TURNING | MILLING | DRILLING | BORING | TOOLING SYSTEMS

SANDVIK Coromant

New cutting tools and solutions

CoroPak 13.1

To order your new tools...

Welcome...

Our mission is to provide you with the right cutting tools and solutions for your applications. This means that we always have to be one step ahead. One such example is coolant technology, where we can offer standard tools that far exceed the capabilities of today's machines.

CoroChuck 930 with the best pull-out security on the market, and CoroMill 172 for gear milling are other new concepts that will help you stay ahead of competition. Today and tomorrow.

Klas Forsström
President Sandvik Coromant

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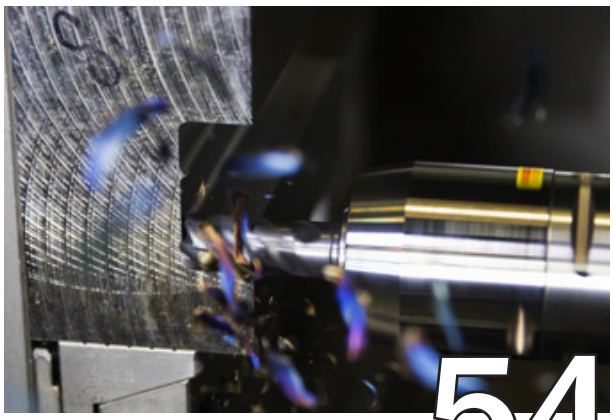

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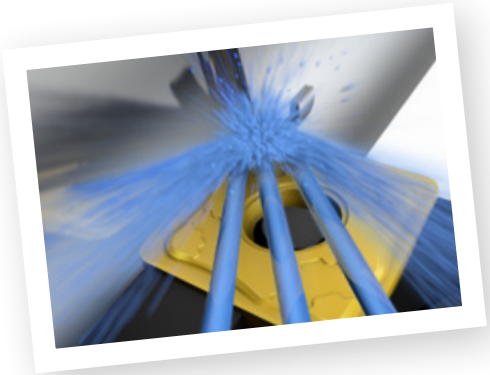
CoroChuck™ 930

Hydraulic chucks with the best pull-out security on the market.



Put pressure on wet machining

Precision and pressure are two equally important aspects of coolant. With high precision of the coolant, lower pressure is needed. The higher the pressure, the more demanding applications can be machined with excellent results.

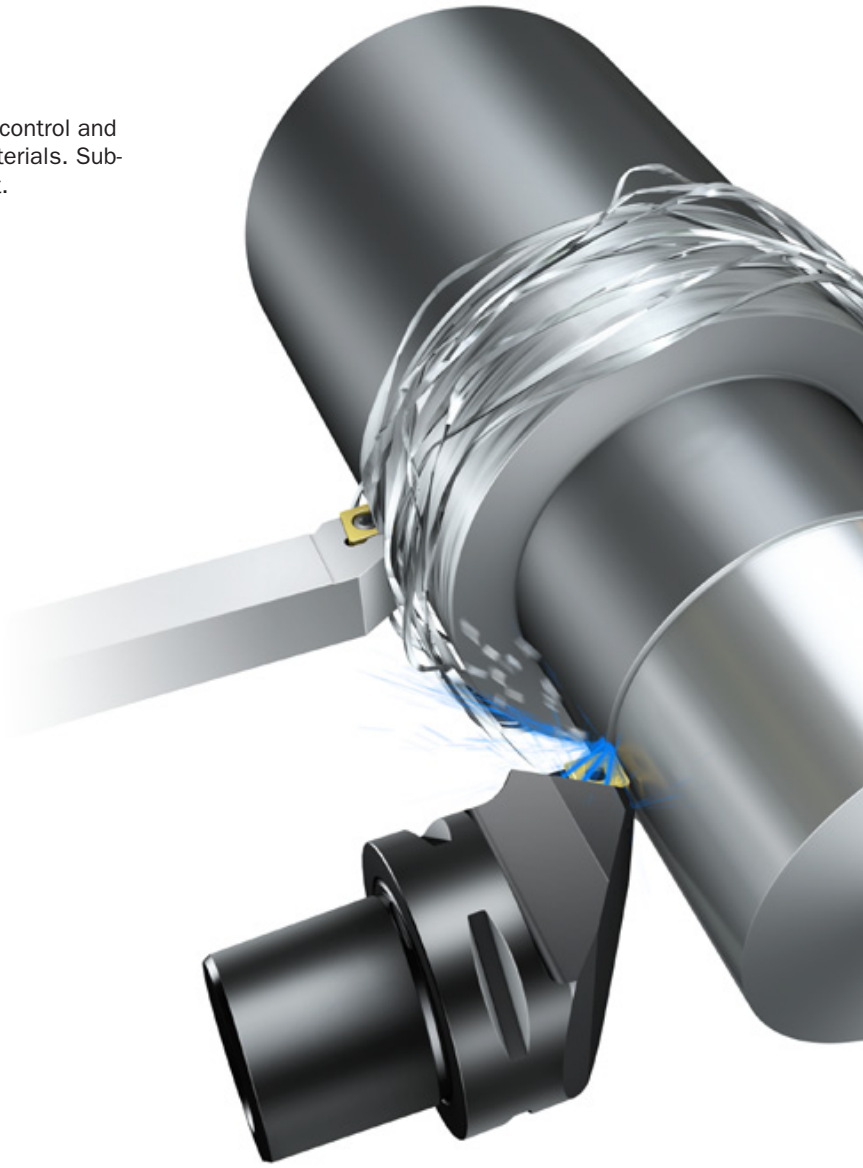
Sandvik Coromant leads the way in cooling technology solutions through advanced nozzle technology and dedicated insert geometries for steel, stainless steel and HRSA material for all machining applications.

7–10 bar (100–150 psi)

CoroTurn HP high-precision nozzles give improved chip control and better process security in steel and other common materials. Substantially higher cutting data is another welcome effect.

70–80 bar (1000–1200 psi)

For demanding materials, such as duplex stainless steel and HRSA material, higher coolant pressure is needed. The unique CoroTurn HP nozzle technology in combination with the -SMC, -MMC, - PMC insert geometries provide a productivity that will surprise you.



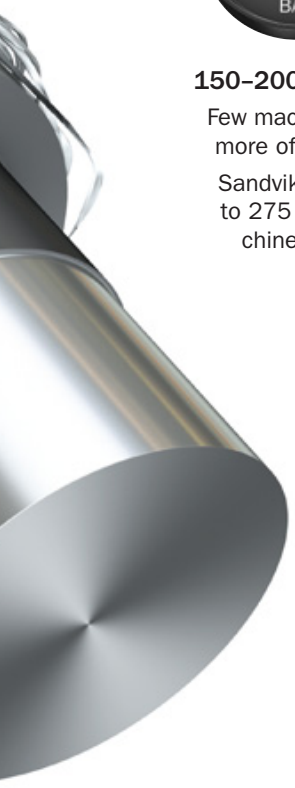
See the film

CoroTurn HP holders are designed with high-precision nozzles. The coolant flows perfectly from pump to cutting edge, producing a coolant wedge that efficiently removes the heat and chips from the cutting zone.

150–200 bar (2200–2900 psi)

Few machines provide solutions for these pressures, but we will see more of them in the near future.

Sandvik Coromant offers standard holders and inserts that allow for up to 275 bar (3900 psi) of coolant pressure, so whenever you have a machine that can handle high pressure, you know where to turn for tools.



Never use higher pressure than you need

While high pressure coolant enables productive machining in difficult applications, it also means higher energy usage and sometimes investments.

Use a variable pressure pump to gain maximum benefits at minimum pressure for each operation.

T-Max® P boring bars

See page 12

Coromant Capto®

Quick-change clamping units for coolant pressures up to 200 bars (2900 psi)

See page 52

T-Max® P, -PMC

Insert geometries designed for high pressure coolant

See page 14

CoroCut® MB

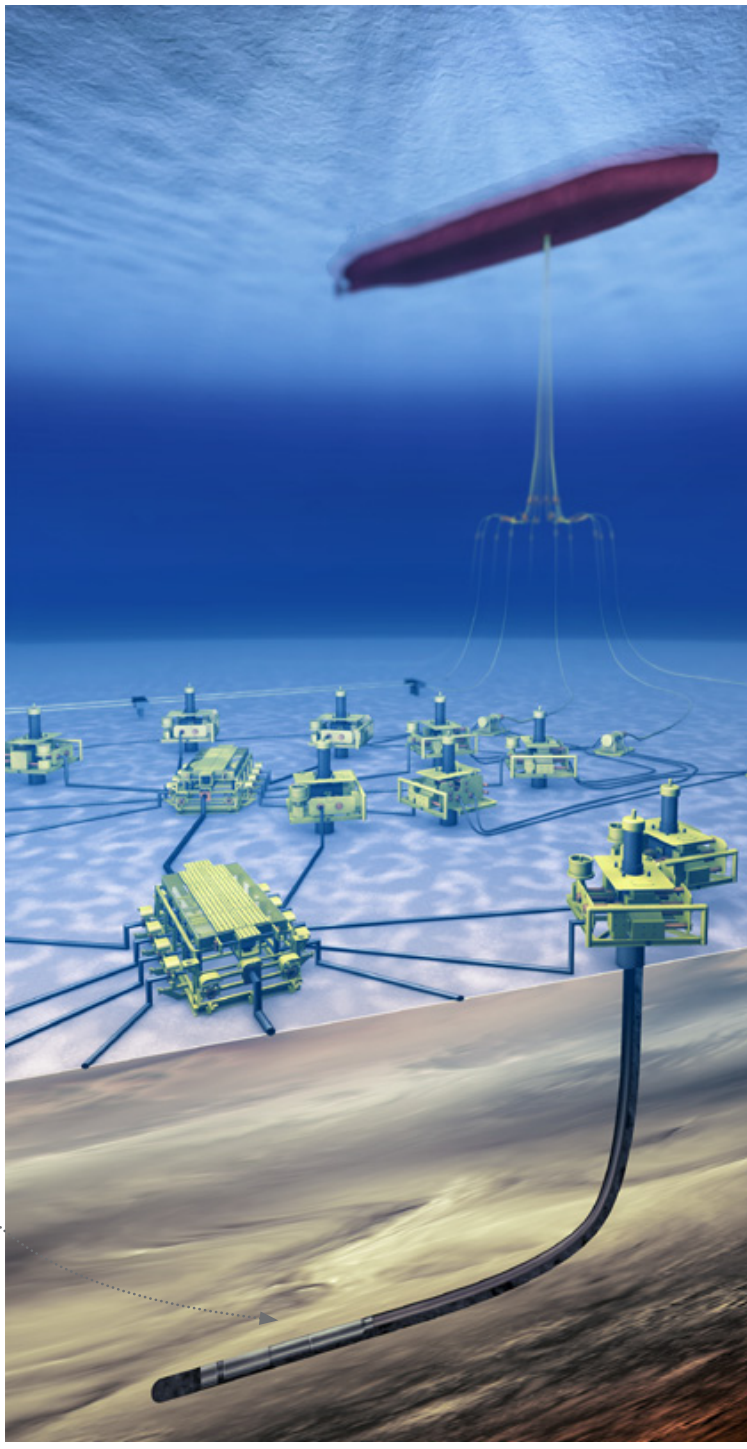
Larger insert and holder sizes.

See page 20

The key to oil and gas

Let us help you to strengthen your competitiveness in the oil- and gas industry by improving your productivity, production economy and machine utilization.

With our broad range of high-quality deep hole machining solutions and a large stocked standard assortment, we offer fast deliveries and great support for your business.



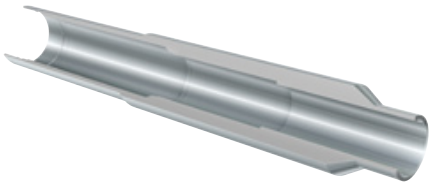
Easy to apply

CoroDrill® 800

Use for superior productivity and consistent performance within a wide application range. With fixed insert seats and no pre-setting needed, CoroDrill 800 is easy to use and handle.

The design enables higher cutting speed, outstanding chip evacuation and excellent surface finish.

- Typical components: Oil pipes and oil valves
- Diameter range: 25–65 mm (0.984–2.559 inch)



Greatest added value

CoroDrill® 801

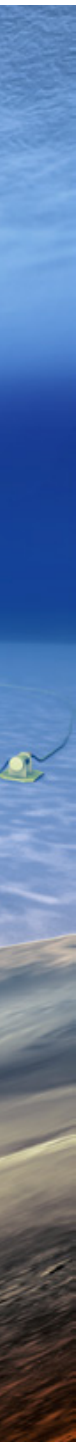
For high process security with improved chip control and high productivity for large diameter holes.

CoroDrill 801 offers high machine tool utilization rate by high feed rate, always with maintained safe chip evacuation. It also offers large adjustability and flexibility.

- Typical components: Oil pipes, directional exploratory drilling units and line hanger systems
- Diameter range: 65–165.1 mm (2.560–6.500 inch)

See the film

Sandvik Coromant has a complete stocked standard offer for deep hole drilling in diameter range 25–165.1 mm (0.984–6.500 inch).



Widest applicability

CoroDrill® 818

With large radius adjustability, CoroDrill 818 offers high flexibility providing a broad applicability.

This is the tool to use when demands for precision, productivity and versatility are high.

- Typical components: Oil pipes, oil valves, directional exploratory drilling units and line hanger systems
- Diameter range: 40–301.75 mm (1.575–11.880 inch)

Deep hole machining segments

Our products are suitable not only for complex applications within the oil- and gas industry. We also cover many applications within the aerospace and primary metals segments.

	CoroDrill 800	CoroDrill 801	CoroDrill 818
Oil and gas	x	x	x
Aerospace		x	x
Primary metals	x	x	x

CoroDrill® 800

See page 48

CoroDrill® 801

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CoroDrill® 818

See page 44

Technology shift in gear milling

From carbon steel and HSS to cemented carbide

When high speed steel (HSS) made its entrance in the metal cutting industry in the beginning of the 20th century, productivity sky-rocketed. It was a short dominance though; starting in the 1930s, HSS eventually became overshadowed by its successor, cemented carbide. Ever since, the development of new cemented carbide tools has increased productivity levels exponentially.

