN 332, página 1, forma R (edición 09,1968)



Artículo N° **288**

d1	d2	l1	S
mm	mm	mm	mm
2,000	6,300	45,000	5,350
2,500	8,000	50,000	6,850
3,150	10,000	56,000	8,400
4,000	12,500	63,000	10,650
5,000	16,000	71,000	13,650
6,300	20,000	80,000	17,400

d1	d2	l1	S
mm	mm	mm	mm
8,000	25,000	100,000	21,900

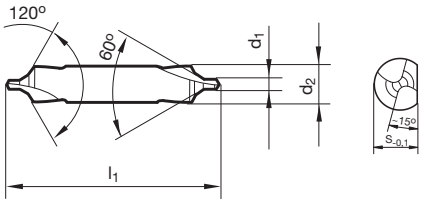
Brocas de centrar con plano

WN | B | N | 118°

Material de corte	HSS
Acabado	○
Dirección de corte	R

P	•
M	○
K	•
N	•
S	○
H	

vaciado de punta ≥Ø 2,000 • entrada cónica • para taladros de centrado según DIN 332, hoja 1 (edición 09,1960x retrocedida), Forma B • con avellanado de protección 120°



Artículo N° **289**

d1	d2	l1	S
mm	mm	mm	mm
1,600	8,000	50,000	6,500
2,000	10,000	56,000	7,950
2,500	11,200	63,000	9,500
3,150	14,000	71,000	12,000
4,000	16,000	80,000	14,400
5,000	20,000	90,000	18,400

d1	d2	l1	S
mm	mm	mm	mm

Brocas de puntear NC 90°

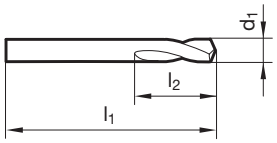
WN | N | 90° | h6

Material de corte	HSS
Acabado	○
Dirección de corte	Ⓡ

P	•	entrada cónica • solo para puntear
M	○	
K	•	
N	•	
S	○	
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 798



Artículo N° **557**

d1		l1	l2
mm	inch	mm	mm
3,000		46,000	12,000
4,000		55,000	12,000
5,000		62,000	14,000
6,000		66,000	16,000
6,350	1/4	70,000	17,000
8,000		79,000	21,000
9,000		84,000	22,000
9,520	3/8	89,000	25,000
10,000		89,000	25,000
12,000		102,000	30,000
12,700	1/2	102,000	30,000
13,000		102,000	30,000

d1		l1	l2
mm	inch	mm	mm
14,000		107,000	33,500
15,870	5/8	115,000	37,500
16,000		115,000	37,500
19,050	3/4	131,000	45,000
20,000		131,000	45,000
25,000	63/64	151,000	53,000
25,400	1	156,000	53,000

Brocas de puntear NC 90°

WN | N | 90° | h6

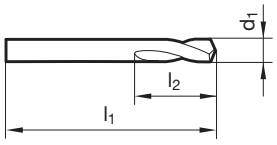
Material de corte	HSS
Acabado	S
Dirección de corte	R

P	•
M	○
K	•
N	•
S	○
H	

entrada cónica • solo para puntear

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 798



Artículo N° **568**

d1		l1	l2
mm	inch	mm	mm
3,000		46,000	12,000
4,000		55,000	12,000
5,000		62,000	14,000
6,000		66,000	16,000
6,350	1/4	70,000	17,000
8,000		79,000	21,000
9,520	3/8	89,000	25,000
10,000		89,000	25,000
12,000		102,000	30,000
12,700	1/2	102,000	30,000
15,870	5/8	115,000	37,500
16,000		115,000	37,500

d1		l1	l2
mm	inch	mm	mm
19,050	3/4	131,000	45,000
20,000		131,000	45,000
25,000	63/64	151,000	53,000
25,400	1	156,000	53,000

Brocas de puntear NC 90°

WN | N | 90° | h6

Material de corte	HSCO
Acabado	○
Dirección de corte	Ⓡ

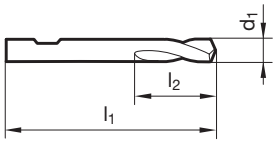
NEW

P	•
M	•
K	•
N	•
S	○
H	

entrada cónica • solo para puntear • ≥ Ø 6,0 mm con plano de arrastre según DIN 1835-B • acero rápido al cobalto • más resistencia al desgaste

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 798



Artículo N° **1136**

d1		l1	l2
mm	inch	mm	mm
3,000		46,000	12,000
4,000		55,000	12,000
5,000		62,000	14,000
6,000		66,000	16,000
8,000		79,000	21,000
10,000		89,000	25,000

d1		l1	l2
mm	inch	mm	mm
12,000		102,000	30,000
16,000		115,000	37,500
20,000		131,000	45,000

Brocas de puntear NC 90°

WN | N | 90° | h6

Material de corte	HSCO
Acabado	F
Dirección de corte	R

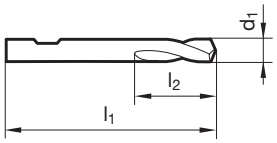
NEW

P	•
M	•
K	•
N	•
S	○
H	

entrada cónica • solo para puntear • ≥ Ø 6,0 mm con plano de arrastre según DIN 1835-B • acero rápido al cobalto • más resistencia al desgaste

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 798



Artículo N° **1133**

d1		l1	l2
mm	inch	mm	mm
3,000		46,000	12,000
4,000		55,000	12,000
5,000		62,000	14,000
6,000		66,000	16,000
8,000		79,000	21,000
10,000		89,000	25,000

d1		l1	l2
mm	inch	mm	mm
12,000		102,000	30,000
16,000		115,000	37,500
20,000		131,000	45,000

Brocas de puntear NC 90°

WN | N | 90° | h6

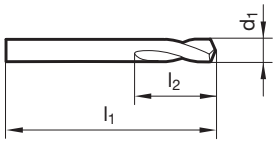
Material de corte	HSS
Acabado	○
Dirección de corte	Ⓡ

P	•
M	○
K	•
N	•
S	○
H	

entrada cónica • solo para puntear

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 798



Artículo N° **559**

d1		l1	l2
mm	inch	mm	mm
6,350	1/4	105,000	17,000
8,000		118,000	21,000
9,520	3/8	132,000	25,000
12,700	1/2	159,000	30,000
15,870	5/8	186,000	37,500
19,050	3/4	213,000	45,000

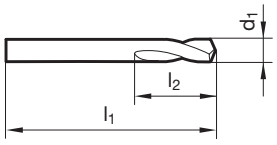
d1		l1	l2
mm	inch	mm	mm
25,400	1	216,000	53,000

Brocas de puntear NC 90°

WN | N | 90° | h6

Material de corte	**Metal duro**
Acabado	○
Dirección de corte	Ⓡ

P	○	vaciado de punta ≥Ø 6,000 • afilado plano • solo para puntear
M	○	
K	○	
N	○	el tipo de material universales
S	○	
H	○	



Artículo N° **723**

d1		l1	l2
mm	inch	mm	mm
4,000		55,000	12,000
5,000		62,000	14,000
6,000		66,000	16,000
6,350	1/4	70,000	17,000
8,000		79,000	21,000
9,520	3/8	89,000	25,000
10,000		89,000	25,000
12,000		102,000	30,000
12,700	1/2	102,000	30,000
15,870	5/8	115,000	37,500
16,000		115,000	37,500
19,050	3/4	131,000	45,000

d1		l1	l2
mm	inch	mm	mm
20,000		131,000	45,000

Brocas de puntear NC 120°

WN | N | 120° | h6

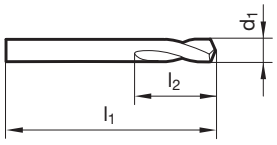
Material de corte	HSS
Acabado	○
Dirección de corte	Ⓡ

P	•
M	○
K	•
N	•
S	○
H	

entrada cónica • solo para puntear

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 798



Artículo N° **556**

d1		l1	l2
mm	inch	mm	mm
3,000		46,000	12,000
4,000		55,000	12,000
5,000		62,000	14,000
5,600		66,000	16,000
6,000		66,000	16,000
6,350	1/4	70,000	17,000
6,500		70,000	17,000
7,000		74,000	19,000
8,000		79,000	21,000
9,520	3/8	89,000	25,000
10,000		89,000	25,000
11,550		95,000	28,000

d1		l1	l2
mm	inch	mm	mm
12,000		102,000	30,000
12,700	1/2	102,000	30,000
14,000		107,000	33,500
15,000		111,000	33,500
15,870	5/8	115,000	37,500
16,000		115,000	37,500
19,000		127,000	40,000
19,050	3/4	131,000	45,000
20,000		131,000	45,000
25,000	63/64	151,000	53,000
25,400	1	156,000	53,000

Brocas de puntear NC 120°

WN | N | 120° | h6

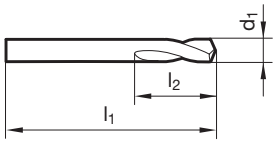
Material de corte	HSS
Acabado	S
Dirección de corte	R

P	•
M	○
K	•
N	•
S	○
H	

entrada cónica • solo para puntear

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 798



Artículo N° **567**

d1		l1	l2
mm	inch	mm	mm
3,000		46,000	12,000
4,000		55,000	12,000
5,000		62,000	14,000
6,000		66,000	16,000
6,350	1/4	70,000	17,000
8,000		79,000	21,000
9,520	3/8	89,000	25,000
10,000		89,000	25,000
12,000		102,000	30,000
12,700	1/2	102,000	30,000
15,870	5/8	115,000	37,500
16,000		115,000	37,500

d1		l1	l2
mm	inch	mm	mm
19,050	3/4	131,000	45,000
20,000		131,000	45,000
25,000	63/64	151,000	53,000

Brocas de puntear NC 120°

WN | N | 120° | h6

Material de corte	HSCO
Acabado	○
Dirección de corte	Ⓡ

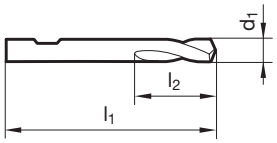
NEW

P	•
M	•
K	•
N	•
S	○
H	

entrada cónica • solo para puntear • ≥ Ø 6,0 mm con plano de arrastre según DIN 1835-B • acero rápido al cobalto • más resistencia al desgaste

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 798



Artículo N° **1134**

d1		l1	l2
mm	inch	mm	mm
3,000		46,000	12,000
4,000		55,000	12,000
5,000		62,000	14,000
6,000		66,000	16,000
8,000		79,000	21,000
10,000		89,000	25,000

d1		l1	l2
mm	inch	mm	mm
12,000		102,000	30,000
16,000		115,000	37,500
20,000		131,000	45,000

Brocas de puntear NC 120°

WN | N | 120° | h6

Material de corte	HSCO
Acabado	F
Dirección de corte	R

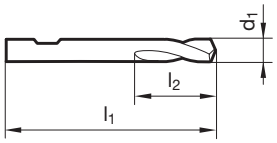
NEW

P	•
M	•
K	•
N	•
S	○
H	

entrada cónica • solo para puntear • ≥ Ø 6,0 mm con plano de arrastre según DIN 1835-B • acero rápido al cobalto • más resistencia al desgaste

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 798



Artículo N° **1135**

d1		l1	l2
mm	inch	mm	mm
3,000		46,000	12,000
4,000		55,000	12,000
5,000		62,000	14,000
6,000		66,000	16,000
8,000		79,000	21,000
10,000		89,000	25,000

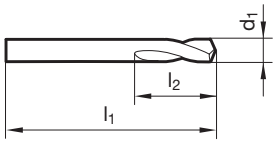
d1		l1	l2
mm	inch	mm	mm
12,000		102,000	30,000
16,000		115,000	37,500
20,000		131,000	45,000

Brocas de puntear NC 120°

WN | N | 120° | h6

Material de corte	**Metal duro**
Acabado	○
Dirección de corte	Ⓡ

P	○	vaciado de punta ≥Ø 13,500 • afilado plano • solo para puntear
M	○	
K	○	
N	○	el tipo de material universales
S	○	
H	○	



Artículo N° **724**

d1		l1	l2
mm	inch	mm	mm
5,000		62,000	14,000
6,000		66,000	16,000
6,350	1/4	70,000	17,000
8,000		79,000	21,000
9,520	3/8	89,000	25,000
10,000		89,000	25,000

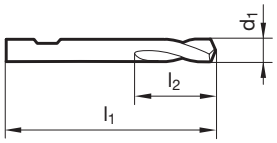
d1		l1	l2
mm	inch	mm	mm
12,000		102,000	30,000
12,700	1/2	102,000	30,000
15,870	5/8	115,000	37,500
16,000		115,000	37,500
19,050	3/4	131,000	45,000
20,000		131,000	45,000

Brocas de puntear NC 142°

WN | N | 142° | h6

Material de corte	**Metal duro**
Acabado	○
Dirección de corte	Ⓡ

P	○	afilado plano • solo para puntear • > diámetro 6,0mm con plano en mango, forma de mango HB
M	○	
K	○	
N	○	el tipo de material universales
S	○	
H	○	



Artículo N° **546**

d1		l1	l2
mm	inch	mm	mm
4,000		55,000	12,000
5,000		62,000	14,000
6,000		66,000	16,000
8,000		79,000	21,000
10,000		89,000	25,000
12,000		102,000	30,000

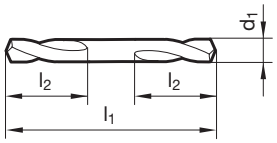
d1		l1	l2
mm	inch	mm	mm
16,000		115,000	37,500
20,000		131,000	45,000

Brocas para carroceria

WN | DK 77 | 118° | h8

Material de corte	HSS
Acabado	>Ø 2,36
Dirección de corte	R

P	•	vaciado de punta ≥Ø 1,450 • entrada cónica • para uso por los dos lados • en taladradoras de mano para carrocerias
M	○	
K	•	
N	•	secciones delgadas
S	○	
H		



Artículo N° **554**

d1	l1	l2
mm	mm	mm
1,500	32,000	6,000
1,900	36,000	7,100
2,000	38,000	7,500
2,100	38,000	7,500
2,200	40,000	8,500
2,300	40,000	8,500
2,400	43,000	9,500
2,450	43,000	9,500
2,500	43,000	9,500
2,600	43,000	9,500
2,700	46,000	10,600
2,780	46,000	10,600
2,800	46,000	10,600
2,900	46,000	10,600
3,000	46,000	10,600
3,050	49,000	11,200
3,100	49,000	11,200
3,170	49,000	11,200
3,200	49,000	11,200
3,260	49,000	11,200
3,300	49,000	11,200
3,500	52,000	12,500
3,570	52,000	12,500
3,600	52,000	12,500
3,650	52,000	12,500
3,700	52,000	12,500
3,800	55,000	14,000
3,970	55,000	14,000
4,000	55,000	14,000
4,100	55,000	14,000
4,200	55,000	14,000
4,300	58,000	15,500
4,500	58,000	15,500
4,600	58,000	15,500
4,760	62,000	17,000
4,800	62,000	17,000

d1	l1	l2
mm	mm	mm
4,900	62,000	17,000
5,000	62,000	17,000
5,100	62,000	17,000
5,200	62,000	17,000
5,300	62,000	17,000
5,400	66,000	19,000
5,500	66,000	19,000
5,560	66,000	19,000
5,600	66,000	19,000
5,800	66,000	19,000
5,900	66,000	19,000
5,950	66,000	19,000
6,000	66,000	19,000
6,100	70,000	21,200
6,350	70,000	21,200
6,500	70,000	21,200
6,800	74,000	23,600
7,000	74,000	23,600
7,100	74,000	23,600
7,500	74,000	23,600
7,940	79,000	25,000
8,000	79,000	25,000
8,500	79,000	25,000
8,600	84,000	25,000
9,000	84,000	25,000
9,500	84,000	25,000
9,520	89,000	25,000
10,000	89,000	25,000

GE 100

Sistemas de herramienta multifuncionales para el mecanizado de tubos y barras. ¡Combine hasta 5 trabajos con una sola herramienta!

Dos a cuatro portas en combinación con una broca de centrar o escalonada consiguen el mecanizado completo en segundos.

Encontrará mas información en nuestro catálogo GE100.

BROCAS ESCALONADAS / BROCAS ESCARIADORAS

P	M	K	N	S	H	Presentación de herramientas	Norma	Forma	Tipo	Dirección de corte	Material de corte	Acabado	d1/mm	Artículo Nº	Cond. de corte	Página pág.
Brocas escalonadas DIN 332																
●	○	●	●	○			WN	D	N	R	HSS	●	8,000 - 40,000	274	804	714
●	○	●	●	○			WN	DR	N	R	HSS	●	8,000 - 40,000	574	804	715
●	○	●	●	○			WN	D	N	R	HSS	●	8,000 - 20,000	575	804	716
●	○	●	●	○			WN	D	N	R	HSS	●	14,000 - 40,000	576	804	717
Brocas escalonadas cortas con mango cil.																
●	○	●	●	○			WN		N	R	HSS	○	6,000 - 19,000	378	804	718
●	○	●	●	○			WN		N	R	HSS	○	6,600 - 21,500	1147	804	719
●	○	●	●	○			WN		N	R	HSS	○	6,000 - 18,000	379	804	720
●	○	●	●	○			WN		N	R	HSS	○	3,400 - 13,500	380	804	721
Brocas bidiametrales cil.																
●	○	●	○				DIN 8374	A	N	R	HSS	●	6,000 - 15,000	536	806	722
●	○	●	○				DIN 8374	B	N	R	HSS	●	7,500 - 19,000	569	806	723
●	○	●	○				WN		N	R	HSS	●	6,600 - 17,200	636	806	724
●	○	●	○				WN		N	R	HSS	●	6,000 - 8,000	638	806	725
●	○	●	○				DIN 8376		N	R	HSS	●	6,000 - 18,000	538	806	726
○	○	○	○	○	○		WN		N	R	VHM	○	6,000 - 15,000	738		727
●	○	●	○				WN		N	R	HSS	●	5,900 - 17,500	514	806	728
●	○	●	○				DIN 8378		N	R	HSS	●	3,400 - 13,500	540	806	729
○	○	○	○	○	○		WN		N	R	VHM	○	4,500 - 11,000	739		730
Brocas bidiametrales, CM																
●	○	●	○				WN		N	R	HSS	●	11,500 - 23,000	637	806	731
●	○	●	○				WN		N	R	HSS	●	11,000 - 29,000	537	806	732
●	○	●	○				WN		N	R	HSS	●	18,000 - 26,000	639	806	733
●	○	●	○				DIN 8377		N	R	HSS	●	10,000 - 33,000	539	806	734
●	○	●	○				WN		N	R	HSS	●	9,400 - 33,000	520	806	735

P	M	K	N	S	H	Presentación de herramientas	Norma	Forma	Tipo	Dirección de corte	Material de corte	Acabado	d1/mm	Artículo Nº	Cond. de corte pág.	Página
Brocas bidiametrales, CM																
●	○	●	○				DIN 8379		N	R	HSS		9,000 - 22,000	541	806	736
Brocas escariadoras, cil.																
●	○	●	○				DIN 344		N	R	HSS		3,800 - 20,000	533	800	737
○	○	○	○	○	○		WN		N	R	HM		3,800 - 15,000	750		739
Brocas escariadoras, CM																
●	○	●	○				DIN 343		N	R	HSS		7,800 - 50,000	534	800	740
●	○	●	●	○			DIN 343		N	R	HSCO		8,500 - 26,000	634	800	742
●	○	●	○				DIN 1864		N	R	HSS		5,000 - 30,000	555	800	743
●	○	●	●	○			DIN 1864		N	R	HSCO		8,000 - 15,000	635	800	744
○	○	○	○	○	○		WN		N	R	HM		28,700 - 39,600	729		745
Brocas para pasadores cónicos																
●	○	●	○				DIN 1898		N	R	HSS	>Ø 2,36	2,000 - 12,000	531		746
●	○	●	○				DIN 1898		N	R	HSS		5,000 - 25,000	532		747

Brocas escalonadas DIN 332

WN | D | N | 118° | h7

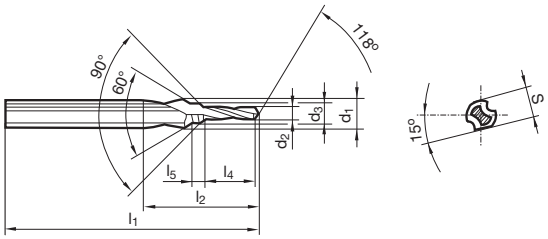
Material de corte	HSS
Acabado	
Dirección de corte	R

P	•
M	○
K	•
N	•
S	○
H	

vaciado de punta ≥Ø 8,000 • nota sobre el vaciado de la punta se refiere al diámetro nominal d1 • entrada cónica • con plano en el mango • ángulo 60° • para pretaladros de rosca según DIN 332, página 2, forma D • para maquinas de tronzar y centrar

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 804



Artículo N° **274**

d1 h7	d2 h8	d3	l1	l2	l4	l5	S	para rosca
mm	mm	mm	mm	mm	mm	mm	mm	
8,000	3,300	4,300	63,000	23,000	11,000	1,600	6,750	M 4
10,000	4,200	5,300	67,000	27,000	13,000	2,150	8,450	M 5
12,500	5,000	6,400	71,000	33,000	16,000	2,900	10,450	M 6
14,000	6,800	8,400	88,000	41,000	19,500	3,500	12,500	M 8
16,000	8,500	10,500	94,000	47,000	23,000	4,700	14,850	M10
20,000	10,200	13,000	105,000	59,000	28,000	6,500	18,450	M12
25,000	14,000	17,000	132,000	67,000	33,000	8,300	23,400	M16
31,500	17,500	21,000	145,000	76,500	38,000	10,350	29,350	M20
40,000	21,000	25,000	160,000	90,000	45,000	12,000	36,500	M24

Brocas escalonadas DIN 332

WN | DR | N | 118° | h7

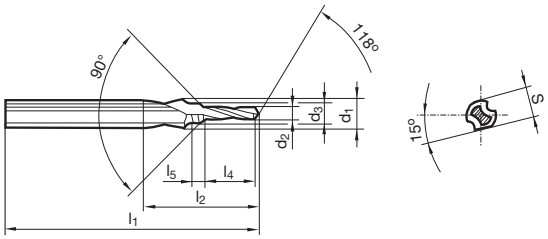
Material de corte	HSS
Acabado	
Dirección de corte	R

P	•
M	○
K	•
N	•
S	○
H	

vaciado de punta ≥Ø 8,000 • nota sobre el vaciado de la punta se refiere al diámetro nominal d1 • entrada cónica • con plano en el mango • ángulo 60° • según DIN 332, página 2, forma DR • para maquinas de tronzar y centrar

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 804



Artículo N° **574**

d1 h7	d2 h8	d3	l1	l2	l4	l5	S	para rosca
mm	mm	mm	mm	mm	mm	mm	mm	
8,000	3,300	4,300	63,000	23,000	11,000	1,600	6,750	M 4
10,000	4,200	5,300	67,000	27,000	13,000	2,150	8,450	M 5
12,500	5,000	6,400	71,000	33,000	16,000	2,900	10,450	M 6
14,000	6,800	8,400	88,000	41,000	19,500	3,500	12,500	M 8
16,000	8,500	10,500	94,000	47,000	23,000	4,700	14,850	M10
20,000	10,200	13,000	105,000	59,000	28,000	6,500	18,450	M12
25,000	14,000	17,000	132,000	67,000	33,000	8,300	23,400	M16
31,500	17,500	21,000	145,000	76,500	38,000	10,350	29,350	M20
40,000	21,000	25,000	160,000	90,000	45,000	12,000	36,500	M24

Brocas escalonadas DIN 332

WN | D | N | 118° | h7

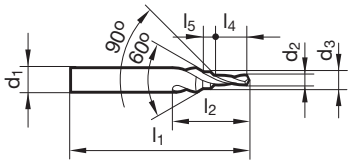
Material de corte	HSS
Acabado	
Dirección de corte	R

P	•
M	○
K	•
N	•
S	○
H	

vaciado de punta ≥Ø 8,000 • nota sobre el vaciado de la punta se refiere al diámetro nominal d1 • entrada cónica • ángulo 60° • para pretaladros de rosca según DIN 332, página 2, forma D

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 804



Artículo N° **575**

d1 h7	d2 h8	d3	l1	l2	l4	l5	para rosca
mm	mm	mm	mm	mm	mm	mm	
8,000	3,300	4,300	63,000	23,000	11,000	1,600	M 4
10,000	4,200	5,300	67,000	27,000	13,000	2,150	M 5
12,500	5,000	6,400	71,000	33,000	16,000	2,900	M 6
14,000	6,800	8,400	88,000	41,000	19,500	3,500	M 8
16,000	8,500	10,500	94,000	47,000	23,000	4,700	M10
20,000	10,200	13,000	105,000	59,000	28,000	6,500	M12

Brocas escalonadas DIN 332

WN | D | N | 118° | h7

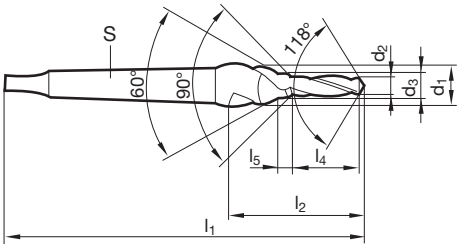
Material de corte	HSS
Acabado	
Dirección de corte	R

P	•
M	○
K	•
N	•
S	○
H	

vaciado de punta ≥Ø 14,000 • nota sobre el vaciado de la punta se refiere al diámetro nominal d1 • entrada cónica • ángulo 60° • para pretaladros de rosca según DIN 332, página 2, forma D

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 804



Artículo N° **576**

d1 h7	d2 h8	d3	l1	l2	l4	l5	para rosca
mm	mm	mm	mm	mm	mm	mm	
14,000	6,800	8,400	110,000	41,000	19,500	3,500	M 8
16,000	8,500	10,500	131,000	47,000	23,000	4,700	M10
20,000	10,200	13,000	145,000	59,000	28,000	6,500	M12
25,000	14,000	17,000	172,000	67,000	33,000	8,300	M16
31,500	17,500	21,000	184,000	76,500	38,000	10,350	M20
40,000	21,000	25,000	222,000	90,000	45,000	12,000	M24

Brocas escalonadas cortas con mango cil.

WN | N | 118° | h6

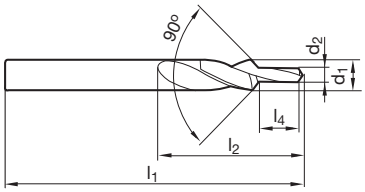
Material de corte	HSS
Acabado	○
Dirección de corte	R

P	•
M	○
K	•
N	•
S	○
H	

vaciado de punta ≥Ø 6,000 • nota sobre el vaciado de la punta se refiere al diámetro nominal d1 • entrada cónica • muy resistente a la torsión • para máquinas CNC y NC • para taladros pasantes según DIN EN 20273, serie fino • para avellanados de ocultación de cabez de tornillo 90° según DIN 74, Forma A • se rige por el dia. pequeño • vc se basa en el diámetro grande

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 804



Artículo N° **378**

d1	d2 h6	l1	l2	l4	para rosca
mm	mm	mm	mm	mm	
6,000	3,200	66,000	28,000	9,000	M 3
8,000	4,300	79,000	37,000	11,000	M 4
10,000	5,300	89,000	43,000	13,000	M 5
11,500	6,400	95,000	47,000	15,000	M 6
15,000	8,400	111,000	56,000	19,000	M 8
19,000	10,500	127,000	64,000	23,000	M 10

Brocas escalonadas cortas con mango cil.

WN | N | 118° | h6

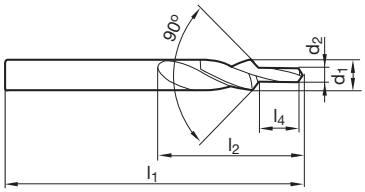
Material de corte	HSS
Acabado	○
Dirección de corte	R

P	•
M	○
K	•
N	•
S	○
H	

vaciado de punta ≥Ø 6,600 • nota sobre el vaciado de la punta se refiere al diámetro nominal d1 • entrada cónica • muy resistente a la torsión • para máquinas CNC y NC • para taladros pasantes según DIN EN 20273, fila medio • para avellanados de ocultación de cabez de tornillo 90° según DIN 74, Forma A • se rige por el dia. pequeño • vc se basa en el diámetro grande

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 804



Artículo N° **1147**

d1	d2 h6	l1	l2	l4	para rosca
mm	mm	mm	mm	mm	
6,600	3,400	70,000	31,000	9,000	M 3
9,000	4,500	84,000	40,000	11,000	M 4
11,000	5,500	95,000	47,000	13,000	M 5
13,000	6,600	102,000	51,000	15,000	M 6
17,200	9,000	123,000	62,000	19,000	M 8
21,500	11,000	141,000	70,000	23,000	M 10

Brocas escalonadas cortas con mango cil.

WN | N | 118° | h6

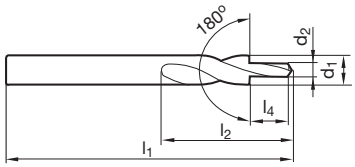
Material de corte	HSS
Acabado	○
Dirección de corte	R

P	•
M	○
K	•
N	•
S	○
H	

vaciado de punta ≥Ø 6,000 • nota sobre el vaciado de la punta se refiere al diámetro nominal d1 • entrada cónica • muy resistente a la torsión • para máquinas CNC y NC • para taladros pasantes según DIN EN 20273, fila medio • para avell. para cabeza de tornillos 180° según DIN 974-1 fila 1 • para tornillos según DIN 6912, 7984, 34821, DIN EN ISO 1207, 4762, 14579, 14580 • se rige por el dia. pequeño • vc se basa en el diámetro grande

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 804



Artículo N° **379**

d1	d2 h6	l1	l2	l4	para rosca
mm	mm	mm	mm	mm	
6,000	3,400	66,000	28,000	9,000	M 3
8,000	4,500	79,000	37,000	11,000	M 4
10,000	5,500	89,000	43,000	13,000	M 5
11,000	6,600	95,000	47,000	15,000	M 6
15,000	9,000	111,000	56,000	19,000	M 8
18,000	11,000	123,000	62,000	23,000	M 10

Brocas escalonadas cortas con mango cil.

WN | N | 118° | h6

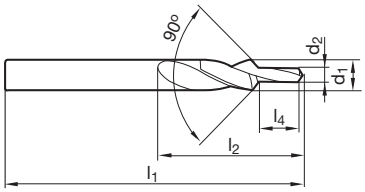
Material de corte	HSS
Acabado	○
Dirección de corte	R

P	•
M	○
K	•
N	•
S	○
H	

vaciado de punta ≥Ø 3,400 • nota sobre el vaciado de la punta se refiere al diámetro nominal d1 • entrada cónica • muy resistente a la torsión • para máquinas CNC y NC • para pretaladros de roscar según DIN 336 • para avellanados de desalojo 90° correspondientes a taladros pasantes según norma DIN EN 20273, serie medium • se rige por el dia. pequeño • vc se basa en el diámetro grande

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 804



Artículo N° **380**

d1	d2 h6	l1	l2	l4	para rosca
mm	mm	mm	mm	mm	
3,400	2,500	52,000	20,000	8,800	M 3
4,500	3,300	58,000	24,000	11,400	M 4
5,500	4,200	66,000	28,000	13,600	M 5
6,600	5,000	70,000	31,000	16,500	M 6
9,000	6,800	84,000	40,000	21,000	M 8
11,000	8,500	95,000	47,000	25,500	M 10
13,500	10,200	107,000	54,000	30,000	M 12

Brocas bidiametrales cil.

DIN 8374 | A | N | 118° | h8

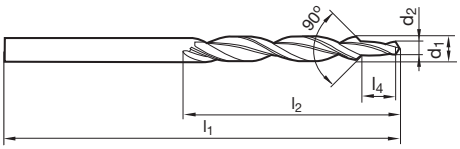
Material de corte	HSS
Acabado	
Dirección de corte	R

P	•
M	○
K	•
N	○
S	
H	

vaciado de punta ≥Ø 6,000 • nota sobre el vaciado de la punta se refiere al diámetro nominal d1 • entrada cónica • para taladros pasantes según DIN EN 20273, serie fino • para avell. para cabeza de tornillos 90° • se rige por el dia. pequeño • vc se basa en el diámetro grande

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 806



Artículo N° **536**

d1 h8	d2 h9	l1	l2	l4	para rosca
mm	mm	mm	mm	mm	
6,000	3,200	93,000	57,000	9,000	M 3
8,000	4,300	117,000	75,000	11,000	M 4
10,000	5,300	133,000	87,000	13,000	M 5
11,500	6,400	142,000	94,000	15,000	M 6
15,000	8,400	169,000	114,000	19,000	M 8

Brocas bidiametrales cil.

DIN 8374 | B | N | 118° | h8

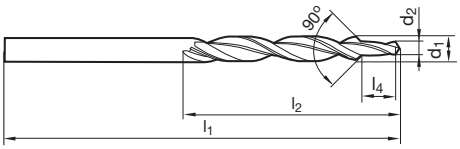
Material de corte	HSS
Acabado	
Dirección de corte	R

P	•
M	○
K	•
N	○
S	
H	

vaciado de punta ≥Ø 7,500 • nota sobre el vaciado de la punta se refiere al diámetro nominal d1 • entrada cónica • para taladros pasantes según DIN EN 20273, fila medio • para avellandos de cabeza de tornillo 90° según DIN 74, formas A y F • se rige por el dia. pequeño • vc se basa en el diámetro grande

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 806



Artículo N° **569**

d1 h8	d2 h9	l1	l2	l4	para rosca
mm	mm	mm	mm	mm	
7,500	3,400	109,000	69,000	9,000	M 3
9,700	4,500	133,000	87,000	11,000	M 4
12,000	5,500	151,000	101,000	13,000	M 5
14,500	6,600	169,000	114,000	15,000	M 6
19,000	9,000	198,000	135,000	19,000	M 8

Brocas bidiametrales cil.

WN | N | 118° | h8

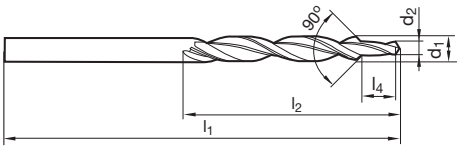
Material de corte	HSS
Acabado	●
Dirección de corte	R

P	●
M	○
K	●
N	○
S	
H	

vaciado de punta ≥Ø 6,600 • nota sobre el vaciado de la punta se refiere al diámetro nominal d1 • entrada cónica • para taladros pasantes según DIN EN 20273, fila medio • para avellandos de cabeza de tornillo 90° según DIN 74 parte 1 (edición 12,1980 retrocedida), formas A y B, versión media • se rige por el dia. pequeño • vc se basa en el diámetro grande

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 806



Artículo N° **636**

d1 h8	d2 h9	l1	l2	l4	para rosca
mm	mm	mm	mm	mm	
6,600	3,400	101,000	63,000	9,000	M 3
9,000	4,500	125,000	81,000	11,000	M 4
11,000	5,500	142,000	94,000	13,000	M 5
13,000	6,600	151,000	101,000	15,000	M 6
17,200	9,000	191,000	130,000	19,000	M 8

Brocas bidiametrales cil.

WN | N | 118° | h8

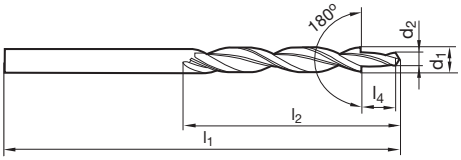
Material de corte	HSS
Acabado	●
Dirección de corte	R

P	●
M	○
K	●
N	○
S	
H	

vaciado de punta ≥Ø 6,000 • nota sobre el vaciado de la punta se refiere al diámetro nominal d1 • entrada cónica • para taladros pasantes según DIN EN 20273, serie fino • para avell. para cabeza de tornillos 180° según DIN 974-1 fila 1 • para tornilos según DIN 6912, 7513, 7984 • se rige por el dia. pequeño • vc se basa en el diámetro grande

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 806



Artículo N° **638**

d1 h8	d2 h9	l1	l2	l4	para rosca
mm	mm	mm	mm	mm	
6,000	3,200	93,000	57,000	9,000	M 3
8,000	4,300	117,000	75,000	11,000	M 4

Brocas bidiametrales cil.

DIN 8376 | N | 118° | h8

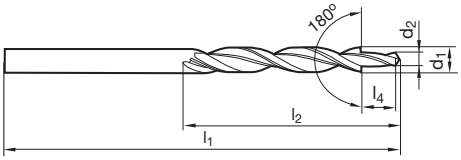
Material de corte	HSS
Acabado	
Dirección de corte	R

P	•
M	○
K	•
N	○
S	
H	

vaciado de punta ≥Ø 6,000 • nota sobre el vaciado de la punta se refiere al diámetro nominal d1 • entrada cónica • para taladros pasantes según DIN EN 20273, fila medio • para avell. para cabeza de tornillos 180° según DIN 974-1 fila 1 • para tornillos según DIN 6912, 7984, 34821, DIN EN ISO 1207, 4762, 14579, 14580 y DIN 7513, 7516, 7500-1 • se rige por el dia. pequeño • vc se basa en el diámetro grande

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 806



Artículo N° **538**

d1 h8	d2 h9	l1	l2	l4	para rosca
mm	mm	mm	mm	mm	
6,000	3,400	93,000	57,000	9,000	M 3
8,000	4,500	117,000	75,000	11,000	M 4
10,000	5,500	133,000	87,000	13,000	M 5
11,000	6,600	142,000	94,000	15,000	M 6
15,000	9,000	169,000	114,000	19,000	M 8
18,000	11,000	191,000	130,000	23,000	M 10

Brocas bidiametrales cil.

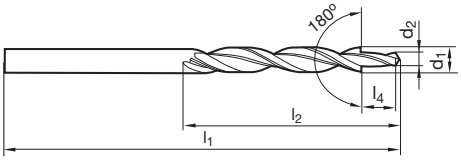
WN | N | 118° | h8

Material de corte	**Metal duro**
Acabado	○
Dirección de corte	R

P	○
M	○
K	○
N	○
S	○
H	○

vaciado de punta ≥Ø 6,000 • entrada cónica • para taladros pasantes según DIN EN 20273, fila medio • para avell. para cabeza de tornillos 180° según DIN 974-1 fila 1 • para tornilos según DIN 6912, 7513, 7984 • se rige por el dia. pequeño • vc se basa en el diámetro grande

el tipo de material universales



Artículo N°	738

d1 h8	d2 h9	l1	l2	l4	para rosca
mm	mm	mm	mm	mm	
6,000	3,400	93,000	57,000	9,000	M 3
8,000	4,500	117,000	75,000	11,000	M 4
10,000	5,500	133,000	87,000	13,000	M 5
11,000	6,600	142,000	94,000	15,000	M 6
15,000	9,000	169,000	114,000	19,000	M 8

Brocas bidiametrales cil.

WN | N | 118° | h8

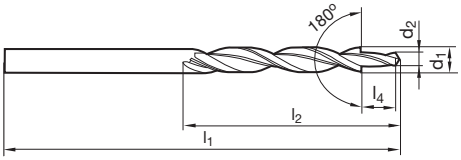
Material de corte	HSS
Acabado	
Dirección de corte	R

P	•
M	○
K	•
N	○
S	
H	

vaciado de punta ≥Ø 5,900 • nota sobre el vaciado de la punta se refiere al diámetro nominal d1 • entrada cónica • para taladros pasantes con avellanados viejos forma H, J, K según DIN 75 Parte 2 (Edición 04, 1968 retrocedida), versión media y fina • para tornillos según DIN 84, 912, 6912 • se rige por el dia. pequeño • vc se basa en el diámetro grande

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 806



Artículo N° **514**

d1 h8	d2 h9	l1	l2	l4	para rosca
mm	mm	mm	mm	mm	
5,900	3,200	93,000	57,000	11,000	M 3
7,400	4,300	109,000	69,000	13,000	M 4
8,000	4,800	117,000	75,000	13,000	M 4
9,400	5,300	125,000	81,000	16,000	M 5
10,000	5,800	133,000	87,000	16,000	M 5
10,400	6,400	133,000	87,000	19,000	M 6
11,000	7,000	142,000	94,000	19,000	M 6
13,500	8,400	160,000	108,000	22,000	M 8
16,500	10,500	184,000	125,000	25,000	M 10
17,500	11,500	191,000	130,000	25,000	M 10

Brocas bidiametrales cil.

DIN 8378 | N | 118° | h8

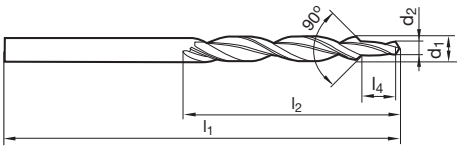
Material de corte	HSS
Acabado	
Dirección de corte	R

P	•
M	○
K	•
N	○
S	
H	

vaciado de punta ≥Ø 3,400 • nota sobre el vaciado de la punta se refiere al diámetro nominal d1 • entrada cónica • para pretaladros de roscar según DIN 336 • para avellanados de desalojo 90° correspondientes a taladros pasantes según norma DIN EN 20273, serie medium • se rige por el dia. pequeño • vc se basa en el diámetro grande

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 806



Artículo N° **540**

d1 h8	d2 h9	l1	l2	l4	para rosca
mm	mm	mm	mm	mm	
3,400	2,500	70,000	39,000	8,800	M 3
4,500	3,300	80,000	47,000	11,400	M 4
5,500	4,200	93,000	57,000	13,600	M 5
6,600	5,000	101,000	63,000	16,500	M 6
9,000	6,800	125,000	81,000	21,000	M 8
11,000	8,500	142,000	94,000	25,500	M 10
13,500	10,200	160,000	108,000	30,000	M 12

Brocas bidiametrales cil.

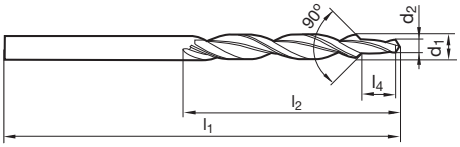
WN | N | 118° | h8

Material de corte	**Metal duro**
Acabado	○
Dirección de corte	R

P	○
M	○
K	○
N	○
S	○
H	○

vaciado de punta ≥Ø 4,500 • entrada cónica • para pretaladros de roscar según DIN 336 • para avellanados de desalojo 90º correspondientes a taladros pasantes según norma DIN EN 20273, serie medium • se rige por el dia. pequeño • vc se basa en el diámetro grande

el tipo de material universales



Artículo Nº **739**

d1 h8	d2 h9	l1	l2	l4	para rosca
mm	mm	mm	mm	mm	
4,500	3,300	80,000	47,000	11,400	M 4
5,500	4,200	93,000	57,000	13,600	M 5
6,600	5,000	101,000	63,000	16,500	M 6
9,000	6,800	125,000	81,000	21,000	M 8
11,000	8,500	142,000	94,000	25,500	M 10

Brocas bidiametrales, CM

WN | N | 118° | h8

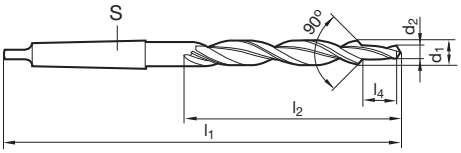
Material de corte	HSS
Acabado	●
Dirección de corte	R

P	●
M	○
K	●
N	○
S	
H	

vaciado de punta ≥Ø 11,500 • nota sobre el vaciado de la punta se refiere al diámetro nominal d1 • entrada cónica • para taladros pasantes según DIN EN 20273, serie fino • para alojamientos de cabeza de tornillos 90° según DIN 74 Parte 1 (Edición 12, 1980 retrocedida), Forma A, Versión fina • se rige por el dia. pequeño • vc se basa en el diámetro grande

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 806



Artículo N° **637**

d1 h8	d2 h9	S	l1	l2	l4	para rosca
mm	mm		mm	mm	mm	
11,500	6,400	MK-1	175,000	94,000	15,000	M 6
15,000	8,400	MK-2	212,000	114,000	19,000	M 8
19,000	10,500	MK-2	233,000	135,000	23,000	M 10
23,000	13,000	MK-2	253,000	155,000	27,000	M 12

Brocas bidiametrales, CM

WN | N | 118° | h8

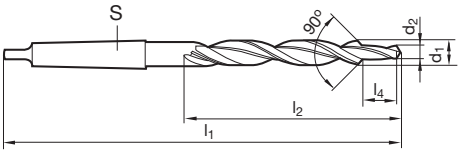
Material de corte	HSS
Acabado	●
Dirección de corte	R

P	●
M	○
K	●
N	○
S	
H	

vaciado de punta ≥Ø 11,000 • nota sobre el vaciado de la punta se refiere al diámetro nominal d1 • entrada cónica • para taladros pasantes según DIN EN 20273, fila medio • para avellandos de cabeza de tornillo 90° según DIN 74 parte 1 (edición 12,1980 retrocedida), formas A y B, versión media • se rige por el dia. pequeño • vc se basa en el diámetro grande

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 806



Artículo N° **537**

d1 h8	d2 h9	S	l1	l2	l4	para rosca
mm	mm		mm	mm	mm	
11,000	5,500	MK-1	175,000	94,000	13,000	M 5
17,200	9,000	MK-2	228,000	130,000	19,000	M 8
21,500	11,000	MK-2	248,000	150,000	23,000	M 10
26,000	14,000	MK-3	286,000	165,000	27,000	M 12
29,000	16,000	MK-3	296,000	175,000	31,000	M 14

Brocas bidiametrales, CM

WN | N | 118° | h8

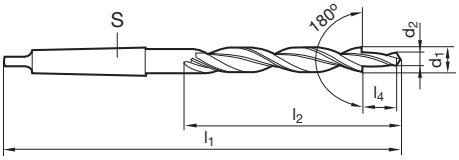
Material de corte	HSS
Acabado	
Dirección de corte	R

P	•
M	○
K	•
N	○
S	
H	

vaciado de punta ≥Ø 10,000 • nota sobre el vaciado de la punta se refiere al diámetro nominal d1 • entrada cónica • para taladros pasantes según DIN EN 20273, serie fino • para avell. para cabeza de tornillos 180° según DIN 974-1 fila 1 • para tornillos según DIN 6912, 7984, 34821, DIN EN ISO 1207, 4762, 14579, 14580 • se rige por el dia. pequeño • vc se basa en el diámetro grande

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 806



Artículo N° **639**

d1 h8	d2 h9	S	l1	l2	l4	para rosca
mm	mm		mm	mm	mm	
18,000	10,500	MK-2	228,000	130,000	23,000	M 10
20,000	13,000	MK-2	238,000	140,000	27,000	M 12
26,000	17,000	MK-3	286,000	165,000	35,000	M 16

Brocas bidiametrales, CM

DIN 8377 | N | 118° | h8

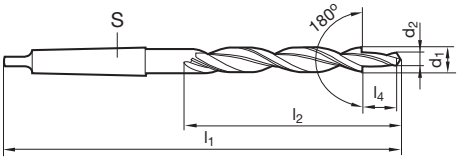
Material de corte	HSS
Acabado	
Dirección de corte	R

P	•
M	○
K	•
N	○
S	
H	

vaciado de punta ≥Ø 10,000 • nota sobre el vaciado de la punta se refiere al diámetro nominal d1 • entrada cónica • para taladros pasantes según DIN EN 20273, fila medio • para avell. para cabeza de tornillos 180° según DIN 974-1 fila 1 • para tornillos según DIN 6912, 7984, 34821, DIN EN ISO 1207, 4762, 14579, 14580 y DIN 7513, 7516, 7500-1 • se rige por el dia. pequeño • vc se basa en el diámetro grande

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 806



Artículo N° **539**

d1 h8	d2 h9	S	l1	l2	l4	para rosca
mm	mm		mm	mm	mm	
10,000	5,500	MK-1	168,000	87,000	13,000	M 5
11,000	6,600	MK-1	175,000	94,000	15,000	M 6
15,000	9,000	MK-2	212,000	114,000	19,000	M 8
18,000	11,000	MK-2	228,000	130,000	23,000	M 10
20,000	13,500	MK-2	238,000	140,000	27,000	M 12
26,000	17,500	MK-3	286,000	165,000	35,000	M 16
30,000	20,000	MK-3	296,000	175,000	39,000	M 18
33,000	22,000	MK-4	334,000	185,000	43,000	M 20

Brocas bidiametrales, CM

WN | N | 118° | h8

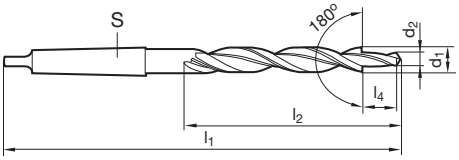
Material de corte	HSS
Acabado	●
Dirección de corte	R

P	●
M	○
K	●
N	○
S	
H	

vaciado de punta ≥Ø 9,400 • nota sobre el vaciado de la punta se refiere al diámetro nominal d1 • entrada cónica • con avellanados antiguos forma H,J,K según DIN 75 hoja 2 (edición 041968) versión media y fina • para tornillos según DIN 84, 912, 6912 • se rige por el dia. pequeño • vc se basa en el diámetro grande

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 806



Artículo N° **520**

d1 h8	d2 h9	S	l1	l2	l4	para rosca
mm	mm		mm	mm	mm	
9,400	5,300	MK-1	162,000	81,000	16,000	M 5
10,000	5,800	MK-1	168,000	87,000	16,000	M 5
11,000	7,000	MK-1	175,000	94,000	19,000	M 6
13,500	8,400	MK-1	189,000	108,000	22,000	M 8
16,500	10,500	MK-2	223,000	125,000	25,000	M 10
17,500	11,500	MK-2	228,000	130,000	25,000	M 10
19,000	13,000	MK-2	233,000	135,000	28,000	M 12
20,000	14,000	MK-2	238,000	140,000	28,000	M 12
23,000	15,000	MK-2	253,000	155,000	30,000	M 14
24,000	16,000	MK-3	281,000	160,000	30,000	M 14
25,000	17,000	MK-3	281,000	160,000	33,000	M 16
26,000	18,000	MK-3	286,000	165,000	33,000	M 16
28,000	19,000	MK-3	291,000	170,000	36,000	M 18
29,000	20,000	MK-3	296,000	175,000	36,000	M 18
31,000	21,000	MK-3	301,000	180,000	39,000	M 20
33,000	23,000	MK-4	334,000	185,000	39,000	M 20

Brocas bidiametrales, CM

DIN 8379 | N | 118° | h8

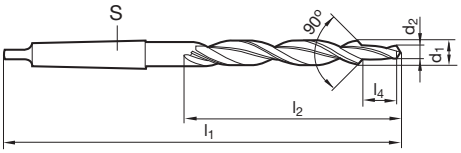
Material de corte	HSS
Acabado	
Dirección de corte	R

P	•
M	○
K	•
N	○
S	
H	

vaciado de punta ≥Ø 9,000 • nota sobre el vaciado de la punta se refiere al diámetro nominal d1 • entrada cónica • para pretaladros de roscar según DIN 336 • para avellanados de desalojo 90° correspondientes a taladros pasantes según norma DIN EN 20273, serie medium • se rige por el dia. pequeño • vc se basa en el diámetro grande

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 806



Artículo N° **541**

d1 h8	d2 h9	S	l1	l2	l4	para rosca
mm	mm		mm	mm	mm	
9,000	6,800	MK-1	162,000	81,000	21,000	M 8
11,000	8,500	MK-1	175,000	94,000	25,500	M 10
13,500	10,200	MK-1	189,000	108,000	30,000	M 12
15,500	12,000	MK-2	218,000	120,000	34,500	M 14
17,500	14,000	MK-2	228,000	130,000	38,500	M 16
20,000	15,500	MK-2	238,000	140,000	43,500	M 18
22,000	17,500	MK-2	248,000	150,000	47,500	M 20

Brocas escariadoras, cil.

DIN 344 | N | 120° | h8

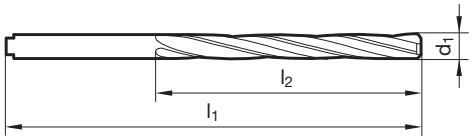
Material de corte	HSS
Acabado	●
Dirección de corte	Ⓡ

P	•
M	○
K	•
N	○
S	
H	

entrada cónica • estabilidad muy buena • para pretal. de fund./ estampados/broca • con arrastre según DIN 1809 • desvío corregido • excéntricidad corregida • mejora calidad superficial del taladro • ten. en cuenta dia. más pequ. d. pretal. • ten. en cuenta dia. más pequ. d. pretal. • escariar perfect. después del desbaste

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 800



Artículo N° **533**

d1	l1	l2	d0 ≥
mm	mm	mm	mm
3,800	96,000	64,000	2,8
4,000	96,000	64,000	2,8
4,100	96,000	64,000	2,8
4,400	102,000	69,000	3,2
4,500	102,000	69,000	3,2
4,600	102,000	69,000	3,2
4,750	102,000	69,000	3,2
4,800	108,000	74,000	3,5
4,900	108,000	74,000	3,5
5,000	108,000	74,000	3,5
5,050	108,000	74,000	3,5
5,100	108,000	74,000	3,5
5,300	108,000	74,000	3,5
5,400	116,000	80,000	4,2
5,500	116,000	80,000	4,2
5,550	116,000	80,000	4,2
5,750	116,000	80,000	4,2
5,800	116,000	80,000	4,2
5,850	116,000	80,000	4,2
5,900	116,000	80,000	4,2
6,000	116,000	80,000	4,2
6,100	124,000	86,000	4,2
6,200	124,000	86,000	4,2
6,250	124,000	86,000	4,2
6,300	124,000	86,000	4,2
6,400	124,000	86,000	4,2
6,500	124,000	86,000	4,2
6,700	124,000	86,000	4,2
6,800	133,000	93,000	4,9
7,000	133,000	93,000	4,9
7,150	133,000	93,000	4,9
7,200	133,000	93,000	4,9
7,250	133,000	93,000	4,9
7,500	133,000	93,000	4,9
7,600	142,000	100,000	5,6
7,700	142,000	100,000	5,6
7,750	142,000	100,000	5,6
7,800	142,000	100,000	5,6
7,950	142,000	100,000	5,6
8,000	142,000	100,000	5,6
8,050	142,000	100,000	5,6
8,100	142,000	100,000	5,6

d1	l1	l2	d0 ≥
mm	mm	mm	mm
8,200	142,000	100,000	5,6
8,250	142,000	100,000	5,6
8,300	142,000	100,000	5,6
8,400	142,000	100,000	5,6
8,500	142,000	100,000	5,6
8,600	151,000	107,000	6,3
8,700	151,000	107,000	6,3
8,800	151,000	107,000	6,3
8,850	151,000	107,000	6,3
9,000	151,000	107,000	6,3
9,100	151,000	107,000	6,3
9,200	151,000	107,000	6,3
9,300	151,000	107,000	6,3
9,400	151,000	107,000	6,3
9,500	151,000	107,000	6,3
9,650	162,000	116,000	7,0
9,800	162,000	116,000	7,0
10,000	162,000	116,000	7,0
10,100	162,000	116,000	7,0
10,200	162,000	116,000	7,0
10,300	162,000	116,000	7,0
10,500	162,000	116,000	7,0
10,600	162,000	116,000	7,0
10,700	173,000	125,000	7,7
10,750	173,000	125,000	7,7
11,000	173,000	125,000	7,7
11,250	173,000	125,000	7,7
11,300	173,000	125,000	7,7
11,750	184,000	134,000	8,4
11,800	184,000	134,000	8,4
12,000	184,000	134,000	8,4
12,200	184,000	134,000	8,4
12,500	184,000	134,000	8,4
12,750	184,000	134,000	9,1
13,000	184,000	134,000	9,1
13,500	194,000	142,000	9,8
13,750	194,000	142,000	9,8
14,000	194,000	142,000	9,8
15,000	202,000	147,000	10,5
15,750	211,000	153,000	11,2
16,000	211,000	153,000	11,2
17,000	218,000	159,000	11,9

d1	l1	l2	d0 ≥
mm	mm	mm	mm
18,000	226,000	165,000	12,6
20,000	242,000	177,000	14,0

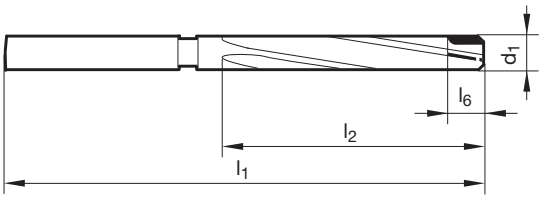
d1	l1	l2	d0 ≥
mm	mm	mm	mm

Brocas escariadoras, cil.

WN | N | 120° | h8

Material de corte	Carbide
Acabado	◯
Dirección de corte	R

P	○	entrada cónica • placa MD soldada • para pretal. de fund./estampados/ broca • desvío corregido • excéntricidad corregida • mejora calidad superficial del taladro • ten. en cuenta dia. más pequ. d. pretal.
M	○	
K	○	
N	○	
S	○	el tipo de material universales
H	○	



Artículo Nº **750**

d1	l1	l2	l6	d0 ≥
mm	mm	mm	mm	mm
3,800	96,000	64,000		2,800
4,800	108,000	74,000		3,500
5,000	108,000	74,000		3,500
5,800	116,000	80,000		4,200
6,000	116,000	80,000		4,200
7,000	133,000	93,000		4,900

d1	l1	l2	l6	d0 ≥
mm	mm	mm	mm	mm
7,800	142,000	100,000		5,600
8,000	142,000	100,000		5,600
14,000	194,000	142,000	19,000	9,800
15,000	202,000	147,000	19,000	10,500

Brocas escariadoras, CM

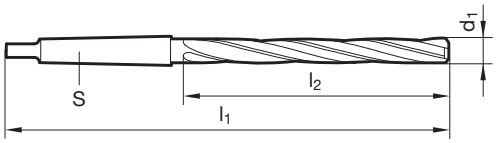
DIN 343 | N | 120° | h8

Material de corte	HSS
Acabado	●
Dirección de corte	Ⓡ

P	•	entrada cónica • estabilidad muy buena • para pretal. de fund./ estampados/broca • desvío corregido • excéntricidad corregida • mejora calidad superficial del taladro • ten. en cuenta dia. más pequ. d. pretal. • ten. en cuenta dia. más pequ. d. pretal. • escariar perfect. después del desbaste
M	○	
K	•	
N	○	
S		
H		

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 800



Artículo N° **534**

d1	S	l1	l2	d0 ≥
mm		mm	mm	mm
7,800	MK-1	156,000	75,000	5,6
8,000	MK-1	156,000	75,000	5,6
8,100	MK-1	156,000	75,000	5,6
8,800	MK-1	162,000	81,000	6,3
9,000	MK-1	162,000	81,000	6,3
9,200	MK-1	162,000	81,000	6,3
9,700	MK-1	168,000	87,000	7,0
9,800	MK-1	168,000	87,000	7,0
9,900	MK-1	168,000	87,000	7,0
10,000	MK-1	168,000	87,000	7,0
10,100	MK-1	168,000	87,000	7,0
10,200	MK-1	168,000	87,000	7,0
10,750	MK-1	175,000	94,000	7,7
11,000	MK-1	175,000	94,000	7,7
11,100	MK-1	175,000	94,000	7,7
11,250	MK-1	175,000	94,000	7,7
11,500	MK-1	175,000	94,000	7,7
11,750	MK-1	182,000	101,000	8,4
11,800	MK-1	182,000	101,000	8,4
12,000	MK-1	182,000	101,000	8,4
12,200	MK-1	182,000	101,000	8,4
12,300	MK-1	182,000	101,000	8,4
12,500	MK-1	182,000	101,000	8,4
12,700	MK-1	182,000	101,000	9,1
12,750	MK-1	182,000	101,000	9,1
13,000	MK-1	182,000	101,000	9,1
13,250	MK-1	189,000	108,000	9,8
13,500	MK-1	189,000	108,000	9,8
13,750	MK-1	189,000	108,000	9,8
13,800	MK-1	189,000	108,000	9,8
14,000	MK-1	189,000	108,000	9,8
14,100	MK-2	212,000	114,000	10,5
14,200	MK-2	212,000	114,000	10,5
14,450	MK-2	212,000	114,000	10,5
14,500	MK-2	212,000	114,000	10,5
14,750	MK-2	212,000	114,000	10,5
15,000	MK-2	212,000	114,000	10,5
15,250	MK-2	218,000	120,000	11,2
15,500	MK-2	218,000	120,000	11,2
15,750	MK-2	218,000	120,000	11,2
16,000	MK-2	218,000	120,000	11,2
16,150	MK-2	223,000	125,000	11,9

d1	S	l1	l2	d0 ≥
mm		mm	mm	mm
16,200	MK-2	223,000	125,000	11,9
16,250	MK-2	223,000	125,000	11,9
16,500	MK-2	223,000	125,000	11,9
16,750	MK-2	223,000	125,000	11,9
17,000	MK-2	223,000	125,000	11,9
17,500	MK-2	228,000	130,000	12,6
17,750	MK-2	228,000	130,000	12,6
18,000	MK-2	228,000	130,000	12,6
18,100	MK-2	233,000	135,000	13,3
18,250	MK-2	233,000	135,000	13,3
18,500	MK-2	233,000	135,000	13,3
18,700	MK-2	233,000	135,000	13,3
18,750	MK-2	233,000	135,000	13,3
18,800	MK-2	233,000	135,000	13,3
19,000	MK-2	233,000	135,000	13,3
19,250	MK-2	238,000	140,000	14,0
19,500	MK-2	238,000	140,000	14,0
19,700	MK-2	238,000	140,000	14,0
19,750	MK-2	238,000	140,000	14,0
20,000	MK-2	238,000	140,000	14,0
20,200	MK-2	243,000	145,000	14,6
20,250	MK-2	243,000	145,000	14,6
20,500	MK-2	243,000	145,000	14,6
20,700	MK-2	243,000	145,000	14,6
21,000	MK-2	243,000	145,000	14,6
21,500	MK-2	248,000	150,000	15,3
21,700	MK-2	248,000	150,000	15,3
21,750	MK-2	248,000	150,000	15,3
22,000	MK-2	248,000	150,000	15,3
22,250	MK-2	248,000	150,000	15,3
22,400	MK-2	248,000	150,000	15,3
22,500	MK-2	253,000	155,000	16,0
22,700	MK-2	253,000	155,000	16,0
23,000	MK-2	253,000	155,000	16,0
23,500	MK-2	253,000	155,000	16,0
23,700	MK-3	281,000	160,000	16,6
24,000	MK-3	281,000	160,000	16,6
24,200	MK-3	281,000	160,000	16,6
24,500	MK-3	281,000	160,000	17,3
24,700	MK-3	281,000	160,000	17,3
24,750	MK-3	281,000	160,000	17,3
25,000	MK-3	281,000	160,000	17,3

d1	S	l1	l2	d0 ≥
mm		mm	mm	mm
25,250	MK-3	286,000	165,000	18,0
25,500	MK-3	286,000	165,000	18,0
25,600	MK-3	286,000	165,000	18,0
25,700	MK-3	286,000	165,000	18,0
26,000	MK-3	286,000	165,000	18,0
26,500	MK-3	286,000	165,000	18,0
26,700	MK-3	291,000	170,000	18,6
27,000	MK-3	291,000	170,000	18,6
27,500	MK-3	291,000	170,000	18,6
27,700	MK-3	291,000	170,000	19,3
28,000	MK-3	291,000	170,000	19,3
28,700	MK-3	296,000	175,000	20,0
29,000	MK-3	296,000	175,000	20,0
29,500	MK-3	296,000	175,000	20,5
29,700	MK-3	296,000	175,000	20,5
29,750	MK-3	296,000	175,000	20,5
30,000	MK-3	296,000	175,000	20,5
30,500	MK-3	301,000	180,000	21,0
30,600	MK-3	301,000	180,000	21,0
31,000	MK-3	301,000	180,000	21,0
31,600	MK-4	334,000	185,000	22,0
32,000	MK-4	334,000	185,000	22,0
32,600	MK-4	334,000	185,000	23,0
33,000	MK-4	334,000	185,000	23,0

d1	S	l1	l2	d0 ≥
mm		mm	mm	mm
33,600	MK-4	339,000	190,000	24,0
34,000	MK-4	339,000	190,000	24,0
34,600	MK-4	339,000	190,000	25,0
35,000	MK-4	339,000	190,000	25,0
35,600	MK-4	344,000	195,000	25,5
36,000	MK-4	344,000	195,000	25,5
36,600	MK-4	344,000	195,000	26,0
37,600	MK-4	349,000	200,000	26,5
38,000	MK-4	349,000	200,000	26,5
39,000	MK-4	349,000	200,000	27,0
39,600	MK-4	349,000	200,000	28,0
40,000	MK-4	349,000	200,000	28,0
44,000	MK-4	359,000	210,000	30,5
44,600	MK-4	359,000	210,000	31,0
45,000	MK-4	359,000	210,000	31,0
50,000	MK-4	369,000	220,000	34,5

Brocas escariadoras, CM

DIN 343 | N | 120° | h8

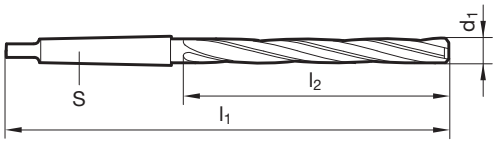
Material de corte	HSCO
Acabado	●
Dirección de corte	R

P	•
M	○
K	•
N	•
S	○
H	

entrada cónica • estabilidad muy buena • para pretal. de fund./ estampados/broca • desvío corregido • excéntricidad corregida • mejora calidad superficial del taladro • ten. en cuenta dia. más pequ. d. pretal. • ten. en cuenta dia. más pequ. d. pretal. • escariar perfect. después del desbaste

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 800



Artículo N° **634**

d1	S	l1	l2	d0 ≥
mm		mm	mm	mm
8,500	MK-1	156,000	75,000	5,6
9,000	MK-1	162,000	81,000	6,3
9,800	MK-1	168,000	87,000	7,0
10,750	MK-1	175,000	94,000	7,7
11,750	MK-1	182,000	101,000	8,4
12,000	MK-1	182,000	101,000	8,4
12,500	MK-1	182,000	101,000	8,4
12,750	MK-1	182,000	101,000	9,1
13,000	MK-1	182,000	101,000	9,1
14,000	MK-1	189,000	108,000	9,8
14,750	MK-2	212,000	114,000	10,5
15,750	MK-2	218,000	120,000	11,2

d1	S	l1	l2	d0 ≥
mm		mm	mm	mm
16,000	MK-2	218,000	120,000	11,2
16,500	MK-2	223,000	125,000	11,9
17,000	MK-2	223,000	125,000	11,9
18,000	MK-2	228,000	130,000	12,6
19,700	MK-2	238,000	140,000	14,0
20,000	MK-2	238,000	140,000	14,0
21,000	MK-2	243,000	145,000	14,6
22,000	MK-2	248,000	150,000	15,3
23,000	MK-2	253,000	155,000	16,0
24,000	MK-3	281,000	160,000	16,6
25,000	MK-3	281,000	160,000	17,3
26,000	MK-3	286,000	165,000	18,0

Brocas escariadoras, CM

DIN 1864 | N | 120° | h8

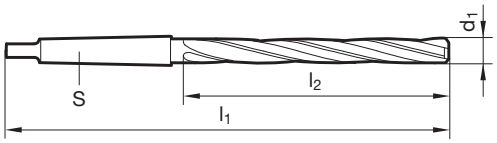
Material de corte	HSS
Acabado	●
Dirección de corte	Ⓡ

P	•
M	○
K	•
N	○
S	
H	

entrada cónica • estabilidad muy buena • para pretal. de fund./ estampados/broca • desvío corregido • excéntricidad corregida • mejora calidad superficial del taladro • ten. en cuenta dia. más pequ. d. pretal. • ten. en cuenta dia. más pequ. d. pretal. • escariar perfect. después del desbaste

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 800



Artículo N° **555**

d1	S	l1	l2	d0 ≥
mm		mm	mm	mm
5,000	MK-1	155,000	74,000	3,5
8,000	MK-1	181,000	100,000	5,6
8,800	MK-1	188,000	107,000	6,3
9,000	MK-1	188,000	107,000	6,3
9,700	MK-1	197,000	116,000	7,0
9,800	MK-1	197,000	116,000	7,0
10,000	MK-1	197,000	116,000	7,0
10,100	MK-1	197,000	116,000	7,0
10,500	MK-1	197,000	116,000	7,0
11,100	MK-1	206,000	125,000	7,700
11,750	MK-1	215,000	134,000	8,4
12,000	MK-1	215,000	134,000	8,4
12,750	MK-1	215,000	134,000	9,1
13,000	MK-1	215,000	134,000	9,1
13,750	MK-1	223,000	142,000	9,8
14,000	MK-1	223,000	142,000	9,8
15,000	MK-2	245,000	147,000	10,5
15,750	MK-2	251,000	153,000	11,2

d1	S	l1	l2	d0 ≥
mm		mm	mm	mm
16,000	MK-2	251,000	153,000	11,2
17,750	MK-2	263,000	165,000	12,6
19,000	MK-2	269,000	171,000	13,3
19,700	MK-2	275,000	177,000	14,0
20,000	MK-2	275,000	177,000	14,0
20,700	MK-2	282,000	184,000	14,6
21,000	MK-2	282,000	184,000	14,6
21,700	MK-2	289,000	191,000	15,3
22,000	MK-2	289,000	191,000	15,3
22,700	MK-2	296,000	198,000	16,0
23,000	MK-2	296,000	198,000	16,0
24,000	MK-3	327,000	206,000	16,6
25,000	MK-3	327,000	206,000	17,3
25,700	MK-3	335,000	214,000	18,0
30,000	MK-3	351,000	230,000	20,5

Brocas escariadoras, CM

DIN 1864 | N | 120° | h8

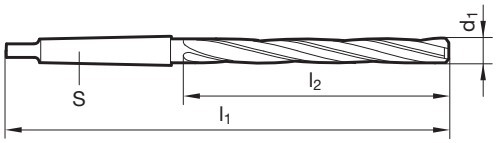
Material de corte	HSCO
Acabado	
Dirección de corte	R

P	•
M	○
K	•
N	•
S	○
H	

entrada cónica • estabilidad muy buena • para pretal. de fund./ estampados/broca • desvío corregido • excéntricidad corregida • mejora calidad superficial del taladro • ten. en cuenta dia. más pequ. d. pretal. • ten. en cuenta dia. más pequ. d. pretal. • escariar perfect. después del desbaste

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 800



Artículo N° **635**

d1	S	l1	l2	d0 ≥
mm		mm	mm	mm
8,000	MK-1	181,000	100,000	5,6
10,000	MK-1	197,000	116,000	7,0
14,000	MK-1	223,000	142,000	9,8
15,000	MK-2	245,000	147,000	10,5

d1	S	l1	l2	d0 ≥
mm		mm	mm	mm

Brocas escariadoras, CM

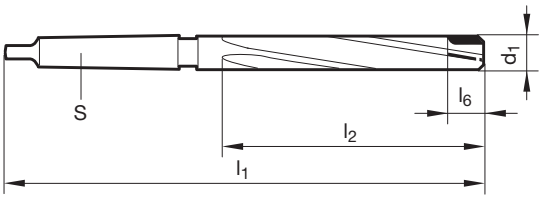
WN | N | 120° | h8

Material de corte	**Carbide**
Acabado	◯
Dirección de corte	R

P	○	entrada cónica • placa MD soldada • para pretal. de fund./estampados/ broca • desvío corregido • excéntricidad corregida • mejora calidad superficial del taladro • ten. en cuenta dia. más pequ. d. pretal.
M	○	
K	○	
N	○	
S	○	el tipo de material universales
H	○	

GÜHRINGNAVIGATOR

Condiciones de corte ver pág. 800



Artículo Nº **729**

d1	S	l1	l2	l6	d0 ≥
mm		mm	mm	mm	mm
28,700	MK-3	296,000	175,000	25,000	21,0
29,700	MK-3	296,000	175,000	25,000	22,0
30,600	MK-3	301,000	180,000	25,000	23,0
31,600	MK-4	334,000	185,000	25,000	24,0
33,000	MK-4	334,000	185,000	25,000	25,0
33,600	MK-4	339,000	190,000	25,000	26,0

d1	S	l1	l2	l6	d0 ≥
mm		mm	mm	mm	mm
34,000	MK-4	339,000	190,000	25,000	26,0
36,000	MK-4	344,000	195,000	25,000	28,0
37,600	MK-4	349,000	200,000	25,000	30,0
38,600	MK-4	349,000	200,000	25,000	31,0
39,000	MK-4	349,000	200,000	25,000	31,0
39,600	MK-4	349,000	200,000	25,000	32,0

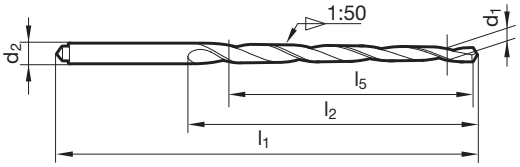
Brocas para pasadores cónicos

DIN 1898 | N | 118°

Material de corte	HSS
Acabado	>Ø 2,36
Dirección de corte	R

P	•
M	○
K	•
N	○
S	
H	

vaciado de punta ≥Ø 1,000 • entrada cónica • para taladros cónicos para punzones cónicos según DIN 1 (nuevo: DIN EN 22339) y DIN 7978 (nuevo: DIN EN 28736) • con arrastre



Artículo N° **531**

d1	d2	l1	l2	l5
mm	mm	mm	mm	mm
2,000	3,150	86,000	52,000	48,000
2,500	3,150	86,000	52,000	48,000
3,000	4,000	100,000	63,000	58,000
3,500	5,000	112,000	74,000	68,000
4,000	5,000	112,000	74,000	68,000
4,500	6,300	122,000	81,000	73,000

d1	d2	l1	l2	l5
mm	mm	mm	mm	mm
5,000	6,300	122,000	81,000	73,000
5,500	8,000	160,000	114,000	105,000
6,000	8,000	160,000	114,000	105,000
8,000	10,000	207,000	157,000	145,000
10,000	12,500	245,000	190,000	175,000
12,000	16,000	290,000	228,000	210,000

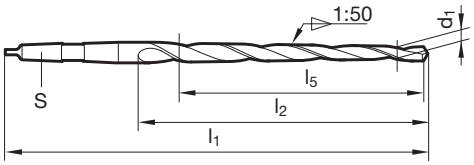
Brocas para pasadores cónicos

DIN 1898 | N | 118°

Material de corte	HSS
Acabado	
Dirección de corte	R

P	•
M	○
K	•
N	○
S	
H	

vaciado de punta ≥Ø 5,000 • entrada cónica • para taldros cónicos para pasadores según DIN 1 (nuevo: DIN EN 22339), DIN EN 28736), DIN 7977 (nuevo: DIN EN 28737) y DIN 258



Artículo N° **532**

d1	d2	l1	l2	l5
mm	mm	mm	mm	mm
5,000		155,000	81,000	73,000
6,000		187,000	108,000	105,000
8,000		227,000	149,000	145,000
10,000		257,000	180,000	175,000
12,000		315,000	219,000	210,000
13,000		325,000	229,000	220,000

d1	d2	l1	l2	l5
mm	mm	mm	mm	mm
14,000		325,000	229,000	220,000
16,000		335,000	239,000	230,000
20,000		377,000	263,000	250,000
25,000		427,000	311,000	300,000

GÜHU

NAMIC

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Navegador

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Las herramientas con n° de código de series de avance impreso en negrita (código VR) se deberían elegir con preferencia.
Para la elección de la herramienta óptima y los valores de corte adecuados está a su disposición www.guehring.de y además una versión electrónica del navegador Gühring.

