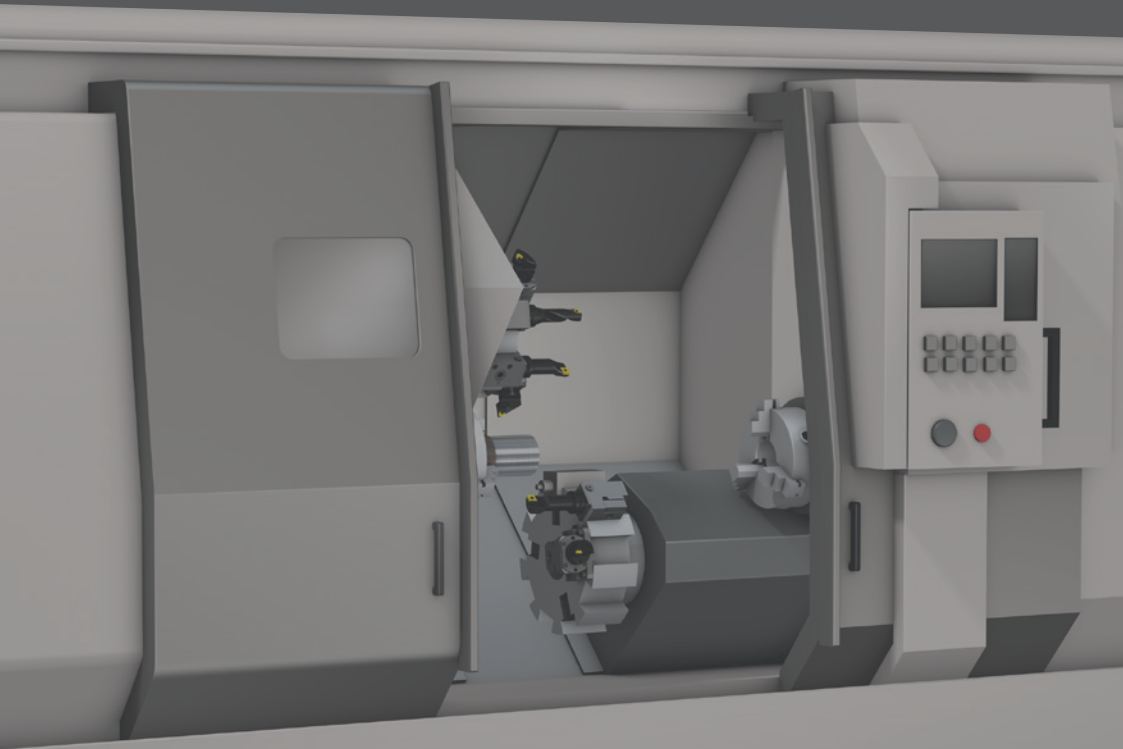

Quick change for CNC Lathes

USER'S GUIDE



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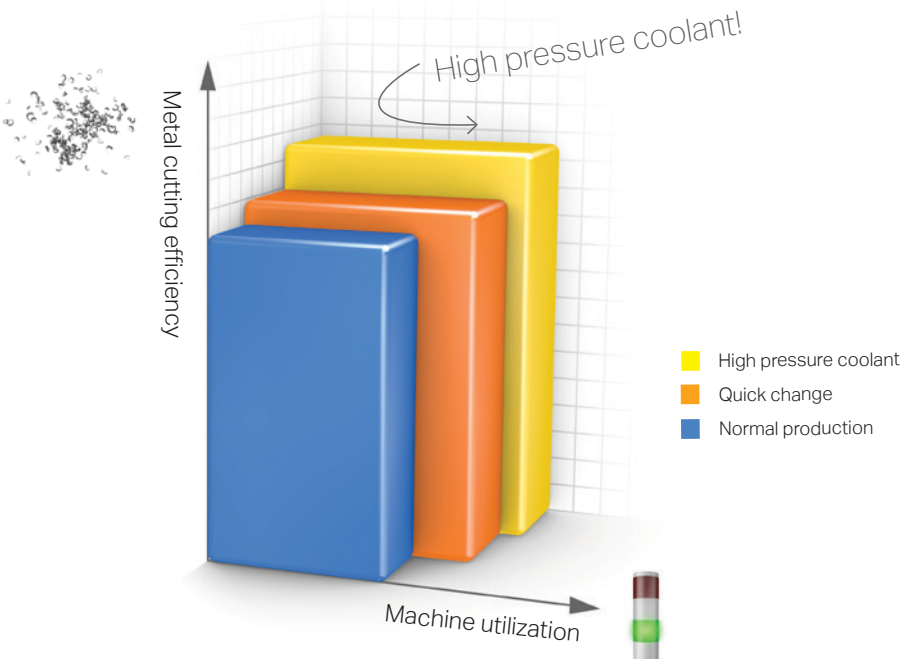
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Quick change

Making lathes more efficient

Using quick change for CNC lathe machines reduces the time needed for measuring, set up and tool change, increasing metal cutting production, Through-coolant delivery helps further maximize productivity.

To fully optimize metal cutting efficiency, equal consideration should be given to tool and machine selection.



