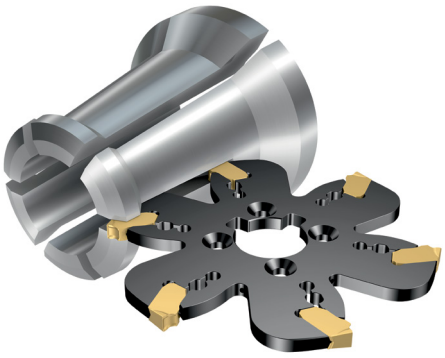
CoroMill® QD

High-security groove milling

The main challenge in groove milling is usually chip evacuation, especially when machining deep and narrow grooves. CoroMill® QD is the first cutter of its kind with internal coolant. Internal coolant combined with optimized insert geometries deforming the chip to a shape more narrow than the groove, makes CoroMill QD a highly reliable tool ensuring great chip evacuation and trouble-free machining.

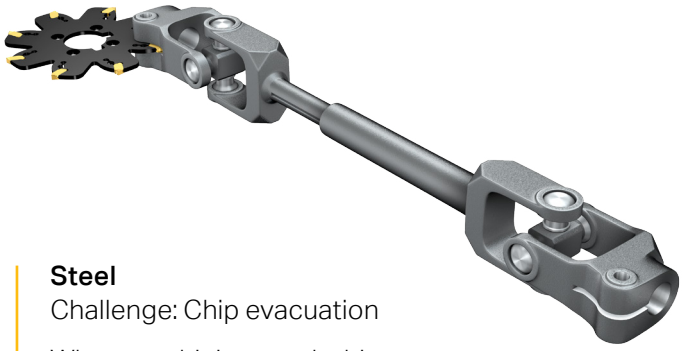
How to overcome your grooving challenges



Stainless steel
Challenges: Surface finish, groove quality and tool life

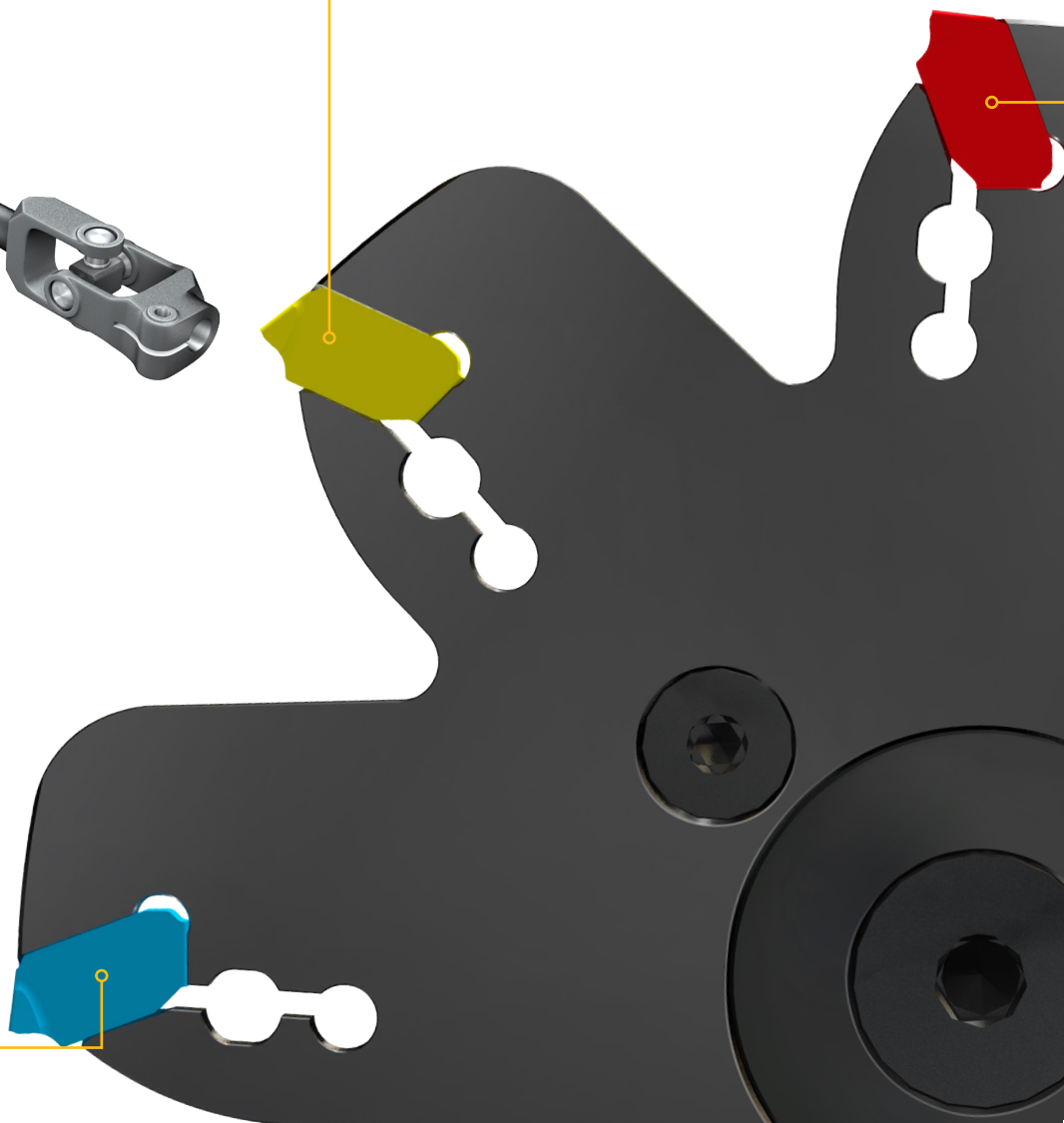
E-ML wiper geometry is optimized to give excellent surface finish in stainless steel. Furthermore, the unique insert clamping design ensures that the inserts fit perfectly in the cutter body, even after a long time in use. The result is high quality grooves.