Artículo N°
Norma/DIN
Material de corte
Calidad de metal duro
Tipo
Acabado
Refrigeración
Dimens. página

Hta. Ø mm	N° de serie de avance								
	1	2	3	4	5	6	7	8	9
	f (mm/U)								
0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
50,00	0,250	0,310	0,400	0,500	0,630	0,800	1,000	1,250	1,250
63,00	0,315	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600
80,00	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600	2,000

Refrigerante según material:
○ Aire
● Aceite
● Emulsión

Sentido de corte:
corte a derechas
corte a izquierdas

Grupo de materiales	Ejemplos Cifras en negrita = nº de mat. según DIN EN 10 027	Resistencia N/mm²	Dureza	Refri-geración
Aceros de construcción generales	**1.0035** S185(St33), **1.0486** P275N(StE285), **1.0345** P235GH(H1), **1.0425** P265GH(H2)	≤500		●
	1.0050 E295 (St50-2), **1.0070** E360 (St70-2), **1.8937** P500NH (WStE500)	≤1000		●
Aceros para autómatas	**1.0718** 11SMnPb30 (9SMnPb28), **1.0736** 11SMn37 (9SMn36)	≤850		●
	1.0727 46S20 (45S20), **1.0728** (60S20), **1.0757** 46SPb20 (45SPb20)	≤1000		●
Aceros de bonificación no aleados	**1.0402** C22, **1.1178** C30E (Ck30)	≤700		●
	1.0503 C45, **1.1191** C45E (Ck45)	≤850		●
	1.0601 C60, **1.1221** C60E (Ck60)	≤1000		●
Aceros de bonificación aleados	**1.5131** 50MnSi4, **1.7003** 38Cr2, **1.7030** 28Cr4	≤1000		●
	1.5710 36NiCr6, **1.7035** 41Cr4, **1.7225** 42CrMo4	≤1400		●
Aceros cementación aleados	**1.0301** (C10), **1.1121** C10E (Ck10)	≤850		●
Aceros cementación no aleados	**1.7276** 10CrMo11, **1.5125** 11MnSi6	≤1000		●
	1.5752 15NiCr13, **1.7131** 16MnCr5, **1.7264** 20CrMo5	≤1400		●
Aceros de nitruración	**1.8504** 34CrAl6	≤1000		●
	1.8519 31CrMoV9, **1.8550** 34CrAlNi7	≤1400		●
Aceros para herramientas	**1.1750** C75W, **1.2067** 102Cr6, **1.2307** 29CrMoV9	≤850		●
	1.2080 X210Cr12, **1.2083** X42Cr13, **1.2419** 105WCr6, **1.2767** X45NiCrMo4	≤1400		●
Aceros rápidos	**1.3243** S 6-5-2-5, **1.3343** S 6-5-2, **1.3344** S 6-5-3	≤1400		●
Aceros para muelles	**1.5026** 55Si7, **1.7176** 55Cr3, **1.8159** 51CrV4 (51CrV4)		≤350 HB	●
Aceros templados	–		≤48 HRC	●
			≤66 HRC	●
Aceros inox., sulfurados	**1.4005** X12CrS13, **1.4104** X14CrMoS17, **1.4105** X6CrMoS17, **1.4305** X8CrNiS18-9	≤900		●
austeníticos	**1.4301** X5CrNi18-10 (V2A), **1.4541** X6CrNiTi18-10, **1.4571** X6CrNiMoTi 17-12-2 (V4A)	≤1100		●
martensíticos	**1.4057** X20CrNi172 (X17CrNi16-2), **1.4122** X39CrMo17-1, **1.4521** X2CrMoTi18-2	≤1500		●
Hierro fundido	**0.6010** EN-GJL-100 (GG10), **0.6020** EN-GJL-200 (GG20)		≤240 HB	○ ○
	0.6025 EN-GJL-250 (GG25), **0.6035** EN-GJL-350 (GG35)		≤350 HB	○ ○
Fundición de grafito esférico y fundición maleable	**0.7050** EN-GJS-500-7 (GGG50), **0.8035** EN-GJMW-350-4 (GTW35)		≤240 HB	●
	0.7070 EN-GJS-700-2 (GGG70), **0.8170** EN-GJMB-700-2 (GTS70)		≤350 HB	●
Fundición dura	–		≤350 HB	●
Nuevos mat. de fundición GGV	**EN-GJV250** (GGV25), **EN-GJV350** (GGV35)		≤220 HB	● ○
	EN-GJV400 (GGV40), **EN-GJV500** (GGV50), SiMo 6		≤300 HB	● ○
Nuevos mat. de fundición ADI	**EN-GJS-800-8** (ADI800), **EN-GJS-1000-5** (ADI1000)	≤1000		● ○
	EN-GJS-1200-2 (ADI1200), **EN-GJS-1400-1** (ADI1400)	≤1400		● ○
Aleaciones especiales	Nimonic, Inconel, Monel, Hastelloy	≤2000		●
Titanio y aleaciones de titanio	**3.7024** Ti99,5, **3.7114** TiAl5Sn2,5, **3.7124** TiCu2	≤850		●
	3.7154 TiAl6Zr5, **3.7165** TiAl6V4, **3.7184** TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤1400		●
Aluminio y aleaciones de Al	**3.0255** Al99,5, **3.2315** AlMgSi1, **3.3515** AlMg1	≤400		●
Aleaciones maleables de Al	**3.0615** AlMgSiPb, **3.1325** AlCuMg1, **3.3245** AlMg3Si, **3.4365** AlZnMgCu1,5	≤650		●
Aleac. fund. de Al ≤ 10 % Si	**3.2131** G-AlSi5Cu1, **3.2153** G-AlSi7Cu3, **3.2573** G-AlSi9	≤600		●
> 10 % Si	**3.2581** G-AlSi12, **3.2583** G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		●
Aleaciones de magnesio	**3.5200** MgMn2, **3.5812.05** G-MgAl8Zn1, **3.5612.05** G-MgAl6Zn1	≤400		○
Cobre de baja aleación	**2.0070** SE-Cu, **2.1020** CuSn6, **2.1096** G-CuSn5ZnPb	≤500		●
Latón, viruta corta	**2.0380** CuZn39Pb2, **2.0401** CuZn39Pb3, **2.0410** CuZn43Pb2	≤600		●
viruta larga	**2.0250** CuZn20, **2.0280** CuZn33, **2.0332** CuZn37Pb0,5	≤600		●
Bronces, viruta corta	**2.1090** CuSn7ZnPb, **2.1170** CuPb5Sn5, **2.1176** CuPb10Sn	≤600		● ●
	2.0790 CuNi18Zn19Pb	≤850		●
Bronces, viruta larga	**2.0916** CuAl5, **2.0960** CuAl9Mn, **2.1050** CuSn10	≤850		●
	2.0980 CuAl11Ni, **2.1247** CuBe2	≤1000		●
Duroplásticos	Resina epoxídica, Resopal, Pertinax, Moltopren	≤150		○
Termoplásticos	Plexiglas, Hostalen, Novodur, Makralon	≤100		● ○
Materiales sintéticos	Kevlar	≤1000		○
Fibras de vidrio/carbón	GFK/CFK	≤1000		○

≤3xD Profundidad

1171	1660	1180	1181	2468	2477	2469	8510	8610	8520	8620
6538K	6537K	6537K	6537K	6537K	6537K	6537K	6537K	6537K	6537K	6537K
Carbide	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD
P	K/P	K/P	K/P	K/P	K/P	K/P	K/P	K/P	K/P	K/P
RT 80 U	RT 100 F	RT 100 F	RT 100 U	RT 100 F	RT 100 U	RT 100 U	RT 100 VA		RT 100 HF	
S	S	S	S	F	F	F	a	a	Y	Y
axial	axial	axial	axial	axial	axial	axial	axial	axial	axial	axial
55	53	54	43	52	39	41	48	50	44	46

v_c m/min	N° de serie de avance	v_c m/min	N° de serie de avance			v_c m/min	N° de serie de avance			v_c m/min	N° de serie de avance		v_c m/min	N° de serie de avance	
95	6	110	6	6	6	145	7	7	7				145	7	7
80	5	90	5	5	5	120	6	6	6				120	6	6
95	7	130	7	7	7	170	8	8	8				170	8	8
75	6	110	7	7	7	145	8	8	8				145	8	8
80	6	100	7	7	7	130	8	8	8				130	8	8
75	6	95	6	6	6	125	7	7	7				125	7	7
70	6	90	6	6	6	120	7	7	7				120	7	7
75	6	90	6	6	6	120	7	7	7				120	7	7
60	5	80	6	6	6	105	7	7	7				105	7	7
90	7	110	7	7	7	145	8	8	8				145	8	8
75	6	90	6	6	6	120	7	7	7				120	7	7
60	5	65	4	4	4	85	5	5	5				85	5	5
75	6	85	6	6	6	110	7	7	7				110	7	7
60	5	80	4	4	5	105	5	5	5				105	5	5
45	5	60	5	5	5	80	6	6	6				80	6	6
35	5	50	4	4	4	65	5	5	5				65	5	5
40	4	45	3	3	3	60	4	4	4				60	4	4
		45	2	2	2	60	3	3	3				60	3	3
		40	2	2	2	55	3	3	3				55	3	3
		20	1	1	1	35	2	2	2				35	2	2
40	2	45	4	4	4	60	5	5	5	80	5	5			
35	2	40	2	2	2	55	2	2	2	60	2-3	2-3			
35	2	35	4	4	4	45	5	5	5	80	5	5			
150	7	160	8	8	8	210	9	9	9						
110	7	120	8	8	8	160	9	9	9						
110	7	100	8	8	8	140	9	9	9						
90	6	95	7	7	7	130	8	8	8						
		30	2	2	2	40	3	3	3						
		25	3	3	3	35	4	4	4	30	4	4	35	4	4
		35	3	3	3	45	4	4	4	45	4	4	45	4	4
		30	2	2	2	40	3	3	3	40	3	3	40	3	3
200	8	240	8	8	8	310	9	9	9						
200	8	240	8	8	8	310	9	9	9						
170	8	200	8	8	8	260	9	9	9						
140	7	170	8	8	8	220	9	9	9						
		230	7	7	7	280	8	8	8						
		95	6	6	6	125	7	7	7						
		250	7	7	7	325	8	8	8						
		170	6	6	6	220	7	7	7						
		95	6	6	6	125	7	7	7						
		80	5	5	5	105	6	6	6						
		70	5	5	5	90	6	6	6						
		60	5	5	5	80	6	6	6						

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Las herramientas con n° de código de series de avance impreso en negrita (código VR) se deberían elegir con preferencia.
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Artículo N°
Norma/DIN
Material de corte
Calidad de metal duro
Tipo
Acabado
Refrigeración
Dimens. página

Hta. Ø mm	N° de serie de avance								
	1	2	3	4	5	6	7	8	9
	f (mm/U)								
0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
50,00	0,250	0,310	0,400	0,500	0,630	0,800	1,000	1,250	1,250
63,00	0,315	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600
80,00	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600	2,000

Al
Prioritariamente para el mecanizado de aluminio

G
Prioritariamente para el mecanizado de fundición

Refrigerante según material:
○ Aire
● Aceite
● Emulsión

Sentido de corte:
corte a derechas
corte a izquierdas

Grupo de materiales	Ejemplos Cifras en negrita = nº de mat. según DIN EN 10 027	Resistencia N/mm²	Dureza	Refri-geración
Aceros de construcción generales	**1.0035** S185(St33), **1.0486** P275N(StE285), **1.0345** P235GH(H1), **1.0425** P265GH(H2)	≤500		●
	1.0050 E295 (St50-2), **1.0070** E360 (St70-2), **1.8937** P500NH (WStE500)	≤1000		●
Aceros para autómatas	**1.0718** 11SMnPb30 (9SMnPb28), **1.0736** 11SMn37 (9SMn36)	≤850		●
	1.0727 46S20 (45S20), **1.0728** (60S20), **1.0757** 46SPb20 (45SPb20)	≤1000		●
Aceros de bonificación no aleados	**1.0402** C22, **1.1178** C30E (Ck30)	≤700		●
	1.0503 C45, **1.1191** C45E (Ck45)	≤850		●
	1.0601 C60, **1.1221** C60E (Ck60)	≤1000		●
Aceros de bonificación aleados	**1.5131** 50MnSi4, **1.7003** 38Cr2, **1.7030** 28Cr4	≤1000		●
	1.5710 36NiCr6, **1.7035** 41Cr4, **1.7225** 42CrMo4	≤1400		●
Aceros cementación aleados	**1.0301** (C10), **1.1121** C10E (Ck10)	≤850		●
Aceros cementación no aleados	**1.7276** 10CrMo11, **1.5125** 11MnSi6	≤1000		●
	1.5752 15NiCr13, **1.7131** 16MnCr5, **1.7264** 20CrMo5	≤1400		●
Aceros de nitruración	**1.8504** 34CrAl6	≤1000		●
	1.8519 31CrMoV9, **1.8550** 34CrAlNi7	≤1400		●
Aceros para herramientas	**1.1750** C75W, **1.2067** 102Cr6, **1.2307** 29CrMoV9	≤850		●
	1.2080 X210Cr12, **1.2083** X42Cr13, **1.2419** 105WCr6, **1.2767** X45NiCrMo4	≤1400		●
Aceros rápidos	**1.3243** S 6-5-2-5, **1.3343** S 6-5-2, **1.3344** S 6-5-3	≤1400		●
Aceros para muelles	**1.5026** 55Si7, **1.7176** 55Cr3, **1.8159** 51CrV4 (51CrV4)		≤350 HB	●
Aceros templados	–		≤48 HRC	●
			≤66 HRC	●
Aceros inox., sulfurados	**1.4005** X12CrS13, **1.4104** X14CrMoS17, **1.4105** X6CrMoS17, **1.4305** X8CrNiS18-9	≤900		●
austeníticos	**1.4301** X5CrNi18-10 (V2A), **1.4541** X6CrNiTi18-10, **1.4571** X6CrNiMoTi 17-12-2 (V4A)	≤1100		●
martensíticos	**1.4057** X20CrNi172 (X17CrNi16-2), **1.4122** X39CrMo17-1, **1.4521** X2CrMoTi18-2	≤1500		●
Hierro fundido	**0.6010** EN-GJL-100 (GG10), **0.6020** EN-GJL-200 (GG20)		≤240 HB	○ ○
	0.6025 EN-GJL-250 (GG25), **0.6035** EN-GJL-350 (GG35)		≤350 HB	○ ○
Fundición de grafito esférico y fundición maleable	**0.7050** EN-GJS-500-7 (GGG50), **0.8035** EN-GJMW-350-4 (GTW35)		≤240 HB	●
	0.7070 EN-GJS-700-2 (GGG70), **0.8170** EN-GJMB-700-2 (GTS70)		≤350 HB	●
Fundición dura	–		≤350 HB	●
Nuevos mat. de fundición GGV	**EN-GJV250** (GGV25), **EN-GJV350** (GGV35)		≤220 HB	● ○
	EN-GJV400 (GGV40), **EN-GJV500** (GGV50), SiMo 6		≤300 HB	● ○
Nuevos mat. de fundición ADI	**EN-GJS-800-8** (ADI800), **EN-GJS-1000-5** (ADI1000)	≤1000		● ○
	EN-GJS-1200-2 (ADI1200), **EN-GJS-1400-1** (ADI1400)	≤1400		● ○
Aleaciones especiales	Nimonic, Inconel, Monel, Hastelloy	≤2000		●
Titanio y aleaciones de titanio	**3.7024** Ti99,5, **3.7114** TiAl5Sn2,5, **3.7124** TiCu2	≤850		●
	3.7154 TiAl6Zr5, **3.7165** TiAl6V4, **3.7184** TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤1400		●
Aluminio y aleaciones de Al	**3.0255** Al99,5, **3.2315** AlMgSi1, **3.3515** AlMg1	≤400		●
Aleaciones maleables de Al	**3.0615** AlMgSiPb, **3.1325** AlCuMg1, **3.3245** AlMg3Si, **3.4365** AlZnMgCu1,5	≤650		●
Aleac. fund. de Al ≤ 10 % Si	**3.2131** G-AlSi5Cu1, **3.2153** G-AlSi7Cu3, **3.2573** G-AlSi9	≤600		●
> 10 % Si	**3.2581** G-AlSi12, **3.2583** G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		●
Aleaciones de magnesio	**3.5200** MgMn2, **3.5812.05** G-MgAl8Zn1, **3.5612.05** G-MgAl6Zn1	≤400		○
Cobre de baja aleación	**2.0070** SE-Cu, **2.1020** CuSn6, **2.1096** G-CuSn5ZnPb	≤500		●
Latón, viruta corta	**2.0380** CuZn39Pb2, **2.0401** CuZn39Pb3, **2.0410** CuZn43Pb2	≤600		●
viruta larga	**2.0250** CuZn20, **2.0280** CuZn33, **2.0332** CuZn37Pb0,5	≤600		●
Bronces, viruta corta	**2.1090** CuSn7ZnPb, **2.1170** CuPb5Sn5, **2.1176** CuPb10Sn	≤600		● ●
	2.0790 CuNi18Zn19Pb	≤850		●
Bronces, viruta larga	**2.0916** CuAl5, **2.0960** CuAl9Mn, **2.1050** CuSn10	≤850		●
	2.0980 CuAl11Ni, **2.1247** CuBe2	≤1000		●
Duroplásticos	Resina epoxídica, Resopal, Pertinax, Moltopren	≤150		○
Termoplásticos	Plexiglas, Hostalen, Novodur, Makralon	≤100		● ○
Materiales sintéticos	Kevlar	≤1000		○
Fibras de vidrio/carbón	GFK/CFK	≤1000		○

≤3xD Profundidad

1702	1184	1242	2475	2480	2472	2473	8524	768	6068
6539	6537K	6539	6537K	6537K	6537K	6539	6537K	WN	WN
MD	MD	MD	MD	MD	MD	MD	MD	MD	MD
K/P	K/P	K/P	K/P	K/P	K/P	K/P	K/P	K	K
RT 100 F	RT 100 U	RT 100 U	RT 100 F	RT 100 U	RT 100 U	RT 100 U	RT 100 HF	RT 150 GG	RT 150 GG
S	S	S	F	F	F	F	Y		
								axial	axial
28	21	23	27	16	18	20	25	56	58
								Al	G

≤4xD

v_c m/min	N° de serie de avance			v_c m/min	N° de serie de avance				v_c m/min	N° de serie de avance	v_c m/min	N° de serie de avance	
100	6	6	6	130	7	7	7	7	130	7			
85	5	5	5	110	6	6	6	6	110	6			
110	7	7	7	145	8	8	8	8	145	8			
85	6	6	6	110	7	7	7	7	110	7			
90	6	6	6	120	7	7	7	7	120	7			
85	6	6	6	110	7	7	7	7	110	7			
80	6	6	6	105	7	7	7	7	105	7			
80	6	6	6	105	7	7	7	7	105	7			
75	5	5	5	100	6	6	6	6	100	6			
100	7	7	7	130	8	8	8	8	130	8			
90	6	6	6	120	7	7	7	7	120	7			
65	4	4	4	85	5	5	5	5	85	5			
75	5	5	5	100	6	6	6	6	100	6			
70	4	4	4	90	5	5	5	5	90	5			
50	5	5	5	65	6	6	6	6	65	6			
40	4	4	4	55	5	5	5	5	55	5			
40	3			55	4				55	4			
35	2	2	2	45	3	3	3	3	45	3			
35	1	1	1	40	1	1	1	1	40	1			
20	1	1	1	20	1	1	1	1	20	1			
40	2	2	2	40	2	2	2	2	40	2			
15	2	1	1	15	1	1	1	1	15	1			
35	2	2	2	35	2	2	2	2	35	2			
160	7	7	7	210	8	8	8	8			120	7	7
120	7	7	7	155	8	8	8	8			100	7	7
120	7	6	6	155	8	7	7	7			90	7	7
95	7	6	6	125	8	7	7	7			80	7	7
25	2	2	2	35	3	3	3	3			40	2	2
20	3	3	3	25	4	4	4	4	25	4			
15	1	1	1	15	1	1	1	1	15	1			
15	1	1	1	15	1	1	1	1	15	1			
200	8	8	8	260	9	9	9	9			410	9	7
200	8	8	8	260	9	9	9	9			410	9	7
170	8	8	8	220	9	8	8	8			380	9	7
140	7	7	7	180	8	8	8	8			330	9	7
200	7	7	7	260	8	8	8	8					
80	6	6	6	105	7	7	7	7					
210	7	7	7	270	8	8	8	8			280	9	9
140	6	6	6	180	7	7	7	7					
80	5	5	5	105	6	6	6	6			110	6	6
65	5	5	5	85	6	6	6	6			80	5	5
60	4	4	4	80	5	5	5	5					
45	4	4	4	60	5	5	5	5					

GÜHRINGNAVIGATOR

Las herramientas con n° de código de series de avance impreso en negrita (código VR) se deberían elegir con preferencia.
Para la elección de la herramienta óptima y los valores de corte adecuados está a su disposición www.guehring.de y además una versión electrónica del navegador Gühring.

Artículo N°
Norma/DIN
Material de corte
Calidad de metal duro
Tipo
Acabado
Refrigeración
Dimens. página

Hta. Ø mm	N° de serie de avance								
	1	2	3	4	5	6	7	8	9
	f (mm/U)								
0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
50,00	0,250	0,310	0,400	0,500	0,630	0,800	1,000	1,250	1,250
63,00	0,315	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600
80,00	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600	2,000

Refrigerante según material:
○ Aire
● Aceite
● Emulsión

Sentido de corte:
corte a derechas
corte a izquierdas

Grupo de materiales	Ejemplos Cifras en negrita = nº de mat. según DIN EN 10 027	Resistencia N/mm²	Dureza	Refri-geración
Aceros de construcción generales	**1.0035** S185(St33), **1.0486** P275N(StE285), **1.0345** P235GH(H1), **1.0425** P265GH(H2)	≤500		●
	1.0050 E295 (St50-2), **1.0070** E360 (St70-2), **1.8937** P500NH (WStE500)	≤1000		●
Aceros para autómatas	**1.0718** 11SMnPb30 (9SMnPb28), **1.0736** 11SMn37 (9SMn36)	≤850		●
	1.0727 46S20 (45S20), **1.0728** (60S20), **1.0757** 46SPb20 (45SPb20)	≤1000		●
Aceros de bonificación no aleados	**1.0402** C22, **1.1178** C30E (Ck30)	≤700		●
	1.0503 C45, **1.1191** C45E (Ck45)	≤850		●
	1.0601 C60, **1.1221** C60E (Ck60)	≤1000		●
Aceros de bonificación aleados	**1.5131** 50MnSi4, **1.7003** 38Cr2, **1.7030** 28Cr4	≤1000		●
	1.5710 36NiCr6, **1.7035** 41Cr4, **1.7225** 42CrMo4	≤1400		●
Aceros cementación aleados	**1.0301** (C10), **1.1121** C10E (Ck10)	≤850		●
Aceros cementación no aleados	**1.7276** 10CrMo11, **1.5125** 11MnSi6	≤1000		●
	1.5752 15NiCr13, **1.7131** 16MnCr5, **1.7264** 20CrMo5	≤1400		●
Aceros de nitruración	**1.8504** 34CrAl6	≤1000		●
	1.8519 31CrMoV9, **1.8550** 34CrAlNi7	≤1400		●
Aceros para herramientas	**1.1750** C75W, **1.2067** 102Cr6, **1.2307** 29CrMoV9	≤850		●
	1.2080 X210Cr12, **1.2083** X42Cr13, **1.2419** 105WCr6, **1.2767** X45NiCrMo4	≤1400		●
Aceros rápidos	**1.3243** S 6-5-2-5, **1.3343** S 6-5-2, **1.3344** S 6-5-3	≤1400		●
Aceros para muelles	**1.5026** 55Si7, **1.7176** 55Cr3, **1.8159** 51CrV4 (51CrV4)		≤350 HB	●
Aceros templados	–		≤48 HRC	●
			≤66 HRC	●
Aceros inox., sulfurados	**1.4005** X12CrS13, **1.4104** X14CrMoS17, **1.4105** X6CrMoS17, **1.4305** X8CrNiS18-9	≤900		●
austeníticos	**1.4301** X5CrNi18-10 (V2A), **1.4541** X6CrNiTi18-10, **1.4571** X6CrNiMoTi 17-12-2 (V4A)	≤1100		●
martensíticos	**1.4057** X20CrNi172 (X17CrNi16-2), **1.4122** X39CrMo17-1, **1.4521** X2CrMoTi18-2	≤1500		●
Hierro fundido	**0.6010** EN-GJL-100 (GG10), **0.6020** EN-GJL-200 (GG20)		≤240 HB	● ○
	0.6025 EN-GJL-250 (GG25), **0.6035** EN-GJL-350 (GG35)		≤350 HB	● ○
Fundición de grafito esférico y fundición maleable	**0.7050** EN-GJS-500-7 (GGG50), **0.8035** EN-GJMW-350-4 (GTW35)		≤240 HB	●
	0.7070 EN-GJS-700-2 (GGG70), **0.8170** EN-GJMB-700-2 (GTS70)		≤350 HB	●
Fundición dura	–		≤350 HB	●
Nuevos mat. de fundición GGV	**EN-GJV250** (GGV25), **EN-GJV350** (GGV35)		≤220 HB	● ○
	EN-GJV400 (GGV40), **EN-GJV500** (GGV50), SiMo 6		≤300 HB	● ○
Nuevos mat. de fundición ADI	**EN-GJS-800-8** (ADI800), **EN-GJS-1000-5** (ADI1000)	≤1000		● ○
	EN-GJS-1200-2 (ADI1200), **EN-GJS-1400-1** (ADI1400)	≤1400		● ○
Aleaciones especiales	Nimonic, Inconel, Monel, Hastelloy	≤2000		●
Titanio y aleaciones de titanio	**3.7024** Ti99,5, **3.7114** TiAl5Sn2,5, **3.7124** TiCu2	≤850		●
	3.7154 TiAl6Zr5, **3.7165** TiAl6V4, **3.7184** TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤1400		●
Aluminio y aleaciones de Al	**3.0255** Al99,5, **3.2315** AlMgSi1, **3.3515** AlMg1	≤400		●
Aleaciones maleables de Al	**3.0615** AlMgSiPb, **3.1325** AlCuMg1, **3.3245** AlMg3Si, **3.4365** AlZnMgCu1,5	≤650		●
Aleac. fund. de Al ≤ 10 % Si	**3.2131** G-AlSi5Cu1, **3.2153** G-AlSi7Cu3, **3.2573** G-AlSi9	≤600		●
> 10 % Si	**3.2581** G-AlSi12, **3.2583** G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		●
Aleaciones de magnesio	**3.5200** MgMn2, **3.5812.05** G-MgAl8Zn1, **3.5612.05** G-MgAl6Zn1	≤400		○
Cobre de baja aleación	**2.0070** SE-Cu, **2.1020** CuSn6, **2.1096** G-CuSn5ZnPb	≤500		●
Latón, viruta corta	**2.0380** CuZn39Pb2, **2.0401** CuZn39Pb3, **2.0410** CuZn43Pb2	≤600		●
viruta larga	**2.0250** CuZn20, **2.0280** CuZn33, **2.0332** CuZn37Pb0,5	≤600		●
Bronces, viruta corta	**2.1090** CuSn7ZnPb, **2.1170** CuPb5Sn5, **2.1176** CuPb10Sn	≤600		● ●
	2.0790 CuNi18Zn19Pb	≤850		●
Bronces, viruta larga	**2.0916** CuAl5, **2.0960** CuAl9Mn, **2.1050** CuSn10	≤850		●
	2.0980 CuAl11Ni, **2.1247** CuBe2	≤1000		●
Duroplásticos	Resina epoxídica, Resopal, Pertinax, Moltopren	≤150		○
Termoplásticos	Plexiglas, Hostalen, Novodur, Makralon	≤100		● ○
Materiales sintéticos	Kevlar	≤1000		○
Fibras de vidrio/carbón	GFK/CFK	≤1000		○

≤5xD Profundidad

1172	6501	1662	1182	1663	1183	2478	2470	2479	2471	5759
6538M	6537L	6537L	6537L	6537L	6537L	6537L	6537L	6537L	6537L	6537L
HM	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD
P	K/P	K/P	K/P	K/P	K/P	K/P	K/P	K/P	K/P	K/P
RT 80 U	RT 100 R	RT 100 F	RT 100 F	RT 100 U	RT 100 U	RT 100 F	RT 100 F	RT 100 U	RT 100 U	RT 100 S
S	F	S	S	S	S	F	F	F	F	F
axial	axial	axial	axial	axial	axial	axial	axial	axial	axial	axial
84	82	78	80	65	66	76	77	61	63	59

v_c m/min	N° de serie de avance	v_c m/min	N° de serie de avance	v_c m/min	N° de serie de avance				v_c m/min	N° de serie de avance			v_c m/min	N° de serie de avance
95	5			110	6	6	6	6	145	7	7	7	145-230	8
80	4			90	5	5	5	5	120	6	6	6	120-220	7
95	6			130	7	7	7	7	170	8	8	8	170-260	8
75	5			110	7	7	7	7	145	8	8	8	145-230	8
80	5			100	7	7	7	7	130	8	8	8	130-220	8
75	5			95	6	6	6	6	125	7	7	7	125-210	7
75	5			90	6	6	6	6	120	7	7	7	120-200	7
75	5			90	6	6	6	6	120	7	7	7	120-210	7
55	4			80	6	6	6	6	105	7	7	7	105-200	7
90	6			110	7	7	7	7	145	8	8	8	145-230	8
75	5			90	6	6	6	6	120	7	7	7	120-210	7
55	4			65	4	4	4	4	85	5	5	5	105-200	6
70	5			85	6	6	6	6	105	7	7	7	110-150	7
55	4			80	4	4	5	5	100	5	5	5	100-150	5
40	4			60	5	5	5	5	70	6	6	6	70-120	6
35	4			50	4	4	4	4	55	5	5	5	55-100	5
40	3			45	3	3	4	4	60	4	4	5	60-100	5
				45	2	2	2	2	60	3	3	3	60-100	5
				40	2	2	2	2	55	3	3	3		
				25	1	1	1	1	35	2	2	2		
40	2			45	4	4	4	4	60	5	5	5		
35	2			40	2	2	2	2	55	2	2	2		
35	2			35	4	4	4	4	50	5	5	5		
150	6	210	9	160	8	8	8	8	195	9	9	9		
110	6	160	9	120	8	8	8	8	160	9	9	9		
110	6	160	9	100	8	8	8	8	140	9	9	9		
90	5	130	8	95	7	7	7	7	130	8	8	8		
				30	2	2	2	2	40	3	3	3		
		130	8											
		100	8											
		80	8											
		60	8											
				25	3	3	3	3	35	4	4	4		
				35	3	3	3	3	45	4	4	4		
				30	2	2	2	2	40	3	3	3		
200	7			240	8	8	8	8	310	9	9	9		
200	7			240	8	8	8	8	310	9	9	9		
170	7			200	8	8	8	8	260	9	9	9		
140	6			170	8	8	8	8	220	9	9	9		
				230	7	7	7	7	280	8	8	8		
				95	6	6	6	6	125	7	7	7		
				250	7	7	7	7	325	8	8	8		
				170	6	6	6	6	220	7	7	7		
				95	6	6	6	6	125	7	7	7		
				80	5	5	5	5	105	6	6	6		
				70	5	5	5	5	90	6	6	6		
				60	5	5	5	5	80	6	6	6		

GÜHRINGNAVIGATOR

Las herramientas con n° de código de series de avance impreso en negrita (código VR) se deberían elegir con preferencia.
Para la elección de la herramienta óptima y los valores de corte adecuados está a su disposición www.guehring.de y además una versión electrónica del navegador Gühring.

Artículo N°
Norma/DIN
Material de corte
Calidad de metal duro
Tipo
Acabado
Refrigeración
Dimens. página

Hta. Ø mm	N° de serie de avance								
	1	2	3	4	5	6	7	8	9
	f (mm/U)								
0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
50,00	0,250	0,310	0,400	0,500	0,630	0,800	1,000	1,250	1,250
63,00	0,315	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600
80,00	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600	2,000

Refrigerante según material:
○ Aire
● Aceite
● Emulsión

Sentido de corte:
corte a derechas
corte a izquierdas

Grupo de materiales	Ejemplos Cifras en negrita = nº de mat. según DIN EN 10 027	Resistencia N/mm²	Dureza	Refri-geración
Aceros de construcción generales	**1.0035** S185(St33), **1.0486** P275N(StE285), **1.0345** P235GH(H1), **1.0425** P265GH(H2)	≤500		●
	1.0050 E295 (St50-2), **1.0070** E360 (St70-2), **1.8937** P500NH (WStE500)	≤1000		●
Aceros para autómatas	**1.0718** 11SMnPb30 (9SMnPb28), **1.0736** 11SMn37 (9SMn36)	≤850		●
	1.0727 46S20 (45S20), **1.0728** (60S20), **1.0757** 46SPb20 (45SPb20)	≤1000		●
Aceros de bonificación no aleados	**1.0402** C22, **1.1178** C30E (Ck30)	≤700		●
	1.0503 C45, **1.1191** C45E (Ck45)	≤850		●
	1.0601 C60, **1.1221** C60E (Ck60)	≤1000		●
Aceros de bonificación aleados	**1.5131** 50MnSi4, **1.7003** 38Cr2, **1.7030** 28Cr4	≤1000		●
	1.5710 36NiCr6, **1.7035** 41Cr4, **1.7225** 42CrMo4	≤1400		●
Aceros cementación aleados	**1.0301** (C10), **1.1121** C10E (Ck10)	≤850		●
Aceros cementación no aleados	**1.7276** 10CrMo11, **1.5125** 11MnSi6	≤1000		●
	1.5752 15NiCr13, **1.7131** 16MnCr5, **1.7264** 20CrMo5	≤1400		●
Aceros de nitruración	**1.8504** 34CrAl6	≤1000		●
	1.8519 31CrMoV9, **1.8550** 34CrAlNi7	≤1400		●
Aceros para herramientas	**1.1750** C75W, **1.2067** 102Cr6, **1.2307** 29CrMoV9	≤850		●
	1.2080 X210Cr12, **1.2083** X42Cr13, **1.2419** 105WCr6, **1.2767** X45NiCrMo4	≤1400		●
Aceros rápidos	**1.3243** S 6-5-2-5, **1.3343** S 6-5-2, **1.3344** S 6-5-3	≤1400		●
Aceros para muelles	**1.5026** 55Si7, **1.7176** 55Cr3, **1.8159** 51CrV4 (51CrV4)		≤350 HB	●
Aceros templados	–		≤48 HRC	●
			≤66 HRC	●
Aceros inox., sulfurados	**1.4005** X12CrS13, **1.4104** X14CrMoS17, **1.4105** X6CrMoS17, **1.4305** X8CrNiS18-9	≤900		●
austeníticos	**1.4301** X5CrNi18-10 (V2A), **1.4541** X6CrNiTi18-10, **1.4571** X6CrNiMoTi 17-12-2 (V4A)	≤1100		●
martensíticos	**1.4057** X20CrNi172 (X17CrNi16-2), **1.4122** X39CrMo17-1, **1.4521** X2CrMoTi18-2	≤1500		●
Hierro fundido	**0.6010** EN-GJL-100 (GG10), **0.6020** EN-GJL-200 (GG20)		≤240 HB	○ ○
	0.6025 EN-GJL-250 (GG25), **0.6035** EN-GJL-350 (GG35)		≤350 HB	○ ○
Fundición de grafito esférico y fundición maleable	**0.7050** EN-GJS-500-7 (GGG50), **0.8035** EN-GJMW-350-4 (GTW35)		≤240 HB	●
	0.7070 EN-GJS-700-2 (GGG70), **0.8170** EN-GJMB-700-2 (GTS70)		≤350 HB	●
Fundición dura	–		≤350 HB	●
Nuevos mat. de fundición GGV	**EN-GJV250** (GGV25), **EN-GJV350** (GGV35)		≤220 HB	● ○
	EN-GJV400 (GGV40), **EN-GJV500** (GGV50), SiMo 6		≤300 HB	● ○
Nuevos mat. de fundición ADI	**EN-GJS-800-8** (ADI800), **EN-GJS-1000-5** (ADI1000)	≤1000		● ○
	EN-GJS-1200-2 (ADI1200), **EN-GJS-1400-1** (ADI1400)	≤1400		● ○
Aleaciones especiales	Nimonic, Inconel, Monel, Hastelloy	≤2000		●
Titanio y aleaciones de titanio	**3.7024** Ti99,5, **3.7114** TiAl5Sn2,5, **3.7124** TiCu2	≤850		●
	3.7154 TiAl6Zr5, **3.7165** TiAl6V4, **3.7184** TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤1400		●
Aluminio y aleaciones de Al	**3.0255** Al99,5, **3.2315** AlMgSi1, **3.3515** AlMg1	≤400		●
Aleaciones maleables de Al	**3.0615** AlMgSiPb, **3.1325** AlCuMg1, **3.3245** AlMg3Si, **3.4365** AlZnMgCu1,5	≤650		●
Aleac. fund. de Al ≤ 10 % Si	**3.2131** G-AlSi5Cu1, **3.2153** G-AlSi7Cu3, **3.2573** G-AlSi9	≤600		●
> 10 % Si	**3.2581** G-AlSi12, **3.2583** G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		●
Aleaciones de magnesio	**3.5200** MgMn2, **3.5812.05** G-MgAl8Zn1, **3.5612.05** G-MgAl6Zn1	≤400		○
Cobre de baja aleación	**2.0070** SE-Cu, **2.1020** CuSn6, **2.1096** G-CuSn5ZnPb	≤500		●
Latón, viruta corta	**2.0380** CuZn39Pb2, **2.0401** CuZn39Pb3, **2.0410** CuZn43Pb2	≤600		●
viruta larga	**2.0250** CuZn20, **2.0280** CuZn33, **2.0332** CuZn37Pb0,5	≤600		●
Bronces, viruta corta	**2.1090** CuSn7ZnPb, **2.1170** CuPb5Sn5, **2.1176** CuPb10Sn	≤600		● ●
	2.0790 CuNi18Zn19Pb	≤850		●
Bronces, viruta larga	**2.0916** CuAl5, **2.0960** CuAl9Mn, **2.1050** CuSn10	≤850		●
	2.0980 CuAl11Ni, **2.1247** CuBe2	≤1000		●
Duroplásticos	Resina epoxídica, Resopal, Pertinax, Moltopren	≤150		○
Termoplásticos	Plexiglas, Hostalen, Novodur, Makralon	≤100		● ○
Materiales sintéticos	Kevlar	≤1000		○
Fibras de vidrio/carbón	GFK/CFK	≤1000		○

≤5xD Profundidad

8511	8611	8521	8621	1243	2717	2712	2474	2996	2719
6537L	6537L	6537L	6537L	WN	6537L	6537L	WN	6537L	6537L
MD	MD	MD	MD	MD	MD	MD	MD	MD	MD
K/P	K/P	K/P	K/P	K/P	K/P	K/P	K/P	K/P	K/P
RT 100 VA	RT 100 VA	RT 100 HF	RT 100 HF	RT 100 U	RT 100 U	RT 100 F	RT 100 U	RT 100 U	RT 100 U
a	a	Y	Y	S	S	F	F	F	F
axial	axial	axial	axial						
72	74	68	70	36	35	38	34	30	32

vc m/min	N° de serie de avance		vc m/min	N° de serie de avance		vc m/min	N° de serie de avance		vc m/min	N° de serie de avance			
			145	7	7	100	6	6	130	7	7	7	7
			120	6	6	85	5	5	110	6	6	6	6
			170	8	8	110	7	7	145	8	8	8	8
			145	8	8	85	6	6	110	7	7	7	7
			130	8	8	90	6	6	120	7	7	7	7
			125	7	7	85	6	6	110	7	7	7	7
			120	7	7	80	6	6	105	7	7	7	7
			120	7	7	80	6	6	105	7	7	7	7
			105	7	7	75	5	5	100	6	6	6	6
			145	8	8	100	7	7	130	8	8	8	8
			120	7	7	90	6	6	120	7	7	7	7
			85	5	5	65	4	4	85	5	5	5	5
			110	7	7	75	5	5	100	6	6	6	6
			105	5	5	70	4	4	90	5	5	5	5
			80	6	6	50	5	5	65	6	6	6	6
			65	5	5	40	4	4	55	5	5	5	5
			60	4	4				55	4			
			60	3	3	35	2	2	45	3	3	3	3
			55	3	3	35	1	1	35	1	1	1	1
			35	2	2	20	1	1	20	1	1	1	1
80	5	5				40	2	2	45	2	2	2	2
60	2-3	2-3				15	1	1	15	1	1	1	1
80	5	5				35	2	2	35	2	1	2	2
						160	7	7	210	8	8	8	8
						120	7	7	155	8	8	8	8
						120	6	6	145	8	7	7	7
						95	6	6	125	8	7	7	7
						25	2	2	35	3	3	3	3
30	4	4	35	4	4	20	3	3	25	4	4	4	4
45	4	4	45	4	4	15	1	1	15	1	1	1	1
40	3	3	40	3	3	15	1	1	15	1	1	1	1
						200	8	8	260	9	9	9	9
						200	8	8	260	9	9	9	9
						170	8	8	235	9	9	9	9
						140	7	7	170	8	8	8	8
						200	7	7	260	8	8	8	8
						80	6	6	105	7	7	7	7
						210	7	7	270	8	8	8	8
						140	6	6	180	7	7	7	7
						80	5	5	105	6	6	6	6
						65	5	5	85	6	6	6	6
						60	4	4	80	5	5	5	5
						45	4	4	60	5	5	5	5

Navegador

GÜHRINGNAVIGATOR

Las herramientas con n° de código de series de avance impreso en negrita (código VR) se deberían elegir con preferencia.
Para la elección de la herramienta óptima y los valores de corte adecuados está a su disposición www.guehring.de y además una versión electrónica del navegador Gühring.

En taladros con prof. más de 7 x D siempre se ha de hacer un taladro piloto:
1. El taladro piloto se puede hacer con una broca corta y dura, con un diámetro de 0,01-0,02 mm más grande que el diámetro de la broca Ratio. Profundidad del taladro piloto ≥ 1 x D.
2. Alternativamente puede hacer la broca Ratio misma el taladro piloto. En este caso se debe reducir la velocidad de corte y el avance un 30-40 %.
3. La presión recomendable son minimo 40 bar.

Es enormemente importante, por motivos de seguridad, que ninguna broca trabaje sin soporte a unas revoluciones mayores a n = 6.000 U/min. La fuerza centrífuga podría ser motivo de rotura de las herramientas largas antes de que lleguen a la superficie de la pieza.

Artículo N°
Norma/DIN
Material de corte
Calidad de metal duro
Tipo
Acabado
Refrigeración
Dimens. página

Hta. Ø mm	N° de serie de avance 1	2	3	4	5	6	7	8	9
	f (mm/U)								
0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
50,00	0,250	0,310	0,400	0,500	0,630	0,800	1,000	1,250	1,250
63,00	0,315	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600
80,00	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600	2,000

Al
Prioritariamente para el mecanizado de aluminio

G
Prioritariamente para el mecanizado de fundición

Refrigerante según material:
○ Aire
● Aceite
◍ Emulsión

Sentido de corte:
corte a derechas
corte a izquierdas

Grupo de materiales	Ejemplos Cifras en negrita = nº de mat. según DIN EN 10 027	Resistencia N/mm²	Dureza	Refri-geración
Aceros de construcción generales	**1.0035** S185(St33), **1.0486** P275N(StE285), **1.0345** P235GH(H1), **1.0425** P265GH(H2)	≤500		◍
	1.0050 E295 (St50-2), **1.0070** E360 (St70-2), **1.8937** P500NH (WStE500)	≤1000		◍
Aceros para autómatas	**1.0718** 11SMnPb30 (9SMnPb28), **1.0736** 11SMn37 (9SMn36)	≤850		◍
	1.0727 46S20 (45S20), **1.0728** (60S20), **1.0757** 46SPb20 (45SPb20)	≤1000		◍
Aceros de bonificación no aleados	**1.0402** C22, **1.1178** C30E (Ck30)	≤700		◍
	1.0503 C45, **1.1191** C45E (Ck45)	≤850		◍
	1.0601 C60, **1.1221** C60E (Ck60)	≤1000		◍
Aceros de bonificación aleados	**1.5131** 50MnSi4, **1.7003** 38Cr2, **1.7030** 28Cr4	≤1000		◍
	1.5710 36NiCr6, **1.7035** 41Cr4, **1.7225** 42CrMo4	≤1400		◍
Aceros cementación aleados	**1.0301** (C10), **1.1121** C10E (Ck10)	≤850		◍
Aceros cementación no aleados	**1.7276** 10CrMo11, **1.5125** 11MnSi6	≤1000		●
	1.5752 15NiCr13, **1.7131** 16MnCr5, **1.7264** 20CrMo5	≤1400		●
Aceros de nitruración	**1.8504** 34CrAl6	≤1000		◍
	1.8519 31CrMoV9, **1.8550** 34CrAlNi7	≤1400		●
Aceros para herramientas	**1.1750** C75W, **1.2067** 102Cr6, **1.2307** 29CrMoV9	≤850		◍
	1.2080 X210Cr12, **1.2083** X42Cr13, **1.2419** 105WCr6, **1.2767** X45NiCrMo4	≤1400		●
Aceros rápidos	**1.3243** S 6-5-2-5, **1.3343** S 6-5-2, **1.3344** S 6-5-3	≤1400		●
Aceros para muelles	**1.5026** 55Si7, **1.7176** 55Cr3, **1.8159** 51CrV4 (51CrV4)		≤350 HB	●
Aceros templados	–		≤48 HRC	●
			≤66 HRC	●
Aceros inox., sulfurados	**1.4005** X12CrS13, **1.4104** X14CrMoS17, **1.4105** X6CrMoS17, **1.4305** X8CrNiS18-9	≤900		●
austeníticos	**1.4301** X5CrNi18-10 (V2A), **1.4541** X6CrNiTi18-10, **1.4571** X6CrNiMoTi 17-12-2 (V4A)	≤1100		●
martensíticos	**1.4057** X20CrNi172 (X17CrNi16-2), **1.4122** X39CrMo17-1, **1.4521** X2CrMoTi18-2	≤1500		●
Hierro fundido	**0.6010** EN-GJL-100 (GG10), **0.6020** EN-GJL-200 (GG20)		≤240 HB	◍○
	0.6025 EN-GJL-250 (GG25), **0.6035** EN-GJL-350 (GG35)		≤350 HB	◍○
Fundición de grafito esférico y fundición maleable	**0.7050** EN-GJS-500-7 (GGG50), **0.8035** EN-GJMW-350-4 (GTW35)		≤240 HB	◍
	0.7070 EN-GJS-700-2 (GGG70), **0.8170** EN-GJMB-700-2 (GTS70)		≤350 HB	◍
Fundición dura	–		≤350 HB	◍
Nuevos mat. de fundición GGV	**EN-GJV250** (GGV25), **EN-GJV350** (GGV35)		≤220 HB	◍○
	EN-GJV400 (GGV40), **EN-GJV500** (GGV50), SiMo 6		≤300 HB	◍○
Nuevos mat. de fundición ADI	**EN-GJS-800-8** (ADI800), **EN-GJS-1000-5** (ADI1000)	≤1000		◍○
	EN-GJS-1200-2 (ADI1200), **EN-GJS-1400-1** (ADI1400)	≤1400		◍○
Aleaciones especiales	Nimonic, Inconel, Monel, Hastelloy	≤2000		●
Titanio y aleaciones de titanio	**3.7024** Ti99,5, **3.7114** TiAl5Sn2,5, **3.7124** TiCu2	≤850		●
	3.7154 TiAl6Zr5, **3.7165** TiAl6V4, **3.7184** TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤1400		●
Aluminio y aleaciones de Al	**3.0255** Al99,5, **3.2315** AlMgSi1, **3.3515** AlMg1	≤400		◍
Aleaciones maleables de Al	**3.0615** AlMgSiPb, **3.1325** AlCuMg1, **3.3245** AlMg3Si, **3.4365** AlZnMgCu1,5	≤650		◍
Aleac. fund. de Al ≤ 10 % Si	**3.2131** G-AlSi5Cu1, **3.2153** G-AlSi7Cu3, **3.2573** G-AlSi9	≤600		◍
> 10 % Si	**3.2581** G-AlSi12, **3.2583** G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		◍
Aleaciones de magnesio	**3.5200** MgMn2, **3.5812.05** G-MgAl8Zn1, **3.5612.05** G-MgAl6Zn1	≤400		○
Cobre de baja aleación	**2.0070** SE-Cu, **2.1020** CuSn6, **2.1096** G-CuSn5ZnPb	≤500		◍
Latón, viruta corta	**2.0380** CuZn39Pb2, **2.0401** CuZn39Pb3, **2.0410** CuZn43Pb2	≤600		◍
viruta larga	**2.0250** CuZn20, **2.0280** CuZn33, **2.0332** CuZn37Pb0,5	≤600		◍
Bronces, viruta corta	**2.1090** CuSn7ZnPb, **2.1170** CuPb5Sn5, **2.1176** CuPb10Sn	≤600		◍●
	2.0790 CuNi18Zn19Pb	≤850		●
Bronces, viruta larga	**2.0916** CuAl5, **2.0960** CuAl9Mn, **2.1050** CuSn10	≤850		●
	2.0980 CuAl11Ni, **2.1247** CuBe2	≤1000		●
Duroplásticos	Resina epoxídica, Resopal, Pertinax, Moltopren	≤150		○
Termoplásticos	Plexiglas, Hostalen, Novodur, Makralon	≤100		◍○
Materiales sintéticos	Kevlar	≤1000		○
Fibras de vidrio/carbón	GFK/CFK	≤1000		○

≤7xD Profundidad

1173	769	6069	2711	4044	4045	6502	8522	5760	770	6070	5525
6538L	WN	WN	WN	WN	WN	WN	WN	6537L	WN	WN	WN
Carbide	MD		MD	MD		MD	MD	MD	MD		MD
P	K	K	K/P	K/P	K/P	K/P	K/P	K/P	K	K	K/P
RT80U	RT 150 GG		RT100U	RT 100 U		RT100R	RT100HF	RT100S	RT 150 GG		RT100U
S	○	○	S	F	F	F	Y	F	○	○	F
axial	axial	axial	axial	axial	axial	axial	axial	axial	axial	axial	axial
95	93	94	89	85	87	91	90	96	98	99	100
	Al	G							Al	G	

≤8xD ≤10xD ≤12xD

v_c m/min	N° avance	v_c m/min	N° de serie de avance		v_c m/min	N° avance	v_c m/min	N° de serie de avance		v_c m/min	N° avance	v_c m/min	N° avance	v_c m/min	N° avance	v_c m/min	N° de serie de avance		v_c m/min	N° avance
95	4				110	5	145	6	6			145	6	145-230	7				110	6
75	3				90	4	120	5	5			120	5	120-220	6				110	5
90	5				130	6	170	7	7			170	7	170-260	7				110	7
75	4				110	6	145	7	7			145	7	145-230	7				100	7
80	4				100	6	130	7	7			130	7	130-220	7				110	7
75	4				95	5	125	6	6			125	6	125-210	6				110	6
60	4				90	5	120	6	6			120	6	120-200	6				100	6
75	4				90	5	120	6	6			120	6	120-210	6				110	6
60	3				80	5	105	6	6			105	6	105-200	6				105	6
90	5				110	6	145	7	7			145	7	145-230	7				110	7
75	4				90	5	120	6	6			120	6	120-210	6				110	6
55	3				65	3	85	4	4			85	4	105-200	5				85	4
75	4				80	5	110	6	6			110	6	110-150	6				100	6
55	3				75	4	105	4	4			105	4	100-150	4				80	4
40	3				55	4	80	5	5			80	5	70-120	5				80	5
35	3				40	3	65	4	4			65	4	65-100	4				65	4
40	2				45	2	60	4	4			60	3	60-100	4				50	4
					45	1	60	2	2			60	2	60-100	4				50	2
					40	1	55	2	2			55	2							
					25	1	35	1	1			35	1							
35	1				45	3	60	4	4										60	4
33	1				40	2	55	2	2										55	2
25	1				35	3	45	4	4										45	4
150	5	120	6	7	150	7	195	8	8	210	8					120	6	6	120	8
110	5	100	6	7	120	7	160	8	8	160	8					100	6	6	120	8
110	5	90	6	7	100	7	140	8	8	160	8					90	6	6	100	8
90	4	80	6	7	95	6	130	7	7	130	7					80	6	6	90	7
		40	2	2	30	1	40	2	2							40	1	2		
										130	7									
										100	7									
										80	7									
										60	7									
					25	2	35	3	3			35	3							
					35	1	40	3	3			45	3							
					30	1	40	2	2			40	4							
180	6	410	8	7	240	7	310	8	8							410	8	6	150	8
180	6	410	8	7	240	7	310	8	8							410	8	6	150	8
160	6	380	8	8	200	7	260	8	8							380	8	6	150	8
130	5	330	8	8	170	7	220	8	8							330	8	6	120	8
					230	6	280	7	7										150	7
					95	6	125	6	6										80	6
		280	7	7	250	7	325	7	7							280	7	7	120	7
					170	6	220	6	6										120	6
		110	6	6	95	6	125	6	6							110	6	6	40	6
		80	5	5	80	5	105	5	5							80	5	5		
					70	5	90	5	5											
					60	5	80	5	5										40	5

Navegador

GÜHRINGNAVIGATOR

Las herramientas con n° de código de series de avance impreso en negrita (código VR) se deberían elegir con preferencia.
Para la elección de la herramienta óptima y los valores de corte adecuados está a su disposición www.guehring.de y además una versión electrónica del navegador Gühring.

Artículo N°
Norma/DIN
Material de corte
Calidad de metal duro
Tipo
Acabado
Refrigeración
Dimens. página

Hta. Ø mm	N° de serie de avance								
	1	2	3	4	5	6	7	8	9
	f (mm/U)								
0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
50,00	0,250	0,310	0,400	0,500	0,630	0,800	1,000	1,250	1,250
63,00	0,315	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600
80,00	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600	2,000

Refrigerante según material:
○ Aire
● Aceite
● Emulsión

Sentido de corte:
corte a derechas
corte a izquierdas

Grupo de materiales	Ejemplos Cifras en negrita = nº de mat. según DIN EN 10 027	Resistencia N/mm²	Dureza	Refri-geración
Aceros de construcción generales	**1.0035** S185(St33), **1.0486** P275N(StE285), **1.0345** P235GH(H1), **1.0425** P265GH(H2)	≤500		●
	1.0050 E295 (St50-2), **1.0070** E360 (St70-2), **1.8937** P500NH (WStE500)	≤1000		●
Aceros para autómatas	**1.0718** 11SMnPb30 (9SMnPb28), **1.0736** 11SMn37 (9SMn36)	≤850		●
	1.0727 46S20 (45S20), **1.0728** (60S20), **1.0757** 46SPb20 (45SPb20)	≤1000		●
Aceros de bonificación no aleados	**1.0402** C22, **1.1178** C30E (Ck30)	≤700		●
	1.0503 C45, **1.1191** C45E (Ck45)	≤850		●
	1.0601 C60, **1.1221** C60E (Ck60)	≤1000		●
Aceros de bonificación aleados	**1.5131** 50MnSi4, **1.7003** 38Cr2, **1.7030** 28Cr4	≤1000		●
	1.5710 36NiCr6, **1.7035** 41Cr4, **1.7225** 42CrMo4	≤1400		●
Aceros cementación aleados	**1.0301** (C10), **1.1121** C10E (Ck10)	≤850		●
Aceros cementación no aleados	**1.7276** 10CrMo11, **1.5125** 11MnSi6	≤1000		●
	1.5752 15NiCr13, **1.7131** 16MnCr5, **1.7264** 20CrMo5	≤1400		●
Aceros de nitruración	**1.8504** 34CrAl6	≤1000		●
	1.8519 31CrMoV9, **1.8550** 34CrAlNi7	≤1400		●
Aceros para herramientas	**1.1750** C75W, **1.2067** 102Cr6, **1.2307** 29CrMoV9	≤850		●
	1.2080 X210Cr12, **1.2083** X42Cr13, **1.2419** 105WCr6, **1.2767** X45NiCrMo4	≤1400		●
Aceros rápidos	**1.3243** S 6-5-2-5, **1.3343** S 6-5-2, **1.3344** S 6-5-3	≤1400		●
Aceros para muelles	**1.5026** 55Si7, **1.7176** 55Cr3, **1.8159** 51CrV4 (51CrV4)		≤350 HB	●
Aceros templados	–		≤48 HRC	●
			≤66 HRC	●
Aceros inox., sulfurados	**1.4005** X12CrS13, **1.4104** X14CrMoS17, **1.4105** X6CrMoS17, **1.4305** X8CrNiS18-9	≤900		●
austeníticos	**1.4301** X5CrNi18-10 (V2A), **1.4541** X6CrNiTi18-10, **1.4571** X6CrNiMoTi 17-12-2 (V4A)	≤1100		●
martensíticos	**1.4057** X20CrNi172 (X17CrNi16-2), **1.4122** X39CrMo17-1, **1.4521** X2CrMoTi18-2	≤1500		●
Hierro fundido	**0.6010** EN-GJL-100 (GG10), **0.6020** EN-GJL-200 (GG20)		≤240 HB	○ ○
	0.6025 EN-GJL-250 (GG25), **0.6035** EN-GJL-350 (GG35)		≤350 HB	○ ○
Fundición de grafito esférico y fundición maleable	**0.7050** EN-GJS-500-7 (GGG50), **0.8035** EN-GJMW-350-4 (GTW35)		≤240 HB	●
	0.7070 EN-GJS-700-2 (GGG70), **0.8170** EN-GJMB-700-2 (GTS70)		≤350 HB	●
Fundición dura	–		≤350 HB	●
Nuevos mat. de fundición GGV	**EN-GJV250** (GGV25), **EN-GJV350** (GGV35)		≤220 HB	● ○
	EN-GJV400 (GGV40), **EN-GJV500** (GGV50), SiMo 6		≤300 HB	● ○
Nuevos mat. de fundición ADI	**EN-GJS-800-8** (ADI800), **EN-GJS-1000-5** (ADI1000)	≤1000		● ○
	EN-GJS-1200-2 (ADI1200), **EN-GJS-1400-1** (ADI1400)	≤1400		● ○
Aleaciones especiales	Nimonic, Inconel, Monel, Hastelloy	≤2000		●
Titanio y aleaciones de titanio	**3.7024** Ti99,5, **3.7114** TiAl5Sn2,5, **3.7124** TiCu2	≤850		●
	3.7154 TiAl6Zr5, **3.7165** TiAl6V4, **3.7184** TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤1400		●
Aluminio y aleaciones de Al	**3.0255** Al99,5, **3.2315** AlMgSi1, **3.3515** AlMg1	≤400		●
Aleaciones maleables de Al	**3.0615** AlMgSiPb, **3.1325** AlCuMg1, **3.3245** AlMg3Si, **3.4365** AlZnMgCu1,5	≤650		●
Aleac. fund. de Al ≤ 10 % Si	**3.2131** G-AlSi5Cu1, **3.2153** G-AlSi7Cu3, **3.2573** G-AlSi9	≤600		●
> 10 % Si	**3.2581** G-AlSi12, **3.2583** G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		●
Aleaciones de magnesio	**3.5200** MgMn2, **3.5812.05** G-MgAl8Zn1, **3.5612.05** G-MgAl6Zn1	≤400		○
Cobre de baja aleación	**2.0070** SE-Cu, **2.1020** CuSn6, **2.1096** G-CuSn5ZnPb	≤500		●
Latón, viruta corta	**2.0380** CuZn39Pb2, **2.0401** CuZn39Pb3, **2.0410** CuZn43Pb2	≤600		●
viruta larga	**2.0250** CuZn20, **2.0280** CuZn33, **2.0332** CuZn37Pb0,5	≤600		●
Bronces, viruta corta	**2.1090** CuSn7ZnPb, **2.1170** CuPb5Sn5, **2.1176** CuPb10Sn	≤600		● ●
	2.0790 CuNi18Zn19Pb	≤850		●
Bronces, viruta larga	**2.0916** CuAl5, **2.0960** CuAl9Mn, **2.1050** CuSn10	≤850		●
	2.0980 CuAl11Ni, **2.1247** CuBe2	≤1000		●
Duroplásticos	Resina epoxídica, Resopal, Pertinax, Moltopren	≤150		○
Termoplásticos	Plexiglas, Hostalen, Novodur, Makralon	≤100		● ○
Materiales sintéticos	Kevlar	≤1000		○
Fibras de vidrio/carbón	GFK/CFK	≤1000		○

≤15xD	≤15xD		≤20xD		≤25xD		≤30xD		≤40xD
773	6509		6511		6512		6513		6514
WN	WN		WN		WN		WN		WN
MD	MD		MD		MD		MD		MD
K	K/P		K/P		K/P		K/P		K/P
RT 150 GN	RT 100 T		RT 100 T		RT 100 T		RT 100 T		RT 100 T
○	A		A		A		A		A
axial	40 bar	MQL	40 bar	MQL	40 bar	MQL	40 bar	MQL	40 bar
103	102		104		105		106		107

v_c m/min	N° de serie de avance	v_c m/min	N° avance	v_c m/min	N° avance	v_c m/min	N° avance	v_c m/min	N° avance	v_c m/min	N° avance	v_c m/min	N° avance	v_c m/min	N° avance
		110	8			110	8			100	8			80	7			80	7
		110	8			110	8			100	8			80	7			80	7
		120	8			120	8			120	8			100	8			100	8
		120	8			120	8			100	8			100	8			100	8
		110	6			110	6			110	6			110	6			110	6
		110	8			110	8			100	8			80	7			80	7
		100	7			100	7			100	7			80	7			80	7
		110	7	80	7	110	7	80	7	100	7	70	7	80	7	60	7	80	6-7
		110	6	80	7	110	6	80	7	100	6	70	7	80	6	60	7	80	6
		110	8			110	8			100	8			80	7			80	7
		110	7	80	6-7	110	7	80	6-7	100	7	70	6-7	80	6	60	6-7	80	6
		110	6	80	6-7	110	6	80	6-7	100	6	70	6-7	80	6	60	6-7	80	6
		100	5			100	5			80	5			80	5			80	5
		80	5			80	5			60	5			60	5			60	5
		100	6-7			100	6			90	6			80	6			80	6-7
		80	5			80	5			70	4			70	4			70	4
		50	5			50	5			50	4			50	4			50	4
		50	5			50	5			50	4			50	4			50	4
		50	4			50	4			50	4			50	4			50	4
		100	5			100	5			100	5			80	5			80	5
		70	2-3			60	3			60	3			60	3			70	2-3
		100	5			100	5			100	5			80	5			80	5
120	5	140	8			140	8			130	8			120	8			120	8
100	5	100	8			100	8			90	8			80	8			80	8
90	5	140	8			140	8			130	8			120	8			120	8
80	5	100	8			100	8			90	8			80	8	65	8	80	8
40	1																		
		100	6			100	6			90	6			80	6			80	6
		100	6			100	6			90	6			80	6			80	6
		90	8	90	8	90	8	90	8	80	8	80	8	70	8	70	8	70	8
		30	2			30	2			30	2			30	2			30	2
410	6																		
410	6																		
380	7																		
330	7																		
		120	1			120	1			120	1			120	1			120	1
280	6	120	8			120	8			110	8			100	8			100	8
110	5																		
80	4																		

GÜHRINGNAVIGATOR

Las herramientas con n° de código de series de avance impreso en negrita (código VR) se deberían elegir con preferencia.
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Artículo N°
Norma/DIN
Material de corte
Calidad de metal duro
Tipo
Acabado
Refrigeración
Dimens. página

Hta. Ø mm	N° de serie de avance								
	1	2	3	4	5	6	7	8	9
	f (mm/U)								
0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
50,00	0,250	0,310	0,400	0,500	0,630	0,800	1,000	1,250	1,250
63,00	0,315	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600
80,00	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600	2,000

Refrigerante según material:
○ Aire
● Aceite
● Emulsión

Sentido de corte:
corte a derechas
corte a izquierdas

Grupo de materiales	Ejemplos Cifras en negrita = nº de mat. según DIN EN 10 027	Resistencia N/mm²	Dureza	Refri-geración
Aceros de construcción generales	**1.0035** S185(St33), **1.0486** P275N(StE285), **1.0345** P235GH(H1), **1.0425** P265GH(H2)	≤500		●
	1.0050 E295 (St50-2), **1.0070** E360 (St70-2), **1.8937** P500NH (WStE500)	≤1000		●
Aceros para autómatas	**1.0718** 11SMnPb30 (9SMnPb28), **1.0736** 11SMn37 (9SMn36)	≤850		●
	1.0727 46S20 (45S20), **1.0728** (60S20), **1.0757** 46SPb20 (45SPb20)	≤1000		●
Aceros de bonificación no aleados	**1.0402** C22, **1.1178** C30E (Ck30)	≤700		●
	1.0503 C45, **1.1191** C45E (Ck45)	≤850		●
	1.0601 C60, **1.1221** C60E (Ck60)	≤1000		●
Aceros de bonificación aleados	**1.5131** 50MnSi4, **1.7003** 38Cr2, **1.7030** 28Cr4	≤1000		●
	1.5710 36NiCr6, **1.7035** 41Cr4, **1.7225** 42CrMo4	≤1400		●
Aceros cementación aleados	**1.0301** (C10), **1.1121** C10E (Ck10)	≤850		●
Aceros cementación no aleados	**1.7276** 10CrMo11, **1.5125** 11MnSi6	≤1000		●
	1.5752 15NiCr13, **1.7131** 16MnCr5, **1.7264** 20CrMo5	≤1400		●
Aceros de nitruración	**1.8504** 34CrAl6	≤1000		●
	1.8519 31CrMoV9, **1.8550** 34CrAlNi7	≤1400		●
Aceros para herramientas	**1.1750** C75W, **1.2067** 102Cr6, **1.2307** 29CrMoV9	≤850		●
	1.2080 X210Cr12, **1.2083** X42Cr13, **1.2419** 105WCr6, **1.2767** X45NiCrMo4	≤1400		●
Aceros rápidos	**1.3243** S 6-5-2-5, **1.3343** S 6-5-2, **1.3344** S 6-5-3	≤1400		●
Aceros para muelles	**1.5026** 55Si7, **1.7176** 55Cr3, **1.8159** 51CrV4 (51CrV4)		≤350 HB	●
Aceros templados	–		≤48 HRC	●
			≤66 HRC	●
Aceros inox., sulfurados	**1.4005** X12CrS13, **1.4104** X14CrMoS17, **1.4105** X6CrMoS17, **1.4305** X8CrNiS18-9	≤900		●
austeníticos	**1.4301** X5CrNi18-10 (V2A), **1.4541** X6CrNiTi18-10, **1.4571** X6CrNiMoTi 17-12-2 (V4A)	≤1100		●
martensíticos	**1.4057** X20CrNi172 (X17CrNi16-2), **1.4122** X39CrMo17-1, **1.4521** X2CrMoTi18-2	≤1500		●
Hierro fundido	**0.6010** EN-GJL-100 (GG10), **0.6020** EN-GJL-200 (GG20)		≤240 HB	● ○
	0.6025 EN-GJL-250 (GG25), **0.6035** EN-GJL-350 (GG35)		≤350 HB	● ○
Fundición de grafito esférico y fundición maleable	**0.7050** EN-GJS-500-7 (GGG50), **0.8035** EN-GJMW-350-4 (GTW35)		≤240 HB	●
	0.7070 EN-GJS-700-2 (GGG70), **0.8170** EN-GJMB-700-2 (GTS70)		≤350 HB	●
Fundición dura	–		≤350 HB	●
Nuevos mat. de fundición GGV	**EN-GJV250** (GGV25), **EN-GJV350** (GGV35)		≤220 HB	● ○
	EN-GJV400 (GGV40), **EN-GJV500** (GGV50), SiMo 6		≤300 HB	● ○
Nuevos mat. de fundición ADI	**EN-GJS-800-8** (ADI800), **EN-GJS-1000-5** (ADI1000)	≤1000		● ○
	EN-GJS-1200-2 (ADI1200), **EN-GJS-1400-1** (ADI1400)	≤1400		● ○
Aleaciones especiales	Nimonic, Inconel, Monel, Hastelloy	≤2000		●
Titanio y aleaciones de titanio	**3.7024** Ti99,5, **3.7114** TiAl5Sn2,5, **3.7124** TiCu2	≤850		●
	3.7154 TiAl6Zr5, **3.7165** TiAl6V4, **3.7184** TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤1400		●
Aluminio y aleaciones de Al	**3.0255** Al99,5, **3.2315** AlMgSi1, **3.3515** AlMg1	≤400		●
Aleaciones maleables de Al	**3.0615** AlMgSiPb, **3.1325** AlCuMg1, **3.3245** AlMg3Si, **3.4365** AlZnMgCu1,5	≤650		●
Aleac. fund. de Al ≤ 10 % Si	**3.2131** G-AlSi5Cu1, **3.2153** G-AlSi7Cu3, **3.2573** G-AlSi9	≤600		●
> 10 % Si	**3.2581** G-AlSi12, **3.2583** G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		●
Aleaciones de magnesio	**3.5200** MgMn2, **3.5812.05** G-MgAl8Zn1, **3.5612.05** G-MgAl6Zn1	≤400		○
Cobre de baja aleación	**2.0070** SE-Cu, **2.1020** CuSn6, **2.1096** G-CuSn5ZnPb	≤500		●
Latón, viruta corta	**2.0380** CuZn39Pb2, **2.0401** CuZn39Pb3, **2.0410** CuZn43Pb2	≤600		●
viruta larga	**2.0250** CuZn20, **2.0280** CuZn33, **2.0332** CuZn37Pb0,5	≤600		●
Bronces, viruta corta	**2.1090** CuSn7ZnPb, **2.1170** CuPb5Sn5, **2.1176** CuPb10Sn	≤600		● ●
	2.0790 CuNi18Zn19Pb	≤850		●
Bronces, viruta larga	**2.0916** CuAl5, **2.0960** CuAl9Mn, **2.1050** CuSn10	≤850		●
	2.0980 CuAl11Ni, **2.1247** CuBe2	≤1000		●
Duroplásticos	Resina epoxídica, Resopal, Pertinax, Moltopren	≤150		○
Termoplásticos	Plexiglas, Hostalen, Novodur, Makralon	≤100		● ○
Materiales sintéticos	Kevlar	≤1000		○
Fibras de vidrio/carbón	GFK/CFK	≤1000		○

≤3xD

745	
6539	
MD	
K10/K20	
GS 200 G	
○	
116	

≤5xD Profundidad

1025	2713	731
6539	6537L	6539
MD	MD	MD
K	K	K
GS 200 G	FT 200 G	GS 200 U
○	○	○
117	113	115

1027	611
6539	6539
MD	MD
K10/K20	K/P
GS 200 F	GS 200 U
S	S
119	114

v_c m/min	N° de serie de avance		v_c m/min	N° de serie de avance				v_c m/min	N° de serie de avance	
								100	5	5
								85	4	4
			90				6	110	6	6
			75				5	95	5	5
								90	5	5
								85	5	5
								80	5	5
								80	5	5
								70	4	4
								100	6	6
								80	5	5
								70	4	4
								75	4	4
								70	4	4
								50	4	4
								40	4	4
								35	3	3
100	6		100	6	**6**	6		140	6	6
80	6		80	6	**6**	6		100	6	6
80	6		80	6	**6**	6		100	6	6
70	6		70	6	**6**	6		90	6	6
180	7		180	7	**7**	7		200	7	7
160	7		160	7	**7**	7		180	7	7
150	7		150	7	**7**	7		170	7	7
120	6		120	6	**6**	6		140	6	6
180	6		180	6	**6**	6		200	6	6
180	6		180	6	**6**	6		210	6	6

GÜHRINGNAVIGATOR

Las herramientas con n° de código de series de avance impreso en negrita (código VR) se deberían elegir con preferencia.
Para la elección de la herramienta óptima y los valores de corte adecuados está a su disposición www.guehring.de y además una versión electrónica del navegador Gühring.

Artículo N°
Norma/DIN
Material de corte
Calidad de metal duro
Tipo
Acabado
Aplicación
Dimens. página

Hta. Ø mm	N° de serie de avance								
	1	2	3	4	5	6	7	8	9
	f (mm/U)								
5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
50,00	0,250	0,310	0,400	0,500	0,630	0,800	1,000	1,250	1,250
63,00	0,315	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600
80,00	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600	2,000

Refrigerante según material:
○ Aire
● Aceite
● Emulsión

Grupo de materiales	Ejemplos Cifras en negrita = nº de mat. según DIN EN 10 027	Resistencia N/mm²	Dureza	Refri-geración
Aceros de construcción generales	**1.0035** S185(St33), **1.0486** P275N(StE285), **1.0345** P235GH(H1), **1.0425** P265GH(H2)	≤500		●
	1.0050 E295 (St50-2), **1.0070** E360 (St70-2), **1.8937** P500NH (WStE500)	≤1000		●
Aceros para autómatas	**1.0718** 11SMnPb30 (9SMnPb28), **1.0736** 11SMn37 (9SMn36)	≤850		●
	1.0727 46S20 (45S20), **1.0728** (60S20), **1.0757** 46SPb20 (45SPb20)	≤1000		●
Aceros de bonificación no aleados	**1.0402** C22, **1.1178** C30E (Ck30)	≤700		●
	1.0503 C45, **1.1191** C45E (Ck45)	≤850		●
	1.0601 C60, **1.1221** C60E (Ck60)	≤1000		●
Aceros de bonificación aleados	**1.5131** 50MnSi4, **1.7003** 38Cr2, **1.7030** 28Cr4	≤1000		●
	1.5710 36NiCr6, **1.7035** 41Cr4, **1.7225** 42CrMo4	≤1400		●
Aceros cementación aleados	**1.0301** (C10), **1.1121** C10E (Ck10)	≤850		●
Aceros cementación no aleados	**1.7276** 10CrMo11, **1.5125** 11MnSi6	≤1000		●
	1.5752 15NiCr13, **1.7131** 16MnCr5, **1.7264** 20CrMo5	≤1400		●
Aceros de nitruración	**1.8504** 34CrAl6	≤1000		●
	1.8519 31CrMoV9, **1.8550** 34CrAlNi7	≤1400		●
Aceros para herramientas	**1.1750** C75W, **1.2067** 102Cr6, **1.2307** 29CrMoV9	≤850		●
	1.2080 X210Cr12, **1.2083** X42Cr13, **1.2419** 105WCr6, **1.2767** X45NiCrMo4	≤1400		●
Aceros rápidos	**1.3243** S 6-5-2-5, **1.3343** S 6-5-2, **1.3344** S 6-5-3	≤1400		●
Aceros para muelles	**1.5026** 55Si7, **1.7176** 55Cr3, **1.8159** 51CrV4 (51CrV4)		≤350 HB	●
Aceros templados	–		≤48 HRC	●
			≤66 HRC	●
Aceros inox., sulfurados	**1.4005** X12CrS13, **1.4104** X14CrMoS17, **1.4105** X6CrMoS17, **1.4305** X8CrNiS18-9	≤900		●
austeníticos	**1.4301** X5CrNi18-10 (V2A), **1.4541** X6CrNiTi18-10, **1.4571** X6CrNiMoTi 17-12-2 (V4A)	≤1100		●
martensíticos	**1.4057** X20CrNi172 (X17CrNi16-2), **1.4122** X39CrMo17-1, **1.4521** X2CrMoTi18-2	≤1500		●
Hierro fundido	**0.6010** EN-GJL-100 (GG10), **0.6020** EN-GJL-200 (GG20)		≤240 HB	● ○
	0.6025 EN-GJL-250 (GG25), **0.6035** EN-GJL-350 (GG35)		≤350 HB	● ○
Fundición de grafito esférico y fundición maleable	**0.7050** EN-GJS-500-7 (GGG50), **0.8035** EN-GJMW-350-4 (GTW35)		≤240 HB	●
	0.7070 EN-GJS-700-2 (GGG70), **0.8170** EN-GJMB-700-2 (GTS70)		≤350 HB	●
Fundición dura	–		≤350 HB	●
Nuevos mat. de fundición GGV	**EN-GJV250** (GGV25), **EN-GJV350** (GGV35)		≤220 HB	● ○
	EN-GJV400 (GGV40), **EN-GJV500** (GGV50), SiMo 6		≤300 HB	● ○
Nuevos mat. de fundición ADI	**EN-GJS-800-8** (ADI800), **EN-GJS-1000-5** (ADI1000)	≤1000		● ○
	EN-GJS-1200-2 (ADI1200), **EN-GJS-1400-1** (ADI1400)	≤1400		● ○
Aleaciones especiales	Nimonic, Inconel, Monel, Hastelloy	≤2000		●
Titanio y aleaciones de titanio	**3.7024** Ti99,5, **3.7114** TiAl5Sn2,5, **3.7124** TiCu2	≤850		●
	3.7154 TiAl6Zr5, **3.7165** TiAl6V4, **3.7184** TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤1400		●
Aluminio y aleaciones de Al	**3.0255** Al99,5, **3.2315** AlMgSi1, **3.3515** AlMg1	≤400		●
Aleaciones maleables de Al	**3.0615** AlMgSiPb, **3.1325** AlCuMg1, **3.3245** AlMg3Si, **3.4365** AlZnMgCu1,5	≤650		●
Aleac. fund. de Al ≤ 10 % Si	**3.2131** G-AlSi5Cu1, **3.2153** G-AlSi7Cu3, **3.2573** G-AlSi9	≤600		●
> 10 % Si	**3.2581** G-AlSi12, **3.2583** G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		●
Aleaciones de magnesio	**3.5200** MgMn2, **3.5812.05** G-MgAl8Zn1, **3.5612.05** G-MgAl6Zn1	≤400		○
Cobre de baja aleación	**2.0070** SE-Cu, **2.1020** CuSn6, **2.1096** G-CuSn5ZnPb	≤500		●
Latón, viruta corta	**2.0380** CuZn39Pb2, **2.0401** CuZn39Pb3, **2.0410** CuZn43Pb2	≤600		●
viruta larga	**2.0250** CuZn20, **2.0280** CuZn33, **2.0332** CuZn37Pb0,5	≤600		●
Bronces, viruta corta	**2.1090** CuSn7ZnPb, **2.1170** CuPb5Sn5, **2.1176** CuPb10Sn	≤600		● ●
	2.0790 CuNi18Zn19Pb	≤850		●
Bronces, viruta larga	**2.0916** CuAl5, **2.0960** CuAl9Mn, **2.1050** CuSn10	≤850		●
	2.0980 CuAl11Ni, **2.1247** CuBe2	≤1000		●
Duroplásticos	Resina epoxídica, Resopal, Pertinax, Moltopren	≤150		○
Termoplásticos	Plexiglas, Hostalen, Novodur, Makralon	≤100		● ○
Materiales sintéticos	Kevlar	≤1000		○
Fibras de vidrio/carbón	GFK/CFK	≤1000		○

HT 800 WP ≤1,5xD

4112	4115	4113	4114
WN	WN	WN	WN
MD	MD	MD	MD
K/P	K/P	K/P	K/P
1,5xD	1,5xD	1,5xD	1,5xD
F	a	F	○
aceros	ac. inox.	fundición	Al y aleac.
139	145	142	148

≤3xD

4112	4115	4113	4114
WN	WN	WN	WN
MD	MD	MD	MD
K/P	K/P	K/P	K/P
3xD	3xD	3xD	3xD
F	a	F	○
aceros	ac. inox.	fundición	Al y aleac.
139	145	142	148

v_c m/min	N° de avance	v_c m/min	N° de avance	v_c m/min	N° de avance	v_c m/min	N° de avance	v_c m/min	N° de avance	v_c m/min	N° de avance	v_c m/min	N° de avance	v_c m/min	N° de avance
130	6							130	6						
110	5							110	5						
130	7							130	7						
110	6							110	6						
130	6							130	6						
125	6							125	6						
110	5							110	5						
110	6							110	6						
90	5							90	5						
130	7							130	7						
110	6							110	6						
70	4							70	4						
105	5							105	5						
70	4							70	4						
60	5							60	5						
55	4							55	4						
55	3							55	3						
50	2							50	2						
		25	2							25	2				
		55	3							55	3				
		40	3							40	3				
		35	3							35	3				
				100	6							100	6		
				90	6							90	6		
				120	7							120	7		
				100	6							100	6		
		90	6							90	6				
				80	5							80	5		
				80	5							80	5		
				80	5							80	5		
				80	5							80	5		
		25	2							25	2				
		40	3							40	3				
		35	2							35	2				
						200	7							200	7
						180	7							180	7
						150	7							150	7
						120	7							120	7
						180	7							180	7
						70	6							70	6
						180	7							180	7
						120	6							120	6
						70	6							70	6
						50	6							50	6
						45	6							45	6
						35	5							35	5

GÜHRINGNAVIGATOR

Las herramientas con n° de código de series de avance impreso en negrita (código VR) se deberían elegir con preferencia.
Para la elección de la herramienta óptima y los valores de corte adecuados está a su disposición www.guehring.de y además una versión electrónica del navegador Gühring.

Artículo N°
Norma/DIN
Material de corte
Calidad de metal duro
Tipo
Acabado
Aplicación
Dimens. página

Hta. Ø mm	N° de serie de avance								
	1	2	3	4	5	6	7	8	9
	f (mm/U)								
5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
50,00	0,250	0,310	0,400	0,500	0,630	0,800	1,000	1,250	1,250
63,00	0,315	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600
80,00	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600	2,000

Refrigerante según material:
○ Aire
● Aceite
● Emulsión

Grupo de materiales	Ejemplos Cifras en negrita = nº de mat. según DIN EN 10 027	Resistencia N/mm²	Dureza	Refri-geración
Aceros de construcción generales	**1.0035** S185(St33), **1.0486** P275N(StE285), **1.0345** P235GH(H1), **1.0425** P265GH(H2)	≤500		●
	1.0050 E295 (St50-2), **1.0070** E360 (St70-2), **1.8937** P500NH (WStE500)	≤1000		●
Aceros para autómatas	**1.0718** 11SMnPb30 (9SMnPb28), **1.0736** 11SMn37 (9SMn36)	≤850		●
	1.0727 46S20 (45S20), **1.0728** (60S20), **1.0757** 46SPb20 (45SPb20)	≤1000		●
Aceros de bonificación no aleados	**1.0402** C22, **1.1178** C30E (Ck30)	≤700		●
	1.0503 C45, **1.1191** C45E (Ck45)	≤850		●
	1.0601 C60, **1.1221** C60E (Ck60)	≤1000		●
Aceros de bonificación aleados	**1.5131** 50MnSi4, **1.7003** 38Cr2, **1.7030** 28Cr4	≤1000		●
	1.5710 36NiCr6, **1.7035** 41Cr4, **1.7225** 42CrMo4	≤1400		●
Aceros cementación aleados	**1.0301** (C10), **1.1121** C10E (Ck10)	≤850		●
Aceros cementación no aleados	**1.7276** 10CrMo11, **1.5125** 11MnSi6	≤1000		●
	1.5752 15NiCr13, **1.7131** 16MnCr5, **1.7264** 20CrMo5	≤1400		●
Aceros de nitruración	**1.8504** 34CrAl6	≤1000		●
	1.8519 31CrMoV9, **1.8550** 34CrAlNi7	≤1400		●
Aceros para herramientas	**1.1750** C75W, **1.2067** 102Cr6, **1.2307** 29CrMoV9	≤850		●
	1.2080 X210Cr12, **1.2083** X42Cr13, **1.2419** 105WCr6, **1.2767** X45NiCrMo4	≤1400		●
Aceros rápidos	**1.3243** S 6-5-2-5, **1.3343** S 6-5-2, **1.3344** S 6-5-3	≤1400		●
Aceros para muelles	**1.5026** 55Si7, **1.7176** 55Cr3, **1.8159** 51CrV4 (51CrV4)		≤350 HB	●
Aceros templados	–		≤48 HRC	●
			≤66 HRC	●
Aceros inox., sulfurados	**1.4005** X12CrS13, **1.4104** X14CrMoS17, **1.4105** X6CrMoS17, **1.4305** X8CrNiS18-9	≤900		●
austeníticos	**1.4301** X5CrNi18-10 (V2A), **1.4541** X6CrNiTi18-10, **1.4571** X6CrNiMoTi 17-12-2 (V4A)	≤1100		●
martensíticos	**1.4057** X20CrNi172 (X17CrNi16-2), **1.4122** X39CrMo17-1, **1.4521** X2CrMoTi18-2	≤1500		●
Hierro fundido	**0.6010** EN-GJL-100 (GG10), **0.6020** EN-GJL-200 (GG20)		≤240 HB	● ○
	0.6025 EN-GJL-250 (GG25), **0.6035** EN-GJL-350 (GG35)		≤350 HB	● ○
Fundición de grafito esférico y fundición maleable	**0.7050** EN-GJS-500-7 (GGG50), **0.8035** EN-GJMW-350-4 (GTW35)		≤240 HB	●
	0.7070 EN-GJS-700-2 (GGG70), **0.8170** EN-GJMB-700-2 (GTS70)		≤350 HB	●
Fundición dura	–		≤350 HB	●
Nuevos mat. de fundición GGV	**EN-GJV250** (GGV25), **EN-GJV350** (GGV35)		≤220 HB	● ○
	EN-GJV400 (GGV40), **EN-GJV500** (GGV50), SiMo 6		≤300 HB	● ○
Nuevos mat. de fundición ADI	**EN-GJS-800-8** (ADI800), **EN-GJS-1000-5** (ADI1000)	≤1000		● ○
	EN-GJS-1200-2 (ADI1200), **EN-GJS-1400-1** (ADI1400)	≤1400		● ○
Aleaciones especiales	Nimonic, Inconel, Monel, Hastelloy	≤2000		●
Titanio y aleaciones de titanio	**3.7024** Ti99,5, **3.7114** TiAl5Sn2,5, **3.7124** TiCu2	≤850		●
	3.7154 TiAl6Zr5, **3.7165** TiAl6V4, **3.7184** TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤1400		●
Aluminio y aleaciones de Al	**3.0255** Al99,5, **3.2315** AlMgSi1, **3.3515** AlMg1	≤400		●
Aleaciones maleables de Al	**3.0615** AlMgSiPb, **3.1325** AlCuMg1, **3.3245** AlMg3Si, **3.4365** AlZnMgCu1,5	≤650		●
Aleac. fund. de Al ≤ 10 % Si	**3.2131** G-AlSi5Cu1, **3.2153** G-AlSi7Cu3, **3.2573** G-AlSi9	≤600		●
> 10 % Si	**3.2581** G-AlSi12, **3.2583** G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		●
Aleaciones de magnesio	**3.5200** MgMn2, **3.5812.05** G-MgAl8Zn1, **3.5612.05** G-MgAl6Zn1	≤400		○
Cobre de baja aleación	**2.0070** SE-Cu, **2.1020** CuSn6, **2.1096** G-CuSn5ZnPb	≤500		●
Latón, viruta corta	**2.0380** CuZn39Pb2, **2.0401** CuZn39Pb3, **2.0410** CuZn43Pb2	≤600		●
viruta larga	**2.0250** CuZn20, **2.0280** CuZn33, **2.0332** CuZn37Pb0,5	≤600		●
Bronces, viruta corta	**2.1090** CuSn7ZnPb, **2.1170** CuPb5Sn5, **2.1176** CuPb10Sn	≤600		● ●
	2.0790 CuNi18Zn19Pb	≤850		●
Bronces, viruta larga	**2.0916** CuAl5, **2.0960** CuAl9Mn, **2.1050** CuSn10	≤850		●
	2.0980 CuAl11Ni, **2.1247** CuBe2	≤1000		●
Duroplásticos	Resina epoxídica, Resopal, Pertinax, Moltopren	≤150		○
Termoplásticos	Plexiglas, Hostalen, Novodur, Makralon	≤100		● ○
Materiales sintéticos	Kevlar	≤1000		○
Fibras de vidrio/carbón	GFK/CFK	≤1000		○

HT 800 WP ≤5xD

4112	4115	4113	4114
WN	WN	WN	WN
MD	MD	MD	MD
K/P	K/P	K/P	K/P
5xD	5xD	5xD	5xD
F	a	F	○
aceros	ac. inox.	fundición	Al y aleac.
139	145	142	148

≤7xD

4112	4115	4113	4114
WN	WN	WN	WN
MD	MD	MD	MD
K/P	K/P	K/P	K/P
7xD	7xD	7xD	7xD
F	a	F	○
aceros	ac. inox.	fundición	Al y aleac.
139	145	142	148

v_c m/min	N° de avance	v_c m/min	N° de avance	v_c m/min	N° de avance	v_c m/min	N° de avance	v_c m/min	N° de avance	v_c m/min	N° de avance	v_c m/min	N° de avance	v_c m/min	N° de avance
125	6							120	5						
105	5							105	4						
125	7							120	6						
105	6							105	5						
125	6							120	5						
120	6							110	5						
105	5							100	4						
105	6							100	5						
85	5							85	4						
125	7							120	6						
105	6							100	5						
70	4							70	4						
105	5							105	4						
70	4							70	3						
55	5							55	4						
50	4							50	3						
55	3							55	2						
50	2							50	2						
		25	2							25	1				
		55	3							55	2				
		40	3							40	2				
		35	3							35	2				
				100	6							80	6		
				90	6							70	6		
				120	7							100	7		
				100	6							80	6		
		90	6							70	6				
				80	5							60	5		
				80	5							60	5		
				80	5							60	5		
				80	5							60	5		
		25	2							25	1				
		40	3							40	2				
		35	2							35	1				
						180	7							180	6
						180	7							180	6
						140	7							140	6
						110	7							110	6
						180	7							180	6
						70	6							70	5
						180	7							180	6
						120	6							120	5
						70	6							70	5
						50	6							50	5
						45	6							45	5
						35	5							35	4

Navegador

GÜHRINGNAVIGATOR

Las herramientas con n° de código de series de avance impreso en negrita (código VR) se deberían elegir con preferencia.
Para la elección de la herramienta óptima y los valores de corte adecuados está a su disposición www.guehring.de y además una versión electrónica del navegador Gühring.