While cemented carbide has dominated the metal cutting industry over the last decades, conventional HSS tools still prevail when it comes to gear milling.

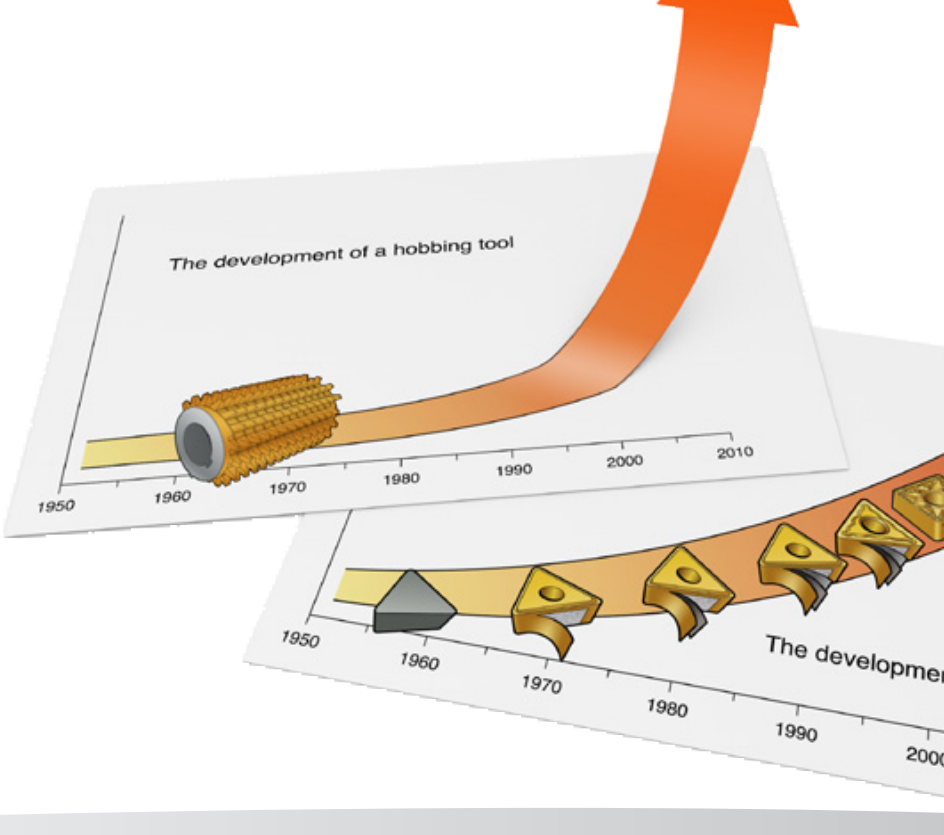
The advantages of indexable carbide insert cutters are significant. Considerable productivity improvements are possible through higher cutting speeds and feed rates. Lead- and cycle times can be reduced, and it is also a more flexible solution, as only one tool is needed for different profiles.

Now is the time to take the step towards productive and cost-efficient gear milling.

Unbeatable machining economy

CoroMill 176 is the number one choice for productive gear wheel hobbing.

- High cutting speeds reduce cycle times and cost per component, increasing productivity
- Easy repeatable insert changing and handling
- No additional regrinding or recoating costs
- Reduced total cost per gear wheel compared to HSS tools
- Module range 4–9



Customer case

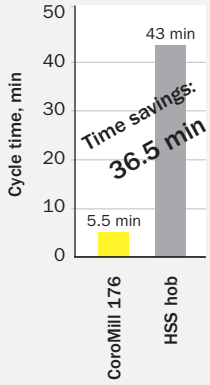
600–700% increased productivity compared to HSS

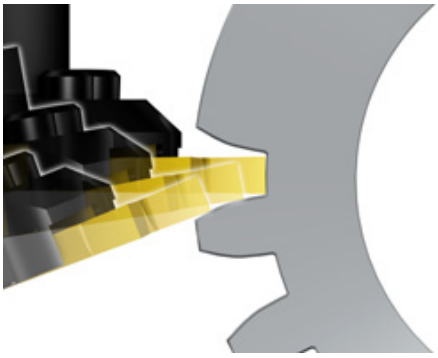
Gear data

- Module: 6.35 (DP 4.000)
- Pitch diameter: 209.55 mm (8.250 inch)

Success factors

- Increase of feed and speed
- Longer tool life

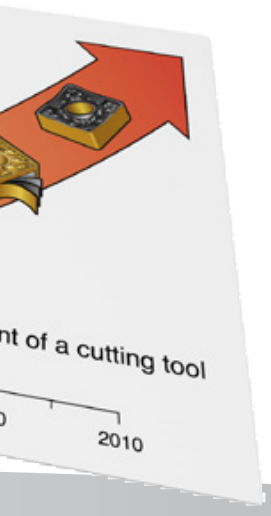




InvoMilling™

Sandvik Coromant offers a new revolutionary solution for flexible and cost-efficient gear manufacturing. InvoMilling combines slot- and turn milling, enabling machining of involute gears and splines of any module and helix angle. This makes it possible to perform all operations in one machine with one single set-up – with no need for dedicated gear milling machines.

Use CoroMill 161 for manufacturing of modules 2–4, and CoroMill 162 for modules 4–12.



See the film

CoroMill® 176

See page 58

CoroMill® 170

See page 58

CoroMill® 172

See page 34

CoroMill® 161/162

These products are subject to quotation, please contact your Sandvik Coromant sales representative.

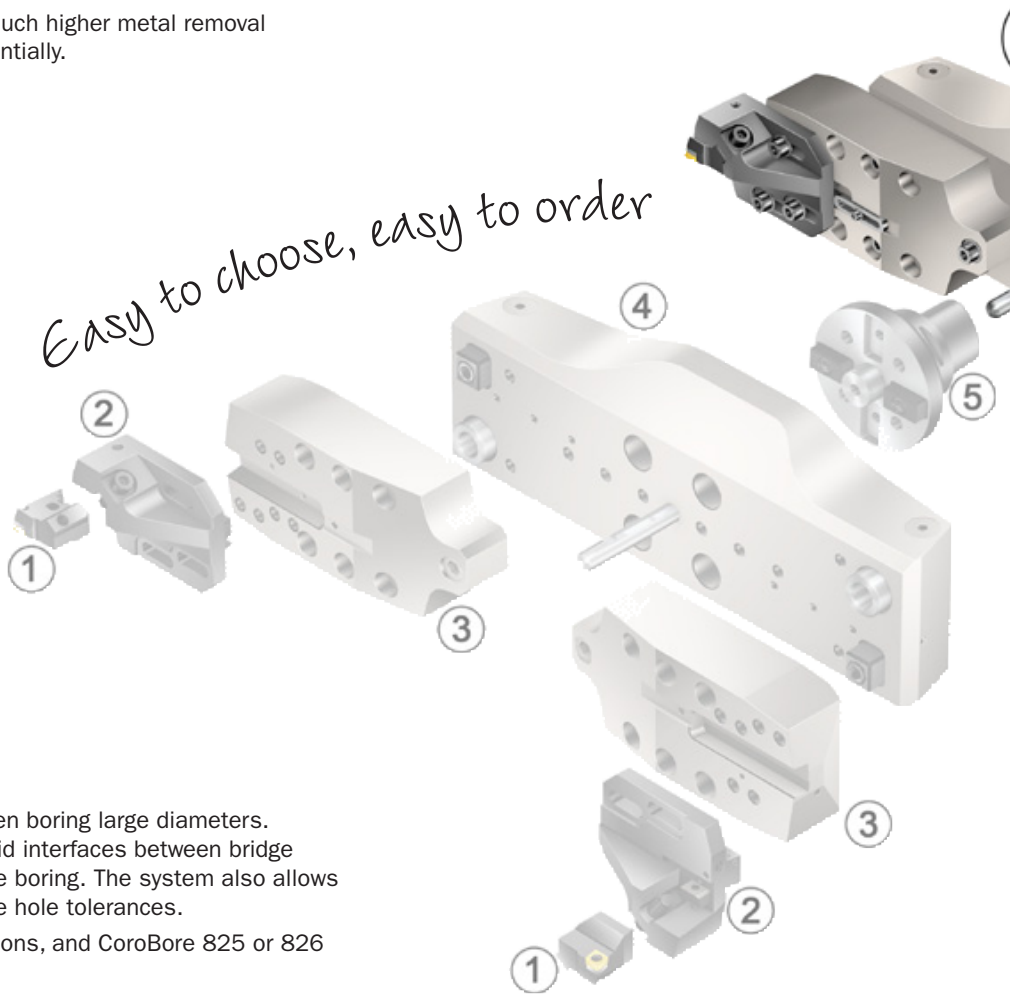
Easy ordering of boring tools

Order your complete boring tool with one product code only. All tool items are delivered to you at the same time. Let us present a complete programme of boring tools, from diameter 19 to 1260 mm (0.748 to 49.60 inch). Now it is easy to find the right solution for you!

Silent Tools for boring

Always choose Silent Tools boring tools for long overhangs or unstable conditions. The dampening mechanism enables increased cutting parameters and at the same time gives a more secure and vibration-free process.

Close tolerance, excellent surface and much higher metal removal rates reduce cost per component substantially.



CoroBore® XL

Stability is one of the key challenges when boring large diameters. CoroBore XL is a reliable system with rigid interfaces between bridge and cartridge for stable and vibration-free boring. The system also allows precision adjustment in microns for close hole tolerances.

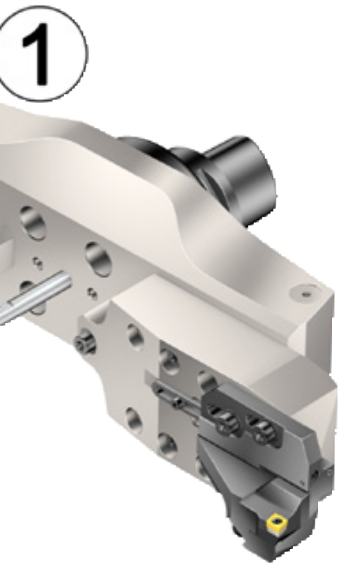
Choose CoroBore XL for roughing operations, and CoroBore 825 or 826 XL for finishing.

See the film

Face grooving tools

For productive manufacturing of O-ring grooves, face grooving with the fine-adjustable CoroBore SL, combined with the full assortment of CoroCut geometries and grades, is the best solution.

Use it for large diameter grooves, up to 1200 mm (47.24 inch). Internal coolant right to the cutting edge gives you excellent chip control.



General boring

For general boring, the ability to adapt the tool for various materials, applications and conditions is important.

Use DuoBore 821 for general roughing operations and CoroBore 825 for general fine boring. CoroBore 825 can be adjusted with precision in microns, in order to achieve close tolerances.

Optimized boring

When you have stable conditions, we have solutions for optimizing productivity and reducing your cost per component. CoroBore 820 is a rough boring three-insert concept. This actually increases productivity by 50% compared to a two-insert design.

When fine boring with CoroBore® 826, you can actually feel the microns – each increment adjustment can be felt with a click.

CoroBore® 825 SL face grooving

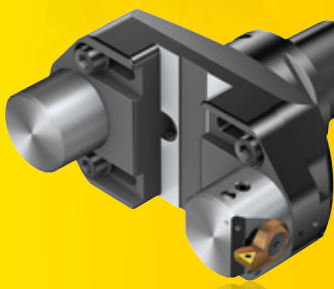
New application for boring tools

See page 50

CoroBore® XL adaptors

Now covering diameter 150–300 mm (5.90–11.81 inch)

See Main catalogues



CoroDrill® 880 insert for CoroBore® 820XL

Solution for heavy machining

See Main catalogues

DuoBore™ 821 and DuoBore™ 821 D

Large dia range for HSK and Steep taper 40

See Main catalogue

CoroTurn® HP boring bars

Internal wet turning

Coolant pressure up to 275 bar (4000 psi)

High coolant pressure and nozzle precision is a powerful combination that delivers a number of advantages, such as increased tool life and chip control. To maximize the effect – combine with the high pressure coolant insert geometries -PMC, -MMC and -SMC.