The periphery ground inserts have a sharp cutting edge, which results in long and reliable tool life.



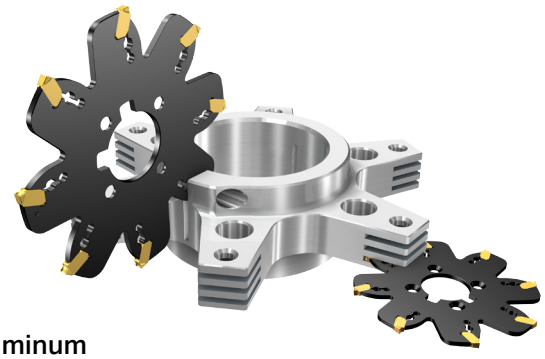
Steel
Challenge: Chip evacuation

When machining steel, chips tend to get stuck in the groove. This causes production problems and sometimes bad surface quality. The optimized insert geometries deforming the chips to a narrow shape facilitates efficient chip evacuation. Add internal coolant to flush the chips away and you have the best chip evacuation solution on the market.



Cast iron
Challenge: Tool life

Temperature variations often shorten insert tool life. Versatile cast iron grades GC1020 and GC3330 work both with and without coolant and are resistant to the temperature effects. Periphery ground inserts with grade GC3330 provide high flank wear resistance and excellent insert tool life.

