

# CoroBore®

## Rough boring



# Front, step, and back boring



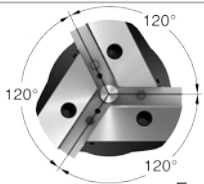
The new generation of CoroBore® rough boring concepts meets challenges with vibration, chip breaking, and process security, while delivering high-end productivity across all rough boring operations.

The combination of CoroBore® together with Coromant Capto® and Coromant EH increases production flexibility, saves money, and reduces tool investment and inventory.

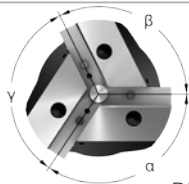
For your convenience, each solution is available as a single item and as complete tool assembly kits.



Coromant EH and Coromant Capto® modular coupling interfaces in different sizes.

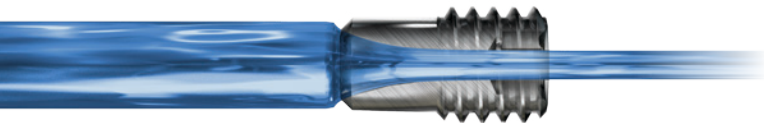


Equal pitch

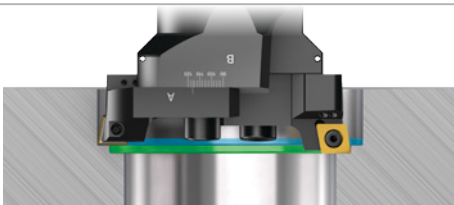


Differential pitch

Differential pitch reduces vibration tendencies—tools can be used at longer overhangs and larger depth of cuts.



Coolant nozzles with high precision capability built into slide for precise coolant direction.



Built-in step boring functionality for machining in difficult materials or at large depths of cut, without any need of an extra shim.

## CoroBore® BR10

Single-edge back boring tools

## CoroBore® BR20

Twin-edge rough boring tools with high degree of flexibility

## CoroBore® BR30

Three-edge rough boring tools for superior metal removal rate

## CoroBore® XL

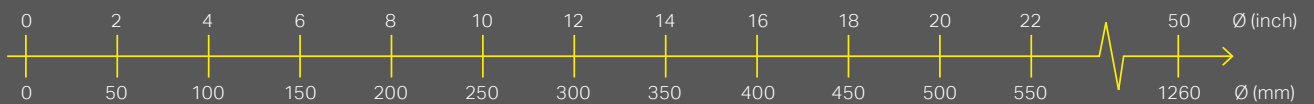
Large diameter rough boring solution with high stability and rigidity

## CoroBore® BR20 with Silent Tools™ technology

Twin-edge rough boring tools with Silent Tools™ damping technology for long overhang machining without chatter



ISO application area



CoroBore® BR10



CoroBore® BR20



CoroBore® BR20 with Silent Tools™ technology



CoroBore® BR30



CoroBore® XL



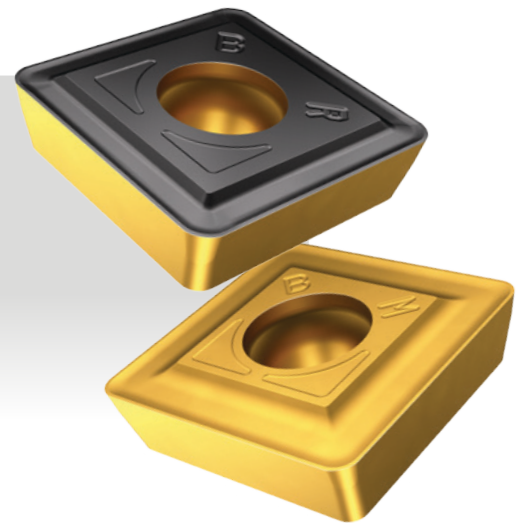
CoroBore® XL with Silent Tools™ technology

# Equipped for successful boring

All CoroBore® rough boring tools provide you with:

- Top-level productivity
- Reliability and high process security
- Excellent chip formation and chip evacuation
- Stable and rigid tools with a low vibration machining process

CoroBore® 111 is a dedicated, four-edged insert with optimized grade selection for rough boring applications. The unique First Choice solution offers excellent chip breaking and increased lifetime in ISO P, M, K, and S materials.