Artículo N°
Norma/DIN
Material de corte
Calidad de metal duro
Tipo
Acabado
Aplicación
Dimens. página

Hta. Ø mm	N° de serie de avance								
	1	2	3	4	5	6	7	8	9
	f (mm/U)								
5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
50,00	0,250	0,310	0,400	0,500	0,630	0,800	1,000	1,250	1,250
63,00	0,315	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600
80,00	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600	2,000

Refrigerante según material:
○ Aire
● Aceite
◉ Emulsión

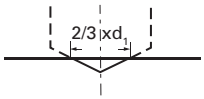
Grupo de materiales	Ejemplos Cifras en negrita = nº de mat. según DIN EN 10 027	Resistencia N/mm²	Dureza	Refri-geración
Aceros de construcción generales	**1.0035** S185(St33), **1.0486** P275N(StE285), **1.0345** P235GH(H1), **1.0425** P265GH(H2)	≤500		◉
	1.0050 E295 (St50-2), **1.0070** E360 (St70-2), **1.8937** P500NH (WStE500)	≤1000		◉
Aceros para autómatas	**1.0718** 11SMnPb30 (9SMnPb28), **1.0736** 11SMn37 (9SMn36)	≤850		◉
	1.0727 46S20 (45S20), **1.0728** (60S20), **1.0757** 46SPb20 (45SPb20)	≤1000		◉
Aceros de bonificación no aleados	**1.0402** C22, **1.1178** C30E (Ck30)	≤700		◉
	1.0503 C45, **1.1191** C45E (Ck45)	≤850		◉
	1.0601 C60, **1.1221** C60E (Ck60)	≤1000		◉
Aceros de bonificación aleados	**1.5131** 50MnSi4, **1.7003** 38Cr2, **1.7030** 28Cr4	≤1000		◉
	1.5710 36NiCr6, **1.7035** 41Cr4, **1.7225** 42CrMo4	≤1400		◉
Aceros cementación aleados	**1.0301** (C10), **1.1121** C10E (Ck10)	≤850		◉
Aceros cementación no aleados	**1.7276** 10CrMo11, **1.5125** 11MnSi6	≤1000		●
	1.5752 15NiCr13, **1.7131** 16MnCr5, **1.7264** 20CrMo5	≤1400		●
Aceros de nitruración	**1.8504** 34CrAl6	≤1000		◉
	1.8519 31CrMoV9, **1.8550** 34CrAlNi7	≤1400		●
Aceros para herramientas	**1.1750** C75W, **1.2067** 102Cr6, **1.2307** 29CrMoV9	≤850		◉
	1.2080 X210Cr12, **1.2083** X42Cr13, **1.2419** 105WCr6, **1.2767** X45NiCrMo4	≤1400		●
Aceros rápidos	**1.3243** S 6-5-2-5, **1.3343** S 6-5-2, **1.3344** S 6-5-3	≤1400		●
Aceros para muelles	**1.5026** 55Si7, **1.7176** 55Cr3, **1.8159** 51CrV4 (51CrV4)		≤350 HB	●
Aceros templados	–		≤48 HRC	●
			≤66 HRC	●
Aceros inox., sulfurados	**1.4005** X12CrS13, **1.4104** X14CrMoS17, **1.4105** X6CrMoS17, **1.4305** X8CrNiS18-9	≤900		●
austeníticos	**1.4301** X5CrNi18-10 (V2A), **1.4541** X6CrNiTi18-10, **1.4571** X6CrNiMoTi 17-12-2 (V4A)	≤1100		●
martensíticos	**1.4057** X20CrNi172 (X17CrNi16-2), **1.4122** X39CrMo17-1, **1.4521** X2CrMoTi18-2	≤1500		●
Hierro fundido	**0.6010** EN-GJL-100 (GG10), **0.6020** EN-GJL-200 (GG20)		≤240 HB	◉○
	0.6025 EN-GJL-250 (GG25), **0.6035** EN-GJL-350 (GG35)		≤350 HB	◉○
Fundición de grafito esférico y fundición maleable	**0.7050** EN-GJS-500-7 (GGG50), **0.8035** EN-GJMW-350-4 (GTW35)		≤240 HB	◉
	0.7070 EN-GJS-700-2 (GGG70), **0.8170** EN-GJMB-700-2 (GTS70)		≤350 HB	◉
Fundición dura	–		≤350 HB	◉
Nuevos mat. de fundición GGV	**EN-GJV250** (GGV25), **EN-GJV350** (GGV35)		≤220 HB	◉○
	EN-GJV400 (GGV40), **EN-GJV500** (GGV50), SiMo 6		≤300 HB	◉○
Nuevos mat. de fundición ADI	**EN-GJS-800-8** (ADI800), **EN-GJS-1000-5** (ADI1000)	≤1000		◉○
	EN-GJS-1200-2 (ADI1200), **EN-GJS-1400-1** (ADI1400)	≤1400		◉○
Aleaciones especiales	Nimonic, Inconel, Monel, Hastelloy	≤2000		●
Titanio y aleaciones de titanio	**3.7024** Ti99,5, **3.7114** TiAl5Sn2,5, **3.7124** TiCu2	≤850		●
	3.7154 TiAl6Zr5, **3.7165** TiAl6V4, **3.7184** TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤1400		●
Aluminio y aleaciones de Al	**3.0255** Al99,5, **3.2315** AlMgSi1, **3.3515** AlMg1	≤400		◉
Aleaciones maleables de Al	**3.0615** AlMgSiPb, **3.1325** AlCuMg1, **3.3245** AlMg3Si, **3.4365** AlZnMgCu1,5	≤650		◉
Aleac. fund. de Al ≤ 10 % Si	**3.2131** G-AlSi5Cu1, **3.2153** G-AlSi7Cu3, **3.2573** G-AlSi9	≤600		◉
> 10 % Si	**3.2581** G-AlSi12, **3.2583** G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		◉
Aleaciones de magnesio	**3.5200** MgMn2, **3.5812.05** G-MgAl8Zn1, **3.5612.05** G-MgAl6Zn1	≤400		○
Cobre de baja aleación	**2.0070** SE-Cu, **2.1020** CuSn6, **2.1096** G-CuSn5ZnPb	≤500		◉
Latón, viruta corta	**2.0380** CuZn39Pb2, **2.0401** CuZn39Pb3, **2.0410** CuZn43Pb2	≤600		◉
viruta larga	**2.0250** CuZn20, **2.0280** CuZn33, **2.0332** CuZn37Pb0,5	≤600		◉
Bronces, viruta corta	**2.1090** CuSn7ZnPb, **2.1170** CuPb5Sn5, **2.1176** CuPb10Sn	≤600		◉●
	2.0790 CuNi18Zn19Pb	≤850		●
Bronces, viruta larga	**2.0916** CuAl5, **2.0960** CuAl9Mn, **2.1050** CuSn10	≤850		●
	2.0980 CuAl11Ni, **2.1247** CuBe2	≤1000		●
Duroplásticos	Resina epoxídica, Resopal, Pertinax, Moltopren	≤150		○
Termoplásticos	Plexiglas, Hostalen, Novodur, Makralon	≤100		◉○
Materiales sintéticos	Kevlar	≤1000		○
Fibras de vidrio/carbón	GFK/CFK	≤1000		○

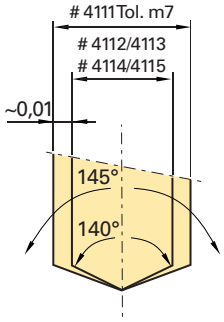
HT 800 WP ≤10×D

4112	4115	4113	4114
WN	WN	WN	WN
MD	MD	MD	MD
K/P	K/P	K/P	K/P
10xD	10xD	10xD	10xD
F	a	F	○
aceros	ac. inox.	fundición	Al y aleac.
139	145	142	148

≤1×D Pilotar /Avellanar

4111
WN
MD
K/P
1xD
a
pil./avell.
151





v_c m/min	N° de avance	v_c m/min	N° de avance	v_c m/min	N° de avance	v_c m/min	N° de avance	v_c m/min	N° de avance
100	5							130	6
95	4							110	5
100	6							130	7
95	5							110	6
100	5							130	6
95	5							125	6
90	4							110	5
90	5							110	6
85	4							90	5
100	6							130	7
90	5							110	6
70	4							70	4
95	4							105	5
70	3							70	4
55	4							60	5
50	3							55	4
55	2							55	3
50	2							50	2
		25	1					25	2
		55	2					55	3
		40	2					40	3
		35	2					35	3
				80	6			100	6
				70	6			90	6
				100	7			120	7
				80	6			100	6
		70	6					90	6
				60	5			80	5
				60	5			80	5
				60	5			80	5
				60	5			80	5
		25	1					25	2
		40	2					40	3
		35	1					35	2
						150	6	200	7
						150	6	180	7
						130	6	150	7
						105	6	120	7
						150	6	180	7
						70	5	70	6
						150	6	180	7
						110	5	120	6
						70	5	70	6
						50	5	50	6
						45	5	45	6
						35	4	35	5

- En agujeros pasantes se debe vigilar que las fases de guía siempre trabajen. Además aconsejamos reducir el avance antes de traspasar.
- Generalmente recomendamos en taladros desde 5 x D, trabajar con un porta Art.Nr. 4105 Y una plaquita piloto Art.Nr. 4111 y realizar un centraje, es decir, pilotar. Como alternativa se pueden utilizar brocas Ratio del tipo RT 100 U o RT 100 VA según el material a taladrar.
- Cuando se taladra sin centraje se recomienda una reducción del avance para pilotar.
- La herramienta de taladrar no se debe utilizar en corte interrumpido sind hacer pruebas (ranuras, taladros transversales). En cortes interrumpidos recomendamos (máx. 0,2 x D) reducir el avance sin posibilidad
- HT 800 también se distingue de la herramienta clásica de taladrar con plaquitas, porque también funciona en paquetes de chapa.
- En tornos automáticos (herramienta no gira) se debe vigilar que la herramientas esté posicionada exactamente sobre centro.
- Condición para un mecanizado óptimo es una buena refrigeración y lubrificación con emulsión o aceite.
- Esta herramienta está limitada para aplicaciones en seco o MMS.
  En la aplicación con MMS recomendamos utilizar herramientas con mango especial para MMS y accesorios GÜHRI NG – MMS. Nuestros técnicos gustosamente le asesorarán.

GÜHRINGNAVIGATOR

Las herramientas con n° de código de series de avance impreso en negrita (código VR) se deberían elegir con preferencia.
Para la elección de la herramienta óptima y los valores de corte adecuados está a su disposición www.guehring.de y además una versión electrónica del navegador Gühring.

Artículo N°
Norma/DIN
Material de corte
Calidad de metal duro
Tipo
Acabado
Aplicación
Dimens. página

Hta. Ø mm	N° de serie de avance								
	1	2	3	4	5	6	7	8	9
	f (mm/U)								
5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
50,00	0,250	0,310	0,400	0,500	0,630	0,800	1,000	1,250	1,250
63,00	0,315	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600
80,00	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600	2,000

Refrigerante según material:
○ Aire
● Aceite
● Emulsión

Grupo de materiales	Ejemplos Cifras en negrita = nº de mat. según DIN EN 10 027	Resistencia N/mm²	Dureza	Refri-geración
Aceros de construcción generales	**1.0035** S185(St33), **1.0486** P275N(StE285), **1.0345** P235GH(H1), **1.0425** P265GH(H2)	≤500		●
	1.0050 E295 (St50-2), **1.0070** E360 (St70-2), **1.8937** P500NH (WStE500)	≤1000		●
Aceros para autómatas	**1.0718** 11SMnPb30 (9SMnPb28), **1.0736** 11SMn37 (9SMn36)	≤850		●
	1.0727 46S20 (45S20), **1.0728** (60S20), **1.0757** 46SPb20 (45SPb20)	≤1000		●
Aceros de bonificación no aleados	**1.0402** C22, **1.1178** C30E (Ck30)	≤700		●
	1.0503 C45, **1.1191** C45E (Ck45)	≤850		●
	1.0601 C60, **1.1221** C60E (Ck60)	≤1000		●
Aceros de bonificación aleados	**1.5131** 50MnSi4, **1.7003** 38Cr2, **1.7030** 28Cr4	≤1000		●
	1.5710 36NiCr6, **1.7035** 41Cr4, **1.7225** 42CrMo4	≤1400		●
Aceros cementación aleados	**1.0301** (C10), **1.1121** C10E (Ck10)	≤850		●
Aceros cementación no aleados	**1.7276** 10CrMo11, **1.5125** 11MnSi6	≤1000		●
	1.5752 15NiCr13, **1.7131** 16MnCr5, **1.7264** 20CrMo5	≤1400		●
Aceros de nitruración	**1.8504** 34CrAl6	≤1000		●
	1.8519 31CrMoV9, **1.8550** 34CrAlNi7	≤1400		●
Aceros para herramientas	**1.1750** C75W, **1.2067** 102Cr6, **1.2307** 29CrMoV9	≤850		●
	1.2080 X210Cr12, **1.2083** X42Cr13, **1.2419** 105WCr6, **1.2767** X45NiCrMo4	≤1400		●
Aceros rápidos	**1.3243** S 6-5-2-5, **1.3343** S 6-5-2, **1.3344** S 6-5-3	≤1400		●
Aceros para muelles	**1.5026** 55Si7, **1.7176** 55Cr3, **1.8159** 51CrV4 (51CrV4)		≤350 HB	●
Aceros templados	–		≤48 HRC	●
			≤66 HRC	●
Aceros inox., sulfurados	**1.4005** X12CrS13, **1.4104** X14CrMoS17, **1.4105** X6CrMoS17, **1.4305** X8CrNiS18-9	≤900		●
austeníticos	**1.4301** X5CrNi18-10 (V2A), **1.4541** X6CrNiTi18-10, **1.4571** X6CrNiMoTi 17-12-2 (V4A)	≤1100		●
martensíticos	**1.4057** X20CrNi172 (X17CrNi16-2), **1.4122** X39CrMo17-1, **1.4521** X2CrMoTi18-2	≤1500		●
Hierro fundido	**0.6010** EN-GJL-100 (GG10), **0.6020** EN-GJL-200 (GG20)		≤240 HB	● ○
	0.6025 EN-GJL-250 (GG25), **0.6035** EN-GJL-350 (GG35)		≤350 HB	● ○
Fundición de grafito esférico y fundición maleable	**0.7050** EN-GJS-500-7 (GGG50), **0.8035** EN-GJMW-350-4 (GTW35)		≤240 HB	●
	0.7070 EN-GJS-700-2 (GGG70), **0.8170** EN-GJMB-700-2 (GTS70)		≤350 HB	●
Fundición dura	–		≤350 HB	●
Nuevos mat. de fundición GGV	**EN-GJV250** (GGV25), **EN-GJV350** (GGV35)		≤220 HB	● ○
	EN-GJV400 (GGV40), **EN-GJV500** (GGV50), SiMo 6		≤300 HB	● ○
Nuevos mat. de fundición ADI	**EN-GJS-800-8** (ADI800), **EN-GJS-1000-5** (ADI1000)	≤1000		● ○
	EN-GJS-1200-2 (ADI1200), **EN-GJS-1400-1** (ADI1400)	≤1400		● ○
Aleaciones especiales	Nimonic, Inconel, Monel, Hastelloy	≤2000		●
Titanio y aleaciones de titanio	**3.7024** Ti99,5, **3.7114** TiAl5Sn2,5, **3.7124** TiCu2	≤850		●
	3.7154 TiAl6Zr5, **3.7165** TiAl6V4, **3.7184** TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤1400		●
Aluminio y aleaciones de Al	**3.0255** Al99,5, **3.2315** AlMgSi1, **3.3515** AlMg1	≤400		●
Aleaciones maleables de Al	**3.0615** AlMgSiPb, **3.1325** AlCuMg1, **3.3245** AlMg3Si, **3.4365** AlZnMgCu1,5	≤650		●
Aleac. fund. de Al ≤ 10 % Si	**3.2131** G-AlSi5Cu1, **3.2153** G-AlSi7Cu3, **3.2573** G-AlSi9	≤600		●
> 10 % Si	**3.2581** G-AlSi12, **3.2583** G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		●
Aleaciones de magnesio	**3.5200** MgMn2, **3.5812.05** G-MgAl8Zn1, **3.5612.05** G-MgAl6Zn1	≤400		○
Cobre de baja aleación	**2.0070** SE-Cu, **2.1020** CuSn6, **2.1096** G-CuSn5ZnPb	≤500		●
Latón, viruta corta	**2.0380** CuZn39Pb2, **2.0401** CuZn39Pb3, **2.0410** CuZn43Pb2	≤600		●
viruta larga	**2.0250** CuZn20, **2.0280** CuZn33, **2.0332** CuZn37Pb0,5	≤600		●
Bronces, viruta corta	**2.1090** CuSn7ZnPb, **2.1170** CuPb5Sn5, **2.1176** CuPb10Sn	≤600		● ●
	2.0790 CuNi18Zn19Pb	≤850		●
Bronces, viruta larga	**2.0916** CuAl5, **2.0960** CuAl9Mn, **2.1050** CuSn10	≤850		●
	2.0980 CuAl11Ni, **2.1247** CuBe2	≤1000		●
Duroplásticos	Resina epoxídica, Resopal, Pertinax, Moltopren	≤150		○
Termoplásticos	Plexiglas, Hostalen, Novodur, Makralon	≤100		● ○
Materiales sintéticos	Kevlar	≤1000		○
Fibras de vidrio/carbón	GFK/CFK	≤1000		○

RT 800 WP ≤3xD ≤5xD ≤7xD

2747	1047	2485	2747	1047	2485	2747	1047	2485
WN	WN	WN	WN	WN	WN	WN	WN	WN
MD	MD	MD	MD	MD	MD	MD	MD	MD
K	K/P	K/P	K	K/P	K/P	K	K/P	K/P
3xD	3xD	3xD	5xD	5xD	5xD	7xD	7xD	7xD
○	S	F	○	S	F	○	S	F
fundición	aceros	aceros	fundición	aceros	aceros	fundición	aceros	aceros
166	162	164	166	162	164	166	162	164

v_c m/min	N° de avance	v_c m/min	N° de avance	v_c m/min	N° de avance	v_c m/min	N° de avance	v_c m/min	N° de avance	v_c m/min	N° de avance	v_c m/min	N° de avance	v_c m/min	N° de avance
		100	6	130	6			95	6	125	6			90	5	120	5
		85	5	110	5			80	5	105	5			80	4	105	4
		100	7	130	7			95	7	125	7			90	6	120	6
		85	6	110	6			80	6	105	6			80	5	105	5
		100	6	130	6			95	6	125	6			90	5	120	5
		95	6	125	6			90	6	120	6			85	5	110	5
		85	5	110	5			80	5	105	5			75	4	100	4
		85	6	110	6			80	6	105	6			75	5	100	5
		70	5	90	5			65	5	85	5			65	4	85	4
		100	7	130	7			95	7	125	7			90	6	120	6
		85	6	110	6			80	6	105	6			75	5	100	5
		55	4	70	4			55	4	70	4			55	4	70	4
		80	5	105	5			80	5	105	5			80	4	105	4
		55	4	70	4			55	4	70	4			55	3	70	3
		40	5	55	5			40	5	55	5			40	4	55	4
		35	4	50	4			35	4	50	4			35	3	50	3
		40	3	55	3			40	3	55	3			40	2	55	2
		35	2	50	2			35	2	50	2			35	2	50	2
		20	2	25	2			20	2	25	2			20	1	25	1
		40	3	55	3			40	3	55	3			40	2	55	2
		30	3	40	3			30	3	40	3			30	2	40	2
		25	3	35	3			25	3	35	3			25	2	35	2
100	7	160	7	210	7	90	7	150	7	195	7	90	6	150	6	195	6
80	7	80	7	155	7	70	7	110	7	145	7	70	6	110	6	145	6
80	7	120	7	155	7	70	7	110	7	145	7	70	6	110	6	145	6
70	6	100	6	130	6	60	6	90	6	120	6	60	5	90	5	120	5
10	2	25	2	35	2	10	2	25	2	35	2	10	2	25	2	35	2
		20	2	25	2			20	2	25	2			20	1	25	1
		30	3	40	3			30	3	40	3			30	2	40	2
		25	2	35	2			25	2	35	2			25	1	35	1
200	7	220	7	290	7	180	7	200	7	260	7	180	6	200	6	260	6
180	7	200	7	260	7	180	7	200	7	260	7	180	6	200	6	260	6
150	7	180	7	235	7	140	7	170	7	220	7	140	6	170	6	220	6
120	7	150	7	195	7	110	7	140	7	180	7	110	6	140	6	180	6
180	7	200	7	260	7	180	7	200	7	260	7	180	6	200	6	260	6
70	6	80	6	105	6	70	6	80	6	105	6	70	5	80	5	105	5
180	7	210	7	270	7	180	7	210	7	270	7	180	6	210	6	270	6
120	6	140	6	180	6	120	6	140	6	180	6	120	5	140	5	180	5
70	6	80	6	105	6	70	6	80	6	105	6	70	5	80	5	105	5
50	6	65	6	85	6	50	6	65	6	85	6	50	5	65	5	85	5
45	6	50	6	65	6	45	6	50	6	65	6	45	5	50	5	65	5
35	5	40	5	55	5	35	5	40	5	55	5	35	4	40	4	55	4
50	5	80	5	105	5	50	5	80	5	105	5	50	4	80	4	105	4
50	5	80	5	105	5	50	5	80	5	105	5	50	4	80	4	105	4
50	5	80	5	105	5	50	5	80	5	105	5	50	4	80	4	105	4
50	5	80	5	105	5	50	5	80	5	105	5	50	4	80	4	105	4

GÜHRINGNAVIGATOR

Las herramientas con n° de código de series de avance impreso en negrita (código VR) se deberían elegir con preferencia.
Para la elección de la herramienta óptima y los valores de corte adecuados está a su disposición www.guehring.de y además una versión electrónica del navegador Gühring.

Artículo N°
Artículo N°
Norma/DIN
Material de corte
Acabado
Tipo
Dimens. página

Hta. Ø mm	N° de serie de avance								
	1	2	3	4	5	6	7	8	9
	f (mm/U)								
0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
50,00	0,250	0,310	0,400	0,500	0,630	0,800	1,000	1,250	1,250
63,00	0,315	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600
80,00	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600	2,000

Refrigerante según material:
○ Aire
● Aceite
● Emulsión

Sentido de corte:
corte a derechas
corte a izquierdas

Grupo de materiales	Ejemplos Cifras en negrita = nº de mat. según DIN EN 10 027	Resistencia N/mm²	Dureza	Refri-geración
Aceros de construcción generales	**1.0035** S185(St33), **1.0486** P275N(StE285), **1.0345** P235GH(H1), **1.0425** P265GH(H2) **1.0050** E295 (St50-2), **1.0070** E360 (St70-2), **1.8937** P500NH (WStE500)	≤500 ≤1000		● ●
Aceros para autómatas	**1.0718** 11SMnPb30 (9SMnPb28), **1.0736** 11SMn37 (9SMn36) **1.0727** 46S20 (45S20), **1.0728** (60S20), **1.0757** 46SPb20 (45SPb20)	≤850 ≤1000		● ●
Aceros de bonificación no aleados	**1.0402** C22, **1.1178** C30E (Ck30) **1.0503** C45, **1.1191** C45E (Ck45) **1.0601** C60, **1.1221** C60E (Ck60)	≤700 ≤850 ≤1000		● ● ●
Aceros de bonificación aleados	**1.5131** 50MnSi4, **1.7003** 38Cr2, **1.7030** 28Cr4 **1.5710** 36NiCr6, **1.7035** 41Cr4, **1.7225** 42CrMo4	≤1000 ≤1400		● ●
Aceros cementación aleados	**1.0301** (C10), **1.1121** C10E (Ck10)	≤850		●
Aceros cementación no aleados	**1.7276** 10CrMo11, **1.5125** 11MnSi6 **1.5752** 15NiCr13, **1.7131** 16MnCr5, **1.7264** 20CrMo5	≤1000 ≤1400		● ●
Aceros de nitruración	**1.8504** 34CrAl6 **1.8519** 31CrMoV9, **1.8550** 34CrAlNi7	≤1000 ≤1400		● ●
Aceros para herramientas	**1.1750** C75W, **1.2067** 102Cr6, **1.2307** 29CrMoV9 **1.2080** X210Cr12, **1.2083** X42Cr13, **1.2419** 105WCr6, **1.2767** X45NiCrMo4	≤850 ≤1400		● ●
Aceros rápidos	**1.3243** S 6-5-2-5, **1.3343** S 6-5-2, **1.3344** S 6-5-3	≤1400		●
Aceros para muelles	**1.5026** 55Si7, **1.7176** 55Cr3, **1.8159** 51CrV4 (51CrV4)		≤350 HB	●
Aceros templados	–		≤48 HRC ≤66 HRC	● ●
Aceros inox., sulfurados austeníticos martensíticos	**1.4005** X12CrS13, **1.4104** X14CrMoS17, **1.4105** X6CrMoS17, **1.4305** X8CrNiS18-9 **1.4301** X5CrNi18-10 (V2A), **1.4541** X6CrNiTi18-10, **1.4571** X6CrNiMoTi 17-12-2 (V4A) **1.4057** X20CrNi172 (X17CrNi16-2), **1.4122** X39CrMo17-1, **1.4521** X2CrMoTi18-2	≤900 ≤1100 ≤1500		● ● ●
Hierro fundido	**0.6010** EN-GJL-100 (GG10), **0.6020** EN-GJL-200 (GG20) **0.6025** EN-GJL-250 (GG25), **0.6035** EN-GJL-350 (GG35)		≤240 HB ≤350 HB	●○ ●○
Fundición de grafito esférico y fundición maleable	**0.7050** EN-GJS-500-7 (GGG50), **0.8035** EN-GJMW-350-4 (GTW35) **0.7070** EN-GJS-700-2 (GGG70), **0.8170** EN-GJMB-700-2 (GTS70)		≤240 HB ≤350 HB	● ●
Fundición dura	–		≤350 HB	●
Nuevos mat. de fundición GGV	**EN-GJV250** (GGV25), **EN-GJV350** (GGV35) **EN-GJV400** (GGV40), **EN-GJV500** (GGV50), SiMo 6		≤220 HB ≤300 HB	●○ ●○
Nuevos mat. de fundición ADI	**EN-GJS-800-8** (ADI800), **EN-GJS-1000-5** (ADI1000) **EN-GJS-1200-2** (ADI1200), **EN-GJS-1400-1** (ADI1400)	≤1000 ≤1400		●○ ●○
Aleaciones especiales	Nimonic, Inconel, Monel, Hastelloy	≤2000		●
Titanio y aleaciones de titanio	**3.7024** Ti99,5, **3.7114** TiAl5Sn2,5, **3.7124** TiCu2 **3.7154** TiAl6Zr5, **3.7165** TiAl6V4, **3.7184** TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 ≤1400		● ●
Aluminio y aleaciones de Al	**3.0255** Al99,5, **3.2315** AlMgSi1, **3.3515** AlMg1	≤400		●
Aleaciones maleables de Al	**3.0615** AlMgSiPb, **3.1325** AlCuMg1, **3.3245** AlMg3Si, **3.4365** AlZnMgCu1,5	≤650		●
Aleac. fund. de Al ≤ 10 % Si > 10 % Si	**3.2131** G-AlSi5Cu1, **3.2153** G-AlSi7Cu3, **3.2573** G-AlSi9 **3.2581** G-AlSi12, **3.2583** G-AlSi12Cu, - G-AlSi12CuNiMg	≤600 ≤600		● ●
Aleaciones de magnesio	**3.5200** MgMn2, **3.5812.05** G-MgAl8Zn1, **3.5612.05** G-MgAl6Zn1	≤400		○
Cobre de baja aleación	**2.0070** SE-Cu, **2.1020** CuSn6, **2.1096** G-CuSn5ZnPb	≤500		●
Latón, viruta corta viruta larga	**2.0380** CuZn39Pb2, **2.0401** CuZn39Pb3, **2.0410** CuZn43Pb2 **2.0250** CuZn20, **2.0280** CuZn33, **2.0332** CuZn37Pb0,5	≤600 ≤600		● ●
Bronces, viruta corta	**2.1090** CuSn7ZnPb, **2.1170** CuPb5Sn5, **2.1176** CuPb10Sn **2.0790** CuNi18Zn19Pb	≤600 ≤850		●● ●
Bronces, viruta larga	**2.0916** CuAl5, **2.0960** CuAl9Mn, **2.1050** CuSn10 **2.0980** CuAl11Ni, **2.1247** CuBe2	≤850 ≤1000		● ●
Duroplásticos	Resina epoxídica, Resopal, Pertinax, Moltopren	≤150		○
Termoplásticos	Plexiglas, Hostalen, Novodur, Makralon	≤100		●○
Materiales sintéticos	Kevlar	≤1000		○
Fibras de vidrio/carbón	GFK/CFK	≤1000		○

Navegador

≤3xD Profundidad

223	224	225	552	653	2460	329	363	1261	129	1259	128
226	227	228	553	672		330			136		
1897	1897	1897	1897	1897	1897	1897	WN	1897	WN	1897	WN
HSS	HSS	HSS	HSS	HSS	HSS	HSCO	HSCO	HSCO	HSCO	M42	HSCO
>Ø 2,36			<Ø 2,36 >Ø 16,0	S	F	>Ø 2,36					
N	H	W	GT 80	N	N	GV 120	GV 120	VA	N	N	N
192/200	204/206	208/210	212/215	196/203	199	218/225	448	230	414/415	235	413

v_c m/min	N° de serie de avance					v_c m/min	N° de avance	v_c m/min	N° de avance	v_c m/min	N° de serie de avance					v_c m/min	N° de avance
27	**6**				6	30	**6**	32	**7**	35	5	5	5		5		
22	**5**				5	24	**5**	26	**6**	30	5	5	5		5		
30	**6**				**6**	33	**6**	36	**7**	40	5	5	5		5		
30	5				5	33	5	36	6	40	**5**	**5**	5	5	5	50	**5**
25	**5**				**5**	28	**5**	31	**6**	40	5	5	5		5		
25	**5**				**5**	28	**5**	31	**6**	40	5	5			5		
						25	4	28	5	35	**4**	**4**		**4**	4	35	**4**
						22	4	24	5	20	**4**	**4**		4	4	20	4
										16	**3**	**3**		3	3	15	3
30	**6**				6	33	**6**	36	**7**	36	6	6	6		6		
						20	4	22	5	20	**4**	**4**		4	3	20	4
										15	**3**	**3**		3	3	16	3
						14	4	16	5	16	4	**4**		4		16	4
										12	3	**3**		3	3	12	3
16	4				4	18	4	20	5	15	**4**	**4**		4	3	15	4
										12	**3**	**3**		3	3	12	3
										15	3	**3**		3	3	15	3
										8	**2**	**2**		2	**2**	8	2
										4	1	1			1		
										18	1	1	**4**	4	3	18	4
										14	3	3	**3**	3	3	14	3
										16	3	**3**	3	3	3	16	3
30	**6**				6	33	**6**	36	7	35	**6**	6			5		
30	6				6	33	6	36	**7**	30	**6**	**6**			5		
25	**6**				6	28	**6**	31	7	30	6	6			5		
20	6				6	22	6	24	**7**	25	**6**	**6**			5		
										10	3	3			3		
										8	1	1		1	1	8	1
										10	2	2	2		**2**		
										6	2	2	2		**2**		
70			**7**	7			85	8	90			7		7			
70			**7**	7			85	8	90			7		7			
50	7		7	**7**			60	**8**	80			7		7			
50	6			**6**			60	**7**	70			6		6			
70	6	**6**		6	80	6	90	6	70			6		6			
60	5		5	**5**	65	**5**	70	**6**	40			5		5			
70		6			75	5	80	6	60			5		5			
40	5		5	**5**	45	**5**	50	**6**	40			5		5			
30	4	4		**4**	33	**4**	36	**5**	35	4	4	4		4			
25	4			4	27	4	30	5	30	**4**	**4**	4		4			
15	4			4	16	**4**	18	**5**	20	4	4	**4**		4			
					15	4	18	5	15	4	4	**4**		4			
18	4	4		**4**	22	**4**	29	**5**	20	4	4		4			20	4
28	5	**5**	5	5	36	**5**	47	6	30			4		4			

Navegador

GÜHRINGNAVIGATOR

Las herramientas con n° de código de series de avance impreso en negrita (código VR) se deberían elegir con preferencia.
Para la elección de la herramienta óptima y los valores de corte adecuados está a su disposición www.guehring.de y además una versión electrónica del navegador Gühring.

Artículo Nº
Norma/DIN
Material de corte
Acabado
Tipo
Dimens. página

Hta. Ø mm	N° de serie de avance								
	1	2	3	4	5	6	7	8	9
	f (mm/U)								
0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
50,00	0,250	0,310	0,400	0,500	0,630	0,800	1,000	1,250	1,250
63,00	0,315	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600
80,00	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600	2,000

Refrigerante según material:
○ Aire
● Aceite
◉ Emulsión

Sentido de corte:
corte a derechas
corte a izquierdas

Grupo de materiales	Ejemplos Cifras en negrita = nº de mat. según DIN EN 10 027	Resistencia N/mm²	Dureza	Refri-geración
Aceros de construcción generales	**1.0035** S185(St33), **1.0486** P275N(StE285), **1.0345** P235GH(H1), **1.0425** P265GH(H2)	≤500		◉
	1.0050 E295 (St50-2), **1.0070** E360 (St70-2), **1.8937** P500NH (WStE500)	≤1000		◉
Aceros para autómatas	**1.0718** 11SMnPb30 (9SMnPb28), **1.0736** 11SMn37 (9SMn36)	≤850		◉
	1.0727 46S20 (45S20), **1.0728** (60S20), **1.0757** 46SPb20 (45SPb20)	≤1000		◉
Aceros de bonificación no aleados	**1.0402** C22, **1.1178** C30E (Ck30)	≤700		◉
	1.0503 C45, **1.1191** C45E (Ck45)	≤850		◉
	1.0601 C60, **1.1221** C60E (Ck60)	≤1000		◉
Aceros de bonificación aleados	**1.5131** 50MnSi4, **1.7003** 38Cr2, **1.7030** 28Cr4	≤1000		◉
	1.5710 36NiCr6, **1.7035** 41Cr4, **1.7225** 42CrMo4	≤1400		◉
Aceros cementación aleados	**1.0301** (C10), **1.1121** C10E (Ck10)	≤850		◉
Aceros cementación no aleados	**1.7276** 10CrMo11, **1.5125** 11MnSi6	≤1000		●
	1.5752 15NiCr13, **1.7131** 16MnCr5, **1.7264** 20CrMo5	≤1400		●
Aceros de nitruración	**1.8504** 34CrAl6	≤1000		◉
	1.8519 31CrMoV9, **1.8550** 34CrAlNi7	≤1400		●
Aceros para herramientas	**1.1750** C75W, **1.2067** 102Cr6, **1.2307** 29CrMoV9	≤850		◉
	1.2080 X210Cr12, **1.2083** X42Cr13, **1.2419** 105WCr6, **1.2767** X45NiCrMo4	≤1400		●
Aceros rápidos	**1.3243** S 6-5-2-5, **1.3343** S 6-5-2, **1.3344** S 6-5-3	≤1400		●
Aceros para muelles	**1.5026** 55Si7, **1.7176** 55Cr3, **1.8159** 51CrV4 (51CrV4)		≤350 HB	●
Aceros templados	–		≤48 HRC	●
			≤66 HRC	●
Aceros inox., sulfurados	**1.4005** X12CrS13, **1.4104** X14CrMoS17, **1.4105** X6CrMoS17, **1.4305** X8CrNiS18-9	≤900		●
austeníticos	**1.4301** X5CrNi18-10 (V2A), **1.4541** X6CrNiTi18-10, **1.4571** X6CrNiMoTi 17-12-2 (V4A)	≤1100		●
martensíticos	**1.4057** X20CrNi172 (X17CrNi16-2), **1.4122** X39CrMo17-1, **1.4521** X2CrMoTi18-2	≤1500		●
Hierro fundido	**0.6010** EN-GJL-100 (GG10), **0.6020** EN-GJL-200 (GG20)		≤240 HB	◉○
	0.6025 EN-GJL-250 (GG25), **0.6035** EN-GJL-350 (GG35)		≤350 HB	◉○
Fundición de grafito esférico y fundición maleable	**0.7050** EN-GJS-500-7 (GGG50), **0.8035** EN-GJMW-350-4 (GTW35)		≤240 HB	◉
	0.7070 EN-GJS-700-2 (GGG70), **0.8170** EN-GJMB-700-2 (GTS70)		≤350 HB	◉
Fundición dura	–		≤350 HB	◉
Nuevos mat. de fundición GGV	**EN-GJV250** (GGV25), **EN-GJV350** (GGV35)		≤220 HB	◉○
	EN-GJV400 (GGV40), **EN-GJV500** (GGV50), SiMo 6		≤300 HB	◉○
Nuevos mat. de fundición ADI	**EN-GJS-800-8** (ADI800), **EN-GJS-1000-5** (ADI1000)	≤1000		◉○
	EN-GJS-1200-2 (ADI1200), **EN-GJS-1400-1** (ADI1400)	≤1400		◉○
Aleaciones especiales	Nimonic, Inconel, Monel, Hastelloy	≤2000		●
Titanio y aleaciones de titanio	**3.7024** Ti99,5, **3.7114** TiAl5Sn2,5, **3.7124** TiCu2	≤850		●
	3.7154 TiAl6Zr5, **3.7165** TiAl6V4, **3.7184** TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤1400		●
Aluminio y aleaciones de Al	**3.0255** Al99,5, **3.2315** AlMgSi1, **3.3515** AlMg1	≤400		◉
Aleaciones maleables de Al	**3.0615** AlMgSiPb, **3.1325** AlCuMg1, **3.3245** AlMg3Si, **3.4365** AlZnMgCu1,5	≤650		◉
Aleac. fund. de Al ≤ 10 % Si	**3.2131** G-AlSi5Cu1, **3.2153** G-AlSi7Cu3, **3.2573** G-AlSi9	≤600		◉
> 10 % Si	**3.2581** G-AlSi12, **3.2583** G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		◉
Aleaciones de magnesio	**3.5200** MgMn2, **3.5812.05** G-MgAl8Zn1, **3.5612.05** G-MgAl6Zn1	≤400		○
Cobre de baja aleación	**2.0070** SE-Cu, **2.1020** CuSn6, **2.1096** G-CuSn5ZnPb	≤500		◉
Latón, viruta corta	**2.0380** CuZn39Pb2, **2.0401** CuZn39Pb3, **2.0410** CuZn43Pb2	≤600		◉
viruta larga	**2.0250** CuZn20, **2.0280** CuZn33, **2.0332** CuZn37Pb0,5	≤600		◉
Bronces, viruta corta	**2.1090** CuSn7ZnPb, **2.1170** CuPb5Sn5, **2.1176** CuPb10Sn	≤600		◉●
	2.0790 CuNi18Zn19Pb	≤850		●
Bronces, viruta larga	**2.0916** CuAl5, **2.0960** CuAl9Mn, **2.1050** CuSn10	≤850		●
	2.0980 CuAl11Ni, **2.1247** CuBe2	≤1000		●
Duroplásticos	Resina epoxídica, Resopal, Pertinax, Moltopren	≤150		○
Termoplásticos	Plexiglas, Hostalen, Novodur, Makralon	≤100		◉○
Materiales sintéticos	Kevlar	≤1000		○
Fibras de vidrio/carbón	GFK/CFK	≤1000		○

≤3xD Profundidad

572	2048	1228	2498	659	663	2461	512	515
1897	1897	1897	1897	1897	WN	1897	WN	1897
HSCO	HSCO	HSCO	HSCO	HSCO	HSCO	HSCO	HSCO	HSS-E-PM
S	M	S	F	S	S	F	S	F
VA	P2000	GT 80	GT 80	GV 120	GV 120	GV 120	GU 500	GT 500
231	233	227	229	222	449	224	384	237

v_c m/min	N° de avance	v_c m/min	N° de avance	v_c m/min	N° de avance	v_c m/min	N° de avance	v_c m/min	N° de serie de avance		v_c m/min	N° de avance	v_c m/min	N° de avance	v_c m/min	N° de avance
38	6	35	6	38	6	42	6	38	5	5	42	6	45	6	42	6
33	5	30	5	33	5	36	5	33	4	4	36	5	35	5	37	5
44	6	40	6	44	6	48	7	44	5	5	48	6	50	6	47	7
42	5	40	5	38	5	42	6	38	5	5	42	6	40	6	44	6
44	5	40	5	44	6	48	6	44	5	5	48	6	44	6	47	6
44	5	40	5	44	5	48	6	44	5	5	48	6	44	6	47	6
		35	4	38	4	42	5	38	4	4	42	5	40	5	44	5
		25	4	27	4	30	5	27	4	4	30	5	27	4	30	4
		20	3	22	3	24	4	22	3	3	24	4	22	3	25	3
40	6	40	6	44	4	48	4	44	4	4	48	5	44	6	47	4
		20	4	22	4	24	5	22	4	4	24	5	22	4	25	5
		15	3	18	3	20	4	18	3	3	20	4	18	3	20	4
		20	4	22	4	24	5	22	4	4	24	5	22	4	25	5
		15	3	18	3	20	4	18	3	3	20	4	16	3	18	4
		18	4	19	4	21	5	19	4	4	21	5	20	4	22	5
		12	3	14	3	16	4	14	3	3	16	4	15	3	17	4
		12	3	14	3	17	4	14	3	3	17	4	13	3	17	4
		8	2	9	2	11	3	9	2	2	11	3	9	2	12	2
								4	1	1	5	2				
20	4	14	4	15	4	17	4	20	4	4	22	5	20	4	22	4
15	3	10	3	10	3	12	3	15	3	3	17	4	16	4	18	3
18	3	12	3	12	3	14	3	18	3	3	20	4	18	4	20	3
30	6	38	6	45	6	50	7	40	6	6	45	7	45	6	50	7
30	6	30	6	40	6	45	7	35	6	6	40	7	40	6	44	7
		30	6	33	6	36	7	33	6	6	36	7	40	6	45	7
		25	6	27	6	29	7	27	6	6	29	7	30	6	33	7
		10	3	8	3	10	4	12	3	3	14	4			16	4
8	1	5	2					6	2	2	7	2			6	2
12	2							11	2	2	12	3				
8	2							7	2	2	8	3				
90	7	90	7										70	7		
90	7	90	7										70	7		
80	7	80	7										85	7		
70	6	70	6										70	6		
70	6	85	6										80	6		
70	5	80	5	88	5	96	6						80	5	80	5
60	5	70	5	77	5	84	6						77	5		
40	5	40	5	44	5	48	6						44	5	60	5
35	4	40	4	45	5	50	5	45	5	5	50	6	50	4	50	5
33	4	30	4	40	4	45	5	40	4	4	45	5	40	4	44	5
20	4	25	4	22	4	25	5	23	4	4	26	5	32	4	33	5
15	4	15	4	17	4	20	5	17	4	4	20	5	28	4	28	5
		20	4	22	4	24	5						25	4	25	5
30	4	25	5	27	5	30	5						27	4		

GÜHRINGNAVIGATOR

Las herramientas con n° de código de series de avance impreso en negrita (código VR) se deberían elegir con preferencia.
Para la elección de la herramienta óptima y los valores de corte adecuados está a su disposición www.guehring.de y además una versión electrónica del navegador Gühring.

Artículo Nº
Norma/DIN
Material de corte
Grupo de aplicación
Acabado
Tipo
Dimens. página

Hta. Ø mm	N° de serie de avance								
	1	2	3	4	5	6	7	8	9
	f (mm/U)								
0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
50,00	0,250	0,310	0,400	0,500	0,630	0,800	1,000	1,250	1,250
63,00	0,315	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600
80,00	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600	2,000

Refrigerante según material:
○ Aire
● Aceite
● Emulsión

Sentido de corte:
corte a derechas
corte a izquierdas

Grupo de materiales	Ejemplos Cifras en negrita = nº de mat. según DIN EN 10 027	Resistencia N/mm²	Dureza	Refri-geración
Aceros de construcción generales	**1.0035** S185(St33), **1.0486** P275N(StE285), **1.0345** P235GH(H1), **1.0425** P265GH(H2)	≤500		●
	1.0050 E295 (St50-2), **1.0070** E360 (St70-2), **1.8937** P500NH (WStE500)	≤1000		●
Aceros para autómatas	**1.0718** 11SMnPb30 (9SMnPb28), **1.0736** 11SMn37 (9SMn36)	≤850		●
	1.0727 46S20 (45S20), **1.0728** (60S20), **1.0757** 46SPb20 (45SPb20)	≤1000		●
Aceros de bonificación no aleados	**1.0402** C22, **1.1178** C30E (Ck30)	≤700		●
	1.0503 C45, **1.1191** C45E (Ck45)	≤850		●
	1.0601 C60, **1.1221** C60E (Ck60)	≤1000		●
Aceros de bonificación aleados	**1.5131** 50MnSi4, **1.7003** 38Cr2, **1.7030** 28Cr4	≤1000		●
	1.5710 36NiCr6, **1.7035** 41Cr4, **1.7225** 42CrMo4	≤1400		●
Aceros cementación aleados	**1.0301** (C10), **1.1121** C10E (Ck10)	≤850		●
Aceros cementación no aleados	**1.7276** 10CrMo11, **1.5125** 11MnSi6	≤1000		●
	1.5752 15NiCr13, **1.7131** 16MnCr5, **1.7264** 20CrMo5	≤1400		●
Aceros de nitruración	**1.8504** 34CrAl6	≤1000		●
	1.8519 31CrMoV9, **1.8550** 34CrAlNi7	≤1400		●
Aceros para herramientas	**1.1750** C75W, **1.2067** 102Cr6, **1.2307** 29CrMoV9	≤850		●
	1.2080 X210Cr12, **1.2083** X42Cr13, **1.2419** 105WCr6, **1.2767** X45NiCrMo4	≤1400		●
Aceros rápidos	**1.3243** S 6-5-2-5, **1.3343** S 6-5-2, **1.3344** S 6-5-3	≤1400		●
Aceros para muelles	**1.5026** 55Si7, **1.7176** 55Cr3, **1.8159** 51CrV4 (51CrV4)		≤350 HB	●
Aceros templados	–		≤48 HRC	●
			≤66 HRC	●
Aceros inox., sulfurados	**1.4005** X12CrS13, **1.4104** X14CrMoS17, **1.4105** X6CrMoS17, **1.4305** X8CrNiS18-9	≤900		●
austeníticos	**1.4301** X5CrNi18-10 (V2A), **1.4541** X6CrNiTi18-10, **1.4571** X6CrNiMoTi 17-12-2 (V4A)	≤1100		●
martensíticos	**1.4057** X20CrNi172 (X17CrNi16-2), **1.4122** X39CrMo17-1, **1.4521** X2CrMoTi18-2	≤1500		●
Hierro fundido	**0.6010** EN-GJL-100 (GG10), **0.6020** EN-GJL-200 (GG20)		≤240 HB	○ ○
	0.6025 EN-GJL-250 (GG25), **0.6035** EN-GJL-350 (GG35)		≤350 HB	○ ○
Fundición de grafito esférico y fundición maleable	**0.7050** EN-GJS-500-7 (GGG50), **0.8035** EN-GJMW-350-4 (GTW35)		≤240 HB	○
	0.7070 EN-GJS-700-2 (GGG70), **0.8170** EN-GJMB-700-2 (GTS70)		≤350 HB	○
Fundición dura	–		≤350 HB	○
Nuevos mat. de fundición GGV	**EN-GJV250** (GGV25), **EN-GJV350** (GGV35)		≤220 HB	○ ○
	EN-GJV400 (GGV40), **EN-GJV500** (GGV50), SiMo 6		≤300 HB	○ ○
Nuevos mat. de fundición ADI	**EN-GJS-800-8** (ADI800), **EN-GJS-1000-5** (ADI1000)	≤1000		○ ○
	EN-GJS-1200-2 (ADI1200), **EN-GJS-1400-1** (ADI1400)	≤1400		○ ○
Aleaciones especiales	Nimonic, Inconel, Monel, Hastelloy	≤2000		●
Titanio y aleaciones de titanio	**3.7024** Ti99,5, **3.7114** TiAl5Sn2,5, **3.7124** TiCu2	≤850		●
	3.7154 TiAl6Zr5, **3.7165** TiAl6V4, **3.7184** TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤1400		●
Aluminio y aleaciones de Al	**3.0255** Al99,5, **3.2315** AlMgSi1, **3.3515** AlMg1	≤400		●
Aleaciones maleables de Al	**3.0615** AlMgSiPb, **3.1325** AlCuMg1, **3.3245** AlMg3Si, **3.4365** AlZnMgCu1,5	≤650		●
Aleac. fund. de Al ≤ 10 % Si	**3.2131** G-AlSi5Cu1, **3.2153** G-AlSi7Cu3, **3.2573** G-AlSi9	≤600		●
> 10 % Si	**3.2581** G-AlSi12, **3.2583** G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		●
Aleaciones de magnesio	**3.5200** MgMn2, **3.5812.05** G-MgAl8Zn1, **3.5612.05** G-MgAl6Zn1	≤400		○
Cobre de baja aleación	**2.0070** SE-Cu, **2.1020** CuSn6, **2.1096** G-CuSn5ZnPb	≤500		●
Latón, viruta corta	**2.0380** CuZn39Pb2, **2.0401** CuZn39Pb3, **2.0410** CuZn43Pb2	≤600		●
viruta larga	**2.0250** CuZn20, **2.0280** CuZn33, **2.0332** CuZn37Pb0,5	≤600		●
Bronces, viruta corta	**2.1090** CuSn7ZnPb, **2.1170** CuPb5Sn5, **2.1176** CuPb10Sn	≤600		● ●
	2.0790 CuNi18Zn19Pb	≤850		●
Bronces, viruta larga	**2.0916** CuAl5, **2.0960** CuAl9Mn, **2.1050** CuSn10	≤850		●
	2.0980 CuAl11Ni, **2.1247** CuBe2	≤1000		●
Duroplásticos	Resina epoxídica, Resopal, Pertinax, Moltopren	≤150		○
Termoplásticos	Plexiglas, Hostalen, Novodur, Makralon	≤100		● ○
Materiales sintéticos	Kevlar	≤1000		○
Fibras de vidrio/carbón	GFK/CFK	≤1000		○

≤3xD Profundidad

730	702	1149	710	703	705	704	707	2463	1946
6539	WN	WN	WN	8037	8041	8038	WN	6539	6537K
MD	MD	MD	Carbide	Carbide	Carbide	Carbide	Carbide	MD	MD
			K10/K20					K/P	K/P
○	○	○	○	○	○	○	○	F	A
N	N	N	Duro 150	N	N	N	H	N	H
239	243	431	323	429	512	430	432	241	389

v_c m/min	N° de serie de avance							v_c m/min	N° de serie de avance	v_c m/min	N° de serie de avance
80	4							104	5		
70	4							91	5		
80	**5**		4	4	4			104	**6**		
70	**4**		3	3	3			91	**5**		
80	4							104	5		
70	4							91	5		
60	4							78	5		
60	4							78	5	80	6
80	5							104	6		
60	4							78	5	65	4
50	4							65	5	80	4
50	3							65	4		
25	2		**2**	**2**	**2**		2	32	3		
20	2		3	3	3			26	4	40	**2**
10			2	2	2					30	**1**
25	2							32	**2**		
15	1							20	**1**		
25	2							32	**2**		
90	**4**		4	4	4			117	**5**	90	8
80	**4**		4	4	4			104	**5**	80	8
80	**4**		4	4	4			91	**5**	80	8
70	**4**		4	4	4			104	**5**	70	7
10			**1**	**1**	**1**		1			30	2
15	2							20	2		
15	1							15	1		
15	1							15	1		
200	**7**							260	**8**		
200	**7**							260	**8**		
150	**6**							195	**7**		
120	**6**							156	**7**		
180	**6**							234	**6**		
80	**5**							104	**6**		
180	**5**		5	5	5			234	**6**		
180	**5**		5	5	5			234	**6**		
120	**5**							156	**6**		
120	**5**							156	**6**		
70	4							91	5		
50	3							65	4		
50	4	**4**						65	5		
40	3	**3**				3		52	4		
150			**1**								
80	3	**3**				2		104	4		

Navegador

GÜHRINGNAVIGATOR

Las herramientas con n° de código de series de avance impreso en negrita (código VR) se deberían elegir con preferencia.
Para la elección de la herramienta óptima y los valores de corte adecuados está a su disposición www.guehring.de y además una versión electrónica del navegador Gühring.

Artículo Nº
Artículo Nº
Norma/DIN
Material de corte
Acabado
Tipo
Dimens. página

Hta. Ø mm	N° de serie de avance								
	1	2	3	4	5	6	7	8	9
	f (mm/U)								
0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
50,00	0,250	0,310	0,400	0,500	0,630	0,800	1,000	1,250	1,250
63,00	0,315	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600
80,00	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600	2,000

Refrigerante según material:
○ Aire
● Aceite
● Emulsión

Sentido de corte:
corte a derechas
corte a izquierdas

Grupo de materiales	Ejemplos Cifras en negrita = nº de mat. según DIN EN 10 027	Resistencia N/mm²	Dureza	Refri-geración
Aceros de construcción generales	**1.0035** S185(St33), **1.0486** P275N(StE285), **1.0345** P235GH(H1), **1.0425** P265GH(H2)	≤500		●
	1.0050 E295 (St50-2), **1.0070** E360 (St70-2), **1.8937** P500NH (WStE500)	≤1000		●
Aceros para autómatas	**1.0718** 11SMnPb30 (9SMnPb28), **1.0736** 11SMn37 (9SMn36)	≤850		●
	1.0727 46S20 (45S20), **1.0728** (60S20), **1.0757** 46SPb20 (45SPb20)	≤1000		●
Aceros de bonificación no aleados	**1.0402** C22, **1.1178** C30E (Ck30)	≤700		●
	1.0503 C45, **1.1191** C45E (Ck45)	≤850		●
	1.0601 C60, **1.1221** C60E (Ck60)	≤1000		●
Aceros de bonificación aleados	**1.5131** 50MnSi4, **1.7003** 38Cr2, **1.7030** 28Cr4	≤1000		●
	1.5710 36NiCr6, **1.7035** 41Cr4, **1.7225** 42CrMo4	≤1400		●
Aceros cementación aleados	**1.0301** (C10), **1.1121** C10E (Ck10)	≤850		●
Aceros cementación no aleados	**1.7276** 10CrMo11, **1.5125** 11MnSi6	≤1000		●
	1.5752 15NiCr13, **1.7131** 16MnCr5, **1.7264** 20CrMo5	≤1400		●
Aceros de nitruración	**1.8504** 34CrAl6	≤1000		●
	1.8519 31CrMoV9, **1.8550** 34CrAlNi7	≤1400		●
Aceros para herramientas	**1.1750** C75W, **1.2067** 102Cr6, **1.2307** 29CrMoV9	≤850		●
	1.2080 X210Cr12, **1.2083** X42Cr13, **1.2419** 105WCr6, **1.2767** X45NiCrMo4	≤1400		●
Aceros rápidos	**1.3243** S 6-5-2-5, **1.3343** S 6-5-2, **1.3344** S 6-5-3	≤1400		●
Aceros para muelles	**1.5026** 55Si7, **1.7176** 55Cr3, **1.8159** 51CrV4 (51CrV4)		≤350 HB	●
Aceros templados	–		≤48 HRC	●
			≤66 HRC	●
Aceros inox., sulfurados	**1.4005** X12CrS13, **1.4104** X14CrMoS17, **1.4105** X6CrMoS17, **1.4305** X8CrNiS18-9	≤900		●
austeníticos	**1.4301** X5CrNi18-10 (V2A), **1.4541** X6CrNiTi18-10, **1.4571** X6CrNiMoTi 17-12-2 (V4A)	≤1100		●
martensíticos	**1.4057** X20CrNi172 (X17CrNi16-2), **1.4122** X39CrMo17-1, **1.4521** X2CrMoTi18-2	≤1500		●
Hierro fundido	**0.6010** EN-GJL-100 (GG10), **0.6020** EN-GJL-200 (GG20)		≤240 HB	● ○
	0.6025 EN-GJL-250 (GG25), **0.6035** EN-GJL-350 (GG35)		≤350 HB	● ○
Fundición de grafito esférico y fundición maleable	**0.7050** EN-GJS-500-7 (GGG50), **0.8035** EN-GJMW-350-4 (GTW35)		≤240 HB	●
	0.7070 EN-GJS-700-2 (GGG70), **0.8170** EN-GJMB-700-2 (GTS70)		≤350 HB	●
Fundición dura	–		≤350 HB	●
Nuevos mat. de fundición GGV	**EN-GJV250** (GGV25), **EN-GJV350** (GGV35)		≤220 HB	● ○
	EN-GJV400 (GGV40), **EN-GJV500** (GGV50), SiMo 6		≤300 HB	● ○
Nuevos mat. de fundición ADI	**EN-GJS-800-8** (ADI800), **EN-GJS-1000-5** (ADI1000)	≤1000		● ○
	EN-GJS-1200-2 (ADI1200), **EN-GJS-1400-1** (ADI1400)	≤1400		● ○
Aleaciones especiales	Nimonic, Inconel, Monel, Hastelloy	≤2000		●
Titanio y aleaciones de titanio	**3.7024** Ti99,5, **3.7114** TiAl5Sn2,5, **3.7124** TiCu2	≤850		●
	3.7154 TiAl6Zr5, **3.7165** TiAl6V4, **3.7184** TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤1400		●
Aluminio y aleaciones de Al	**3.0255** Al99,5, **3.2315** AlMgSi1, **3.3515** AlMg1	≤400		●
Aleaciones maleables de Al	**3.0615** AlMgSiPb, **3.1325** AlCuMg1, **3.3245** AlMg3Si, **3.4365** AlZnMgCu1,5	≤650		●
Aleac. fund. de Al ≤ 10 % Si	**3.2131** G-AlSi5Cu1, **3.2153** G-AlSi7Cu3, **3.2573** G-AlSi9	≤600		●
> 10 % Si	**3.2581** G-AlSi12, **3.2583** G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		●
Aleaciones de magnesio	**3.5200** MgMn2, **3.5812.05** G-MgAl8Zn1, **3.5612.05** G-MgAl6Zn1	≤400		○
Cobre de baja aleación	**2.0070** SE-Cu, **2.1020** CuSn6, **2.1096** G-CuSn5ZnPb	≤500		●
Latón, viruta corta	**2.0380** CuZn39Pb2, **2.0401** CuZn39Pb3, **2.0410** CuZn43Pb2	≤600		●
viruta larga	**2.0250** CuZn20, **2.0280** CuZn33, **2.0332** CuZn37Pb0,5	≤600		●
Bronces, viruta corta	**2.1090** CuSn7ZnPb, **2.1170** CuPb5Sn5, **2.1176** CuPb10Sn	≤600		● ●
	2.0790 CuNi18Zn19Pb	≤850		●
Bronces, viruta larga	**2.0916** CuAl5, **2.0960** CuAl9Mn, **2.1050** CuSn10	≤850		●
	2.0980 CuAl11Ni, **2.1247** CuBe2	≤1000		●
Duroplásticos	Resina epoxídica, Resopal, Pertinax, Moltopren	≤150		○
Termoplásticos	Plexiglas, Hostalen, Novodur, Makralon	≤100		● ○
Materiales sintéticos	Kevlar	≤1000		○
Fibras de vidrio/carbón	GFK/CFK	≤1000		○

≤5xD Profundidad

560	205	240	268	229	245	592	251	206	246	207	247	549	558
	208			248				209		210		550	
338	338	338	WN	345	345	345	346	338	345	338	345	338	345
HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS
	>Ø 2,36				>Ø 2,36	>Ø 16,0						>Ø 2,36	>Ø 16,0
N	N	N	N	N	N	N	N	H	H	W	W	GT 100	GT 100
256	244/258	257	412	458/457	450	454	471	263/266	459	269/272	460	274/281	461

v_c m/min	N° de serie de avance													
27	6	**6**	**6**	**6**	**6**	**6**	**6**	**6**					6	6
22	**5**	**5**	**5**	**5**	**5**	**5**	5	**5**					5	5
30	6	**6**	**6**	**6**	**6**	**6**	**6**	**6**					**6**	**6**
30	5	5	5	5	5	5	5	5					5	5
25	5	**5**	**5**	**5**	**5**	**5**	**5**	5					5	5
25	**5**	**5**	**5**	**5**	**5**	**5**	5	5					5	5
30	6	6	6	6	6	6	6	6					6	6
16		4	4	4	4	4	4	4					4	4
30	6	**6**	**6**	**6**	**6**	**6**	**6**	**6**					6	6
30	6	6	6	6	6	6	6	6					6	6
25	6	6	6	6	6	6	6	6					6	6
25	6	6	6	6	6	6	6	6					6	6
80											**7**	**7**		
80											**7**	**7**		
70	**7**	7	7	7	7	7	7	7			7	7	**7**	**7**
70	**6**	6	6	6	6	6	6	6					**6**	**6**
50	6	6	6	6	6	6	6	6	6	6			6	6
50	5	5	5	5	5	5	5	5			**5**	**5**	**5**	**5**
70									**6**	**6**				
40	5	5	5	5	5	5	5	5					**5**	**5**
30	4	4	4	4	4	4	4	4	4	4				
25	4	4	4	4	4	4	4	4						
15	4	4	4	4	4	4	4	4					4	4
18	4	4	4	4	4	4	4	4	4	4			**4**	**4**
28	5	5	5	5	5	5	5	5	**5**	**5**	5	5		

GÜHRINGNAVIGATOR

Las herramientas con n° de código de series de avance impreso en negrita (código VR) se deberían elegir con preferencia.
Para la elección de la herramienta óptima y los valores de corte adecuados está a su disposición www.guehring.de y además una versión electrónica del navegador Gühring.

Artículo Nº
Artículo Nº
Norma/DIN
Material de corte
Acabado
Tipo
Dimens. página

Hta. Ø mm	N° de serie de avance								
	1	2	3	4	5	6	7	8	9
	f (mm/U)								
0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
50,00	0,250	0,310	0,400	0,500	0,630	0,800	1,000	1,250	1,250
63,00	0,315	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600
80,00	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600	2,000

Refrigerante según material:
○ Aire
● Aceite
● Emulsión

Sentido de corte:
corte a derechas
corte a izquierdas

Grupo de materiales	Ejemplos Cifras en negrita = nº de mat. según DIN EN 10 027	Resistencia N/mm²	Dureza	Refri-geración
Aceros de construcción generales	**1.0035** S185(St33), **1.0486** P275N(StE285), **1.0345** P235GH(H1), **1.0425** P265GH(H2)	≤500		●
	1.0050 E295 (St50-2), **1.0070** E360 (St70-2), **1.8937** P500NH (WStE500)	≤1000		●
Aceros para autómatas	**1.0718** 11SMnPb30 (9SMnPb28), **1.0736** 11SMn37 (9SMn36)	≤850		●
	1.0727 46S20 (45S20), **1.0728** (60S20), **1.0757** 46SPb20 (45SPb20)	≤1000		●
Aceros de bonificación no aleados	**1.0402** C22, **1.1178** C30E (Ck30)	≤700		●
	1.0503 C45, **1.1191** C45E (Ck45)	≤850		●
	1.0601 C60, **1.1221** C60E (Ck60)	≤1000		●
Aceros de bonificación aleados	**1.5131** 50MnSi4, **1.7003** 38Cr2, **1.7030** 28Cr4	≤1000		●
	1.5710 36NiCr6, **1.7035** 41Cr4, **1.7225** 42CrMo4	≤1400		●
Aceros cementación aleados	**1.0301** (C10), **1.1121** C10E (Ck10)	≤850		●
Aceros cementación no aleados	**1.7276** 10CrMo11, **1.5125** 11MnSi6	≤1000		●
	1.5752 15NiCr13, **1.7131** 16MnCr5, **1.7264** 20CrMo5	≤1400		●
Aceros de nitruración	**1.8504** 34CrAl6	≤1000		●
	1.8519 31CrMoV9, **1.8550** 34CrAlNi7	≤1400		●
Aceros para herramientas	**1.1750** C75W, **1.2067** 102Cr6, **1.2307** 29CrMoV9	≤850		●
	1.2080 X210Cr12, **1.2083** X42Cr13, **1.2419** 105WCr6, **1.2767** X45NiCrMo4	≤1400		●
Aceros rápidos	**1.3243** S 6-5-2-5, **1.3343** S 6-5-2, **1.3344** S 6-5-3	≤1400		●
Aceros para muelles	**1.5026** 55Si7, **1.7176** 55Cr3, **1.8159** 51CrV4 (51CrV4)		≤350 HB	●
Aceros templados	–		≤48 HRC	●
			≤66 HRC	●
Aceros inox., sulfurados	**1.4005** X12CrS13, **1.4104** X14CrMoS17, **1.4105** X6CrMoS17, **1.4305** X8CrNiS18-9	≤900		●
austeníticos	**1.4301** X5CrNi18-10 (V2A), **1.4541** X6CrNiTi18-10, **1.4571** X6CrNiMoTi 17-12-2 (V4A)	≤1100		●
martensíticos	**1.4057** X20CrNi172 (X17CrNi16-2), **1.4122** X39CrMo17-1, **1.4521** X2CrMoTi18-2	≤1500		●
Hierro fundido	**0.6010** EN-GJL-100 (GG10), **0.6020** EN-GJL-200 (GG20)		≤240 HB	● ○
	0.6025 EN-GJL-250 (GG25), **0.6035** EN-GJL-350 (GG35)		≤350 HB	● ○
Fundición de grafito esférico y fundición maleable	**0.7050** EN-GJS-500-7 (GGG50), **0.8035** EN-GJMW-350-4 (GTW35)		≤240 HB	●
	0.7070 EN-GJS-700-2 (GGG70), **0.8170** EN-GJMB-700-2 (GTS70)		≤350 HB	●
Fundición dura	–		≤350 HB	●
Nuevos mat. de fundición GGV	**EN-GJV250** (GGV25), **EN-GJV350** (GGV35)		≤220 HB	● ○
	EN-GJV400 (GGV40), **EN-GJV500** (GGV50), SiMo 6		≤300 HB	● ○
Nuevos mat. de fundición ADI	**EN-GJS-800-8** (ADI800), **EN-GJS-1000-5** (ADI1000)	≤1000		● ○
	EN-GJS-1200-2 (ADI1200), **EN-GJS-1400-1** (ADI1400)	≤1400		● ○
Aleaciones especiales	Nimonic, Inconel, Monel, Hastelloy	≤2000		●
Titanio y aleaciones de titanio	**3.7024** Ti99,5, **3.7114** TiAl5Sn2,5, **3.7124** TiCu2	≤850		●
	3.7154 TiAl6Zr5, **3.7165** TiAl6V4, **3.7184** TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤1400		●
Aluminio y aleaciones de Al	**3.0255** Al99,5, **3.2315** AlMgSi1, **3.3515** AlMg1	≤400		●
Aleaciones maleables de Al	**3.0615** AlMgSiPb, **3.1325** AlCuMg1, **3.3245** AlMg3Si, **3.4365** AlZnMgCu1,5	≤650		●
Aleac. fund. de Al ≤ 10 % Si	**3.2131** G-AlSi5Cu1, **3.2153** G-AlSi7Cu3, **3.2573** G-AlSi9	≤600		●
> 10 % Si	**3.2581** G-AlSi12, **3.2583** G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		●
Aleaciones de magnesio	**3.5200** MgMn2, **3.5812.05** G-MgAl8Zn1, **3.5612.05** G-MgAl6Zn1	≤400		○
Cobre de baja aleación	**2.0070** SE-Cu, **2.1020** CuSn6, **2.1096** G-CuSn5ZnPb	≤500		●
Latón, viruta corta	**2.0380** CuZn39Pb2, **2.0401** CuZn39Pb3, **2.0410** CuZn43Pb2	≤600		●
viruta larga	**2.0250** CuZn20, **2.0280** CuZn33, **2.0332** CuZn37Pb0,5	≤600		●
Bronces, viruta corta	**2.1090** CuSn7ZnPb, **2.1170** CuPb5Sn5, **2.1176** CuPb10Sn	≤600		● ●
	2.0790 CuNi18Zn19Pb	≤850		●
Bronces, viruta larga	**2.0916** CuAl5, **2.0960** CuAl9Mn, **2.1050** CuSn10	≤850		●
	2.0980 CuAl11Ni, **2.1247** CuBe2	≤1000		●
Duroplásticos	Resina epoxídica, Resopal, Pertinax, Moltopren	≤150		○
Termoplásticos	Plexiglas, Hostalen, Novodur, Makralon	≤100		● ○
Materiales sintéticos	Kevlar	≤1000		○
Fibras de vidrio/carbón	GFK/CFK	≤1000		○

≤5xD Profundidad

651	654	652	606
664		665	
338	345	338	345
HSS	HSS	HSS	HSS
S	S	S	S
N	N	GT 100	GT 100
250/261	455	277/283	462

2456	2457
338	338
HSS	HSS
F	F
N	GT 100
254	280

305	345	351	622	645	605	1260	1262	1146
308					608			
338	345	346	338	345	338	338	345	338
HSCO	HSCO	HSCO	HSCO	HSCO	HSCO	HSCO	HSCO	M42
>Ø 2,36			>Ø 2,36	>Ø 16,0				
N	N	N	GT 100	GT 100	Ti	VA	VA	N
284/289	463	472	291	466	301/308	309	470	315

v_c m/min	N° de serie de avance			
30	6	6	6	6
24	5	5	5	5
33	6	6	6	6
33	5	5	5	5
28	5	5	5	5
28	5	5	5	5
25	4	4	4	4
22	4	4	4	4
33	6	6	6	6
20	4	4	4	4
14	4	4	4	4
18	4	4	4	4
33	6	6	6	6
33	6	6	6	6
28	6	6	6	6
22	6	6	6	6
80	6	6		
65	5	5	5	5
75	5	5	5	5
45	5	5	5	5
33	4	4		
27	4	4		
16	4	4	4	4
15	4	4	4	4
22	4	4	4	4
36	5	5		

v_c m/min	N° de serie de avance	
32	7	7
26	6	6
36	7	7
36	6	6
31	6	6
31	6	6
28	5	5
24	5	5
36	7	7
22	5	5
16	5	5
20	5	5
36	7	7
36	7	7
31	7	7
24	7	7
85	8	8
85	8	8
60	8	8
60	8	7
90	7	7
70	6	6
80	6	6
50	6	6
36	5	
33	5	
18	5	5
18	5	5
29	5	5

v_c m/min	N° de serie de avance								
35	5	5	5	5	5		5	5	5
30	5	5	5	5	5		5	5	5
40	5	5	5	5	5		5	5	5
40	5	5	5	5	5		5	5	5
40	5	5	5	5	5		5	5	5
40	5	5	5	5	5				5
35	4	4	4	4	4				5
20	4	4	4	4	4				4
16	3	3	3	3	3	3			3
36	6	6	6	6	6	6	6	6	6
20	4	4	4	4	4				3
15	3	3	3	3	3	3			3
16	4	4	4	4	4				3
12	3	3	3	3	3	3			3
15	4	4	4	4	4				3
12	3	3	3	3	3	3			3
15	3	3	3	3	3	3			3
8	2	2	2			2			2
4									1
18	4	4	4	4	4	4	4	4	3
14	3	3	3	2	2	3	3	3	
16	3	3	3	3	3	3	3	3	3
35	6	6	6	6	6				5
30	6	6	6	6	6				5
30	6	6	6	6	6				5
28	6	6	6	6	6				5
10	3	3	3	3	3	3			3
8						1			1
10						2	2	2	2
6						2	2	2	2
90							7	7	7
90							7	7	7
80				7	7		7	7	7
70				6	6		6	6	6
70							6	6	6
40	5	5	5	5	5		5	5	5
60							5	5	5
40	5	5	5	4	4		5	5	5
35	4	4	4				4	4	4
33	4	4	4				4	4	4
20	4	4	4	4	4		4	4	4
15	4	4	4	4	4		1	1	4
20	4	4	4	4	4				

Navegador

GÜHRINGNAVIGATOR

Las herramientas con n° de código de series de avance impreso en negrita (código VR) se deberían elegir con preferencia.
Para la elección de la herramienta óptima y los valores de corte adecuados está a su disposición www.guehring.de y además una versión electrónica del navegador Gühring.

Artículo Nº
Norma/DIN
Material de corte
Acabado
Tipo
Dimens. página

Hta. Ø mm	N° de serie de avance								
	1	2	3	4	5	6	7	8	9
	f (mm/U)								
0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
50,00	0,250	0,310	0,400	0,500	0,630	0,800	1,000	1,250	1,250
63,00	0,315	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600
80,00	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600	2,000

Refrigerante según material:
○ Aire
● Aceite
◉ Emulsión

Sentido de corte:
corte a derechas
corte a izquierdas

Grupo de materiales	Ejemplos Cifras en negrita = nº de mat. según DIN EN 10 027	Resistencia N/mm²	Dureza	Refri-geración
Aceros de construcción generales	**1.0035** S185(St33), **1.0486** P275N(StE285), **1.0345** P235GH(H1), **1.0425** P265GH(H2)	≤500		◉
	1.0050 E295 (St50-2), **1.0070** E360 (St70-2), **1.8937** P500NH (WStE500)	≤1000		◉
Aceros para autómatas	**1.0718** 11SMnPb30 (9SMnPb28), **1.0736** 11SMn37 (9SMn36)	≤850		◉
	1.0727 46S20 (45S20), **1.0728** (60S20), **1.0757** 46SPb20 (45SPb20)	≤1000		◉
Aceros de bonificación no aleados	**1.0402** C22, **1.1178** C30E (Ck30)	≤700		◉
	1.0503 C45, **1.1191** C45E (Ck45)	≤850		◉
	1.0601 C60, **1.1221** C60E (Ck60)	≤1000		◉
Aceros de bonificación aleados	**1.5131** 50MnSi4, **1.7003** 38Cr2, **1.7030** 28Cr4	≤1000		◉
	1.5710 36NiCr6, **1.7035** 41Cr4, **1.7225** 42CrMo4	≤1400		◉
Aceros cementación aleados	**1.0301** (C10), **1.1121** C10E (Ck10)	≤850		◉
Aceros cementación no aleados	**1.7276** 10CrMo11, **1.5125** 11MnSi6	≤1000		●
	1.5752 15NiCr13, **1.7131** 16MnCr5, **1.7264** 20CrMo5	≤1400		●
Aceros de nitruración	**1.8504** 34CrAl6	≤1000		◉
	1.8519 31CrMoV9, **1.8550** 34CrAlNi7	≤1400		●
Aceros para herramientas	**1.1750** C75W, **1.2067** 102Cr6, **1.2307** 29CrMoV9	≤850		◉
	1.2080 X210Cr12, **1.2083** X42Cr13, **1.2419** 105WCr6, **1.2767** X45NiCrMo4	≤1400		●
Aceros rápidos	**1.3243** S 6-5-2-5, **1.3343** S 6-5-2, **1.3344** S 6-5-3	≤1400		●
Aceros para muelles	**1.5026** 55Si7, **1.7176** 55Cr3, **1.8159** 51CrV4 (51CrV4)		≤350 HB	●
Aceros templados	–		≤48 HRC	●
			≤66 HRC	●
Aceros inox., sulfurados	**1.4005** X12CrS13, **1.4104** X14CrMoS17, **1.4105** X6CrMoS17, **1.4305** X8CrNiS18-9	≤900		●
austeníticos	**1.4301** X5CrNi18-10 (V2A), **1.4541** X6CrNiTi18-10, **1.4571** X6CrNiMoTi 17-12-2 (V4A)	≤1100		●
martensíticos	**1.4057** X20CrNi172 (X17CrNi16-2), **1.4122** X39CrMo17-1, **1.4521** X2CrMoTi18-2	≤1500		●
Hierro fundido	**0.6010** EN-GJL-100 (GG10), **0.6020** EN-GJL-200 (GG20)		≤240 HB	◉○
	0.6025 EN-GJL-250 (GG25), **0.6035** EN-GJL-350 (GG35)		≤350 HB	◉○
Fundición de grafito esférico y fundición maleable	**0.7050** EN-GJS-500-7 (GGG50), **0.8035** EN-GJMW-350-4 (GTW35)		≤240 HB	◉
	0.7070 EN-GJS-700-2 (GGG70), **0.8170** EN-GJMB-700-2 (GTS70)		≤350 HB	◉
Fundición dura	–		≤350 HB	◉
Nuevos mat. de fundición GGV	**EN-GJV250** (GGV25), **EN-GJV350** (GGV35)		≤220 HB	◉○
	EN-GJV400 (GGV40), **EN-GJV500** (GGV50), SiMo 6		≤300 HB	◉○
Nuevos mat. de fundición ADI	**EN-GJS-800-8** (ADI800), **EN-GJS-1000-5** (ADI1000)	≤1000		◉○
	EN-GJS-1200-2 (ADI1200), **EN-GJS-1400-1** (ADI1400)	≤1400		◉○
Aleaciones especiales	Nimonic, Inconel, Monel, Hastelloy	≤2000		●
Titanio y aleaciones de titanio	**3.7024** Ti99,5, **3.7114** TiAl5Sn2,5, **3.7124** TiCu2	≤850		●
	3.7154 TiAl6Zr5, **3.7165** TiAl6V4, **3.7184** TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤1400		●
Aluminio y aleaciones de Al	**3.0255** Al99,5, **3.2315** AlMgSi1, **3.3515** AlMg1	≤400		◉
Aleaciones maleables de Al	**3.0615** AlMgSiPb, **3.1325** AlCuMg1, **3.3245** AlMg3Si, **3.4365** AlZnMgCu1,5	≤650		◉
Aleac. fund. de Al ≤ 10 % Si	**3.2131** G-AlSi5Cu1, **3.2153** G-AlSi7Cu3, **3.2573** G-AlSi9	≤600		◉
> 10 % Si	**3.2581** G-AlSi12, **3.2583** G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		◉
Aleaciones de magnesio	**3.5200** MgMn2, **3.5812.05** G-MgAl8Zn1, **3.5612.05** G-MgAl6Zn1	≤400		○
Cobre de baja aleación	**2.0070** SE-Cu, **2.1020** CuSn6, **2.1096** G-CuSn5ZnPb	≤500		◉
Latón, viruta corta	**2.0380** CuZn39Pb2, **2.0401** CuZn39Pb3, **2.0410** CuZn43Pb2	≤600		◉
viruta larga	**2.0250** CuZn20, **2.0280** CuZn33, **2.0332** CuZn37Pb0,5	≤600		◉
Bronces, viruta corta	**2.1090** CuSn7ZnPb, **2.1170** CuPb5Sn5, **2.1176** CuPb10Sn	≤600		◉●
	2.0790 CuNi18Zn19Pb	≤850		●
Bronces, viruta larga	**2.0916** CuAl5, **2.0960** CuAl9Mn, **2.1050** CuSn10	≤850		●
	2.0980 CuAl11Ni, **2.1247** CuBe2	≤1000		●
Duroplásticos	Resina epoxídica, Resopal, Pertinax, Moltopren	≤150		○
Termoplásticos	Plexiglas, Hostalen, Novodur, Makralon	≤100		◉○
Materiales sintéticos	Kevlar	≤1000		○
Fibras de vidrio/carbón	GFK/CFK	≤1000		○

≤5xD Profundidad

2997	661	658	662	657
338	345	338	345	338
HSCO	HSCO	HSCO	HSCO	HSCO
S	S	S	S	S
N	N	GT 100	GT 100	Ti
288	465	294	467	304

2459	2458
338	338
HSCO	HSCO
F	F
GT 100	Ti
296	306

1223	1224	1221	1222
338	345	338	345
HSCO	HSCO	HSCO	HSCO
A	A	C	C
GT 100	GT 100	GT 100	GT 100
299	469	298	468

v_c m/min	N° de serie de avance					v_c m/min	N° de serie de avance		v_c m/min	N° de serie de avance			
38	6	6	6	6		42	6		42			6	6
33	5	5	5	5		36	5		36			6	6
44	5	5	5	5		48	6		48			6	6
38	5	5	**5**	**5**		42	**6**		42	5	5	**6**	**6**
44	5	5	5	5		48	6						
38	**4**	**4**	4	4		42	5		42			**5**	**5**
27	**4**	**4**	4	4		30	**5**		30			**5**	**5**
22	3	3	**3**	**3**	3	34	**4**	4	34			**4**	**4**
44	4	4	4	4		48	6		48			**7**	**7**
22	**4**	**4**	4	4		24	5		24			**5**	**5**
18	3	3	**3**	**3**		20	**4**		20			**4**	**4**
22	**4**	**4**	4	4		24	5		20			**5**	**5**
18	3	3	**3**	**3**		20	**4**		15			**4**	**4**
19	**4**	**4**	**4**	4		21	5		21			**5**	**5**
14	3	3	**3**	3		16	**4**		16			**4**	**4**
14	3	3	**3**	**3**	3	17	**4**	4	17			**4**	**4**
9	2	2			**2**	11	3	**2**	11			**3**	**3**
						6	1						
20	4	4	**4**	**4**	4	22	**5**	5	22			**5**	**5**
15	3	3			**3**	17	4	**3**					
18			3	3	**3**	20	4	**4**	18			4	4
40	6	6	6	6		45	7		45	**7**	**7**		
35	**6**	**6**	6	6		40	7		40	**7**	**7**		
33	6	6	6	6		36	7		36	**7**	**7**		
27	**6**	**6**	6	6		29	7		29	**7**	**7**		
12					**3**	14	4	**3**					
6					2	7		2					
11					**2**	12		**2**					
7					**2**	8		**2**					
						85	8						
						72	7						
									85	7	7		
88	5	5	5	5		96	6		96	6	6		
40	4	**4**				40							
22	4	**4**	4	4		25	5		25	5	5		
17	4	4	**4**	**4**	4	20	**5**	4	20	5	5		
22	4	4	4	4		24	5		24	5	5		

GÜHRINGNAVIGATOR

Las herramientas con n° de código de series de avance impreso en negrita (código VR) se deberían elegir con preferencia.
Para la elección de la herramienta óptima y los valores de corte adecuados está a su disposición www.guehring.de y además una versión electrónica del navegador Gühring.

