

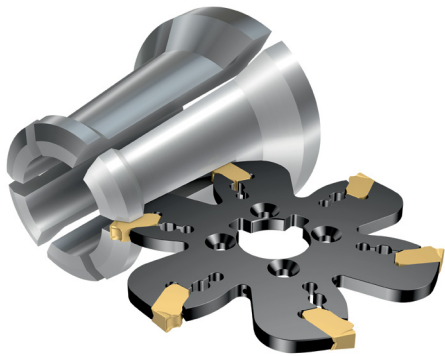
# CoroMill® QD



## 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. This, 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

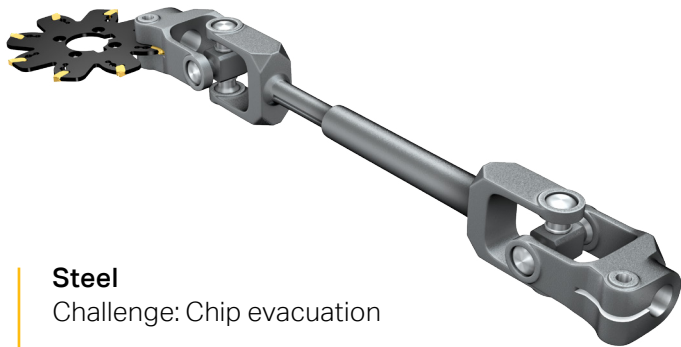


## Stainless steel

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 to fit perfectly in the cutter body even after long time in use. The result is high quality grooves.

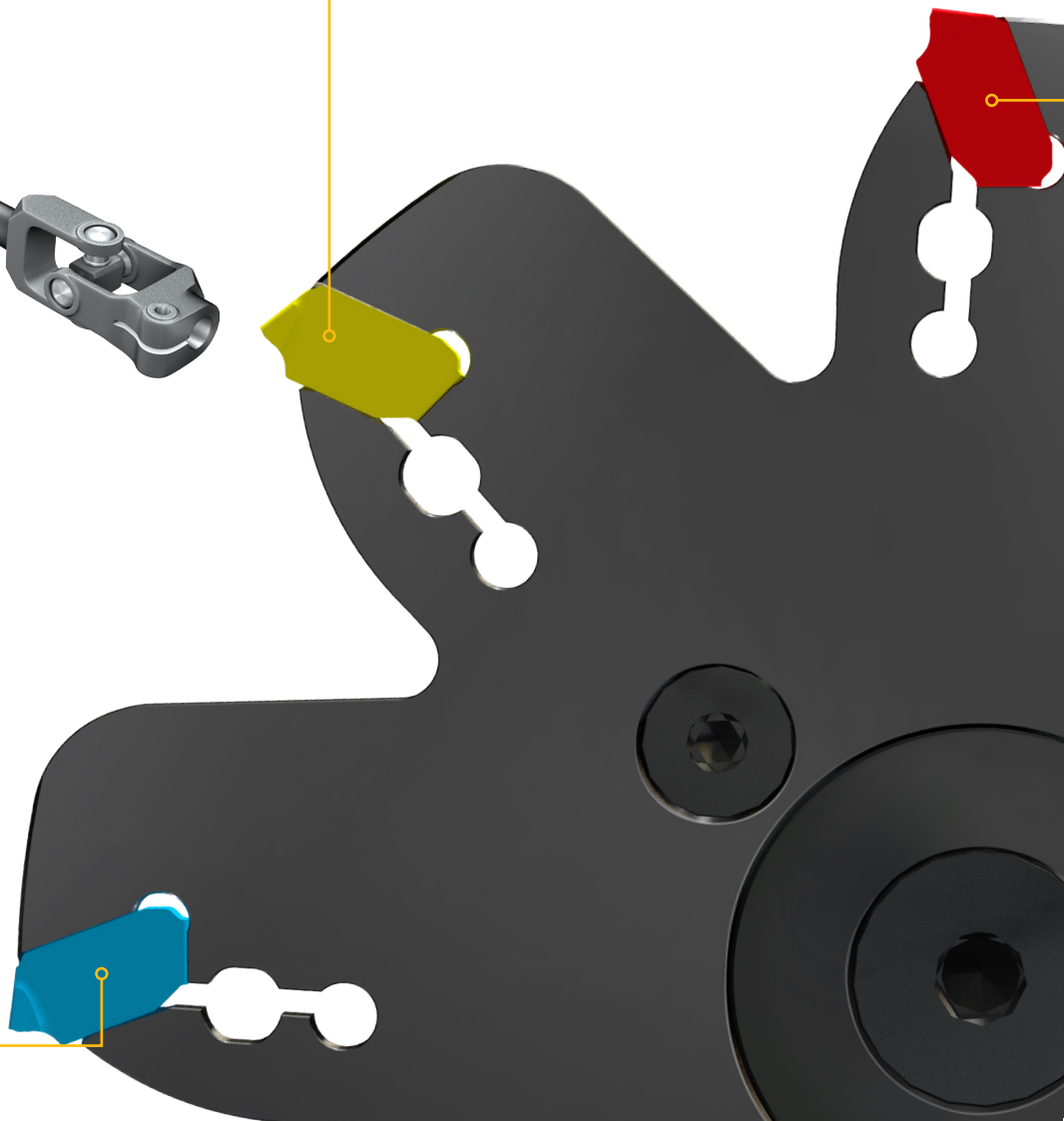
The periphery ground inserts have a sharp cutting edge which results in long and reliable tool life.