Benefits

- High-precision coolant nozzles enable excellent chip control even at lower coolant pressure
- Chip control gives better component surface finish
- Improved insert tool life thanks to exact direction of the coolant
- Higher machine utilization as chip jamming is avoided

Application

- For all wet machining in internal turning applications
- For machines with low- to high pressure coolant pumps
- Suits well in e.g. aerospace, automotive and general (mechanical) engineering applications

Technical features

- Fixed nozzles for high precision of the coolant
- Maximum coolant pressure: 275 bar (4000 psi)
- Number of nozzles: 2
- Standard nozzle thread: M3
- Standard nozzle diameter: 1 mm (0.039 inch)
- Nozzle diameters available: 0.6, 0.8, 1.0, 1.2, 1.4 and 1.5 mm (0.024, 0.031, 0.039, 0.047, 0.055 and 0.059 inch)

Assortment

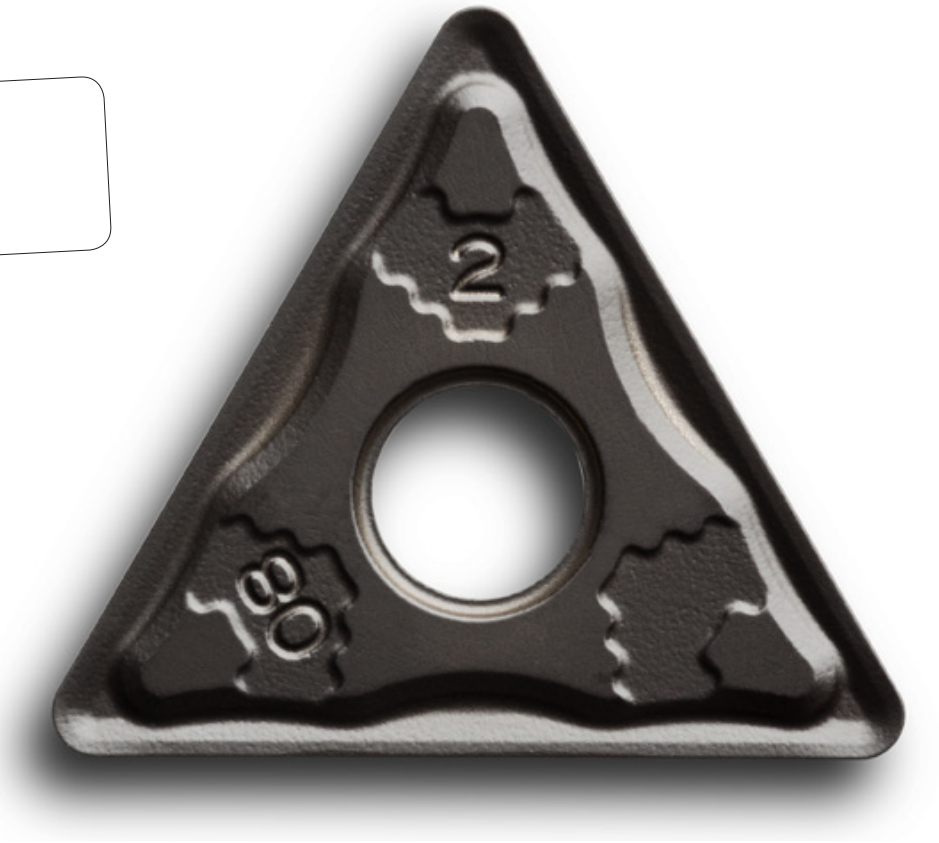
Diameter, mm (inch)	Metric assortment	Inch assortment	Insert styles (T-Max P)	Supplement 13.1
16 (5/8)	16	10	C, T	A14-A18
20 (3/4)	20	12	C, T	A14-A18
25 (1)	25	16	C, D, S, T, W	A14-A18
32 (1 1/4)	32	20	C, D, S	A14-A18
40 (1 1/2)	40	24	C, D, S	A14-A18
50 (2)	50	32	C, D, S	A14-A18

For additional information see Rotating tools and Turning tools catalogues or www.sandvik.coromant.com

T-Max® P -PMC geometry

High pressure coolant geometries

Increase tool life!



To further expand the comprehensive high pressure coolant programme, Sandvik Coromant now introduces a small but important piece of the puzzle: an insert geometry for steel material designed to make the most out of the precisely-directed coolant jets.

Benefits

- Longer tool life compared to standard -PM geometries at high coolant pressures
- Improved process security in steel thanks to optimized use of coolant
- Controlled chip-breaking gives increased productivity

Application

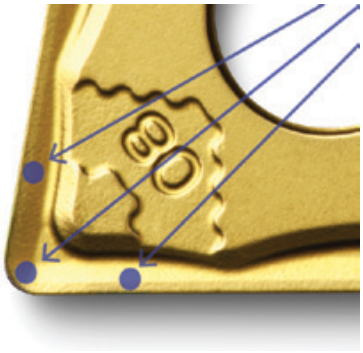
- Combine with CoroTurn HP holders to optimize the precisely-directed coolant
- Use for improved process security and longer tool life in steel material
- Fine to medium machining
- Coolant pressures from 30 bar (435 psi)

P

ISO application area

Technical features

- Chip breakers engineered for CoroTurn HP holders
- Geometries designed for optimized coolant delivery to the cutting zone
- Available in grade GC4225



Assortment

Grade	Insert style	Negative inserts	Positive inserts	Supplement 13.1
GC4225	C	12, 16	9, 12	A3-A7
GC4225	D	11, 15	11	A3-A7
GC4225	S	12	9	A3-A7
GC4225	T	16		A3-A7
GC4225	V	16	16	A3-A7
GC4225	W	08		A3-A7

For additional information see Rotating tools and Turning tools catalogues or www.sandvik.coromant.com

T-Max® P geometry -MRR

Reliable stainless steel roughing geometry

Excellent edge strength

Use the -MRR geometry when taking the first cut in forged or cast austenitic stainless steel components. The improved edge strength of the geometry also makes it suitable in demanding operations, such as heavy interrupted cuts or machining of duplex stainless steels.

Benefits

- Increased resistance to chip hammering and chip jamming thanks to the open geometry design
- Reduced cycle times in roughing operations thanks to higher feed capacity
- Reliable cutting performance and long tool life gives excellent machining economy
- Process security in rough applications and tough materials thanks to the strong cutting edge

Application

- First cut in forged or cast austenitic stainless steels
- Semi-roughing to roughing in duplex and superduplex materials
- Roughing in soft HRSA materials (~26 HRc)
- Use where edge strength is needed:
  - Interrupted cuts, unstable conditions
  - Large depths of cut
  - When -MM or -MR do not have sufficient edge strength

M S

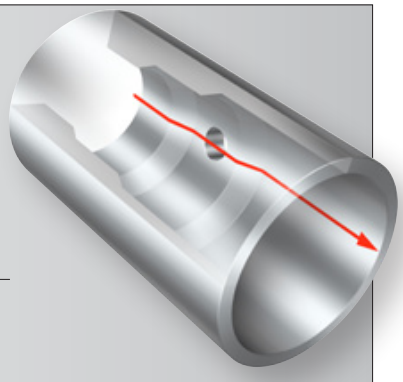
ISO application area

Technical features

- Open geometry allows for increased feed, compared to -MR
- Stronger cutting edge than both -MM and -MR gives reliable performance and longer tool life in demanding applications and material
- Designed for efficient chip removal – increased resistance to chip hammering

Performance

Customer case		
Operation	Internal profiling, roughing	
Component	Tube	
Workpiece material	Austenitic stainless steel 05.21, M1.0.Z.AQ	
Cutting data		
v_c m/min (ft/min)	90 (295.3)	
f_n mm/r (in/rev)	0.2 (0.008)	
a_p mm (inch)	2 (0.079)	
Results	**New tool name**	**Comparison**
Insert	CNMG120408-MRR	CNMG120408-MR
Grade	GC2025	GC2025
Tool life, pcs	1	0.75



Assortment

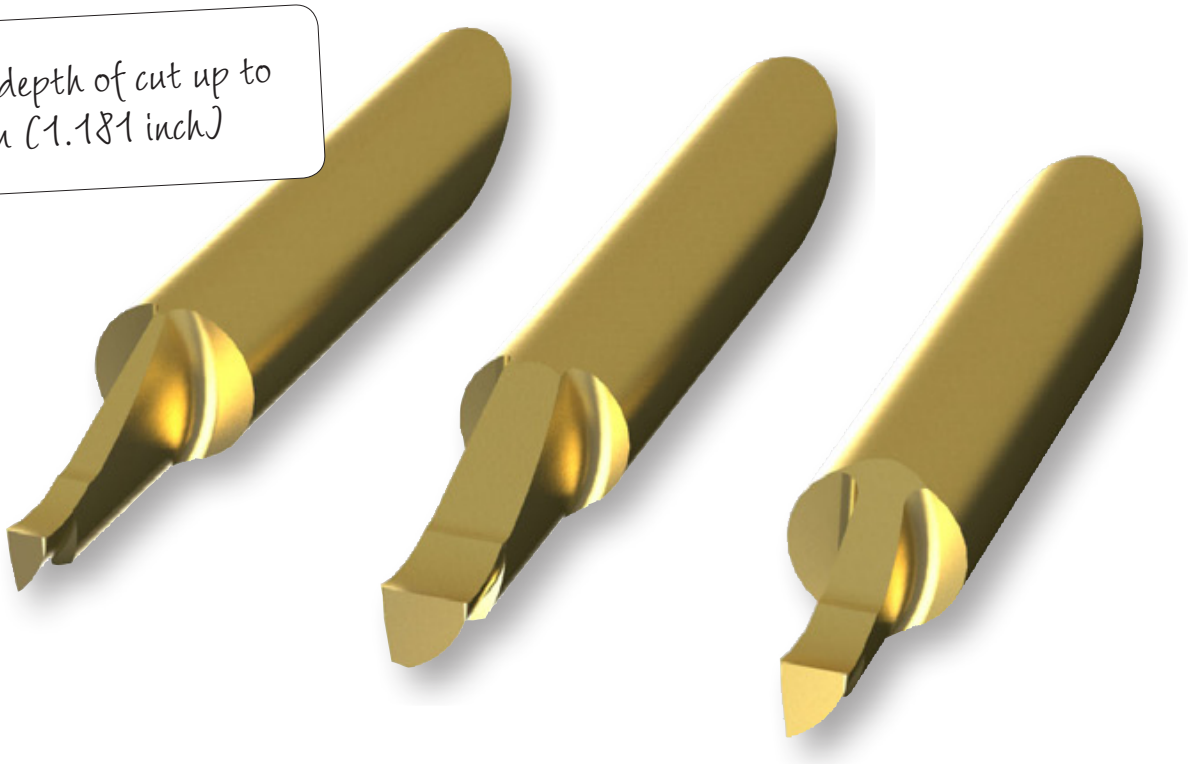
Grades	Negative shape inserts	Geometry	Supplement 13.1
GC2015, GC2025, GC2035	C, D, S, T, W	-MRR	A9-A13
GC1115	C, S, T, W	-MRR	A9-A13

For additional information see Rotating tools and Turning tools catalogues or www.sandvik.coromant.com

CoroTurn® XS

Face grooving and internal turning

Increased depth of cut up to 30 mm (1.181 inch)



CoroTurn® XS is a family of precision tools for small part machining. The assortment is now expanded with holders for size 8 and 10 mm (0.315 and 0.394 inch), face grooving inserts in the same sizes and an extension of the -A geometry for internal turning.

Now it is possible to make really deep grooves in small diameters.

Benefits

- Reliable system for small-diameter face grooves and internal machining
- Easy to use thanks to the high-precision clamping system
- Increased depth of cut
- Improved process security and tool life with the -A geometry

Application

- Deep face grooving in small diameters
- General engineering and pump applications in particular
- -A geometry for chip control in general turning

ISO application area

Technical features

- Face grooving depths up to 30 mm (1.181 inch) in combination with small diameters
- Coromant Capto® holders, bars and shank holders to be used in all kinds of lathes in internal and external tool positions
- Locating pin for exact location of the insert in the holder reduces indexing time
- Internal coolant through the holder
- Chip control for turning of small holes thanks to the -A geometry

Assortment

- New face grooving inserts:
  - Size 8
    3–15 mm (0.118–0.590 inch) for diameter 10–16 mm (0.394–0.630 inch)
  - Size 10
    5–30 mm (0.197–1.181 inch) for diameter 12–20 mm (0.472–0.787 inch)
- New holder program
  - CoroTurn XS bars, size 8 and 10: Metric and inch, diameters 16, 20, 25
  - Coromant Capto, size C3, C4, C5, C6 and C6 for CoroTurn XS, size 8 and 10
  - CoroTurn XS shank holders, size 8 and 10, shank holders 2020 and 2525
- Extension of -A geometry inserts, size 4,5,6,7

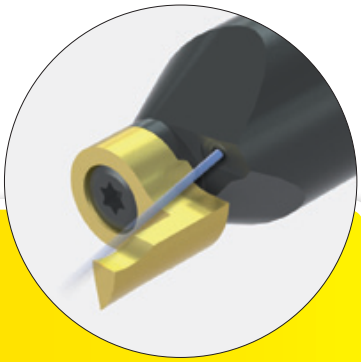
For additional information see Rotating tools and Turning tools catalogues or www.sandvik.coromant.com

CoroCut® MB

Larger insert sizes for deeper grooves

Face grooving with high pressure coolant

CoroCut MB is a high-precision family for grooving, face grooving, profiling and pre-parting. Larger insert sizes and holders with fixed coolant nozzles give you the possibility to make deeper grooves and profiles with increased process security.



Benefits

- Possible to make deeper cuts and profiles
- Fast set-up for both tool and insert
- Stable high-precision interface between tool holder and insert
- Chip control and prolonged tool life thanks to high precision coolant tool holders

Application

- Face grooving at small to medium diameters in general engineering. Pump applications in particular
- Grooving and profiling with extended cutting depths
- Face grooving program with high precision coolant for excellent chip control

ISO application area

Technical features

- Front-mounted exchangeable inserts with sharp cutting edges
- Easy-fix clamping
- Finish and precision machining at low feeds and speeds