Artículo Nº
Norma/DIN
Material de corte
Acabado
Tipo
Refrigeración
Dimens. página

Hta. Ø mm	N° de serie de avance								
	1	2	3	4	5	6	7	8	9
	f (mm/U)								
0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
50,00	0,250	0,310	0,400	0,500	0,630	0,800	1,000	1,250	1,250
63,00	0,315	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600
80,00	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600	2,000

Refrigerante según material:
○ Aire
● Aceite
● Emulsión

Sentido de corte:
corte a derechas
corte a izquierdas

Grupo de materiales	Ejemplos Cifras en negrita = nº de mat. según DIN EN 10 027	Resistencia N/mm²	Dureza	Refri-geración
Aceros de construcción generales	**1.0035** S185(St33), **1.0486** P275N(StE285), **1.0345** P235GH(H1), **1.0425** P265GH(H2)	≤500		●
	1.0050 E295 (St50-2), **1.0070** E360 (St70-2), **1.8937** P500NH (WStE500)	≤1000		●
Aceros para autómatas	**1.0718** 11SMnPb30 (9SMnPb28), **1.0736** 11SMn37 (9SMn36)	≤850		●
	1.0727 46S20 (45S20), **1.0728** (60S20), **1.0757** 46SPb20 (45SPb20)	≤1000		●
Aceros de bonificación no aleados	**1.0402** C22, **1.1178** C30E (Ck30)	≤700		●
	1.0503 C45, **1.1191** C45E (Ck45)	≤850		●
	1.0601 C60, **1.1221** C60E (Ck60)	≤1000		●
Aceros de bonificación aleados	**1.5131** 50MnSi4, **1.7003** 38Cr2, **1.7030** 28Cr4	≤1000		●
	1.5710 36NiCr6, **1.7035** 41Cr4, **1.7225** 42CrMo4	≤1400		●
Aceros cementación aleados	**1.0301** (C10), **1.1121** C10E (Ck10)	≤850		●
Aceros cementación no aleados	**1.7276** 10CrMo11, **1.5125** 11MnSi6	≤1000		●
	1.5752 15NiCr13, **1.7131** 16MnCr5, **1.7264** 20CrMo5	≤1400		●
Aceros de nitruración	**1.8504** 34CrAl6	≤1000		●
	1.8519 31CrMoV9, **1.8550** 34CrAlNi7	≤1400		●
Aceros para herramientas	**1.1750** C75W, **1.2067** 102Cr6, **1.2307** 29CrMoV9	≤850		●
	1.2080 X210Cr12, **1.2083** X42Cr13, **1.2419** 105WCr6, **1.2767** X45NiCrMo4	≤1400		●
Aceros rápidos	**1.3243** S 6-5-2-5, **1.3343** S 6-5-2, **1.3344** S 6-5-3	≤1400		●
Aceros para muelles	**1.5026** 55Si7, **1.7176** 55Cr3, **1.8159** 51CrV4 (51CrV4)		≤350 HB	●
Aceros templados	–		≤48 HRC	●
			≤66 HRC	●
Aceros inox., sulfurados	**1.4005** X12CrS13, **1.4104** X14CrMoS17, **1.4105** X6CrMoS17, **1.4305** X8CrNiS18-9	≤900		●
austeníticos	**1.4301** X5CrNi18-10 (V2A), **1.4541** X6CrNiTi18-10, **1.4571** X6CrNiMoTi 17-12-2 (V4A)	≤1100		●
martensíticos	**1.4057** X20CrNi172 (X17CrNi16-2), **1.4122** X39CrMo17-1, **1.4521** X2CrMoTi18-2	≤1500		●
Hierro fundido	**0.6010** EN-GJL-100 (GG10), **0.6020** EN-GJL-200 (GG20)		≤240 HB	○ ○
	0.6025 EN-GJL-250 (GG25), **0.6035** EN-GJL-350 (GG35)		≤350 HB	○ ○
Fundición de grafito esférico y fundición maleable	**0.7050** EN-GJS-500-7 (GGG50), **0.8035** EN-GJMW-350-4 (GTW35)		≤240 HB	●
	0.7070 EN-GJS-700-2 (GGG70), **0.8170** EN-GJMB-700-2 (GTS70)		≤350 HB	●
Fundición dura	–		≤350 HB	●
Nuevos mat. de fundición GGV	**EN-GJV250** (GGV25), **EN-GJV350** (GGV35)		≤220 HB	● ○
	EN-GJV400 (GGV40), **EN-GJV500** (GGV50), SiMo 6		≤300 HB	● ○
Nuevos mat. de fundición ADI	**EN-GJS-800-8** (ADI800), **EN-GJS-1000-5** (ADI1000)	≤1000		● ○
	EN-GJS-1200-2 (ADI1200), **EN-GJS-1400-1** (ADI1400)	≤1400		● ○
Aleaciones especiales	Nimonic, Inconel, Monel, Hastelloy	≤2000		●
Titanio y aleaciones de titanio	**3.7024** Ti99,5, **3.7114** TiAl5Sn2,5, **3.7124** TiCu2	≤850		●
	3.7154 TiAl6Zr5, **3.7165** TiAl6V4, **3.7184** TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤1400		●
Aluminio y aleaciones de Al	**3.0255** Al99,5, **3.2315** AlMgSi1, **3.3515** AlMg1	≤400		●
Aleaciones maleables de Al	**3.0615** AlMgSiPb, **3.1325** AlCuMg1, **3.3245** AlMg3Si, **3.4365** AlZnMgCu1,5	≤650		●
Aleac. fund. de Al ≤ 10 % Si	**3.2131** G-AlSi5Cu1, **3.2153** G-AlSi7Cu3, **3.2573** G-AlSi9	≤600		●
> 10 % Si	**3.2581** G-AlSi12, **3.2583** G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		●
Aleaciones de magnesio	**3.5200** MgMn2, **3.5812.05** G-MgAl8Zn1, **3.5612.05** G-MgAl6Zn1	≤400		○
Cobre de baja aleación	**2.0070** SE-Cu, **2.1020** CuSn6, **2.1096** G-CuSn5ZnPb	≤500		●
Latón, viruta corta	**2.0380** CuZn39Pb2, **2.0401** CuZn39Pb3, **2.0410** CuZn43Pb2	≤600		●
viruta larga	**2.0250** CuZn20, **2.0280** CuZn33, **2.0332** CuZn37Pb0,5	≤600		●
Bronces, viruta corta	**2.1090** CuSn7ZnPb, **2.1170** CuPb5Sn5, **2.1176** CuPb10Sn	≤600		● ●
	2.0790 CuNi18Zn19Pb	≤850		●
Bronces, viruta larga	**2.0916** CuAl5, **2.0960** CuAl9Mn, **2.1050** CuSn10	≤850		●
	2.0980 CuAl11Ni, **2.1247** CuBe2	≤1000		●
Duroplásticos	Resina epoxídica, Resopal, Pertinax, Moltopren	≤150		○
Termoplásticos	Plexiglas, Hostalen, Novodur, Makralon	≤100		● ○
Materiales sintéticos	Kevlar	≤1000		○
Fibras de vidrio/carbón	GFK/CFK	≤1000		○

≤5xD Profundidad

1199	1018	2047	511	513	1131	1132	732	2464
338	338	338	WN	WN	WN	WN	WN	WN
M42	M42	HSCO	HSCO	HSS-E-PM	HSCO	HSCO	MD	MD
F nano			S	F		S		F
N	AeroX	P2000	GU 500	GT 500	GT 80 IK	GT 80 IK	N	N
sin	sin	sin	sin	sin	con	con	sin	sin
317	313	311	386	388	395	396	319	321

v_c m/min	N° de serie de av.	v_c m/min	N° de serie de av.	v_c m/min	N° de serie de av.	v_c m/min	N° de serie de av.	v_c m/min	N° de serie de av.	v_c m/min	N° de serie de av.	v_c m/min	N° de serie de av.	v_c m/min	N° de serie de av.	v_c m/min	N° de serie de av.
42	6	35	6	35	**6**	45	**6**	42	6	48	7	60	7	80	4	100	5
36	**5**	30	**5**	30	**5**	35	**5**	37	5	38	6	48	6	70	4	90	5
48	6	40	6	40	6	50	**6**	47	6	48	7	60	7	80	**5**	100	**6**
42	**5**	40	**5**	40	5	40	**6**	44	6	38	6	48	6	70	**4**	90	**4**
44	6	40	5	40	**5**	44	**6**	47	6	48	6	60	6	80	4	100	5
44	**5**	40	**5**	40	**5**	44	**6**	47	6	48	6	60	6	70	4	90	5
42	**5**	35	**4**	35	**4**	40	**5**	44	**5**	38	**5**	50	**5**	60	4	80	5
30	**4**	20	**4**	25	**4**	27	4	30	4	28	**5**	33	**5**	60	4	80	5
25	**3**	16	**3**	20	3	22	3	25	**3**	26	**4**	31	**4**				
40	6	36	6	40	6	44	**6**	47	3	43	7	55	7	80	5	100	6
25	**3**	20	**3**	20	4	22	4	25	**4**	25	**5**	31	**5**	60	4	80	5
20	**3**	15	**3**	15	3	18	3	20	**3**	24	**4**	31	**4**				
20	**3**	16	4	20	**4**	22	4	25	**4**	25	**5**	30	**5**	50	4	65	5
18	**3**	12	3	15	3	16	3	18	**4**	20	**4**	24	**4**				
21	**4**	15	3	18	4	20	4	22	**5**	24	5	30	5	50	3	65	3
16	**3**	12	3	12	3	15	3	17	**4**	16	**4**	20	**4**				
17	3	15	3	12	3	13	3	14	**4**	14	**4**	18	**4**				
11	**2**	8	2	8	2	9	2	12	**2**	12	**3**	15	**3**	25	2	30	3
6	1	4	1							4	**3**	5	**3**	20	2	20	2
20	**4**	18	3	14	4	20	**4**	22	4	20	**5**	25	**5**	25	**2**	30	**2**
15	**3**	14	**3**	10	3	16	**4**	18	3	14	**4**	18	**4**	15	1	20	**1**
18	**3**	16	**3**	12	3	18	**4**	20	3	16	**4**	20	**4**	25	2	30	**2**
45	**6**	35	6	38	6	45	**6**	50	**7**	48	7	60	7	90	**4**	115	**5**
40	**6**	30	**6**	30	6	40	**6**	40	**7**	38	**7**	48	**7**	80	**4**	100	**5**
36	6	30	6	30	6	40	**6**	44	**7**	42	7	52	7	70	**4**	90	5
29	6	28	**6**	25	6	30	**6**	33	**7**	32	**7**	40	**7**	80	**4**	80	**5**
14	**3**	10	3	10	3			16	4	12	**4**	15	**4**				
9	**1**	8	**1**	5	2			6	2	10	**2**	12	**2**	15	2	20	3
12	2	10	**2**							14	3	18	3	15	**1**	15	**1**
8	2	6	**2**							10	**3**	12	**3**	15	**1**	15	**1**
		90	7	90	7	70	7							200	**7**	260	**8**
		90	**7**	90	7	70	7							200	**7**	260	**8**
80	7	80	7	80	7	85	7			95	7	120	7	150	**6**	195	**7**
70	6	70	6	70	6	70	6			75	8	95	8	120	**6**	155	**7**
80	6	70	6	85	6	80	6							180	**5**	235	**6**
70	5	70	5	80	5	80	**5**	50	5	90	6	100	6	80	**5**	100	**6**
60	5	60	5	70	5	77	**5**							180	5	235	6
40	5	40	5	40	5	44	**5**	60	5	45	6	55	6	180	5	235	6
35	4	35	4	40	4	50	**4**	50	5					120	5	155	6
33	4	33	4	30	4	40	**4**	44	5	48	5	60	5	120	5	155	6
20	4	20	4	25	4	32	**4**	33	5	45	5	55	5	70	4	90	5
15	4	15	4	15	4	28	**4**	28	5	38	**5**	45	**5**	50	3	65	4
		20	4	20	4	25	**4**	25	**4**					50	4	50	5
		30	5	25	5	27	**4**			38	6	48	6	40	3	65	4
														80	3	100	4

GÜHRINGNAVIGATOR

Las herramientas con n° de código de series de avance impreso en negrita (código VR) se deberían elegir con preferencia.
Para la elección de la herramienta óptima y los valores de corte adecuados está a su disposición www.guehring.de y además una versión electrónica del navegador Gühring.

Artículo N°
Artículo N°
Norma/DIN
Material de corte
Acabado
Tipo
Refrigeración
Dimens. página

Hta. Ø mm	N° de serie de avance								
	1	2	3	4	5	6	7	8	9
	f (mm/U)								
0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
50,00	0,250	0,310	0,400	0,500	0,630	0,800	1,000	1,250	1,250
63,00	0,315	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600
80,00	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600	2,000

Refrigerante según material:
○ Aire
● Aceite
● Emulsión

Sentido de corte:
corte a derechas
corte a izquierdas

Grupo de materiales	Ejemplos Cifras en negrita = nº de mat. según DIN EN 10 027	Resistencia N/mm²	Dureza	Refri-geración
Aceros de construcción generales	**1.0035** S185(St33), **1.0486** P275N(StE285), **1.0345** P235GH(H1), **1.0425** P265GH(H2)	≤500		●
	1.0050 E295 (St50-2), **1.0070** E360 (St70-2), **1.8937** P500NH (WStE500)	≤1000		●
Aceros para autómatas	**1.0718** 11SMnPb30 (9SMnPb28), **1.0736** 11SMn37 (9SMn36)	≤850		●
	1.0727 46S20 (45S20), **1.0728** (60S20), **1.0757** 46SPb20 (45SPb20)	≤1000		●
Aceros de bonificación no aleados	**1.0402** C22, **1.1178** C30E (Ck30)	≤700		●
	1.0503 C45, **1.1191** C45E (Ck45)	≤850		●
	1.0601 C60, **1.1221** C60E (Ck60)	≤1000		●
Aceros de bonificación aleados	**1.5131** 50MnSi4, **1.7003** 38Cr2, **1.7030** 28Cr4	≤1000		●
	1.5710 36NiCr6, **1.7035** 41Cr4, **1.7225** 42CrMo4	≤1400		●
Aceros cementación aleados	**1.0301** (C10), **1.1121** C10E (Ck10)	≤850		●
Aceros cementación no aleados	**1.7276** 10CrMo11, **1.5125** 11MnSi6	≤1000		●
	1.5752 15NiCr13, **1.7131** 16MnCr5, **1.7264** 20CrMo5	≤1400		●
Aceros de nitruración	**1.8504** 34CrAl6	≤1000		●
	1.8519 31CrMoV9, **1.8550** 34CrAlNi7	≤1400		●
Aceros para herramientas	**1.1750** C75W, **1.2067** 102Cr6, **1.2307** 29CrMoV9	≤850		●
	1.2080 X210Cr12, **1.2083** X42Cr13, **1.2419** 105WCr6, **1.2767** X45NiCrMo4	≤1400		●
Aceros rápidos	**1.3243** S 6-5-2-5, **1.3343** S 6-5-2, **1.3344** S 6-5-3	≤1400		●
Aceros para muelles	**1.5026** 55Si7, **1.7176** 55Cr3, **1.8159** 51CrV4 (51CrV4)		≤350 HB	●
Aceros templados	–		≤48 HRC	●
			≤66 HRC	●
Aceros inox., sulfurados	**1.4005** X12CrS13, **1.4104** X14CrMoS17, **1.4105** X6CrMoS17, **1.4305** X8CrNiS18-9	≤900		●
austeníticos	**1.4301** X5CrNi18-10 (V2A), **1.4541** X6CrNiTi18-10, **1.4571** X6CrNiMoTi 17-12-2 (V4A)	≤1100		●
martensíticos	**1.4057** X20CrNi172 (X17CrNi16-2), **1.4122** X39CrMo17-1, **1.4521** X2CrMoTi18-2	≤1500		●
Hierro fundido	**0.6010** EN-GJL-100 (GG10), **0.6020** EN-GJL-200 (GG20)		≤240 HB	● ○
	0.6025 EN-GJL-250 (GG25), **0.6035** EN-GJL-350 (GG35)		≤350 HB	● ○
Fundición de grafito esférico y fundición maleable	**0.7050** EN-GJS-500-7 (GGG50), **0.8035** EN-GJMW-350-4 (GTW35)		≤240 HB	●
	0.7070 EN-GJS-700-2 (GGG70), **0.8170** EN-GJMB-700-2 (GTS70)		≤350 HB	●
Fundición dura	–		≤350 HB	●
Nuevos mat. de fundición GGV	**EN-GJV250** (GGV25), **EN-GJV350** (GGV35)		≤220 HB	● ○
	EN-GJV400 (GGV40), **EN-GJV500** (GGV50), SiMo 6		≤300 HB	● ○
Nuevos mat. de fundición ADI	**EN-GJS-800-8** (ADI800), **EN-GJS-1000-5** (ADI1000)	≤1000		● ○
	EN-GJS-1200-2 (ADI1200), **EN-GJS-1400-1** (ADI1400)	≤1400		● ○
Aleaciones especiales	Nimonic, Inconel, Monel, Hastelloy	≤2000		●
Titanio y aleaciones de titanio	**3.7024** Ti99,5, **3.7114** TiAl5Sn2,5, **3.7124** TiCu2	≤850		●
	3.7154 TiAl6Zr5, **3.7165** TiAl6V4, **3.7184** TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤1400		●
Aluminio y aleaciones de Al	**3.0255** Al99,5, **3.2315** AlMgSi1, **3.3515** AlMg1	≤400		●
Aleaciones maleables de Al	**3.0615** AlMgSiPb, **3.1325** AlCuMg1, **3.3245** AlMg3Si, **3.4365** AlZnMgCu1,5	≤650		●
Aleac. fund. de Al ≤ 10 % Si	**3.2131** G-AlSi5Cu1, **3.2153** G-AlSi7Cu3, **3.2573** G-AlSi9	≤600		●
> 10 % Si	**3.2581** G-AlSi12, **3.2583** G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		●
Aleaciones de magnesio	**3.5200** MgMn2, **3.5812.05** G-MgAl8Zn1, **3.5612.05** G-MgAl6Zn1	≤400		○
Cobre de baja aleación	**2.0070** SE-Cu, **2.1020** CuSn6, **2.1096** G-CuSn5ZnPb	≤500		●
Latón, viruta corta	**2.0380** CuZn39Pb2, **2.0401** CuZn39Pb3, **2.0410** CuZn43Pb2	≤600		●
viruta larga	**2.0250** CuZn20, **2.0280** CuZn33, **2.0332** CuZn37Pb0,5	≤600		●
Bronces, viruta corta	**2.1090** CuSn7ZnPb, **2.1170** CuPb5Sn5, **2.1176** CuPb10Sn	≤600		● ●
	2.0790 CuNi18Zn19Pb	≤850		●
Bronces, viruta larga	**2.0916** CuAl5, **2.0960** CuAl9Mn, **2.1050** CuSn10	≤850		●
	2.0980 CuAl11Ni, **2.1247** CuBe2	≤1000		●
Duroplásticos	Resina epoxídica, Resopal, Pertinax, Moltopren	≤150		○
Termoplásticos	Plexiglas, Hostalen, Novodur, Makralon	≤100		● ○
Materiales sintéticos	Kevlar	≤1000		○
Fibras de vidrio/carbón	GFK/CFK	≤1000		○

≤10xD Profundidad

561	211	204	217	257	523
			220		
339	339	340	340	341	WN
HSS	HSS	HSS	HSS	HSS	HSS
	>Ø 2,36		>Ø 2,36		
N	N	N	N	N	N
sin	sin	sin	sin	sin	sin
327	325	338	331/336	473	482

218	219	501	505	535	551
221				506	
340	340	340	341	340	341
HSS	HSS	HSS	HSS	HSS	HSS
				>Ø 2,36	>Ø 16,0
H	W	GT50	GT50	GT100	GT100
sin	sin	sin	sin	sin	sin
339/341	342	351	479	344/350	476

666	667	655	668	656
339	340	341	340	341
HSS	HSS	HSS	HSS	HSS
S	S	S	S	S
N	N	N	GT100	GT100
sin	sin	sin	sin	sin
328	334	475	347	478

2462
340
HSS
F
GT100
sin
349

v_c m/min	N° de serie de avance					
24	6	6	6	6	6	6
20	5	5	5	5	5	5
27	6	6	6	6	6	6
27	5	5	5	5	5	5
22	5	5	5	5	5	5
22	5	5	5	5	5	5
27		6	6	6	6	6
14		4	4	4	4	4
27	6	6	6	6	6	6
27	6	6	6	6	6	6
22	6	6	6	6	6	6
18	6	6	6	6	6	6
45	7	7	7	7	7	7
45	6	6	6	6	6	6
63	6	6	6	6	6	6
54	5	5	5	5	5	5
36	5	5	5	5	5	5
28	4	4	4	4	4	4
22	4	4	4	4	4	4
22	4	4	4	4	4	4
14	4	4	4	4	4	4
22	5	5	5	5	5	5

v_c m/min	N° de serie de avance					
24					6	6
20					5	5
27					6	6
27					5	5
22					5	5
22					5	5
27					6	6
14					4	4
27					6	6
27					6	6
22					6	6
18					6	6
65		7	7	7		
65		7	7	7		
45		7			7	7
45					6	6
63	6		6	6		
54		5			5	5
63	6					
36					5	5
28	4					
22					4	4
14	4				4	4
22	5	5	5	5		

v_c m/min	N° de serie de avance					
28	6	6	6	6	6	6
22	5	5	5	5	5	5
30	6	6	6	6	6	6
30	5	5	5	5	5	5
25	5	5	5	5	5	5
25	5	5	5	5	5	5
22	4	4	4	4	4	4
18	4	4	4	4	4	4
30	6	6	6	6	6	6
14	4	4	4	4	4	4
12	4	4	4	4	4	4
16	4	4	4	4	4	4
10	3	3	3	3	3	3
30	6	6	6	6	6	6
30	6	6	6	6	6	6
24	6	6	6	6	6	6
20	6	6	6	6	6	6
50	7	7	7	7	7	7
50	6	6	6	6	6	6
70	6	6	6			
60	5	5	5	5	5	5
40	5	5	5	5	5	5
30	4	4	4			
25	4	4	4			
14	4	4	4	4	4	4
12	4	4	4	4	4	4
18	4	4	4	4	4	4
32	5	5	5			

v_c m/min	N° av.
30	7
24	6
33	7
33	6
28	6
28	6
24	5
23	5
33	7
18	5
15	5
19	5
13	4
33	7
33	7
26	7
22	7
55	8
55	7
70	
65	6
44	6
30	
25	
16	5
14	5
23	5
32	

GÜHRINGNAVIGATOR

Las herramientas con n° de código de series de avance impreso en negrita (código VR) se deberían elegir con preferencia.
Para la elección de la herramienta óptima y los valores de corte adecuados está a su disposición www.guehring.de y además una versión electrónica del navegador Gühring.

Artículo N°
Norma/DIN
Material de corte
Acabado
Tipo
Refrigeración
Dimens. página

Hta. Ø mm	N° de serie de avance								
	1	2	3	4	5	6	7	8	9
	f (mm/U)								
0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
50,00	0,250	0,310	0,400	0,500	0,630	0,800	1,000	1,250	1,250
63,00	0,315	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600
80,00	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600	2,000

Refrigerante según material:
○ Aire
● Aceite
● Emulsión

Sentido de corte:
corte a derechas
corte a izquierdas

Grupo de materiales	Ejemplos Cifras en negrita = nº de mat. según DIN EN 10 027	Resistencia N/mm²	Dureza	Refri-geración
Aceros de construcción generales	**1.0035** S185(St33), **1.0486** P275N(StE285), **1.0345** P235GH(H1), **1.0425** P265GH(H2) **1.0050** E295 (St50-2), **1.0070** E360 (St70-2), **1.8937** P500NH (WStE500)	≤500 ≤1000		● ●
Aceros para autómatas	**1.0718** 11SMnPb30 (9SMnPb28), **1.0736** 11SMn37 (9SMn36) **1.0727** 46S20 (45S20), **1.0728** (60S20), **1.0757** 46SPb20 (45SPb20)	≤850 ≤1000		● ●
Aceros de bonificación no aleados	**1.0402** C22, **1.1178** C30E (Ck30) **1.0503** C45, **1.1191** C45E (Ck45) **1.0601** C60, **1.1221** C60E (Ck60)	≤700 ≤850 ≤1000		● ● ●
Aceros de bonificación aleados	**1.5131** 50MnSi4, **1.7003** 38Cr2, **1.7030** 28Cr4 **1.5710** 36NiCr6, **1.7035** 41Cr4, **1.7225** 42CrMo4	≤1000 ≤1400		● ●
Aceros cementación aleados	**1.0301** (C10), **1.1121** C10E (Ck10)	≤850		●
Aceros cementación no aleados	**1.7276** 10CrMo11, **1.5125** 11MnSi6 **1.5752** 15NiCr13, **1.7131** 16MnCr5, **1.7264** 20CrMo5	≤1000 ≤1400		● ●
Aceros de nitruración	**1.8504** 34CrAl6 **1.8519** 31CrMoV9, **1.8550** 34CrAlNi7	≤1000 ≤1400		● ●
Aceros para herramientas	**1.1750** C75W, **1.2067** 102Cr6, **1.2307** 29CrMoV9 **1.2080** X210Cr12, **1.2083** X42Cr13, **1.2419** 105WCr6, **1.2767** X45NiCrMo4	≤850 ≤1400		● ●
Aceros rápidos	**1.3243** S 6-5-2-5, **1.3343** S 6-5-2, **1.3344** S 6-5-3	≤1400		●
Aceros para muelles	**1.5026** 55Si7, **1.7176** 55Cr3, **1.8159** 51CrV4 (51CrV4)		≤350 HB	●
Aceros templados	–		≤48 HRC ≤66 HRC	● ●
Aceros inox., sulfurados austeníticos martensíticos	**1.4005** X12CrS13, **1.4104** X14CrMoS17, **1.4105** X6CrMoS17, **1.4305** X8CrNiS18-9 **1.4301** X5CrNi18-10 (V2A), **1.4541** X6CrNiTi18-10, **1.4571** X6CrNiMoTi 17-12-2 (V4A) **1.4057** X20CrNi172 (X17CrNi16-2), **1.4122** X39CrMo17-1, **1.4521** X2CrMoTi18-2	≤900 ≤1100 ≤1500		● ● ●
Hierro fundido	**0.6010** EN-GJL-100 (GG10), **0.6020** EN-GJL-200 (GG20) **0.6025** EN-GJL-250 (GG25), **0.6035** EN-GJL-350 (GG35)		≤240 HB ≤350 HB	●○ ●○
Fundición de grafito esférico y fundición maleable	**0.7050** EN-GJS-500-7 (GGG50), **0.8035** EN-GJMW-350-4 (GTW35) **0.7070** EN-GJS-700-2 (GGG70), **0.8170** EN-GJMB-700-2 (GTS70)		≤240 HB ≤350 HB	● ●
Fundición dura	–		≤350 HB	●
Nuevos mat. de fundición GGV	**EN-GJV250** (GGV25), **EN-GJV350** (GGV35) **EN-GJV400** (GGV40), **EN-GJV500** (GGV50), SiMo 6		≤220 HB ≤300 HB	●○ ●○
Nuevos mat. de fundición ADI	**EN-GJS-800-8** (ADI800), **EN-GJS-1000-5** (ADI1000) **EN-GJS-1200-2** (ADI1200), **EN-GJS-1400-1** (ADI1400)	≤1000 ≤1400		●○ ●○
Aleaciones especiales	Nimonic, Inconel, Monel, Hastelloy	≤2000		●
Titanio y aleaciones de titanio	**3.7024** Ti99,5, **3.7114** TiAl5Sn2,5, **3.7124** TiCu2 **3.7154** TiAl6Zr5, **3.7165** TiAl6V4, **3.7184** TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 ≤1400		● ●
Aluminio y aleaciones de Al	**3.0255** Al99,5, **3.2315** AlMgSi1, **3.3515** AlMg1	≤400		●
Aleaciones maleables de Al	**3.0615** AlMgSiPb, **3.1325** AlCuMg1, **3.3245** AlMg3Si, **3.4365** AlZnMgCu1,5	≤650		●
Aleac. fund. de Al ≤ 10 % Si > 10 % Si	**3.2131** G-AlSi5Cu1, **3.2153** G-AlSi7Cu3, **3.2573** G-AlSi9 **3.2581** G-AlSi12, **3.2583** G-AlSi12Cu, - G-AlSi12CuNiMg	≤600 ≤600		● ●
Aleaciones de magnesio	**3.5200** MgMn2, **3.5812.05** G-MgAl8Zn1, **3.5612.05** G-MgAl6Zn1	≤400		○
Cobre de baja aleación	**2.0070** SE-Cu, **2.1020** CuSn6, **2.1096** G-CuSn5ZnPb	≤500		●
Latón, viruta corta viruta larga	**2.0380** CuZn39Pb2, **2.0401** CuZn39Pb3, **2.0410** CuZn43Pb2 **2.0250** CuZn20, **2.0280** CuZn33, **2.0332** CuZn37Pb0,5	≤600 ≤600		● ●
Bronces, viruta corta	**2.1090** CuSn7ZnPb, **2.1170** CuPb5Sn5, **2.1176** CuPb10Sn **2.0790** CuNi18Zn19Pb	≤600 ≤850		●● ●
Bronces, viruta larga	**2.0916** CuAl5, **2.0960** CuAl9Mn, **2.1050** CuSn10 **2.0980** CuAl11Ni, **2.1247** CuBe2	≤850 ≤1000		● ●
Duroplásticos	Resina epoxídica, Resopal, Pertinax, Moltopren	≤150		○
Termoplásticos	Plexiglas, Hostalen, Novodur, Makralon	≤100		●○
Materiales sintéticos	Kevlar	≤1000		○
Fibras de vidrio/carbón	GFK/CFK	≤1000		○

Navegador

≤10xD Profundidad

390	254	255	269	270	271	272	1101
WN	WN	WN	WN	WN	WN	WN	WN
HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS
○	●	●	●	●	●	●	●
N	N	N	N	N	N	N	N
con	con	con	con	con	con	con	con
394	499	500	498	502	503	504	501

>10xD Profundidad

235	236	237	266	267	524	528	529	525	542
1869 R1	1869 R2	1869 R3	1870 R1	1870 R2	1869 R1	1869 R2	1869 R3	1870 R1	1870 R2
HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS
○ ● >Ø 2,36	●	●	●	●	○	○	○	○	○
N	N	N	N	N	GT 50	GT 50	GT 50	GT 50	GT 50
sin	sin	sin	sin	sin	sin	sin	sin	sin	sin
363	371	377	483	487	368	375	379	485	489

v_c m/min	N° de serie de avance									N° de serie de avance				
26	6	6	6	6	6	6	6	6	22	**5**	**5**	**5**	**5**	**5**
22	5	5	5	5	5	5	5	5	18	**4**	**4**	**4**	**4**	**4**
30	6	6	6	6	6	6	6	6	20	**5**	**5**	**5**	**5**	**5**
30	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	20	4	4	4	4	4
24	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	25	4	4	4	4	4
24	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	25	4	4	4	4	4
22	4	4	4	4	4	4	4	4						
20	4	4	4	4	4	4	4	4	12	3	3	3	3	3
14	3	3	3	3	3	3	3	3						
30	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	22	5	5	5	5	5
17	4	4	4	4	4	4	4	4	10	3	3	3	3	3
12	3	3	3	3	3	3	3	3						
14	4	4	4	4	4	4	4	4	8	3	3	3	3	3
10	3	3	3	3	3	3	3	3						
15	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	12	3	3	3	3	3
10	3	3	3	3	3	3	3	3	6	2	2	2	2	2
10	3	3	3	3	3	3	3	3	6	2	2	2	2	2
7	2	2	2	2	2	2	2	2						
30	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	22	**5**	**5**	**5**	**5**	**5**
30	6	6	6	6	6	6	6	6	18	5	5	5	5	5
24	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	20	5	5	5	5	5
20	6	6	6	6	6	6	6	6	14	5	5	5	5	5
7	3	3	3	3	3	3	3	3						
									55					**6** **6** **6** **6** **6**
80	**6**								55					**6** **6** **6** **6** **6**
50	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	45	6	6	6	6	6
50	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	36	5	5	5	5	5
									55	5	5	5	5	5 5 5 5 5
60	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	22	4	4	4	4	4
									45	4	4	4	4	4
40	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	28	4	4	4	4	4
									22	3	3	3	3	3
24	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	20	3	3	3	3	3
24	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	18	3	3	3	3	3
22	4	4	4	4	4	4	4	4						
									12	3	3	3	3	3
24	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	18	4	4	4	4	4 **4** **4** **4** **4**

GÜHRINGNAVIGATOR

Las herramientas con n° de código de series de avance impreso en negrita (código VR) se deberían elegir con preferencia.
Para la elección de la herramienta óptima y los valores de corte adecuados está a su disposición www.guehring.de y además una versión electrónica del navegador Gühring.

Artículo Nº
Norma/DIN
Material de corte
Acabado
Tipo
Dimens. página

Hta. Ø mm	N° de serie de avance								
	1	2	3	4	5	6	7	8	9
	f (mm/U)								
0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
50,00	0,250	0,310	0,400	0,500	0,630	0,800	1,000	1,250	1,250
63,00	0,315	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600
80,00	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600	2,000

Refrigerante según material:
○ Aire
● Aceite
● Emulsión

Sentido de corte:
corte a derechas
corte a izquierdas

Grupo de materiales	Ejemplos Cifras en negrita = nº de mat. según DIN EN 10 027	Resistencia N/mm²	Dureza	Refri-geración
Aceros de construcción generales	**1.0035** S185(St33), **1.0486** P275N(StE285), **1.0345** P235GH(H1), **1.0425** P265GH(H2)	≤500		●
	1.0050 E295 (St50-2), **1.0070** E360 (St70-2), **1.8937** P500NH (WStE500)	≤1000		●
Aceros para autómatas	**1.0718** 11SMnPb30 (9SMnPb28), **1.0736** 11SMn37 (9SMn36)	≤850		●
	1.0727 46S20 (45S20), **1.0728** (60S20), **1.0757** 46SPb20 (45SPb20)	≤1000		●
Aceros de bonificación no aleados	**1.0402** C22, **1.1178** C30E (Ck30)	≤700		●
	1.0503 C45, **1.1191** C45E (Ck45)	≤850		●
	1.0601 C60, **1.1221** C60E (Ck60)	≤1000		●
Aceros de bonificación aleados	**1.5131** 50MnSi4, **1.7003** 38Cr2, **1.7030** 28Cr4	≤1000		●
	1.5710 36NiCr6, **1.7035** 41Cr4, **1.7225** 42CrMo4	≤1400		●
Aceros cementación aleados	**1.0301** (C10), **1.1121** C10E (Ck10)	≤850		●
Aceros cementación no aleados	**1.7276** 10CrMo11, **1.5125** 11MnSi6	≤1000		●
	1.5752 15NiCr13, **1.7131** 16MnCr5, **1.7264** 20CrMo5	≤1400		●
Aceros de nitruración	**1.8504** 34CrAl6	≤1000		●
	1.8519 31CrMoV9, **1.8550** 34CrAlNi7	≤1400		●
Aceros para herramientas	**1.1750** C75W, **1.2067** 102Cr6, **1.2307** 29CrMoV9	≤850		●
	1.2080 X210Cr12, **1.2083** X42Cr13, **1.2419** 105WCr6, **1.2767** X45NiCrMo4	≤1400		●
Aceros rápidos	**1.3243** S 6-5-2-5, **1.3343** S 6-5-2, **1.3344** S 6-5-3	≤1400		●
Aceros para muelles	**1.5026** 55Si7, **1.7176** 55Cr3, **1.8159** 51CrV4 (51CrV4)		≤350 HB	●
Aceros templados	–		≤48 HRC	●
			≤66 HRC	●
Aceros inox., sulfurados	**1.4005** X12CrS13, **1.4104** X14CrMoS17, **1.4105** X6CrMoS17, **1.4305** X8CrNiS18-9	≤900		●
austeníticos	**1.4301** X5CrNi18-10 (V2A), **1.4541** X6CrNiTi18-10, **1.4571** X6CrNiMoTi 17-12-2 (V4A)	≤1100		●
martensíticos	**1.4057** X20CrNi172 (X17CrNi16-2), **1.4122** X39CrMo17-1, **1.4521** X2CrMoTi18-2	≤1500		●
Hierro fundido	**0.6010** EN-GJL-100 (GG10), **0.6020** EN-GJL-200 (GG20)		≤240 HB	● ○
	0.6025 EN-GJL-250 (GG25), **0.6035** EN-GJL-350 (GG35)		≤350 HB	● ○
Fundición de grafito esférico y fundición maleable	**0.7050** EN-GJS-500-7 (GGG50), **0.8035** EN-GJMW-350-4 (GTW35)		≤240 HB	●
	0.7070 EN-GJS-700-2 (GGG70), **0.8170** EN-GJMB-700-2 (GTS70)		≤350 HB	●
Fundición dura	–		≤350 HB	●
Nuevos mat. de fundición GGV	**EN-GJV250** (GGV25), **EN-GJV350** (GGV35)		≤220 HB	● ○
	EN-GJV400 (GGV40), **EN-GJV500** (GGV50), SiMo 6		≤300 HB	● ○
Nuevos mat. de fundición ADI	**EN-GJS-800-8** (ADI800), **EN-GJS-1000-5** (ADI1000)	≤1000		● ○
	EN-GJS-1200-2 (ADI1200), **EN-GJS-1400-1** (ADI1400)	≤1400		● ○
Aleaciones especiales	Nimonic, Inconel, Monel, Hastelloy	≤2000		●
Titanio y aleaciones de titanio	**3.7024** Ti99,5, **3.7114** TiAl5Sn2,5, **3.7124** TiCu2	≤850		●
	3.7154 TiAl6Zr5, **3.7165** TiAl6V4, **3.7184** TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤1400		●
Aluminio y aleaciones de Al	**3.0255** Al99,5, **3.2315** AlMgSi1, **3.3515** AlMg1	≤400		●
Aleaciones maleables de Al	**3.0615** AlMgSiPb, **3.1325** AlCuMg1, **3.3245** AlMg3Si, **3.4365** AlZnMgCu1,5	≤650		●
Aleac. fund. de Al ≤ 10 % Si	**3.2131** G-AlSi5Cu1, **3.2153** G-AlSi7Cu3, **3.2573** G-AlSi9	≤600		●
> 10 % Si	**3.2581** G-AlSi12, **3.2583** G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		●
Aleaciones de magnesio	**3.5200** MgMn2, **3.5812.05** G-MgAl8Zn1, **3.5612.05** G-MgAl6Zn1	≤400		○
Cobre de baja aleación	**2.0070** SE-Cu, **2.1020** CuSn6, **2.1096** G-CuSn5ZnPb	≤500		●
Latón, viruta corta	**2.0380** CuZn39Pb2, **2.0401** CuZn39Pb3, **2.0410** CuZn43Pb2	≤600		●
viruta larga	**2.0250** CuZn20, **2.0280** CuZn33, **2.0332** CuZn37Pb0,5	≤600		●
Bronces, viruta corta	**2.1090** CuSn7ZnPb, **2.1170** CuPb5Sn5, **2.1176** CuPb10Sn	≤600		● ●
	2.0790 CuNi18Zn19Pb	≤850		●
Bronces, viruta larga	**2.0916** CuAl5, **2.0960** CuAl9Mn, **2.1050** CuSn10	≤850		●
	2.0980 CuAl11Ni, **2.1247** CuBe2	≤1000		●
Duroplásticos	Resina epoxídica, Resopal, Pertinax, Moltopren	≤150		○
Termoplásticos	Plexiglas, Hostalen, Novodur, Makralon	≤100		● ○
Materiales sintéticos	Kevlar	≤1000		○
Fibras de vidrio/carbón	GFK/CFK	≤1000		○

>10xD Profundidad

502	503	504	242	243	244	526	527	563	564	565	566	293	298	299
1869 R1	1869 R2	1869 R3	WN	WN	WN	1870 R1	1870 R2	WN	WN	WN	WN	WN	WN	WN
HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS
>Ø 2,36	>Ø 2,36					>Ø 16,0	>Ø 16,0			>Ø 16,0	>Ø 16,0	>Ø 16,0		
GT 100	GT 100	GT 100	GT 100	GT 100	GT 100	GT 100	GT 100	GT 100	GT 100	GT 100	GT 100	GT 100	GT 100	GT 100
365	372	378	381	382	383	484	488	491	492	493	494	495	496	497

670	671
1869 R1	1869 R2
HSS	HSS
S	S
GT 100	GT 100
367	374

v_c m/min	N° de serie de avance														
22	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
18	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
22	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
18	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
22	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
18	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
22	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
12	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
6	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
22	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
18	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
20	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
14	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
45	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
36	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
55	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
22	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
28	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
22	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
20	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
18	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
12	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
18	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

v_c m/min	N° de serie de avance	
28	5	5
22	4	4
28	5	5
22	4	4
28	4	4
22	4	4
16	3	3
28	5	5
12	3	3
8	2	2
28	5	5
22	5	5
25	5	5
18	5	5
6	1	1
70	6	6
70	6	6
55	6	6
45	5	5
70	5	5
28	4	4
36	4	4
28	3	3
25	3	3
22	3	3
18	3	3
15	3	3
22	4	4

GÜHRINGNAVIGATOR

Las herramientas con n° de código de series de avance impreso en negrita (código VR) se deberían elegir con preferencia.
Para la elección de la herramienta óptima y los valores de corte adecuados está a su disposición www.guehring.de y además una versión electrónica del navegador Gühring.

Artículo N°
Norma/DIN
Material de corte
Calidad de metal duro
Acabado
Tipo
Dimens. página

Hta. Ø mm	N° de serie de avance								
	1	2	3	4	5	6	7	8	9
	f (mm/U)								
0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
50,00	0,250	0,310	0,400	0,500	0,630	0,800	1,000	1,250	1,250
63,00	0,315	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600
80,00	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600	2,000

Refrigerante según material:
○ Aire
● Aceite
● Emulsión

Sentido de corte:
corte a derechas
corte a izquierdas

Grupo de materiales	Ejemplos Cifras en negrita = nº de mat. según DIN EN 10 027	Resistencia N/mm²	Dureza	Refri-geración
Aceros de construcción generales	**1.0035** S185(St33), **1.0486** P275N(StE285), **1.0345** P235GH(H1), **1.0425** P265GH(H2)	≤500		●
	1.0050 E295 (St50-2), **1.0070** E360 (St70-2), **1.8937** P500NH (WStE500)	≤1000		●
Aceros para autómatas	**1.0718** 11SMnPb30 (9SMnPb28), **1.0736** 11SMn37 (9SMn36)	≤850		●
	1.0727 46S20 (45S20), **1.0728** (60S20), **1.0757** 46SPb20 (45SPb20)	≤1000		●
Aceros de bonificación no aleados	**1.0402** C22, **1.1178** C30E (Ck30)	≤700		●
	1.0503 C45, **1.1191** C45E (Ck45)	≤850		●
	1.0601 C60, **1.1221** C60E (Ck60)	≤1000		●
Aceros de bonificación aleados	**1.5131** 50MnSi4, **1.7003** 38Cr2, **1.7030** 28Cr4	≤1000		●
	1.5710 36NiCr6, **1.7035** 41Cr4, **1.7225** 42CrMo4	≤1400		●
Aceros cementación aleados	**1.0301** (C10), **1.1121** C10E (Ck10)	≤850		●
Aceros cementación no aleados	**1.7276** 10CrMo11, **1.5125** 11MnSi6	≤1000		●
	1.5752 15NiCr13, **1.7131** 16MnCr5, **1.7264** 20CrMo5	≤1400		●
Aceros de nitruración	**1.8504** 34CrAl6	≤1000		●
	1.8519 31CrMoV9, **1.8550** 34CrAlNi7	≤1400		●
Aceros para herramientas	**1.1750** C75W, **1.2067** 102Cr6, **1.2307** 29CrMoV9	≤850		●
	1.2080 X210Cr12, **1.2083** X42Cr13, **1.2419** 105WCr6, **1.2767** X45NiCrMo4	≤1400		●
Aceros rápidos	**1.3243** S 6-5-2-5, **1.3343** S 6-5-2, **1.3344** S 6-5-3	≤1400		●
Aceros para muelles	**1.5026** 55Si7, **1.7176** 55Cr3, **1.8159** 51CrV4 (51CrV4)		≤350 HB	●
Aceros templados	–		≤48 HRC	●
			≤66 HRC	●
Aceros inox., sulfurados	**1.4005** X12CrS13, **1.4104** X14CrMoS17, **1.4105** X6CrMoS17, **1.4305** X8CrNiS18-9	≤900		●
austeníticos	**1.4301** X5CrNi18-10 (V2A), **1.4541** X6CrNiTi18-10, **1.4571** X6CrNiMoTi 17-12-2 (V4A)	≤1100		●
martensíticos	**1.4057** X20CrNi172 (X17CrNi16-2), **1.4122** X39CrMo17-1, **1.4521** X2CrMoTi18-2	≤1500		●
Hierro fundido	**0.6010** EN-GJL-100 (GG10), **0.6020** EN-GJL-200 (GG20)		≤240 HB	● ○
	0.6025 EN-GJL-250 (GG25), **0.6035** EN-GJL-350 (GG35)		≤350 HB	● ○
Fundición de grafito esférico y fundición maleable	**0.7050** EN-GJS-500-7 (GGG50), **0.8035** EN-GJMW-350-4 (GTW35)		≤240 HB	●
	0.7070 EN-GJS-700-2 (GGG70), **0.8170** EN-GJMB-700-2 (GTS70)		≤350 HB	●
Fundición dura	–		≤350 HB	●
Nuevos mat. de fundición GGV	**EN-GJV250** (GGV25), **EN-GJV350** (GGV35)		≤220 HB	● ○
	EN-GJV400 (GGV40), **EN-GJV500** (GGV50), SiMo 6		≤300 HB	● ○
Nuevos mat. de fundición ADI	**EN-GJS-800-8** (ADI800), **EN-GJS-1000-5** (ADI1000)	≤1000		● ○
	EN-GJS-1200-2 (ADI1200), **EN-GJS-1400-1** (ADI1400)	≤1400		● ○
Aleaciones especiales	Nimonic, Inconel, Monel, Hastelloy	≤2000		●
Titanio y aleaciones de titanio	**3.7024** Ti99,5, **3.7114** TiAl5Sn2,5, **3.7124** TiCu2	≤850		●
	3.7154 TiAl6Zr5, **3.7165** TiAl6V4, **3.7184** TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤1400		●
Aluminio y aleaciones de Al	**3.0255** Al99,5, **3.2315** AlMgSi1, **3.3515** AlMg1	≤400		●
Aleaciones maleables de Al	**3.0615** AlMgSiPb, **3.1325** AlCuMg1, **3.3245** AlMg3Si, **3.4365** AlZnMgCu1,5	≤650		●
Aleac. fund. de Al ≤ 10 % Si	**3.2131** G-AlSi5Cu1, **3.2153** G-AlSi7Cu3, **3.2573** G-AlSi9	≤600		●
> 10 % Si	**3.2581** G-AlSi12, **3.2583** G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		●
Aleaciones de magnesio	**3.5200** MgMn2, **3.5812.05** G-MgAl8Zn1, **3.5612.05** G-MgAl6Zn1	≤400		○
Cobre de baja aleación	**2.0070** SE-Cu, **2.1020** CuSn6, **2.1096** G-CuSn5ZnPb	≤500		●
Latón, viruta corta	**2.0380** CuZn39Pb2, **2.0401** CuZn39Pb3, **2.0410** CuZn43Pb2	≤600		●
viruta larga	**2.0250** CuZn20, **2.0280** CuZn33, **2.0332** CuZn37Pb0,5	≤600		●
Bronces, viruta corta	**2.1090** CuSn7ZnPb, **2.1170** CuPb5Sn5, **2.1176** CuPb10Sn	≤600		● ●
	2.0790 CuNi18Zn19Pb	≤850		●
Bronces, viruta larga	**2.0916** CuAl5, **2.0960** CuAl9Mn, **2.1050** CuSn10	≤850		●
	2.0980 CuAl11Ni, **2.1247** CuBe2	≤1000		●
Duroplásticos	Resina epoxídica, Resopal, Pertinax, Moltopren	≤150		○
Termoplásticos	Plexiglas, Hostalen, Novodur, Makralon	≤100		● ○
Materiales sintéticos	Kevlar	≤1000		○
Fibras de vidrio/carbón	GFK/CFK	≤1000		○

≤10xD Profundidad

311	317	357	336	623	617	669	396	706
339	340	341	340	341	340	340	340	WN
HSCO	HSCO	HSCO	HSCO	HSCO	HSCO	HSCO	HSCO	MD
								K10/K20
>Ø 2,36	>Ø 2,36		>Ø 2,36	>Ø 16,0		S	F	
N	N	N	GT 100	GT 100	Ti	Ti	GT 100	N
330	353	480	355	481	358	360	357	362

v_c m/min	N° de serie de avance						v_c m/min	N° de avance	v_c m/min	N° de avance	v_c m/min	N° de avance
33	**5**	**5**	**5**	5	5				*36*	**5**		
27	**5**	**5**	**5**	5	5				*30*	**4**		
36	**5**	**5**	**5**	5	5				*40*	**5**		
32	5	5	5	**5**	**5**				*36*	5		
36	5	5	5	5	5				*40*	**5**		
36	5	5	5	5	5				*40*	**5**		
22	4	4	4	**4**	**4**				*26*	4		
18	4	4	4	**4**	**4**				*18*	4		
14	3	3	3	**3**	**3**	3	*15*	3	*15*	3		
32	5	5	5	5	5				*32*	**5**		
18	4	4	4	**4**	**4**				*20*	4		
13	3	3	3	**3**	**3**		*13*	3	*18*	3		
14	4	4	4	**4**	**4**				*18*	4		
10	3	3	3	**3**	**3**		*10*	3	*12*	3		
13	4	4	4	**4**	**4**				*15*	4		
10	3	3	3	**3**	**3**		*10*	3	*12*	3		
12	3	3	3	**3**	**3**		*10*	3	*14*	**3**		
6	2	2	2	2	2		*8*	**2**	*9*	**3**		
4				1	1				*5*	1		
12	4	4	4	**4**	**4**	4	*15*	4	*14*	4		
8	3	3	3	2	2	**3**	*10*	**3**	*10*	**3**		
10	3	3	3	**3**	**3**	**3**	*13*	**3**	*12*	**3**		
32	**6**	**6**	**6**	6	6				*35*	**6**		
27	6	6	6	**6**	**6**				*30*	6		
26	6	6	6	6	6				*30*	**6**		
24	6	6	6	**6**	**6**				*26*	6		
6	3	3	3	3	3	3	*6*	**3**	*12*	3		
5	1	1	1			1	*6*	1				
8						**2**	*10*	**2**				
5						**2**	*6*	**2**				
70				7	7				*77*	**7**		
60				6	6				*66*	**6**		
60						5						
36	5	5	5	5	5				*40*	**6**		
54				5	5							
36	5	5	5	5	5				*40*	**6**		
30	4	4	4	5	5							
24	4	4	4	5	5							
18	4	4	4	4	4				*21*	**5**		
13	4	4	4	**4**	**4**	4	*25*	4	*15*	**5**		
16	4	4	4	4	4				*30*	**5**	*50*	**4**
26						4					*40*	**3**
											80	**3**

Navegador

GÜHRINGNAVIGATOR

Las herramientas con n° de código de series de avance impreso en negrita (código VR) se deberían elegir con preferencia.
Para la elección de la herramienta óptima y los valores de corte adecuados está a su disposición www.guehring.de y además una versión electrónica del navegador Gühring.

Artículo Nº
Norma/DIN
Material de corte
Acabado
Tipo
Refrigeración
Dimens. página

Hta. Ø mm	N° de serie de avance								
	1	2	3	4	5	6	7	8	9
	f (mm/U)								
0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
50,00	0,250	0,310	0,400	0,500	0,630	0,800	1,000	1,250	1,250
63,00	0,315	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600
80,00	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600	2,000

Refrigerante según material:
○ Aire
● Aceite
● Emulsión

Sentido de corte:
corte a derechas
corte a izquierdas

Grupo de materiales	Ejemplos Cifras en negrita = nº de mat. según DIN EN 10 027	Resistencia N/mm²	Dureza	Refri-geración
Aceros de construcción generales	**1.0035** S185(St33), **1.0486** P275N(StE285), **1.0345** P235GH(H1), **1.0425** P265GH(H2)	≤500		●
	1.0050 E295 (St50-2), **1.0070** E360 (St70-2), **1.8937** P500NH (WStE500)	≤1000		●
Aceros para autómatas	**1.0718** 11SMnPb30 (9SMnPb28), **1.0736** 11SMn37 (9SMn36)	≤850		●
	1.0727 46S20 (45S20), **1.0728** (60S20), **1.0757** 46SPb20 (45SPb20)	≤1000		●
Aceros de bonificación no aleados	**1.0402** C22, **1.1178** C30E (Ck30)	≤700		●
	1.0503 C45, **1.1191** C45E (Ck45)	≤850		●
	1.0601 C60, **1.1221** C60E (Ck60)	≤1000		●
Aceros de bonificación aleados	**1.5131** 50MnSi4, **1.7003** 38Cr2, **1.7030** 28Cr4	≤1000		●
	1.5710 36NiCr6, **1.7035** 41Cr4, **1.7225** 42CrMo4	≤1400		●
Aceros cementación aleados	**1.0301** (C10), **1.1121** C10E (Ck10)	≤850		●
Aceros cementación no aleados	**1.7276** 10CrMo11, **1.5125** 11MnSi6	≤1000		●
	1.5752 15NiCr13, **1.7131** 16MnCr5, **1.7264** 20CrMo5	≤1400		●
Aceros de nitruración	**1.8504** 34CrAl6	≤1000		●
	1.8519 31CrMoV9, **1.8550** 34CrAlNi7	≤1400		●
Aceros para herramientas	**1.1750** C75W, **1.2067** 102Cr6, **1.2307** 29CrMoV9	≤850		●
	1.2080 X210Cr12, **1.2083** X42Cr13, **1.2419** 105WCr6, **1.2767** X45NiCrMo4	≤1400		●
Aceros rápidos	**1.3243** S 6-5-2-5, **1.3343** S 6-5-2, **1.3344** S 6-5-3	≤1400		●
Aceros para muelles	**1.5026** 55Si7, **1.7176** 55Cr3, **1.8159** 51CrV4 (51CrV4)		≤350 HB	●
Aceros templados	–		≤48 HRC	●
			≤66 HRC	●
Aceros inox., sulfurados	**1.4005** X12CrS13, **1.4104** X14CrMoS17, **1.4105** X6CrMoS17, **1.4305** X8CrNiS18-9	≤900		●
austeníticos	**1.4301** X5CrNi18-10 (V2A), **1.4541** X6CrNiTi18-10, **1.4571** X6CrNiMoTi 17-12-2 (V4A)	≤1100		●
martensíticos	**1.4057** X20CrNi172 (X17CrNi16-2), **1.4122** X39CrMo17-1, **1.4521** X2CrMoTi18-2	≤1500		●
Hierro fundido	**0.6010** EN-GJL-100 (GG10), **0.6020** EN-GJL-200 (GG20)		≤240 HB	○ ○
	0.6025 EN-GJL-250 (GG25), **0.6035** EN-GJL-350 (GG35)		≤350 HB	○ ○
Fundición de grafito esférico y fundición maleable	**0.7050** EN-GJS-500-7 (GGG50), **0.8035** EN-GJMW-350-4 (GTW35)		≤240 HB	○
	0.7070 EN-GJS-700-2 (GGG70), **0.8170** EN-GJMB-700-2 (GTS70)		≤350 HB	○
Fundición dura	–		≤350 HB	○
Nuevos mat. de fundición GGV	**EN-GJV250** (GGV25), **EN-GJV350** (GGV35)		≤220 HB	○ ○
	EN-GJV400 (GGV40), **EN-GJV500** (GGV50), SiMo 6		≤300 HB	○ ○
Nuevos mat. de fundición ADI	**EN-GJS-800-8** (ADI800), **EN-GJS-1000-5** (ADI1000)	≤1000		○ ○
	EN-GJS-1200-2 (ADI1200), **EN-GJS-1400-1** (ADI1400)	≤1400		○ ○
Aleaciones especiales	Nimonic, Inconel, Monel, Hastelloy	≤2000		●
Titanio y aleaciones de titanio	**3.7024** Ti99,5, **3.7114** TiAl5Sn2,5, **3.7124** TiCu2	≤850		●
	3.7154 TiAl6Zr5, **3.7165** TiAl6V4, **3.7184** TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤1400		●
Aluminio y aleaciones de Al	**3.0255** Al99,5, **3.2315** AlMgSi1, **3.3515** AlMg1	≤400		●
Aleaciones maleables de Al	**3.0615** AlMgSiPb, **3.1325** AlCuMg1, **3.3245** AlMg3Si, **3.4365** AlZnMgCu1,5	≤650		●
Aleac. fund. de Al ≤ 10 % Si	**3.2131** G-AlSi5Cu1, **3.2153** G-AlSi7Cu3, **3.2573** G-AlSi9	≤600		●
> 10 % Si	**3.2581** G-AlSi12, **3.2583** G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		●
Aleaciones de magnesio	**3.5200** MgMn2, **3.5812.05** G-MgAl8Zn1, **3.5612.05** G-MgAl6Zn1	≤400		○
Cobre de baja aleación	**2.0070** SE-Cu, **2.1020** CuSn6, **2.1096** G-CuSn5ZnPb	≤500		●
Latón, viruta corta	**2.0380** CuZn39Pb2, **2.0401** CuZn39Pb3, **2.0410** CuZn43Pb2	≤600		●
viruta larga	**2.0250** CuZn20, **2.0280** CuZn33, **2.0332** CuZn37Pb0,5	≤600		●
Bronces, viruta corta	**2.1090** CuSn7ZnPb, **2.1170** CuPb5Sn5, **2.1176** CuPb10Sn	≤600		● ●
	2.0790 CuNi18Zn19Pb	≤850		●
Bronces, viruta larga	**2.0916** CuAl5, **2.0960** CuAl9Mn, **2.1050** CuSn10	≤850		●
	2.0980 CuAl11Ni, **2.1247** CuBe2	≤1000		●
Duroplásticos	Resina epoxídica, Resopal, Pertinax, Moltopren	≤150		○
Termoplásticos	Plexiglas, Hostalen, Novodur, Makralon	≤100		● ○
Materiales sintéticos	Kevlar	≤1000		○
Fibras de vidrio/carbón	GFK/CFK	≤1000		○

>10xD Profundidad

618	619	620	621	571	370	371	372	374	375	376
1869 R1	1869 R2	1870 R1	1870 R2	1869 R3	WN	WN	WN	WN	WN	WN
HSCO	HSCO	HSCO	HSCO	HSCO	HSCO	HSCO	HSCO	HSCO	HSCO	HSCO
		>Ø 16,0	>Ø 16,0							
GT 100	GT 100	GT 100	GT 100	GT 100	GT 100	GT 100	GT 100	GT 100	GT 100	GT 100
sin	sin	sin	sin	sin	con	con	con	con	con	con
370	376	486	490	380	505	506	507	508	509	510

v_c m/min	N° de serie de avance			
30	4	4	4	4
25	4	4	4	4
33	4	4	4	4
30	4	4	4	4
33	4	4	4	4
33	4	4	4	4
20	3	3	3	3
14	3	3	3	3
10	2	2	2	2
29	4	4	4	4
14	3	3	3	3
10	2	2	2	2
10	3	3	3	3
8	2	2	2	2
11	3	3	3	3
8	2	2	2	2
8	2	2	2	2
5	1	1	1	1
3	1	1	1	1
10	3	3	3	3
8	2	2	2	2
10	2	2	2	2
20	5	5	5	5
16	5	5	5	5
5	2	2	2	2
5	1	1	1	1
6	1	1	1	1
5	1	1	1	1
50	6	6	6	6
40	5	5	5	5
30	4	4	4	4
45	4	4	4	4
30	4	4	4	4
25	4	4	4	4
20	4	4	4	4
16	3	3	3	3
10	3	3	3	3
14	3	3	3	3
20	3	3	3	3

v_c m/min	N° de avance
30	4
25	4
33	4
30	4
33	4
33	4
20	3
14	3
10	2
29	4
14	3
10	2
10	3
8	2
11	3
8	2
8	2
5	1
3	1
10	3
8	2
10	2
20	5
16	5
5	2
5	1
6	1
5	1
50	6
40	5
30	4
45	4
30	4
25	4
20	4
16	3
10	3
14	3
20	3

v_c m/min	N° de serie de avance		
35	6	6	6
30	5	5	5
30	6	6	6
30	5	5	5
35	5	5	5
29	5	5	5
22	4	4	4
18	4	4	4
14	3	3	3
35	6	6	6
18	4	4	4
14	3	3	3
14	4	4	4
12	3	3	3
15	4	4	4
11	3	3	3
11	3	3	3
8	2	2	2
4	2	2	2
14	4	4	4
10	3	3	3
12	3	3	3
30	6	6	6
24	6	6	6
24	6	6	6
20	6	6	6
8	3	3	3
8	1	1	1
10	2	2	2
8	2	2	2
60	7	7	7
50	6	6	6
38	5	5	5
55	5	5	5
36	5	5	5
24	4	4	4
20	4	4	4
14	4	4	4
25	5	5	5

v_c m/min	N° de serie de avance		
30	5	5	5
25	4	4	4
30	5	5	5
25	4	4	4
30	4	4	4
25	4	4	4
18	3	3	3
16	3	3	3
12	2	2	2
30	5	5	5
16	3	3	3
12	2	2	2
12	3	3	3
10	2	2	2
13	3	3	3
9	2	2	2
9	2	2	2
6	2	2	2
4	1	1	1
12	3	3	3
8	2	2	2
12	2	2	2
28	5	5	5
22	5	5	5
22	5	5	5
18	5	5	5
6	2	2	2
6	1	1	1
8	2	2	2
6	2	2	2
55	6	6	6
44	5	5	5
35	4	4	4
50	4	4	4
33	4	4	4
22	4	4	4
18	4	4	4
12	4	4	4
25	4	4	4

GÜHRINGNAVIGATOR

Las herramientas con n° de código de series de avance impreso en negrita (código VR) se deberían elegir con preferencia.
Para la elección de la herramienta óptima y los valores de corte adecuados está a su disposición www.guehring.de y además una versión electrónica del navegador Gühring.

Artículo N°
Artículo N°
Norma/DIN
Material de corte
Calidad de metal duro
Acabado
Tipo
Refrigeración
Dimens. página

Hta. Ø mm	N° de serie de avance								
	101	**102**	**103**	**104**	**105**	**106**	**107**	**108**	**109**
	f (mm/U)								
0,10	0,002	0,003	0,003	0,004	0,006	0,007	0,010	0,013	0,016
0,16	0,002	0,003	0,004	0,005	0,007	0,009	0,012	0,016	0,022
0,25	0,003	0,004	0,005	0,007	0,009	0,011	0,014	0,019	0,024
0,30	0,004	0,005	0,007	0,009	0,011	0,015	0,019	0,025	0,033
0,50	0,005	0,007	0,008	0,011	0,014	0,019	0,024	0,031	0,041
0,63	0,007	0,009	0,012	0,015	0,020	0,026	0,034	0,044	0,057
0,80	0,010	0,013	0,016	0,020	0,024	0,031	0,038	0,048	0,060
1,00	0,020	0,024	0,029	0,035	0,041	0,050	0,060	0,072	0,086
1,50	0,030	0,035	0,040	0,046	0,052	0,060	0,069	0,080	0,092
2,00	0,040	0,046	0,053	0,061	0,070	0,080	0,093	0,106	0,122

Hta. Ø mm	N° de serie de avance Art. N° 6400/6401/6408/6412												
	56	**57**	**58**	**59**	**60**	**61**	**62**	**63**	**64**	**65**	**66**	**67**	**68**
	f (mm/U)												
0,50	0,006	0,012	0,018	0,022	0,030	0,035	0,040	0,045	0,050	0,050	0,055	0,060	0,060
0,80	0,008	0,016	0,024	0,032	0,040	0,050	0,060	0,070	0,080	0,080	0,080	0,090	0,090
1,00	0,012	0,022	0,032	0,042	0,060	0,070	0,080	0,090	0,100	0,100	0,110	0,110	0,120
1,50	0,021	0,036	0,051	0,066	0,090	0,100	0,120	0,130	0,150	0,150	0,160	0,170	0,180
2,00	0,032	0,052	0,072	0,092	0,120	0,140	0,160	0,180	0,200	0,210	0,220	0,230	0,240
2,50	0,045	0,070	0,095	0,120	0,150	0,170	0,200	0,220	0,250	0,260	0,270	0,280	0,300
3,00	0,060	0,090	0,120	0,150	0,180	0,210	0,240	0,270	0,300	0,310	0,330	0,340	0,360

Refrigerante según material:
○ Aire
● Aceite
● Emulsión

Sentido de corte:
corte a derechas
corte a izquierdas

Grupo de materiales	Ejemplos Cifras en negrita = nº de mat. según DIN EN 10 027	Resistencia N/mm²	Dureza	Refri-geración
Aceros de construcción generales	**1.0035** S185(St33), **1.0486** P275N(StE285), **1.0345** P235GH(H1), **1.0425** P265GH(H2)	≤500		●
	1.0050 E295 (St50-2), **1.0070** E360 (St70-2), **1.8937** P500NH (WStE500)	≤1000		●
Aceros para autómatas	**1.0718** 11SMnPb30 (9SMnPb28), **1.0736** 11SMn37 (9SMn36)	≤850		●
	1.0727 46S20 (45S20), **1.0728** (60S20), **1.0757** 46SPb20 (45SPb20)	≤1000		●
Aceros de bonificación no aleados	**1.0402** C22, **1.1178** C30E (Ck30)	≤700		●
	1.0503 C45, **1.1191** C45E (Ck45)	≤850		●
	1.0601 C60, **1.1221** C60E (Ck60)	≤1000		●
Aceros de bonificación aleados	**1.5131** 50MnSi4, **1.7003** 38Cr2, **1.7030** 28Cr4	≤1000		●
	1.5710 36NiCr6, **1.7035** 41Cr4, **1.7225** 42CrMo4	≤1400		●
Aceros cementación aleados	**1.0301** (C10), **1.1121** C10E (Ck10)	≤850		●
Aceros cementación no aleados	**1.7276** 10CrMo11, **1.5125** 11MnSi6	≤1000		●
	1.5752 15NiCr13, **1.7131** 16MnCr5, **1.7264** 20CrMo5	≤1400		●
Aceros de nitruración	**1.8504** 34CrAl6	≤1000		●
	1.8519 31CrMoV9, **1.8550** 34CrAlNi7	≤1400		●
Aceros para herramientas	**1.1750** C75W, **1.2067** 102Cr6, **1.2307** 29CrMoV9	≤850		●
	1.2080 X210Cr12, **1.2083** X42Cr13, **1.2419** 105WCr6, **1.2767** X45NiCrMo4	≤1400		●
Aceros rápidos	**1.3243** S 6-5-2-5, **1.3343** S 6-5-2, **1.3344** S 6-5-3	≤1400		●
Aceros para muelles	**1.5026** 55Si7, **1.7176** 55Cr3, **1.8159** 51CrV4 (51CrV4)		≤350 HB	●
Aceros templados	–		≤48 HRC	●
			≤66 HRC	●
Aceros inox., sulfurados	**1.4005** X12CrS13, **1.4104** X14CrMoS17, **1.4105** X6CrMoS17, **1.4305** X8CrNiS18-9	≤900		●
austeníticos	**1.4301** X5CrNi18-10 (V2A), **1.4541** X6CrNiTi18-10, **1.4571** X6CrNiMoTi 17-12-2 (V4A)	≤1100		●
martensíticos	**1.4057** X20CrNi172 (X17CrNi16-2), **1.4122** X39CrMo17-1, **1.4521** X2CrMoTi18-2	≤1500		●
Hierro fundido	**0.6010** EN-GJL-100 (GG10), **0.6020** EN-GJL-200 (GG20)		≤240 HB	● ○
	0.6025 EN-GJL-250 (GG25), **0.6035** EN-GJL-350 (GG35)		≤350 HB	● ○
Fundición de grafito esférico y fundición maleable	**0.7050** EN-GJS-500-7 (GGG50), **0.8035** EN-GJMW-350-4 (GTW35)		≤240 HB	●
	0.7070 EN-GJS-700-2 (GGG70), **0.8170** EN-GJMB-700-2 (GTS70)		≤350 HB	●
Fundición dura	–		≤350 HB	●
Nuevos mat. de fundición GGV	**EN-GJV250** (GGV25), **EN-GJV350** (GGV35)		≤220 HB	● ○
	EN-GJV400 (GGV40), **EN-GJV500** (GGV50), SiMo 6		≤300 HB	● ○
Nuevos mat. de fundición ADI	**EN-GJS-800-8** (ADI800), **EN-GJS-1000-5** (ADI1000)	≤1000		● ○
	EN-GJS-1200-2 (ADI1200), **EN-GJS-1400-1** (ADI1400)	≤1400		● ○
Aleaciones especiales	Nimonic, Inconel, Monel, Hastelloy	≤2000		●
Titanio y aleaciones de titanio	**3.7024** Ti99,5, **3.7114** TiAl5Sn2,5, **3.7124** TiCu2	≤850		●
	3.7154 TiAl6Zr5, **3.7165** TiAl6V4, **3.7184** TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤1400		●
Aluminio y aleaciones de Al	**3.0255** Al99,5, **3.2315** AlMgSi1, **3.3515** AlMg1	≤400		●
Aleaciones maleables de Al	**3.0615** AlMgSiPb, **3.1325** AlCuMg1, **3.3245** AlMg3Si, **3.4365** AlZnMgCu1,5	≤650		●
Aleac. fund. de Al ≤ 10 % Si	**3.2131** G-AlSi5Cu1, **3.2153** G-AlSi7Cu3, **3.2573** G-AlSi9	≤600		●
> 10 % Si	**3.2581** G-AlSi12, **3.2583** G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		●
Aleaciones de magnesio	**3.5200** MgMn2, **3.5812.05** G-MgAl8Zn1, **3.5612.05** G-MgAl6Zn1	≤400		○
Cobre de baja aleación	**2.0070** SE-Cu, **2.1020** CuSn6, **2.1096** G-CuSn5ZnPb	≤500		●
Latón, viruta corta	**2.0380** CuZn39Pb2, **2.0401** CuZn39Pb3, **2.0410** CuZn43Pb2	≤600		●
viruta larga	**2.0250** CuZn20, **2.0280** CuZn33, **2.0332** CuZn37Pb0,5	≤600		●
Bronces, viruta corta	**2.1090** CuSn7ZnPb, **2.1170** CuPb5Sn5, **2.1176** CuPb10Sn	≤600		● ●
	2.0790 CuNi18Zn19Pb	≤850		●
Bronces, viruta larga	**2.0916** CuAl5, **2.0960** CuAl9Mn, **2.1050** CuSn10	≤850		●
	2.0980 CuAl11Ni, **2.1247** CuBe2	≤1000		●
Duroplásticos	Resina epoxídica, Resopal, Pertinax, Moltopren	≤150		○
Termoplásticos	Plexiglas, Hostalen, Novodur, Makralon	≤100		● ○
Materiales sintéticos	Kevlar	≤1000		○
Fibras de vidrio/carbón	GFK/CFK	≤1000		○

										≤4xD	≤7xD		≤5xD	≤8xD	≤15xD
301		660		701		3899		6400	6401			6405	6408	6412	
303															
1899		1899		WN		WN		WN	WN			WN	WN	WN	
HSS-E-PM		HSS-E-PM		MD		MD		MD	MD			MD	MD	MD	
				K10/K20		K/P		K/P	K/P			K/P	K/P	K/P	
○		S		○		A		A	A			A	A	A	
N		N		N		N		N	N			N	N	N	
sin		sin		sin		sin		sin	sin			con	con	con	
649/654		652		656		657		108/659	109/660			110/661	111/662	112/663	
v_c m/min	N° de serie de avance	v_c m/min	N° de serie de avance	v_c m/min	N° de serie de avance	v_c m/min	N° de serie de avance	v_c m/min	N° de serie de avance			v_c m/min	N° de serie de avance		
21	106	27	106	50	105	100	62	100	64	62		105	62	58	58
18	105	23	105	35	104	100	62	100	64	62		100	62	58	58
18	106	23	106	50	105	100	62	100	64	62		105	62	59	59
16	105	21	105	45	104	90	61	90	63	61		90	61	59	59
20	105	26	105	45	104	90	62	90	64	62		95	62	58	58
18	105	23	105	35	104	90	62	90	64	62		95	62	58	58
14	104	18	104	30	103	90	61	90	63	61		90	61	58	58
14	104	18	104	30	103	90	61	90	63	61		90	61	58	58
12	103	16	103			70	60	70	62	60		70	60	58	58
18	106	23	106	50	103	100	61	100	63	61		100	61	57	57
14	104	18	104	40	103	85	61	85	63	61		85	61	58	58
12	103	16	103			70	60	70	62	60		70	60	58	58
14	104	18	104	25	103	70	60	70	62	60		70	60	57	57
12	103	16	103			60	60	60	62	60		60	60	57	57
16	104	20	104	25	103	50	60	50	62	60		50	60	58	58
14	103	18	103			60	60	60	62	60		50	60	58	58
14	103	18	103					60	57	57		50	57	57	57
8	102	10	102	20	102			60	57	57		50	57	57	57
				15	104										
18	104	20	104	25	103			30	57	57		70	57	57	57
14	103	16	103	25	102			15	56	56		60	56	56	56
16	103	18	103	25	102			30	57	57		70	57	57	57
26	106	33	106	80	105	130	66	130	68	66		150	60	60	60
22	106	28	106	60	105	130	66	130	68	66		140	60	60	60
18	106	23	106	60	105	130	66	130	68	66		140	60	60	60
22	106	28	106	50	105	120	65	120	67	65		130	60	60	60
				15	103			10	56	56		25	56	56	56
				45	104			15	56	56		35	56	56	56
				25	104			15	56	56		35	56	56	56
				160	107			70	68	68		70	68	68	68
				150	106			70	68	68		70	68	68	68
26	107			100	106			135	59	59		135	59	59	59
18	106			60	106			135	59	59		135	59	59	59
75	106	80	106	150	105										
42	105	53	105	50	105										
				67	106										
22	105	28	105	44	104										
22	104	28	104	68	103										
18	104	23	104	49	103										
13	104	16	104	53	103										
		14	104	36	103										
16	104	20	104	50	103										
18	104	23	104	36	103										
				60	104										

Navegador

GÜHRINGNAVIGATOR Brocas de puntear NC

Las herramientas con n° de código de series de avance impreso en negrita (código VR) se deberían elegir con preferencia.
Para la elección de la herramienta óptima y los valores de corte adecuados está a su disposición www.guehring.de y además una versión electrónica del navegador Gühring.

Artículo Nº
Norma/DIN
Material de corte
Acabado
Tipo
Ángulo de punta º
Dimens. página

Hta. Ø mm	N° de serie de avance								
	1	2	3	4	5	6	7	8	9
	f (mm/U)								
0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
50,00	0,250	0,310	0,400	0,500	0,630	0,800	1,000	1,250	1,250
63,00	0,315	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600
80,00	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600	2,000

Refrigerante según material:
○ Aire
● Aceite
● Emulsión

Sentido de corte:
corte a derechas
corte a izquierdas

Grupo de materiales	Ejemplos Cifras en negrita = nº de mat. según DIN EN 10 027	Resistencia N/mm²	Dureza	Refri-geración
Aceros de construcción generales	**1.0035** S185(St33), **1.0486** P275N(StE285), **1.0345** P235GH(H1), **1.0425** P265GH(H2)	≤500		●
	1.0050 E295 (St50-2), **1.0070** E360 (St70-2), **1.8937** P500NH (WStE500)	≤1000		●
Aceros para autómatas	**1.0718** 11SMnPb30 (9SMnPb28), **1.0736** 11SMn37 (9SMn36)	≤850		●
	1.0727 46S20 (45S20), **1.0728** (60S20), **1.0757** 46SPb20 (45SPb20)	≤1000		●
Aceros de bonificación no aleados	**1.0402** C22, **1.1178** C30E (Ck30)	≤700		●
	1.0503 C45, **1.1191** C45E (Ck45)	≤850		●
	1.0601 C60, **1.1221** C60E (Ck60)	≤1000		●
Aceros de bonificación aleados	**1.5131** 50MnSi4, **1.7003** 38Cr2, **1.7030** 28Cr4	≤1000		●
	1.5710 36NiCr6, **1.7035** 41Cr4, **1.7225** 42CrMo4	≤1400		●
Aceros cementación aleados	**1.0301** (C10), **1.1121** C10E (Ck10)	≤850		●
Aceros cementación no aleados	**1.7276** 10CrMo11, **1.5125** 11MnSi6	≤1000		●
	1.5752 15NiCr13, **1.7131** 16MnCr5, **1.7264** 20CrMo5	≤1400		●
Aceros de nitruración	**1.8504** 34CrAl6	≤1000		●
	1.8519 31CrMoV9, **1.8550** 34CrAlNi7	≤1400		●
Aceros para herramientas	**1.1750** C75W, **1.2067** 102Cr6, **1.2307** 29CrMoV9	≤850		●
	1.2080 X210Cr12, **1.2083** X42Cr13, **1.2419** 105WCr6, **1.2767** X45NiCrMo4	≤1400		●
Aceros rápidos	**1.3243** S 6-5-2-5, **1.3343** S 6-5-2, **1.3344** S 6-5-3	≤1400		●
Aceros para muelles	**1.5026** 55Si7, **1.7176** 55Cr3, **1.8159** 51CrV4 (51CrV4)		≤350 HB	●
Aceros templados	–		≤48 HRC	●
			≤66 HRC	●
Aceros inox., sulfurados	**1.4005** X12CrS13, **1.4104** X14CrMoS17, **1.4105** X6CrMoS17, **1.4305** X8CrNiS18-9	≤900		●
austeníticos	**1.4301** X5CrNi18-10 (V2A), **1.4541** X6CrNiTi18-10, **1.4571** X6CrNiMoTi 17-12-2 (V4A)	≤1100		●
martensíticos	**1.4057** X20CrNi172 (X17CrNi16-2), **1.4122** X39CrMo17-1, **1.4521** X2CrMoTi18-2	≤1500		●
Hierro fundido	**0.6010** EN-GJL-100 (GG10), **0.6020** EN-GJL-200 (GG20)		≤240 HB	○ ○
	0.6025 EN-GJL-250 (GG25), **0.6035** EN-GJL-350 (GG35)		≤350 HB	○ ○
Fundición de grafito esférico y fundición maleable	**0.7050** EN-GJS-500-7 (GGG50), **0.8035** EN-GJMW-350-4 (GTW35)		≤240 HB	●
	0.7070 EN-GJS-700-2 (GGG70), **0.8170** EN-GJMB-700-2 (GTS70)		≤350 HB	●
Fundición dura	–		≤350 HB	●
Nuevos mat. de fundición GGV	**EN-GJV250** (GGV25), **EN-GJV350** (GGV35)		≤220 HB	● ○
	EN-GJV400 (GGV40), **EN-GJV500** (GGV50), SiMo 6		≤300 HB	● ○
Nuevos mat. de fundición ADI	**EN-GJS-800-8** (ADI800), **EN-GJS-1000-5** (ADI1000)	≤1000		● ○
	EN-GJS-1200-2 (ADI1200), **EN-GJS-1400-1** (ADI1400)	≤1400		● ○
Aleaciones especiales	Nimonic, Inconel, Monel, Hastelloy	≤2000		●
Titanio y aleaciones de titanio	**3.7024** Ti99,5, **3.7114** TiAl5Sn2,5, **3.7124** TiCu2	≤850		●
	3.7154 TiAl6Zr5, **3.7165** TiAl6V4, **3.7184** TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤1400		●
Aluminio y aleaciones de Al	**3.0255** Al99,5, **3.2315** AlMgSi1, **3.3515** AlMg1	≤400		●
Aleaciones maleables de Al	**3.0615** AlMgSiPb, **3.1325** AlCuMg1, **3.3245** AlMg3Si, **3.4365** AlZnMgCu1,5	≤650		●
Aleac. fund. de Al ≤ 10 % Si	**3.2131** G-AlSi5Cu1, **3.2153** G-AlSi7Cu3, **3.2573** G-AlSi9	≤600		●
> 10 % Si	**3.2581** G-AlSi12, **3.2583** G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		●
Aleaciones de magnesio	**3.5200** MgMn2, **3.5812.05** G-MgAl8Zn1, **3.5612.05** G-MgAl6Zn1	≤400		○
Cobre de baja aleación	**2.0070** SE-Cu, **2.1020** CuSn6, **2.1096** G-CuSn5ZnPb	≤500		●
Latón, viruta corta	**2.0380** CuZn39Pb2, **2.0401** CuZn39Pb3, **2.0410** CuZn43Pb2	≤600		●
viruta larga	**2.0250** CuZn20, **2.0280** CuZn33, **2.0332** CuZn37Pb0,5	≤600		●
Bronces, viruta corta	**2.1090** CuSn7ZnPb, **2.1170** CuPb5Sn5, **2.1176** CuPb10Sn	≤600		● ●
	2.0790 CuNi18Zn19Pb	≤850		●
Bronces, viruta larga	**2.0916** CuAl5, **2.0960** CuAl9Mn, **2.1050** CuSn10	≤850		●
	2.0980 CuAl11Ni, **2.1247** CuBe2	≤1000		●
Duroplásticos	Resina epoxídica, Resopal, Pertinax, Moltopren	≤150		○
Termoplásticos	Plexiglas, Hostalen, Novodur, Makralon	≤100		● ○
Materiales sintéticos	Kevlar	≤1000		○
Fibras de vidrio/carbón	GFK/CFK	≤1000		○

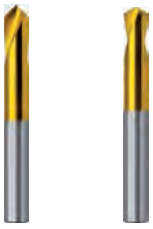
557	556	559
WN		
HSS		
○	○	○
N	N	N
90	120	90
696	702	700

568	567
WN	
HSS	
S	S
N	N
90	120
697	703

1136	1134
WN	
HSCO	
○	○
N	N
90	120
698	704

1133	1135
WN	
HSCO	
F	F
N	N
90	120
699	705

v_c m/min	N° de serie de avance		
30	6	6	6
25	5	5	5
32	6	6	6
30	5	5	5
25	5	5	5
25	5	5	5
20	4	4	4
15	4	4	4
12	3	3	3
30	6	6	6
15	4	4	4
8	3	3	3
16	4	4	4
10	3	3	3
6	3	3	3
8	3	3	3
30	6	6	6
30	6	6	6
25	6	6	6
20	6	6	6
70	7	7	7
70	7	7	7
50	7	7	7
50	6	6	6
70	6	6	6
60	5	5	5
60	5	5	5
40	5	5	5
30	4	4	4
25	4	4	4
15	4	4	4
12	4	4	4
18	4	4	4
28	5	5	5



v_c m/min	N° de serie de avance	
32	6	6
26	5	5
35	6	6
33	5	5
28	5	5
28	5	5
25	4	4
22	4	4
17	3	3
33	6	6
20	4	4
12	3	3
14	4	4
18	4	4
12	3	3
8	3	3
10	3	3
33	6	6
33	6	6
28	6	6
22	6	6
60	6	6
80	6	6
65	5	5
70	5	5
45	5	5
33	4	4
27	4	4
16	4	4
15	4	4
22	4	4
36	5	5

v_c m/min	N° de serie de avance	
35	6	6
30	5	5
40	5	5
40	5	5
35	5	5
35	5	5
30	4	4
22	4	4
17	3	3
33	6	6
20	4	4
15	3	3
14	4	4
12	3	3
18	4	4
12	3	3
8	3	3
8	2	2
12	3	3
10	3	3
10	3	3
33	6	6
33	6	6
30	6	6
25	6	6
6	1	1
8	2	2
6	2	2
80	7	7
80	7	7
60	7	7
60	6	6
70	6	6
65	5	5
70	5	5
45	5	5
35	4	4
33	4	4
20	4	4
15	4	4
22	4	4
36	5	5

v_c m/min	N° de serie de avance	
42	6	6
36	5	5
48	6	6
42	6	6
44	6	6
44	6	6
40	5	5
27	4	4
22	3	3
37	6	6
22	4	4
18	3	3
19	4	4
15	3	3
21	4	4
16	3	3
12	3	3
10	2	2
18	3	3
15	3	3
12	3	3
38	6	6
35	6	6
33	6	6
28	6	6
7	1	1
10	2	2
8	2	2
85	7	7
65	7	7
65	6	6
80	6	6
70	5	5
75	5	5
50	5	5
45	5	5
40	4	4
25	4	4
20	4	4
25	4	4
40	4	4

GÜHRINGNAVIGATOR Brocas escariadoras

Las herramientas con n° de código de series de avance impreso en negrita (código VR) se deberían elegir con preferencia.
Para la elección de la herramienta óptima y los valores de corte adecuados está a su disposición www.guehring.de y además una versión electrónica del navegador Gühring.

