

GUHRING



- no delamination
- burr-free surfaces
- long tool life



CR 100 Milling Cutters for fiber-reinforced plastics

GUHRING - YOUR WORLD-WIDE PARTNER

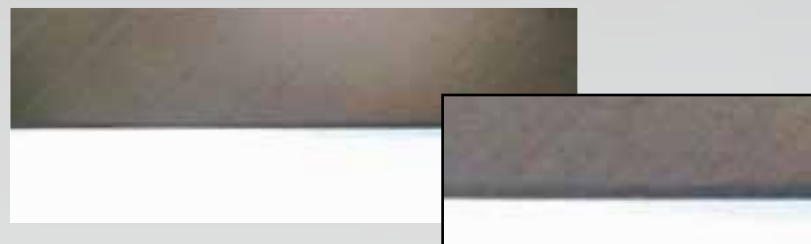
CR 100 – The efficient high-performance milling cutter for composite machining

The economical machining of modern materials such as carbon fibre reinforced plastics (CFRP) requires high-tech tools operating extremely efficiently. Above all, it is important to avoid delamination or fibre projections on the component as well as thermal damage. Especially with CFRP types with less resin content and unidirectional orientation of fibres, the fibres are very easily torn from the composite during machining.

Typical delamination on a milled CFRP workpiece edge



Milled CFRP workpiece edge without delamination machined with a Guhring CR 100 end mill



Therefore, Guhring developed an innovative cutting edge geometry for the CR 100 end mill. Combined with a diamond coating it enables a reliable machining process of materials without delamination with smooth running and high cutting speeds.

Your advantages

- ⇒ no delamination
- ⇒ very good, burr-free surfaces
- ⇒ long tool life
- ⇒ high feed rates and cutting speeds
- ⇒ smooth running

APPLICATION EXAMPLE



Workpiece: CFRP components
Tool: CR 100 Ø 8 mm (no. 6719)
Application / parameters:
slotting, roughing and edging in one pass
Coolant: air
Feed: 3,600 mm/min
No. of revolutions: 5,000 n/min

Result:


- ⇒ high dimensional stability
- ⇒ no delamination
- ⇒ increase of tool life
- ⇒ increase of removal rate



For each application the appropriate geometry

CR 100

Guhring no.6717



Guhring std.
shank to DIN 6535 HA
VHM ultrafine
diamond coated



**CR 100
without end face teeth**
for slotting and edging

d1 (e10)	d2 (h6)	l1	l2	Z
mm	mm	mm	mm	
4.000	6.000	57.00	10.00	6
6.000	6.000	65.00	15.00	8
8.000	8.000	75.00	20.00	10
10.000	10.000	80.00	25.00	12
12.000	12.000	93.00	32.00	14
16.000	16.000	108.00	34.00	14

Availability

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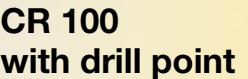
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CR 100

Guhring no.6720



with 118° drill point
Guhring std.
shank to DIN 6535 HA
VHM ultrafine
diamond coated



**CR 100
with drill point**
Especially for plunging and
subsequent profiling operations.

d1 (e10)	d2 (h6)	l1	l2	Z
mm	mm	mm	mm	
4.000	4.000	55.00	12.00	6
6.000	6.000	65.00	18.00	8
8.000	8.000	75.00	24.00	10
10.000	10.000	80.00	30.00	12
12.000	12.000	93.00	36.00	14
16.000	16.000	108.00	48.00	14

Availability

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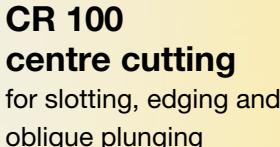
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CR 100

Guhring no.6719



centre cutting
Guhring std.
shank to DIN 6535 HA
VHM ultrafine
diamond coated



**CR 100
centre cutting**
for slotting, edging and
oblique plunging

d1 (e10)	d2 (h6)	l1	l2	Z
mm	mm	mm	mm	
4.000	6.000	57.00	10.00	6
6.000	6.000	65.00	15.00	8
8.000	8.000	75.00	20.00	10
10.000	10.000	80.00	25.00	12
12.000	12.000	93.00	32.00	14
16.000	16.000	108.00	34.00	14

Availability

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CR 100

Guhring no.6718



with rear facing air-cooling ducts
Guhring std.
shank to DIN 6535 HA
VHM ultrafine
diamond coated



**CR 100 Air
without end face teeth**
Special, rear facing air-cooling
ducts ensure an optimal
evacuation of the CFRP dust.

d1 (e10)	d2 (h6)	l1	l2	Z
mm	mm	mm	mm	
6.000	6.000	70.00	24.00	8
8.000	8.000	80.00	32.00	10
10.000	10.000	90.00	40.00	12
12.000	12.000	110.00	48.00	14
16.000	16.000	130.00	64.00	14

Availability

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Cutting rates

Material	Type of application	Cutting speed (v _c)	fz (mm/min)					
			4	6	8	10	12	16
fiber-reinforced plastics, CFRP / GFK / aramid fibres	Slotting* a _p 1 x d, a _e 1 x d	140	0.015	0.030	0.040	0.050	0.060	0.080
	Roughing* a _p 2 x d, a _e 0.5 x d	200	0.020	0.035	0.050	0.060	0.070	0.090
Material	Type of application	Cutting speed (v _c)	F/U (mm)					
			4	6	8	10	12	16
fiber-reinforced plastics, CFRP / GFK / aramid fibres	Drilling a _p 1 x d (with deeper holes always peck after 0.5 x D)	125	0.070	0.100	0.120	0.150	0.180	0.200

*Optimal chip evacuation with compressed air and extraction reduces machining temperature and increases tool life.

Guhring Tools for the machining of CFRP

Guhring's CR 100 high-performance end mill for CFRP and similar composites is the optimal solution for milling applications in the aerospace industry, the energy technology, the automotive and ship building industry and many other areas.

In addition to the CR 100 high-performance end mill Guhring has further tools for the machining of carbon fibre reinforced plastics included in the range.

Together with the customer, Guhring also develops made-to-measure special tools optimally adapted to the relevant requirements. We will be happy to advise you on your application and the correct tool. Please contact us!



GUHRING

Guhring KG

P.O. Box 100247 • 72423 Albstadt
Herderstraße 50-54 • 72458 Albstadt

Tel. +49 74 31 17-0
Fax +49 74 31 17-21 279
info@guehring.de
www.guehring.de