Assortment

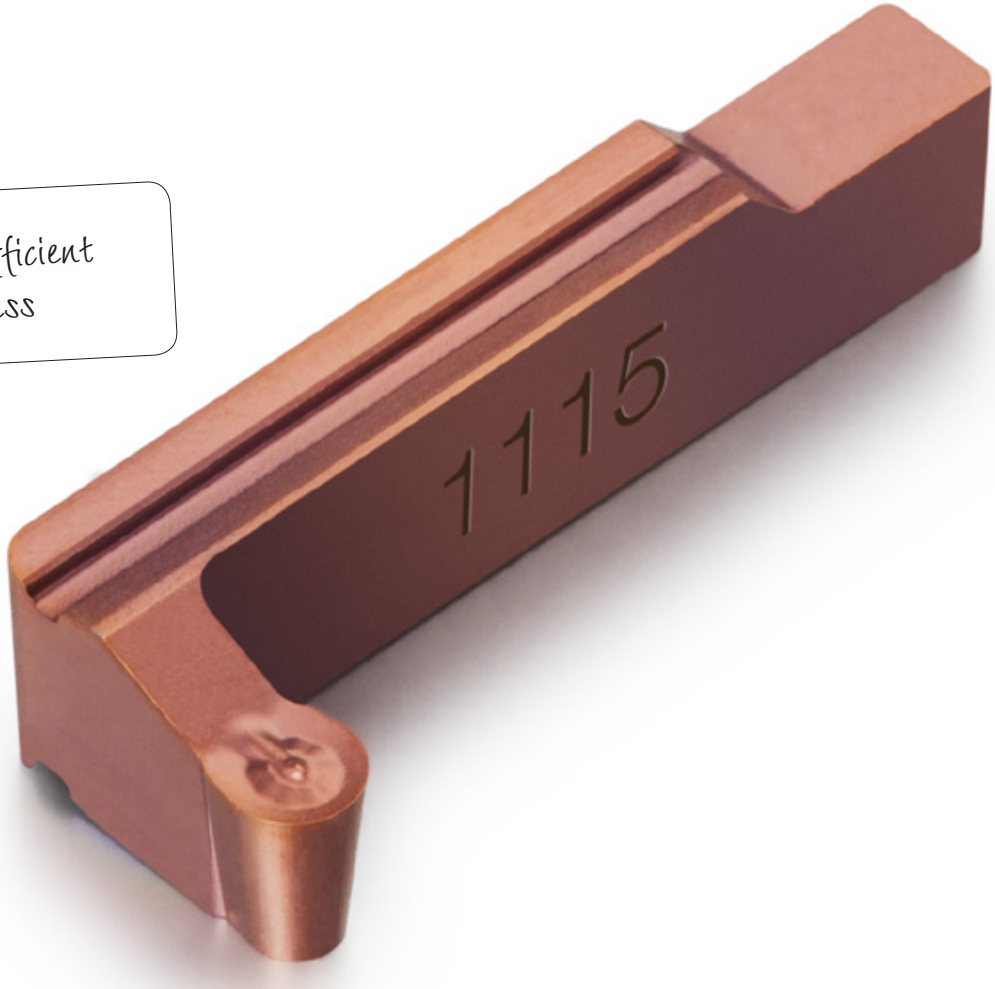
- New face grooving insert
  Size 11 mm (0.433 inch) for 10 mm (0.393 inch) cuts, 3 and 4 mm (0.118 and 0.157 inch) width and face diameter from 16 mm (0.630 inch)
- New deep grooving insert
  Size 11 mm (0.433 inch) for 8 mm (0.315 inch) cuts, 1.5–4 mm (0.059-0.157 inch) width from bore diameter 20 mm (0.787 inch)
- New profiling insert
  Size 11 mm (0.433 inch) for 6 mm (0.236 inch) cuts, 1.8–3 mm (0.071–0.118 inch) width and face diameter from 18 mm (0.709 inch)
- New face grooving holder with high precision coolant
  Size 9 and 11 mm (0.354 and 0.433 inch) with fixed nozzles
- New steel and carbide bars
  Size 11 mm (0.433 inch) with clamping diameters 16 and 20 mm (0.630 and 0.787 inch) for overhangs of 25–85 mm (0.984–3.35 inch)

For additional information see Rotating tools and Turning tools catalogues or www.sandvik.coromant.com

GC1115 -RO geometry

Angled inserts

For secure and efficient T-groove access



In addition to the existing -RS geometry, we now introduce -RO for roughing and finishing of difficult-to-access T- and L-grooves in stainless steels and HRSA materials.

Benefits

- Avoids chip jamming in T- and L-shaped grooves
- Allows for unmanned production
- High repeatability and accuracy

Application

- Trochoidal turning (profiling) of difficult-to-access grooves
- Finishing to roughing operations
- Aerospace engine applications, land-based steam and gas turbines etc.

M S

ISO application area

Technical features

- Ground cutting edge gives the following benefits:
  - Low cutting forces
  - High repeatability and accuracy
  - Minimizes residual stress on the component
  - Allows finishing with small depth of cut and high feed
- Dedicated grade, GC1115, for HRSA material and stainless steels
- Can be used in standard CoroCut® holders or SL70 blades for angled inserts

Recommendations

- Direct the feed force into the holder – use “half-trochoidal” turning. Contact your Sandvik Coromant representative for more information
- Medium to high feed rates can be used at low depth of cut.
  Start values a_p: 0.5 mm (0.0197 inch) and f_n: 0.3 mm/rev (0.0118 in/rev)
- More information about angled inserts on www.aeroknowledge.com

Assortment

CoroCut insert	Seat size	Cutting width, mm (inch)	AR max. mm (inch)	CoroCut SL70	Supplement 13.1
R/LG123H1-0200-R0	H	2 (0.787)	4	SL70-R/LG123H06C	B5
R/LG123H1-0300-R0	H	3 (0.118)	5	SL70-R/LG123H06C	B5
R/LG123L1-0200-R0	L	2 (0.787)	6	SL70-R/LG123L09C	B5
R/LG123L1-0300-R0	L	3 (0.118)	9	SL70-R/LG123L09C	B5

For additional information see Rotating tools and Turning tools catalogues or www.sandvik.coromant.com

CoroMill® 419

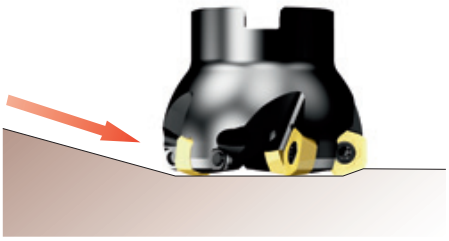
High-feed milling cutter

Optimized for stainless steel, hardened steel and titanium

CoroMill 419 is a new five-edge high-feed milling concept for roughing to semi-finishing, offering excellent performance in all material groups and with great possibilities for optimization. The high feed and light-cutting action also enable a soft sound, creating a more operator-friendly environment.

Benefits

- High productivity in applications requiring light cutting action
- Long tool life, especially in difficult-to-machine materials
- Strong and robust inserts for reliable machining
- Low power consumption



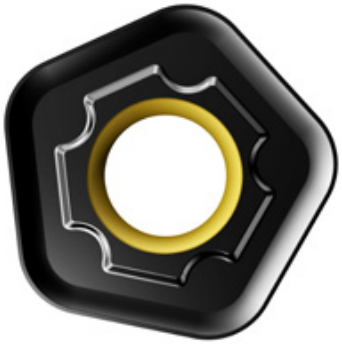
Application

- High-feed face- and profile milling
- Suitable for most applications and industry segments
- Machining of components requiring long overhangs
- Also suitable for less-powered machines and weak fixturings

ISO application area

Technical features

- Five cutting edges per insert
- Wide range of grades and geometries
- Radius inserts and inserts with parallel land
- Through coolant on all cutters enables efficient wet machining as well as compressed air cooling
- Reduced axial forces with a 19° lead angle and a positive axial inclination angle



Assortment

Cutters

Coupling type	Cutting diameter range (DC), mm	Cutting diameter range (DC), inch	Supplement 13.1
Coromant Capto®	36, 42, 52, 66, 84	1.5, 2, 2.5	D9
Cylindrical shank	40	1.5	D11
Arbor	50, 63, 80, 100	2, 2.5, 3, 4	D10

Inserts

Application	Geometry	Grade	Supplement 13.1
Face milling	419R-1405E-MM 419R-1405M-PM 419R-1405M-PH	1040, 2040, S30T, S40T, 1030, 4230, 1010 1020, 1030, 1040, 2040, 3040, 4240, 4230, 4220, S30T, S40T G4240, 4230, 4220, 1010	D13 D13 D13
Face and profile milling	419N-1405E-SM 419N-1405M-KH	S30T, S40T, 2040, 1040, 4240, 4230, 1030 ,1020 4230, 4220, 3040, 1020	D13 D13

For additional information see Rotating tools and Turning tools catalogues or www.sandvik.coromant.com

Performance

Face milling of stainless steel plate

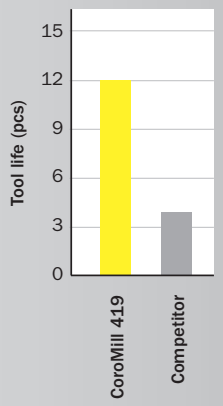
Customer case

Workpiece material	Stainless steel, (CMC 05.21)
Machine	Mazak ISO 50
Tool	419-063Q22-14L
Insert	419R-1405M-PM 1040

Cutting data	**CoroMill 419**	**Competitor**
v_c m/min (ft/min)	150 (492)	120 (394)
f_z mm/z (in/z)	0.50 (0.020)	0.50 (0.020)
a_p mm (inch)	0.8 (0.032)	0.8 (0.032)
a_e mm (inch)	30–40 (1.181–1.575)	30–40 (1.181–1.575)

Results		
Tool life, pcs	12	4
Tool life increase	300%	
Productivity increase	25%	

300% increase in tool life and 25% increase in productivity when applied in a stainless component, compared to the competitor.



Roughing of oil and gas piece

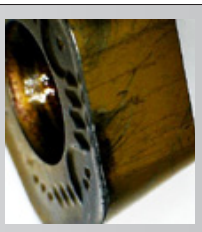
Customer case

Workpiece material	Inconel 718 (CMC 20.22, MC S2.0.Z.AG)
Machine	Dah Lih MCV 1450, CAT 50
Tool	419-100Q27-09M
Insert	419R-140530E-SM 2040

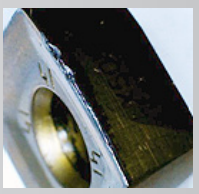
Cutting data	**CoroMill 419**	**Competitor**
v_c m/min (ft/min)	31 (102)	30 (98)
f_z mm/z (in/z)	0.5 (0.020)	0.4 (0.016)
a_p mm (inch)	1.5 (0.059)	1.0 (0.393)
a_e mm (inch)	70 (2.756)	100 (3.937)

Results		
Total machining time	14 min to remove 6 mm (0.236 inch)	17.5 min to remove 6 mm (0.236 inch)
Productivity increase	20%	

20% increase in productivity. CoroMill 419 inserts are not worn out after 14 minutes in cut.



CoroMill 419



Competitor

Roughing of tap

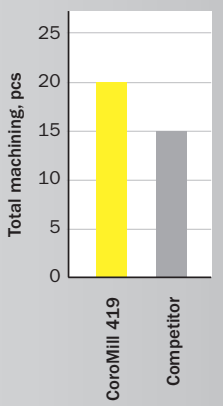
Customer case

Workpiece material	AM7 (HSS) (CMC 02.2, MC P2.5.Z.HT), 250 HB
Machine	CAT40, HAAS unit center
Tool	419-040A32L-09M
Insert	419R-1405M-PM 4240

Cutting data	
v_c m/min (ft/min)	238 (781)
f_z mm/z (in/z)	0.62 (0.024)
a_p mm (inch)	0.5 (0.020)
a_e mm (inch)	10 (0.394)

Results	**CoroMill 419**	**Competitor**
Total machining, pcs	20	15
Tool life increase	33%	

Tool life increase 33% compared to the competitor. The customer appreciates the cutting action, the reduced power consumption and the handling of CoroMill 419.



CoroMill® 357

Multi-edge rough face milling cutter

High toughness and high insert security

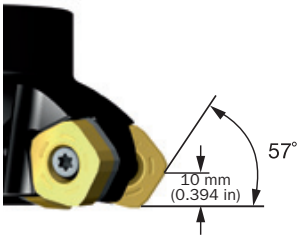
CoroMill 357 is a new multi-edge face milling cutter for roughing and cubing in mainly steel and cast iron. It has a secure and strong cutter body design with shim-protected tip seats and a clamping system that offers quick and easy insert indexing.

Benefits

- High metal removal rate and superior productivity
- Easy to index and change inserts, even with gloves on – no need to remove screw to index the insert
- Reliable performance
- Cost-efficient solution with multi-edge design

Application

- Rough face milling, especially:
  - Cubing
  - Intermittent component figurations
  - Components with uneven stock
  - Forgings, weldings and castings
- Suitable for ISO 50 and larger machines
- Depth of cut up to 10 mm (0.394 inch)
- Feed per tooth up to 0.7 mm/z (0.0276 in/z)

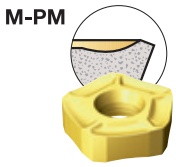


Depth of cut up to 10 mm (0.394 inch) and a 57° lead angle.

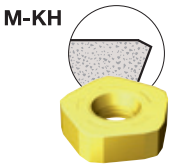
ISO application area

Technical features

- Large cutting depth capacity and high feed per tooth
- The innovative insert clamping system, with quick and easy insert indexing and insert changing, provides a time-saving solution
- Double-sided thick pentagonal inserts and shim protection
- Large support faces radially, axially and on bottom prevent deformations and result in consistent performance



General-purpose geometry.



Suitable for cubing and difficult roughing conditions.

Indexing and changing of insert

1. Apply molycote on the thread and tighten the screw 5–6 turns.

2. Place the insert in an angle, lower and tilt down.

3. Tighten the screw, 15 Nm.

4. For indexing/change of insert, untighten the screw, 4–5 revolutions.

5. Lift the insert in an angle.

6. Raise it above the head of the screw, rotate or remove. Repeat step 2 and 3.

Assortment

Cutters

Coupling type	Cutting diameter range (DC), mm (inch)	Supplement 13.1
Arbor	100, 125, 160, 200, 250, 315 (4, 5, 6, 8, 10)	D3
CIS Arbor	100, 125, 160, 200, 250 (1.5)	D4

Inserts

Application	Geometry	Grade	Machining material	Supplement 13.1
Face milling	357N-2408M-PM	1030, 4220, 4230, 4240	ISO P	D6
	357N-2408M-PM	1020, 3040, 3220	ISO K	D6
	357N-2408M-KH	4220, 4230, 4240	ISO P	D6
	357N-2408M-KH	3040, 3220	ISO K	D6

For additional information see Rotating tools and Turning tools catalogues or www.sandvik.coromant.com

Performance

Heavy duty face milling of cast machine frame

Customer case		
Workpiece material	Alloy steel (CMC 02.1, MC P2.1.Z.AN), 200 HB	
Machine	ISO 60, boring-milling machine tool	
Tool	357-250Q60-24M	
Insert	357N-2408M-KH 4230	
Condition	Dry machining	
Cutting data	**CoroMill 357**	**Competitor**
v_c m/min (ft/min)	102 (334)	102 (334)
f_z mm/z (in/z)	0.46 (0.018)	0.38–0.64 (0.015–0.025)
a_p mm (inch)	8 (0.315)	8 (0.315)
a_e mm (inch)	250 (9.84)	250 (9.84)
Results		
Total machining time (min)	120	75
Tool life increase	60%	

60-70% increase in tool life compared to the competitor. Customer appreciates the insert clamping system and the insert security.