Artículo N° (R)
Norma/DIN
Material de corte
Acabado
Tipo
Dimens. página

Hta. Ø mm	N° de serie de avance								
	1	2	3	4	5	6	7	8	9
	f (mm/U)								
0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
50,00	0,250	0,310	0,400	0,500	0,630	0,800	1,000	1,250	1,250
63,00	0,315	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600
80,00	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600	2,000

Refrigerante según material:
○ Aire
● Aceite
◉ Emulsión

Sentido de corte:
(R) corte a derechas
(L) corte a izquierdas

Grupo de materiales	Ejemplos Cifras en negrita = nº de mat. según DIN EN 10 027	Resistencia N/mm²	Dureza	Refri-geración
Aceros de construcción generales	**1.0035** S185(St33), **1.0486** P275N(StE285), **1.0345** P235GH(H1), **1.0425** P265GH(H2)	≤500		◉
	1.0050 E295 (St50-2), **1.0070** E360 (St70-2), **1.8937** P500NH (WStE500)	≤1000		◉
Aceros para autómatas	**1.0718** 11SMnPb30 (9SMnPb28), **1.0736** 11SMn37 (9SMn36)	≤850		◉
	1.0727 46S20 (45S20), **1.0728** (60S20), **1.0757** 46SPb20 (45SPb20)	≤1000		◉
Aceros de bonificación no aleados	**1.0402** C22, **1.1178** C30E (Ck30)	≤700		◉
	1.0503 C45, **1.1191** C45E (Ck45)	≤850		◉
	1.0601 C60, **1.1221** C60E (Ck60)	≤1000		◉
Aceros de bonificación aleados	**1.5131** 50MnSi4, **1.7003** 38Cr2, **1.7030** 28Cr4	≤1000		◉
	1.5710 36NiCr6, **1.7035** 41Cr4, **1.7225** 42CrMo4	≤1400		◉
Aceros cementación aleados	**1.0301** (C10), **1.1121** C10E (Ck10)	≤850		◉
Aceros cementación no aleados	**1.7276** 10CrMo11, **1.5125** 11MnSi6	≤1000		●
	1.5752 15NiCr13, **1.7131** 16MnCr5, **1.7264** 20CrMo5	≤1400		●
Aceros de nitruración	**1.8504** 34CrAl6	≤1000		◉
	1.8519 31CrMoV9, **1.8550** 34CrAlNi7	≤1400		●
Aceros para herramientas	**1.1750** C75W, **1.2067** 102Cr6, **1.2307** 29CrMoV9	≤850		◉
	1.2080 X210Cr12, **1.2083** X42Cr13, **1.2419** 105WCr6, **1.2767** X45NiCrMo4	≤1400		●
Aceros rápidos	**1.3243** S 6-5-2-5, **1.3343** S 6-5-2, **1.3344** S 6-5-3	≤1400		●
Aceros para muelles	**1.5026** 55Si7, **1.7176** 55Cr3, **1.8159** 51CrV4 (51CrV4)		≤350 HB	●
Aceros templados	–		≤48 HRC	●
			≤66 HRC	●
Aceros inox., sulfurados	**1.4005** X12CrS13, **1.4104** X14CrMoS17, **1.4105** X6CrMoS17, **1.4305** X8CrNiS18-9	≤900		●
austeníticos	**1.4301** X5CrNi18-10 (V2A), **1.4541** X6CrNiTi18-10, **1.4571** X6CrNiMoTi 17-12-2 (V4A)	≤1100		●
martensíticos	**1.4057** X20CrNi172 (X17CrNi16-2), **1.4122** X39CrMo17-1, **1.4521** X2CrMoTi18-2	≤1500		●
Hierro fundido	**0.6010** EN-GJL-100 (GG10), **0.6020** EN-GJL-200 (GG20)		≤240 HB	◉○
	0.6025 EN-GJL-250 (GG25), **0.6035** EN-GJL-350 (GG35)		≤350 HB	◉○
Fundición de grafito esférico y fundición maleable	**0.7050** EN-GJS-500-7 (GGG50), **0.8035** EN-GJMW-350-4 (GTW35)		≤240 HB	◉
	0.7070 EN-GJS-700-2 (GGG70), **0.8170** EN-GJMB-700-2 (GTS70)		≤350 HB	◉
Fundición dura	–		≤350 HB	◉
Nuevos mat. de fundición GGV	**EN-GJV250** (GGV25), **EN-GJV350** (GGV35)		≤220 HB	◉○
	EN-GJV400 (GGV40), **EN-GJV500** (GGV50), SiMo 6		≤300 HB	◉○
Nuevos mat. de fundición ADI	**EN-GJS-800-8** (ADI800), **EN-GJS-1000-5** (ADI1000)	≤1000		◉○
	EN-GJS-1200-2 (ADI1200), **EN-GJS-1400-1** (ADI1400)	≤1400		◉○
Aleaciones especiales	Nimonic, Inconel, Monel, Hastelloy	≤2000		●
Titanio y aleaciones de titanio	**3.7024** Ti99,5, **3.7114** TiAl5Sn2,5, **3.7124** TiCu2	≤850		●
	3.7154 TiAl6Zr5, **3.7165** TiAl6V4, **3.7184** TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤1400		●
Aluminio y aleaciones de Al	**3.0255** Al99,5, **3.2315** AlMgSi1, **3.3515** AlMg1	≤400		◉
Aleaciones maleables de Al	**3.0615** AlMgSiPb, **3.1325** AlCuMg1, **3.3245** AlMg3Si, **3.4365** AlZnMgCu1,5	≤650		◉
Aleac. fund. de Al ≤ 10 % Si	**3.2131** G-AlSi5Cu1, **3.2153** G-AlSi7Cu3, **3.2573** G-AlSi9	≤600		◉
> 10 % Si	**3.2581** G-AlSi12, **3.2583** G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		◉
Aleaciones de magnesio	**3.5200** MgMn2, **3.5812.05** G-MgAl8Zn1, **3.5612.05** G-MgAl6Zn1	≤400		○
Cobre de baja aleación	**2.0070** SE-Cu, **2.1020** CuSn6, **2.1096** G-CuSn5ZnPb	≤500		◉
Latón, viruta corta	**2.0380** CuZn39Pb2, **2.0401** CuZn39Pb3, **2.0410** CuZn43Pb2	≤600		◉
viruta larga	**2.0250** CuZn20, **2.0280** CuZn33, **2.0332** CuZn37Pb0,5	≤600		◉
Bronces, viruta corta	**2.1090** CuSn7ZnPb, **2.1170** CuPb5Sn5, **2.1176** CuPb10Sn	≤600		◉●
	2.0790 CuNi18Zn19Pb	≤850		●
Bronces, viruta larga	**2.0916** CuAl5, **2.0960** CuAl9Mn, **2.1050** CuSn10	≤850		●
	2.0980 CuAl11Ni, **2.1247** CuBe2	≤1000		●
Duroplásticos	Resina epoxídica, Resopal, Pertinax, Moltopren	≤150		○
Termoplásticos	Plexiglas, Hostalen, Novodur, Makralon	≤100		◉○
Materiales sintéticos	Kevlar	≤1000		○
Fibras de vidrio/carbón	GFK/CFK	≤1000		○

533	534	555
DIN 344	DIN 343	DIN 1864
HSS		
●	●	●
N	N	N
737	740	743

634	635
DIN 343	DIN 1864
HSCO	
●	●
N	N
742	744

v_c m/min	N° de serie de avance		
27	**4**	**4**	**4**
20	**4**	**4**	**4**
28	**4**	**4**	**4**
25	4	4	4
22	**4**	**4**	**4**
20	**4**	**4**	**4**
18	3	3	3
15	4	4	4
8	3	3	3
23	**5**	**5**	**5**
15	4	4	4
8	3	3	3
10	4	4	4
8	3	3	3
10	3	3	3
6	3	3	3
6	3	3	3
5	2	2	2
8	2	2	2
6	2	2	2
5	2	2	2
20	**6**	**6**	**6**
20	5	5	5
18	**6**	**6**	**6**
16	5	5	5
3	1	1	1
5	2	2	2
4	2	2	2
60	**7**	**7**	**7**
60	**7**	**7**	**7**
36	6	6	6
36	6	6	6
40	6	6	6
50	5	5	5
50	5	5	5
30	5	5	5
30	4	4	4
25	4	4	4
15	4	4	4
15	4	4	4
15	4	4	4
25	5	5	5

v_c m/min	N° de serie de avance	
30	**4**	**4**
25	**4**	**4**
32	**4**	**4**
30	4	4
25	**4**	**4**
22	**4**	**4**
20	3	3
17	4	4
10	3	3
25	**5**	**5**
17	4	4
10	3	3
13	4	4
10	3	3
13	3	3
8	3	3
8	3	3
6	2	2
10	2	2
8	2	2
6	2	2
25	**6**	**6**
25	5	5
20	**6**	**6**
18	5	5
4	1	1
6	2	2
5	2	2
70	**7**	**7**
70	**7**	**7**
40	6	6
40	6	6
50	6	6
55	5	5
55	5	5
35	5	5
35	4	4
30	4	4
20	4	4
18	4	4
20	4	4
30	5	5

GÜHRINGNAVIGATOR Brocas de centrar

Las herramientas con n° de código de series de avance impreso en negrita (código VR) se deberían elegir con preferencia.
Para la elección de la herramienta óptima y los valores de corte adecuados está a su disposición www.guehring.de y además una versión electrónica del navegador Gühring.

Artículo N° (R)
Norma/DIN
Material de corte
Acabado
Forma
Dimens. página

Hta. Ø mm	N° de serie de avance								
	1	2	3	4	5	6	7	8	9
	f (mm/U)								
0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
50,00	0,250	0,310	0,400	0,500	0,630	0,800	1,000	1,250	1,250
63,00	0,315	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600
80,00	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600	2,000

Refrigerante según material:
○ Aire
● Aceite
● Emulsión

Sentido de corte:
(R) corte a derechas
(L) corte a izquierdas

Grupo de materiales	Ejemplos Cifras en negrita = nº de mat. según DIN EN 10 027	Resistencia N/mm²	Dureza	Refri-geración
Aceros de construcción generales	**1.0035** S185(St33), **1.0486** P275N(StE285), **1.0345** P235GH(H1), **1.0425** P265GH(H2)	≤500		●
	1.0050 E295 (St50-2), **1.0070** E360 (St70-2), **1.8937** P500NH (WStE500)	≤1000		●
Aceros para autómatas	**1.0718** 11SMnPb30 (9SMnPb28), **1.0736** 11SMn37 (9SMn36)	≤850		●
	1.0727 46S20 (45S20), **1.0728** (60S20), **1.0757** 46SPb20 (45SPb20)	≤1000		●
Aceros de bonificación no aleados	**1.0402** C22, **1.1178** C30E (Ck30)	≤700		●
	1.0503 C45, **1.1191** C45E (Ck45)	≤850		●
	1.0601 C60, **1.1221** C60E (Ck60)	≤1000		●
Aceros de bonificación aleados	**1.5131** 50MnSi4, **1.7003** 38Cr2, **1.7030** 28Cr4	≤1000		●
	1.5710 36NiCr6, **1.7035** 41Cr4, **1.7225** 42CrMo4	≤1400		●
Aceros cementación aleados	**1.0301** (C10), **1.1121** C10E (Ck10)	≤850		●
Aceros cementación no aleados	**1.7276** 10CrMo11, **1.5125** 11MnSi6	≤1000		●
	1.5752 15NiCr13, **1.7131** 16MnCr5, **1.7264** 20CrMo5	≤1400		●
Aceros de nitruración	**1.8504** 34CrAl6	≤1000		●
	1.8519 31CrMoV9, **1.8550** 34CrAlNi7	≤1400		●
Aceros para herramientas	**1.1750** C75W, **1.2067** 102Cr6, **1.2307** 29CrMoV9	≤850		●
	1.2080 X210Cr12, **1.2083** X42Cr13, **1.2419** 105WCr6, **1.2767** X45NiCrMo4	≤1400		●
Aceros rápidos	**1.3243** S 6-5-2-5, **1.3343** S 6-5-2, **1.3344** S 6-5-3	≤1400		●
Aceros para muelles	**1.5026** 55Si7, **1.7176** 55Cr3, **1.8159** 51CrV4 (51CrV4)		≤350 HB	●
Aceros templados	–		≤48 HRC	●
			≤66 HRC	●
Aceros inox., sulfurados	**1.4005** X12CrS13, **1.4104** X14CrMoS17, **1.4105** X6CrMoS17, **1.4305** X8CrNiS18-9	≤900		●
austeníticos	**1.4301** X5CrNi18-10 (V2A), **1.4541** X6CrNiTi18-10, **1.4571** X6CrNiMoTi 17-12-2 (V4A)	≤1100		●
martensíticos	**1.4057** X20CrNi172 (X17CrNi16-2), **1.4122** X39CrMo17-1, **1.4521** X2CrMoTi18-2	≤1500		●
Hierro fundido	**0.6010** EN-GJL-100 (GG10), **0.6020** EN-GJL-200 (GG20)		≤240 HB	○ ○
	0.6025 EN-GJL-250 (GG25), **0.6035** EN-GJL-350 (GG35)		≤350 HB	○ ○
Fundición de grafito esférico y fundición maleable	**0.7050** EN-GJS-500-7 (GGG50), **0.8035** EN-GJMW-350-4 (GTW35)		≤240 HB	●
	0.7070 EN-GJS-700-2 (GGG70), **0.8170** EN-GJMB-700-2 (GTS70)		≤350 HB	●
Fundición dura	–		≤350 HB	●
Nuevos mat. de fundición GGV	**EN-GJV250** (GGV25), **EN-GJV350** (GGV35)		≤220 HB	● ○
	EN-GJV400 (GGV40), **EN-GJV500** (GGV50), SiMo 6		≤300 HB	● ○
Nuevos mat. de fundición ADI	**EN-GJS-800-8** (ADI800), **EN-GJS-1000-5** (ADI1000)	≤1000		● ○
	EN-GJS-1200-2 (ADI1200), **EN-GJS-1400-1** (ADI1400)	≤1400		● ○
Aleaciones especiales	Nimonic, Inconel, Monel, Hastelloy	≤2000		●
Titanio y aleaciones de titanio	**3.7024** Ti99,5, **3.7114** TiAl5Sn2,5, **3.7124** TiCu2	≤850		●
	3.7154 TiAl6Zr5, **3.7165** TiAl6V4, **3.7184** TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤1400		●
Aluminio y aleaciones de Al	**3.0255** Al99,5, **3.2315** AlMgSi1, **3.3515** AlMg1	≤400		●
Aleaciones maleables de Al	**3.0615** AlMgSiPb, **3.1325** AlCuMg1, **3.3245** AlMg3Si, **3.4365** AlZnMgCu1,5	≤650		●
Aleac. fund. de Al ≤ 10 % Si	**3.2131** G-AlSi5Cu1, **3.2153** G-AlSi7Cu3, **3.2573** G-AlSi9	≤600		●
> 10 % Si	**3.2581** G-AlSi12, **3.2583** G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		●
Aleaciones de magnesio	**3.5200** MgMn2, **3.5812.05** G-MgAl8Zn1, **3.5612.05** G-MgAl6Zn1	≤400		○
Cobre de baja aleación	**2.0070** SE-Cu, **2.1020** CuSn6, **2.1096** G-CuSn5ZnPb	≤500		●
Latón, viruta corta	**2.0380** CuZn39Pb2, **2.0401** CuZn39Pb3, **2.0410** CuZn43Pb2	≤600		●
viruta larga	**2.0250** CuZn20, **2.0280** CuZn33, **2.0332** CuZn37Pb0,5	≤600		●
Bronces, viruta corta	**2.1090** CuSn7ZnPb, **2.1170** CuPb5Sn5, **2.1176** CuPb10Sn	≤600		● ●
	2.0790 CuNi18Zn19Pb	≤850		●
Bronces, viruta larga	**2.0916** CuAl5, **2.0960** CuAl9Mn, **2.1050** CuSn10	≤850		●
	2.0980 CuAl11Ni, **2.1247** CuBe2	≤1000		●
Duroplásticos	Resina epoxídica, Resopal, Pertinax, Moltopren	≤150		○
Termoplásticos	Plexiglas, Hostalen, Novodur, Makralon	≤100		● ○
Materiales sintéticos	Kevlar	≤1000		○
Fibras de vidrio/carbón	GFK/CFK	≤1000		○

581	583	585	280	292	587	588
	DIN 333		WN	BS 328	DIN 333	
			HSS			
○	○	○	○	○	○	○
A	R	B	B	A	A	R
668	672	675	689	680	690	691

613	614
DIN 333	
HSS	
S	S
A	R
669	673

381
DIN 333
HSCO
○
A
682

v_c m/min	N° de serie de avance						
30	**4**	**4**	**4**	**4**	**4**	**4**	**4**
25	**4**	**4**	**4**	**4**	**4**	**4**	**4**
30	**4**	**4**	**4**	**4**	**4**	**4**	**4**
30	4	4	4	4	4	4	4
25	**4**	**4**	**4**	**4**	**4**	**4**	**4**
20	**4**	**4**	**4**	**4**	**4**	**4**	**4**
20	3	3	3	3	3	3	3
15	4	4	4	4	4	4	4
8	3	3	3	3	3	3	3
25	**5**	**5**	**5**	**5**	**5**	**5**	**5**
15	4	4	4	4	4	4	4
8	3	3	3	3	3	3	3
10	4	4	4	4	4	4	4
8	3	3	3	3	3	3	3
10	3	3	3	3	3	3	3
6	3	3	3	3	3	3	3
6	3	3	3	3	3	3	3
5	2	2	2	2	2	2	2
10	3	3	3	3	3	3	3
8	3	3	3	3	3	3	3
6	3	3	3	3	3	3	3
20	**6**	**6**	**6**	**6**	**6**	**6**	**6**
20	5	5	5	5	5	5	5
25	**6**	**6**	**6**	**6**	**6**	**6**	**6**
20	5	5	5	5	5	5	5
3	1	1	1	1	1	1	1
5	2	2	2	2	2	2	2
4	2	2	2	2	2	2	2
70	**7**	**7**	**7**	**7**	**7**	**7**	**7**
70	**7**	**7**	**7**	**7**	**7**	**7**	**7**
40	6	6	6	6	6	6	6
40	6	6	6	6	6	6	6
60	6	6	6	6	6	6	6
50	5	5	5	5	5	5	5
60	5	5	5	5	5	5	5
40	5	5	5	5	5	5	5
30	4	4	4	4	4	4	4
25	4	4	4	4	4	4	4
15	4	4	4	4	4	4	4
15	4	4	4	4	4	4	4
15	4	4	4	4	4	4	4
25	5	5	5	5	5	5	5

v_c m/min	N° de serie de avance	
35	**4**	**4**
30	**4**	**4**
35	**4**	**4**
35	4	4
30	**4**	**4**
25	**4**	**4**
22	3	3
17	4	4
10	3	3
30	**5**	**5**
18	4	4
10	3	3
13	4	4
10	3	3
13	3	3
8	3	3
8	3	3
8	2	2
15	3	3
10	3	3
8	3	3
25	**6**	**6**
25	5	5
30	**6**	**6**
25	5	5
6	1	1
6	2	2
5	2	2
50	6	6
70	6	6
60	**5**	**5**
70	5	5
45	**5**	**5**
35	**4**	**4**
30	4	4
20	**4**	**4**
18	4	4
20	**4**	**4**
30	5	5

v_c m/min	N° de avance
35	4
30	4
35	4
35	**4**
30	4
25	4
22	**3**
17	**4**
10	**3**
30	5
18	**4**
10	**3**
13	4
10	3
13	**3**
8	3
8	3
8	2
15	**3**
10	**3**
8	**3**
25	**6**
25	**5**
30	6
25	**5**
6	1
6	2
5	2
80	**7**
80	**7**
50	6
50	6
70	6
60	5
70	5
45	5
35	**4**
30	4
20	**4**
18	4
20	4
30	5

Navegador

GÜHRINGNAVIGATOR Brocas escalonadas/brocas bidiametrales cil.

Las herramientas con n° de código de series de avance impreso en negrita (código VR) se deberían elegir con preferencia.
Para la elección de la herramienta óptima y los valores de corte adecuados está a su disposición www.guehring.de y además una versión electrónica del navegador Gühring.

Artículo N° ®
Norma/DIN
Material de corte
Tipo
Acabado
Dimens. página

Hta. Ø mm	N° de serie de avance								
	1	2	3	4	5	6	7	8	9
	f (mm/U)								
0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
50,00	0,250	0,310	0,400	0,500	0,630	0,800	1,000	1,250	1,250
63,00	0,315	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600
80,00	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600	2,000

Refrigerante según material:
○ Aire
● Aceite
● Emulsión

Sentido de corte:
® corte a derechas
corte a izquierdas

Grupo de materiales	Ejemplos Cifras en negrita = nº de mat. según DIN EN 10 027	Resistencia N/mm²	Dureza	Refri-geración
Aceros de construcción generales	**1.0035** S185(St33), **1.0486** P275N(StE285), **1.0345** P235GH(H1), **1.0425** P265GH(H2)	≤500		●
	1.0050 E295 (St50-2), **1.0070** E360 (St70-2), **1.8937** P500NH (WStE500)	≤1000		●
Aceros para autómatas	**1.0718** 11SMnPb30 (9SMnPb28), **1.0736** 11SMn37 (9SMn36)	≤850		●
	1.0727 46S20 (45S20), **1.0728** (60S20), **1.0757** 46SPb20 (45SPb20)	≤1000		●
Aceros de bonificación no aleados	**1.0402** C22, **1.1178** C30E (Ck30)	≤700		●
	1.0503 C45, **1.1191** C45E (Ck45)	≤850		●
	1.0601 C60, **1.1221** C60E (Ck60)	≤1000		●
Aceros de bonificación aleados	**1.5131** 50MnSi4, **1.7003** 38Cr2, **1.7030** 28Cr4	≤1000		●
	1.5710 36NiCr6, **1.7035** 41Cr4, **1.7225** 42CrMo4	≤1400		●
Aceros cementación aleados	**1.0301** (C10), **1.1121** C10E (Ck10)	≤850		●
Aceros cementación no aleados	**1.7276** 10CrMo11, **1.5125** 11MnSi6	≤1000		●
	1.5752 15NiCr13, **1.7131** 16MnCr5, **1.7264** 20CrMo5	≤1400		●
Aceros de nitruración	**1.8504** 34CrAl6	≤1000		●
	1.8519 31CrMoV9, **1.8550** 34CrAlNi7	≤1400		●
Aceros para herramientas	**1.1750** C75W, **1.2067** 102Cr6, **1.2307** 29CrMoV9	≤850		●
	1.2080 X210Cr12, **1.2083** X42Cr13, **1.2419** 105WCr6, **1.2767** X45NiCrMo4	≤1400		●
Aceros rápidos	**1.3243** S 6-5-2-5, **1.3343** S 6-5-2, **1.3344** S 6-5-3	≤1400		●
Aceros para muelles	**1.5026** 55Si7, **1.7176** 55Cr3, **1.8159** 51CrV4 (51CrV4)		≤350 HB	●
Aceros templados	–		≤48 HRC	●
			≤66 HRC	●
Aceros inox., sulfurados	**1.4005** X12CrS13, **1.4104** X14CrMoS17, **1.4105** X6CrMoS17, **1.4305** X8CrNiS18-9	≤900		●
austeníticos	**1.4301** X5CrNi18-10 (V2A), **1.4541** X6CrNiTi18-10, **1.4571** X6CrNiMoTi 17-12-2 (V4A)	≤1100		●
martensíticos	**1.4057** X20CrNi172 (X17CrNi16-2), **1.4122** X39CrMo17-1, **1.4521** X2CrMoTi18-2	≤1500		●
Hierro fundido	**0.6010** EN-GJL-100 (GG10), **0.6020** EN-GJL-200 (GG20)		≤240 HB	●○
	0.6025 EN-GJL-250 (GG25), **0.6035** EN-GJL-350 (GG35)		≤350 HB	●○
Fundición de grafito esférico y fundición maleable	**0.7050** EN-GJS-500-7 (GGG50), **0.8035** EN-GJMW-350-4 (GTW35)		≤240 HB	●
	0.7070 EN-GJS-700-2 (GGG70), **0.8170** EN-GJMB-700-2 (GTS70)		≤350 HB	●
Fundición dura	–		≤350 HB	●
Nuevos mat. de fundición GGV	**EN-GJV250** (GGV25), **EN-GJV350** (GGV35)		≤220 HB	●○
	EN-GJV400 (GGV40), **EN-GJV500** (GGV50), SiMo 6		≤300 HB	●○
Nuevos mat. de fundición ADI	**EN-GJS-800-8** (ADI800), **EN-GJS-1000-5** (ADI1000)	≤1000		●○
	EN-GJS-1200-2 (ADI1200), **EN-GJS-1400-1** (ADI1400)	≤1400		●○
Aleaciones especiales	Nimonic, Inconel, Monel, Hastelloy	≤2000		●
Titanio y aleaciones de titanio	**3.7024** Ti99,5, **3.7114** TiAl5Sn2,5, **3.7124** TiCu2	≤850		●
	3.7154 TiAl6Zr5, **3.7165** TiAl6V4, **3.7184** TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤1400		●
Aluminio y aleaciones de Al	**3.0255** Al99,5, **3.2315** AlMgSi1, **3.3515** AlMg1	≤400		●
Aleaciones maleables de Al	**3.0615** AlMgSiPb, **3.1325** AlCuMg1, **3.3245** AlMg3Si, **3.4365** AlZnMgCu1,5	≤650		●
Aleac. fund. de Al ≤ 10 % Si	**3.2131** G-AlSi5Cu1, **3.2153** G-AlSi7Cu3, **3.2573** G-AlSi9	≤600		●
> 10 % Si	**3.2581** G-AlSi12, **3.2583** G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		●
Aleaciones de magnesio	**3.5200** MgMn2, **3.5812.05** G-MgAl8Zn1, **3.5612.05** G-MgAl6Zn1	≤400		○
Cobre de baja aleación	**2.0070** SE-Cu, **2.1020** CuSn6, **2.1096** G-CuSn5ZnPb	≤500		●
Latón, viruta corta	**2.0380** CuZn39Pb2, **2.0401** CuZn39Pb3, **2.0410** CuZn43Pb2	≤600		●
viruta larga	**2.0250** CuZn20, **2.0280** CuZn33, **2.0332** CuZn37Pb0,5	≤600		●
Bronces, viruta corta	**2.1090** CuSn7ZnPb, **2.1170** CuPb5Sn5, **2.1176** CuPb10Sn	≤600		●●
	2.0790 CuNi18Zn19Pb	≤850		●
Bronces, viruta larga	**2.0916** CuAl5, **2.0960** CuAl9Mn, **2.1050** CuSn10	≤850		●
	2.0980 CuAl11Ni, **2.1247** CuBe2	≤1000		●
Duroplásticos	Resina epoxídica, Resopal, Pertinax, Moltopren	≤150		○
Termoplásticos	Plexiglas, Hostalen, Novodur, Makralon	≤100		●○
Materiales sintéticos	Kevlar	≤1000		○
Fibras de vidrio/carbón	GFK/CFK	≤1000		○

274	574	575	576
WN			
HSS			
●	●	●	●
N	N	N	N
714	715	716	717

378	1147	379	380
WN			
HSS			
○	○	○	○
N	N	N	N
718	719	720	721

v_c m/min	N° de serie de avance			
30	**4**	**4**	**4**	**4**
25	**4**	**4**	**4**	**4**
30	**4**	**4**	**4**	**4**
30	4	4	4	4
25	**4**	**4**	**4**	**4**
20	**4**	**4**	**4**	**4**
20	3	3	3	3
15	4	4	4	4
8	3	3	3	3
25	**5**	**5**	**5**	**5**
15	4	4	4	4
8	3	3	3	3
10	4	4	4	4
8	3	3	3	3
10	3	3	3	3
6	3	3	3	3
6	3	3	3	3
5	2	2	2	2
8	2	2	2	2
6	2	2	2	2
5	2	2	2	2
20	**6**	**6**	**6**	**6**
20	5	5	5	5
25	**6**	**6**	**6**	**6**
20	5	5	5	5
3	1	1	1	1
5	2	2	2	2
4	2	2	2	2
60	**7**	**7**	**7**	**7**
60	**7**	**7**	**7**	**7**
40	6	6	6	6
40	6	6	6	6
40	6	6	6	6
50	5	5	5	5
60	5	5	5	5
40	5	5	5	5
30	4	4	4	4
25	4	4	4	4
15	4	4	4	4
15	4	4	4	4
15	4	4	4	4
25	5	5	5	5

v_c m/min	N° de serie de avance			
30	**4**	**4**	**4**	**4**
25	**4**	**4**	**4**	**4**
30	**4**	**4**	**4**	**4**
30	4	4	4	4
25	**4**	**4**	**4**	**4**
20	**4**	**4**	**4**	**4**
20	3	3	3	3
15	4	4	4	4
8	3	3	3	3
25	**5**	**5**	**5**	**5**
15	4	4	4	4
8	3	3	3	3
10	4	4	4	4
8	3	3	3	3
10	3	3	3	3
6	3	3	3	3
6	3	3	3	3
5	2	2	2	2
8	2	2	2	2
6	2	2	2	2
5	2	2	2	2
20	**6**	**6**	**6**	**6**
20	5	5	5	5
25	**6**	**6**	**6**	**6**
20	5	5	5	5
3	1	1	1	1
5	2	2	2	2
4	2	2	2	2
60	**7**	**7**	**7**	**7**
60	**7**	**7**	**7**	**7**
40	6	6	6	6
40	6	6	6	6
40	6	6	6	6
50	5	5	5	5
60	5	5	5	5
40	5	5	5	5
30	4	4	4	4
25	4	4	4	4
15	4	4	4	4
15	4	4	4	4
15	4	4	4	4
25	5	5	5	5

GÜHRINGNAVIGATOR Brocas bidiametrales

Las herramientas con n° de código de series de avance impreso en negrita (código VR) se deberían elegir con preferencia.
Para la elección de la herramienta óptima y los valores de corte adecuados está a su disposición www.guehring.de y además una versión electrónica del navegador Gühring.

Artículo N° (R)
Norma/DIN
Material de corte
Acabado
Tipo
Dimens. página

Hta. Ø mm	N° de serie de avance								
	1	2	3	4	5	6	7	8	9
	f (mm/U)								
0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
50,00	0,250	0,310	0,400	0,500	0,630	0,800	1,000	1,250	1,250
63,00	0,315	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600
80,00	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600	2,000

Refrigerante según material:
○ Aire
● Aceite
● Emulsión

Sentido de corte:
(R) corte a derechas
(L) corte a izquierdas

Grupo de materiales	Ejemplos Cifras en negrita = nº de mat. según DIN EN 10 027	Resistencia N/mm²	Dureza	Refri-geración
Aceros de construcción generales	**1.0035** S185(St33), **1.0486** P275N(StE285), **1.0345** P235GH(H1), **1.0425** P265GH(H2)	≤500		●
	1.0050 E295 (St50-2), **1.0070** E360 (St70-2), **1.8937** P500NH (WStE500)	≤1000		●
Aceros para autómatas	**1.0718** 11SMnPb30 (9SMnPb28), **1.0736** 11SMn37 (9SMn36)	≤850		●
	1.0727 46S20 (45S20), **1.0728** (60S20), **1.0757** 46SPb20 (45SPb20)	≤1000		●
Aceros de bonificación no aleados	**1.0402** C22, **1.1178** C30E (Ck30)	≤700		●
	1.0503 C45, **1.1191** C45E (Ck45)	≤850		●
	1.0601 C60, **1.1221** C60E (Ck60)	≤1000		●
Aceros de bonificación aleados	**1.5131** 50MnSi4, **1.7003** 38Cr2, **1.7030** 28Cr4	≤1000		●
	1.5710 36NiCr6, **1.7035** 41Cr4, **1.7225** 42CrMo4	≤1400		●
Aceros cementación aleados	**1.0301** (C10), **1.1121** C10E (Ck10)	≤850		●
Aceros cementación no aleados	**1.7276** 10CrMo11, **1.5125** 11MnSi6	≤1000		●
	1.5752 15NiCr13, **1.7131** 16MnCr5, **1.7264** 20CrMo5	≤1400		●
Aceros de nitruración	**1.8504** 34CrAl6	≤1000		●
	1.8519 31CrMoV9, **1.8550** 34CrAlNi7	≤1400		●
Aceros para herramientas	**1.1750** C75W, **1.2067** 102Cr6, **1.2307** 29CrMoV9	≤850		●
	1.2080 X210Cr12, **1.2083** X42Cr13, **1.2419** 105WCr6, **1.2767** X45NiCrMo4	≤1400		●
Aceros rápidos	**1.3243** S 6-5-2-5, **1.3343** S 6-5-2, **1.3344** S 6-5-3	≤1400		●
Aceros para muelles	**1.5026** 55Si7, **1.7176** 55Cr3, **1.8159** 51CrV4 (51CrV4)		≤350 HB	●
Aceros templados	–		≤48 HRC	●
			≤66 HRC	●
Aceros inox., sulfurados	**1.4005** X12CrS13, **1.4104** X14CrMoS17, **1.4105** X6CrMoS17, **1.4305** X8CrNiS18-9	≤900		●
austeníticos	**1.4301** X5CrNi18-10 (V2A), **1.4541** X6CrNiTi18-10, **1.4571** X6CrNiMoTi 17-12-2 (V4A)	≤1100		●
martensíticos	**1.4057** X20CrNi172 (X17CrNi16-2), **1.4122** X39CrMo17-1, **1.4521** X2CrMoTi18-2	≤1500		●
Hierro fundido	**0.6010** EN-GJL-100 (GG10), **0.6020** EN-GJL-200 (GG20)		≤240 HB	●○
	0.6025 EN-GJL-250 (GG25), **0.6035** EN-GJL-350 (GG35)		≤350 HB	●○
Fundición de grafito esférico y fundición maleable	**0.7050** EN-GJS-500-7 (GGG50), **0.8035** EN-GJMW-350-4 (GTW35)		≤240 HB	●
	0.7070 EN-GJS-700-2 (GGG70), **0.8170** EN-GJMB-700-2 (GTS70)		≤350 HB	●
Fundición dura	–		≤350 HB	●
Nuevos mat. de fundición GGV	**EN-GJV250** (GGV25), **EN-GJV350** (GGV35)		≤220 HB	●○
	EN-GJV400 (GGV40), **EN-GJV500** (GGV50), SiMo 6		≤300 HB	●○
Nuevos mat. de fundición ADI	**EN-GJS-800-8** (ADI800), **EN-GJS-1000-5** (ADI1000)	≤1000		●○
	EN-GJS-1200-2 (ADI1200), **EN-GJS-1400-1** (ADI1400)	≤1400		●○
Aleaciones especiales	Nimonic, Inconel, Monel, Hastelloy	≤2000		●
Titanio y aleaciones de titanio	**3.7024** Ti99,5, **3.7114** TiAl5Sn2,5, **3.7124** TiCu2	≤850		●
	3.7154 TiAl6Zr5, **3.7165** TiAl6V4, **3.7184** TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤1400		●
Aluminio y aleaciones de Al	**3.0255** Al99,5, **3.2315** AlMgSi1, **3.3515** AlMg1	≤400		●
Aleaciones maleables de Al	**3.0615** AlMgSiPb, **3.1325** AlCuMg1, **3.3245** AlMg3Si, **3.4365** AlZnMgCu1,5	≤650		●
Aleac. fund. de Al ≤ 10 % Si	**3.2131** G-AlSi5Cu1, **3.2153** G-AlSi7Cu3, **3.2573** G-AlSi9	≤600		●
> 10 % Si	**3.2581** G-AlSi12, **3.2583** G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		●
Aleaciones de magnesio	**3.5200** MgMn2, **3.5812.05** G-MgAl8Zn1, **3.5612.05** G-MgAl6Zn1	≤400		○
Cobre de baja aleación	**2.0070** SE-Cu, **2.1020** CuSn6, **2.1096** G-CuSn5ZnPb	≤500		●
Latón, viruta corta	**2.0380** CuZn39Pb2, **2.0401** CuZn39Pb3, **2.0410** CuZn43Pb2	≤600		●
viruta larga	**2.0250** CuZn20, **2.0280** CuZn33, **2.0332** CuZn37Pb0,5	≤600		●
Bronces, viruta corta	**2.1090** CuSn7ZnPb, **2.1170** CuPb5Sn5, **2.1176** CuPb10Sn	≤600		●●
	2.0790 CuNi18Zn19Pb	≤850		●
Bronces, viruta larga	**2.0916** CuAl5, **2.0960** CuAl9Mn, **2.1050** CuSn10	≤850		●
	2.0980 CuAl11Ni, **2.1247** CuBe2	≤1000		●
Duroplásticos	Bakelit, Resopal, Pertinax, Moltopren	≤150		○
Termoplásticos	Plexiglas, Hostalen, Novodur, Makralon	≤100		●○
Materiales sintéticos	Kevlar	≤1000		○
Fibras de vidrio/carbón	GFK/CFK	≤1000		○

536	569	636	638	538	514	540	637	537	639	539	520	541
DIN 8374		WN		DIN 8376	WN	DIN 8378		WN		DIN 8377	WN	DIN 8379
HSS												
●	●	●	●	●	●	●	●	●	●	●	●	●
N	N	N	N	N	N	N	N	N	N	N	N	N
722	723	724	725	726	728	729	731	732	733	734	735	736

v_c m/min	N° de serie de avance												
30	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**
25	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**
30	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**
30	4	4	4	4	4	4	4	4	4	4	4	4	4
25	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**
20	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**
20	3	3	3	3	3	3	3	3	3	3	3	3	3
15	4	4	4	4	4	4	4	4	4	4	4	4	4
8	3	3	3	3	3	3	3	3	3	3	3	3	3
25	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**
15	4	4	4	4	4	4	4	4	4	4	4	4	4
8	3	3	3	3	3	3	3	3	3	3	3	3	3
10	4	4	4	4	4	4	4	4	4	4	4	4	4
8	3	3	3	3	3	3	3	3	3	3	3	3	3
10	3	3	3	3	3	3	3	3	3	3	3	3	3
6	3	3	3	3	3	3	3	3	3	3	3	3	3
6	3	3	3	3	3	3	3	3	3	3	3	3	3
5	2	2	2	2	2	2	2	2	2	2	2	2	2
8	2	2	2	2	2	2	2	2	2	2	2	2	2
6	2	2	2	2	2	2	2	2	2	2	2	2	2
5	2	2	2	2	2	2	2	2	2	2	2	2	2
20	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**
20	5	5	5	5	5	5	5	5	5	5	5	5	5
25	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**
20	5	5	5	5	5	5	5	5	5	5	5	5	5
3	1	1	1	1	1	1	1	1	1	1	1	1	1
5	2	2	2	2	2	2	2	2	2	2	2	2	2
4	2	2	2	2	2	2	2	2	2	2	2	2	2
60	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**
60	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**
40	6	6	6	6	6	6	6	6	6	6	6	6	6
40	6	6	6	6	6	6	6	6	6	6	6	6	6
40	6	6	6	6	6	6	6	6	6	6	6	6	6
50	5	5	5	5	5	5	5	5	5	5	5	5	5
60	5	5	5	5	5	5	5	5	5	5	5	5	5
40	5	5	5	5	5	5	5	5	5	5	5	5	5
30	4	4	4	4	4	4	4	4	4	4	4	4	4
25	4	4	4	4	4	4	4	4	4	4	4	4	4
15	4	4	4	4	4	4	4	4	4	4	4	4	4
15	4	4	4	4	4	4	4	4	4	4	4	4	4
15	4	4	4	4	4	4	4	4	4	4	4	4	4
25	5	5	5	5	5	5	5	5	5	5	5	5	5

Broca Ø mm desde	N° de serie de avance							
	11	12	13	14	15	16	17	18
	f (mm/rev.)							
1,50	0,002	0,004	0,006	0,008	0,012	0,020	0,032	0,045
2,00	0,003	0,005	0,007	0,010	0,016	0,028	0,046	0,055
2,50	0,004	0,006	0,008	0,012	0,018	0,030	0,054	0,070
4,00	0,005	0,007	0,010	0,016	0,025	0,043	0,065	0,085
6,00	0,007	0,009	0,013	0,024	0,035	0,061	0,085	0,120
8,00	0,010	0,014	0,022	0,032	0,045	0,068	0,100	0,150
10,00	0,012	0,016	0,028	0,040	0,055	0,075	0,120	0,160
14,00	0,020	0,025	0,035	0,050	0,065	0,085	0,130	0,180
18,00	0,025	0,030	0,040	0,055	0,070	0,095	0,145	0,200
20,00	0,026	0,035	0,045	0,060	0,080	0,110	0,180	0,250
24,00	0,027	0,036	0,047	0,065	0,085	0,130	0,185	0,300
28,00	0,028	0,038	0,049	0,068	0,090	0,140	0,195	0,350
30,00	0,030	0,040	0,050	0,070	0,100	0,150	0,200	0,400
35,00	0,035	0,045	0,055	0,075	0,120	0,180	0,250	0,450
40,00	0,040	0,050	0,060	0,080	0,150	0,200	0,300	0,500

* Los valores de avance se refieren siempre a las herramientas con el recubrimiento recomendado. En algunos casos, el funcionamiento de las herramientas sin recubrimiento no se puede garantizar.

Las operaciones para taladrar agujeros profundos

- Ejecución de un taladro piloto (L = 1,5 x D, tolerancia G9)
- Entrada con velocidad baja, aprox. 200 rpm, avance aprox. 500 mm/min
- Ajuste de la presión del lubricante refrigerador y de la velocidad de giro
- Taladrado continuo a la profundidad de taladro sin eliminación de virutas. Para el uso de brocas cañón con una gran proporción largo-diámetro (p. ej. EB 100 longitud de ranura 160 mm) recomendamos trabajar hasta una profundidad de taladro de aprox. 25 mm con parámetros de corte reducidos (aprox. 75% de la velocidad de corte óptima).
- Desconexión de la alimentación de lub. refrigerador al alcanzar la prof. de taladro
- Retirada en marcha rápida con el cabezal parado.

Refrigerante::
○ Emulsión
● Aceite
◍ Aire

STOP Todas las brocas cañón se tienen que guiar al iniciar el taladro. Las brocas para agujeros profundos no se deben mover nunca a plena velocidad libremente en el espacio de la máquina.

Consejos y trucos:
- En el caso de profundidades de taladro superiores a Ø40xD recomendamos utilizar dos o más brocas cañón por ejemplo Ø 10x400 mm y Ø 9,95x800 mm.
- Las brocas cañón para profundidades de taladro superiores a 40xD se deben introducir en el taladro piloto girando a la izquierda
- En el cambio de herramienta para más de 40xD, la herramienta se puede estabilizar durante aprox. 1 segundo mediante la alta presión del refrigerante.
- Para el mecanizado de materiales de viruta larga recomendamos utilice herramientas con las ranuras pulidas.
- Por línea general recomendamos mantener el grado de grasa por encima del 10% en emulsión.
- Brocas monolabio para aluminio de viruta larga se deben pedir con afilado 180° y hendidura para dejar margen al aceite.
- Al taladrar el piloto en aluminio con 1% menos de Silicio, es decir con las condiciones de corte recomendadas de Vc >160 m/min, recomendamos subir las revoluciones paulatinamente. Además se debe realizar un taladro piloto profundo de aprox. 3xD.

EB100

Broca de un labio

Enterizo MD

0,9 ... 12,0

Grupo de materiales	Ejemplos Cifras en negrita = nº de mat. según DIN EN	Resist. N/mm²	Dureza	Refri-ger.	capa recom.*	≤35xD v_c m/min	≤35xD Código VR	>35xD v_c m/min	>35xD Código VR
Aceros de construcción generales	**1.0035** S185(St33), **1.0486** P275N(StE285), **1.0345**	≤500		◍		100	15	100	15
	1.0050 E295 (St50-2), **1.0070** E360 (St70-2), **1.8937**	≤1000		◍		85	15	85	15
Aceros para autómatas	**1.0718** 11SMnPb30 (9SMnPb28), **1.0736** 11SMn37	≤850		◍		90	15	90	15
	1.0727 46S20 (45S20), **1.0728** (60S20), **1.0757** 46SPb2	≤1000		◍		80	15	80	15
Aceros de bonificación no aleados	**1.0402** C22, **1.1178** C30E (Ck30)	≤700		◍		80	14	80	14
	1.0503 C45, **1.1191** C45E (Ck45)	≤850		◍		75	14	75	14
	1.0601 C60, **1.1221** C60E (Ck60)	≤1000		◍		75	14	75	14
Aceros de bonificación aleados	**1.5131** 50MnSi4, **1.7003** 38Cr2, **1.7030** 28Cr4	≤1000		◍		75	14	75	14
	1.5710 36NiCr6, **1.7035** 41Cr4, **1.7225** 42CrMo4	≤1400		◍	A	65	14	65	14
Aceros de cementación no aleados	**1.0301** (C10), **1.1121** C10E (Ck10)	≤850		◍	A	80	15	80	15
Aceros de cementación aleados	**1.7276** 10CrMo11, **1.5125** 11MnSi6	≤1000		●		75	14	75	14
	1.5752 15NiCr13, **1.7131** 16MnCr5, **1.7264** 20CrMo5	≤1400		●		65	14	65	14
Aceros de nitruración	**1.8504** 34CrAl6	≤1000		◍		75	14	75	14
	1.8519 31CrMoV9, **1.8550** 34CrAlNi7	≤1400		●	A	65	14	65	14
Aceros para herramientas	**1.1750** C75W, **1.2067** 102Cr6, **1.2307** 29CrMoV9	≤850		◍		75	13	75	13
	1.2080 X210Cr12, **1.2083** X42Cr13, **1.2419** 105WCr6	≤1400		●	A	65	13	65	13
Aceros rápidos	**1.3243** S 6-5-2-5, **1.3343** S 6-5-2, **1.3344** S 6-5-3	≤1400		●	A	55	12	55	12
Aceros para muelles	**1.5026** 55Si7, **1.7176** 55Cr3, **1.8159** 51CrV4 (51CrV4)		≤350 HB	●	A	65	13	65	13
Aceros templados	–		≤48 HRC	●		30	13	30	13
			≤66 HRC	●		25	10	25	14
Aceros inox., sulfurados	**1.4005** X12CrS13, **1.4104** X14CrMoS17, **1.4105**	≤900		●		40	14	40	14
austeníticos	**1.4301** X5CrNi18-10 (V2A), **1.4541** X6CrNiTi18-10	≤1100		●	A	35	14	35	14
martensíticos	**1.4057** X20CrNi172 (X17CrNi16-2), **1.4122**	≤1500		●		35	14	35	14
Hierro fundido	**0.6010** EN-GJL-100 (GG10), **0.6020** EN-GJL-200 (GG20)		≤240 HB	◍○		85	16	85	16
	0.6025 EN-GJL-250 (GG25), **0.6035** EN-GJL-350 (GG35)		≤350 HB	◍○		80	16	85	16
Fundición de grafito esférico y fundición maleable	**0.7050** EN-GJS-500-7 (GGG50), **0.8035**		≤240 HB	◍		80	15	80	15
	0.7070 EN-GJS-700-2 (GGG70), **0.8170** EN-GJMB-700-2		≤350 HB	◍		70	15	70	15
Fundición dura	–		≤350 HB	◍		55	14	55	14
Nuevos mat. de fundición GGV	**EN-GJV250** (GGV25), **EN-GJV350** (GGV35)		≤220 HB	◍○					
	EN-GJV400 (GGV40), **EN-GJV500** (GGV50), SiMo 6		≤300 HB	◍○					
Nuevos mat. de fundición ADI	**EN-GJS-800-8** (ADI800), **EN-GJS-1000-5** (ADI1000)	≤1000		◍○					
	EN-GJS-1200-2 (ADI1200), **EN-GJS-1400-1** (ADI1400)	≤1400		◍○					
Aleaciones especiales	Nimonic, Inconel, Monel, Hastelloy	≤2000		●		20	12	20	12
Titanio y aleaciones de titanio	**3.7024** Ti99,5, **3.7114** TiAl5Sn2,5, **3.7124** TiCu2	≤850		●	A	35	12	35	12
	3.7154 TiAl6Zr5, **3.7165** TiAl6V4, **3.7184** TiAl4Mo4Sn2,5	≤1400		●		30	12	30	12
Aluminio y aleaciones de Al	**3.0255** Al99,5, **3.2315** AlMgSi1, **3.3515** AlMg1	≤400		◍		150	17	150	17
Aleaciones maleables de Al	**3.0615** AlMgSiPb, **3.1325** AlCuMg1, **3.3245** AlMg3Si	≤650		◍		120	19	120	19
Aleac. fund. de Al ≤ 10 % Si	**3.2131** G-AlSi5Cu1, **3.2153** G-AlSi7Cu3, **3.2573** G-AlSi9	≤600		◍		120	20	120	20
> 10 % Si	**3.2581** G-AlSi12, **3.2583** G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		◍		130	18	130	18
Aleaciones de magnesio	**3.5200** MgMn2, **3.5812.05** G-MgAl8Zn1, **3.5612.05**	≤400		○		110	17	110	17
Cobre de baja aleación	**2.0070** SE-Cu, **2.1020** CuSn6, **2.1096** G-CuSn5ZnPb	≤500		◍	A	75	15	75	15
Latón, viruta corta	**2.0380** CuZn39Pb2, **2.0401** CuZn39Pb3, **2.0410**	≤600		◍		120	18	120	18
viruta larga	**2.0250** CuZn20, **2.0280** CuZn33, **2.0332** CuZn37Pb0,5	≤600		◍		90	18	90	18
Bronces, viruta corta	**2.1090** CuSn7ZnPb, **2.1170** CuPb5Sn5, **2.1176**	≤600		◍●		95	17	95	17
	2.0790 CuNi18Zn19Pb	≤850		●		75	17	75	17
Bronces, viruta larga	**2.0916** CuAl5, **2.0960** CuAl9Mn, **2.1050** CuSn10	≤850		●		70	17	70	17
	2.0980 CuAl11Ni, **2.1247** CuBe2	≤1000		●		60	17	60	17
Duroplásticos	Bakelit, Resopal, Pertinax, Moltopren	≤150		○		75	15	75	15
Termoplásticos	Plexiglas, Hostalen, Novodur, Makralon	≤100		◍○		70	15	70	15
Materiales sintéticos	Kevlar	≤1000		○		60	14	60	14
Fibras de vidrio/carbón	GFK/CFK	≤1000		○		50	14	50	14

Procedimiento:
Para en el mecanizado de taladros profundos conseguir resultados óptimos sobre todo al pretaladrar sobre radios o estructuras superficiales poco homogéneas, recomendamos los siguientes pasos:

1. Refrentar un plano, por ejemplo con la fresa Ratio de Gühring RF100 U con corte al centro. El plano se tiene que realizar en un ángulo recto al ángulo de entrada del taladrado.
2. Fabricación de un taladro piloto (tolerancia G9) con una profundidad de Mín. 1 x D. Aquí recomendamos nuestra broca Ratio RT 100 U o RT 100 F Gracias al ángulo de la punta de 140º y la tolerancia en Dia m7 estas brocas son muy adecuadas para este mecanizado.
3. Entrar en el taladro piloto con aprox. 300 revoluciones/minuto y con un avance de aprox. 500 mm/minuto.
4. Regulación de la presión del refrigerante y de las revoluciones.
5. Taladrado continuado sobre toda la profundidad sin desalojos de viruta
6. En agujeros pasantes con salida recta, es decir 90º, reducir el avance en un 50% 1 mm antes de atravesar.
7. En agujeros pasantes con salida inclinada reducir el avance en un 40% 1 mm antes de atravesar.
8. Después de alcanzar la profundidad de taladrar, poner las revoluciones y la refrigeración y salir rápido del agujero.

Fresa Ratio RF 100U, Artículo-Nº. 3736
La fresa Gühring Ratio RF-100U con recubrimiento FIRE ofrece gracias a su paso de espiral altas condiciones de corte y rendimiento tanto en el desbaste como acabado de aceros y materiales de fundición, titanio y aleaciones Ni.

Broca Ratio RT 100 U. Artículo-Nº. 2477
Broca Ratio RT 100 F. Artículo-Nº. 1660
Las brocas Ratio de Gühring destacan gracias a su geometría de corte especial, por su buen autocentraje y su taladrado sin desvío. El tipo U se aconseja para el mecanizado de aceros universales y aleaciones AlSi y el tipo F para materiales de alta aleación, inoxidables, materiales resistentes al ácido y a la temperatura, Aluminio y aleaciones Al, aleaciones Mg y T.

EB80

Broca de un labio
Cabeza enterizo MD
2,0 ... 40,0

capa recom.*	≤35xD v_c m/min	≤35xD Código VR	>35xD v_c m/min	>35xD Código VR
T	100	14	95	13
	85	14	80	13
T	90	14	85	13
	80	14	75	13
T	90	13	85	12
	80	13	75	12
	75	13	70	12
T	75	13	70	12
	65	13	60	12
T	80	14	75	13
T	75	13	70	12
	65	13	60	12
C	75	13	70	12
	65	13	60	12
C	75	12	70	11
	65	12	60	11
C	55	11	50	11
C	65	12	60	12
C	30	12	25	11
	25	11	20	11
	55	13	50	12
C	45	13	40	12
	35	13	35	12
	85	15	80	14
	80	15	75	14
	80	14	75	13
	70	14	65	13
	55	13	50	12
C	20	11	20	11
	35	11	30	11
	30	11	25	11
C	150	16	140	15
	120	15	115	14
	150	16	140	15
	130	16	120	15
	110	16	100	15
C	75	14	70	13
	120	17	115	16
	90	17	85	16
	95	16	90	15
	75	16	70	15
	70	16	65	15
	60	16	55	15
	75	14	70	13
	70	14	65	13
	60	13	55	12
	50	13	45	12

ZB80

Broca de dos labios
Cabeza enterizo MD
6,0 ... 27,0

capa recom.*	≤35xD v_c m/min	≤35xD Código VR	>35xD v_c m/min	>35xD Código VR
	85	18	80	17
	80	18	75	17
	75	17	70	16
	70	17	65	16
	65	16	60	15
	120	18	115	17
	110	18	105	17
	135	18	130	17
	120	17	115	16
	130	18	125	17
	120	18	115	17
	110	17	105	16
	110	17	105	16
	95	17	90	16
	95	17	90	16

EB800

Broca de un labio
con placas de corte reversible
12,0 ... 40,0

capa recom.*	≤35xD v_c m/min	≤35xD Código VR	>35xD v_c m/min	>35xD Código VR
T	90	15	85	15
	80	15	75	15
T	85	16	80	16
	75	16	70	16
	85	15	80	15
T	80	15	75	15
	75	15	70	15
T	75	15	70	15
	65	15	60	15
T	80	15	75	15
T	75	15	70	15
	70	15	65	15
T	70	15	65	15
	60	15	55	15
T	65	14	60	14
	60	14	55	14
T	55	14	50	14
T	65	15	60	15
T	30	13	25	13
	25	12	20	12
	50	14	45	14
F	45	14	40	14
	40	14	35	14
	85	16	80	16
	80	16	75	16
T	75	16	70	16
	70	16	65	16
	55	15	50	15
F	25	13	20	13
	35	13	30	13
	30	12	25	12
F	140	16	135	16
	125	16	120	16
	170	17	165	17
	140	17	135	17
	115	16	110	16
F	75	15	70	15
	120	17	115	17
	90	17	85	17
	95	17	90	17
	75	17	70	17
	70	17	65	17
	60	17	55	17
	75	16	70	16
	70	16	65	16
	60	15	55	15
	50	15	45	15

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RT 100 TRIGON®

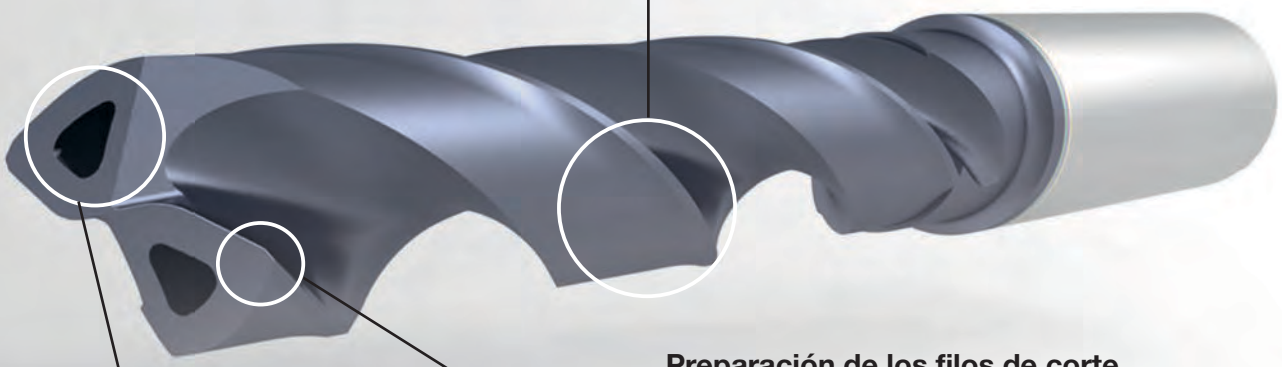
Diseño de los canales de refrigeración novedoso para obtener más eficiencia

Un alto contenido de cromo y níquel supone en los aceros inoxidables una gran resistencia al desgaste y una dureza muy alta. Esto hace que cueste mas el desbaste de veste material. Las temperaturas del proceso suben.

La broca RT 100 TRIGON® consigue aún así gran velocidad de corte y mucho avance – esto es gracias a la geometría novedosa de sus canales de refrigeración.

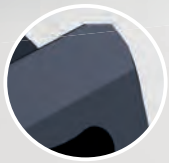
Forma de ranura

Una forma de ranura con una calidad superficial muy alta y el afilado de cuatro caras, asegura un desalojo de viruta óptimo y un comportamiento de corte excelente.



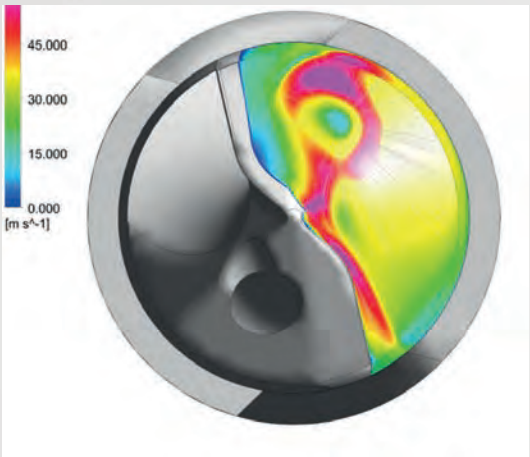
Preparación de los filos de corte

El recubrimiento TiAln y una preparación especial de los filos de corte consiguen una alta resistencia al desgaste del corte que durante el mecanizado sufre mucho.

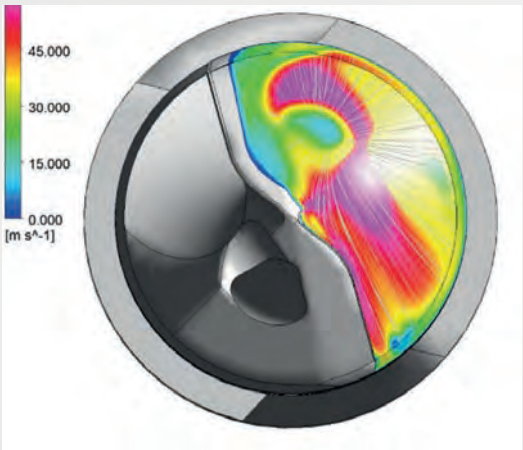


Gracias a la nueva forma de los canales de refrigeración se optimiza el volumen de refrigerante, la velocidad y dirección del caudal, las temperaturas extremas del proceso se desalojan óptimamente. En comparación a los canales de refrigeración redondos, clásicos, el refrigerante se transporta directamente a las zonas de más carga, el corte principal y las esquinas de corte.

Canal de refrigeración clásico



Diseño de canales de refrigeración TRIGON®



Comportamiento del caudal comparativo

RT 100 C

La broca Ratio para mecanizar aceros de viruta larga

- Herramienta especial
- Diámetro 3-20 mm
- Hasta 7xd profundidad de taladro
- Diseño de canales de refrigeración con diseño TRIGON®

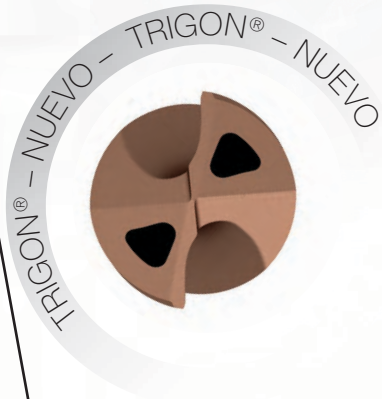
Geometría de los cortes

Los cortes principales con forma cóncava proporcionan una relación perfecta entre el comportamiento de cortar y penetrar en materiales de viruta larga. Las fuerzas y temperaturas del proceso se reducen considerablemente.

Forma de ranura

Una forma de ranura especial para aceros de viruta larga con perfil estrecho asegura una generación de virutas óptima con velocidades de corte bajas.

Una calidad superficial muy buena y un recubrimiento novedoso con una superficie muy lisa optimizan el desalojo de la viruta. Las temperaturas altas de proceso se desalojan con seguridad.



Nuevo diseño de los canales de refrigeración

Mediante la forma novedosa de los canales de refrigeración se optimiza la velocidad y la dirección del caudal de manera que las temperaturas extremamente altas del proceso se desalojan óptimamente. En comparación a los canales de refrigeración clásicos el refrigerante se transporta directamente a las zonas que mas sufren en el corte principal y las esquinas.

Preparación de los cantos de corte

Mediante una preparación especial de los cantos de los cortes a la que se suma una geometría especial y una muy buena calidad superficial, se alarga mucho la vida útil de las herramientas. Además se lucha así contra las micro-roturas y las soldaduras de material en los cortes.

RT 100 AL

La nueva broca Gühring VHM para el mecanizado de materiales de aluminio.

En el caso de las brocas para aluminio además de la creación de virutas es muy importante su evacuación. Con las RT 100 AL se consigue una viruta en el corte de la herramienta óptima tanto en aleaciones de aluminio blandas como en aleaciones de fundición de aluminio con un alto porcentaje de silicio.

Calidad superficial extrema en la zona del vaciado de núcleo, ángulos de incisión y desalojo de viruta

- Reducción de las temperaturas de proceso
- Evita soldaduras de material en los cortes

Geometría de la punta abierta y forma de los cantos de corte

- Creación óptima de viruta

Cantos de corte muy afilados y micro-procesados

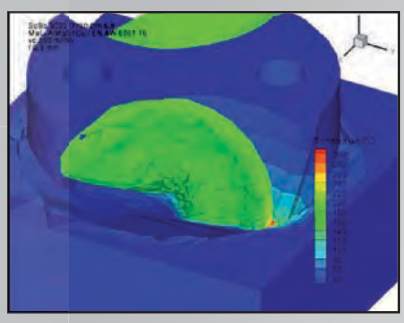
- Comportamiento perfecto de corte incluso en aleaciones AlSi tratadas
- Viruta corta incluso en aluminios blandos

Perfil de ranuras

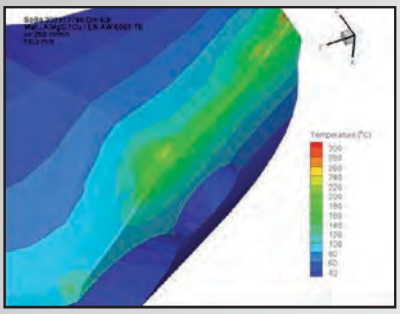
- Ranura pulida para desalojo óptimo de viruta
- Mínima fricción
- No se pega el material

La broca RT 100 AL destaca por su vaciado de núcleo abierto con una gran calidad superficial también en los ángulos de desalojo e incisión. Los cantos micro-procesados completan la geometría de la punta y proporcionan un comportamiento de corte perfecto. Temperaturas de proceso bajas evitan la creación de soldaduras de aluminio en los cortes.

Creación de viruta



Reparto de la temperatura en el corte



Las herramientas son blancas, para materiales de aluminio muy abrasivos se puede conseguir un mayor rendimiento con un recubrimiento en la punta. Medidas especiales o herramientas escalonadas también se suministran bajo petición de oferta.

Plásticos con fibra

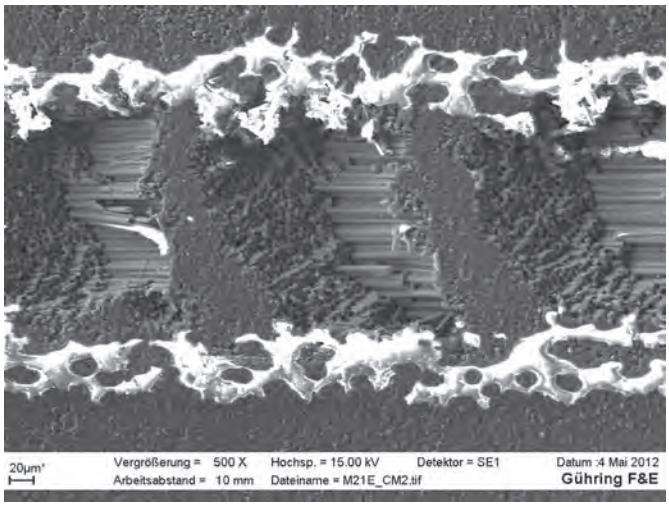
Materiales modernos como los plásticos compuestos con fibra cada vez cobran más protagonismos en las aplicaciones industriales por su eficiencia, reducción de peso, tenacidad y dinámica. Con sus características específicas estos materiales amplían la gama de los materiales ligeros, clásicos como las aleaciones de aluminio y titanio. Los plásticos con fibra y también denominados sistemas multi-material, una mezcla de materiales fibrosos y metálicos, quedan como más exclusivos para la aeronáutica y la industria espacial, el automovilismo deportivo y otras aplicaciones de alta gama.

Queda destacar el gran aumento en las aplicaciones de la automoción y las técnicas de vehículos industriales, en el sector de energía de invierno y la construcción de maquinaria. Estos materiales FVK se aplican en esos casos en los que se requiere alta tenacidad y poco peso y procesos muy dinámicos y de eficiencia energética.

Desde mediados de los años 80 Gühring ofrece soluciones con herramientas estándar y especiales para trabajar con este tipo de materiales FVK. Esta experiencia de tantos años llevó a desarrollar muchas herramientas de alto rendimiento que se adaptan a diferentes aplicaciones y condiciones como el taladrado a mano, taladrado con unidades de avance, mecanizado con robot o en centros convencionales de trabajo. Las herramientas Gühring para el mecanizdo de materiales FVK cumplen con las condiciones básicas para trabajar materiales ligeros modernos.

- Piezas sin restos de fibra
- Superficies libre de delaminación
- Sin dañar la pieza por “peelup” o “pushout”
- Evitar desgarros de fibras “pullouts” en la pieza
- Creación mínima de rebabas
- Evitar daños térmicos

Para el mecanizado de materiales FVK sin dañar la pieza la calidad de los cantos de los cortes y la resistencia al desgaste son de gran importancia. Un canto de corte muy afilado es básico para separar la fibra sumamente abrasiva en un proceso seguro sobre todo en materiales que contengan más de un 55% de fibra

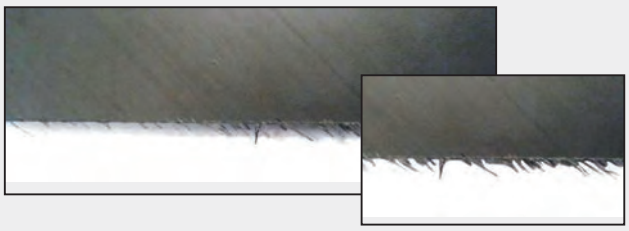


Plano de corte CFk con 500 aumentos

Con un electro-microscopio se puede reconocer después del mecanizado con herramientas Gühring que la estructura y dirección de la fibra se mantiene igual. Las fibras no se delaminan en la matriz ni se arrancan de su estructura.

GFK / CFK

Los materiales reforzados con fibra se utilizan en cantidades industriales en la energía eólica en el sector del transporte y la construcción. GFK generalmente se aplican en el caso de piezas grandes de construcción y de fatiga moderada. Estos materiales GFK menos resistentes a la fatiga se suelen preferir en muchos casos a los materiales enriquecidos con fibra de carbono más ligeros, ya que estos son bastante más baratos de producir y se mecanizan más fácilmente.
El plástico reforzado con fibra de carbono (CFK) en el caso de una pieza de construcción llamado habitualmente "carbono", destaca en comparación al GFK por su elevada tenacidad. Las fibras puras de carbono llegan según el proceso de su producción y diámetro de las fibras el doble de tenacidad que los materiales de acero con el mismo peso. Por esta razón en piezas expuestas a una gran presión y carga se utilizan casi exclusivamente materiales de CFK. Para darle forma a la pieza a mecanizar, introducción de las fuerzas y protección de las fibras estas se introducen en una matriz en el caso de CFK y GFK. La relación entre la fibra y la matriz determina el volumen de fibra y suele estar sobre el 65 por ciento en piezas CFK muy exigentes. Para el mecanizado de acabado de este tipo de piezas se debe contemplar además de la dirección de las fibras, el tipo de las fibras. Esta dirección de las fibras es determinante para evitar la delaminación y los desgarros de fibra en el material.



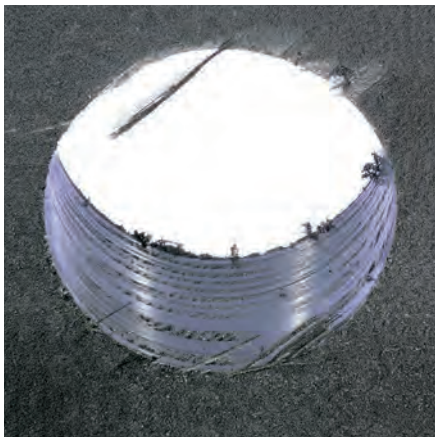
Delaminación típica

Sin delaminación

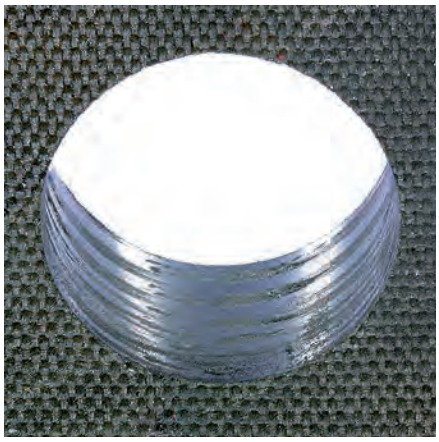
El mecanizado de materiales CFK y GFK requiere soluciones de herramienta específicas para las fibras que tienen un efecto tan abrasivo. Para evitar los típicos daños del FVK en la pieza, Gühring ofrece herramientas de alto rendimiento y aplicación específica para evitar delaminaciones del material durante el mecanizado.

Taladrado de FVK

En los trabajos de taladrado se aplican herramientas específicas para cada material con diferentes geometrías de la punta. Mediante estas herramientas específicas las fibras se cortan con seguridad tanto si están en posición no direccional como si están en capas de tejidos y se evitan también delaminaciones en las superficies de las piezas en la entrada y salida de la pieza (“Peel up” / “Peel out”) y en la pieza en si.



Taladro D = 6,35 mm
con restos de fibra en la capa superior y delaminaciones



Taladro D = 6,35 mm
CFK con capa de tejido, calidad óptima de trabajo

Taladro D = 6,35 mm
CFK no direccional, calidad óptima de trabajo

Materiales Stack

Como materiales “Stack” se denominan los materiales combinados con mínimo dos materiales con características diferentes. Aplicaciones habituales de dos materiales son el CFK/Titanio o el CFK/Aluminio. También se pueden combinar CFK, Titanio, aceros inoxidables y aluminios en múltiples variaciones. Para introducir elementos de unión estos materiales se deben tratar en un mismo proceso. El reto para las herramientas para estos mecanizados son las muy diferentes características y estrategias de mecanizado de estos materiales. En el mecanizado de CFK/Titanio el CFK influye con mucha abrasividad y lleva rápidamente a redondear los cortes. El titanio en cambio es muy tenaz y produce altas temperaturas al ser tan poco dúctil. En el mecanizado se producen así muy rápido daños por las fuerzas y altas temperaturas. Incluso con valores tan diferentes de estos materiales se debe mantener la medida y obtener una larga vida útil.

Gühring ofrece también para este tipo de materiales herramientas de metal duro especial (VHM), metal duro recubierto y herramientas de diamante (PKD). Estas son específicas para las combinaciones entre materiales y aseguran el transporte de la viruta y taladros regulares en todos los materiales.

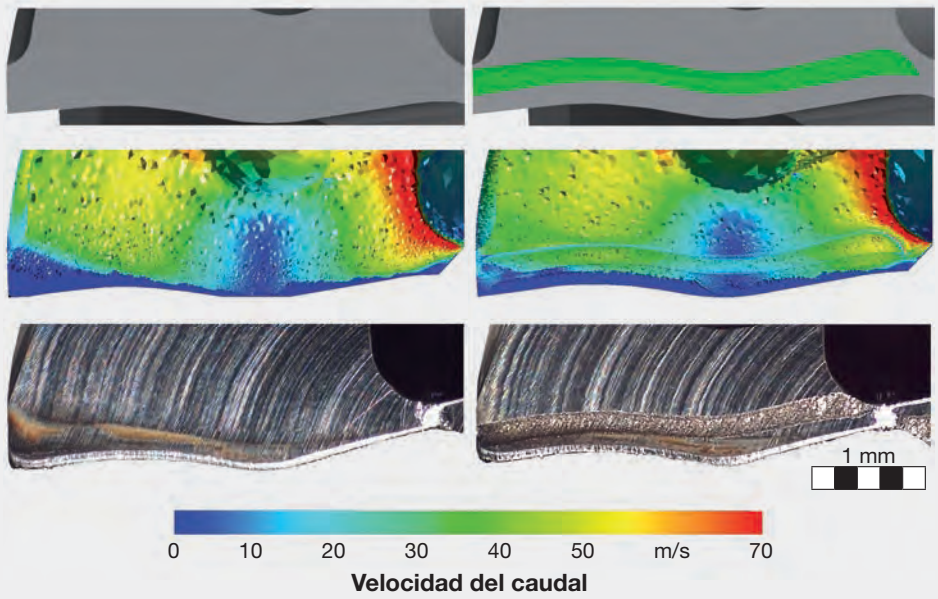
Planos de incisión estructurados con laser

Optimización del rendimiento mediante transporte de refrigerante guiado.

En las operaciones de taladrado no siempre se consiguen los resultados deseados con grandes cantidades de refrigerante ya que este se debe transportar correctamente al punto requerido.
Para esto el tratamiento de las herramientas por láser ofrece varias soluciones. El corte medio de los taladros de refrigeración y su posicionamiento dentro de los planos de incisión tienen mucha importancia e influyen en la refrigeración. Además pueden influir sobre el fluido del refrigerante otras estructuras en los planos de incisión o en otros planos. Estas estructuras se realizan mediante trabajos con láser. Su función es transportar el refrigerante a las partes que más sufren de la herramienta en lo que se refiere a esfuerzo y temperatura. Por ejemplo tenemos las fases guía o las esquinas de los cortes. Todas las operaciones de taladrado en las que las herramientas deben soportar altas temperaturas son ejemplos para esta aplicación. Mediante una refrigeración mejor se consigue una calidad de taladro superior.

Simulación con Computational Fluis Dynamics (CFD)

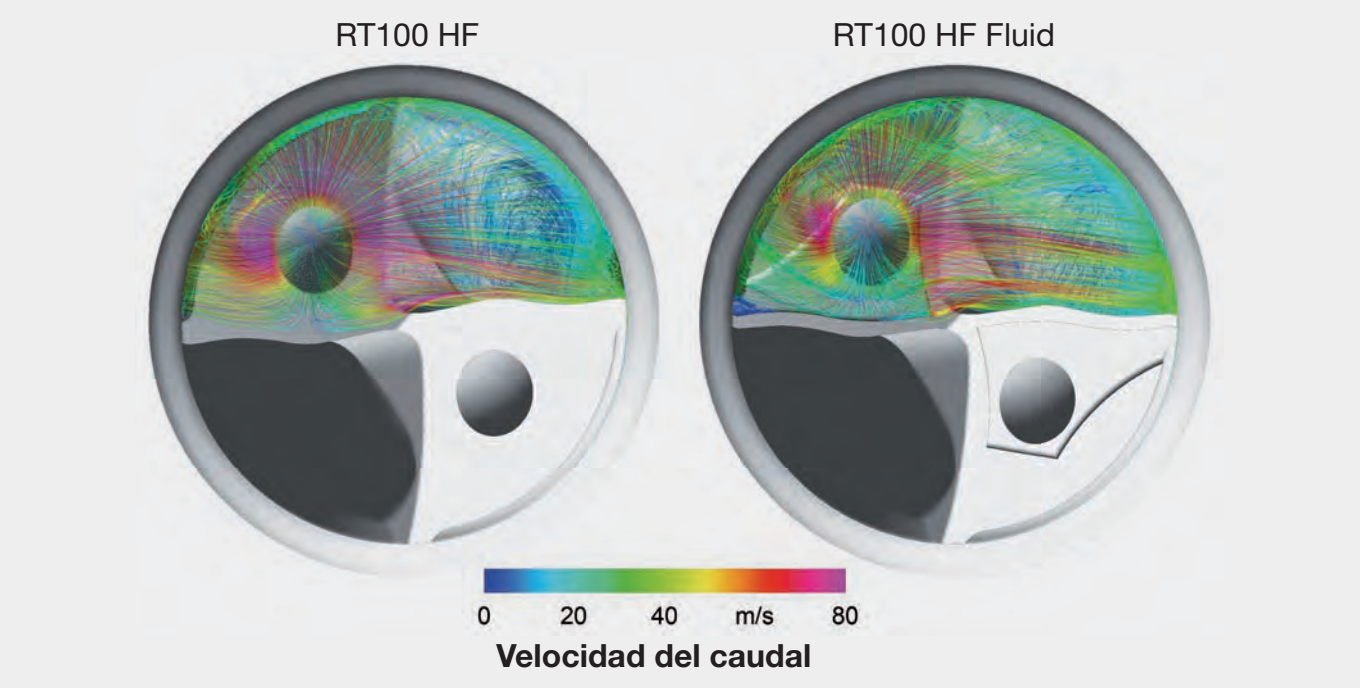
Mediante una simulación CFD se puede analizar la influencia del diámetro del canal de refrigeración y las estructuras realizadas en la herramienta sobre el fluido del refrigerante. Los primeros análisis se realizaron en una simple estructura de ranura que le seguía con una distancia constante de 150 micras al corte. Esta ranura tenía una profundidad de aprox. 50 micras. Las simulaciones CFD realizadas demuestran una influencia positiva sobre el fluido del refrigerante en las partes más críticas por altas temperaturas de la herramienta. Campos mayores en las cercanías de las esquinas de los cortes, que antes no se alcanzaban por el refrigerante por cuestiones de medida entre el plano de incisión y el alma de la broca, se consiguieron refrigerar con estructuras de aumento. Las huellas marrones en los campos de incisión de las herramienta s en un ensayo en una aleación de niquel e Inconel 718 demuestran el aumento del fluido de refrigerante. Tanto el aumento del espacio como la intensidad de las huellas de refrigerante quemado limita la ranura realizada a los campos entre el canto del corte y la estructura del láser. Así la fatiga por temperatura reducida mejora la vida útil de la herramienta y la calidad del taladro en un Inconel 718.



