CR 100 Milling Cutters for fiber-reinforced plastics

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

**Gühring no. 6717**

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

**Availability**

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<th>d2 (H6)</th>
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**CR 100**

**Gühring no. 6719**

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

**Availability**

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**Cutting rates**

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<th>Material</th>
<th>Type of application</th>
<th>Cutting speed (v_c)</th>
<th>fz (mm/min)</th>
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<td>4 6 8 10 12 16</td>
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<tr>
<td>fiber-reinforced plastics, CFRP / GFK / aramid fibres</td>
<td>Slotting* a_p 1 x d, a_e 1 x d</td>
<td>140</td>
<td>0.015 0.030 0.040 0.050 0.060 0.080</td>
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<td>Roughing* a_p 2 x d, a_e 0.5 x d</td>
<td>200</td>
<td>0.020 0.035 0.050 0.060 0.070 0.090</td>
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<tr>
<td>fiber-reinforced plastics, CFRP / GFK / aramid fibres</td>
<td>Drilling a_p 1 x d (with deeper holes always peck after 0.5 x D)</td>
<td>125</td>
<td>0.070 0.100 0.120 0.150 0.180 0.200</td>
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*Optimal chip evacuation with compressed air and extraction reduces machining temperature and increases tool life.
CR 100

with 118° drill point
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.

CR 100

with drill point
Guhring std.
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CR 100 Air
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Special, rear facing air-cooling ducts ensure an optimal evacuation of the CFRP dust.
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!