CoroMill 357

Competitor

Rough face milling of welded compressor base

Customer case		
Workpiece material	Unalloyed steel (CMC 01.1, MC P1.1.Z.AN), 180 HB	
Machine	ISO 60, Gantry machine	
Tool	357-250Q60-24M	
Insert	357R-2408M-PM 4240	
Condition	Dry machining	
Cutting data	**CoroMill 357**	**Competitor**
v_c m/min (ft/min)	157 (515)	140 (459)
f_z mm/z (in/z)	0.50 (0.020)	0.30 (0.012)
a_p mm (inch)	3 (0.118)	3 (0.118)
a_e mm (inch)	250 (9.842)	250 (9.842)
Results		
Total machining time (min)	55	40
Tool life increase	38%	
Productivity increase	50%	

38% increase in tool life and 50% increase in productivity compared to the competitor. Customer is satisfied with the insert security and the bigger a_p capacity.

CoroMill 357

Competitor

Rough face milling of cast work table for gantry machine

Customer case		
Workpiece material	Grey cast iron (CMC 08.1, MC K2.1.C.UT), 200 HB	
Machine	Gantry machine, double spindles	
Tool	357-200Q60-24M	
Insert	357R-2408M-PM 4220	
Condition	Dry machining	
Cutting data	**CoroMill 357**	**Competitor**
v_c m/min (ft/min)	157 (515)	138 (453)
f_z mm/z (in/z)	0.60 (0.024)	0.18 (0.007)
a_p mm (inch)	5–8 (0.197–0.315)	4–5 (0.158–0.197)
a_e mm (inch)	170 (6.693)	180 (7.087)
Results		
Total machining time (min)	160	60
Tool life increase	>150%	
Productivity increase	>100%	

More than 150% increase in tool life and 100% increase in productivity compared to the competitor.

CoroMill 357

Competitor

CoroMill® 316

With internal coolant

Secure your cutting process

The CoroMill 316 high-performing exchangeable-head concept is now available with internal coolant holes.

Re-cutting of chips and chip jamming often lead to poor surface quality, damage to the cutting edge and tool breakage. The internal coolant solution, with precise positioning of coolant holes to optimize the effect of the coolant, guarantees superior chip evacuation and a secure cutting process.

Benefits

- Improved chip evacuation and temperature control gives a more stable process and higher productivity
- Proven high-performance geometry and grade in roughing to semi-finishing operations
- Minimized machine downtime and strong, safe mounting with easy-to-change head

Application

Segments:

- Aerospace
- Medical
- General engineering
- Power generation

Components:

- Impellers, pylon brackets, blisks
- Implants
- Blade machining mounting slots

ISO application area

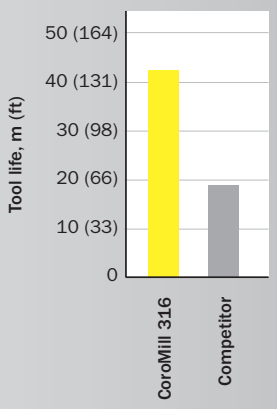
Technical features

- Precise positioning of radial exit coolant holes to optimize effect of lubrication
- High-precision exchangeable-head coupling for easy handling and predictable performance
- Micro geometry optimized for a tough and reliable cutting edge
- Grade GC1030 in combination with the micro geometry deliver excellent performance

Performance

Customer case		
Operation	Slot milling	
Workpiece material	Austenitic stainless steel, 775 N/mm² (CMC 05.21/15.21, MC M1.3.Z.AQ)	
Coolant	Internal emulsion	
Tool	316-12SM450C12005P 1030	
Cutting data	**CoroMill 316**	**Competitor**
v_c m/min (ft/min)	50 (164)	50 (164)
v_f mm/min (in/min)	270 (10.6)	270 (10.6)
f_z mm/z (in/z)	0.050 (0.002)	0.050 (0.002)
a_p mm (inch)	4 (0.157)	4 (0.157)
a_e mm (inch)	12 (0.472)	12 (0.472)
Results		
Tool life, m (ft)	**42 (138)**	**18.75 (61.5)**

CoroMill 316 delivered 124% increase in tool life compared to the competitor.



Assortment

Tool style code	Face geometry	Helix angle	Cutting length range, mm	Cutting diameter range	Number of teeth	Grade	Supplement 13.1
316..SM..C..P	S–Straight = 90°	50°	0.52–0.55 × DC	10.00–25.00 mm (with RE 0.5–4.0 mm)	4–5	GC1030	D24
A316..SM..C..P	S–Straight = 90°	50°	0.54–0.55 × DC	3/8–1 inch (with RE 0.015–0.250 inch)	4–5	GC1030	D25

For additional information see Rotating tools and Turning tools catalogues or www.sandvik.coromant.com

CoroMill® Plura

Compression end mill for composites

Eliminates splintering

By combining positive and negative helix angles, the CoroMill Plura end mill compresses the top and bottom of the component edge. Thereby the risk of splintering is efficiently reduced.

Benefits

- High material removal rates
- Minimal splintering of fibers thanks to positive and negative helix angles
- Perfect combination of grade and geometry gives good surface finish
- Close tolerances of the component thanks to the optimized micro geometry

Application

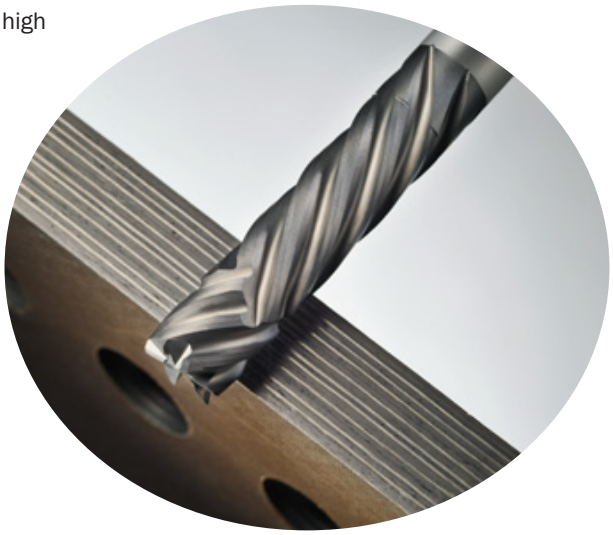
- Edge milling in CFRP-material
- Keep the split-line in the middle of the composite material
- Recommended minimum thickness of the material 6 mm (0.236 inch)
- Cutting data:
  - v_c: 200–400 m/min (656–1312 ft/min)
  - f_z: roughing: 0.03–0.06 mm/tooth (0.0012—0.0024 inch/tooth)
  - f_z: finishing: 0.02–0.04 mm/tooth (0.00079–0.0016 inch/tooth)

O

ISO application area

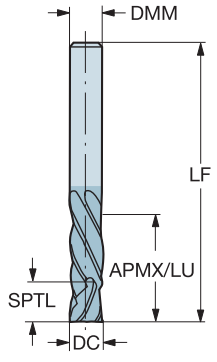
Technical features

- Positive and negative helix angles for reduced splintering
- Grade GC1630 for long tool life
- Optimized micro geometry with six effective cutting edges for high material removal rates



Assortment

Ordering code	DC and DMM mm (inch)	LF mm (inch)	APMX mm (inch)	SPTL mm (inch)	Supplement 13.1
2P460-0600-NA-1630	6.00 (0.236)	76.00 (2.992)	26.00 (1.024)	6.00 (0.236)	D32
2P460-0635-NA-1630	6.35 (0.250)	76.20 (3.000)	25.40 (1.000)	6.35 (0.250)	D33
2P460-0794-NA-1630	7.94 (0.313)	76.20 (3.000)	25.40 (1.000)	7.94 (0.313)	D33
2P460-0800-NA-1630	8.00 (0.315)	76.00 (2.992)	26.00 (1.024)	8.00 (0.315)	D32
2P460-0952-NA-1630	9.53 (0.375)	76.20 (3.000)	31.75 (1.250)	9.53 (0.375)	D33
2P460-1000-NA-1630	10.00 (0.394)	76.00 (2.992)	30,00 (1.181)	10.00 (0.394)	D32
2P460-1200-NA-1630	12.00 (0.472)	100.00 (3.937)	38,00 (1.496)	12.00 (0.472)	D32
2P460-1270-NA-1630	12.70 (0.500)	101.60 (4.000)	38.10 (1.500)	12.70 (0.500)	D33
2P460-1588-NA-1630	15.88 (0.625)	101.60 (4.000)	38.10 (1.500)	15.88 (0.625)	D33
2P460-1600-NA-1630	16.00 (0.630)	100.00 (3.937)	38.00 (1.496)	16.00 (0.630)	D32



For additional information see Rotating tools and Turning tools catalogues or www.sandvik.coromant.com

CoroMill® 172

Gear milling made easy

Simplified manufacturing of gears and splines

The CoroMill 172 disc cutter offers a versatile and time-saving solution for milling of high-quality gear profiles. Thanks to the new indexable carbide insert technology and a powerful iLock interface, the component can be machined in flexible non-dedicated machines, such as multi-task machines and machining centers, as well as in hobbing machines.

Benefits

- Components can be machined complete in one machine and one set-up – reduced overall lead times and lower costs compared to high speed steel (HSS) tools
- One cutter body can hold inserts with different profiles, which offers versatility compared to HSS tools
- Dry machining reduces lead times and coolant costs, while contributing to a more eco- and worker-friendly environment
- Cost-efficient solution for smaller to medium batch sizes

Application

- Module range 4–8
- Gear profiles in accordance with DIN 867 for gears and DIN 5480 for splines
- Internal and external machining of gears and splines
- Machining of racks
- Applications in multi-task machines, machining centres and turning centres
- Finishing applications in hobbing machines
- Applications can be found in all industry segments, e.g. mechanical engineering, automotive, aerospace

P

ISO application area

Technical features

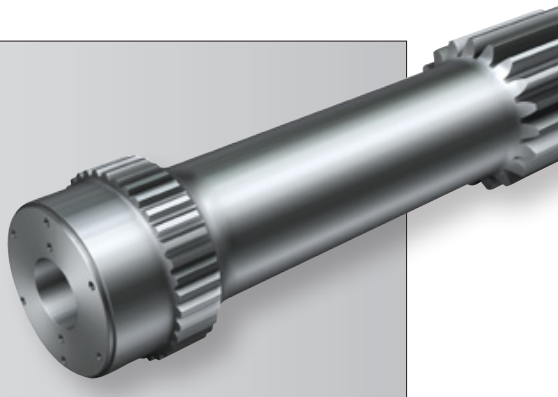
- iLock interface in combination with modern wedge-clamping technology gives excellent position repeatability and quick and easy insert changing
- Modern carbide grades provide higher cutting speeds compared to HSS tools
- The full-profile inserts give good tool accuracy since the cutting tool profile is made up by only one insert
- Precision-ground inserts for excellent component quality
- Insert profiles will be manufactured in accordance to your specific profile

iLock™ ingenious locking interface

Performance

Customer case		
Operation	Roughing and finishing of external spline	
Component	Shaft	
Workpiece material	Low-alloy steel, 16MnCr5 (CMC 02.1, MC P2.1.Z.AN)	
Gear data	DIN 5480, module 5, 26 teeth	
Cutting data	**CoroMill 172**	**Competitor HSS tool**
	One roughing pass	Two roughing passes
v_c m/min (ft/min)	165 (540)	50 (165)
f_z mm/z (in/z)	0.21 (0.008)	0.08 (0.003)
	One finishing pass	One finishing pass
v_c m/min (ft/min)	195 (640)	50 (165)
f_z mm/z (in/z)	0.18 (0.007)	0.08 (0.003)
Results		
Cycle time (min)	20	250

With CoroMill 172, the cycle time was reduced 230 minutes compared to the HSS competitior.



Assortment

Diameter, mm (inch)	Module sizes	Coupling types	Geometry	Grade
63–254 (2.480–10.000)	4–7 for gears 4–8 for splines	Coromant Capto® Cylindrical shank Bore with keyway Arbor	E-PM	GC1030

These products are subject to quotation, please contact your Sandvik Coromant sales representative.

For additional information see Rotating tools and Turning tools catalogues or www.sandvik.coromant.com

CoroMill® 345

Ground inserts for ISO P and ISO K

High precision – high productivity

The CoroMill 345 face-milling concept combines the highest metal removal rate with a superior surface finish. The new ground insert for steel and cast iron delivers increased edge security in applications where precision is essential.

Benefits

- High-performance face milling cutter with eight edges that provides superior edge-cost efficiency and reduced cost per component
- Excellent edge security and enhanced surface quality
- Increased feed per tooth with Wiper technology
- Reduced power consumption compared to direct-pressed geometries
- Reduced total indicated run-out (TIR) on the tool and longer insert tool life when using precision-ground inserts

Application

- Face milling
- Finishing to semi-finishing
- Applications where high productivity in combination with high precision are required
- General engineering, automotive and power generation
- First choice in combination with wiper insert
- First choice in one-hit machining strategies

ISO application area

Technical features

- Double-sided precision-ground inserts with eight cutting edges
- One geometry to be used in both ISO P and ISO K materials
- Wiper inserts available

Recommendations

- For best results when machining with wiper inserts, use the same grade for the wiper insert and the working insert
- CoroMill 345 E-KM in combination with grade GC1020 is first choice in cast iron when precision is required
- For maximum utilization of the wiper, use the E-KM insert with a feed recommendation up to 0.45 mm/tooth (0.018 in/tooth)

	Combine with wiper	Semi-finishing	Finishing	Low cutting force	Best surface finishing in highest table feed
345-1305M-KL/PL		X	x	x	
345-1305E-KL/PL	x		X	X	
345-1305M-KM/PM		X			
345R-1305E-KM	X		x	x	X
345-1305M-KH/PH					

X **First choice**
x **Alternative**

Assortment

ISO material	Insert	Geometry	Grade	Supplement 13.1
ISO P	345R-1305E-KM	E-KM	1030, 4240, 4230, 1010, 530	D14
ISO K	345R-1305E-KM	E-KM	1020, 3040, 3220, 530	D14

For additional information see Rotating tools and Turning tools catalogues or www.sandvik.coromant.com

CoroDrill® 870

Reliable and secure drilling

Excellent holemaking performance

CoroDrill 870 diameter range is extended and a Tailor Made offer for producing chamfered holes in one operation is now available. With the new pilot geometry -GP, we also offer an even more secure drilling process for deeper holes.