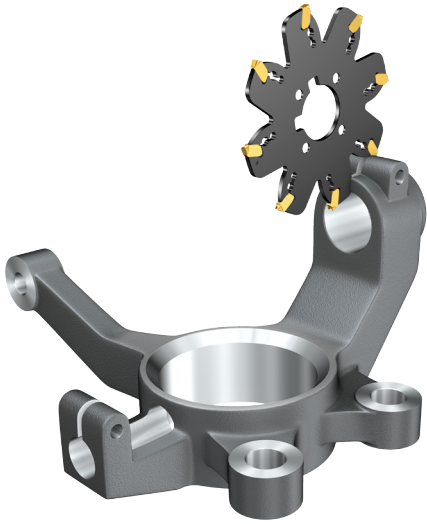


## Steel

Challenge: Chip evacuation

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

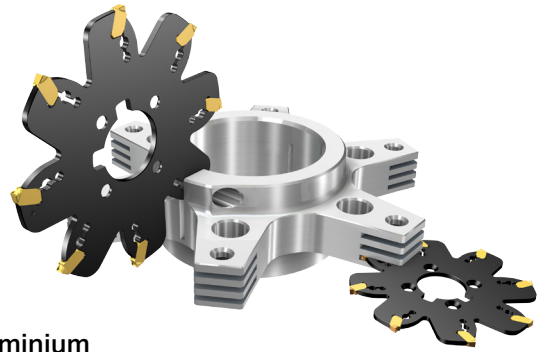




### Cast iron

Challenge: Tool life

Temperature variations often shorten insert tool life. The 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.