Tipo de herramienta:	varía
Metal duro:	K40UF
Recubrimiento:	no
Velocidad de corte:	v_c = 35 m/min
Avance:	f = 0,10 mm
Carrera de taladrado:	l_f = 0,34 m
Presión:	P_{KSS} = 40 bar
Refrigerante:	Emulsión

Observación de estructuras complejas

Partiendo de los resultados de las estructuras simples se desarrolló estructuras más complejas para mejorar el fluido del refrigerante, que con un mecanizado normal no se consiguen. Como la creación de estructuras por láser es muy amplia, se pueden conseguir formas más complejas. Las adaptaciones de las estructuras láser abarcan tanto forma como posición para asegurar el fluido del refrigerante. También se realizó una simulación CFD en este caso para observar y analizar detalladamente la influencia de las diferentes estructuras y el efecto remolino en las esquinas de los cortes, sobre el fluido del refrigerante. Con el desarrollo de las estructuras para el guiado óptimo del refrigerante llamado FLUID se consiguieron grandes avances para la mejora de la resistencia al desgaste en las herramientas de taladrar. Paralelamente al desarrollo de las estructuras optimizadas con láser, también se realizaron análisis para la mejora de las calidades superficiales de las herramientas que también pudieran influir sobre el fluido del refrigerante. El tratamiento de superficies de metal duro con láser consigue rugosidades de Rz < 5 micras, sin reducción del rendimiento. La adhesión de los recubrimientos no se ve influenciada por la estructuración de los planos de herramienta.



Campos de aplicación

Esta forma de tratar las herramientas debe ser principalmente para herramientas que deben trabajar en materiales que las someten a altas temperaturas. Esto es el caso en aceros inoxidables, aleaciones de titanio y aleaciones básicas de níquel. Por esta razón los desarrollos se realizan mecanizando Inconel 718. Sus características exponen la herramienta a grandes temperaturas y limitan su productividad. Estas herramientas se pueden optimizar mucho guiando correctamente el fluido del refrigerante.

Optimización de procesos mediante mecanizado con movimientos superpuestos

El mecanizado de nuevos materiales empezando por materiales reforzados con fibra hasta materiales muy tenaces como aleaciones de titanio y cobre e incluso cerámicas muy frágiles, suponen un gran reto para el mecanizado convencional por su comportamiento en lo que se refiere al desgaste y la creación de viruta. Nuevos puntos de partida para la optimización de los procesos mediante movimientos superpuestos en dirección al avance ofrecen otras posibilidades para mejorar la evacuación de viruta, reducción de las fuerzas de proceso y mayor calidad de las superficies conseguidas y rendimientos máximos.

Observación básica

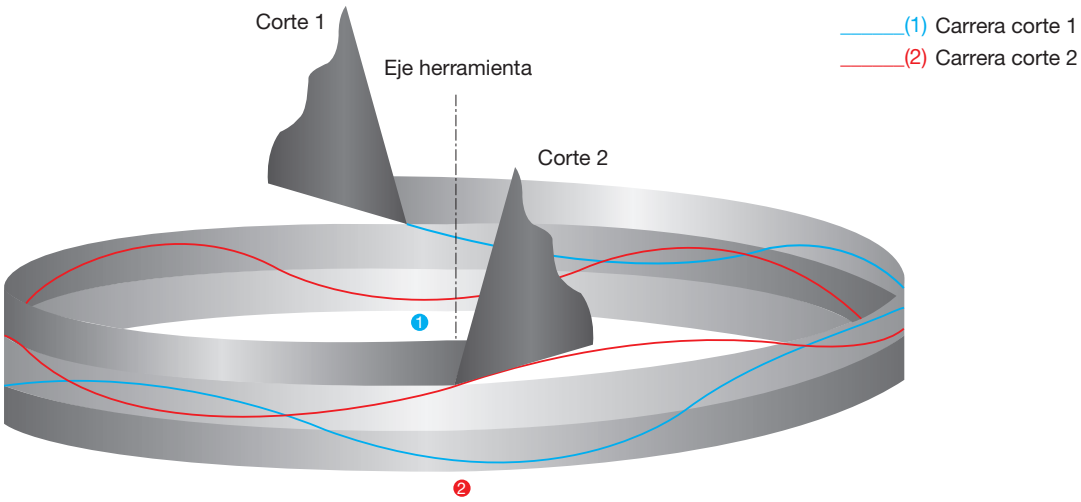
Cuando se superponen movimientos axiales sobre el movimiento continuado del avance se utilizan según la aplicación diferentes campos de frecuencia de pocos hercios hasta miles de hercios. Además se genera una modificación definida del ángulo de acción y un aumento de la velocidad del corte de la herramienta. Dependiendo de la aplicación y del tipo de herramienta se consiguen varios efectos con un mecanizado apoyado por oscilación.

- mejor creación y rotura de la viruta
- mejor desalojo de la viruta
- reducción de soldaduras de material en los cortes
- mejora del rendimiento de la herramienta
- menores fuerzas de trabajo
- menores temperaturas

El mecanizado con movimientos superpuestos se aplica hoy en día en mecanizados de materiales difíciles como súper-aleaciones, plásticos reforzados con fibra, aleaciones de viruta larga como por ejemplo aleaciones cobre sin plomo. En las oscilaciones superpuestas se diferencia entre oscilaciones de baja y de alta frecuencia.

1.) Acción de frecuencia baja

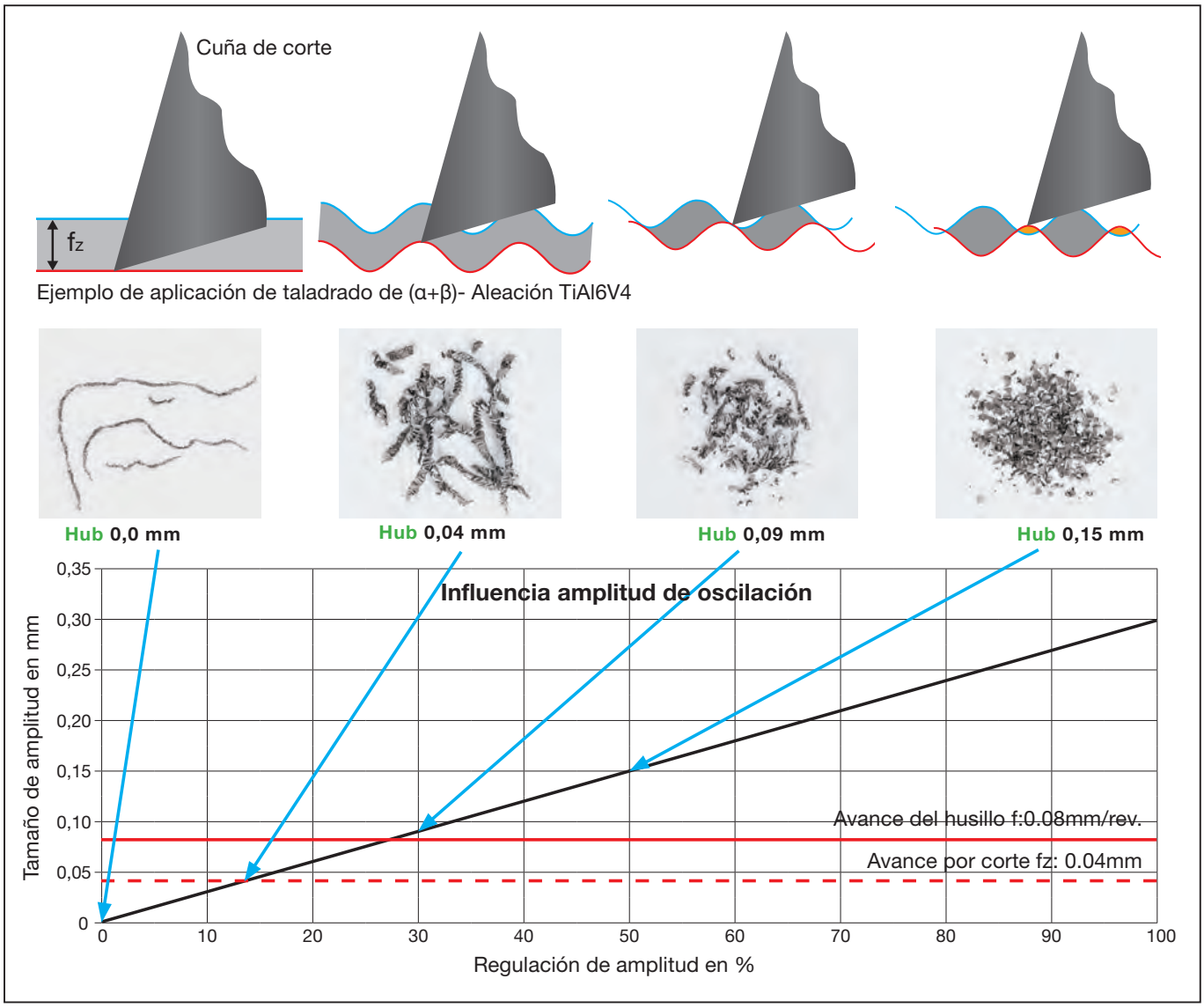
En la acción de frecuencia baja se aprovechan frecuencias hasta 1 khz y amplitudes hasta 0.5mm. El desalojo de viruta programado retirando la herramienta o el avance interrumpido por pausas forman parte de esta categoría. En centros de mecanizado convencionales este movimiento discontinuo del avance no se puede aumentar según se quiera ya que la dinámica y el movimiento de ejes están limitados. Para conseguir movimientos superpuestos con frecuencias que suponen el doble de las revoluciones del husillo se utilizan transmisiones mecánicas especiales. Estas transmisiones se pueden integrar directamente en la máquina o diseñar a base de cabezales de transmisión. La fuerza transmisora se genera mecánicamente por el multiplicador en el eje de avance o con un disco de curvas.
Mediante el movimiento superpuesto axial se consigue un corte de viruta variable contrario al del corte espiralizado que es constante al taladrar con avance continuado.



Los movimientos superpuestos de frecuencia baja posibilitan también en materiales muy dúctiles la creación de virutas con corte y longitud definida. En este caso la amplitud del movimiento axial superpuesto la controla el máximo grosor de viruta. La regulación de la amplitud puede variarse desde retirar el corte de la pieza y así interrumpir la creación de viruta hasta retorcer la viruta en su punto medio. La frecuencia correspondiente normalmente a las revoluciones mecánicas decide sobre las veces que se retira la herramienta de la pieza o el retorcer de la viruta.

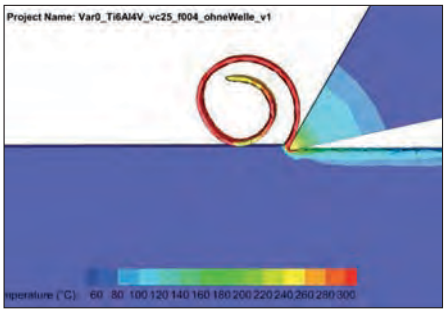
Incidencia de la oscilación superpuesta sobre la formación de la viruta

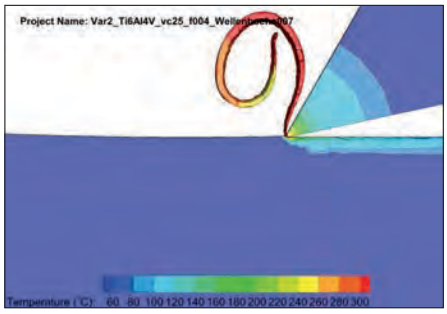
En un ensayo se realizaron taladros en una aleación de titanio usual (TIAL6V4) y se modificó la amplitud de la oscilación. Todos los ensayos se realizaron con herramientas idénticas en diámetros d= 6.35mm completamente en seco. Los valores de corte fueron Vc = 30 m/min y f = 0.08mm/rev.
Al observar la viruta creadas se percibe claramente la influencia de la amplitud sobre la creación de viruta. Ja con una amplitud igual al grosor de la viruta la longitud de la viruta se acorta considerablemente. Para conseguir virutas más cortas en materiales dúctiles la amplitud debe elegirse mucho mayor que el avance de los cortes. El corte en este caso se aleja totalmente de la pieza y se interrumpe la formación de virutas.
En el mecanizado de materiales híbridos es decir materiales tipo sándwich ya se ha establecido el mecanizado con oscilaciones superpuestas. Así se consigue asegurar bien la rotura de la viruta y reducir considerablemente la temperatura.

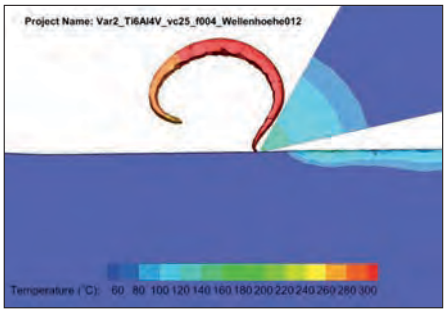


Influencia de las oscilaciones superpuestas sobre la temperatura de proceso

Con ayuda del método (FEM) se simula la creación de viruta en el corte para diferentes condiciones.
Las siguientes imágenes muestran esquemáticamente la creación de viruta y los correspondientes resultados de la simulación de la simulación FEM. Los resultados de la simulación muestran el creciente grosor de la viruta y como se acorta, con la amplitud de la oscilación. Además se demuestra que con un corte continuado sin par se consigue un nivel de temperatura más alto en el corte.

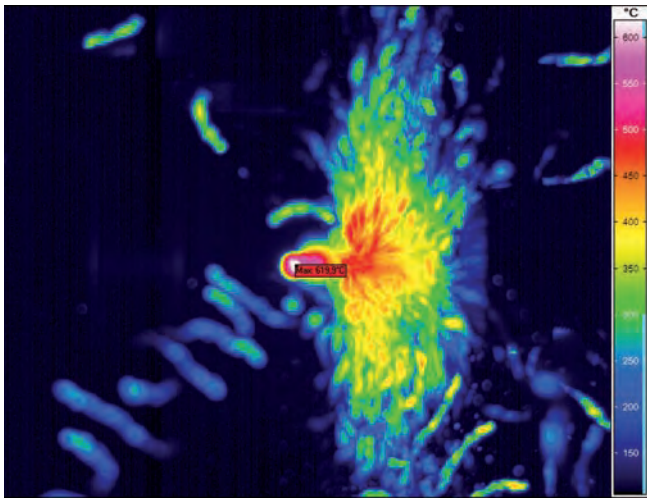




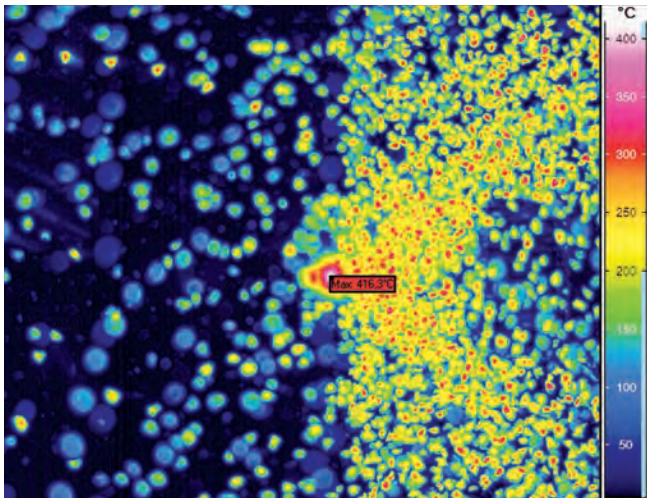


Esto se demuestra mucho en la comparación de las temperaturas de mecanizado de CFK/combinaciones de materiales de titanio. En el ensayo se utilizaron herramientas de taladrar idénticas con diámetro d=6.35mm y en seco. Los valores de corte fueron Vc = 30m/min. y f=0.08mm/rev.
Mediante cámara termo-gráfica se grabó el calor creado durante el mecanizado de un material CFK/Titanio en tiempo real. El bloque de ensayo tenía un grosor total de 20mm, 6mm de CFK y 14mm de titanio (TiAl6V4). Este bloque se taladró de tal manera que se dejó una pared restante de 1.5mm de grosor. La comparación de la temperatura de los cortes directamente a la salida en la parte inferior del material y la temperatura de la viruta muestran la diferencia del mecanizado convencional y el mecanizado con oscilaciones superpuestas. Sin oscilaciones superpuestas en el ensayo se midió una temperatura máxima de 600ºC.
Con oscilaciones superpuestas se redujo la temperatura máxima bajo condiciones idénticas aprox. un tercio hasta aprox. 450º C. Además se consiguió gracias a la mejor rotura de la viruta una calidad de taladro y una vida útil de la herramienta superior.

Grabación mecanizado CFK (α+β) – aleación TiAl6V4



Convencional en seco
ϑmax: 619 °C



Con soporte de oscilación en seco
ϑmax: 416 °C

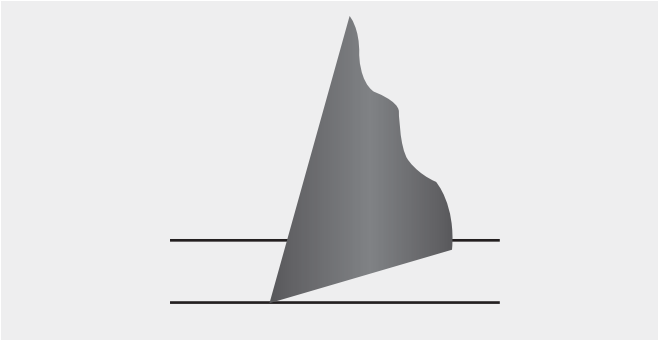
2.) Apoyado con alta frecuencia (soporte con ultrasonidos))

En los procesos de mecanizado con apoyo de alta frecuencia – también denominados de soporte con ultrasonidos – se realiza una superposición de la forma convencional de mecanizar con una oscilación de la herramienta en dirección axial, que crea una frecuencia mucho más alta que con la frecuencia baja de 16…55 HZ. La amplitud máxima a conseguir en la punta de la herramienta que suele oscilar entre 2…30 micras, depende mucho de la combinación entra herramienta, sistema de apoyo de alta frecuencia y rendimiento conseguido, ya que la oscilación resulta del apoyo de alta frecuencia a la herramienta con su frecuencia de resonancia

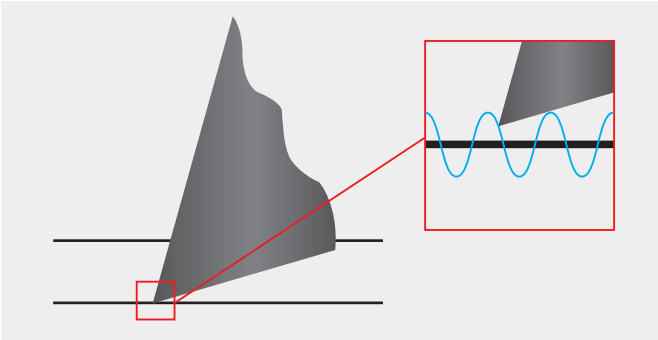
El apoyo resulta mediante una actuación que se compone del generador, convertidor, booster y combinación entre herramienta y porta-herramientas, llamada Sonotrode. El generador transforma energía eléctrica en una oscilación de lata frecuencia que se transmite al convertidor. El booster transforma la amplitud de oscilación que le llega desde el convertidor y transmite esta agrandada al Sonotrode en el que se transforma la energía eléctrica en mecánica.

La combinación de movimiento de avance y un movimiento lineal de oscilación permite el mecanizado rentable de materiales muy duros como uniones de cerámicas. Hasta ahora se aplicaba el soporte con ultrasonidos sobre todo en materiales avanzados como vidrio, cerámica y metales duros y con herramientas con cortes no definidos. Mediante el taladrado y fresado de materiales de Composite como plásticos enriquecidos con fibra, estructuras tipo sándwich y espumas, cada vez se aplica mas el mecanizado con alta frecuencia y cortes definidos. En el mecanizado con cortes definidos un micro-sacudido apoya el virutaje del material, hecho que se visualiza a veces en la calidad superficial y que lleva a la reducción de fuerzas en el proceso.

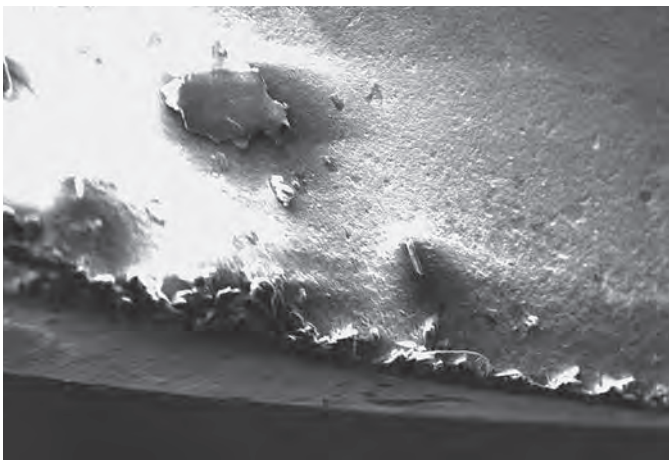
Además de una influencia positiva en la resistencia al desgaste en el mecanizado de materiales de acero, también se percibe una menor creación de soldaduras de material en las aleaciones de niquel.

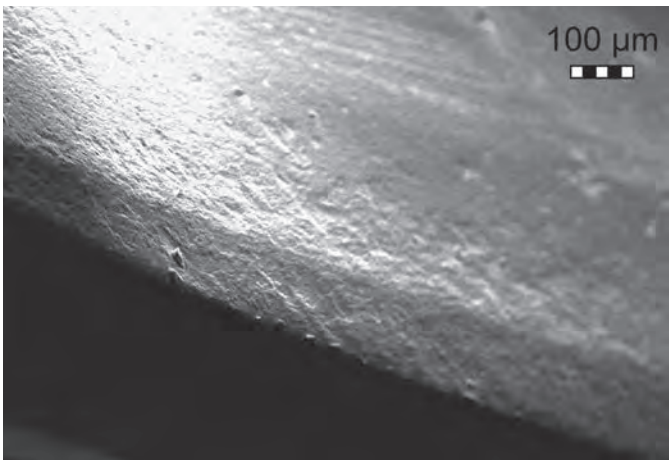


Sin soporte con ultrasonidos



Con soporte ultrasonidos



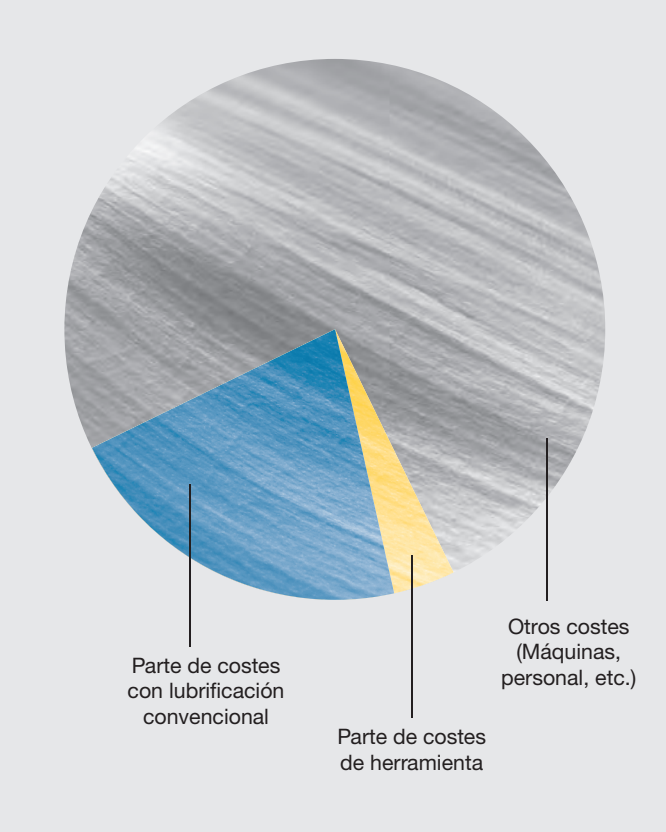


Técnica MMS

Bases

Los costes de lubrificación y refrigeración suponen una parte importante de los costes del mecanizado conjuntamente con los costes de máquina y herramienta. La reducción del consumo de refrigerante ofrece grandes ahorros en costes.

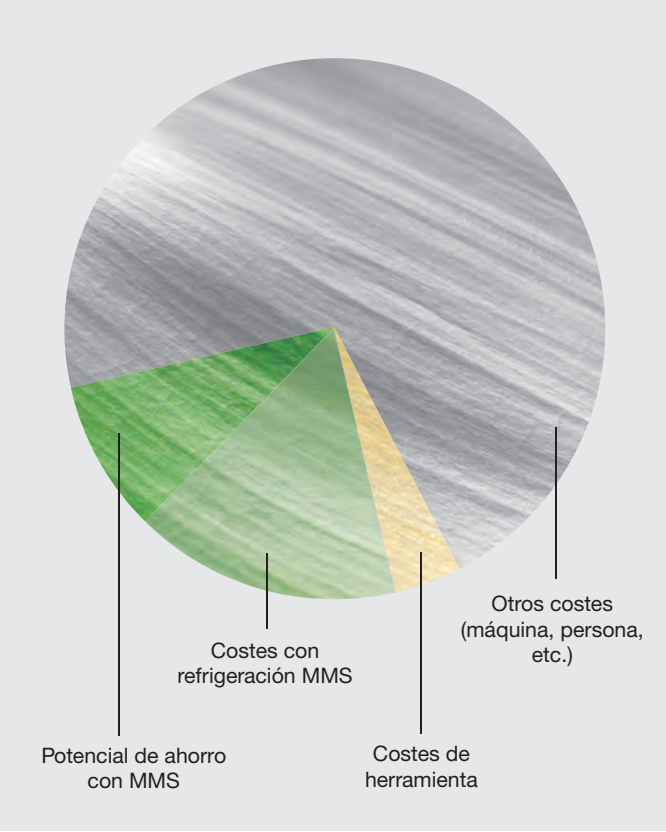
Además del ahorro de costes también apoya la protección del medio ambiente y protege la salud. La investigación y desarrollo en lo que respecta el MMS se inició en los años 1990 y Gühring fue uno de los pioneros.



Objetivos del mecanizado MMS

¡La compra de un sistema de refrigeración MMS es más económica que la de un sistema de refrigeración convencional!

- Reducción de la temperatura en la punta de la herramienta
- Reducción del desgaste de la herramienta
- Buen desalojo de viruta en taladros profundos
- Reducción del consumo de refrigerante lubrificante
- Lubrificación muy efectiva en taladros profundos
- Reducción de los gastos derivados:
  - Costes de limpieza de las piezas
  - Costes de desechar los refrigerantes
  - Costes de desechar las virutas en el refrigerante
- Protección del medio ambiente y la salud



El desarrollo de sistemas MMS modernos

Al investigar a fondo el mecanizado MMS, Gühring creó una base para una tecnología MMS muy acorde con la práctica. Desde el sistema de tensado hasta el corte de la herramienta todos los componentes se incluyeron en la investigación-el resultado fue el primer sistema de transmisión de refrigerante MMS.

Características:
- Sistema modular y estandarizado
- Sistema tensor MMS y convencional son perfectamente intercambiables gracias a su perfil de husillo idénticos
- Portas hidráulicos, térmicos y sincronizados sirven todos para el sistema tensor.

El sistema actual MMS de Gühring

Mediante la integración de un tornillo de regulación longitudinal MMS en el primer sistema Gühring de transmisión de refrigerante MMS se consigue evitar los estancamientos de lubrificante. Así el cliente hoy en día dispone de un sistema de transmisión de refrigerante MMS que cumple con los requisitos de procesos modernos de mecanizado óptimamente.

Características del primer sistema Gühring de transmisión de refrigerante MMS:
- Transmisión sin retención del lubrificante
- Unidad especial de transmisión de refrigerante MMS
- Forma especial MMS al final del mango de la herramienta
- Tornillo cónico, regulador longitudinal

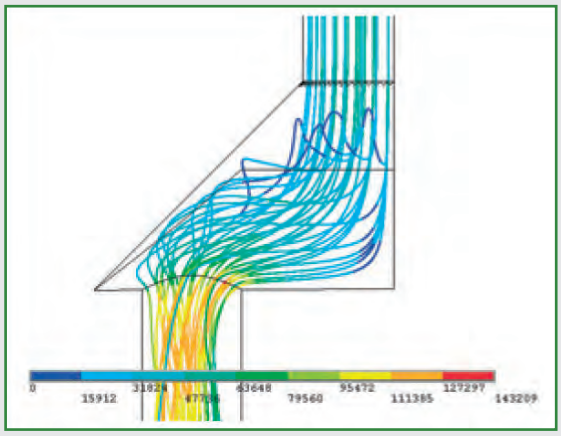
El usuario se beneficia de un sistema estandarizado y un stock reducido por piezas de construcción compatibles.

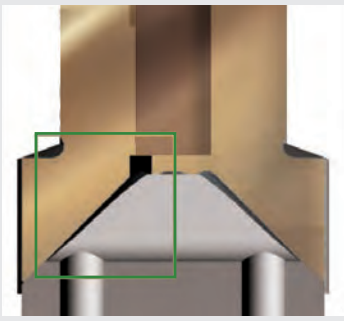
¡Final del mango de forma! Para la segura transmisión MMS

¡Es importante transportar la mínima cantidad de aceite directamente al lugar exacto! Aquí la geometría del final del mango tiene gran importancia. La forma del final del mango cónica de Gühring nos ofrece condiciones óptimas para la aplicación MMS.

Ventajas del final de mango cónico:
- No se estanca el aceite
- Huecos muertos mínimos
- Fácil manejo
- Fabricación económica

Perfil del caudal con mínimos remolinos



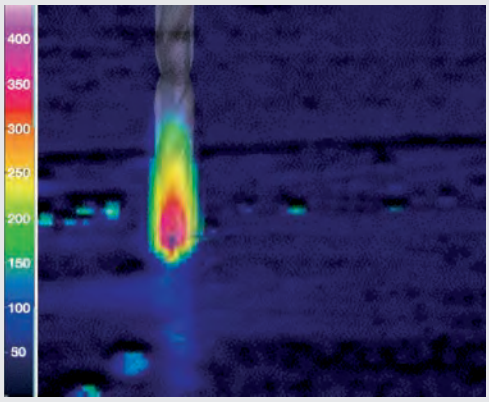


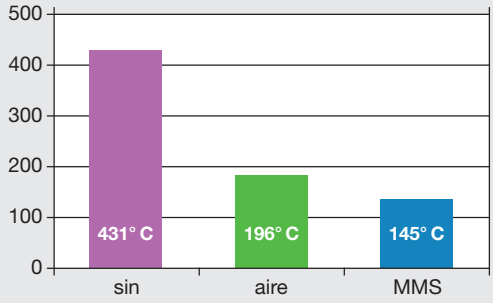
Condiciones de caudal en el lugar en el que se une el transmisor cónico

Siempre una cabeza fría

Mediante MMS la temperatura de proceso se puede reducir mucho en comparación a la refrigeración convencional. Así se consigue más rendimiento y más seguridad de proceso.

Análisis termo-gráfico en Gühring
Comparativa entre las temperaturas de las herramientas





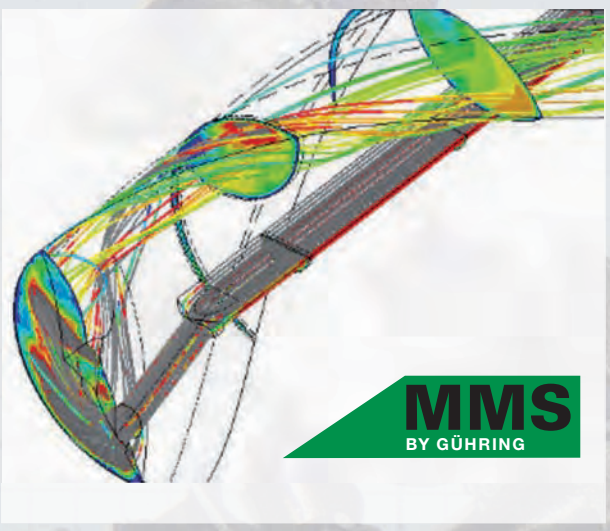
¡La mejor forma para MMS!

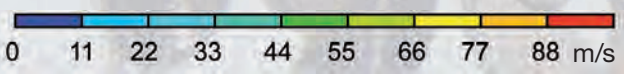
¡Los mejores resultados mediante una geometría optimizada para MMS con el ejemplo de la RT100T!

1. Corte medio de ranura:
La geometría de la ranura de las herramientas MMS de Gühring crea virutas cortas que se pueden desalojar perfectamente de taladros profundos.

2. Máximo corte medio de canales de refrigeración:
Mediante el máximo corte medio de los canales de refrigeración se perfeccionó el suministro de lubrificante y el desalojo de viruta.

Comparativa de las velocidades del caudal

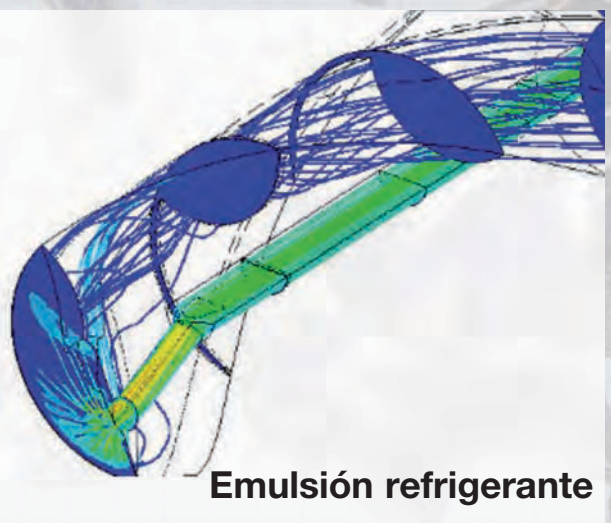




La velocidad del cauda
en la ranura con MMS es de 30.4 m/s

El volumen en MMS
es de 6.960 l/h (Norma.litro aire/h).

Diámetro herramienta = 11,7 mm
Presión en la bomba = 6 bares
Presión en la herramienta = 4 bares



La velocidad del caudal
en la ranura con emulsión es de 3.5 m/s

El volumen con emulsión
es de 600 l/h (norma-litro/h).

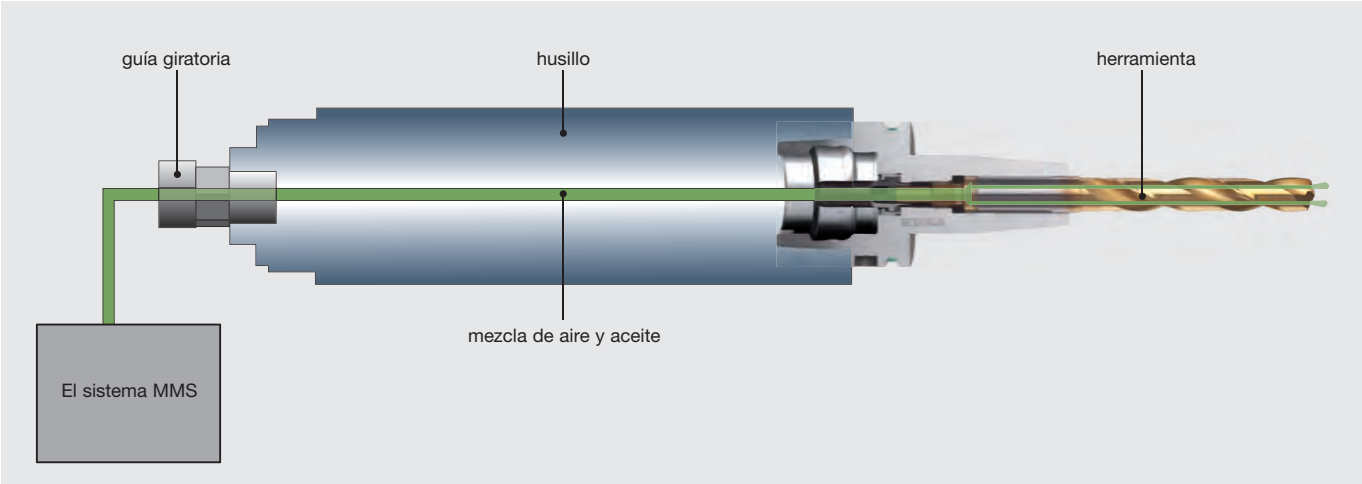
Diámetro herramienta = 11,7 mm
Presión en la bomba = 60 bares
Presión en la herramienta = 4 bares

Variaciones de los sistemas MMS

La preparación del medio MMS en la herramienta se puede realizar de dos formas diferentes: La mezcla de aerosol se puede preparar en el exterior de la máquina y luego transmitirse a la zona de aplicación (sistema de un canal) o separar aire a presión del medio MMS y transmitirlo a la cámara de mezclado para realizar la mezcla (sistema de dos canales). El transporte del aerosol hasta el punto de aplicación se realiza a través de una guía de giro específica para MMS (preferentemente con fluido axial), por el husillo, el sistema de tensado y finalmente hasta la herramienta. Cambios de corte medio inevitables se deberían realizar favorables al caudal.

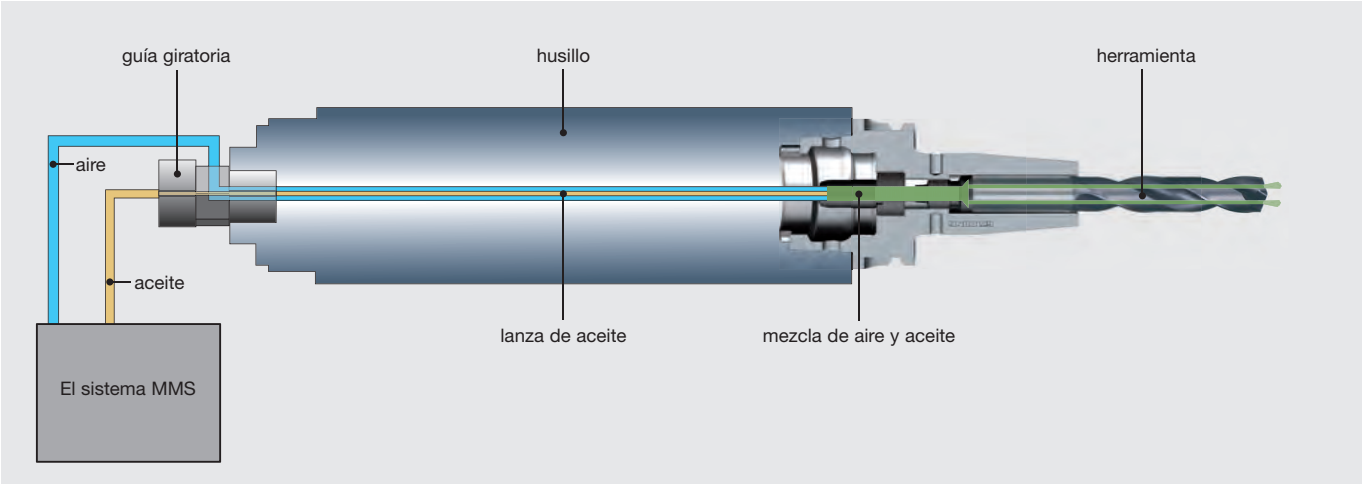
El sistema de un canal MMS

En el sistema MMS de un canal se crea una mezcla aerosol de lubrificante en un aparato MMS situado fuera de la máquina. Sistemas especiales de toberas que se encuentran en un recipiente bajo presión crean mediante aire dosificado y transportado a presión un aerosol lubrificante, cuyo volumen de aceite puede ser regulable y luego se asegura con el control de MMS dentro de las limitaciones físicas.



El sistema MMS de dos canales

En el canal de dos sistemas se transporta el aceite desde el aparato por un tubo lo más corto posible hasta la guía giratoria. En esta hay una válvula rápida integrada que dosifica el aceite en cantidades mínimas. Mediante una lanza montada en el husillo el aceite se transporta hacia el porta-herramientas. Es en este lugar en el que se mezcla el aire con el aceite. El porta-herramientas dispone de una tobera integrada en la que se encuentra la cámara de mezcla. Aceite y aire se pueden mezclar en casi todas las cantidades deseadas con este sistema. El camino desde la cámara de mezclado hasta la zona de aplicación es mínima lo que supone un tiempo de reacción muy rápido para cambiar la cantidad de aceite.



Superficie blanca

Brocas blancas para el mecanizado de fundición de aluminio y aluminios con poco silicio dan un muy buen resultado. Estas brocas se adaptan a sus campos de aplicación gracias a sus geometrías especiales y su gran calidad superficial en el vaciado de núcleo, sus ranuras y planos de incisión.

Superficie vaporizada / nitrurada

Las superficies vaporizadas muestran por una oxidación controlada en los bordes (aprox. 3 hasta 10 micras) una mejora de la resistencia al desgaste de la superficie de acero como en el comportamiento tribológico de las herramientas. Para aplicaciones abrasivas se recomienda un nitrurado de la superficie con el que la dureza en los bordes se aumenta y así se mejora la resistencia al desgaste de la herramienta. Como los recubrimientos blandos y duros de hoy en día mejoran mucho la calidad superficial, este tipo de tratamientos nombrados anteriormente pierden poco a poco su importancia.

Recubrimiento TIN

Temperatura máx. de aplicación: < 600ºC
Color: amarillo oro
Composición: mono – capa
Dureza: 2300 HV0.05

El recubrimiento TIN introducido ya en los años 1980 por Gühring, encuentra su aplicación en el taladrado con HSS y metal duro.

Recubrimientos FIRE/ nano FIRE

Temperatura máx. de aplicación: < 800ºC
Color: violeta
Composición: multi – capa
Dureza: 3300 HV0.05

Los recubrimientos Fire y nanoFire contienen además de titanio y nitrógeno, aluminio. Estos recubrimientos ya se introdujeron a finales de los años 1990 y representan el desarrollo del recubrimiento TIN. Destacan por su mayor dureza y su resistencia térmica y química y son válidos tanto para HSS como para metal duro.

Recubrimiento Raptor

Máx. temeperatura de aplicación: <900ºC
Color: oro pálido
Coposición: multi-capa
Dureza: 3300 HV0,05

El recubrimento multi-capa Raptor aporta la gran calidad superficial en el mecanizado de aceros. Con una capa adiconal, antigripante basada en circonio, se consigue mejorar el rendimiento también en materiales adhesivos (p.ej. aceros ferrosos, austeníticos y duplex).

Recubrimiento TiALN

Temperatura máx. de aplicación: < 800ºC
Color: violeta
Composición: mono-capa
Dureza: 3300 HV0.05

El recubrimiento TiAln muestra características parecidas al Fire y al nanoFire y encuentra con su mono-capa la mayoría de aplicaciones en las microbrocas.

Recubrimiento NanoA

Temperatura máx. < 900ºC
Color: azul-violeta
Composición: multi-capa, nano-estructurada
Dureza: 3300 HV0.05

El recubrimiento nanoA basado también en el TiAln ha dado buenos resultados en el mecanizado de aceros inoxidables pero también funciona bien en taladros en fundición, titanio con base de níquel y aleaciones de cromo-cobalto. Mediante su composición de varias capas nano-estructuradas se evita el arrancado del recubrimiento. Además tiene una mayor resistencia térmica que por ejemplo el TiAln por su especial composición.

Recubrimiento Sirius

Máx. temeperatura de aplicación: <900ºC
Color: oro pálido
Composición: multi-capa nano-estructurada
Dureza: 3400 HV0,05

El recubrimento Sirius basado en AlTIN es muy apropiado para la aplicación en aceros inoxidables. Gracias a su composición nano-estructural demuestra una gran dureza y tenacidad. La capa exterior con circonio elimina reacciones químicas con el material y facilita el desalojo de la viruta.

Recubrimiento Signum

Temperatura máx. de aplicación. < 800ºC
Color: bronce
Composición: nano-composite multi-capa
Dureza: 5500 HV0.05

El Signum esta catalogado como recubrimiento nano-composite. La micro-estructura destaca por nano-cristales TiAln muy finos que están integrados en una matriz de nitruro de silicio vidriosa. De aquí resulta una dureza alta que hace que el recubrimiento Signum se pueda aplicar sobretodo en aceros endurecidos y materiales de fundición.

Recubrimiento Endurum

Temperatura máx. de aplicación: < 800ºC
Color: cobre
Composición: nano-composite multi-capa
Dureza: 4000 HV0.05

El recubrimiento Endurum también es un recubrimiento de la familia de los nano-composites, que se diseñó especialmente para el mecanizado de carbonos, aceros automáticos y aleaciones de manganesio.

Recubrimiento Zenit

Temperatura máx. de aplicación: < 700ºC
Color: oro pálido
Composición: multi-capa, nano-estructurada
Dureza: 2500 HV0.05

El recubrimiento nano-estructurado Zenit se optimizó expresamente para el mecanizado de aleaciones de titanio. Su composición especial reduce significativamente el desgaste triboquímico y hace de este recubrimiento un verdadero especialista. Paralelamente también se obtienen buenos resultados en el taladrado de aleaciones de aluminio con poco contenido de silicio.

Recubrimiento Ice

Temperatura máx. de aplicación: < 1000ºC
Color: gris metálico
Composición: multi-capa
Dureza: 3500 HV0.05

El recubrimiento Ice basado en Titanio, aluminio y cromo esta pensado para el mecanizado de metales no ferrosos como p.ej. aleaciones de cobre, bronce y latón.

Recubrimiento Carbo

Temperatura máx. de aplicación: < 500º C
Color: gris-negro
Composición: mono-capa
Dureza: 5000 HV0.05

El recubrimiento Carbo forma parte de los recubrimientos DLC (DLC-diamond like carbon). Estas capas de nitrógenos tienen características parecidas al diamante. El Carbo muestra una gran dureza gracias a su composición 100% de nitrógeno y estructura (ta-C). Así se explica la gran calidad superficial al taladrar metales no ferrosos como p.ej. aleaciones blandas de aluminio y aleaciones de fundición de aluminio (< 12% Si), cobre, latón y bronce. Además encuentra aplicaciones en plásticos no reforzados y madera.

Recubrimiento: Cristal

Temperatura máx. de aplicación: < 600ºC
Color: gris-negro
Composición: mono-capa
Dureza: 8000 HV0.05

El recubrimiento Cristal, una capa de diamante resulta igual que los diamantes naturales. Además de muchas características físicas interesantes convence por su dureza extraordinaria. Debido a esto el recubrimiento micro-cristalino Cristal es muy apropiado para el mecanizado de materiales muy abrasivos como p.ej. plásticos reforzados con fibra, cerámica, grafito y aleaciones de aluminio con un alto contenido de silicio (> 12%). Esta capa solamente se puede aplicar en metales duros específicos por razones del proceso técnico necesario.

	Taladrar		
	Metal duro		HSS
	convencional	MMS	
Aceros-C, aceros automáticos, Aceros-Mn	Endurum Raptor Fire	Endurum Raptor Fire	Fire - -
Acero, bajo aleado	Fire Endurum Raptor	Fire Endurum Raptor	Fire TiN
Acero aleado	Fire Signum nanoA	Fire Signum nanoA	Fire TiN
Acero, endurecido <55 HRC	Signum Fire TiAlN	Signum Fire TiAlN	- - -
Acero, endurecido 55-65 HRC	Signum Fire TiAlN	Signum Fire TiAlN	- - -
Acero, corrosión y resistente a los ácidos	nanoA Sirius Endurum	nanoA Sirius Endurum	Sirius Fire TiN
Hierro fundido	Signum Fire nanoA	Signum Fire nanoA	Fire - -
Aleaciones maleables de aluminio	brillante Carbo Cristall	brillante Carbo Cristall	brillante Carbo -
Aleación de aluminio fundido (< 12% silicio)	brillante Zenit Carbo	brillante Zenit Carbo	brillante Zenit Carbo
Aleación de aluminio fundido (≥ 12% silicio)	Cristall - -	Cristall - -	- - -
Aleaciones de níquel (p.e. Inconel)	nanoA Signum Fire	nanoA Signum Fire	Fire - -
Titanio y aleaciones de titanio	Zenit nanoA	Zenit nanoA	Fire -
Cobre/Bronces/Latón	ICE Carbo	ICE Carbo	TiN -
Cobalto-cromo aleaciones	nanoA Signum Fire	nanoA Signum Fire	- - -
Metales preciosos	nanoA	nanoA	-
Cerámica	Cristall	Cristall	-
Materiales sintéticos, no reforzada	Carbo	-	-
Materiales sintéticos, reforzado con fibra	Cristall Signum	Cristall Signum	- -

Nota:

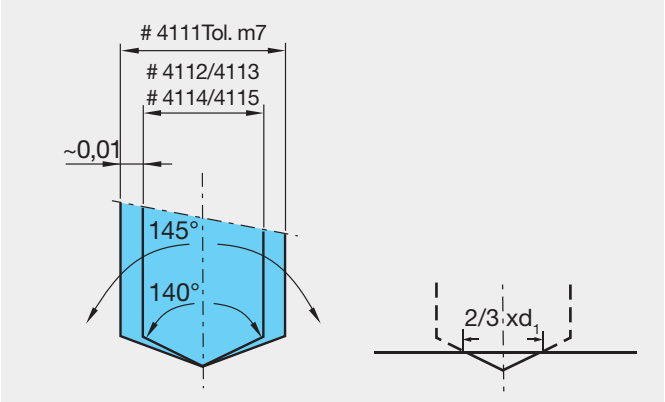
La tabla muestra las recomendaciones generales de aplicación de los recubrimientos Gühring.
La prioridad es de arriba hacia abajo.

Centrar y pilotar

Centrar y pilotar para HT800

En general recomendamos centrar y pilotar con HT800 en taladros más profundos que 5xD.

El centrado simple debe ser aprox. 2/3 del diámetro del taladro a realizar. Para pilotar recomendamos una profundidad de 1xD. Además el ángulo de la punta y el diámetro de la herramienta piloto deberían ser mayores que el ángulo de la punta y diámetro de la broca que le sigue. Para asegurar esto recomendamos utilizar las plaquitas especialmente diseñadas para este fin art. nº 4111 con un ángulo de la punta de 145º y tolerancia m7 en diámetro con el porta extra-corto y rígido art. nº 4105.



Centrar y pilotar con VHM

En la aplicación de brocas VHM para taladros más profundos de 7xD y hasta 12xD recomendamos el centrado o la realización de un taladro piloto de 1xD hasta 2xD de profundidad. En profundidades de más de 12xD el taladro piloto de 1xD hasta 2xD es totalmente imprescindible. Para pilotar las micro-brocas del ExclusiveLine con 15xD (art.nº 6412) recomendamos utilizar las micro-brocas ExclusiveLine de 4xD sin refrigeración interna (art.nº 6400) o 5xD con refrigeracioón interna (art.nº 6405), ya que están perfectamente diseñadas para este fin por su ángulo de la punta y tolerancia en diámetro.
Para pilotar las brocas cañón espirales RT 100 T se puede utilizar p.ej. la broca Ratio RT 100 U con refrigeración interna, 3xD (art.nº. 2477) que por su ángulo de la punta y tolerancia en diámetro es perfectamente adecuada.
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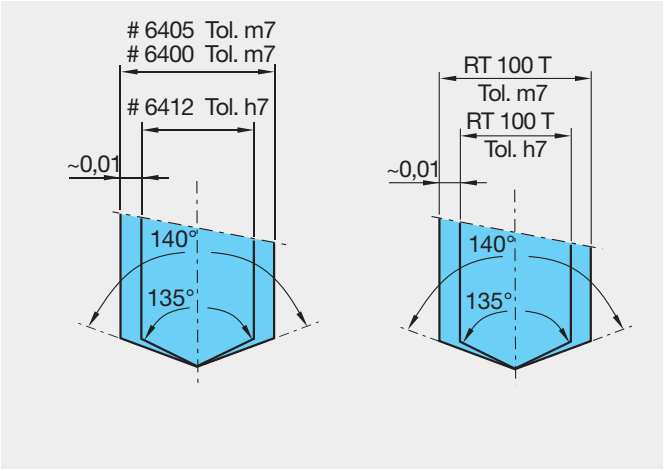
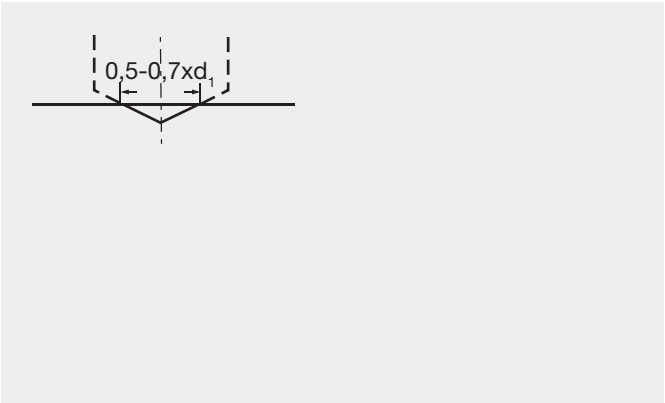


Centrar y pilotar para HSS

Centrar en taladros largos según DIN 340

Para la aplicación de brocas HSS/HSCO según DIN 340 recomendamos el centrado con un diámetro de centrar de 0.5-0.7 veces del diámetro a taladrar. Las brocas de puntear HSS7HSCO-NC son óptimas para realizar el centrado. Informaciones detalladas para las brocas de puntear NC los encontrará en el capítulo brocas de puntear NC.



Pilotar en taladros largos según DIN 1869

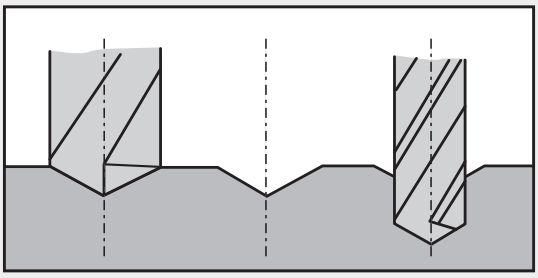
En la aplicación de las brocas HSS/HSCO-NC extra-largas según DIN 1869 recomendamos realizar un taladro piloto de 1xD hasta 2xD.
Las brocas extra-cortas tipo GV120 según DIN 1897 son ideales para esto.

Brocas de puntear NC

Brocas de puntear NC

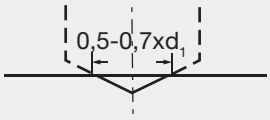
Para conseguir taladros muy exactos, con tolerancias estrechas, taladros profundos o en general con piezas con formas difíciles (redondas, ásperas) se recomienda puntear con una broca de puntear NC antes de iniciar el proceso de taladrado. Esto garantiza que la broca que taladra lo haga con una gran exactitud y así se evita el desvío de la broca al taladrar. También para la producción de fases o avellanados y el punteado de una sola estacada se pueden utilizar brocas de puntear NC si el diámetro de punteado es mayor que el diámetro de taladrado.

Las brocas de puntear NC tienen muy poca longitud de corte y no tienen destalonado guía para garantizar una broca muy estable que consiga un punteado exacto. Por esta razón las brocas de puntear NC solamente son para esta función y no se pueden utilizar para realizar taladros que sean mayores a la longitud del afilado de su punta.



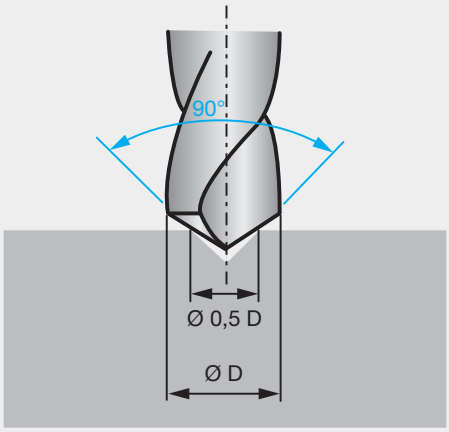
Elección de la broca de puntear NC

Lo ideal es elegir el diámetro de punteado 0.5-07 veces el taladro a realizar.



Brocas de puntear NC a 90º

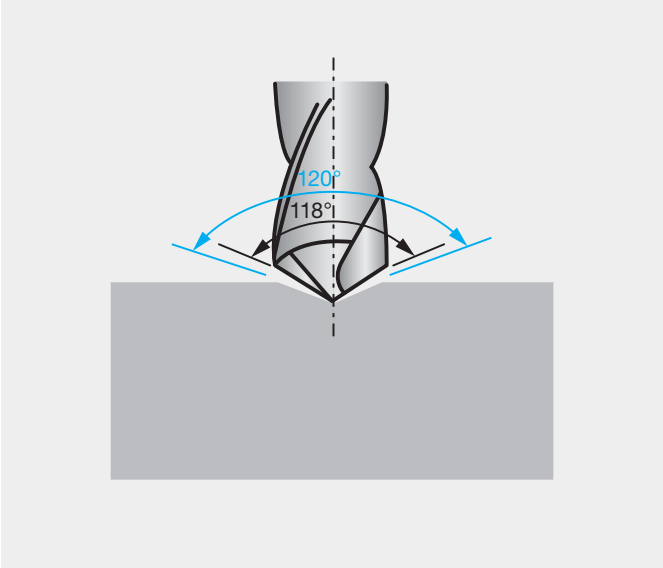
Brocas de puntear NC con 90º de ángulo de la punta son especialmente idóneas para puntear cuando después se desea realizar un taladro con brocas HSS/HSCO que tienen un corte medio relativamente grande. Así se asegura que la broca HSS/HSCO que le sigue primero taladre con el corte principal y se guíe en la parte más estable de los cantos de corte.
Además las brocas NC de 90º son apropiadas para realizar centrados y avellanados de 90º de una sola estacada si el diámetro de punteado es mayor que el del taladro a realizar.



Brocas de puntear NC

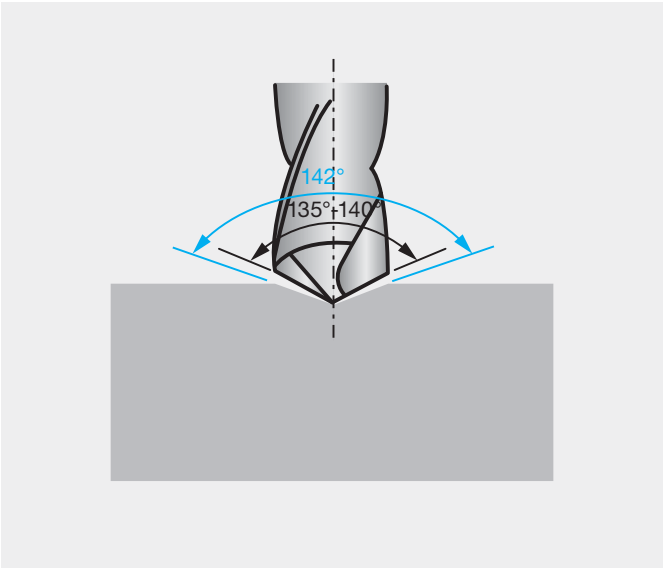
Brocas de puntear NC a 120º

Las brocas de puntear NC con un ángulo de 120º son especialmente apropiadas cuando el taladro a realizar se hace con brocas HSS/HSCO con un ángulo de la punta de 118º. Así se consigue que la broca que sigue taladre con gran estabilidad al entrar a taladrar con la punta y luego ser guiada.



Brocas de puntear NC a 142º

Las brocas de puntear NC con un ángulo de la punta de 142º son especialmente adecuadas cuando la broca que realiza el taladro posteriormente es de metal duro a 135º-140º. Así se asegura que la broca de metal duro que le sigue entre con la punta, se centre y vaya bien guiada. Si las esquinas de corte de la broca de metal duro inciden directamente sobre el material a mecanizar hay peligro de que se produzcan roturas en esas esquinas del corte.



Brocas de puntear NC

90°	120°	142°

Presiones y volúmen de refrigerante Brocas Ratio

Los volúmenes óptimos, buenos y mínimos necesarios de refrigerante representados en los diagramas sólo son válidos para brocas ratio helicoidales tipo RT 100 y son independientes de la máquina. Las presiones, en cambio, dependen de la máquina, dado que cada máquina mues-tra distintos sistemas de refrigeración y, en consecuencia, otras condiciones de fuga (Fig. 1). Por esta razón, los valores de presión representados sólo pueden servir para la evaluación de la magnitud.
Para las brocas ratio del tipo RT 80 con canal de refrigeración central se tiene que aplicar otras medidas (Fig. 2).
Los diagramas fueron determinados de forma experimental para el campo de mecanizado más importante de las brocas ratio, es decir, el mecanizado de acero. Sin embargo, también se pueden utilizar como valores orientativos para el mecanizado de otros materiales, principalmente porque para el mecanizado de acero se necesitan siempre las mayores presiones de refrigerante. En qué medida la refrigeración depende también del material a mecanizar se muestra en las brocas ratio de ranura recta del tipo RT150, particularmente sensibles con respecto a la refrigeración. Así, por ejemplo, las pérdidas de rendimiento como consecuencia de menores presiones en el mecani-zado de fundición gris son netamente mayores que en el taladrado de aleaciones de aluminio y silicio.
¡No obstante, éste sólo es el caso si la aleación de AlSi es de viruta corta! Por lo tanto, la presión mínima absolutamente necesaria o la presión buena se debería elegir siempre un poco mayor para el mecanizado de función que para el mecanizado de AlSi (Fig. 3 y 4).
Los valores recomendados sólo se deben utilizar para profundidades de taladro hasta aprox. 5 x D. Para taladros más profundos se deberían utilizar herramientas con refrigera-ción interna, especialmente el modelo RT 150 GN, dado que, en función del material, el mecanizado sólo se puede efectuar de forma poco rentable.

Presion de refrig. necesaria
- presión óptima
- buena presión
- presión mínima

Volúmen de refrig. necesario
- volumen óptimo
- buen volumen
- volumen mínimo

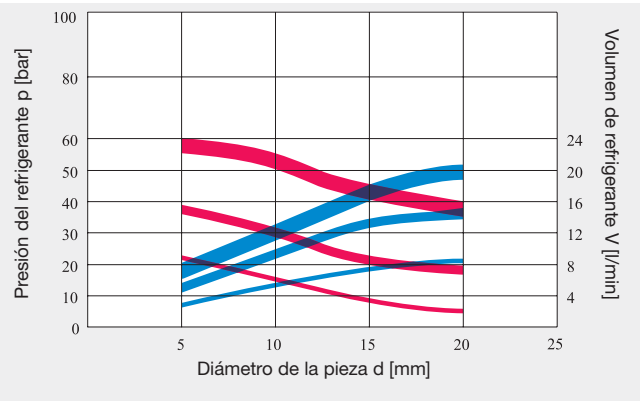


Fig. 1:
Presion y volúmen de refrigerante necesario para brocas ratio del tipo RT 100 con canales de refrigeración interior en espiral.

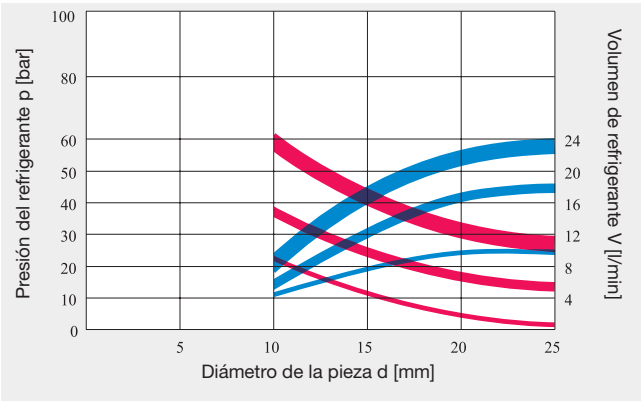


Fig. 2:
Presion y volúmen de refrigerante necesarios para brocas ratio del tipo RT 80 con canal de refrigeración interior central.

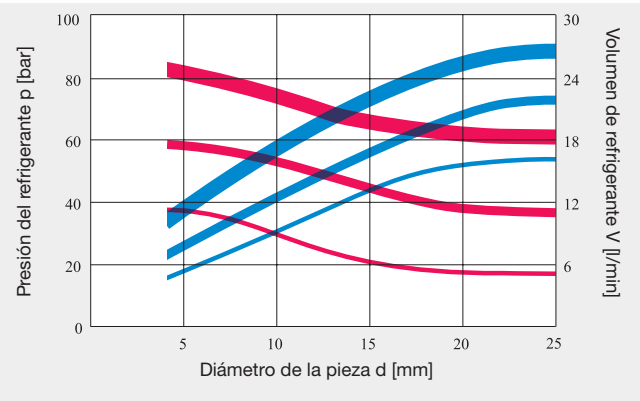


Fig. 3:
Presion y volúmen de refrigerante necesarios para el mecanizado de GG25 con brocas ratio de ranura recta del tipo RT 150 GG.

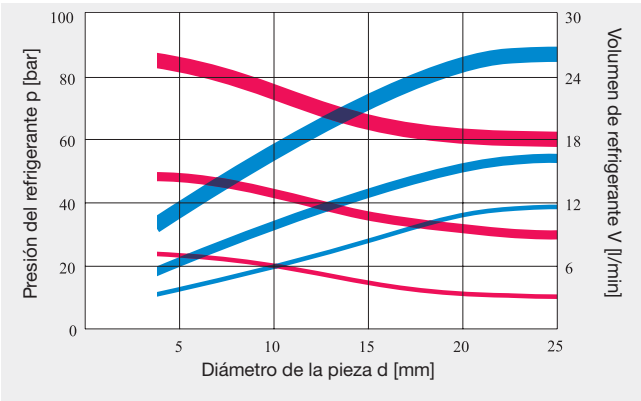


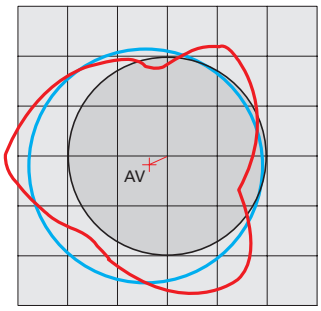
Fig. 4:
Presion y volúmen de refrigerante necesarios para el mecanizado de AlSI7 con brocas ratio de ranura recta del tipo RT 150 GG.

Calidades típicas de acabado del taladro

1. en 42CrMo4V, Ø 14,5 mm

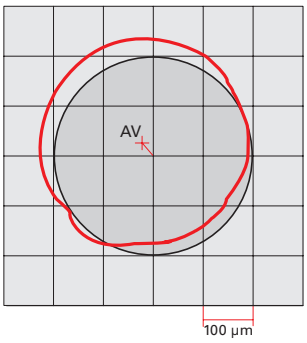
Broca HSS, tipo N
N° art. 651 (S)

vc = 25 m/min
f = 0,25 mm/r
+Rmax = 131,8 µm
-Rmax = -49,1 µm
D-real = 14,566 mm
dRmax = 103,5 µm
AV = 49,2 µm
Ra = 2,6 µm, Rz = 6,8 µm **IT12**



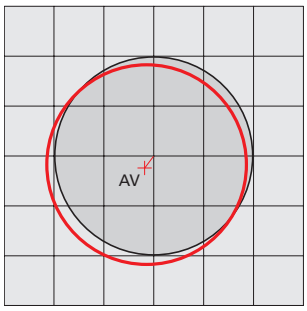
Broca Ratio, tipo RT 80
N° art. 1171 (S)

vc = 70 m/min
f = 0,25 mm/r
+Rmax = 42,7 µm
-Rmax = -29,6 µm
D-real = 14,515 mm
dRmax = 12,9 µm
AV = 35,3 µm
Ra = 1,4 µm, Rz = 4,31 µm **IT9**



Broca Ratio, tipo RT 100
N° art. 1181 (S)

vc = 70 m/min
f = 0,25 mm/r
+Rmax = 26,7 µm
-Rmax = -17,2 µm
D-real = 14,509 mm
dRmax = 5,2 µm
AV = 22,8 µm
Ra = 1,04 µm, Rz = 3,2 µm **IT8**



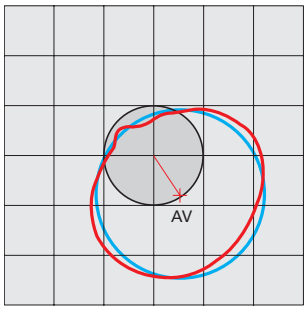
La máxima desviación de redondez (dRmáx) se forma como suma absoluta de las máximas desviaciones posi-tivas y negativas del contorno real frente al círculo medio. El decalaje de eje (AV) indica al usuario en cuántos µm se desvía el macho hacia un lado. El parámetro que muestra la mayor desviación determina en función del diámetro de la pieza la clase de calidad IT del taladro.

El círculo negro representa el taladro nominal que debería fabricar la herramienta en el caso ideal. El círculo rojo muestra el contorno real, es decir, la forma efectiva del taladro, tal como la obtenemos con los tipos de broca en cuestión. El círculo envolvente (azul) es la promediación calculatoria del círculo real, es decir, el diámetro medio (en las brocas ratio, el círculo evolvente se cubre prácticamente con el Ø real).

2. en GGG40, Ø 10,0 mm

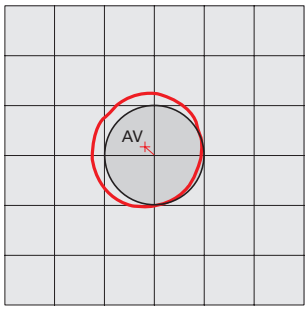
Broca HSS, tipo N
N° art. 651 (S)

vc = 30 m/min
f = 0,2 mm/r
D-real = 10,077 mm
+Rmax = 106 µm
-Rmax = -28 µm
dRmax = 42 µm
AV = 68,5 µm
Ra = 3,7 µm, Rz = 17,2 µm **IT12**



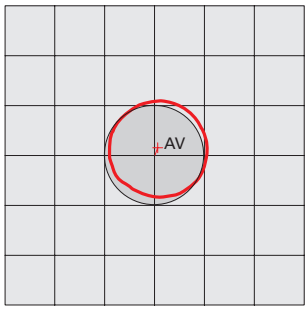
Broca Ratio, tipo RT 100
N° art. 1181 (S)

vc = 90 m/min
f = 0,3 mm/r
D-real = 10,027 mm
+Rmax = 34 µm
-Rmax = -9,2 µm
dRmax = 6,5 µm
AV = 22,5 µm
Ra = 2,2 µm, Rz = 11,5 µm **IT9**



Broca Ratio, tipo RT 150 GG
N° art. 768 ◯

vc = 130 m/min
f = 0,2 mm/r
D-real = 9,994 mm
+Rmax = 11,5 µm
-Rmax = -18 µm
dRmax = 5 µm
AV = 14 µm
Ra = 1,99 µm, Rz = 11,2 µm **IT8**



Pequeña introducción al taladrado profundo

En la tecnología del mecanizado a partir de una profundidad de 15xD y más se habla de taladrado profundo, pero naturalmente también se pueden realizar taladros más cortos con brocas cañón. Así se utilizan las características buenas como la gran calidad superficial, la concentricidad de los taladros y la exactitud en diámetro.

Refrigeración por alta presión – hoy en día completamente normal.

Como en los últimos años se ha impuesto la refrigeración interna en todas las herramientas, el refrigerante lubrificante se guía exactamente a las zonas en las que más hace falta. Con esta medida se consiguió mejoras de rendimiento y menos roturas también en brocas espirales, machos de roscar, etc. Todas las máquinas-herramientas de hoy en día se ofrecen con refrigeración interna de alta presión y son así apropiadas para realizar taladros profundos. La cantidad de brocas cañón en centros de mecanizado y tornos crece cada vez mas. Este proceso cada vez es más popular en la técnica de desbaste.

Todas las brocas cañón deben ser guiadas en la entrada del taladro. Brocas cañón nunca deben girar libres en el interior de la máquina a toda velocidad.

¡Atención!
Brocas cañón con mango de acero no son apropiadas para la inducción (excepción T16, ver página siguiente)

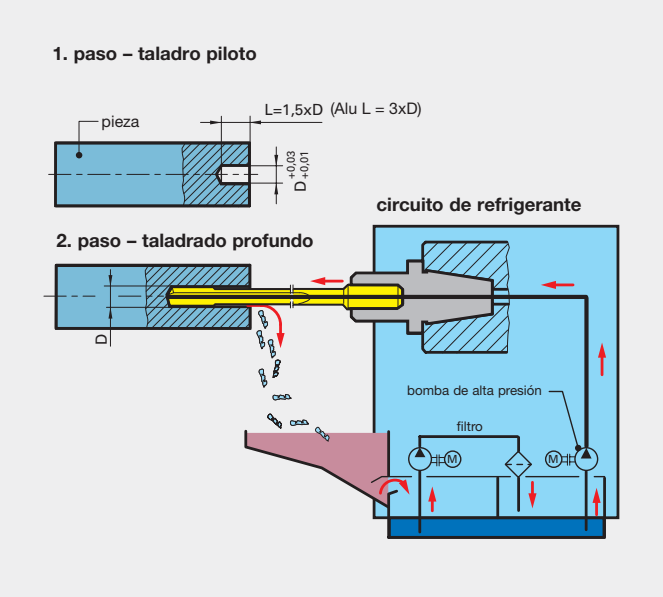
Manera de proceder en máquinas convencionales para herramientas:

- Producir un taladro piloto (L = 3xD, tolerancia H8)
- Entrar con aprox. 200 revol. / min., avance aprox. 500mm/min. En el caso de herramientas desde 40xD entrar girando a la izquierda.
- En el caso de velocidades de corte de más de 120 m/min. recomendamos ir subiendo la velocidad en varios pasos.
- Regulación de la presión del refrigerante y las revoluciones.
- Taladrado continuado hasta la profundidad total sin desalojos de viruta. En la aplicación de brocas cañón con una gran relación entre diámetro y longitud recomendamos trabajar con parámetros reducidos hasta una profundidad de aprox. 25 mm (aprox. 75% de la velocidad de corte óptima).
- Parar el suministro de refrigerante al conseguir la máxima profundidad.
- Retirada rápida con husillo parado.

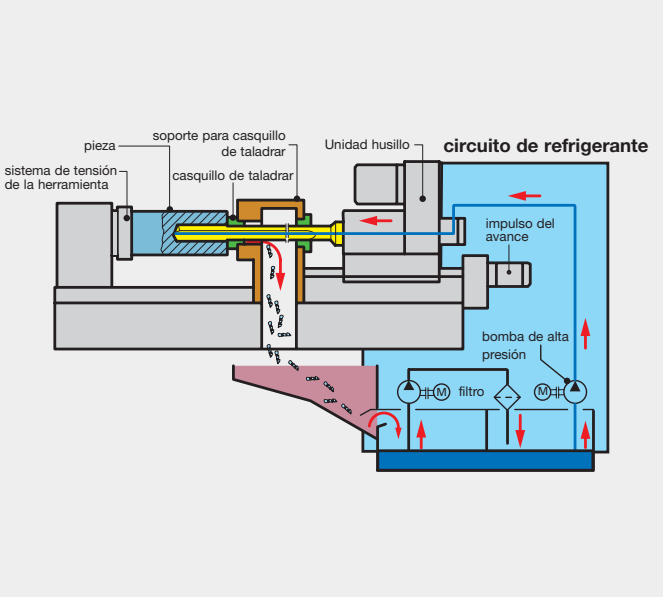
Consejos y trucos

- En profundidades de más de 40xD recomendamos utilizar dos o mas brocas cañón, p. ej. diámetro 10x400 mm y diámetro 9.95 x 800 mm.
- Brocas cañón para profundidades de más de 40xD deberían entrar en el taladro piloto girando a la izquierda.
- En el cambio de herramientas de más de 40xD la herramienta se puede calmar arrancando durante 1 segundo la presión de refrigerante.
- Normalmente recomendamos mantener el grado de gras en las emulsiones en un 10% mínimo.
- Brocas cañón de un solo labio para aluminio de viruta larga se deben pedir con afilado a 180º y rompe-virutas.
- Para un taladrado bien recto se puede utilizar una pieza de guiado adicional. (accesorio especial).

Taladrado profundo en máquinas convencionales



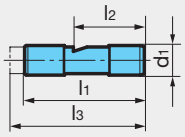
Máquinas para broca cañón



El programa de mangos aquí presentado lo tenemos en existencias pero solamente representa una cantidad de mangos a elegir. También fabricamos mangos de máxima precisión según plano de nuestros clientes. ¡Atención! En el caso de EB100 los mangos deben tener el refuerzo de ajuste. Información sobre demanda.

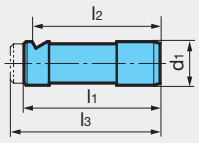
Mangos para máquinas de broca cañón

1



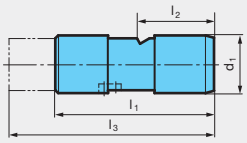
No. ref.	d_1	l_1	l_2	l_3
1.1	10	40	24	-
1.2	10	40	24	45
1.3	10	40	24	55
1.4	16	45	31,2	-
1.5	25	70	34	-
1.6	25	70	34	78

2



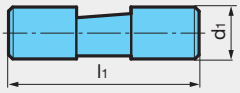
No. ref.	d_1	l_1	l_2	l_3
2.1	16	50	47	-
2.2	16	50	47	55
2.3	16	50	47	70

3



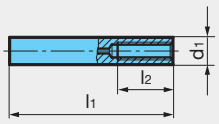
No. ref.	d_1	l_1	l_2	l_3
3.1	25	70	34	100

4



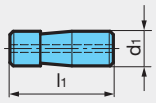
No. ref.	d_1	l_1
4.1	19,05	70
4.2	12,70	70
4.3	25,40	70
4.4	31,75	
4.5	36,10	70

5



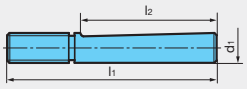
No. ref.	d_1	l_1	l_2
5.1	10	60	20
5.2	16	80	28
5.3	25	100	50
5.4	10	100	
5.5	10	110	

6



No. ref.	d_1	l_1
6.1	12,7	38
6.2	19,05	70
6.3	38,1	70

7

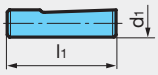


No. ref.	d_1	l_1	l_2
7.1	16	112	73
7.2	20	126	82

Mangos según DIN 1835

9

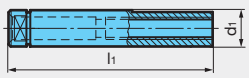
Forma E



No. ref.	d_1	l_1
9.1	8	36
9.2	10	40
9.3	12	45
9.4	16	48
9.5	20	50
9.6	25	56
9.7	32	60
9.8	31,75	70
9.9	38,1	70
9.10	40	70

Mangos según diseño VDI

12

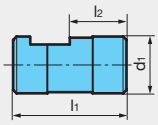


No. ref.	d_1	l_1
12.1	10	68
12.2	16	90
12.3	25	112

también aplicable en máquinas para broca cañón

Mangos según sistema Speed-Bit

13



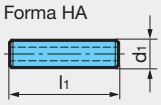
No. ref.	d_1	l_1	l_2
13.1	16	40	16
13.2	25	50	25
13.2	35,6	60	

también aplicable en máquinas para broca cañón

Mangos segúnDIN 6535

10

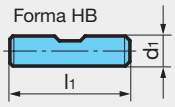
Forma HA



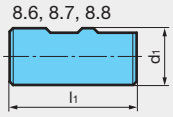
No. ref.	d_1	l_1
10.1	8	36
10.2	10	40
10.3	12	45
10.4	16	48
10.5	20	50
10.6	25	56
10.7	32	60
10.8	25	70
10.9	40	70

8

Forma HB



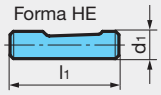
con no. ref. 8.6, 8.7, 8.8



No. ref.	d_1	l_1
8.1	8	36
8.2	10	40
8.3	12	45
8.4	16	48
8.5	20	50
8.6	25	56
8.7	32	60
8.8	40	70

11

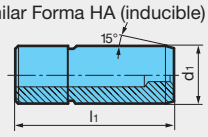
Forma HE



No. ref.	d_1	l_1
11.1	8	36
11.2	10	40
11.3	12	45
11.4	16	48
11.5	20	50
11.6	25,4	70
11.7	25	56
11.8	32	60
11.9	40	70

similar Forma HA (inducible)

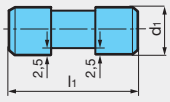
16



No. ref.	d_1	l_1
16.1	10	50
16.2	16	64
16.3	20	70
16.4	25	81
16.5	32	92

similar Forma HE

17

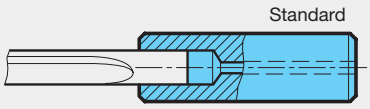


No. ref.	d_1	l_1
17.1	19,05	70
17.2	25,40	70
17.3	31,75	70
17.4	38,1	70

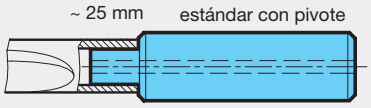
también aplicable en máquinas para broca cañón

Variantes de fabricación de mangos para brocas cañón con tubo

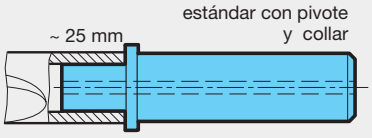
Manera de proceder para
diámetro nominal < diámetro mango
(diferencia debe ser aprox. 6mm):
Mango de tubo está en el mango tensor



Manera de proceder para
diámetro nominal ≠ diámetro mango
(max. hasta igual posición):
Mando de tubo está sobre el pivote



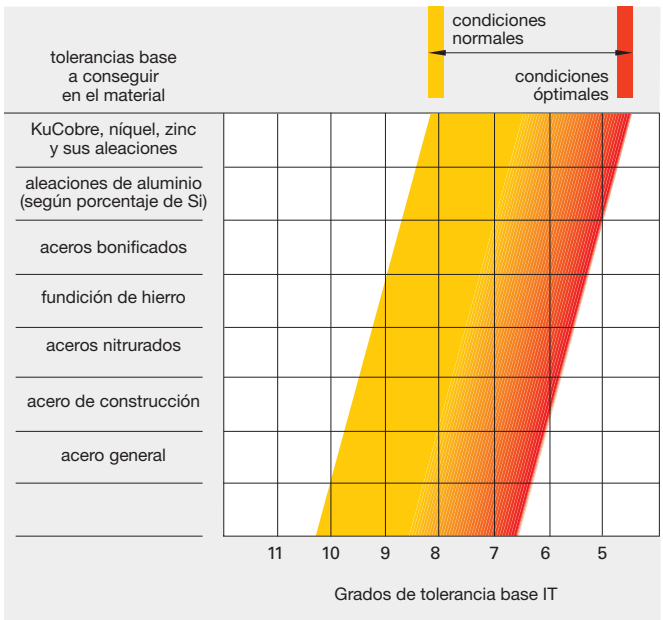
Manera de proceder para
diámetro > diámetro mango:
Mango de tubo está sobre el pivote, su diámetro interior < diámetro del mango que se acopla al refuerzo guía.