The secure interface between drill body and tip provides user friendly tip changing. The drill- and tip design offers high productivity and long tool life, reducing the cost per component.

Benefits

- Reliability and security
- Easy handling and secure tip changing
- Long tool life and high penetration rates
- Optimized chip evacuation and excellent hole quality
- Lower cost per hole

Application

- Hole tolerance: H9–H10
- Hole diameter range: 10.00–25.90 mm (0.394–1.020 inch)
- Hole depths: up to 8 × drill diameter
- Typical hole types: pre-holes for taps and bolt holes

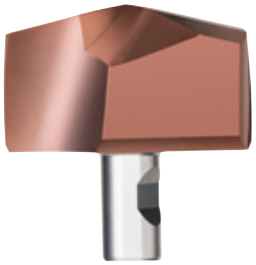
P K

ISO application area

Tailor Made 45° chamfer drill for producing chamfered holes in one operation

Technical features

- Secure, high-precision interface between drill body and tip for extra stability
- Tip changing possible while tool is in the machine to reduce downtime
- Drill flutes with optimized shape, size and helix angle provide safe chip evacuation and overall tool stability
- -PM 4234 for steel and -KM 3234 for cast iron, now also for smaller diameters
  - Geometries with high process security, good chip control, high penetration rates and premium hole quality
  - -KM geometry with chamfered corners for optimized hole quality at exit and increased tool life in cast iron
  - Grades with predictable wear as well as long and reliable tool life at high productivity rates
- -GP 4234 pilot geometry for steel and cast iron
  - To make a pilot hole prior to drilling with 6×D drills and longer
  - Enables a smooth and secure entry into the pilot hole for the long drill and generates excellent performance and hole quality



-GP geometry with optimized point angle and diameter tolerance

Assortment

Drill bodies

Diameters with drill tip mounted	Shank type	Length	Supplement 13.1
10.00–25.99 mm	Cylindrical with flat according to ISO 9766 (metric)	3, 5, 8×D	E4-E6
0.394–1.023 inch	Cylindrical with flat according to ISO 9766 (inch)	3, 5, 8×D	E7-E9

Drill tips

Diameters, mm (inch)	Geometry	Grade	Supplement 13.1
10.00–25.90 (0.394–1.020)	-PM	GC4234	E10
10.00–25.90 (0.394–1.020)	-KM	GC3234	E14
10.00–25.90 (0.394–1.020)	-GP	GC4234	E18-E21

For additional information see Rotating tools and Turning tools catalogues or www.sandvik.coromant.com

CoroDrill® 880 with Coromant Capto®

Large inch assortment

With new, more secure interface

Sandvik Coromant now offers a large standard inch assortment for CoroDrill 880 with Coromant Capto® . The interface between the drill body and the adaptor has been improved to obtain a safe and secure drilling process. Drills in the metric assortment will also be updated with this new interface.

Application

- Use to shorten gauge length
- Hole diameter range: 0.500–1.687 inch
- Drill lengths: 3–4 × drill diameter

ISO application area

Assortment

Coromant Capto size	Drill diameters, inch	Length	Supplement 13.1
C4	0.500–1.187	3, 4×D	E25-E28
C5	0.500–1.687	3, 4×D	E25-E28
C6	0.500–1.687	3, 4×D	E25-E28

For additional information see Rotating tools and Turning tools catalogues or www.sandvik.coromant.com

Benefits

- High process security
- Improved Coromant Capto drill solution for better functionality
- Large Coromant Capto assortment as standard

Eccentric sleeve for CoroDrill® 880 and CoroDrill® 881

Available in inch sizes

For close hole tolerances

The eccentric sleeve assortment will now be extended with four sizes for drills in the inch assortment. With the eccentric sleeve, the drill diameter can be adjusted to get a closer hole tolerance.

Application

- Only for rotating applications
- Diameter adjustment range is approx. ±0.3 mm (0.012 inch)
- Adjustment below nominal drill diameter is not recommended

Assortment

Drill diameter	Eccentric sleeve articles	Supplement 13.1
12–63 mm	4	E29
0.472–2.500 inch	4	E29

For additional information see Rotating tools and Turning tools catalogues or www.sandvik.coromant.com

Benefits

- Easy to use
- Closer hole tolerances can be achieved
- Now for drills in both the metric and inch assortment

CoroDrill® 801

Setting the standard in deep hole drilling

High productivity for large diameter holes

An extended standard assortment is now available. CoroDrill 801 enables a secure drilling process in advanced materials and offers high process security with improved chip control.

CoroDrill 801 together with CoroDrill 800 form a complete standard offer for deep hole drilling in diameter range 25–165.1 mm (0.984–6.500 inch).

Benefits

- High machine utilization
- Improved flexibility due to larger radial adjustability
- High availability due to a large standard programme
- Easy to apply
- Low noise level

Application

- Primarily for drilling in steels, stainless steels and HRSA materials. Also possible to use in cast irons and non-ferrous materials
- Hole diameter range: 65.0–165.1 mm (2.560–6.500 inch)
- For STS machines
- Suitable for complex applications within the oil- and gas industry as well as aerospace and primary metals

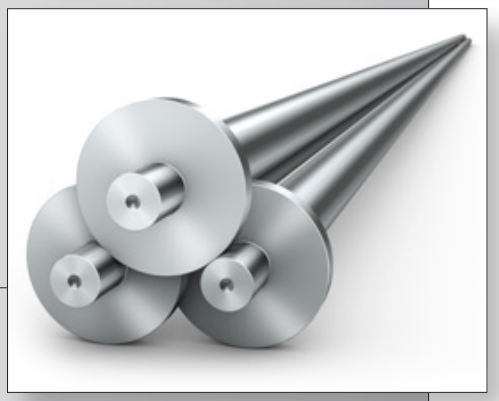
ISO application area

Technical features

- Improved coolant channel design
- Improved chip mouth design for enhanced chip evacuation
- Three pads for better stability
- Ground area for run-out verification
- Timing mark for easy positioning in drill tube
- Radial adjustment up to 2.5 mm (0.0984 inch)

Performance

Conditions		
Component	Propeller shafts	
Workpiece material	C45, SS1672 (CMC 01.2, MC P1.2.Z.AN)	
Machine	TACCHI FT85 CNC, extended	
Drill length, mm (inch)	11520 (454)	
Drill diameter, mm (inch)	80 (3.15)	
Cutting data	**CoroDrill 801**	**Competitor**
n rpm	322	318
v_c m/min (ft/min)	81 (266)	80 (262)
f_n mm/r (in/rev)	0.27 (0.011)	0.16 (0.006)
v_f mm/min (in/min)	87 (3.425)	51 (2.008)
Results		
Total machining time, min	133.24	227.65
Drilled length, m (ft)	24.9 (82)	5.8 (19)
Tool condition	Not worn out	Worn out
R_a µm (µinch)	0.2–0.62 (7.9–24)	Poor surface



CoroDrill 801 increased productivity with 70%, had longer tool life and created better surface finish compared to the competitor.

Assortment

Diameter, mm (inch)	Coupling type	Supplement 13.1
65.0–165.1 (2.560–6.500)	STS	E36

Special offer available for STS and Ejector system on request, please contact your Sandvik Coromant sales representative.

For full information see Rotating tools and Turning tools catalogues or www.sandvik.coromant.com

CoroDrill® 818

Exceeds your expectations in counterboring

Larger flexibility and adjustability

CoroDrill 818 is now available in new sizes, from 40.00–301.75 mm (1.575–11.880 inch). This counterboring concept offers high process security and flexibility. CoroDrill 818 is supported by an extensive programme of geometries and grades for all materials.

Benefits

- Less downtime in production thanks to overnight tool delivery
- Easy to apply
- High machine utilization
- Improved flexibility thanks to a large programme with large radius adjustability

Application

- Primarily for counterboring in steels, stainless steels and HRSA materials. Also possible to use in cast irons and non-ferrous materials
- Hole diameter range: 40–301.75 mm (1.575–11.880 inch), larger diameters available as engineered solution
- For STS machines
- Suitable for complex applications, e.g. oil exploration tools within the oil- and gas industry as well as aerospace and primary metals

ISO application area

Technical features

- Timing mark for easy positioning in drill tube
- iLock tip seat interface for secure insert location
- Large radius adjustability
- Superior chip control in all materials with TXN insert
- One insert for both push- and pull boring

Assortment

Tool diameter, mm (inch)	Coupling type	Supplement 13.1
40.00–301.75 (1.575–11.880)	STS	E40

For full information see Rotating tools and Turning tools catalogues or www.sandvik.coromant.com

Counterboring TXN inserts

Superior chip control in all materials

The insert solution for CoroDrill® 818

The TXN insert has a new -A geometry with dedicated chip breakers for extra long-chipping materials in counterboring. The new inserts make the CoroDrill 818 offer complete.

Benefits

- Easy to apply
- Improved flexibility
- High machine utilization
- Optimized insert stability

Application

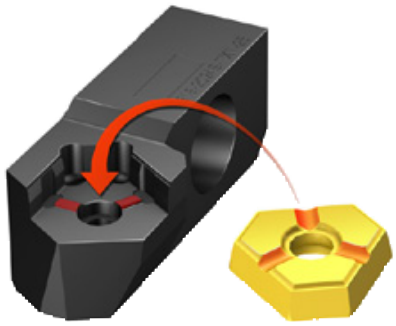
- For extra long-chipping materials in counterboring, such as Inconel and duplex stainless steels
- Insert solution for CoroDrill 818
- Suitable for complex applications within the oil- and gas industry as well as aerospace and primary metals

ISO application area

Technical features

- Dedicated chip breakers for superior chip control
- iLock tip seat interface for secure tip seat location
- One insert for both push- and pull boring
- Metric insert sizes 16, 25 and 40
- -G and -L geometries are also available

-G geometry	-L geometry	-A geometry
General usage	Long-chipping materials	Extra long-chipping and advanced materials



iLock™
ingenious locking interface

Performance

Field test with insert TXN 250408-X, GC1025

Component	Turbine shaft
Workpiece material	CMV (CMC 02.2, MC P2.5.Z.HT), HB 401
Machine	Bohringer DHD machine, Horizontal
Axial depth of cut, mm (inch)	1080 (42.520)
Radial width of cut, mm (inch)	5 (0.197)

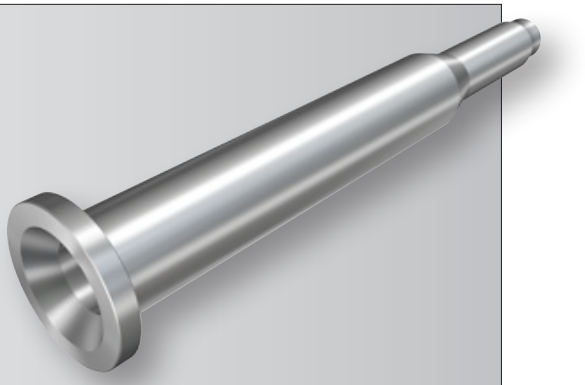
Cutting data

v_c m/min (ft/min)	50 (165)
n rpm	123
v_f mm/min (in/min)	25 (0.984)
f_z mm/z (in/z)	0.20 (0.0079)
f_n mm/r (in/rev)	0.20 (0.0079)

Results

Machining time min/piece	44

Good swarf was achieved and component concentricity was improved over the existing method.



Assortment

-G and -L geometries are available in grades GC1025, GC1125 and GC4235

Insert	Insert size (IC)	Grades	Geometry	Supplement 13.1
TXN 160408	16	GC1025, GC1115, GC1125, GC4235	-A	E45
TXN 250408	25	GC1025, GC1115, GC1125, GC4235	-A	E45
TXN 400708	40	GC1025, GC1115, GC1125, GC4235	-A	E45

For additional information see Rotating tools and Turning tools catalogues or www.sandvik.coromant.com

CoroDrill® 800

Stocked standard programme

Less downtime in production

CoroDrill 800 offers high productivity within a wide application range.

CoroDrill 800 together with CoroDrill 801 form a complete standard offer for deep hole drilling in diameter range 25–165.1 mm (0.984–6.500 inch).

Application

- Deep hole machining in most workpiece materials
- Diameter range: 25–65 mm (0.984–2.559 inch)
- Suitable for complex applications within the oil- and gas industry as well as aerospace and primary metal

P M K N S

ISO application area

Assortment

Diameters	Coupling type	Supplement 13.1
25–65 mm	STS	E30-E31
25–65 mm	Ejector	E33
0.984–2.559 inch	STS	E32

For additional information see Rotating tools and Turning tools catalogues or www.sandvik.coromant.com

Benefits

- Less downtime in production thanks to overnight tool delivery
- High process security
- Excellent surface finish
- Superior productivity performance
- Low cost per hole

Your success in focus!

With a complete product and service offer, Sandvik Coromant is the world-leading supplier of cutting tools for the metalworking industry.

We are represented in 130 countries worldwide, with own sales personnel and specialists present in 60 countries. Three central stocking points ensure efficient distribution to customers all over the world, in most markets, within 24 hours.

Manufacturing economics

To stay competitive you have to bridge the gap between what the market is willing to pay and the cost of production.

Recycling

Tungsten carbide inserts can be recycled in all major markets, at market prices.