## CoroBore® BR20

The twin-edge boring concept uses a differential pitch to reduce vibration, enabling tools to be used at longer overhangs and larger depth of cuts. The high precision coolant nozzles can handle coolant pressure up to 80 bar (1160 psi). CoroBore® BR20 slides can be alternated to allow either two effective cutting edges or step boring (without shims) when high cutting depths are required. And, by combining the CoroBore® BR20 adapter with the CoroBore® BR10 slides, it can be rebuilt easily into a back boring tool.



## CoroBore® BR20 with Silent Tools™ technology

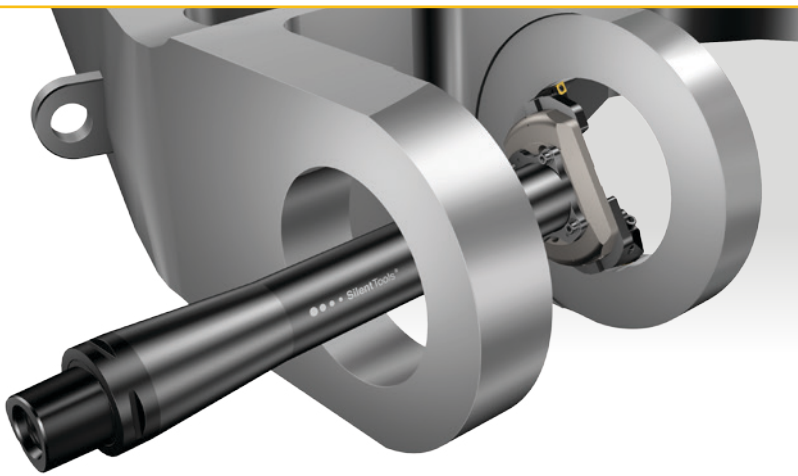
The damped version of CoroBore® BR20 is a problem-solver when working with long overhangs or when extra stability is required. Silent Tools™ allow you to double the depth of cut, while maintaining secure machining. This unique solution offers the same high-quality boring process as the conventional CoroBore® BR20 when machining deep bores or hard-to-reach features.





# Tool features

	CoroBore® BR10	CoroBore® BR20	CoroBore® BR20 Silent Tools™	CoroBore® BR30
Differential pitch		•	•	•
CoroBore® 111 inserts		•		•
High-precision coolant	•	•	•	
Flexible diameter range		•	•	
Back boring	•	•		
Laser-marked scale on adapter	•	•	•	•
Silent Tools™			•	
Step boring		•		•
Coromant Capto®	•	•	•	•
Coromant EH	•	•		



CoroBore® XL is available with damped Silent Tools™ adapters built to reduce vibration and enable long overhang machining.

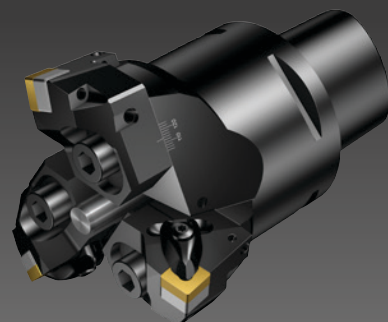
## CoroBore® BR10

For back boring, the single-edge CoroBore® BR10 is the best option. The design of the CoroBore® BR20 adapter combined with a back boring slide and cover provides secure and productive back boring. CoroBore BR20 can be purchased as a back boring kit, or as separate additional items to be used with an existing CoroBore® BR20—this allows for a reduction in inventory and enables you to reap the benefits of modularity.