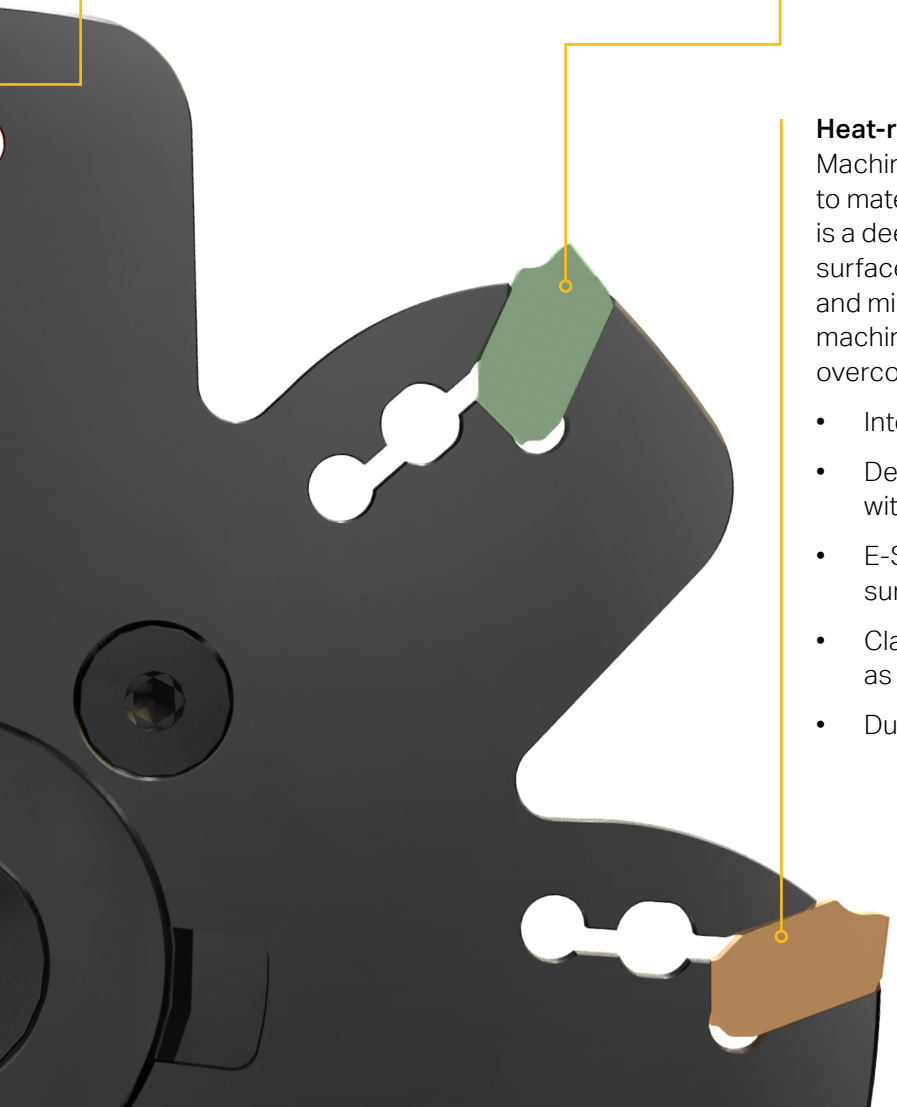


Aluminum
Challenge: Secure machining

Machining aluminum requires high cutting speeds, which leads to high centrifugal forces. This increases the risk of inserts flying out of the insert seats. The tilted CoroMill QD insert seat design eliminates this problem.

Heat-resistant super alloys
Machining heat-resistant super alloys is difficult due to material properties, especially when the feature is a deep, narrow groove. Chip evacuation, tool life, surface finish, groove quality, cutter body damage, and minimizing cutting forces are challenges when machining these materials. CoroMill QD helps you overcome these challenges with:

- Internal coolant
- Dedicated grades for heat-resistant super alloys with high edge-line security
- E-SL periphery ground wiper geometry for great surface finish and superior tool life
- Clamping design preventing deformation as well as wear of the tip seat
- Durable tool with optimized cutter body hardness



Unique tooling solutions

Easy handling

The quick-release key ensures correct clamping force. This user-friendly solution prevents wear on the insert seats caused by changing inserts. Insert position is always stable and precise, providing great groove quality and machining security over time.

Optimized milling inserts

Optimized milling grades and periphery ground insert geometries offer controlled chip evacuation, high-quality grooves with tight tolerances, and long, predictable tool life.

Internal coolant

The internal coolant solution provides great chip evacuation. By getting rid of the chip issues, surface quality is improved and machining security is ensured. Internal coolant also helps regulate the heat at the cutting zone; this is especially beneficial for ISO S materials.