Precisión en brocas de un corte para agujeros profundos

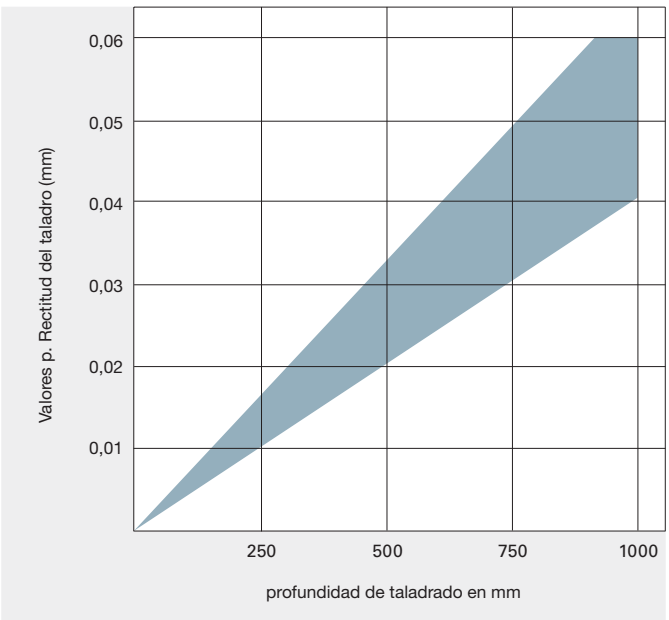
Tolerancias base*

Con brocas mono-labio se puede conseguir una tolerancia base más pequeña, ya que los patines de apoyo en el corte absorben las fuerzas generadas por el corte y no como p.ej. en las brocas espirales que el taladro se engrandece por pequeñas diferencias entre los dos labios de corte.



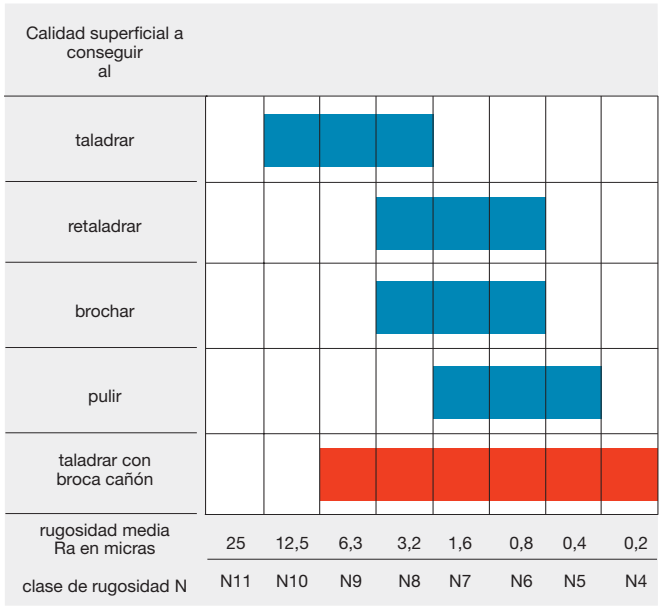
Rectitud del taladro*

Gracias a la cabeza de metal duro soldada sobre un mango de tubo flexible la broca mono-labio no es influenciada por el salto y genera un taladro muy recto.
Variaciones extremas en el material y otros factores si pueden influir en la rectitud del taladro.



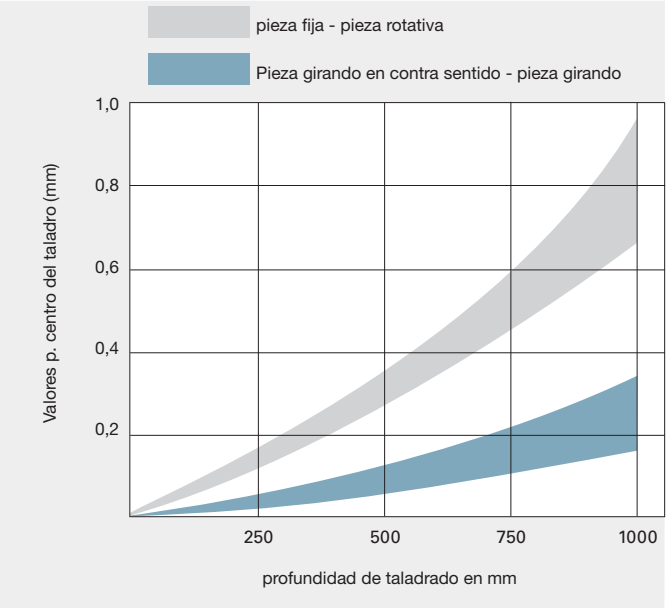
Calidad superficial*

Las fuerzas son absorbidas en el corte por los patines de apoyo y estos a la vez pulen la superficie del taladro. La película lubrificante entre el taladro y los patines tiene una gran importancia. Cuanto mejor sea el lubrificante, mejor será la calidad superficial del taladro.



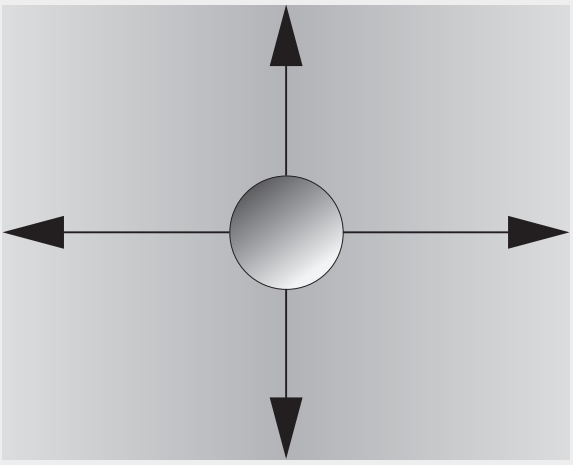
Concentricidad del taladro*

Si se realiza un taladro con una broca espiral habitual la calidad del afilado de la punta influye sobre la concentricidad del taladro. Se genera una descompensación de fuerzas en los cortes. En el caso de las brocas mono-labio los patines absorben las fuerzas de corte con lo que garantizan una buena concentricidad de taladro.

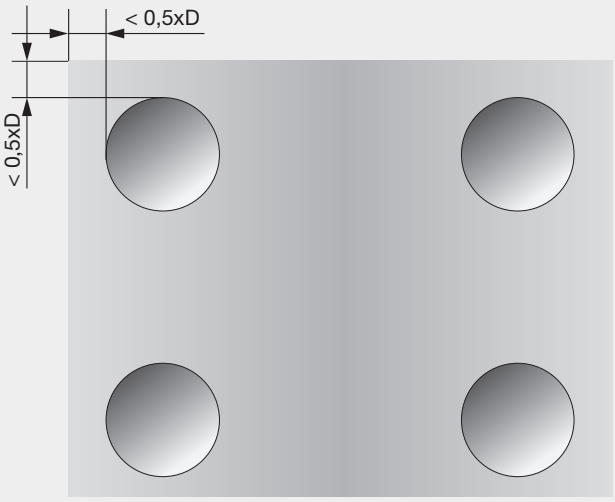


* Brocas cañón con dos cortes – tanto con ranuras rectas como espirales – consiguen aprox. 50% de los valores aquí ilustrados.

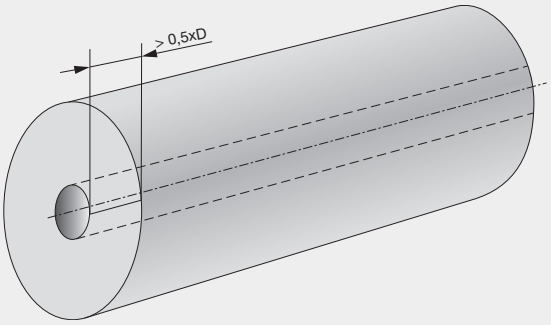
Rectitud de taladro/Concentricidad



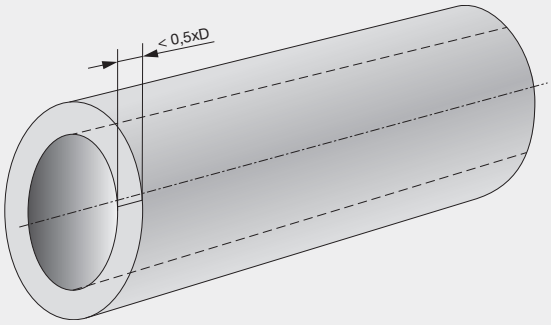
Distancia de taladrado desde la pared > 0.5xD



Distancia de taladrado desde la pared < 0.5xD



Distancia del tope
(> 0,5xD) ⟶ óptimo

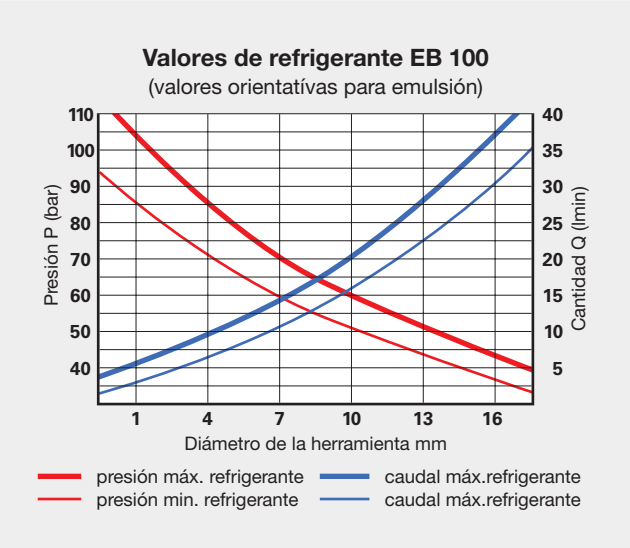


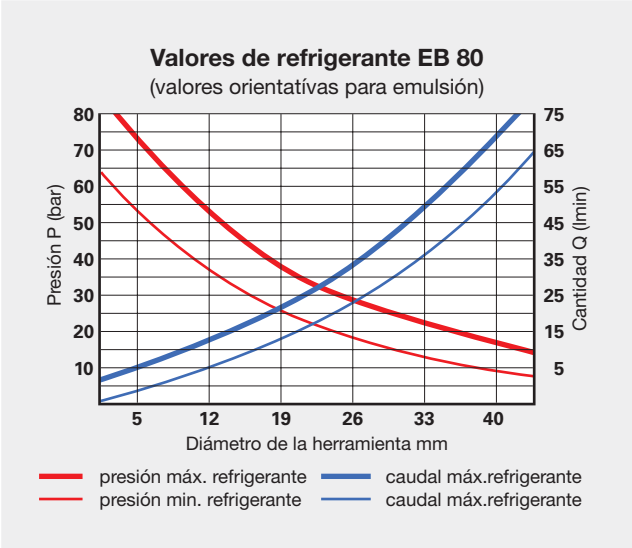
Distancia mínima (0,5xD)
no repetada ⟶ puede ocasionar problemas
de calidad en el taladro

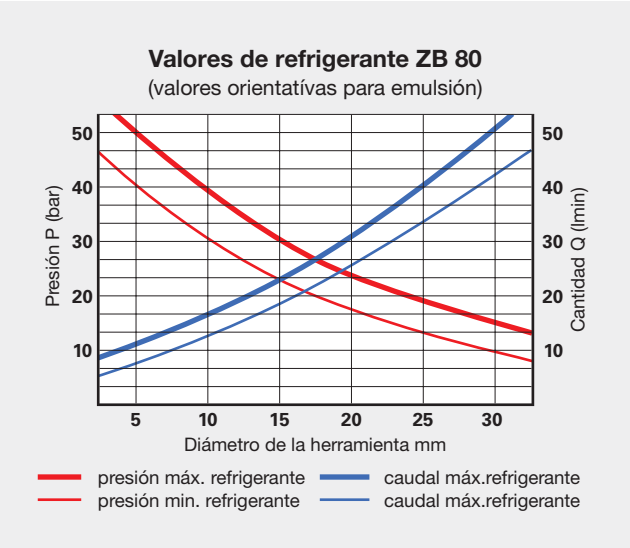
Valores de refrigerante

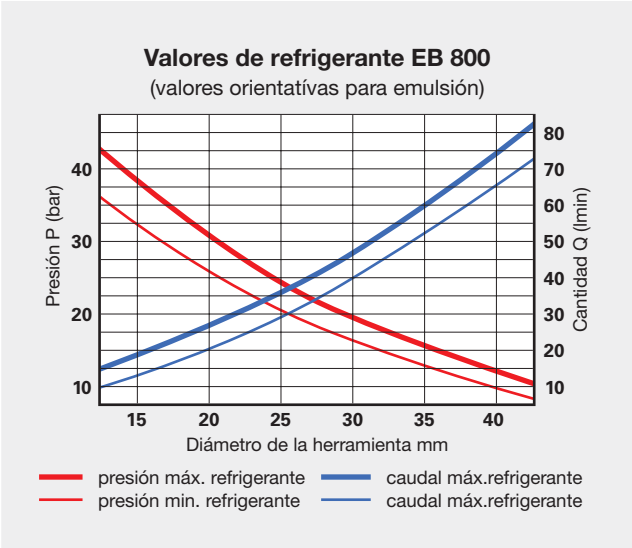
Por favor tenga en cuenta:

- Todas las brocas cañón únicamente se deben utilizar con refrigeración interna, sea aire, agua o aceite. Sin lubrificación interna no se puede evacuar la viruta.
- Todas las brocas cañón también se pueden utilizar con aceite para su refrigeración interna. En este caso se requiere un 30% más de presión para conseguir la misma cantidad de refrigerante.
- Si se utilizan brocas cañón con MMS, podría ser necesario aumentar la presión en diámetros nominales más pequeñas según el dispositivo MMS del que se disponga.
- Si las condiciones de refrigerante no son idóneas se puede trabajar con parámetros reducidos. También hay sistemas para aumentar la presión.
- Cuanto más larga es la broca cañón más alta debe ser la presión para conseguir el caudal óptimo en los canales de refrigeración

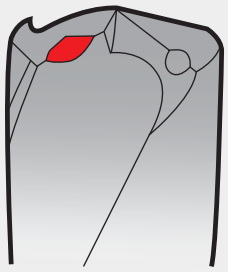
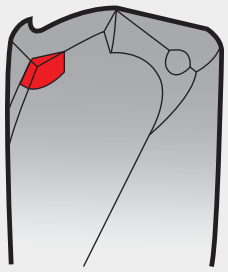
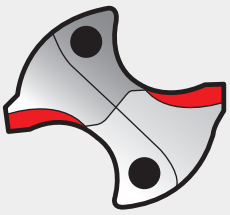
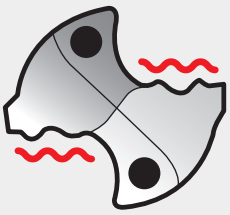




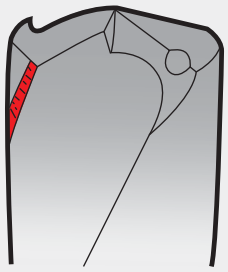
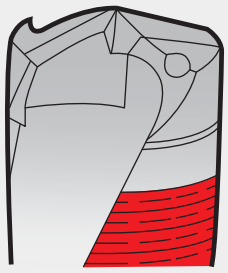
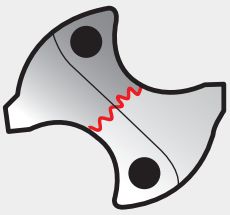
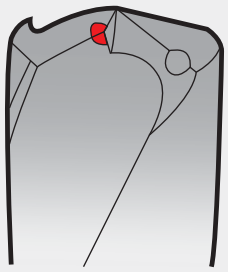




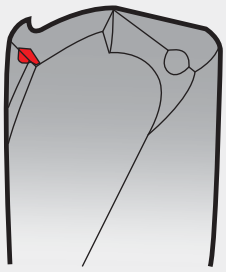
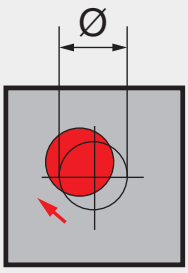
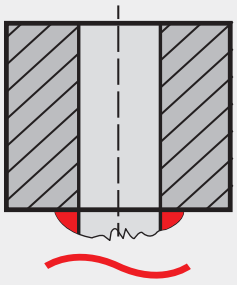
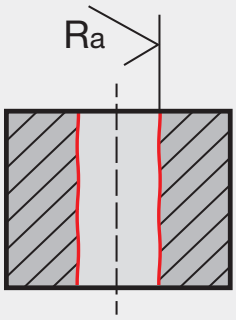
Notas de aplicaciones/solucionador de problemas

Error	Causas	Soluciones
1. Soldaduras en los cortes 	Velocidad de corte demasiado baja Corte principal demasiado redondo Corte principal blanco	Aumentar la velocidad de corte Hacer corte principal más afilado Recubrir la herramienta
2. Roturas en las esquinas 	Condiciones de trabajo poco estables / pieza poco tensada Demasiado salto Corte interrumpido	Tensar mas la pieza Controlar y corregir salto Bajar el avance
3. Mucho desgaste en los puntos de incisión 	Velocidad de corte demasiado grande Avance demasiado bajo Ángulo de incisión demasiado pequeño	Bajar velocidad de corte Aumentar el avance Aumentar el ángulo de incisión
4. Roturas en el corte principal 	Condiciones de trabajo poco estables / pieza poco tensada Corte interrumpido Desgaste demasiado alto Tipo de herramienta equivocado	Tensar mas la pieza Reducir el avance Reducir los intervalos de ataque Elegir la herramienta ideal (ver tabla)

Notas de aplicaciones/solucionador de problemas

Error	Causas	Soluciones
5. Desgaste de la fase de corte redonda 	Condiciones de trabajo poco estables / pieza poco tensada Salto demasiado grande Conicidad demasiado pequeña Lubrificante erróneo (aceite) emulsión pobre	Tensar mas la pieza Controlar y corregir salto Aumentar la conicidad Aumentar aceite emulsión o utilizar aceite
6. Rayas en el lomo del porta 	Condiciones de trabajo poco estables / pieza poco tensada Salto demasiado grande Corte interrumpido Material abrasivo	Tensar mas la pieza Controlar y corregir salto Bajar avance Aumentar aceite emulsión o utilizar aceite
7. Mucho desgaste en los cortes medios 	Velocidad de corte demasiado pequeña Avance demasiado alto Cortes principales demasiado redondos	Aumentar la velocidad de corte Bajar el avance Afilar mas los cortes principales
8. Roturas en entre vaciado de núcleo y corte principal 	Ángulo de incisión demasiado pequeño Cortes principales demasiado redondos Tipo de herramienta equivocado	Aumentar el ángulo de incisión Afilar mas los cortes principales Elegir la herramienta ideal (ver tabla)

Notas de aplicaciones/solucionador de problemas

Error	Causas	Soluciones
9. Deformación plástica del canto del corte 	Velocidad de corte demasiado alta Refrigerante insuficiente Corrección de esquinas erróneo o nulo	Reducir la velocidad de corte Volúmen de refrigerante (volúmen/presión) se debe aumentar Corregir la corrección de esquinas
10. Desvío de centro 	Condiciones de trabajo poco estables / pieza poco tensada Salto demasiado grande Puntear en un campo inclinado Corte medio demasiado grande	Tensar mas la pieza Controlar y corregir salto Mecanizar con fresa de 2 cortes el fondo Reducir el corte medio
11. Rebaba grande en salida del taladro 	Avance demasiado grande Demasiado desgaste Corte principal demasiado redondo	Reducir el avance Acortar los intervalos de ataque Hacer corte principal mas afilado
12. Mala calidad superficial 	Condiciones de trabajo poco estables / pieza poco tensada Salto demasiado grande Refrigerante insuficiente	Tensar mas la pieza Controlar y corregir salto Aumentar el volumen/presión de refrigerante

Aceros HSS

Las herramientas de acero rápido únicamente las fabricamos con tipos de acero de alta calidad. Según el tipo de aleación las herramientas adquieren características específicas para cada aplicación:

Wolframio, moliteno: incrementa la resistencia abrasiva y al desgaste.
Vanadio: incrementa la resistencia al desgaste
Cobalto: incrementa la resistencia al desgaste, mejora la dureza.

Descripción Gühring	Tipo	Campo de aplicación, características
HSS	acero rápido convencional	Material de corte para uso universal
HSCO / HSS-E	acero rápido aleado al cobalto	Material de corte con alta dureza térmica para exigencias altas, muy apropiado en temperaturas altas de corte o con poca refrigeración
M42	Aceros rápidos aleados con un 8% de cobalto	Material de corte con alta dureza térmica adecuado para mecanizados difíciles
HSS-E		
HSS-E-PM	Aceros rápidos aleados al cobalto y fabricados con polvo metalúrgico	Material de corte con una textura muy homogénea y alta dureza térmica, gran resistencia al desgaste y mucha estabilidad en los cortes

Los tipos de metal duro más importantes para herramientas Gühring

La siguiente tabla muestra los tipos de metal duro para aplicaciones de taladrado generales que Gühring lléva en su programa. Otros tipos se pueden suministar bajo petición de oferta. Puede obtener más información en www.guehring-carbide.de

En más del 80% de las aplicaciones los resultados de herramientas en DK460UF combinadas con un recubrimiento no se superaron por otro tipo de metal duro. Esto y el gran programa de existencias de este material facilitan la elección de las herramientas. Nuestros técnicos le asesorarán gustosamente en el caso de que convenga cambiar de tipo de metal duro.

Tipo	Contenido-Co [M-%]	W-grano [µm]	Dureza [HV]	Clasificación-ISO [ISO 513]	Características
DK460UF K40UF	10	0,6	1620	K20-K40	Tipo de amplia aplicación, sobre todo con recubrimiento, para mecanizar aleaciones blandas de aluminio, fundición de hierro o aleaciones como inconel 718. Este tipo es la gran base de nuestra producción.
DK500UF K44UF	12	0,5	1690	K20-K30	Tipo desarrollado especialmente para el trabajo en duro. Se distingue frente al DK460UF por su mayor dureza y tolerancia de deformación. Debido al alto contenido de cobalto se recomienda muchísimo aplicarla con recubrimiento.
DK255F	8	0,7	1720	K20	Este tipo se recomienda para el mecanizado en duro, el mecanizado de fundiciones grises muy duras y aleaciones de ALSi duras. Mecanizado en seco es posible. Recomendable el recubrimiento.
DK120	6	1,3	1620	K15-K20	Este tipo es adecuado con recubrimiento de diamante.
DK120UF	7	0,7	1850	K05-K10	Tipo de grano ultrafino con gran resistencia al desgaste, para mecanizados en máquinas completamente estables y sobretodo para escariadores.
K55SF	9	0,2-0,4	1920	K05-K10	Para aplicaciones en materiales muy resistentes al desgaste, aceros inoxidables, materiales de unión como Kevlar y GFK, mecanizados de alta velocidad y en seco.
DK400N	10	0,7	1580	K20-K40	Tipo de alta tenacidad para el mecanizado de materiales muy resistentes a la temperatura.
DK256EH	10	0,6	1750	K20	Este tipo de metal duro es especialmente apropiado para el mecanizado de aleaciones de niquel básicas
K6UF	6	0,6	1870	K05-K10	Tipo ultra-fino con máxima resistencia al desgaste. Muy apropiado para la aplicación en materiales de extrema dureza, tipo sandwich y CFK.
K5UF	5	0,5	2010	K05-K10	Tipo de alta dureza para el taladrado y el escariado. Muy apropiado para la aplicación en materiales de extrema dureza y CFK.

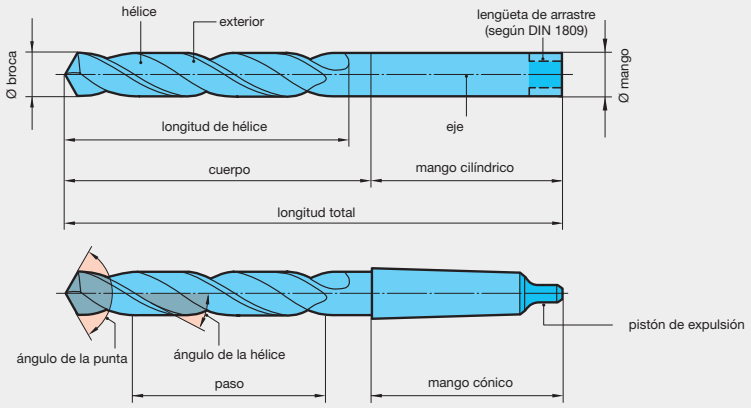
Materiales de herramientas superduros

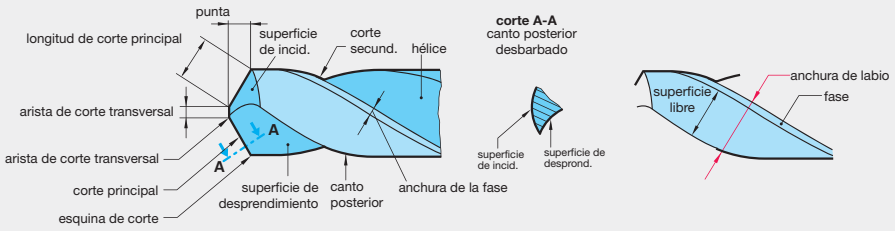
Los materiales de corte super-duros permiten gracias a su enorme dureza y resistencia a la temperatura altísimos parámetros de corte y así un máxima productividad. PKD (diamante policristalino) supone máxima resistencia al desgaste. Principal campo de aplicación para PKD esta en el mecanizado de aluminio y materiales fibrosos. PcBN (nitruro cúbico policristalino) encuentra su aplicación en materiales con contenido ferroso. Para aprovechar completamente el potencial de estos materiales de corte, se recomienda su aplicación en máquinas muy estables.

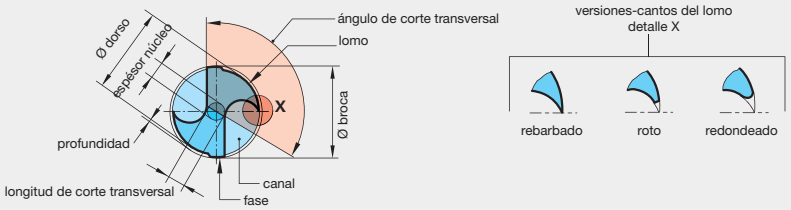
Denominación de Gühring	Clasificación	Campos de aplicación, Características	Tamaño de grano medio	Cantidad de material de corte
PKD	Grano fino	Aluminio y aleaciones AlSi < 10%, aleaciones de magnesio, latón, cobre, bronce, altísima calidad de los cantos de corte, alta resistencia al desgaste, muy buena calidad superficial.	2-4 µm	> 90% PKD
	Grano medio	Tipo universal (aplicaciones generales de acabado). Aleaciones AlSi <14% Si, aleaciones de cobre, grafito y uniones de grafitos, materiales fibrosos, metales duros y cerámicas sin sinterizar (<15% contenido de metal de alear), mucha resistencia al desgaste, gran calidad superficial	5-10 µm	ca. 92% PKD
	Grano basto	Aplicaciones de desbaste. Aleaciones AlSi > 14% Si y otras aplicaciones abrasivas, MMC, cerámica y metal duro sinterizados (<15% contenido en metal de alear), gran resistencia al desgaste, alta resistencia a golpes, alto rendimiento y calidades superficiales aceptables.	>25 µm	ca. 94% PKD
	Grano mezclado	Aplicaciones muy abrasivas (p.ej. >14% aleaciones AlSi, MMC, uniones de materiales fibrosos), máxima resistencia al desgaste, muy buena resistencia a los golpes, extrema resistencia a la abrasividad manteniendo bien los cantos, alto rendimiento y buena calidad superficial.	4 µm+ 25 µm	ca. 95% PKD
PcBN 10..	Contenido bajo de CBN con base de MD	Para el acabado de entre otros materiales, aceros de aplicación general, aceros bonificados, aceros para herramientas, apropiado para la aplicación en cortes continuados y algo hasta muy interrumpidos con un ap inferior a 0,3 mm.Gran resistencia al desgaste, a los golpes, a la temperatura y a la tenacidad.	<1-4 µm	40-65% CBN
PcBN 20..	Contenido alto de CBN con base de MD	Para la aplicación entre otros en fundiciones perlíticas (>45 HRC), aceros PM y fundiciones de capa dura. Aplicación en corte continuado e interrumpido con ap 0,5-1,5mm. Alta resistencia al desgaste y a los golpes.	2-3 µm	70-90% CBN
PcBN 30..	Contenido alto de CBN sin base de MD	Masivo material de corte PcBN apropiado para mecanizados de desbaste. Fundición perlítica, fundición dura, aceros endurecidos. Para la aplicación en porta-placas, taladrados y retaladrados, cabezales de fresar. Alta resistencia al desgaste y a los golpes.	2-20 µm	70-87% CBN

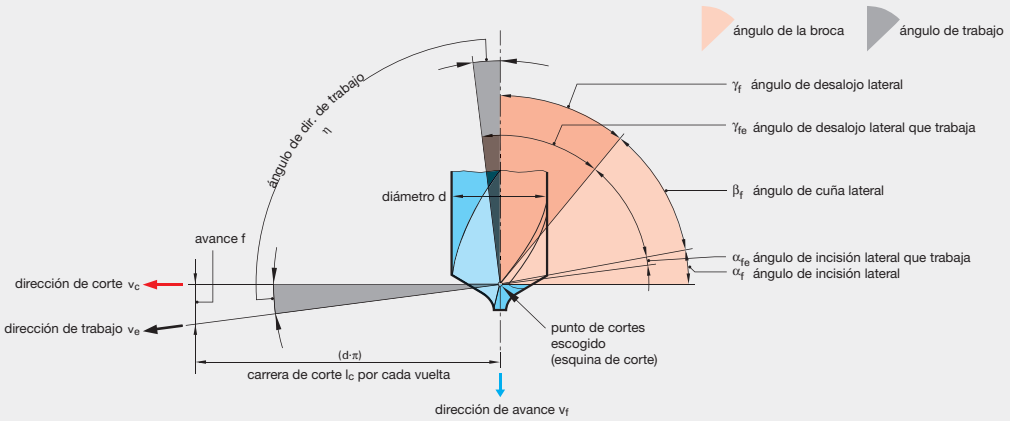
Términos técnicos, dimensiones y ángulos según DIN ISO 5419 (ext. de; edición 06/98)

Broca espiral con mango cilíndrico/cónico





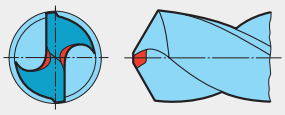




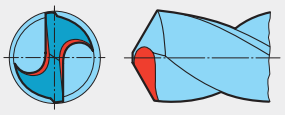
Parte técnica

Formas de afilado y precisión de fabricación

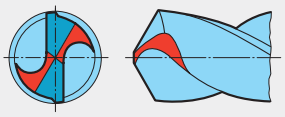
Formas de afilado DIN 1412 (ext. de; edición 03/01)



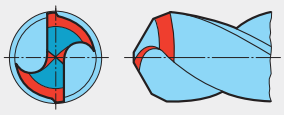
Forma A
Corte transversal vaciado de punta



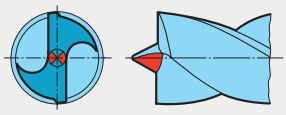
Forma B
Corte transversal vaciado de punta con corte principal corregido



Forma C
Afilado en cruz



Forma D
Afilado para fundición gris



Forma E
Punta centrada

Brocas espirales - precisión de fabricación según DIN ISO 286, parte 2

diámetros (medida nominal) hasta incl. mm	dimensiones µm h8	h7
0,38 … 0,60	10	7
0,95	12	8
3,00	14	10
6,00	18	12
10,00	22	15
18,00	27	18
30,00	33	21
50,00	39	25
80,00	46	30
120,00	54	35

* Si la precisión de fabricación normal ISO 8 no le es suficiente, rogamos que nos lo indiquen. Suplementos para tolerancias de medidas intermedias ver Lista de Suplementos al final del capítulo herramientas de taladrar.

Referencia a otras normas

DIN 228	Hoja 1 Conos de htas; conos Morse y conos métricos, mangos cónicos
DIN 1414-1	Condiciones técnicas de suministro para brocas espirales de acero rápido
DIN 6580	Conceptos de la téc. de extracción de viruta; Movim. y geo. del proceso de extr. de viruta
DIN 6581	Conceptos de la técnica de virutaje; Sistemas de referencia y ángulos en el corte de la hta.

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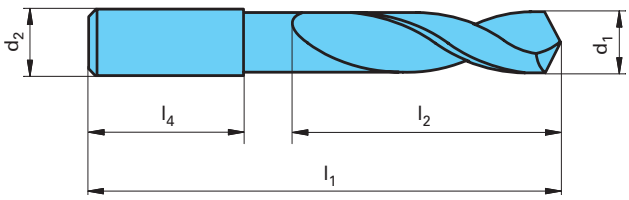
Brocas espirales de metal duro (brocas Ratio)

Brocas espiral de metal duro (brocas Ratio) DIN 6537

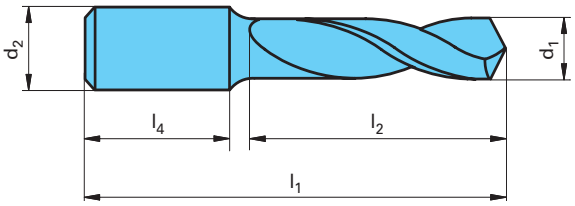
Válido para broca espiral enteriza MD con 2 ó 3 hilos y mango cilíndrico escalonado según DIN 6535



Medidas en mm

gama de Ø nom. hasta d1m7	Ø mango d2h6	brocas Ratio para 3 x D		brocas Ratio para 5 x D		longitud mango l4
		long. total l1	long. de la ranura max. l2	long. total l1	long. de la ranura max. l2	
2,9...3,75	6	62	20	66	28	36
4,75	6	66	24	74	36	36
6,00	6	66	28	82	44	36
7,00	8	79	34	91	53	36
8,00	8	79	41	91	53	36
10,00	10	89	47	103	61	40
12,00	12	102	55	118	71	45
14,00	14	107	60	124	77	45
16,00	16	115	65	133	83	48
18,00	18	123	73	143	93	48
20,00	20	131	79	153	101	50

Válido para broca espiral con placa de corte soldada o cabezal soldado de metal duro con mango cilíndrico reforzado de acero según DIN 6535. El cabezal soldado puede ser una parte o el elemento de corte completo.



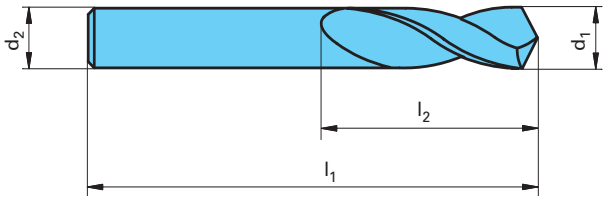
Medidas en mm

gama de Ø nom. hasta d1h7	Ø mango d2h6	brocas Ratio para 3 x D		brocas Ratio para 5 x D		brocas Ratio para 7 x D		longitud mango l4
		long. total l1	long. de la ranura max. l2	long. total l1	long. de la ranura max. l2	long. total l1	long. de la ranura max. l2	
9,5...12,0	16	103	51	127	75	151	99	48
14,0	16	111	59	139	87	167	115	48
16,0	20	122	68	154	100	186	132	50
18,0	20	130	76	166	112	202	148	50
20,0	25	144	84	184	124	224	164	56
22,0	25	153	93	197	137	241	181	56
24,0	25	161	101	209	149	257	197	56
26,0	32	174	110	226	162	278	214	60
28,0	32	182	118	238	174	294	230	60
30,0	32	190	126	250	186	310	246	60

Brocas espirales de metal duro (brocas Ratio)

Brocas espirales de metal duro (brocas Ratio) DIN 6539

Válido para broca espiral enteriza MD con mango cilíndrico continuo, es decir, con el mismo diámetro nominal del hilo y del mango.



Medidas en mm

gama de Ø nom. hasta (= Ø mango d2) d1	longitud total l1	longitud corte l2
1,90...2,12	38	12
2,36	40	13
2,65	43	14
3,00	46	16
3,35	49	18
3,75	52	20
4,25	55	22
4,75	58	24
5,30	62	26
6,00	66	28
6,70	70	31
7,50	74	34
8,00	79	37
8,50	79	37
9,50	84	40

gama de Ø nom. hasta (= Ø mango d2) d1	longitud total l1	longitud corte l2
	89	43
	89	43
	95	47
	102	51
	102	51
	107	54
	111	56
	115	58
	119	60
	123	62
	127	64
	131	66

Brocas espirales con mango cilíndrico

diamétro hasta (incl.) mm	long. total mm	long. ranura mm	long. total mm	long. ranura mm	long. total mm	long. ranura mm	long. total mm	long. ranura mm	long. total mm	long. ranura mm	long. total mm	long. ranura mm	long. total mm	long. ranura mm
≤ 0,24	19	2,5					19	1,5						
0,30	19	3					19	1,5						
0,38	19	4					19	2						
0,48	20	5			30*	10*	19	2,5						
0,53	22	6			32*	12*	20	3						
0,60	24	7	32*	15*	35*	15*	21	3,5						
0,67	26	8	36*	18*	38*	18*	22	4						
0,75	28	9	39*	20*	42*	21*	23	4,5						
0,85	30	10	42*	22*	46*	25*	24	5						
0,95	32	11	45*	24*	51*	29*	25	5,5						
1,06	34	12	48	26	56	33	26	6						
1,18	36	14	50	28	60	37	28	7						
1,32	38	16	52	30	65	41	30	8						
1,50	40	18	55	33	70	45	32	9						
1,70	43	20	58	35	76	50	34	10	115*	75*				
1,90	46	22	62	38	80	53	36	11	120*	80*				
2,12	49	24	66	41	85	56	38	12	125	85	160*	110*	205*	135*
2,36	53	27	70	44	90	59	40	13	135	90	170*	115*	215*	145*
2,65	57	30	74	47	95	62	43	14	140	95	180*	120*	225*	150*
3,00	61	33	79	51	100	66	46	16	150	100	190	130	240*	160*
3,35	65	36	84	55	106	69	49	18	155	105	200	135	250*	170*
3,75	70	39	91	60	112	73	52	20	165	115	210	145	265	180
4,25	75	43	96	64	119	78	55	22	175	120	220	150	280	190
4,75	80	47	102	69	126	82	58	24	185	125	235	160	295	200
5,30	86	52	108	74	132	87	62	26	195	135	245	170	315	210
6,00	93	57	116	80	139	91	66	28	205	140	260	180	330	225
6,70	101	63	124	86	148	97	70	31	215	150	275	190	350	235
7,50	109	69	133	93	156	102	74	34	225	155	290	200	370	250
8,50	117	75	142	100	165	109	79	37	240	165	305	210	390	265
9,50	125	81	151	107	175	115	84	40	250	175	320	220	410	280
10,60	133	87	162	116	184	121	89	43	265	185	340	235	430	295
11,80	142	94	173	125	195	128	95	47	280*	195*	365*	250*	455*	310*
13,20	151	101	184	134	205	134	102	51	295*	205*	375*	260*	480*	330*
14,00	160	108	194	142	214	140	107	54						
15,00	169	114	202	147	220	144	111	56						
16,00	178	120	211	153	227	149	115	58						
17,00	184	125	218	159	235	154	119	60						
18,00	191	130	226	165	241	158	123	62						
19,00	198	135	234	171	247	162	127	64						
20,00	205	140	242	177	254	166	131	66						
21,20					261	171	136	68						
22,40					268	176	141	70						
23,60					275	180	146	72						
25,00					282	185	151	75						
26,50					290	190	156	78						
28,00					298	195	162	81						
30,00					307	201	168	84						
31,50					316	207	174	87						
33,50							180	90						
35,50							186	93						
37,50							193	96						
40,00							200	100						
42,50							207	104						
45,00							214	108						
47,50							221	112						
50,00							228	116						

Gühring suministra brocas según norma de fábrica hasta 1000 mm de longitud total Art.Nº 242, 243, 244

* Norma Gühring

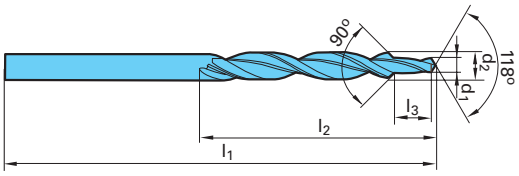
Brocas espirales con cono Morse

diamétro hasta (incl.) mm	DIN 345			DIN 346			DIN 341			Brocas para casquillos con cono reforzado*			Brocas GV/VA* para materiales difíciles de mecanizar			DIN 1870 Brocas espirales extra largas serie 1			DIN 1870 Brocas espirales extra largas serie 2		
	long. total	long. ranura	cono Morse	long. total	long. ranura	cono Morse	long. total	long. ranura	cono Morse	long. total	long. ranura	cono Morse	long. total	long. ranura	cono Morse	long. total	long. ranura	cono Morse	long. total	long. ranura	cono Morse
	mm			mm			mm			mm			mm			mm			mm		
2,65	111*	30*	1*																		
3,00	114	33	1																		
3,35	117	36	1																		
3,75	120	39	1																		
4,25	124	43	1				145*	64*	1*												
4,75	128	47	1				150*	69*	1*												
5,30	133	52	1				155	74	1												
6,00	138	57	1				161	80	1												
6,70	144	63	1				167	86	1												
7,50	150	69	1				174	93	1												
8,50	156	75	1				181	100	1				130	49	1	265	165	1	330	210	1
9,50	162	81	1				188	107	1				134	53	1	275	175	1	345	220	1
10,60	168	87	1	185*	87*	2*	197	116	1	214	116	2	138	57	1	285	185	1	360	235	1
11,80	175	94	1	192*	94*	2*	206	125	1	223	125	2	142	61	1	300	195	1	375	250	1
13,20	182	101	1	199	101	2	215	134	1	232	134	2	147	66	1	310	205	1	395	260	1
14,00	189	108	1	206	108	2	223	142	1	240	142	2	168	70	2	325	220	1	410	275	1
15,00	212	114	2	235*	114*	3*	245	147	2	268	147	3	172	74	2	340	220	2	425	275	2
16,00	218	120	2	241*	120*	3*	251	153	2	274	153	3	176	78	2	355	230	2	445	295	2
17,00	223	125	2	246*	125*	3*	257	159	2	280	159	3	179	81	2	355	230	2	445	295	2
18,00	228	130	2	251*	130*	3*	263	165	2	286	165	3	183	85	2	370	245	2	465	310	2
19,00	233	135	2	256	135	3	269	171	2	292	171	3	186	88	2	370	245	2	465	310	2
20,00	238	140	2	261	140	3	275	177	2	298	177	3	212	91	3	385	260	2	490	325	2
21,20	243	145	2	266	145	3	282	184	2	305	184	3	216	95	3	385	260	3	490	325	3
22,40	248	150	2	271	150	3	289	191	2	312	191	3	219	98	3	405	270	3	515	345	3
23,02	253	155	2	276	155	3	296	198	2	319	198	3	222	101	3	405	270	3	515	345	3
23,60	276	155	3	304*	155*	4*	319	198	3	347	198	4	222	101	3	425	270	3	535	345	3
25,00	281	160	3	309*	160*	4*	327	206	3	355	206	4	225	104	3	440	290	3	555	365	3
26,50	286	165	3	314*	165*	4*	335	214	3	363	214	4	256	107	4	440	290	3	555	365	3
28,00	291	170	3	319	170	4	343	222	3	371	222	4	259	110	4	460	305	3	580	385	3
30,00	296	175	3	324	175	4	351	230	3	379	230	4	263	114	4	460	305	3	580	385	3
31,50	301	180	3	329	180	4	360	239	3	388	239	4	266	117	4	480	320	3	610	410	3
31,75	306	185	3	334	185	4	369	248	3	397	248	4	269	120	4	480	320	3	610	410	3
33,50	334	185	4	372*	185*	5*	397	248	4	435	248	5	269	120	4	505	320	4	635	410	4
35,50	339	190	4	377*	190*	5*	406	257	4				272	123	4	530	340	4	665	430	4
37,50	344	195	4	382*	195*	5*	416	267	4				276	127	4	530	340	4	665	430	4
40,00	349	200	4	387*	200*	5*	426	277	4				317	130	5	555	360	4	695	460	4
42,50	354	205	4	392	205	5	436	287	4				320	133	5	555	360	4	695	460	4
45,00	359	210	4	397	210	5	447	298	4				323	136	5	585	385	4	735	490	4
47,50	364	215	4	402	215	5	459	310	4							585	385	4	735	490	4
50,00	369	220	4	407	220	5	470	321	4							605	405	4	765	510	4
50,80	374	225	4	412	225	5	475*	326*	4*												
53,00	412	225	5	479*	225*	6*	513*	326*	5*												
56,00	417	230	5	484*	230*	6*	518*	331*	5*												
60,00	422	235	5	489*	235*	6*	523*	336*	5*												
63,00	427	240	5	494*	240*	6*															
67,00	432	245	5	499	245	6															
71,00	437	250	5	504	250	6															
75,00	442	255	5	509	255	6															
76,50	447	260	5	514	206	6															
80,00	514	260	6																		
85,00	519	265	6																		
90,00	524	270	6																		
95,00	529	275	6																		
100,00	534	280	6																		
106,00	539*	285*	6*																		

Gühring suministra brocas según norma de fábrica hasta 1000 mm de longitud total Art.Nº 293, 298, 299, 563, 564, 565, 566

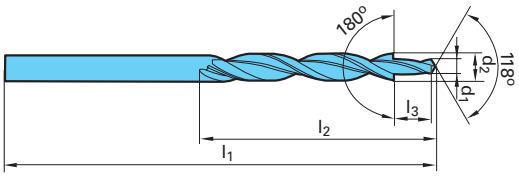
* Norma Gühring

Brocas bidiametrales cilíndricas, 90° ángulo de avellanado



Ø avellanado d2 h8 mm	Ø escalón d1 h9 mm	long. total l1 mm	long. ranura l2 mm	long. escalón l3 mm	para roscas	campo de aplicación
HSS DIN 8378/ MD Norma Guhring						
3,4	2,5	70	39	8,8	M 3	Para taladros de núcleo de rosca según DIN 336 y para avellanados de taladros pasantes de apertura según DIN ISO 273 (ant.) y DIN EN 20273 »tipo medio«.
4,5	3,3	80	47	11,4	M 4	
5,5	4,2	93	57	13,6	M 5	
6,6	5,0	101	63	16,5	M 6	
9,0	6,8	125	81	21,0	M 8	
11,0	8,5	142	94	25,5	M10	
13,5	10,2	160	108	30,0	M12	
DIN 8374 para avellanados, tipo fino						
6,0	3,2	93	57	9,0	M 3	Para taladros pasantes según DIN ISO 273 (ant.), DIN EN 20273 »tipo medio«, avellanados de cabeza de tornillo según DIN 74 forma F y avellanados de cabeza de tornillos formas A y B según DIN 74 parte 1 (ant.): »tipo fino«. Para tornillos según DIN 963 (ant.) y DIN 964 (ant.).
8,0	4,3	117	75	11,0	M 4	
10,0	5,3	133	87	13,0	M 5	
11,5	6,4	142	94	15,0	M 6	
15,0	8,4	169	114	19,0	M 8	
19,0	10,5	198	135	23,0	M10	
Norma Guhring para avellanados, tipo medio						
6,6	3,4	101	63	9,0	M 3	Para taladros pasantes según DIN ISO 273 (ant.) y avellanados de cabeza de tornillos formas A y B según DIN 74 parte 1 (ant.): »tipo medio«. Para tornillos según DIN 963 (ant.) y DIN 964 (ant.).
9,0	4,5	125	81	11,0	M 4	
11,0	5,5	142	94	13,0	M 5	
13,0	6,6	151	101	15,0	M 6	
17,2	9,0	191	130	19,0	M 8	
DIN 8374 para avellanados, tipo medio						
7,5	3,4	109	69	9,0	M 3	Para taladros pasantes según DIN ISO 273 (ant.) y avellanados de cabeza de tornillos formas A y B según DIN 74 parte 1 (ant.): »tipo medio«. Para tornillos según DIN 963 (ant.) y DIN 964 (ant.).
9,7	4,5	133	87	11,0	M 4	
12,0	5,5	151	101	13,0	M 5	
14,5	6,6	169	114	15,0	M 6	
19,9	9,0	198	135	19,0	M 8	

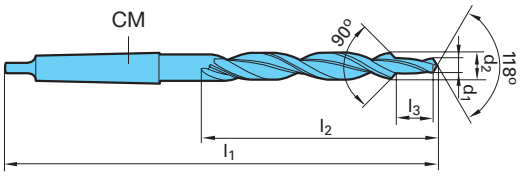
Brocas bidiametrales cilíndricas, 180° ángulo de avellanado



Ø avellanado d2 h8 mm	Ø escalón d1 h9 mm	long. total l1 mm	long. ranura l2 mm	long. escalón l3 mm	para roscas	campo de aplicación
			HSS DIN 8376/	MD Norma Guhring		
6,0**	3,4	93**	57**	9,0	M 3	Para taladros pasantes según DIN-ISO 273 (ant.), DIN EN 20 273 »tipo media«, avellanados de cabeza de tornillo según DIN 974-1 y avellanados de cabeza de tornillo formas H, J y K según DIN 74 parte 2 (ant.): »tipo media«. Para tornillos según DIN 84 (ant.), 912 (ant.), 6912, 7513 y DIN 7984.
6,5	3,4	101	63	9,0	M 3	
8,0	4,5	117	75	11,0	M 4	
10,0	5,5	133	87	13,0	M 5	
11,0	6,6	142	94	15,0	M 6	
15,0	9,0	169	114	19,0	M 8	
18,0	11,0	191	130	23,0	M10	
			Norma Guhring			
6,0	3,2	93	57	9,0	M 3	Para taladros pasantes según DIN-ISO 273 (ant.) y avellanados de cabeza de tornillo formas H, J y K según DIN 74 parte 2 (ant.): »tipo fina«. Para tornillos según DIN 84 (ant.), 912 (ant.), 6912, 7513 y DIN 7984.
8,0	4,3	117	75	11,0	M 4	
			Norma Guhring para avellanados, tipo fino (antiguo*)			
5,9	3,2	93	57	11,0	M 3	Para tornillos según DIN 84 (ant.), DIN 912 (ant.) y DIN 6912. Para avellanados de tipo antiguo de cabeza de tornillo formas H, J y K según DIN 75 parte 2: »tipo fina«.
7,4	4,3	109	69	13,0	M 4	
9,4	5,3	125	81	16,0	M 5	
10,4	6,4	133	87	19,0	M 6	
13,5	8,4	160	108	22,0	M 8	
16,5	10,5	184	125	25,0	M10	
			Norma Guhring para avellanados, tipo medio (antiguo*)			
8,0	4,8	117	75	13,0	M 3	Para tornillos según DIN 84 (ant.), DIN 912 (ant.) y DIN 6912. Para avellanados de tipo antiguo de cabeza de tornillo formas H, J y K según DIN 75 parte 2: »tipo media«.
10,0	5,8	133	87	16,0	M 4	
11,0	7,0	142	94	19,0	M 5	
14,5	9,5	169	114	22,0	M 6	
17,5	11,5	191	130	25,0	M 8	

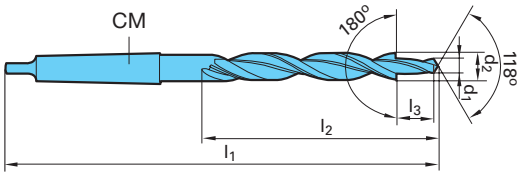
* DIN 75, parte 2; ** Norma Guhring

Brocas bidiametrales CM, 90° ángulo de avellanado



Ø avellanado d2 h8 mm	Ø escalón d1 h9 mm	long. total l1 mm	long. ranura l2 mm	cono Morse MK	long. escalón l3 mm	para roscas	campo de aplicación
Norma Guhring							
11,0	5,5	175	94	1	13,0	M 5	Para taladros pasantes según DIN ISO 273 (ant.), DIN EN 20273 »tipo medio«, avellanados de cabeza de tornillos según DIN 74 forma F y avellanados de cabeza de tornillos formas A y B según DIN 74 parte 1 (ant.): »tipo medio«. Para tornillos según DIN 963 (ant.) y DIN 964 (ant.).
13,0	6,6	182	101	1	15,0	M 6	
17,2	9,0	228	130	2	19,0	M 8	
21,5	11,0	248	150	2	23,0	M10	
26,0	14,0	286	165	3	27,0	M12	
29,0	16,0	296	175	3	31,0	M14	
DIN 8375							
12,0	5,5	182	101	1	13,0	M 5	Para taladros pasantes según DIN ISO 273 (ant.), DIN EN 20273 »tipo medio«, avellanados de cabeza de tornillos según DIN 74 forma F y avellanados de cabeza de tornillos formas A y B según DIN 74 parte 1 (ant.): »tipo medio«. Para tornillos según DIN 963 (ant.) y DIN 964 (ant.).
14,5	6,6	---	108	1	15,0	M 6	
19,0	9,0	253	135	2	19,0	M 8	
23,0	11,0	248	155	2	23,0	M10	
Norma Guhring							
11,5	6,4	175	94	1	15,0	M 6	Para taladros pasantes según DIN ISO 273 (ant.) y avellanados de cabeza de tornillos formas A y B según DIN 74 parte 1 (ant.): »tipo fino«. Para tornillos según DIN 963 (ant.) y DIN 964 (ant.).
15,0	8,4	212	114	2	19,0	M 8	
19,0	10,5	233	135	2	23,0	M10	
23,0	13,0	253	155	2	27,0	M12	
26,0	15,0	286	165	3	31,0	M14	
30,0	17,0	296	175	3	35,0	M16	
DIN 8379							
9,0	6,8	162	81	1	21,0	M 8	Para taladros de núcleo de rosca según DIN 336, DIN EN 20273 »tipo medio« y para avellanados de taladros pasantes de apertura según DIN ISO 273 (ant.).
11,0	8,5	175	94	1	25,5	M10	
13,5	10,2	189	108	1	30,0	M12	
15,5	12,0	218	120	2	34,5	M14	
17,5	14,0	228	130	2	38,5	M16	
20,0	15,5	238	140	2	43,5	M18	
22,0	17,5	248	150	2	47,5	M20	

Brocas bidiametrales CM, 180° ángulo de avellanado



Ø avellanado d2 h8 mm	Ø escalón d1 h9 mm	long. total l1 mm	long. ranura l2 mm	cono Morse CM	long. escalón l3 mm	para roscas	campo de aplicación
HSS DIN 8377/ MD Norma Guhring							
10,0	5,5	168	87	1	13,0	M 5	Para taladros pasantes según DIN-ISO 273 (ant.), DIN EN 20273 »tipo medio«, avellanados de cabeza de tornillos según DIN 974-1 y avellanados de cabeza de tornillo formas H, J y K según DIN 74 parte 2 (ant.): »tipo media«. Para tornillos según DIN 84 (ant.), 912 (ant.), 6912, 7513 y DIN 7984.
11,0	6,6	175	94	1	15,0	M 6	
15,0	9,0	212	114	2	19,0	M 8	
18,0	11,0	228	130	2	23,0	M10	
20,0	13,5	238	140	2	27,0	M12	
24,0	15,5	281	160	3	31,0	M14	
26,0	17,5	286	165	3	35,0	M16	
30,0	20,0	296	175	3	39,0	M18	
33,0	22,0	334	185	4	43,0	M20	
Norma Guhring							
10,0	5,3	168	87	1	13,0	M 5	Para taladros pasantes según DIN-ISO 273 (ant.) y avellanados de cabeza de tornillo formas H, J y K según DIN 74 parte 2 (ant.): »tipo fina«. Para tornillos según DIN 84 (ant.), 912 (ant.), 6912, 7513 y DIN 7984.
11,0	6,4	175	94	1	15,0	M 6	
15,0	8,4	212	114	2	19,0	M 8	
18,0	10,5	228	130	2	23,0	M10	
20,0	13,0	238	140	2	27,0	M12	
24,0	15,0	281	160	3	31,0	M14	
26,0	17,0	286	165	3	35,0	M16	
Norma Guhring para avellanados, tipo fino (antiguo*)							
9,4	5,3	162	81	1	16,0	M 5	Para tornillos según DIN 84 (ant.), DIN 912 (ant.) y DIN 6912. Para avellanados de tipo antiguo de cabeza de tornillo formas H, J y K según DIN 75 parte 2: »tipo fina«.
10,4	6,4	168	87	1	19,0	M 6	
13,5	8,4	189	108	1	22,0	M 8	
16,5	10,5	223	125	2	25,0	M10	
19,0	13,0	233	135	2	28,0	M12	
23,0	15,0	253	155	2	30,0	M14	
25,0	17,0	281	160	3	33,0	M16	
28,0	19,0	291	170	3	36,0	M18	
31,0	21,0	301	180	3	39,0	M 20	
Norma Guhring para avellanados, tipo medio (antiguo*)							
10,0	5,8	168	87	1	16,0	M 5	Para tornillos según DIN 84 (ant.), DIN 912 (ant.) y DIN 6912. Para avellanados de tipo antiguo de cabeza de tornillo formas H, J y K según DIN 75 parte 2: »tipo media«.
11,0	7,0	175	94	1	19,0	M 6	
14,5	9,5	212	114	2	22,0	M 8	
17,5	11,5	228	130	2	25,0	M10	
20,0	14,0	238	140	2	28,0	M12	
24,0	16,0	281	160	3	30,0	M14	
26,0	18,0	286	165	3	33,0	M16	
29,0	20,0	296	175	3	36,0	M18	
33,0	23,0	334	185	4	39,0	M20	

pulg.	mm	pulg.	mm	pulg.	mm	pulg.	mm	CM	pulg.	mm	para roscas	campo de aplicación
British Standard												
19/32	15,08	25/64	9,92	8 5/8	219	4 3/4	121	2	3/4	19,05	3/8 pulg.	Para tornillos de cabeza plana según norma británica.
21/32	16,67	29/64	11,51	8 3/4	222	4 7/8	124	2	7/8	22,22	7/16 pulg.	
25/32	19,84	33/64	13,10	9 3/8	238	5 1/2	140	2	1	25,40	1/2 pulg.	

* DIN 75, parte 2

Brocas escariadoras cilíndricas

diámetro hasta incl. mm	DIN 344				
	longitud total mm	longitud ranura mm	diámetro hasta incl. mm	longitud total mm	longitud ranura mm
4,25	96*	64*	11,70	173	125
4,75	102*	69*	13,20	184	134
5,30	108	74	14,00	194	142
6,00	116	80	15,00	202	147
6,70	124	86	16,00	211	153
7,50	133	93	17,00	218	159
8,50	142	100	18,00	226	165
9,50	151	107	19,00	234	171
10,60	162	116	20,00	242	177

Brocas esc. huecas

DIN 222		
Ø nom. hasta incl. mm	longitud total mm	Ø nom. del taladro mm
35,5	45	13
45,0	50	16
53,0	56	19
63,0	63	22
75,0	71	27
90,0	80	32
101,6	90	40

Brocas escariadoras con cono Morse

diámetro hasta incl. mm	DIN 343			DIN 1864		
	longitud total mm	longitud ranura mm	cono Morse	longitud total mm	longitud ranura mm	cono Morse
7,50	150*	69*	1*	174*	93*	1*
8,50	156*	75*	1*	181*	100*	1*
9,50	162	81	1	188	107	1
10,60	168	87	1	197	116	1
11,70	175	94	1	206	125	1
13,20	182	101	1	215	134	1
14,00	189	108	1	223	142	1
15,00	212	114	2	245	147	2
16,00	218	120	2	251	153	2
17,00	223	125	2	257	159	2
18,00	228	130	2	263	165	2
19,00	233	135	2	269	171	2
20,00	238	140	2	275	177	2
21,20	243	145	2	282	184	2
22,40	248	150	2	289	191	2
23,60	253	155	2	296	198	2
25,00	281	160	3	327	206	3
26,50	286	165	3	335	214	3
28,00	291	170	3	343	222	3
30,00	296	175	3	351	230	3
31,50	301	180	3	360	239	3
33,50	334	185	4			
35,50	339	190	4			
37,50	344	195	4			
40,00	349	200	4			
42,50	354	205	4			
45,00	359	210	4			
47,50	364	215	4			
50,00	369	220	4			

*Norma Guhring

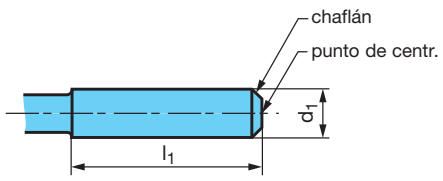
Microbrocas de precisión (longitud total 25 mm)

DIN 1899					
diámetro hasta incl. mm	Ø del mango mm	longitud ranura mm	diámetro hasta incl. mm	Ø del mango mm	longitud ranura mm
da 0,1 . . . 0,12	1,0	0,5	0,67	1,0	4,2
0,15	1,0	0,8	0,75	1,0	4,8
0,19	1,0	1,1	0,79	1,0	5,3
0,24	1,0	1,5	0,85	1,5	5,3
0,30	1,0	1,9	0,95	1,5	6,0
0,38	1,0	2,4	1,06	1,5	6,8
0,48	1,0	3,0	1,18	1,5	7,6
0,53	1,0	3,4	1,32	1,5	8,5
0,60	1,0	3,9	1,45	1,5	9,5

Mangos cilíndricos para herramientas de acero rápido, DIN 1835-1 (extracto)

Forma A, plano

Medidas en mm

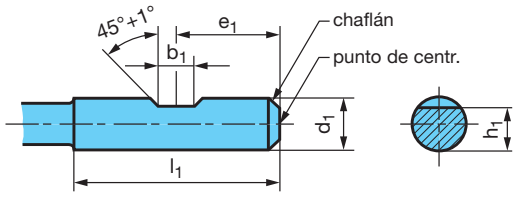


d_1 h8	l_1 +2 0	d_1 h8	l_1 +2 0	d_1 h8	l_1 +2 0
3	28	12	45	50	80
4	28	16	48	63	90
5	28	20	50		
6	36	25	56		
8	36	32	60		
10	40	40	70		

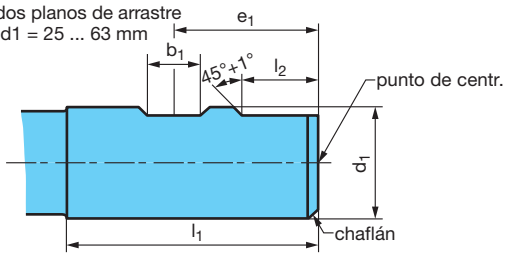
Forma B, con plano de arrastre

Medidas en mm

con un plano de arrastre
para d1 = 6 ... 20 mm



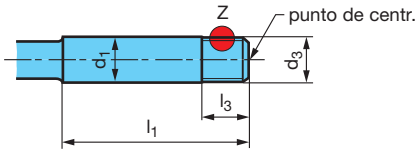
con dos planos de arrastre
para d1 = 25 ... 63 mm



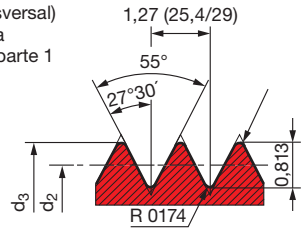
d_1 h6	b_1 +0,05 0	e_1 0 -1	h_1 h13	l_1 +2 0	l_2 +1 0	punto de centr. forma R DIN 332 parte 1
6	4,2	18	4,8	36	-	1,6x2,5
8	5,5	18	6,6	36	-	1,6x3,35
10	7	20	8,4	40	-	1,6x3,35
12	8	22,5	10,4	45	-	1,6x3,35
16	10	24	14,2	48	-	2,0x4,25
20	11	25	18,2	50	-	2,5x5,3
25	12	32	23	56	17	2,5x5,3
32	14	36	30	60	19	3,15x6,7
40	14	40	38	70	19	3,15x6,7
50	18	45	47,8	80	23	3,15x6,7
63	18	50	60,8	90	23	3,15x6,7

Forma D, con rosca tensora

Medidas en mm



Detalle Z
(sección transversal)
perfil de rosca
DIN ISO 228 parte 1

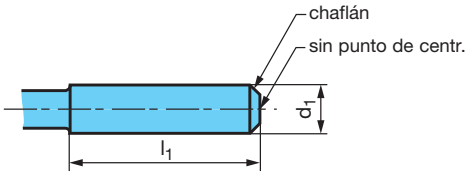


d_1 h8	d_3	zona de tol.	d_2	zona de tol.	l_1 +2 0	l_3 +2 0	punto de centr. forma R DIN 332 parte 1
6	5,9	0 -0,1	5,087	0 -0,1	36	10	1,6 x 2,5
10	9,9	0 -0,1	9,087	0 -0,1	40	10	1,6 x 3,35
12	11,9	0 -0,1	11,087	0 -0,1	45	10	1,6 x 3,35
16	15,9	0 -0,1	15,087	0 -0,1	48	10	2,0 x 4,25
20	19,9	0 -0,15	19,087	0 -0,15	50	15	2,5 x 5,3
25	24,9	0 -0,15	24,087	0 -0,15	56	15	2,5 x 5,3
32	31,9	0 -0,15	31,087	0 -0,15	60	15	3,15 x 6,7

Mangos cilíndricos para brocas espirales y fresas frontales de metal duro DIN 6535

Forma HA, plano

Medidas en mm

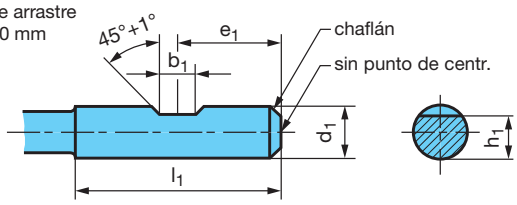


d_1 h6	l_1 +2 0	d_1 h6	l_1 +2 0
2	28	14	45
3	28	16	48
4	28	18	48
5	28	20	50
6	36	25	56
8	36	32	60
10	40		
12	45		

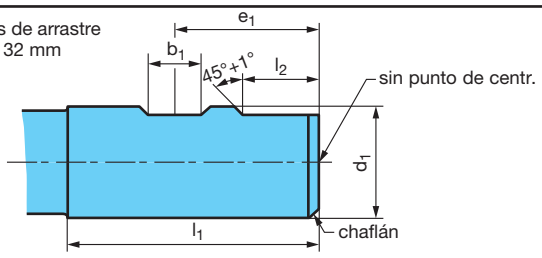
Forma HB, con plano de arrastre

Medidas en mm

con un plano de arrastre para d1 = 6 y 20 mm



con dos planos de arrastre para d1 = 25 y 32 mm



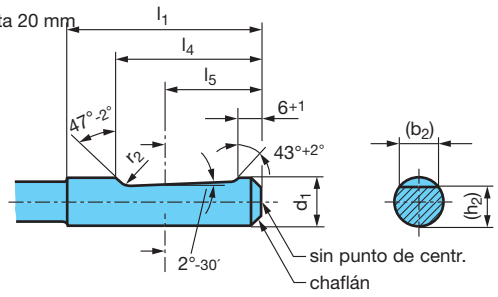
d_1 h6	b_1 +0,05 0	e_1 0 -1	h_1 h11	l_1 +2 0	l_2 +1 0
6	4,2	18	5,1	36	–
8	5,5	18	6,9	36	–
10	7	20	8,5	40	–
12	8	22,5	10,4	45	–
14	8	22,5	12,7	45	–
16	10	24	14,2	48	–
18	10	24	16,2	48	–
20	11	25	18,2	50	–
25	12	32	23	56	17
32	14	36	30	60	19

Forma HE, con muesca de sujeción sin refrigeración interior*

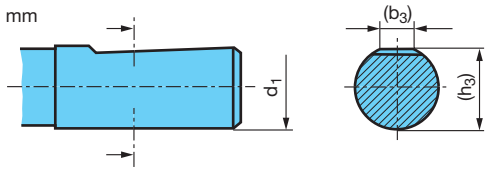
* Diseño: Estos mangos cilíndricos, según DIN 6535, están disponibles con o sin canales de refrigeración. Sus aplicaciones para las diferentes herramientas, las medidas y la posición de los canales de refrigeración están comprendidos en las normas correspondientes.

Medidas en mm

para d1 = 6 hasta 20 mm



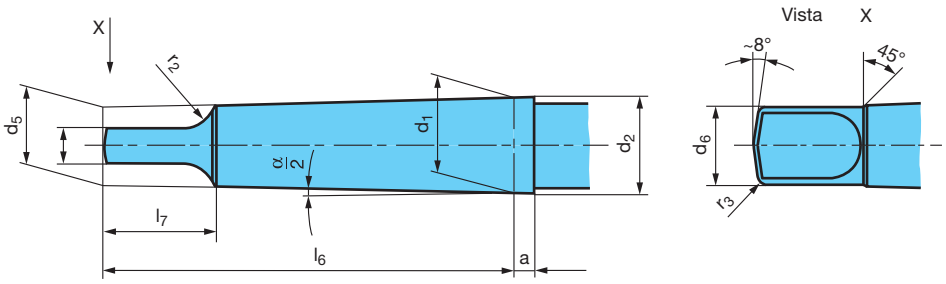
para d1 = 25 y 32 mm



d_1 h6	(b_2) ≈	(b_3)	h_2 h11	(h_3)	l_1 +2 0	l_4 0 -1	l_5 Tamaño	r_2 min.
6	4,3	–	5,1	–	36	25	18	1,2
8	5,5	–	6,9	–	36	25	18	1,2
10	7,1	–	8,5	–	40	28	20	1,2
12	8,2	–	10,4	–	45	33	22,5	1,2
14	8,1	–	12,7	–	45	33	22,5	1,2
16	10,1	–	14,2	–	48	36	24	1,6
18	10,8	–	16,2	–	48	36	24	1,6
20	11,4	–	18,2	–	50	38	25	1,6
25	13,6	9,3	23,0	24,1	56	44	32	1,6
32	15,5	9,9	30,0	31,2	60	48	35	1,6

Cono morse DIN 228 Parte 1 (extracto)

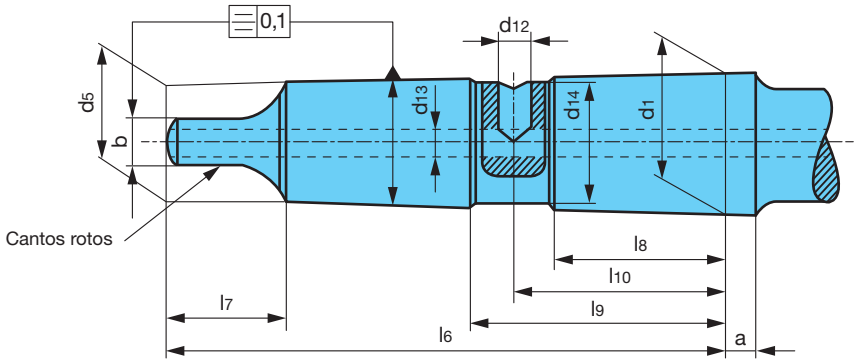
Firma B, cono morse con tetilla de arrastre



Medidas en mm

mango según DIN 228 Forma B Tamanho	a	Dimensões limite	b	d_1	d_2 ≈	d_5 ≈	d_6 max.	l_6 0 -1	l_7 max.	r_2 max.	r_3 ≈	$\frac{\alpha}{2}$
CM 1	3,5	+1,4 0	5,2	12,065	12,2	9,0	8,7	62	13,5	5	1,2	1°25´43´´
CM 2	5,0	+1,4 0	6,3	17,780	18,0	14,0	13,5	75	16	6	1,6	1°25´50´´
CM 3	5,0	+1,7 0	7,9	23,825	24,1	19,1	18,5	94	20	7	2	1°26´16´´
CM 4	6,5	+1,9 0	11,9	31,267	31,6	25,2	24,5	117,5	24	8	2,5	1°29´15´´
CM 5	6,5	+1,9 0	15,9	44,399	44,7	36,5	35,7	149,5	29	10	3	1°30´26´´

Forma BK, cono morse con tetilla de arrastre y entrada de refrigerante



Medidas en mm

mango según DIN 228 Forma BK Tamanho	a ±0,1	Dimensões limite	b h13	d_1	d_5 ≈	d_{12}	d_{13}	d_{14} 0 -0,01	l_6 0 -1	l_7 max.	l_8	l_9	l_{10}
CM 1	3,5	+1,4 0	5,2	12,065	9,0	-	-	-	62	13,5	-	-	-
CM 2	5	+1,4 0	6,3	17,780	14,0	4,2	4,2	15,0	75	16	20	34	27
CM 3	5	+1,7 0	7,9	23,825	19,1	5,0	5,0	21,0	94	20	29	43	36
CM 4	6,5	+1,9 0	11,9	31,267	25,2	6,8	6,8	28,0	117,5	24	39	55	47
CM 5	6,5	+1,9 0	15,9	44,399	36,5	8,5	8,5	40,0	149,5	29	51	69	60

Tolerancias brocas de centrar

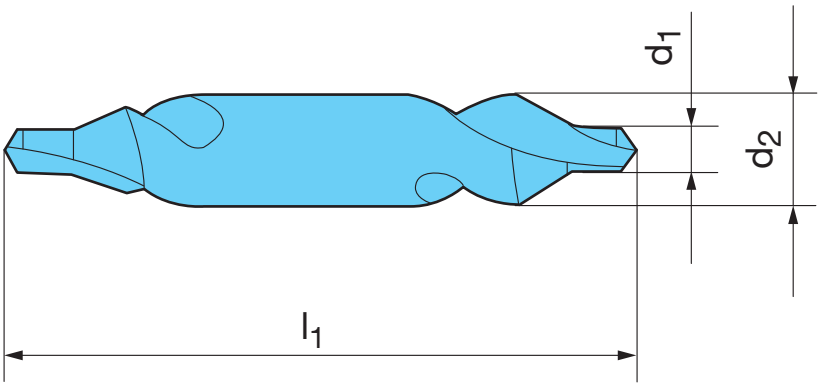
DIN 333	
Gama de Ø d1 mm	Campos de tolerancia d1 mm
0,50 – 2,50	0 +0,14
3,15 – 5,00	0 +0,18
6,30 – 10,00	0 +0,22
12,50	0 +0,27

para N° art. 285/286	
Gama de Ø d1 mm	Campos de tolerancia d1 mm
1,00 –1,25	0 +0,10
1,60 – 3,15	0 +0,15
3,15 – 10,00	0 +0,20

según B.S. 328	
Gama de Ø d1 mm	Campos de tolerancia d1 mm
1,19 – 1,59	0 ±0,05
2,38 – 3,17	0 ±0,07
4,76	0 ±0,07
6,35 – 7,94	0 ±0,12

según B.S. 328	
Gama de Ø mango d1 mm	Campos de tolerancia d1 mm
3,17 – 4,76	-0,020
6,35	-0,025
7,94 – 11,11	-0,050
15,87 – 19,05	-0,050

según ASA	
Gama de Ø d1 mm	Campos de tolerancia d1 mm
todos	0 + 0,07 mm



Diámetros de pretaladro para el fresado de roscas

Roscas métrica normalizada ISO DIN 13

Diá. nom.	Paso P mm	Ø d. pretal. roscas p. taladr. DIN 336 mm	Diámetro pretaladro roscas de tuercas 6H* min. mm	max. mm
M 1	0,25	**0,75**	0,729	0,785
M 1,1	0,25	**0,85**	0,829	0,885
M 1,2	0,25	**0,95**	0,929	0,985
M 1,4	0,30	**1,10**	1,075	1,142
M 1,6	0,35	**1,25**	1,221	1,321
M 1,8	0,35	**1,45**	1,421	1,521
M 2	0,40	**1,60**	1,567	1,679
M 2,2	0,45	**1,75**	1,713	1,838
M 2,5	0,45	**2,05**	2,013	2,138
M 3	0,50	**2,50**	2,459	2,599
M 3,5	0,60	**2,90**	2,850	3,010
M 4	0,70	**3,30**	3,242	3,422
M 4,5	0,75	**3,70**	3,688	3,878
M 5	0,80	**4,20**	4,134	4,334
M 6	1,00	**5,00**	4,917	5,153
M 7	1,00	**6,00**	5,917	6,153
M 8	1,25	**6,80**	6,647	6,912
M 9	1,25	**7,80**	7,647	7,912
M 10	1,50	**8,50**	8,376	8,676
M 11	1,50	**9,50**	9,376	9,676
M 12	1,75	**10,20**	10,106	10,441
M 14	2,00	**12,00**	11,835	12,210
M 16	2,00	**14,00**	13,835	14,210
M 18	2,50	**15,50**	15,294	15,744
M 20	2,50	**17,50**	17,294	17,744
M 22	2,50	**19,50**	19,294	19,744
M 24	3,00	**21,00**	20,752	21,252
M 27	3,00	**24,00**	23,752	24,252
M 30	3,50	**26,50**	26,211	26,771
M 33	3,50	**29,50**	29,211	29,771
M 36	4,00	**32,00**	31,670	32,270
M 39	4,00	**35,00**	34,670	35,270
M 42	4,50	**37,50**	37,129	37,799
M 45	4,50	**40,50**	40,129	40,799
M 48	5,00	**43,00**	42,587	43,297
M 52	5,00	**47,00**	46,587	47,297
M 56	5,50	**50,50**	50,046	50,796

Roscas métrica fina DIN 13

Diá. nom.	x	Paso P mm	Ø d. pretal. roscas p. taladr. DIN 336 mm	Diámetro pretaladro roscas de tuercas 6H min. mm	max. mm
M 2,5	x	0,35	**2,15**	2,121	2,221
M 3,0	x	0,35	**2,65**	2,621	2,721
M 3,5	x	0,35	**3,15**	3,121	3,221
M 4,0	x	0,50	**3,50**	3,459	3,599
M 4,5	x	0,50	**4,00**	3,959	4,099
M 5,0	x	0,50	**4,50**	4,459	4,599
M 5,5	x	0,50	**5,00**	4,959	5,099
M 6,0	x	0,75	**5,20**	5,188	5,378
M 7,0	x	0,75	**6,20**	6,188	6,378
M 8,0	x	0,50	**7,50**	7,459	7,599
M 8,0	x	0,75	**7,20**	7,188	7,378
M 8,0	x	1,00	**7,00**	6,917	7,153
M 9,0	x	0,75	**8,20**	8,188	8,378
M 9,0	x	1,00	**8,00**	7,917	8,153
M 10	x	0,75	**9,20**	9,188	9,378
M 10	x	1,00	**9,00**	8,917	9,153
M 10	x	1,25	**8,80**	8,647	8,912
M 11	x	0,75	**10,20**	10,188	10,378
M 11	x	1,00	**10,00**	9,917	10,153
M 12	x	1,00	**11,00**	10,917	11,153
M 12	x	1,25	**10,80**	10,647	10,912
M 12	x	1,50	**10,50**	10,376	10,676
M 14	x	1,00	**13,00**	12,917	13,153
M 14	x	1,25	**12,80**	12,647	12,912
M 14	x	1,50	**12,50**	12,376	12,676
M 15	x	1,00	**14,00**	13,917	14,153
M 15	x	1,50	**13,50**	13,376	13,676
M 16	x	1,00	**15,00**	14,917	15,153
M 16	x	1,25	**14,80**	14,647	14,912
M 16	x	1,50	**14,50**	14,376	14,676
M 17	x	1,00	**16,00**	15,917	16,153
M 17	x	1,50	**15,50**	15,376	15,676
M 18	x	1,00	**17,00**	16,917	17,153
M 18	x	1,50	**16,50**	16,376	16,676
M 20	x	1,00	**19,00**	18,917	19,153
M 20	x	1,50	**18,50**	18,376	18,676
M 20	x	2,00	**18,00**	17,835	18,210
M 22	x	1,00	**21,00**	20,917	21,153
M 22	x	1,50	**20,50**	20,376	20,676
M 22	x	2,00	**20,00**	19,835	20,210
M 24	x	1,00	**23,00**	22,917	23,153
M 24	x	1,50	**22,50**	22,376	22,676
M 24	x	2,00	**22,00**	21,835	22,210
M 25	x	1,00	**24,00**	23,917	24,153
M 25	x	1,50	**23,50**	23,376	23,676
M 25	x	2,00	**23,00**	22,835	23,210
M 27	x	1,00	**26,00**	25,917	26,153
M 27	x	1,50	**25,50**	25,376	25,676
M 27	x	2,00	**25,00**	24,835	25,210
M 28	x	1,00	**27,00**	26,917	27,153
M 28	x	1,50	**26,50**	26,376	26,676
M 28	x	2,00	**26,00**	25,835	26,210
M 30	x	1,00	**29,00**	28,917	29,153
M 30	x	1,50	**28,50**	28,376	28,676
M 30	x	2,00	**28,00**	27,835	28,210
M 30	x	3,00	**27,00**	26,752	27,252
M 32	x	1,50	**30,50**	30,376	30,676
M 32	x	2,00	**30,00**	29,835	30,210
M 33	x	1,50	**31,50**	31,376	31,676
M 33	x	2,00	**31,00**	30,835	31,210
M 33	x	3,00	**30,00**	29,752	30,252
M 35	x	1,50	**33,50**	33,376	33,676
M 36	x	1,50	**34,50**	34,376	34,676

Roscas UNC ASME B1.1

Diá. nom.		hilos por pulgada	Ø d. pretal. roscas p. taladr. DIN 336 mm	Diámetro pretaladro roscas de tuercas 2B min. mm	max. mm
Nr. 1	-	64	**1,55**	1,425	1,580
Nr. 2	-	56	**1,85**	1,694	1,872
Nr. 3	-	48	**2,10**	1,941	2,146
Nr. 4	-	40	**2,35**	2,157	2,385
Nr. 5	-	40	**2,65**	2,487	2,698
Nr. 6	-	32	**2,85**	2,642	2,896
Nr. 8	-	32	**3,50**	3,302	3,531
Nr. 10	-	24	**3,90**	3,683	3,937
Nr. 12	-	24	**4,50**	4,343	4,597
1/4	-	20	**5,10**	4,978	5,258
5/16	-	18	**6,60**	6,401	6,731
3/8	-	16	**8,00**	7,798	8,153
7/16	-	14	**9,40**	9,144	9,550
1/2	-	13	**10,80**	10,592	11,024
9/16	-	12	**12,20**	11,989	12,446
5/8	-	11	**13,50**	13,386	13,868
3/4	-	10	**16,50**	16,307	16,840
7/8	-	9	**19,50**	19,177	19,761
1	-	8	**22,25**	21,971	22,606
1 1/8	-	7	**25,00**	24,638	25,349
1 1/4	-	7	**28,00**	27,813	28,524
1 3/8	-	6	**30,75**	30,353	31,115
1 1/2	-	6	**34,00**	33,528	34,290
1 3/4	-	5	**39,50**	38,938	39,802
2	-	4,5	**45,00**	44,679	45,593

* M 1,1 hasta M 1,4 Ø-pretaladro roscas de tuerca 5 H

Roscas MJ DIN ISO 5855

Diá. nom.	x	Paso P mm	Ø d. pretal. roscas p. taladr. DIN 336 mm	Diámetro pretaladro roscas de tuercas 5H* min. mm	max. mm
MJ 3	x	0,50	**2,60**	2,513	2,653
MJ 4	x	0,70	**3,40**	3,318	3,498
MJ 5	x	0,80	**4,30**	4,221	4,421
MJ 6	x	0,50	**5,55**	5,513	5,625
MJ 6	x	0,75	**5,35**	5,269	5,419
MJ 6	x	1,00	**5,10**	5,026	5,216
MJ 8	x	0,50	**7,55**	7,513	7,625
MJ 8	x	0,75	**7,35**	7,269	7,419
MJ 8	x	1,00	**7,10**	7,026	7,216
MJ 8	x	1,25	**6,90**	6,782	6,994
MJ 10	x	1,00	**9,10**	9,026	9,216
MJ 10	x	1,25	**8,90**	8,782	8,994
MJ 10	x	1,50	**8,60**	8,539	8,775
MJ 12	x	1,75	**10,40**	10,295	10,560
MJ 16	x	2,00	**14,20**	14,051	14,351