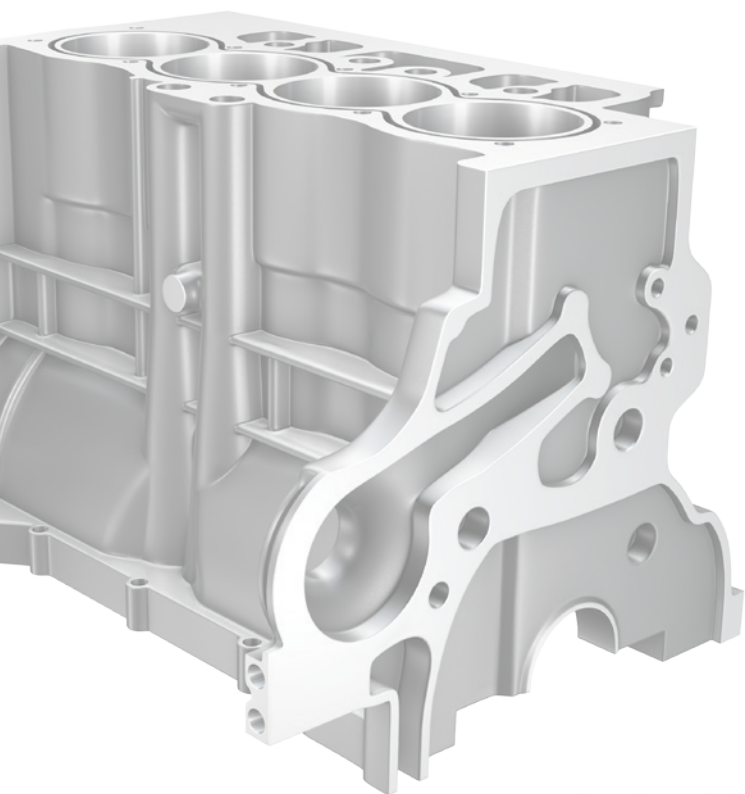
## CoroBore® BR30

The three-edge, highly productive CoroBore® BR30 delivers top-level metal removal rates in stable machines. Thanks to the differential pitch, a low vibration boring process is attainable in combination with a three insert design for highest productivity. Add the CoroBore® 111 inserts for extra security.



# Application test: Differential pitch

CoroBore® BR20 and DuoBore™ \* comparison



30%

increased overhang

Material:	42CrMo4 soft, P2.1.Z.AN
Machine:	Vertical milling machine
Machine interface:	ISO 50
Coolant:	No
Diameter range:	55–70 mm (2.17–2.76 inch)
Insert:	CCMT 12 04 08-PM 4325
Kappa (Kr):	90°

	DuoBore™	CoroBore® BR20
Basic holder	C5-390.00-50 030	C5-390.00-50 030
Extension	C5-391.01-50 080A	C5-391.01-50 080A
Boring tool assembly	821-70CC12-C5	BR20-71CC12F-C5

	LF (mm)	LU (mm)	$v_c$ (m/min)	$f_z$ (mm/z)	$a_p$ (mm)	$n$ (min-1)	$v_f$ (mm/min)	Surface finish
DuoBore™	260	244.8	166.8	0.18	2.3	900	500	Heavy vibration marks
CoroBore® BR20	316	300.8	166.8	0.18	2.3	900	500	Shining

## Results

Thanks to the differential pitch, CoroBore® BR20 can increase the overhang by 30% compared to DuoBore™. Comparing the same cutting data, DuoBore™ stopped performing at LF = 260 mm (10.2 inches), while CoroBore® BR20 reached an LF = 316 mm (12.4 inches) with an excellent surface finish.

\*DuoBore™ is part of the previous generation of rough boring tools from Sandvik Coromant.

# Case: CoroBore® BR20

Challenge: Machining a connecting rod in weak machining conditions. The customer required a stable and secure machining process, good chip control, and long insert and tool life, while obtaining a high surface quality.



Component:	Connecting rod
Material:	C70S6; CMC: 02.2, MC: P2.5.Z.HT, hardness HB280~310
Operation:	Semi-finishing after an initial rough boring operation performed with a combination tool with chamfer
Machine:	Vertical machining center
Coolant	Internal coolant, 15 bar
Output power	11 kW
DC, mm (inch)	59.6 (2.35)

**70%**

increased tool life

	Competitor tool	CoroBore® BR20
Total length:	120 mm	120 mm
Machine interface adapter		C5-390B.555-40 050
Boring tool assembly		BR20-71SP12Y-C5
Insert		SPMT 12 12 – BR 4325 (CoroBore® 111)
Kappa (Kr)	75°	84°

## Cutting data

$z_n$	2
$n$ rpm	1500
$v_c$ m/min (ft/min)	280 (919)
$f_z$ mm/rpm (in/rev)	0.09 (0.0035)
$a_p$ mm (inch)	1.2 mm (0.047)

## Results

CoroBore® BR20 together with CoroBore® 111 inserts achieved good surface finish, excellent chip breaking, and 70% increased tool life compared to existing tooling solution. The customer can now produce 700 pieces instead of 400 pieces within the same time.

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## Find more online

Visit the Sandvik Coromant website to learn more about boring, find application tips, and get more details about CoroBore® solutions.

[www.sandvik.coromant.com](http://www.sandvik.coromant.com)

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