Personal service

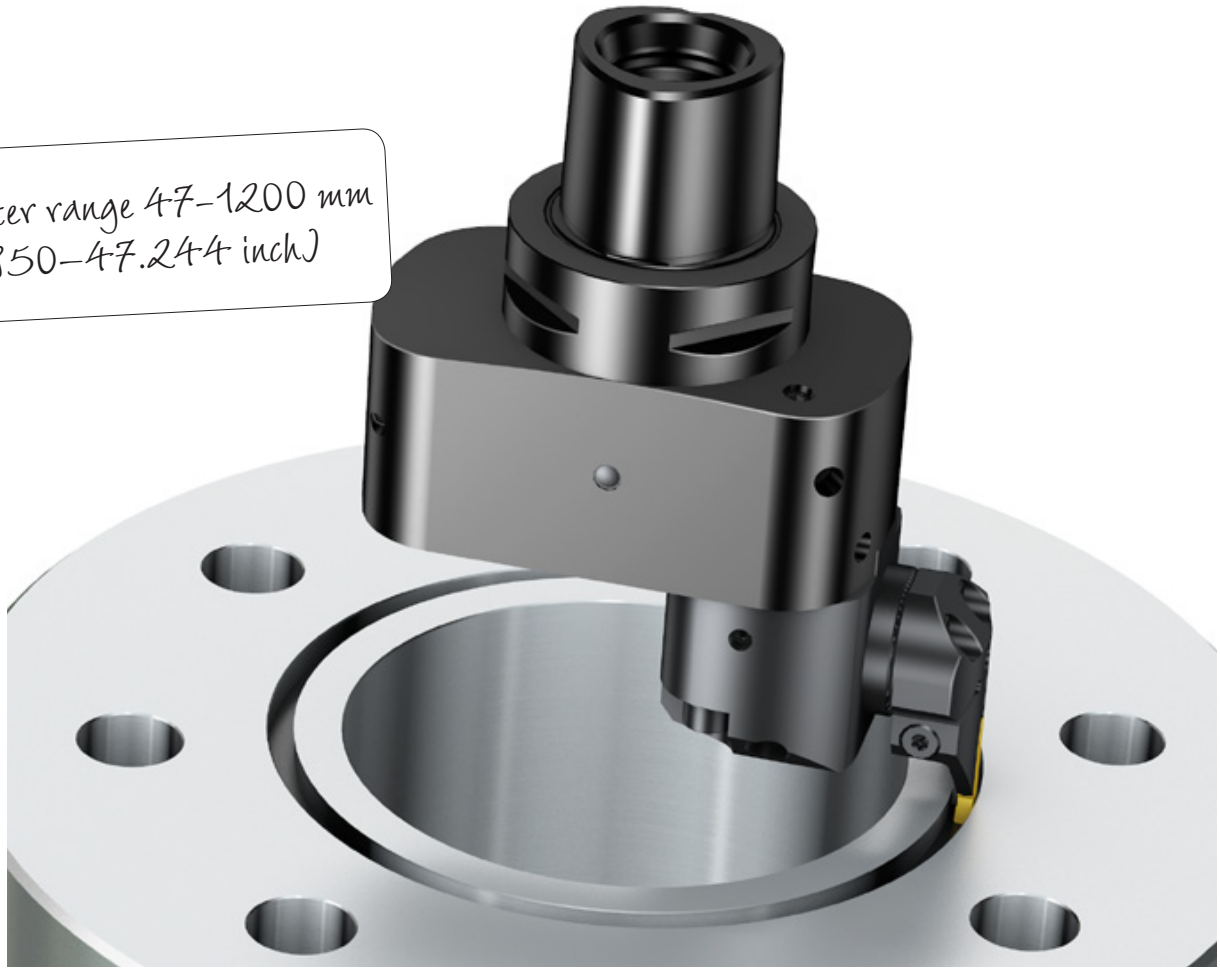
You can count on us. You will always get full service and support from our Sandvik Coromant representatives.

Your local support is just a click away
www.sandvik.coromant.com

CoroBore® 825 SL face grooving

Productive face grooving

Diameter range 47–1200 mm
(1.850–47.244 inch)



Machining grooves with CoroBore SL is a productive alternative to milling grooves. This fine-adjustable axial face grooving tool machines grooves in a large number of components and diameters.

Benefits

- Increased productivity compared to milling
- Excellent chip control thanks to internal coolant
- Builds on our large assortment of standard SL32 blades and CoroCut 1-2 inserts
- Radial fine-adjustable face grooving heads for pre-setting

Application

- Typical application: pump and valves, hydraulic components and pulp & paper.
- First choice geometries: -CM or -TF
  - Recommended starting value for feed: 0.15 mm/rev (0.006 in/rev)
- If grooves with larger width tolerance is required, chose -GF geometry
  - Recommended starting value for feed: 0.10 mm/rev (0.004 inch/rev)

ISO application area

Technical features

- Rigid design with dedicated tools for small and large diameter face grooving
- Internal coolant right to the cutting edge
- Radial fine-adjustable face grooving head for pre-setting
- For smaller diameters: 47–150 mm (1.850–5.905 inch), C6 and C8 adaptors available
- For larger diameters: 150–1200 mm (5.905–47.244 inch), use a dedicated face grooving head with CoroBore XL

Assortment

Face grooving, dia 47-150 mm (1.850–5.905 inch)

DCN mm (inch)	DCX mm (inch)	Coupling size	Order code	Supplement 13.1, page
47 (1.850)	150 (5.905)	C6	825-150SL32-C6*	F51-F52
47 (1.850)	150 (5.905)	C8	825-150SL32-C8*	F51-F52

* Adaptor and head included, blade and insert to buy separate

Face grooving, dia 150-1275 mm (5.905–50.197 inch)

DCN mm (inch)	DCX mm (inch)	Order code	Supplement 13.1, page
150 (5.905)	1275 (50.20)	A34-R825SL32 022*	F53

* Large diameter face grooving, head is sold as accessory to existing CBXL range

For additional information see Rotating tools and Turning tools catalogues or www.sandvik.coromant.com

Coromant Capto®

Clamping units for high pressure coolant

Transfers coolant pressure up to 200 bar (2900 psi)

New clamping mechanism utilizing standard CoroTurn® HP cutting units with 200 bar (2900 psi) coolant pressure capability. High pressure coolant and Quick change with Coromant Capto® clamping units provide unrivalled performance, ensuring that machine utilization is optimized through reduced set-up and production time.

Benefits

- High pressure coolant ensures chip control also in long-chipping materials
- Increased radial clearance
- Quick change dramatically reduces tool change and set-up times
- Flexible and operator-friendly
- No need to mount coolant tube sets – just plug and play

Application

- Clamping units for static tool holders
  - Turning centres
  - Vertical lathes
- Difficult, long-chipping materials in e.g.:
  - Aerospace: HRSA, titanium
  - Oil and gas: HRSA, duplex stainless steel
  - Bearings: high-alloy steel
  - Automotive: low-carbon steel
  - Power generation: HRSA, titanium and duplex stainless steel

Technical features

- Sealed off for a capability of 200 bar (2900 PSI) coolant pressure
- Quick change with Coromant Capto®
- Integrated house
- Clamping unit sets with sleeve design are available
- Designed for shortest possible gauge line

Recommendations

Use the right pressure for the right application. Do not use higher pressure than needed.

Performance

Customer case

Industry segment	Aerospace engine customer
Component	Disc
Workpiece material	Titanium (CMC 23.22, MC S4.2.Z.AN)
Tool	Adaptor: C6-SL70-RG-050 Blade: SL70–SRDCR-35-12HP Insert: RCMT 12 04 M0-SM H13A

Cutting data	**Standard coolant solution**	**New solution with high pressure tool**
v_c m/min (ft/min)	60 (197)	90 (295)
f_z mm/z (in/z)	0.15 (0.006)	0.35 (0.014)
a_p mm (inch)	1.0 (0.039)	1.5 (0.059)
Results		
Cycle time, min	184	128
Productivity increase		42%

The new solution saved 1500 hours in production/year. Higher metal removal rate and improved chip control were effects.

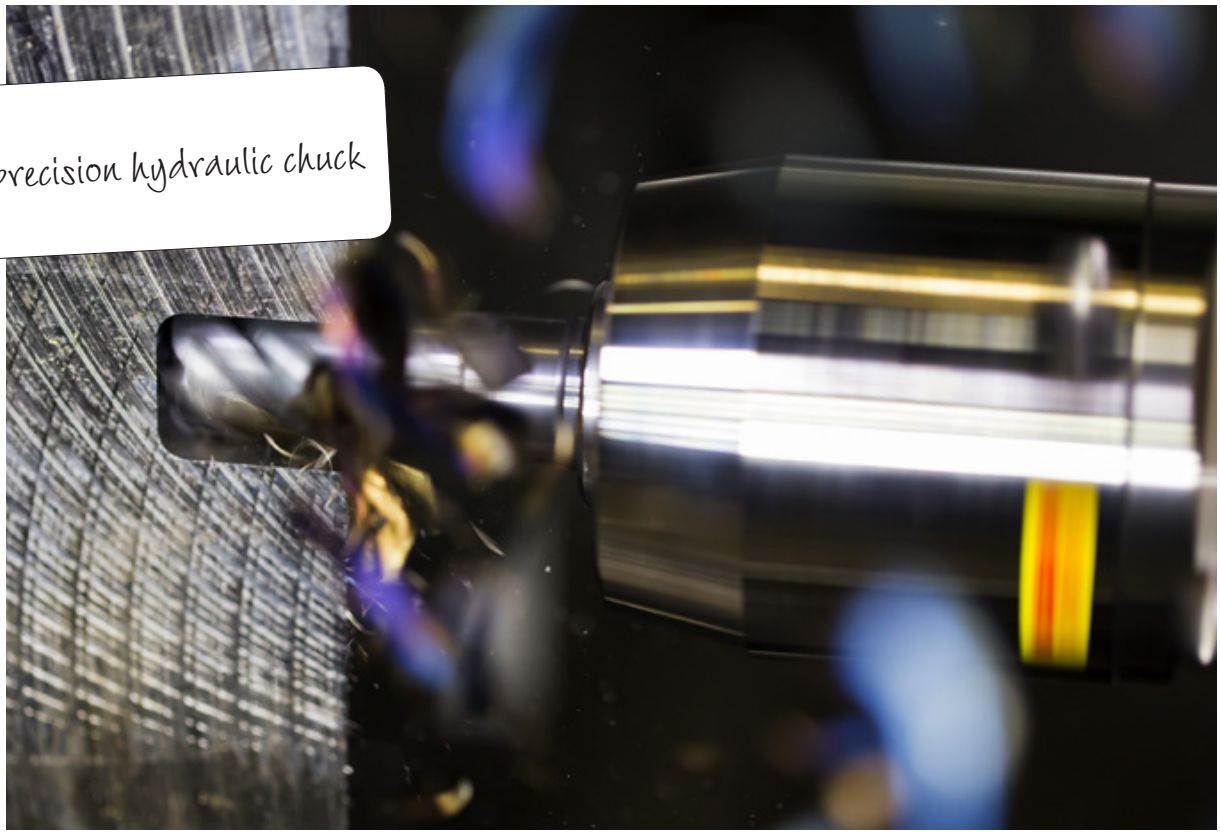
Assortment

Coromant Capto clamping units	Coupling sizes	Coolant pressure	Supplement 13.1
Manually operated clamping units Integrated house with 2095 hole pattern	C5, C6, C8, C10	200 bar (2900 psi)	G19
Clamping unit set	C4, C5, C6	200 bar (2900 psi)	For more information about clamping unit sets, please contact your Sandvik Coromant sales representative

For additional information see Rotating tools and Turning tools catalogues or www.sandvik.coromant.com

CoroChuck™ 930

With high pull-out security and precision



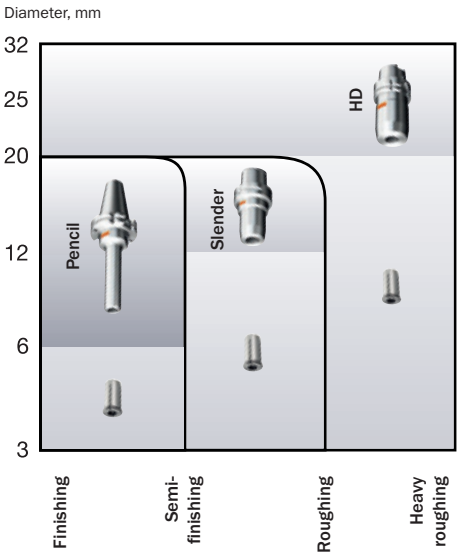
Need a hydraulic chuck that won't let you down? Look no further than CoroChuck 930. This new generation of hydraulic chucks can rightly claim the best pull-out security on the market, designed to eliminate vibration and ensure the highest precision for milling and drilling applications.

Benefits

- Higher metal removal rate provides increased productivity
- Secure processes and secure machining
- Quick tool change and set-up
- Enhanced surface finish and increased tool life
- Closer hole tolerance

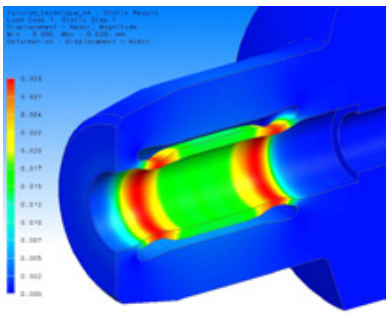
Application

- For milling and drilling operations where pull-out security, easy handling and precision are required
- Used in all kinds of machine tools that have a rotating spindle, e.g. multi-task machines and machining centres as well as driven tools in turning centres and vertical turning lathes
- Covers all important machine interfaces



Technical features

- Best pull-out security on the market due to the latest Fulcrum-technology* used for uppermost clamping performance with high clamping force. The clamping force repeats time after time
- Easy handling with torque wrench used for secure clamping
- The machine-side coupling is ground as last operation to guarantee the highest demands on precision
- Precision run-out <4 µm (157 µinch) at 2.5 × DC
- High precision repetition
- Balancing according to DIN 69888
- Clamping length can be adjusted with an adjustment screw



* Optimized design of the brazed membrane which allows for secure clamping with two supports on each side (fulcrums). This is the secret behind the high precision and pull-out security of CoroChuck 930.

Performance

Customer performance test with CoroMill® Plura

Operation	Trochoidal milling
Workpiece material	Inconel 718 (CMC 20.22, MC S2.0.Z.AG)
Machine	Hermle C50

Cutting data	**CoroChuck 930**	**Competitor**
n rpm	3183	3183
v_c m/min (ft/min)	80 (260)	80 (260)
a_p mm (inch)	18 (0.709)	18 (0.709)
v_f mm/min (in/min)	763.92 (30.040)	763.92 (30.040)
f_z mm/z (in/z)	0.06 (0.0024)	0.06 (0.0024)

Results		
Total machining time, min	12	6
Tool condition	Tool breakage	Tool breakage

CoroChuck 930 increased machining time by 100% due to better clamping conditions and dampening abilities.