* MJ3 x0,50 hasta MJ 5 x 0,80 Ø-pretaladro rosca de tuerca 6H

Roscas UNJC ISO 3161

Diá. nom.		hilos por pulgada	Ø d. pretal. roscas p. taladr. DIN 336 mm	Diámetro pretaladro roscas de tuercas 3B min. mm	max. mm
Nr. 6	-	32	**2,85**	2,733	2,939
Nr. 8	-	32	**3,55**	3,393	3,599
Nr. 10	-	24	**4,00**	3,795	4,064
Nr. 12	-	24	**4,60**	4,455	4,704
1/4	-	20	**5,30**	5,113	5,387
5/16	-	18	**6,75**	6,563	6,833
3/8	-	16	**8,20**	7,978	8,255
7/16	-	14	**9,60**	9,346	9,639
1/2	-	13	**11,00**	10,798	11,095
9/16	-	12	**12,40**	12,228	12,482
5/8	-	11	**13,80**	13,627	13,904

Roscas UNJF ISO 3161

Diá. nom.		hilos por pulgada	Ø d. pretal. roscas p. taladr. DIN 336 mm	Diámetro pretaladro roscas de tuercas 3B min. mm	max. mm
Nr. 6	-	40	**3,00**	2,888	3,053
Nr. 8	-	36	**3,60**	3,480	3,663
Nr. 10	-	32	**4,20**	4,054	4,255
Nr. 12	-	28	**4,75**	4,602	4,816
1/4	-	28	**5,60**	5,466	5,662
5/16	-	24	**7,00**	6,906	7,109
3/8	-	24	**8,60**	8,494	8,679
7/16	-	20	**10,00**	9,876	10,084
1/2	-	20	**11,60**	11,463	11,661
9/16	-	18	**13,00**	12,913	13,122
5/8	-	18	**14,60**	14,501	14,702

Roscas UNF ASME B1.1				
Diá. nom.	hilos por pulgada	Ø d. pretal. roscas p. taladr. DIN 336 mm	Diámetro pretaladro roscas de tuercas 2B min. mm	max. mm
Nr. 1 -	72	**1,55**	1,473	1,610
Nr. 2 -	64	**1,85**	1,755	1,910
Nr. 3 -	56	**2,15**	2,024	2,197
Nr. 4 -	48	**2,40**	2,271	2,459
Nr. 5 -	44	**2,70**	2,550	2,741
Nr. 6 -	40	**2,95**	2,819	3,023
Nr. 8 -	36	**3,50**	3,404	3,607
Nr. 10 -	32	**4,10**	3,962	4,166
Nr. 12 -	28	**4,60**	4,496	4,724
1/4 -	28	**5,50**	5,359	5,588
5/16 -	24	**6,90**	6,782	7,036
3/8 -	24	**8,50**	8,382	8,636
7/16 -	20	**9,90**	9,728	10,033
1/2 -	20	**11,50**	11,328	11,608
9/16 -	18	**12,90**	12,751	13,081
5/8 -	18	**14,50**	14,351	14,681
3/4 -	16	**17,50**	17,323	17,678
7/8 -	14	**20,40**	20,269	20,650
1 -	12	**23,25**	23,114	23,571
1 1/8 -	12	**26,50**	26,289	26,746
1 1/4 -	12	**29,50**	29,464	29,921
1 3/8 -	12	**32,75**	32,639	33,096
1 1/2 -	12	**36,00**	35,814	36,271

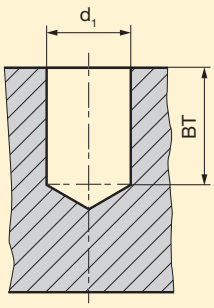
Roscas BSW-(Whitworth) BS84				
Diá. nom.	hilos por pulgada	Ø d. pretal. roscas p. taladr. DIN 336 mm	Diámetro pretaladro roscas de tuercas 2B min. mm	max. mm
W 1/16	60	**1,20**	1,045	1,230
W 3/32	48	**1,80**	1,704	1,912
W 1/8	40	**2,50**	2,362	2,591
W 5/32	32	**3,20**	2,952	3,214
W 3/16	24	**3,60**	3,407	3,745
W 7/32	24	**4,50**	4,201	4,539
W 1/4	20	**5,10**	4,724	5,156
W 5/16	18	**6,50**	6,130	6,590
W 3/8	16	**7,90**	7,492	7,987
W 7/16	14	**9,20**	8,789	9,330
W 1/2	12	**10,50**	9,989	10,591
W 9/16	12	**12,00**	11,577	12,179
W 5/8	11	**13,50**	12,918	13,558
W 3/4	10	**16,25**	15,797	16,483
W 7/8	9	**19,25**	18,611	19,353
W 1	8	**22,00**	21,334	22,147
W 1 1/8	7	**24,50**	23,928	24,832
W 1 1/4	7	**27,75**	27,103	28,007
W 1 3/8	6	**30,50**	29,504	30,528
W 1 1/2	6	**33,50**	32,679	33,703
W 1 5/8	5	**35,50**	34,769	35,963
W 1 3/4	5	**39,00**	37,944	39,138
W 2	4,5	**44,50**	43,571	44,877

Roscas withworth para tubos (según DIN-ISO 228-1)				
Diá. nom. pulgada	hilos por pulgada	Ø d. pretal. roscas p. taladr. DIN 336 mm	Diámetro pretaladro roscas de tuercas min. mm	max. mm
G 1/16	28	**6,80**	6,561	6,843
G 1/8	28	**8,80**	8,566	8,848
G 1/4	19	**11,80**	11,445	11,890
G 3/8	19	**15,25**	14,950	15,395
G 1/2	14	**19,00**	18,631	19,172
G 5/8	14	**21,00**	20,587	21,128
G 3/4	14	**24,50**	24,117	24,658
G 7/8	14	**28,25**	27,877	28,418
G 1	11	**30,75**	30,291	30,931
G 1 1/8	11	**35,50**	34,939	35,579
G 1 1/4	11	**39,50**	38,952	39,592
G 1 1/2	11	**45,25**	44,845	45,485
G 1 3/4	11	**51,00**	50,788	51,428
G 2	11	**57,00**	56,656	57,296

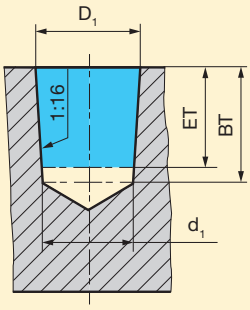
Roscas para tubos de blindaje de acero según DIN 40430				
Diá. nom.	hilos por pulgada	Ø d. pretal. roscas p. taladr. mm	Diámetro pretaladro roscas de tuercas min. mm	max. mm
Pg 7	20	**11,40**	11,280	11,430
Pg 9	18	**14,00**	13,860	14,010
Pg 11	18	**17,30**	17,260	17,410
Pg 13,5	18	**19,00**	19,060	19,210
Pg 16	18	**21,30**	21,160	21,310
Pg 21	16	**26,90**	26,780	27,030
Pg 29	16	**35,50**	35,480	35,730
Pg 36	16	**45,50**	45,480	45,730
Pg 42	16	**52,50**	52,480	52,730
Pg 48	16	**57,80**	57,780	58,030

NPT ANSI B 2.1
Roscas americana, cónica para tubos 1:16

Versión A (evitar a ser posible)



Versión B



Diá. nom.	Hilos por pulgada	Pretaladro cilíndr. (A) d_1	Pretaladro cónico (B) D_1	Profundidad de entrada ET mm	Profundidad de taladro BT (min) mm
1/16 -	27	**6,15**	6,39	9,29	10,7
1/8 -	27	**8,40**	8,74	9,32	10,8
1/4 -	18	**11,10**	**11,36**	13,52	15,6
3/8 -	18	**14,30**	**14,80**	13,83	16,0
1/2 -	14	**17,90**	**18,32**	18,07	20,8
3/4 -	14	**23,30**	**23,67**	18,55	21,3
1 -	11,5	**29,00**	**29,69**	22,29	25,6
1 1/4 -	11,5	**37,70**	**38,45**	22,80	26,1
1 1/2 -	11,5	**43,70**	**44,52**	22,80	26,1
2 -	11,5	**55,60**	**56,56**	23,20	26,5
2 1/2 -	8	**66,30**	**67,62**	31,75	36,3
3 -	8	**82,30**	**83,52**	33,74	38,5

Roscas-EG métr./métr.fino (EG M 14x1,25) para injertos roscados de hilo según DIN 8140				
Diá. nom.	x Paso P mm	Ø d. pretal. roscas p. taladr. DIN 336 mm	Diámetro pretaladro roscas de tuercas min. mm	max. mm
EG M 4	x 0,70	**4,20**	4,152	4,292
EG M 5	x 0,80	**5,25**	5,174	5,334
EG M 6	x 1,00	**6,30**	6,217	6,407
EG M 8	x 1,25	**8,40**	8,271	8,483
EG M10	x 1,50	**10,50**	10,324	10,560
EG M12	x 1,75	**12,50**	12,379	12,644
EG M14	x 1,25	**14,40**	14,271	14,483
EG M16	x 2,00	**16,50**	16,433	16,733

Roscas EG UNC ((UNC-STI) para injertos roscados de hilo ASME B18.29.1				
Diá. nom.	hilos por pulgada	Ø d. pretal. roscas p. taladr. mm	Diámetro pretaladro roscas de tuercas min. mm	max. mm
EG Nr. 6 -	32	**3,80**	3,678	3,879
EG Nr. 8 -	32	**4,40**	4,338	4,524
EG Nr. 10 -	24	**5,20**	5,055	5,283
EG Nr. 12 -	24	**5,80**	5,715	5,944
EG 1/4 -	20	**6,70**	6,624	6,868
EG 5/16 -	18	**8,40**	8,242	8,489
EG 3/8 -	16	**10,00**	9,868	10,127
EG 7/16 -	14	**11,60**	11,506	11,783
EG 1/2 -	13	**13,30**	13,122	13,393
EG 9/16 -	12	**14,90**	14,747	15,032
EG 5/8 -	11	**16,50**	16,375	16,673

Roscas EG UNF (UNF-STI) para injertos roscados de hilo ASME B18.29.1				
Diá. nom.	hilos por pulgada	Ø d. pretal. roscas p. taladr. mm	Diámetro pretaladro roscas de tuercas min. mm	max. mm
EG Nr. 6 -	40	**3,70**	3,644	3,818
EG Nr. 8 -	36	**4,40**	4,321	4,498
EG Nr. 10 -	32	**5,10**	4,999	5,184
EG Nr. 12 -	28	**5,70**	5,682	5,809
EG 1/4 -	28	**6,60**	6,546	6,721
EG 5/16 -	24	**8,25**	8,166	8,352
EG 3/8 -	24	**9,80**	9,754	9,931
EG 7/16 -	20	**11,50**	11,389	11,585
EG 1/2 -	20	**13,10**	12,974	13,172
EG 9/16 -	18	**14,70**	14,592	14,798
EG 5/8 -	18	**16,25**	16,180	16,386

Taladros recomendados para la laminación de roscas

Roscas métrica normalizada ISO DIN 13

Diá. nom.	Paso P	Diá. tala-dro	Diá. taladro min.	Diá. taladro max.	Diámetro pretaladro roscas de tuercas 7H* min.	Diámetro pretaladro roscas de tuercas 7H* max.
mm		mm	mm	mm	mm	mm
M 2	0,40	**1,85**	1,84	1,88	1,567	1,679
M 2,2	0,45	**2,00**	2,01	2,05	1,713	1,838
M 2,5	0,45	**2,30**	2,28	2,32	2,013	2,138
M 3	0,50	**2,80**	2,78	2,85	2,459	2,639
M 3,5	0,60	**3,25**	3,23	3,30	2,850	3,050
M 4	0,70	**3,70**	3,68	3,76	3,242	3,466
M 4,5	0,75	**4,20**				
M 5	0,80	**4,65**	4,62	4,71	4,134	4,384
M 6	1,00	**5,55**	5,52	5,62	4,917	5,217
M 7	1,00	**6,55**	6,52	6,62	5,917	6,217
M 8	1,25	**7,40**	7,36	7,47	6,647	6,982
M 9	1,25	**8,40**	8,36	8,47	7,647	7,982
M 10	1,50	**9,30**	9,26	9,38	8,376	8,751
M 11	1,50	**10,30**	10,26	10,38	9,376	9,751
M 12	1,75	**11,20**	11,15	11,29	10,106	10,531
M 14	2,00	**13,10**	13,05	13,20	11,835	12,310
M 16	2,00	**15,10**	15,05	15,20	13,835	14,310
M 18	2,50	**16,90**	16,83	17,02	15,294	15,854
M 20	2,50	**18,90**	18,83	19,02	17,294	17,854
M 22	2,50	**20,90**	20,83	21,02	19,294	19,854
M 24	3,00	**22,70**	22,62	22,80	20,752	21,382
M 27	3,00	**25,70**	25,62	25,80	23,752	24,382
M 30	3,50	**28,50**	28,40	28,60	26,211	26,921
M 33	3,50	**31,50**	31,40	31,60	29,211	29,921
M 36	4,00	**34,30**	34,17	34,40	31,670	32,420
M 39	4,00	**37,30**	37,17	37,40	34,670	35,420
M 42	4,50	**40,10**	39,95	40,20	37,129	37,979

* M 1,1 hasta M 1,4 Ø-pretaladro roscas de tuerca 5 H

Roscas métrica fina DIN 13

Diá. nom.	x	Paso P	Diá. tala-dro	Diá. taladro min.	Diá. taladro max.	Diámetro pretaladro roscas de tuercas 7H* min.	Diámetro pretaladro roscas de tuercas 7H* max.
mm			mm	mm	mm	mm	mm
M 2,5	x	0,35	**2,35**	2,35	2,38	2,121	2,221
M 3	x	0,35	**2,85**	2,85	2,88	2,621	2,721
M 4	x	0,35	**3,85**	3,85	3,88	3,621	3,721
M 4	x	0,50	**3,80**	3,78	3,83	3,459	3,639
M 5	x	0,50	**4,80**	4,78	4,83	4,459	4,639
M 5,5	x	0,50	**5,30**	5,28	5,33	4,959	5,139
M 6	x	0,75	**5,65**	5,62	5,70	5,188	5,424
M 7	x	0,75	**6,65**	6,62	6,70	6,188	6,424
M 8	x	0,75	**7,65**	7,62	7,70	7,188	7,424
M 8	x	1,00	**7,55**	7,52	7,62	6,917	7,217
M 9	x	0,75	**8,65**	8,62	8,70	8,188	8,424
M 9	x	1,00	**8,55**	8,52	8,62	7,917	8,217
M 10	x	0,75	**9,65**	9,62	9,70	9,188	9,424
M 10	x	1,00	**9,55**	9,52	9,62	8,917	9,217
M 10	x	1,25	**9,40**	9,36	9,47	8,647	8,982
M 11	x	0,75	**10,65**	10,62	10,70	10,188	10,424
M 11	x	1,00	**10,55**	10,52	10,62	9,917	10,217
M 12	x	1,00	**11,55**	11,52	11,62	10,917	11,217
M 12	x	1,25	**11,40**	11,36	11,47	10,647	10,982
M 12	x	1,50	**11,30**	11,26	11,38	10,376	10,751
M 14	x	1,00	**13,55**	13,52	13,62	12,917	13,217
M 14	x	1,25	**13,40**	13,36	13,47	12,647	12,982
M 14	x	1,50	**13,30**	13,26	13,38	12,376	12,751
M 15	x	1,00	**14,55**	14,52	14,62	13,917	14,217
M 15	x	1,50	**14,30**	14,26	14,38	13,376	13,751
M 16	x	1,00	**15,55**	15,52	15,62	14,917	15,217
M 16	x	1,50	**15,30**	15,26	15,38	14,376	14,751
M 17	x	1,00	**16,55**	16,52	16,62	15,917	16,217
M 17	x	1,50	**16,30**	16,26	16,38	15,376	15,751
M 18	x	1,00	**17,55**	17,52	17,62	16,917	17,217
M 18	x	1,50	**17,30**	17,26	17,38	16,376	16,751
M 18	x	2,00	**17,10**	17,05	17,20	15,835	16,310
M 20	x	1,00	**19,55**	19,52	19,62	18,917	19,217
M 20	x	1,50	**19,30**	19,26	19,38	18,376	19,751
M 24	x	1,00	**23,55**	23,52	23,62	22,917	23,217
M 24	x	1,50	**23,30**	23,26	23,38	22,376	22,751
M 24	x	2,00	**23,10**	23,05	23,20	21,835	22,310
M 27	x	1,50	**26,30**	26,26	26,38	25,376	25,751
M 30	x	1,50	**29,30**	29,26	29,38	28,376	28,751
M 33	x	1,50	**32,30**	32,26	32,38	31,376	31,751
M 36	x	1,50	**35,30**	35,26	35,38	34,376	34,751
M 39	x	1,50	**38,30**	38,26	38,38	37,376	37,751
M 42	x	1,50	**41,30**	41,26	41,38	42,376	42,751

* MJ3 x0,50 hasta MJ 5 x 0,80 Ø-pretaladro rosca de tuerca 6H

Campo de tolerancias para pretaladros en el laminado de roscas (según DIN 13, Parte 50)

Por razones de tenacidad no es necesario cumplir con las tolerancias de pretaladros de las tolerancias 6H; la tolerancia 7H es suficiente para cumplir el que se compenetren las roscas macho y hembra no menos de 0.32xP. Además las roscas laminadas suelen tener una tenacidad más alta que las roscas cortadas por el fluido del material regular y el endurecimiento térmico.

Roscas UNC ASME B1.1

Diá. nom.		hilos por pulgada	Diá. tala-dro	Diá. taladro min.	Diá. taladro max.	Diámetro pretaladro roscas de tuercas 2B min.	Diámetro pretaladro roscas de tuercas 2B max.
			mm	mm	mm	mm	mm
Nr. 1	-	64	**1,68**	1,67	1,70	1,425	1,580
Nr. 2	-	56	**1,98**	1,97	2,01	1,694	1,872
Nr. 3	-	48	**2,28**	2,27	2,32	1,941	2,146
Nr. 4	-	40	**2,55**	2,54	2,59	2,157	2,385
Nr. 5	-	40	**2,90**	2,89	2,94	2,487	2,698
Nr. 6	-	32	**3,15**	3,14	3,19	2,642	2,896
Nr. 8	-	32	**3,80**	3,78	3,82	3,302	3,531
Nr. 10	-	24	**4,35**	4,33	4,39	3,683	3,937
Nr. 12	-	24	**5,00**	4,97	5,03	4,343	4,597
1/4	-	20	**5,75**	5,72	5,80	4,978	5,258
5/16	-	18	**7,30**	7,26	7,37	6,401	6,731
3/8	-	16	**8,80**	8,77	8,88	7,798	8,153
7/16	-	14	**10,30**	10,27	10,37	9,144	9,550
1/2	-	13	**11,80**	11,77	11,88	10,592	11,024
9/16	-	12	**13,30**	13,28	13,39	11,989	12,446
5/8	-	11	**14,80**	14,78	14,90	13,386	13,868
3/4	-	10	**17,90**	17,85	17,97	16,307	16,840
7/8	-	9	**21,00**	20,95	21,10	19,177	19,761
1	-	8	**24,00**	23,95	24,12	21,971	22,606

Roscas UNF ASME B1.1

Diá. nom.		hilos por pulgada	Diá. tala-dro	Diá. taladro min.	Diá. taladro max.	Diámetro pretaladro roscas de tuercas 2B min.	Diámetro pretaladro roscas de tuercas 2B max.
			mm	mm	mm	mm	mm
Nr. 1	-	72	**1,70**	1,69	1,72	1,473	1,610
Nr. 2	-	64	**2,00**	1,99	2,03	1,755	1,910
Nr. 3	-	56	**2,30**	2,29	2,34	2,024	2,197
Nr. 4	-	48	**2,60**	2,59	2,63	2,271	2,459
Nr. 5	-	44	**2,90**	2,89	2,93	2,550	2,741
Nr. 6	-	40	**3,20**	3,19	3,24	2,819	3,023
Nr. 8	-	36	**3,85**	3,83	3,88	3,404	3,607
Nr. 10	-	32	**4,45**	3,43	4,49	3,962	4,166
Nr. 12	-	28	**5,10**	5,07	5,13	4,496	4,724
1/4	-	28	**5,95**	5,92	5,99	5,359	5,588
5/16	-	24	**7,45**	7,42	7,50	6,782	7,036
3/8	-	24	**9,05**	9,02	9,10	8,838	8,636
7/16	-	20	**10,55**	10,48	10,58	9,728	10,033
1/2	-	20	**12,10**	12,08	12,18	11,328	11,608
9/16	-	18	**13,65**	13,61	13,72	12,751	13,081
5/8	-	18	**15,25**	15,21	15,32	14,351	14,681
3/4	-	16	**18,35**	15,30	18,41	17,323	17,678
7/8	-	14	**21,40**	21,35	21,49	20,269	20,650
1	-	12	**24,45**	24,40	24,54	23,114	23,571

Roscas withworth para tubos DIN EN ISO 228-1

Diá. nom.	hilos por pulgada	Diá. tala-dro	Diá. taladro min.	Diá. taladro max.	Diámetro pretaladro roscas de tuercas 2B min.	Diámetro pretaladro roscas de tuercas 2B max.
pulgada		mm	mm	mm	mm	mm
G 1/16	28	**7,30**	7,28	7,35	6,561	6,843
G 1/8	28	**9,30**	9,28	9,35	8,566	8,848
G 1/4	19	**12,50**	12,48	12,55	11,445	11,890
G 3/8	19	**16,00**	15,98	16,05	14,950	15,395
G 1/2	14	**20,00**	19,98	20,12	18,631	19,172
G 5/8	14	**22,00**	21,98	22,12	20,587	21,128
G 3/4	14	**25,50**	25,48	25,62	24,117	24,658
G 7/8	14	**29,25**	29,23	29,37	27,877	28,418
G 1	11	**32,00**	31,98	32,15	30,291	30,931
G 1 1/4	11	**40,75**	40,70	40,85	38,952	39,592

Desde 1/64 hasta 11 63/64

Medida (Pulgada)	mm	Partes de Pulgada (Decimal)
-	0,10	0,0039
97	0,15	0,0059
96	0,16	0,0063
95	0,17	0,0067
94	0,18	0,0071
93	0,19	0,0075
92	0,20	0,0079
91	0,21	0,0083
90	0,22	0,0087
89	0,23	0,0091
88	0,24	0,0095
-	0,25	0,0098
87	0,25	0,0100
	0,26	0,0102
86	0,27	0,0105
	0,27	0,0106
85	0,28	0,0110
	0,29	0,0114
84	0,29	0,0115
-	0,30	0,0118
83	0,30	0,0120
82	0,32	0,0125
	0,32	0,0126
81	0,33	0,0130
80	0,34	0,0135
79	0,37	0,0145
1/64	0,40	0,0156
78	0,41	0,0160
77	0,46	0,0180
-	0,50	0,0197
76	0,51	0,0200
75	0,53	0,0210
74	0,57	0,0225
-	0,60	0,0236
73	0,61	0,0240
72	0,64	0,0250
71	0,66	0,0260
-	0,70	0,0276
70	0,71	0,0280
69	0,74	0,0292
-	0,75	0,0295
68	0,79	0,0310
1/32	0,79	0,0313
-	0,80	0,0315
67	0,81	0,0320
66	0,84	0,0330
65	0,89	0,0350
-	0,90	0,0354
64	0,91	0,0360
63	0,94	0,0370
62	0,97	0,0380
61	0,99	0,0390
-	1,00	0,0394
60	1,02	0,0400
59	1,04	0,0410
58	1,07	0,0420
57	1,09	0,0430
56	1,18	0,0465
3/64	1,19	0,0469
	1,20	0,0472
	1,25	0,0492
	1,30	0,0512
55	1,32	0,0520
54	1,40	0,0550
	1,45	0,0571
	1,50	0,0591
53	1,51	0,0595
	1,55	0,0610
1/16	1,59	0,0625
	1,60	0,0630
52	1,61	0,0635
	1,65	0,0650

Medida (Pulgada)	mm	Partes de Pulgada (Decimal)
51	1,70	0,0670
	1,75	0,0689
50	1,78	0,0700
	1,80	0,0709
49	1,85	0,0730
	1,90	0,0748
48	1,93	0,0760
	1,95	0,0768
5/64	1,98	0,0781
47	1,99	0,0785
-	2,00	0,0787
	2,05	0,0807
46	2,06	0,0810
45	2,08	0,0820
	2,15	0,0846
44	2,18	0,0860
43	2,26	0,0890
42	2,37	0,0935
3/32	2,38	0,0938
41	2,44	0,0960
40	2,50	0,0980
39	2,53	0,0995
38	2,58	0,1015
37	2,64	0,1040
36	2,71	0,1065
7/64	2,78	0,1094
35	2,79	0,11
34	2,82	0,111
33	2,87	0,113
	2,90	0,1142
32	2,95	0,116
-	3,00	0,1181
31	3,05	0,12
1/8	3,18	0,125
30	3,26	0,1285
	3,30	0,1299
29	3,45	0,136
	3,50	0,1378
28	3,57	0,1405
9/64	3,57	0,1406
27	3,66	0,144
26	3,73	0,147
	3,75	0,1476
25	3,80	0,1495
24	3,86	0,152
23	3,91	0,154
5/32	3,97	0,1562
22	3,99	0,157
-	4,00	0,1575
21	4,04	0,159
20	4,09	0,161
	4,20	0,1654
19	4,22	0,166
18	4,31	0,1695
11/64	4,37	0,1719
17	4,39	0,173
16	4,50	0,177
15	4,57	0,18
14	4,62	0,182
13	4,70	0,185
3/16	4,76	0,1875
12	4,80	0,189
11	4,85	0,191
10	4,91	0,1935
9	4,98	0,196
-	5,00	0,1968
8	5,05	0,199
7	5,11	0,2010
13/64	5,16	0,2031
6	5,18	0,2040
5	5,22	0,2055
	5,25	0,2067

Medida (Pulgada)	mm	Partes de Pulgada (Decimal)
4	5,31	0,2090
3	5,41	0,213
	5,50	0,2165
7/32	5,56	0,2188
2	5,61	0,221
1	5,79	0,228
A	5,94	0,234
15/64	5,95	0,2344
-	6,00	0,2362
B	6,05	0,238
C	6,15	0,242
D	6,25	0,246
1/4	6,35	0,25
E	6,35	0,25
	6,50	0,2559
F	6,53	0,257
G	6,63	0,261
17/64	6,75	0,2656
	6,75	0,2657
H	6,76	0,266
I	6,91	0,272
-	7,00	0,2756
J	7,04	0,2772
K	7,14	0,281
9/32	7,14	0,2812
L	7,37	0,29
M	7,49	0,2949
	7,50	0,2953
19/64	7,54	0,2969
N	7,67	0,3020
	7,75	0,3051
5/16	7,94	0,3125
-	8,00	0,315
O	8,03	0,316
P	8,20	0,323
21/64	8,33	0,3281
Q	8,43	0,332
	8,50	0,3346
R	8,61	0,339
11/32	8,73	0,3438
	8,75	0,3445
S	8,84	0,348
-	9,00	0,3543
T	9,09	0,358
23/64	9,13	0,3594
U	9,35	0,368
	9,50	0,374
3/8	9,53	0,375
V	9,56	0,377
W	9,80	0,386
25/64	9,92	0,3906
-	10,00	0,3937
X	10,08	0,397
Y	10,26	0,4040
13/32	10,32	0,4062
Z	10,49	0,413
	10,50	0,4134
27/64	10,72	0,4219
-	11,00	0,4331
7/16	11,11	0,4375
	11,50	0,4528
29/64	11,51	0,4531
15/32	11,91	0,4688
-	12,00	0,4724
31/64	12,30	0,4844
	12,50	0,4921
1/2	12,70	0,50
-	13,00	0,5118
33/64	13,10	0,5156
17/32	13,49	0,5312
	13,50	0,5315
35/64	13,89	0,5469

Medida (Pulgada)	mm	Partes de Pulgada (Decimal)
-	14,00	0,5512
9/16	14,29	0,5625
	14,50	0,5709
37/64	14,68	0,5781
-	15,00	0,5906
19/32	15,08	0,5938
39/64	15,48	0,6094
	15,50	0,6102
5/8	15,88	0,625
-	16,00	0,6299
41/64	16,27	0,6406
	16,50	0,6496
21/32	16,67	0,6562
-	17,00	0,6693
43/64	17,07	0,6719
11/16	17,46	0,6875
	17,50	0,689
45/64	17,86	0,7031
-	18,00	0,7087
23/32	18,26	0,7188
	18,50	0,7283
47/64	18,65	0,7344
-	19,00	0,748
3/4	19,05	0,75
49/64	19,45	0,7656
	19,50	0,7677
25/32	19,84	0,7812
-	20,00	0,7874
51/64	20,24	0,7969
	20,50	0,8071
13/16	20,64	0,8125
-	21,00	0,8268
53/64	21,03	0,8281
27/32	21,43	0,8438
	21,50	0,8465
55/64	21,84	0,8594
-	22,00	0,8661
7/8	22,23	0,875
	22,50	0,8858
57/64	22,62	0,8906
-	23,00	0,9055
29/32	23,02	0,9062
59/64	23,42	0,9219
	23,50	0,9252
15/16	23,81	0,9375
-	24,00	0,9449
61/64	24,21	0,9531
	24,50	0,9646
31/32	24,61	0,9688
-	25,00	0,9843
63/64	25,00	0,9844
1	25,40	1,00

1 pulgada = 25,400 0 mm ver DIN 4890 (Edición 2/75)

Las nuevas denominaciones abreviadas de materiales (selección)

N° de mat.	Denominación abreviada ant.	Denominación abreviada nueva
0.6010	GG10	EN-GJL-100
0.6020	GG20	EN-GJL-200
0.6025	GG25	EN-GJL-250
0.6035	GG35	EN-GJL-350
0.7050	GGG50	EN-GJS-500-7
0.7070	GGG70	EN-GJS-700-2
0.8035	GTW35	EN-GJMW-350-4
0.8155	GTS55	EN-GJMB-550-4
0.8170	GTS70	EN-GJMB-700-2
1.0022	St 01Z	–
1.0035	St 33	S185
1.0039	St 37 -2	S235JRH
1.0044	St 44 -2	S275JR
1.0050	St 50 -2	E295
1.0060	St 60 -2	E335
1.0070	St 70 –2	E360
1.0114	St 37 –3U	S235J0
1.0226	St 02Z	DX51D
1.0242	StE 250 -2Z	S250GD
1.0244	StE 280 -2Z	S280GD
1.0250	StE 320 -3Z	S320GD
1.0301	C 10	–
1.0302	C 10 Pb	–
1.0306	St 06 Z	DX54D
1.0312	St 15	DC05 [Fe P05]
1.0319	RRStE 210.7	L210GA
1.0322	–	DX56D
1.0330	St 12 [St 2]	DC01 [Fe P01]
1.0333	USt 13	–
1.0338	St 14 [St 4]	DC04 [Fe P04]
1.0345	H I	P235GH
1.0347	RRSt 13 [RRSt 3]	DC03 [Fe P03]
1.0348	UH I	P195GH
1.0350	St 03Z	DX52D
1.0355	St 05Z	DX53D
1.0356	TTSt 35 N	P215NL
1.0358	St 05 Z	–
1.0401	C 15	–
1.0402	C 22	C22
1.0403	C 15 Pb	–
1.0406	C 25	C25
1.0419	St 52.0	L355
1.0424	St 45.8 (ersetzt)	P265
1.0424	St 42.8 (ersetzt)	P265
1.0425	H2	P265GH
1.0429	StE 290.7 TM	L290MB
1.0457	StE 240.7	L245NB
1.0459	RRStE 240.7	L245GA
1.0461	StE 255	S255N
1.0473	19 Mn 6	P355GH
1.0481	17 Mn 4	P295GH
1.0484	StE 290.7	L290NB
1.0486	StE 285	P275N
1.0501	C 35	C35
1.0503	C 45	C45
1.0505	StE 315	P315N
1.0511	C 40	C40
1.0528	C 30	C30
1.0529	StE 350 -3Z	S350GD
1.0535	C 55	C55
1.0539	StE 355N	S355NH
1.0540	C 50	C50
1.0547	St 52 –3U	S355J0H
1.0582	StE 360.7	L360NB
1.0601	C 60	C60
1.0710	15 S 10	–
1.0715	9 SMn 28	11SMn30
1.0718	9 SMnPb 28	11SMnPb30
1.0721	10 S 20	10S20
1.0722	10 S Pb 20	10SPb20
1.0726	35 S 20	35S20
1.0727	45 S 20	46S20

N° de mat.	Denominación abreviada ant.	Denominación abreviada nueva
1.0728	60 S 20	–
1.0736	9 SMn 36	11SMn37
1.0737	9 SMnPb 36	11SMnPb37
1.0756	35 SPb 20	35SPb20
1.0757	45 SPb 20	46SPb20
1.0760	–	38SMn26
1.0761	–	38SMnPb26
1.0762	–	44SMn28
1.0763	–	44SMnPb28
1.0873	–	DC06 [Fe P06]
1.1103	EStE 255	S255NL1
1.1105	EStE 315	S315NL1
1.1121	Ck 10	C10E
1.1141	Ck15	C15E
1.1151	Ck 22	C22E
1.1158	Ck 25	C25E
1.1170	28 Mn 6	28Mn6
1.1178	Ck 30	C30E
1.1181	Ck 35	C35E
1.1186	Ck 40	C40E
1.1191	Ck 45	C45E
1.1203	Ck 55	C55E
1.1206	Ck 50	C50E
1.1221	Ck 60	C60E
1.1241	Cm 50	C50R
1.1750	C 75 W	C75W
1.2067	102 Cr 6	102Cr6
1.2080	–	X210Cr12
1.2083	–	X42Cr13
1.2419	–	105WCr6
1.2767	–	X45NiCrMo4
1.3243	S6-5-2-5	S 6-5-2-5
1.3343	S6-5-2	S 6-5-2
1.3344	S6-5-3	S 6-5-3
1.4000	X6Cr 13	X6Cr13
1.4002	X6CrAl 13	X6CrAl13
1.4003	X2Cr 11	X2CrNi12
1.4005	–	X12CrS13
1.4006	X10Cr 13	X12Cr13
1.4016	X6Cr 17	X6Cr17
1.4021	X20Cr 13	X20Cr13
1.4028	X30Cr 13	X30Cr13
1.4031	X38Cr 13	X38Cr13
1.4034	X46Cr 13	X46Cr13
1.4037	X65Cr13	X65Cr13
1.4057	X20CrNi 17 2	X17CrNi16-2
1.4104	X12CrMoS 17	X14CrMoS17
1.4105	X4CrMoS 18	X6CrMoS17
1.4109	X65CrMo 14	X70CrMo15
1.4110	X55CrMo 14	X55CrMo14
1.4112	X90CrMoV 18	X90CrMoV18
1.4113	X6CrMo 17 1	X6CrMo17-1
1.4116	X45CrMoV 15	X50CrMoV15
1.4120	X20CrMo 13	X20CrMo13
1.4122	X35CrMo 17	X39CrMo17-1
1.4125	X105CrMo 17	X105CrMo17
1.4301	X5CrNi 18 10	X5CrNi18-10
1.4303	X5CrNi 18 12	X4CrNi18-12
1.4305	X10CrNiS 18 9	X8CrNiS18-9
1.4306	X2CrNi 19 11	X2CrNi19-11
1.4310	X12CrNi 17 7	X10CrNi18-8
1.4311	X2CrNiN 18 10	X2CrNiN18-10
1.4313	X4CrNi 13 4	X3CrNiMo13-4
1.4318	X2CrNiN 18 7	X2CrNiN18-7
1.4335	X1CrNi 25 21	X1CrNi25-21
1.4361	X1CrNiSi 18 15	X1CrNiSi18-15-4
1.4362	X2CrNiN 23 4	X2CrNiN23-4
1.4401	X5CrNiMo 17 12 2	X5CrNiMo17-12-2
1.4404	X2CrNiMo 17 13 2	X2CrNiMo17-12-2
1.4410	X10CrNiMo 18 9	X2CrNiMoN25-7-4
1.4418	X4CrNiMo 16 5	X4CrNiMo16-5-1
1.4435	X2CrNiMo 18 14 3	X2CrNiMo18-14-3

N° de mat.	Denominación abreviada ant.	Denominación abreviada nueva
1.4436	X5CrNiMo 17 13 3	X3CrNiMo17-13-3
1.4438	X2CrNiMo 18 16 4	X2CrNiMo18-15-4
1.4460	X4CrNiMo 27 5 2	X3CrNiMoN27-5-2
1.4462	X2CrNiMoN 22 5 3	X2CrNiMoN22-5-3
1.4509	X6CrTiNb 18	X2CrTiNb18
1.4510	X6CrTi 17	X3CrTi17
1.4511	X6CrNb 17	X3CrNb17
1.4512	X6CrTi 12	X2CrTi12
1.4520	X1CrTi 15	X2CrTi17
1.4521	X2CrMoTi 18 2	X2CrMoTi18-2
1.4522	X2CrMoNb 18 2	X2CrMoNb18-2
1.4532	X7CrNiMoAl 15 7	X8CrNiMoAl15-7-2
1.4541	X6CrNiTi18 10	X6CrNiTi18-10
1.4542	X5CrNiCuNb 17 4	X5CrNiCuNb16-4
1.4550	X6CrNiNb 18 10	X6CrNiNb18-10
1.4558	X2NiCrAlTi 32 20	X2NiCrAlTi32-20
1.4567	X3CrNiCu 18 9 X	X3CrNiCu18-9-4
1.4568	X7CrNiAl 17 7	X7CrNiAl17-7
1.4571	–	X6CrNiMoTi17-12-2
1.4577	X3CrNiMoTi 25 25	X3CrNiMoTi25-25
1.4592	X1CrMoTi 29 4	X2CrMoTi29-4
1.4713	X10CrAl 7	X10CrAlSi7
1.4724	X10CrAl 13	X10CrAlSi13
1.4742	X10CrAl 18	X10CrAlSi18
1.4762	X10CrAl 24	X10CrAlSi25
1.4821	X20CrNiSi 25 4	X20CrNiSi25-4
1.4828	X15CrNiSi 20 12	X15CrNiSi20-12
1.4833	X7CrNi 23 14	X7CrNi23-12
1.4841	X15CrNiSi 25 20	X15CrNiSi25-21
1.4845	X12CrNi 25 21	X12CrNi25-21
1.4864	X12NiCrSi 36 16	X12NiCrSi35-16
1.4878	X12CrNiTi18 9	X10CrNiTi18-10
1.4903	–	X10CrMoVNb9-1
1.5026	55 Si 7	55Si7
1.5131	50 MnSi 4	50MnSi4
1.5415	15 Mo 3	16Mo3
1.5530	21 MnB 5	20MnB5
1.5531	30 MnB 5	30MnB5
1.5532	38 MnB 5	38MnB5
1.5637	10 Ni 14	12Ni14
1.5662	–	X11CrMo5+I
1.5680	–	X12Ni5
1.5710	36 NiCr 6	36NiCr6
1.5715	–	16NiCrS4
1.5752	14 NiCr 14	15NiCr13
1.6210	15 MnNi 6 3	15MnNi6-3
1.6211	16 MnNi 6 3	16MnNi6-3
1.6310	20 MnMoNi 5 5	20MnMoNi5-5
1.6311	20 MnMoNi 4 5	20MnMoNi4-5
1.6341	11 NiMoV 5 3	11NiMoV5-3
1.6368	15 NiCuMoNb 5	15NiCuMoNb5
1.6511	36 CrNiMo 4	36CrNiMo4
1.6523	21 NiCrMo 2	21NiCrMo2-2
1.6526	21 NiCrMoS 2	21NiCrMoS2-2
1.6580	30 CrNiMo 8	30CrNiMo8
1.6582	34 CrNiMo 6	34CrNiMo6
1.6587	17 CrNiMo 6	18CrNiMo7-6
1.7003	38 Cr 2	38Cr2
1.7006	46 Cr 2	46Cr2
1.7016	17 Cr 3	17Cr3
1.7023	38 CrS 2	38CrS2
1.7025	46 CrS 2	46CrS2
1.7030	28 Cr 4	28Cr4
1.7033	34 Cr 4	34Cr4
1.7034	37 Cr 4	37Cr4
1.7035	41 Cr 4	41Cr4
1.7036	28 CrS 4	28CrS4
1.7037	34 CrS 4	34CrS4
1.7038	37 CrS 4	37CrS4
1.7039	41 CrS 4	41CrS4
1.7131	16 MnCr 5	16MnCr5
1.7139	16 MnCrS 5	16MnCrS5

N° de mat.	Denominación abreviada ant.	Denominación abreviada nueva
1.7043	–	38Cr4
1.7147	20 MnCr 5	20MnCr5
1.7149	20 MnCrS 5	20MnCrS5
1.7176	55 Cr 3	55Cr3
1.7182	27 MnCrB 5 2	27MnCrB5-2
1.7185	33 MnCrB 5 2	33MnCrB5-2
1.7189	39 MnCrB 6 2	39MnCrB6-2
1.7213	25 CrMoS 4	25CrMoS4
1.7218	25 CrMo 4	25CrMo4
1.7219	–	26CrMo4-2
1.7220	34 CrMo 4	34CrMo4
1.7225	42 CrMo 4	42CrMo4
1.7226	34 CrMoS 4	34CrMoS4
1.7227	42 CrMoS 4	42CrMoS4
1.7228	50 CrMo 4	50CrMo4
1.7264	20 CrMo 5	20CrMo5
1.7321	20 MoCr 4	20MoCr4
1.7323	20 MoCrS 4	20MoCrS4
1.7333	22 CrMoS 3 5	22CrMoS3-5
1.7335	13 CrMo 4 4	13CrMo4-5
1.7362	12 CrMo 19 5	12CrMo19-5
1.7380	10 CrMo 9 10	10CrMo9-10
1.7383	–	11CrMo9-10
1.7779	–	20CrMoV13-5-5
1.8159	50 CrV 4	51CrV4
1.8504	34 CrAl 6	34CrAl6
1.8519	31 CrMoV 9	31CrMoV9
1.8550	34 CrAlNi 7	34CrAlNi7
1.8807	13 MnNiMoV 5 4	13MnNiMoV5-4
1.8812	18 MnMoV 5 2	18MnMoV5-2
1.8815	18 MnMoV 6 3	18MnMoV6-3
1.8821	StE 355 TM	P355M
1.8824	StE 420 TM	P420M
1.8826	StE 460 TM	P460M
1.8828	EStE 420 TM	P420ML2
1.8831	EStE 460 TM	P460ML2
1.8832	TStE 355 TM	P355ML1
1.8835	TStE 420 TM	P420ML1
1.8837	TStE 460 TM	P460ML1
1.8879	StE ...	P690Q
1.8880	WStE ...	P690QH
1.8881	TStE ...	P690QL1
1.8882	10 MnTi 3	10MnTi3
1.8888	EStE ...	P690QL2
1.8900	StE 380	S380N
1.8901	StE 460	S460N
1.8902	StE 420	S420N
1.8903	TStE 460	S460NL
1.8905	StE 460	P460N
1.8907	StE 500	S500N
1.8910	TStE 380	S380NL
1.8911	EStE 380	S380NL1
1.8912	TStE 420	S420NL
1.8913	EStE 420	S420NL1
1.8915	TStE 460	P460NL1
1.8917	WStE 500	S500NL
1.8918	EStE 460	P460NL2
1.8919	EStE 500	S500NL1
1.8930	WStE 380	P380NH
1.8932	WStE 420	P420NH
1.8935	WStE 460	P460NH
1.8937	TStE 500	P500NH
1.8972	StE 415.7	L415NB
1.8973	StE 415.7 TM	L415MB
1.8975	StE 445.7 TM	L450MB
1.8977	StE 480.7 TM	L485MB
1.8978	StE 550.7 TM	L555MB

ÍNDICE DE NÚMEROS DE ARTÍCULO

Artículo Nº	Página	Profundidad	Norma	Descripción	Material de corte	Tipo	Forma
11	428		Norma de fab.	Brocas espirales			
16	420	~5xD	DIN 338	Brocas espirales	HSCO	N	
17	419	~5xD	DIN 338	Brocas espirales	HSS	N	
18	421	~5xD	DIN 338	Brocas espirales	HSCO	Ti	
36	426		Norma de fab.	Brocas espirales			
73	427		Norma de fab.	Brocas espirales			
128	413		Norma de fab.	Brocas espirales con mango cil. 16,0 mm	HSCO	V72	
129	414		Norma de fab.	Brocas espirales con mango cil. 25,4 mm	HSCO	V72	
136	415		Norma de fab.	Brocas espirales con mango cil. 25,4 mm	HSCO	V72	
195	422	~5xD	DIN 338	Brocas espirales	HSCO	VA	
200	418	~5xD	DIN 338	Sets de brocas espiralizadas, sueltos	HSS	N	
201	417	~5xD	DIN 338	Brocas espirales	HSS	N	
204	338, 587	~10xD	DIN 340	Brocas espirales cil., largas	HSS	N	
205	244	~5xD	DIN 338	Brocas espirales cil., cortas	HSS	N	
206	263	~5xD	DIN 338	Brocas espirales cil., cortas	HSS	H	
207	269	~5xD	DIN 338	Brocas espirales cil., cortas	HSS	W	
208	258	~5xD	DIN 338	Brocas espirales cil., cortas	HSS	N	
209	266	~5xD	DIN 338	Brocas espirales cil., cortas	HSS	H	
210	272	~5xD	DIN 338	Brocas espirales cil., cortas	HSS	W	
211	325	~10xD	DIN 339	Brocas para casquillos	HSS	N	
217	331, 580	~10xD	DIN 340	Brocas espirales cil., largas	HSS	N	
218	339, 588	~10xD	DIN 340	Brocas espirales cil., largas	HSS	H	
219	342, 591	~10xD	DIN 340	Brocas espirales cil., largas	HSS	W	
220	336, 585	~10xD	DIN 340	Brocas espirales cil., largas	HSS	N	
221	341, 590	~10xD	DIN 340	Brocas espirales cil., largas	HSS	H	
223	192	~3xD	DIN 1897	Brocas espirales extra cortas	HSS	N	
224	204	~3xD	DIN 1897	Brocas espirales extra cortas	HSS	H	
225	208	~3xD	DIN 1897	Brocas espirales extra cortas	HSS	W	
226	200	~3xD	DIN 1897	Brocas espirales extra cortas	HSS	N	
227	206	~3xD	DIN 1897	Brocas espirales extra cortas	HSS	H	
228	210	~3xD	DIN 1897	Brocas espirales extra cortas	HSS	W	
229	458	~5xD	DIN 345	Brocas espirales	HSS	N	
235	363, 612	~15xD	DIN 1869	Brocas espirales, extra largas, serie 1	HSS	N	
236	371, 620	~20xD	DIN 1869	Brocas espirales, extra largas, serie 2	HSS	N	
237	377, 626	~25xD	DIN 1869	Brocas espirales, extra largas, serie 3	HSS	N	
240	257	~5xD	DIN 338	Brocas espirales cil., cortas	HSS	N	
242	381, 630	>25xD	Norma de fab.	Brocas espirales, largo especial	HSS	GT 100	
243	382, 631	>25xD	Norma de fab.	Brocas espirales, largo especial	HSS	GT 100	
244	383, 632	>25xD	Norma de fab.	Brocas espirales, largo especial	HSS	GT 100	
245	450	~5xD	DIN 345	Brocas espirales	HSS	N	
246	459	~5xD	DIN 345	Brocas espirales	HSS	H	
247	460	~5xD	DIN 345	Brocas espirales	HSS	W	
248	457	~5xD	DIN 345	Brocas espirales	HSS	N	
251	471	~5xD	DIN 346	Brocas espirales	HSS	N	
254	499		Norma de fab.	Brocas con canal de refrig., long. ranuras norma de fab.	HSS	N	
255	500		Norma de fab.	Brocas con canal de refrig., long. ranuras norma de fab.	HSS	N	
257	473	~10xD	DIN 341	Brocas para casquillos	HSS	N	
266	483, 633	~15xD	DIN 1870	Brocas espirales, extra largas, serie 1	HSS	N	
267	487, 637	~20xD	DIN 1870	Brocas espirales, extra largas, serie 2	HSS	N	
268	412		Norma de fab.	Brocas espirales con mango cil. 12,7 mm	HSS	N	
269	498	~7xD	Norma de fab.	Brocas con canal de refrigeración, corte	HSS	N	
270	502	~10xD	Norma de fab.	Brocas con canal de refrig., long. ranuras DIN 341	HSS	N	
271	503	~10xD	Norma de fab.	Brocas con canal de refrig., long. ranuras DIN 341	HSS	N	
272	504	~10xD	Norma de fab.	Brocas con canal de refrig., long. ranuras DIN 341	HSS	N	
274	714		Norma de fab.	Brocas escalonadas DIN 332	HSS	N	D
280	689		Norma de fab.	Brocas de centrar sin plano	HSS	N	A
281	684		Norma de fab.	Brocas de centrar sin plano	HSS	N	A
282	685		Norma de fab.	Brocas de centrar sin plano	HSS	N	A
283	686		Norma de fab.	Brocas de centrar sin plano	HSS	N	R
284	687		Norma de fab.	Brocas de centrar sin plano	HSS	N	R
285	688		Norma de fab.	Brocas de centrar sin plano	HSS	N	B
287	693		DIN 333	Brocas de centrar con plano	HSS	N	A
288	694		DIN 333	Brocas de centrar con plano	HSS	N	R
289	695		Norma de fab.	Brocas de centrar con plano	HSS	N	B
292	680		BS 328	Brocas de centrar sin plano	HSS	N	A
293	495	>20xD	Norma de fab.	Brocas espirales, largo especial	HSS	GT 100	
294	681		BS 328	Brocas de centrar sin plano	HSS	N	A
298	496	>20xD	Norma de fab.	Brocas espirales, largo especial	HSS	GT 100	
299	497	>20xD	Norma de fab.	Brocas espirales, largo especial	HSS	GT 100	
301	397, 649	~5xD	DIN 1899	Microbrocas HSS-E-PM sin refrig. Interna	HSS-E-PM	N	
303	402, 654	~5xD	DIN 1899	Microbrocas HSS-E-PM sin refrig. Interna	HSS-E-PM	N	
305	284	~5xD	DIN 338	Brocas espirales cil., cortas	HSCO	N	

Artículo Nº	Página	Profundidad	Norma	Descripción	Material de corte	Tipo	Forma
308	289	~5xD	DIN 338	Brocas espirales cil., cortas	HSCO	N	
311	330	~10xD	DIN 339	Brocas para casquillos	HSCO	N	
317	353, 602	~10xD	DIN 340	Brocas espirales cil., largas	HSCO	N	
329	218	~3xD	DIN 1897	Brocas espirales extra cortas	HSCO	GV 120	
330	225	~3xD	DIN 1897	Brocas espirales extra cortas	HSCO	GV 120	
336	355, 604	~10xD	DIN 340	Brocas espirales cil., largas	HSCO	GT 100	
345	463	~5xD	DIN 345	Brocas espirales	HSCO	N	
351	472	~5xD	DIN 346	Brocas espirales	HSCO	N	
357	480	~10xD	DIN 341	Brocas para casquillos	HSCO	N	
363	448	~3xD	Norma de fab.	Brocas espirales cil., cortas	HSCO	GV 120	
370	505	~10xD	Norma de fab.	Brocas con canal de refrig., long. ranuras DIN 341	HSCO	GT 100	
371	506	~10xD	Norma de fab.	Brocas con canal de refrig., long. ranuras DIN 341	HSCO	GT 100	
372	507	~10xD	Norma de fab.	Brocas con canal de refrig., long. ranuras DIN 341	HSCO	GT 100	
374	508, 641	~15xD	Norma de fab.	Brocas con canal de refrig., long. ranuras DIN 1870	HSCO	GT 100	
375	509, 642	~15xD	Norma de fab.	Brocas con canal de refrig., long. ranuras DIN 1870	HSCO	GT 100	
376	510, 643	~15xD	Norma de fab.	Brocas con canal de refrig., long. ranuras DIN 1870	HSCO	GT 100	
378	718		Norma de fab.	Brocas escalonadas cortas con mango cil.	HSS	N	
379	720		Norma de fab.	Brocas escalonadas cortas con mango cil.	HSS	N	
380	721		Norma de fab.	Brocas escalonadas cortas con mango cil.	HSS	N	
381	682		DIN 333	Brocas de centrar sin plano	HSCO	N	A
390	394	~10xD	Norma de fab.	Brocas con canal de refrigeración	HSS	N	
396	357, 606	~10xD	DIN 340	Brocas espirales cil., largas	HSCO	GT 100	
501	351, 600	~10xD	DIN 340	Brocas espirales cil., largas	HSS	GT 50	
502	365, 614	~15xD	DIN 1869	Brocas espirales, extra largas, serie 1	HSS	GT 100	
503	372, 621	~20xD	DIN 1869	Brocas espirales, extra largas, serie 2	HSS	GT 100	
504	378, 627	~25xD	DIN 1869	Brocas espirales, extra largas, serie 3	HSS	GT 100	
505	479	~10xD	DIN 341	Brocas para casquillos	HSS	GT 50	
506	350, 599	~10xD	DIN 340	Brocas espirales cil., largas	HSS	GT 100	
511	386	~5xD	Norma de fab.	Brocas espirales con mango cil. reforzado	HSCO	GU 500	
512	384	~3xD	Norma de fab.	Brocas espirales con mango cil. reforzado	HSCO	GU 500	
513	388	~5xD	Norma de fab.	Brocas espirales con mango cil. reforzado	HSS-E-PM	GT 500	
514	728		Norma de fab.	Brocas bidiametrales cil.	HSS	N	
515	237	~3xD	DIN 1897	Brocas espirales extra cortas	HSS-E-PM	GT 500	
520	735		Norma de fab.	Brocas bidiametrales, CM	HSS	N	
523	482	~10xD	Norma de fab.	Brocas para casquillos	HSS	N	
524	368, 617	~15xD	DIN 1869	Brocas espirales, extra largas, serie 1	HSS	GT 50	
525	485, 635	~15xD	DIN 1870	Brocas espirales, extra largas, serie 1	HSS	GT 50	
526	484, 634	~15xD	DIN 1870	Brocas espirales, extra largas, serie 1	HSS	GT 100	
527	488, 638	~20xD	DIN 1870	Brocas espirales, extra largas, serie 2	HSS	GT 100	
528	375, 624	~20xD	DIN 1869	Brocas espirales, extra largas, serie 2	HSS	GT 50	
529	379, 628	~25xD	DIN 1869	Brocas espirales, extra largas, serie 3	HSS	GT 50	
531	416, 746		DIN 1898	Brocas para pasadores cónicos	HSS	N	
532	511, 747		DIN 1898	Brocas para pasadores cónicos	HSS	N	
533	737		DIN 344	Brocas escariadoras, cil.	HSS	N	
534	740		DIN 343	Brocas escariadoras, CM	HSS	N	
535	344, 593	~10xD	DIN 340	Brocas espirales cil., largas	HSS	GT 100	
536	722		DIN 8374	Brocas bidiametrales cil.	HSS	N	A
537	732		Norma de fab.	Brocas bidiametrales, CM	HSS	N	
538	726		DIN 8376	Brocas bidiametrales cil.	HSS	N	
539	734		DIN 8377	Brocas bidiametrales, CM	HSS	N	
540	729		DIN 8378	Brocas bidiametrales cil.	HSS	N	
541	736		DIN 8379	Brocas bidiametrales, CM	HSS	N	
542	489, 639	~20xD	DIN 1870	Brocas espirales, extra largas, serie 2	HSS	GT 50	
546	707		Norma de fab.	Brocas de puntear NC 142°	Metal duro	N	
549	274	~5xD	DIN 338	Brocas espirales cil., cortas	HSS	GT 100	
550	281	~5xD	DIN 338	Brocas espirales cil., cortas	HSS	GT 100	
551	476	~10xD	DIN 341	Brocas para casquillos	HSS	GT 100	
552	212	~3xD	DIN 1897	Brocas espirales extra cortas	HSS	GT 80	
553	215	~3xD	DIN 1897	Brocas espirales extra cortas	HSS	GT 80	
554	708		Norma de fab.	Brocas para carroceria	HSS	DK 77	
555	743		DIN 1864	Brocas escariadoras, CM	HSS	N	
556	702		Norma de fab.	Brocas de puntear NC 120°	HSS	N	
557	696		Norma de fab.	Brocas de puntear NC 90°	HSS	N	
558	461	~5xD	DIN 345	Brocas espirales	HSS	GT 100	
559	700		Norma de fab.	Brocas de puntear NC 90°	HSS	N	
560	256	~5xD	DIN 338	Brocas espirales cil., cortas	HSS	N	
561	327	~10xD	DIN 339	Brocas para casquillos	HSS	N	
563	491	>20xD	Norma de fab.	Brocas espirales, largo especial	HSS	GT 100	
564	492	>20xD	Norma de fab.	Brocas espirales, largo especial	HSS	GT 100	
565	493	>20xD	Norma de fab.	Brocas espirales, largo especial	HSS	GT 100	
566	494	>20xD	Norma de fab.	Brocas espirales, largo especial	HSS	GT 100	
567	703		Norma de fab.	Brocas de puntear NC 120°	HSS	N	

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568	697		Norma de fab.	Brocas de puntear NC 90°	HSS	N	
569	723		DIN 8374	Brocas bidiametrales cil.	HSS	N	B
571	380, 629	~25xD	DIN 1869	Brocas espirales, extra largas, serie 3	HSCO	GT 100	
572	231	~3xD	DIN 1897	Brocas espirales extra cortas	HSCO	VA	
574	715		Norma de fab.	Brocas escalonadas DIN 332	HSS	N	DR
575	716		Norma de fab.	Brocas escalonadas DIN 332	HSS	N	D
576	717		Norma de fab.	Brocas escalonadas DIN 332	HSS	N	D
577	390		NAS 907	Brocas esp. largas, longitud 6 pulgadas	HSS	N	
578	392		NAS 907	Brocas esp. largas, longitud 12 pulgadas	HSS	N	
579	391		NAS 907	Brocas esp. largas, longitud 6 pulgadas	HSS	N	
580	393		NAS 907	Brocas esp. largas, longitud 12 pulgadas	HSS	N	
581	668		DIN 333	Brocas de centrar sin plano	HSS	N	A
582	670		DIN 333	Brocas de centrar sin plano	HSS	N	A
583	672		DIN 333	Brocas de centrar sin plano	HSS	N	R
584	674		DIN 333	Brocas de centrar sin plano	HSS	N	R
585	675		DIN 333	Brocas de centrar sin plano	HSS	N	B
586	676		DIN 333	Brocas de centrar sin plano	HSS	N	B
587	690		DIN 333	Brocas de centrar con plano	HSS	N	A
588	691		DIN 333	Brocas de centrar con plano	HSS	N	R
589	692		DIN 333	Brocas de centrar con plano	HSS	N	B
590	671		DIN 333	Brocas de centrar sin plano	HSS	N	A
591	677		DIN 333	Brocas de centrar sin plano	HSS	N	B
592	454	~5xD	DIN 345	Brocas espirales	HSS	N	
594	678		ASME B94.11 M	Brocas de centrar sin plano	HSS	N	A
595	679		ASME B94.11 M	Brocas de centrar sin plano	HSS	N	B
605	301	~5xD	DIN 338	Brocas espirales cil., cortas	HSCO	Ti	
606	462	~5xD	DIN 345	Brocas espirales	HSS	GT 100	
608	308	~5xD	DIN 338	Brocas espirales cil., cortas	HSCO	Ti	
611	114	5xD	DIN 6539	Brocas Ratio, 3 cortes	Metal duro	GS 200 U	
613	669		DIN 333	Brocas de centrar sin plano	HSS	N	A
614	673		DIN 333	Brocas de centrar sin plano	HSS	N	R
617	358, 607	~10xD	DIN 340	Brocas espirales cil., largas	HSCO	Ti	
618	370, 619	~15xD	DIN 1869	Brocas espirales, extra largas, serie 1	HSCO	GT 100	
619	376, 625	~20xD	DIN 1869	Brocas espirales, extra largas, serie 2	HSCO	GT 100	
620	486, 636	~15xD	DIN 1870	Brocas espirales, extra largas, serie 1	HSCO	GT 100	
621	490, 640	~20xD	DIN 1870	Brocas espirales, extra largas, serie 2	HSCO	GT 100	
622	291	~5xD	DIN 338	Brocas espirales cil., cortas	HSCO	GT 100	
623	481	~10xD	DIN 341	Brocas para casquillos	HSCO	GT 100	
634	742		DIN 343	Brocas escariadoras, CM	HSCO	N	
635	744		DIN 1864	Brocas escariadoras, CM	HSCO	N	
636	724		Norma de fab.	Brocas bidiametrales cil.	HSS	N	
637	731		Norma de fab.	Brocas bidiametrales, CM	HSS	N	
638	725		Norma de fab.	Brocas bidiametrales cil.	HSS	N	
639	733		Norma de fab.	Brocas bidiametrales, CM	HSS	N	
645	466	~5xD	DIN 345	Brocas espirales	HSCO	GT 100	
651	250	~5xD	DIN 338	Brocas espirales cil., cortas	HSS	N	
652	277	~5xD	DIN 338	Brocas espirales cil., cortas	HSS	GT 100	
653	196	~3xD	DIN 1897	Brocas espirales extra cortas	HSS	N	
654	455	~5xD	DIN 345	Brocas espirales	HSS	N	
655	475	~10xD	DIN 341	Brocas espirales cil., cortas	HSS	N	
656	478	~10xD	DIN 341	Brocas para casquillos	HSS	GT 100	
657	304	~5xD	DIN 338	Brocas espirales cil., cortas	HSCO	Ti	
658	294	~5xD	DIN 338	Brocas espirales cil., cortas	HSCO	GT 100	
659	222	~3xD	DIN 1897	Brocas espirales extra cortas	HSCO	GV 120	
660	400, 652	~5xD	DIN 1899	Microbrocas HSS-E-PM sin refrig. Interna	HSS-E-PM	N	
661	465	~5xD	DIN 345	Brocas espirales	HSCO	N	
662	467	~5xD	DIN 345	Brocas espirales	HSCO	GT 100	
663	449	~3xD	Norma de fab.	Brocas espirales cil., cortas	HSCO	GV 120	
664	261	~5xD	DIN 338	Brocas espirales cil., cortas	HSS	N	
665	283	~5xD	DIN 338	Brocas espirales cil., cortas	HSS	GT 100	
666	328	~10xD	DIN 339	Brocas para casquillos	HSS	N	
667	334, 583	~10xD	DIN 340	Brocas espirales cil., largas	HSS	N	
668	347, 596	~10xD	DIN 340	Brocas espirales cil., largas	HSS	GT 100	
669	360, 609	~10xD	DIN 340	Brocas espirales cil., largas	HSCO	Ti	
670	367, 616	~15xD	DIN 1869	Brocas espirales, extra largas, serie 1	HSS	GT 100	
671	374, 623	~20xD	DIN 1869	Brocas espirales, extra largas, serie 2	HSS	GT 100	
672	203	~3xD	DIN 1897	Brocas espirales extra cortas	HSS	N	
701	404, 656	~5xD	Norma de fab.	Microbrocas VHM sin refrig. Interna	Metal duro	N	
702	243	~3xD	Norma de fab.	Brocas espirales extra cortas	Metal duro	N	
703	429		DIN 8037	Brocas espirales, placa MD soldada	Carbide	N	
704	430		DIN 8038	Brocas espirales, placa MD soldada	Carbide	N	
705	512		DIN 8041	Brocas espirales, placa MD soldada	Carbide	N	

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706	362, 611	~10xD	Norma de fab.	Brocas espirales cil., largas	Metal duro	N	
707	432		Norma de fab.	Brocas punta de lanza	Carbide	H	
710	323	~5xD	Norma de fab.	Brocas espirales cil., cortas	Carbide	Duro 150	
716	433		Norma de fab.	Brocas para piedra	Carbide	N	
723	701		Norma de fab.	Brocas de puntear NC 90°	Metal duro	N	
724	706		Norma de fab.	Brocas de puntear NC 120°	Metal duro	N	
729	745		Norma de fab.	Brocas escariadoras, CM	Carbide	N	
730	239	3xD	DIN 6539	Brocas espirales extra cortas	Metal duro	N	
731	115	5xD	DIN 6539	Brocas Ratio, 3 cortes	Metal duro	GS 200 U	
732	319	~5xD	Norma de fab.	Brocas espirales cil., cortas	Metal duro	N	
736	683		Norma de fab.	Brocas de centrar sin plano	Metal duro	N	A
738	727		Norma de fab.	Brocas bidiametrales cil.	Metal duro	N	
739	730		Norma de fab.	Brocas bidiametrales cil.	Metal duro	N	
745	116	5xD	DIN 6539	Brocas Ratio, 3 cortes	Metal duro	GS 200 G	
750	739		Norma de fab.	Brocas escariadoras, cil.	Carbide	N	
768	56	4xD	Norma de fab.	Brocas Ratio con refrigeración interior	Metal duro	RT 150 GG	
769	93	7xD	Norma de fab.	Brocas Ratio con refrigeración interior	Metal duro	RT 150 GG	
770	98	10xD	Norma de fab.	Brocas Ratio con refrigeración interior	Metal duro	RT 150 GG	
773	103	15xD	Norma de fab.	Brocas Ratio con refrigeración interior	Metal duro	RT 150 GN	
1018	313	~5xD	DIN 338	Brocas espiralizadas AeroX con afilado en cruz	M42	AeroX	
1025	117	5xD	DIN 6539	Brocas Ratio, 3 cortes	Metal duro	GS 200 G	
1027	119	5xD	DIN 6539	Brocas Ratio, 3 cortes	Metal duro	GS 200 F	
1032	120	3xD	Norma de fab.	Brocas Ratio escalonadas, 3 cortes	Metal duro	GS 200 G	
1047	162		Norma de fab.	Placa intercambiale para RT 800	Metal duro	RT 800 WP	
1071	168		Norma de fab.	Tornillo de fijación RT 800			
1083	425	~5xD	DIN 338	AeroX sets de brocas espiralizadas con afilado en cruz optimizado	M42	AeroX	
1101	501	~10xD	Norma de fab.	Brocas con canal de refrig., long. ranuras DIN 341	HSS	N	
1131	395	~5xD	Norma de fab.	Brocas con canal de refrigeración	HSCO	GT 80 IK	
1132	396	~5xD	Norma de fab.	Brocas con canal de refrigeración	HSCO	GT 80 IK	
1133	699		Norma de fab.	Brocas de puntear NC 90°	HSCO	N	
1134	704		Norma de fab.	Brocas de puntear NC 120°	HSCO	N	
1135	705		Norma de fab.	Brocas de puntear NC 120°	HSCO	N	
1136	698		Norma de fab.	Brocas de puntear NC 90°	HSCO	N	
1146	315	~5xD	DIN 338	Brocas espirales cil., cortas	M42	N	
1147	719		Norma de fab.	Brocas escalonadas cortas con mango cil.	HSS	N	
1149	431		Norma de fab.	Broca para Kevlar	Metal duro	FK	
1171	55	3xD	DIN 6538K	Brocas Ratio con refrigeración interior	Carbide	RT 80 U	
1172	84	5xD	DIN 6538M	Brocas Ratio con refrigeración interior	Carbide	RT 80 U	
1173	95	7xD	DIN 6538L	Brocas Ratio con refrigeración interior	Carbide	RT 80 U	
1180	54	3xD	DIN 6537K	Brocas Ratio con refrigeración interior	Metal duro	RT 100 F	
1181	43	3xD	DIN 6537K	Brocas Ratio con refrigeración interior	Metal duro	RT 100 U	
1182	80	5xD	DIN 6537L	Brocas Ratio con refrigeración interior	Metal duro	RT 100 F	
1183	66	5xD	DIN 6537L	Brocas Ratio con refrigeración interior	Metal duro	RT 100 U	
1184	21	3xD	DIN 6537K	Brocas Ratio sin refrigeración interior	Metal duro	RT 100 U	
1199	317	~5xD	DIN 338	Brocas espirales cil., cortas	M42	N	
1221	298	~5xD	DIN 338	Brocas espirales cil., cortas	HSCO	GT 100	
1222	468	~5xD	DIN 345	Brocas espirales	HSCO	GT 100	
1223	299	~5xD	DIN 338	Brocas espirales cil., cortas	HSCO	GT 100	
1224	469	~5xD	DIN 345	Brocas espirales	HSCO	GT 100	
1228	227	~3xD	DIN 1897	Brocas espirales extra cortas	HSCO	GT 80	
1242	23	3xD	DIN 6539	Brocas Ratio sin refrigeración interior	Metal duro	RT 100 U	
1243	36	5xD	Norma de fab.	Brocas Ratio sin refrigeración interior	Metal duro	RT 100 U	
1259	235	~3xD	DIN 1897	Brocas espirales extra cortas	M42	N	
1260	309	~5xD	DIN 338	Brocas espirales cil., cortas	HSCO	VA	
1261	230	~3xD	DIN 1897	Brocas espirales extra cortas	HSCO	VA	
1262	470	~5xD	DIN 345	Brocas espirales	HSCO	VA	
1612	171, 558		Norma de fab.	Atornillador Torx			
1660	53	3xD	DIN 6537K	Brocas Ratio con refrigeración interior	Metal duro	RT 100 F	
1662	78	5xD	DIN 6537L	Brocas Ratio con refrigeración interior	Metal duro	RT 100 F	
1663	65	5xD	DIN 6537L	Brocas Ratio con refrigeración interior	Metal duro	RT 100 U	
1702	28	3xD	DIN 6539	Brocas Ratio sin refrigeración interior	Metal duro	RT 100 F	
1946	389	~3xD	DIN 6537K	Brocas espirales con mango cil. reforzado	Metal duro	H	
2047	311	~5xD	DIN 338	Brocas espirales cil., cortas	HSCO	P2000	
2048	233	~3xD	DIN 1897	Brocas espirales extra cortas	HSCO	P2000	
2049	423	~5xD	DIN 338	Brocas espirales	HSCO	P2000	
2050	424	~3xD	DIN 1897	Brocas espirales	HSCO	P2000	
2456	254	~5xD	DIN 338	Brocas espirales cil., cortas	HSS	N	
2457	280	~5xD	DIN 338	Brocas espirales cil., cortas	HSS	GT 100	
2458	306	~5xD	DIN 338	Brocas espirales cil., cortas	HSCO	Ti	
2459	296	~5xD	DIN 338	Brocas espirales cil., cortas	HSCO	GT 100	
2460	199	~3xD	DIN 1897	Brocas espirales extra cortas	HSS	N	
2461	224	~3xD	DIN 1897	Brocas espirales extra cortas	HSCO	GV 120	

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2462	349, 598	~10xD	DIN 340	Brocas espirales cil., largas	HSS	GT 100	
2463	241	~3xD	DIN 6539	Brocas espirales extra cortas	Metal duro	N	
2464	321	~5xD	Norma de fab.	Brocas espirales cil., cortas	Metal duro	N	
2468	52	3xD	DIN 6537K	Brocas Ratio con refrigeración interior	Metal duro	RT 100 F	
2469	41	3xD	DIN 6537K	Brocas Ratio con refrigeración interior	Metal duro	RT 100 U	
2470	77	5xD	DIN 6537L	Brocas Ratio con refrigeración interior	Metal duro	RT 100 F	
2471	63	5xD	DIN 6537L	Brocas Ratio con refrigeración interior	Metal duro	RT 100 U	
2472	18	3xD	DIN 6537K	Brocas Ratio sin refrigeración interior	Metal duro	RT 100 U	
2473	20	3xD	DIN 6539	Brocas Ratio sin refrigeración interior	Metal duro	RT 100 U	
2474	34	5xD	Norma de fab.	Brocas Ratio sin refrigeración interior	Metal duro	RT 100 U	
2475	27	3xD	DIN 6537K	Brocas Ratio sin refrigeración interior	Metal duro	RT 100 F	
2477	39	3xD	DIN 6537K	Brocas Ratio con refrigeración interior	Metal duro	RT 100 U	
2478	76	5xD	DIN 6537L	Brocas Ratio con refrigeración interior	Metal duro	RT 100 F	
2479	61	5xD	DIN 6537L	Brocas Ratio con refrigeración interior	Metal duro	RT 100 U	
2480	16	3xD	DIN 6537K	Brocas Ratio sin refrigeración interior	Metal duro	RT 100 U	
2485	164		Norma de fab.	Placa intercambiale para RT 800	Metal duro	RT 800 WP	
2498	229	~3xD	DIN 1897	Brocas espirales extra cortas	HSCO	GT 80	
2711	89	7xD	Norma de fab.	Brocas Ratio con refrigeración interior	Metal duro	RT 100 U	
2712	38	5xD	DIN 6537L	Brocas Ratio sin refrigeración interior	Metal duro	RT 100 F	
2713	113	5xD	DIN 6537L	Brocas Ratio, 3 cortes	Metal duro	FT 200 G	
2717	35	5xD	DIN 6537L	Brocas Ratio sin refrigeración interior	Metal duro	RT 100 U	
2719	32	5xD	DIN 6537L	Brocas Ratio sin refrigeración interior	Metal duro	RT 100 U	
2747	166		Norma de fab.	Placa intercambiale para RT 800	Metal duro	RT 800 WP	
2996	30	5xD	DIN 6537L	Brocas Ratio sin refrigeración interior	Metal duro	RT 100 U	
2997	288	~5xD	DIN 338	Brocas espirales cil., cortas	HSCO	N	
3899	405, 657		Norma de fab.	Microbrocas VHM sin refrig. Interna	Metal duro	N	
4044	85	7xD	Norma de fab.	Brocas Ratio con refrigeración interior	Metal duro	RT 100 U	
4045	87	7xD	Norma de fab.	Brocas Ratio con refrigeración interior	Metal duro	RT 100 U	
4071	158, 561		Norma de fab.	Tornillos de fijación			
4105	138	1xD	Norma de fab.	Porta placas HT 800		HT 800 WP	
4106	128	1,5xD	Norma de fab.	Porta placas HT 800		HT 800 WP	
4107	130	3xD	Norma de fab.	Porta placas HT 800		HT 800 WP	
4108	132	5xD	Norma de fab.	Porta placas HT 800		HT 800 WP	
4109	134	7xD	Norma de fab.	Porta placas HT 800		HT 800 WP	
4110	136	10xD	Norma de fab.	Porta placas HT 800		HT 800 WP	
4111	151		Norma de fab.	Placa intercambiale para HT 800	Metal duro	HT 800 WP	
4112	139		Norma de fab.	Placa intercambiale para HT 800	Metal duro	HT 800 WP	
4113	142		Norma de fab.	Placa intercambiale para HT 800	Metal duro	HT 800 WP	
4114	148		Norma de fab.	Placa intercambiale para HT 800	Metal duro	HT 800 WP	
4115	145		Norma de fab.	Placa intercambiale para HT 800	Metal duro	HT 800 WP	
4915	169, 559		Norma de fab.	Llave dinamométrica			
4917	170, 560		Norma de fab.	Adaptor exagonal			
5018	540	20xD	Norma de fab.	Brocas monolabio EB 80	Carbide	EB 80	
5019	551	30xD	Norma de fab.	Brocas de dos labios ZB 80	Carbide	ZB 80	
5020	534	80.000	Norma de fab.	Brocas monolabio EB 100	Metal duro	EB 100	
5021	538	160.000	Norma de fab.	Brocas monolabio EB 100	Metal duro	EB 100	
5022	545	40xD	Norma de fab.	Brocas monolabio EB 80	Carbide	EB 80	
5023	548	80xD	Norma de fab.	Brocas monolabio EB 80	Carbide	EB 80	
5024	532	45.000	Norma de fab.	Brocas monolabio EB 100	Metal duro	EB 100	
5026	536	120.000	Norma de fab.	Brocas monolabio EB 100	Metal duro	EB 100	
5164	550	1100.000	Norma de fab.	Brocas monolabio EB 80	Carbide	EB 80	
5242	159	3xD	Norma de fab.	Porta placas RT 800		RT 800 WP	
5243	160	5xD	Norma de fab.	Porta placas RT 800		RT 800 WP	
5248	161	7xD	Norma de fab.	Porta placas RT 800		RT 800 WP	
5460	542	30xD	Norma de fab.	Brocas monolabio EB 80	Carbide	EB 80	
5525	100	12xD	Norma de fab.	Brocas Ratio con refrigeración interior	Metal duro	RT 100 U	
5632	533	45.000	Norma de fab.	Brocas monolabio EB 100	Metal duro	EB 100	
5633	535	80.000	Norma de fab.	Brocas monolabio EB 100	Metal duro	EB 100	
5637	537	120.000	Norma de fab.	Brocas monolabio EB 100	Metal duro	EB 100	
5638	539	160.000	Norma de fab.	Brocas monolabio EB 100	Metal duro	EB 100	
5639	541	20xD	Norma de fab.	Brocas monolabio EB 80	Carbide	EB 80	
5640	543	30xD	Norma de fab.	Brocas monolabio EB 80	Carbide	EB 80	
5641	546	40xD	Norma de fab.	Brocas monolabio EB 80	Carbide	EB 80	
5642	549	80xD	Norma de fab.	Brocas monolabio EB 80	Carbide	EB 80	
5643	552	30xD	Norma de fab.	Brocas de dos labios ZB 80	Carbide	ZB 80	
5644	555	30xD	Norma de fab.	Brocas de un labio EB 800 con plaquitas intercambiables	Carbide	EB 800	
5646	529	25xD	Norma de fab.	Brocas monolabio EB 100	Metal duro	EB 100	
5647	530	50xD	Norma de fab.	Brocas monolabio EB 100	Metal duro	EB 100	
5648	531	75xD	Norma de fab.	Brocas monolabio EB 100	Metal duro	EB 100	
5689	544	40xD	Norma de fab.	Brocas monolabio EB 80	Carbide	EB 80	
5690	547	80xD	Norma de fab.	Brocas monolabio EB 80	Carbide	EB 80	
5747	566		Norma de fab.	Casquillos	HSS		

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5750	571		Norma de fab.	Casquillos para brocas monolabio			
5751	576		Norma de fab.	Casquillos para brocas de dos labios			
5752	569		Norma de fab.	Juntas para brocas monolabio			
5753	575		Norma de fab.	Juntas para brocas de dos labios			
5754	577		Norma de fab.	Ajuste los tornillos			
5755	578		Norma de fab.	Ajuste los tornillos			
5759	59	5xD	DIN 6537L	Brocas Ratio con refrigeración interior	Metal duro	RT 100 S	
5760	96	8xD	Norma de fab.	Brocas Ratio con refrigeración interior	Metal duro	RT 100 S	
6068	58	4xD	Norma de fab.	Brocas Ratio con refrigeración interior	Metal duro	RT 150 GG	
6069	94	7xD	Norma de fab.	Brocas Ratio con refrigeración interior	Metal duro	RT 150 GG	
6070	99	10xD	Norma de fab.	Brocas Ratio con refrigeración interior	Metal duro	RT 150 GG	
6128	157		Norma de fab.	Tornillos de fijación			
6400	108, 407, 659	4xD	Norma de fab.	Microbrocas ExclusiveLine sin refrigeración interior	Metal duro	N	
6401	109, 408, 660	7xD	Norma de fab.	Microbrocas ExclusiveLine sin refrigeración interior	Metal duro	N	
6405	110, 409, 661	5xD	Norma de fab.	Microbrocas ExclusiveLine con refrigeración interior	Metal duro	N	
6408	111, 410, 662	8xD	Norma de fab.	Microbrocas ExclusiveLine con refrigeración interior	Metal duro	N	
6412	112, 411, 663	15xD	Norma de fab.	Microbrocas ExclusiveLine con refrigeración interior	Metal duro	N	
6501	82	5xD	DIN 6537L	Brocas Ratio con refrigeración interior	Metal duro	RT 100 R	
6502	91	7xD	Norma de fab.	Brocas Ratio con refrigeración interior	Metal duro	RT 100 R	
6509	102, 523	15xD	Norma de fab.	Brocas Ratio con refrigeración interior	Metal duro	RT 100 T	
6511	104, 524	20xD	Norma de fab.	Brocas Ratio con refrigeración interior	Metal duro	RT 100 T	
6512	105, 525	25xD	Norma de fab.	Brocas Ratio con refrigeración interior	Metal duro	RT 100 T	
6513	106, 526	30xD	Norma de fab.	Brocas Ratio con refrigeración interior	Metal duro	RT 100 T	
6514	107, 527	40xD	Norma de fab.	Brocas Ratio con refrigeración interior	Metal duro	RT 100 T	
7632	155		Norma de fab.	Plaquitas de avellanar HT 800	Metal duro		
7635	156		Norma de fab.	Plaquitas de avellanar HT 800	Metal duro		
7645	154		Norma de fab.	Plaquitas de avellanar HT 800	Metal duro		
8510	48	3xD	DIN 6537K	Brocas Ratio con refrigeración interior	Metal duro	RT 100 VA	
8511	72	5xD	DIN 6537L	Brocas Ratio con refrigeración interior	Metal duro	RT 100 VA	
8520	44	3xD	DIN 6537K	Brocas Ratio con refrigeración interior	Metal duro	RT 100 HF	
8521	68	5xD	DIN 6537L	Brocas Ratio con refrigeración interior	Metal duro	RT 100 HF	
8522	90	7xD	Norma de fab.	Brocas Ratio con refrigeración interior	Metal duro	RT 100 HF	
8524	25	3xD	DIN 6537K	Brocas Ratio sin refrigeración interior	Metal duro	RT 100 HF	
8610	50	3xD	DIN 6537K	Brocas Ratio con refrigeración interior	Metal duro	RT 100 VA	
8611	74	5xD	DIN 6537L	Brocas Ratio con refrigeración interior	Metal duro	RT 100 VA	
8620	46	3xD	DIN 6537K	Brocas Ratio con refrigeración interior	Metal duro	RT 100 HF	
8621	70	5xD	DIN 6537L	Brocas Ratio con refrigeración interior	Metal duro	RT 100 HF	

Perfección en el taladrado

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