### Aluminium

Challenge: Secure machining

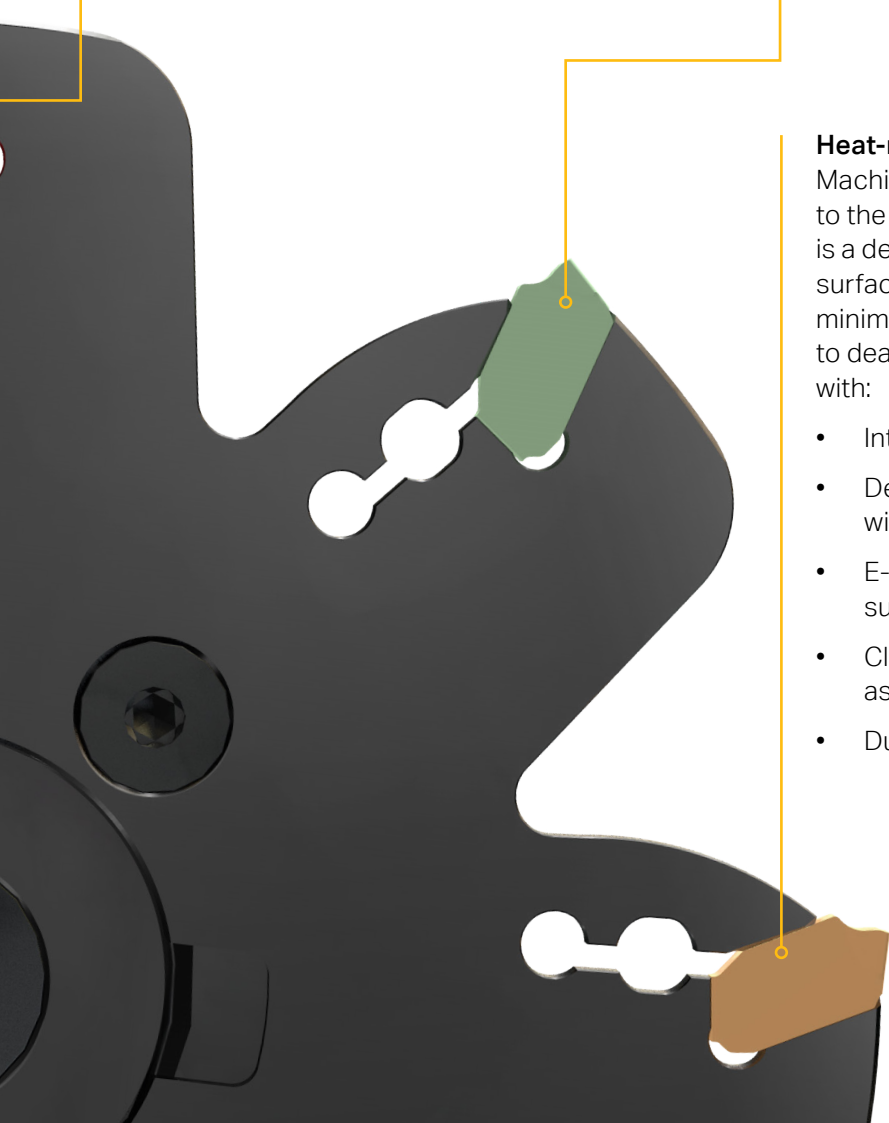
Machining aluminium requires high cutting speeds which leads to high centrifugal forces. This increases the risk of inserts flying out of the insert seats. The tilted CoroMill QD insert seat design eliminates this problem.



### Heat-resistant super alloys

Machining heat-resistant super alloys is difficult due to the 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 all challenges you have to deal with. CoroMill QD helps you overcome them 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 for 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 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

### Silent Tools™

Damped Silent Tools™ adaptors 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 centre 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 are set to overcome machining challenges in any machine type, for most machine tool interfaces and component features.



### Coolant through the tool

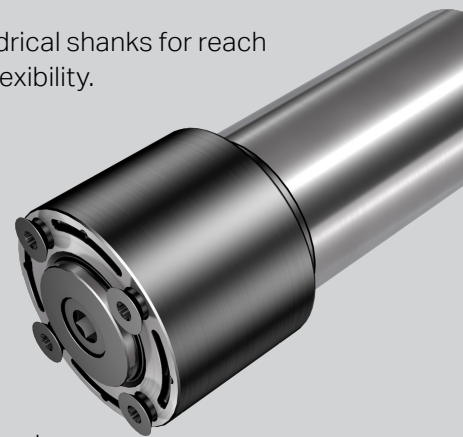
Unique four-channel coolant delivery from adaptors to the cutter is implemented on dedicated CoroMill QD adaptors prepared for internal coolant supply.



Integrated machine adaptors 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 high diameter-width ratio.

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

Coromant Capto® adaptors for modular use with machine interface adaptors 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 on 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 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.



+430%  
Tool life

<b>Workpiece material</b>	P2.1.Z.AN	
<b>Cutting tool, insert</b>	QD-GC160X40-M, QD-NG-0300-020 E-PM	
	<b>CoroMill QD</b>	<b>Competitor</b>
<b>DC</b>	160	160
<b>z<sub>n</sub> no</b>	12	10
<b>v<sub>c</sub> m/min (ft/min)</b>	200 (656)	150 (492)
<b>v<sub>f</sub> mm/min (in/min)</b>	480 (18.898)	180 (7.087)
<b>n rpm</b>	398	298
<b>h<sub>ex</sub> mm (inch)</b>	0.09 (0.004)	0.035 (0.001)
<b>f<sub>z</sub> mm (inch)</b>	0.1 (0.004)	0.06 (0.002)
<b>a<sub>p</sub> mm (inch)</b>	3 (0.118)	3 (0.118)
<b>a<sub>e</sub> mm (inch)</b>	44.5 (1.752) 1 pass	15 (0.591) 3 passes
<b>Tool life, components</b>	415	90

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