Holder: 930-C6-HD-20-084
Tool: R 216.24-08050EAK19P
Slot width: 13 mm (0.512 inch)

Assortment

Design	Coromant Capto® coupling size	Steep taper (ISO, MAS-BT, CAT-V)	HSK	Bore sizes, metric	Supplement 13.1
Pencil	C4–C8	30, 40	63A, 100A	(6), 12, 20	G6, G9, G12
Slender	C4–C8	30, 40, 50	63A, 100A	12, 20	G5, G8, G11
HD	C4–C8	40, 50	63A, 100A	20, 25, (32)	G4, G7, G10

For additional information see Supplement 13.1 or www.sandvik.coromant.com

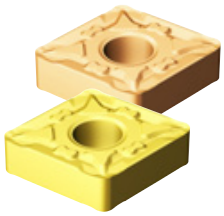
Turning

General Turning

T-Max® P

Geometry extensions in grades GC2025, GC1115 and GC1125

- CNMG090304-MF
- CNMG090304-MM
- CNMG090308-MF
- CNMG090308-MM



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QS™ Holding system

Extension for Tsugami and Hanwha machines

Code	Fits machine type	Position
QS-140	Tsugami S206, 205, 207	Front
QS-140HP	Tsugami S206, 205, 207	Back
QS-150	Tsugami BH 38	Front and back
QS-160	Tsugami BS32 and BS20	Front and back
QS410	Hanwha XD20H/J	Front and back
QS-450	Hanwha XD32H	Front and back

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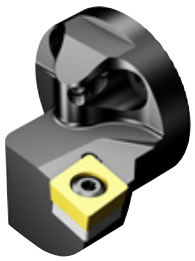
CoroTurn® SL

Cutting heads for high pressure coolant

SL coupling size 32 and 40 mm (1.260–1.575 inch) for positive C-, D- and T-style inserts.



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T-Max® P

Extended program of versatile grades GC15 and GC30

Light cutting geometry -XF	First-choice geometry -XM	Geometry –XMR with reinforced cutting edge
CNMG090304 WNMG060404 WNMG060408	CNMG090308 DNMG150612 WNMG060404 WNMG060408 WNMG060412	WNMG060408 WNMG060412 WNMG080412 DNMG150612 TNMG160408 TNMG160412

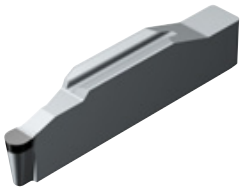
Page A9-A10, A12-13 in Supplement 13.1

Turning

Parting and grooving

CoroCut® 1-2

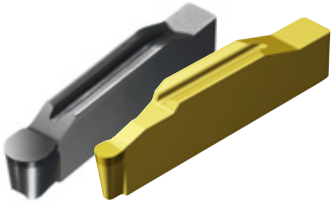
Geometry extensions for seal fin machining



-RS geometry in PCD grade CD10 for profiling in non-ferrous metals and non-metallic materials

CoroCut inserts	Seat size	Cutting width	Maximum cutting depth
R/L123H1-0200-RS	H	2	5
N123H1-0200-RS	H	2	5

-RE geometry in CBN grade CC7025 for profiling of hardened steel (bearing steels)



CoroCut inserts	Seat size	Cutting width	Maximum cutting depth
N123H1-0200-RE	H	2	5
N123F1-0300-RE	F	3	-
N123F1-0400-RE	H	4	-

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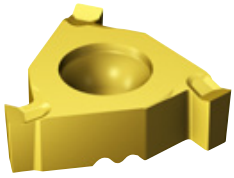
CoroThread® 254

For circlip grooving and machining in shallow grooves



Right- and left-hand grooving inserts with corner radius 0.08 mm (0.003 inch), maximum grooving depth 2.2 mm (0.087 inch) and cutting edge width 2.15 mm (0.92 inch).

Right-hand insert can be used for right-hand external and left-hand internal holders. Left-hand inserts can be used for left-hand external and right-hand internal holders.

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Milling

CoroMill® Plura

End mills for aluminium

Two new families extend the CoroMill Plura product range for ISO N materials.

- Reduced shank for maximum flexibility
- Proven cutting geometry delivers high productivity
- High spherical surface accuracy in the ball nose family
- Use together with CoroChuck 930 for maximum performance and run-out precision
- Launched together with accompanying assortment of cylindrical collets for undersized shanks

Page D29-D30 in Supplement 13.1

CoroMill® 490

Ceramic insert

New ceramic insert, grade CC6190 for CoroMill 490, offers increased productivity in cast iron and hardened steel due to higher cutting speeds.

- Medium- to light roughing of grey cast iron in machines with sufficiently high power and stability
- Complementary areas are medium- to light roughing of nodular cast iron and compacted graphite iron
- Two to three times higher productivity than cemented carbide
- Insert design with parallel land delivers exceptional surface quality

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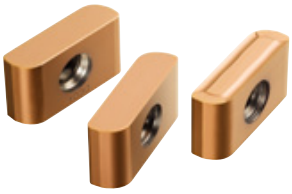
CoroMill® 170

Root inserts for roughing applications

A new addition to the CoroMill 170 insert assortment. Positive insert geometry with more adapted rake angles, optimized for lower feed rates.

- For large gear wheels with gear profile sizes in module range 12–22
- Reduced cutting forces make it possible to increase feed rates if power consumption is a limiting factor
- Power consumption can be reduced by 20–25% compared to existing geometries
- The optimized geometry improves tool life

Page D18 in Supplement 13.1



CoroMill® 176

Full profile hob

The module range is expanded to also include module 9

- Increased productivity through high cutting speeds and a large number of effective teeth
- Longer tool life, reduced downtime
- Reduced machine downtime compared to HSS tools
- Cost-efficient alternative to HSS tools

These products are subject to quotation, please contact your Sandvik Coromant sales representative

More introductions

Drilling

Skiving and roller burnishing (R420.37)

Insert for skiving

New insert grade GC1525 for skiving high-alloy steels and duplex stainless steels in the oil and gas industry.

- Good surface finish
- Improved tool life
- Reduced cost per component and higher machine utilization
- Metric insert sizes 6, 7 and 11
- For diameter range 38.0–305.6 mm (1.496–12.043 inch)

Page E46 in Supplement 13.1

Collets and sealing sleeves

For generic STS applications in deep hole machining

Collets and sealing sleeves for generic STS applications will now be stocked as standard, offering you short delivery times for a secured production.

Both products will be available in 21 sizes which will cover tube range 94–13E (drill size 15.60–65.00 mm (0.614–2.560 inch)).

Page E47 in Supplement 13.1

Tooling systems

Silent Tools® dampened adaptors for milling

Coromant Capto® size C10

Dampened adaptors for heavy-duty milling with significantly higher productivity, without vibration.

- Up to 300% productivity increase
- Improved process security and surface finish
- Broad functionality range to cover all materials and applications
- For all industries where large components are manufactured, often in one set-up
- Used in large machining centres with a Coromant Capto® machine interface adaptor as a modular solution

Page G16-G17 in Supplement 13.1

Cylindrical collets for CoroChuck™ 930

Collets for undersized shanks

- Nine new items
- To be used with CoroMill® Plura end mills with shank type “G-Reduced”

Page G13 in Supplement 13.1

Our main releases from recent CoroPaks

CoroPak 11.1

GENERAL TURNING
CB7525 new grades
QS holding system high precision coolant

PARTING AND GROOVING
CoroCut® blades and tool blocks for deep grooving
CoroCut® MB, small diameter face grooving
Coromant Capto® holders for CoroCut® with short a_r
CoroCut® shank tools, small sizes

THREADING
CoroThread® 254 new circlip inserts

MILLING
CoroMill® Plura end mills for finishing titanium
CoroMill® Plura small ball nose end mills
CoroMill® 326 internal threading and chamfering in small holes

DRILLING
CoroDrill® 881 for smaller holes
CoroDrill® 452 drills for portable hand-held machines in composite materials

TOOLING SYSTEMS
Coromant Capto® short for CoroTurn® SL
Metallic-sealed ER collets with through coolant

CoroPak 11.2

GENERAL TURNING
CoroTurn® XS new geometry
CoroCut® MB new geometry
T-Max® P boring bar with internal coolant

PARTING AND GROOVING
CoroCut® 2-edge geometry -GM
CoroCut® SL boring bars and blades for face grooving

THREADING
CoroThread® 266 boring bars, cutting units without shim

MILLING
CoroMill® 176 full profile hob with indexable inserts
CoroMill® 316 heads extension

DRILLING
High feed CounterBore
CoroDrill® 428.5 and 428.7 gun drills

TOOLING SYSTEMS
Coromant Capto® clamping units
Coromant Capto® C10 cutting units and adaptors
MAS-BT 30 tool holders
Silent Tools® dampened adaptors for milling
Integrated ER collets for EH and CoroMill® 327
Holders and adaptors for exchangeable heads
Coromant Capto® ShrinkFit™ adaptors
Coromant Capto® basic holders
Solid holding tools
Coromant Capto® adaptors for multi-task machines

CoroPak 12.1

GENERAL TURNING
CoroTurn® 107, multimaterial inserts
T-Max® P -KRR new geometry
GC3210 new grade

MILLING
CoroMill® Plura and shrink fit adaptors with iLock™
CoroMill® 170 -PL insert
CoroMill® 176 inserts
CoroMill® Century CBN inserts

DRILLING
CoroDrill® 860, for steel
CoroDrill® 870, exchangeable-tip
CoroDrill® 861 for deep holes
CoroDrill® 862, micro drill
CoroTap™
Tap holders
Universal counter boring inserts

TOOLING SYSTEMS
CoroMill® Plura and shrink fit adaptors with iLock™
Tap holders
Quick-change Dovetail, DIN 69881
Dampened milling adaptors, Silent Tools®
Coromant Capto® clamping units
Collet extension

CoroPak 12.2

GENERAL TURNING
T-Max® P and CoroTurn® 107, inserts
Coromant Capto® HP boring bars
QS™ HP holding system
CoroTurn® HP shank tools
Coromant Capto® dampened boring bars, C10
CoroTurn® 107, PCD grade CD05
Heavy turning, inserts and holders

PARTING AND GROOVING
CoroCut® 1- and 2-edges, Seal fin grooving

MILLING
CoroMill® 600 blade cutter
CoroMill® Plura for aluminium
CoroMill® Plura multi-mateial
CoroMill® S-60 multi-edge cutter

DRILLING
CoroDrill® 860, -NM
CoroDrill® 460, -XM
CoroDrill® 870 for cast iron
CoroDrill® 801 deep hole
CoroDrill® 818 counterboring
New geometry for Trepanning
Skiving and roller burnishing
CoroTap™

BORING
CoroReamer™ 435 and 835

TOOLING SYSTEMS
Coromant Capto® VTL
CoroPlex® TB turbo bars
Coromant Capto® Tailor made adaptors

Reference

Metric to imperial

Distance
1 metre (m) = 39.370 inch (in)
1 metre (m) = 3.281 feet (ft)
1 millimetre (mm) = 0.039 inch (in)

Weight
1 kilogram (kg) = 2.205 pounds (lbs)
1 kilogram (kg) = 35.274 ounces (oz)

Torque
1 Newton metre (Nm) = 0.738 pound-force feet (ft-lbs)
1 Newton metre (Nm) = 8.851 pound-force inches (in-lbs)

Imperial to metric

Distance
1 inch (in) = 25.4 millimetre (mm)
1 foot (in) = 0.3 metre (m)
1 foot (in) = 304.8 millimetre (m)

Weight
1 pound (lb) = 0.45 kilogram (kg)
1 ounce (oz) = 28.35 gram (g)

Torque
1 pound-force foot (ft-lbs) = 1.4 Newton metre (Nm)
1 pound-force inch (in-lbs) = 0.1 Newton metre (Nm)

Formulas and definitions

		Metric	Imperial
v_c	cutting speed	m/min	ft/min
n	spindle speed	rpm (rev/min)	rpm (rev/min)
v_f	table feed	mm/min	in/min
z_n	total number of cutting edges	-	-
z_c	number of effective cutting edges	-	-
f_z	feed per tooth	mm/z	in/z
f_n	feed per revolution	mm/rev	in/rev
h_{ex}	maximun thickness	mm	inch
a_p	cutting depth	mm	inch
l_a	insert width	mm	inch
a_e	cutting width	mm	inch
a_e / D_c	radial immersion	%	%
T	machining time	min	min
D	tool diameter	mm	inch
Q	metal removal rate	cm^3 /min	in^3 /min
nap	number of passes	-	-
TPI	threads per inch	-	-
k_c	specific cutting force	N/mm^2	lbs/in^2
R_a	surface roughness	µm	µin

Insert size

IC = inscribed circle in inch

 = cutting edge length in mm

ISO application area

P Steels

M Stainless steels

K Cast irons

N Non-ferrous metals

S Heat resistant materials

H Hardened materials

O Others, e.g. composite material

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On the Sandvik Coromant web, you can read more about our products, application knowledge and the industry solutions we support. You can also download catalogues, brochures, magazines, apps, 3D-models and much more.

Tailor Made

Additional tool options designed for your specific requirements.

- In our Tailor Made offer you are free to specify your own dimensions without paying the price of a special tool.
- Drawing and quote within 24 hours
- Tools within 10 to 20 days

Engineered solutions

For complex tools, you can always order an engineered solution. Contact your Sandvik Coromant representative for more information.

Tailor Made product families

CoroDrill® 870

Drill tip

- Drill tip diameter
- Point angle
- Corner chamfer
- Corner radius
- Gade

Drill Body

- Drill depth
- Mounting type and size
- Optimized drill bodey diameter
- 45 (degree sign) chamfer drills

CoroMill® Plura

- Diameters
- Helix angle
- Tool length
- Cutting length
- Corner radius
- Shank options: Cylindrical or Weldon, with or without neck

CoroMill® Century face milling inserts

- Insert grade
- R/L hand
- Depth of cut
- Corner shape
- Wiper design