Benefits

- Secure machining ensured by excellent chip evacuation and long and predictable insert and cutter-body tool life
- High-quality grooves with close hole tolerances
- Easy insert changes for efficient production

Silent Tools™

Damped Silent Tools™ adapters minimize vibrations and provide stability when machining with long overhangs.

Tilted insert seats

Tilted insert seats with a rail stabilize the insert and eliminate the risk of inserts flying out of the insert seat, a potential problem at high cutting speed when using cutters with poor clamping solutions.

For all your grooving needs

Are you working in a small machining center with space limitations and vibration tendencies? Or are your challenges long overhangs in large machines? With the extensive tool holding solutions available for CoroMill® QD, you can overcome machining challenges in any machine type, for most machine tool interfaces and component features.

SilentTools®

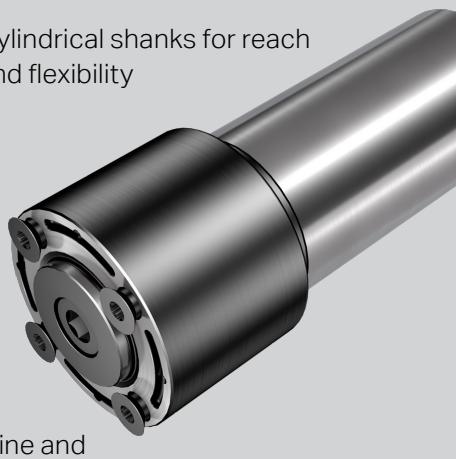
Coolant through the tool

Unique four-channel coolant delivery from adapters to the cutter is implemented on dedicated CoroMill QD adapters prepared for internal coolant supply.

Integrated machine adapters for short gauge line and stability

Steep taper 30, 40, HSK 63

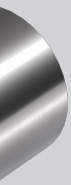
Cylindrical shanks for reach and flexibility



Driving collars

Driving collars for extra stability minimize vibration and ensure excellent quality grooves when using cutters with a high diameter-width ratio.

Using driving collars also allows CoroMill QD cutters to be used with face mill adapters in large machining centers.



Coromant Capto® adapters for modular use with machine interface adapters or clamped directly in the spindle.

Steep taper 50, 60, BIG-PLUS*

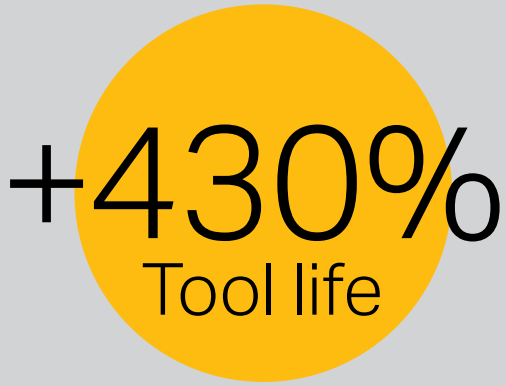
Silent Tools™ for machining with long overhangs

* BIG-PLUS® SYSTEM – Licensed by BIG-Daishowa

Case: Optimized performance in deep-grooving

Deep-grooving of components like hydraulic joints can be challenging, as the quality of the groove is difficult to achieve. To maintain straightness and perpendicularity, grooves are machined with multiple passes. The consequence of multiple passes is a long production time.

With CoroMill® QD optimized milling geometry, the cutting force was reduced to a great extent and the same quality was achieved with one pass instead of three. The result is reduced cycle time and improved tool life, leading to lower cost per component.



Workpiece material	P2.1.Z.AN	
Cutting tool, insert	QD–GC160X40–M, QD–NG–0300–020 E-PM	
	CoroMill QD	**Competitor**
DC	160	160
z_n no	12	10
v_c m/min (ft/min)	200 (656)	150 (492)
v_f mm/min (in/min)	480 (18.898)	180 (7.087)
n rpm	398	298
h_{ex} mm (inch)	0.09 (0.004)	0.035 (0.001)
f_z mm (inch)	0.1 (0.004)	0.06 (0.002)
a_p mm (inch)	3 (0.118)	3 (0.118)
a_e mm (inch)	44.5 (1.752) 1 pass	15 (0.591) 3 passes
Tool life, components	415	90

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