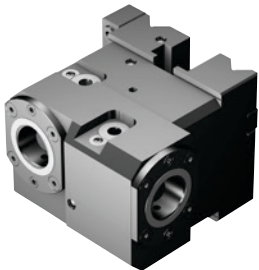
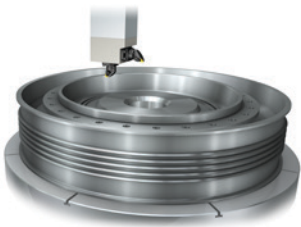
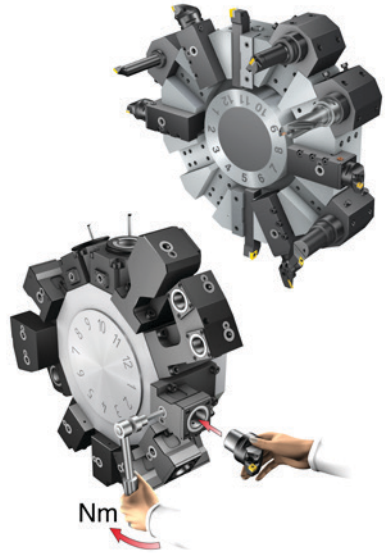
Quick change

Making lathes more efficient

Turning centres

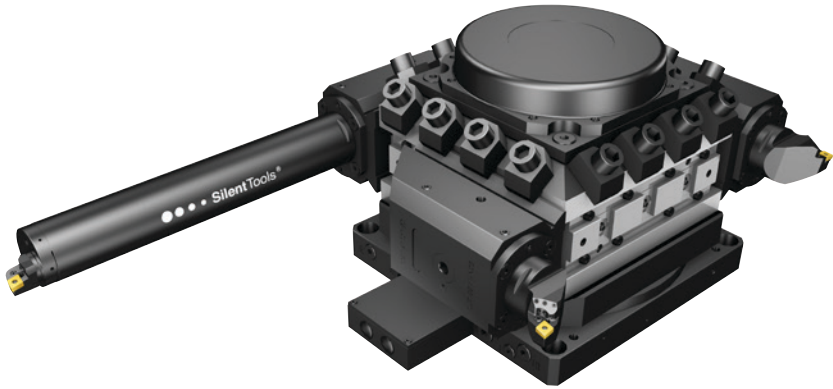
Turning centres offer fast tool indexing but typically have a lower utilization than machining centers due to the tool change and setup time. Quick change holders ensure the machine's green light is on longer.

Machine options such as sub spindle, Y-axis and half turret indexing allow for additional tool positions to be added to each turret position. This increases the number of tool positions for sister tooling and reduces tool changing.



Vertical lathes

Vertical lathes are widely available with automatic tool changers (ATC). For vertical lathes without ATC capability, tool blocks with quick change capability considerably reduce the tool change and set up time. Dedicated tool blocks with built-in clamping units can be supplied with the machine or easily retrofitted onto existing machines.

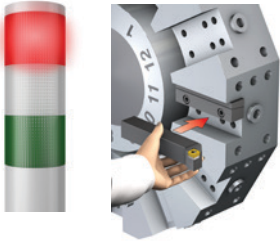


Heavy duty and flat bed lathes

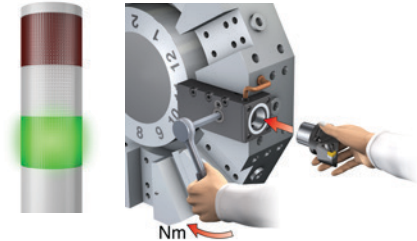
Without an ATC, these lathes have extremely high stability but slow tool indexing and changing. Shank tool holders are very heavy and often require a crane. Quick change is widely used with VDI DIN 69881 (dovetail) holders on flat bed lathes or dedicated clamping unit blocks on heavy duty lathes. With the limited number of tool positions, quick change has a dramatic effect on machine efficiency for these machines.

Key benefits

A more efficient choice over shank tools and conventional driven units with collets, using quick change can shave off almost 10 minutes in tool change time.



5-10 mins



30 secs

Increasing machine utilization

1. Use quick change to reduce your batch change-over time. See how it impacts each type of operation:

External turning

- Quick change saves approximately five to 10 minutes
- Time is increased when using shank tools with high pressure coolant.

Internal turning

- Quick change saves approximately five to 10 minutes
- Boring bars take longer than shank tools because of center height adjustments and internal coolant settings

Driven tool holders

- Quick change saves approximately five to 20 minutes
- Standard driven tools are either ER collets or arbor type tools
- ER collets have a limited tool diameter allowing only end milling (maximum diameter 25 with ER40).
- This can lead to low productivity unless two separate driven units are needed which increases the setting time and investment.

2. Increase the number of tool positions with double tool holders

when the machine has one or more of the following options:

- Y axis
- Half turret
- Sub spindle

Turning centers with driven tool holders often have limited space. Using double clamping units allows either sister tooling or an increased variety of tools thereby reducing the tool change requirement for a wider range of components.



3. Reduce downtime when changing worn out tools. See how quick change affects each type of tool holder:

Driven tool holders

- Solid carbide (takes five minutes)
- Every time a solid carbide tool is changed, the tool offset needs to be re-calibrated.
- Indexable drill/mill (takes five minutes)
- For multiple inserts, it is quicker to use the sister tool and change the cutter offline while the machine is running.



Static tool holders

- For single inserts with good accessibility it can go as quick to change directly in the machine. However being able to remove the tool ensures.
 - Improved maintenance of the tool
 - Correct mounting
 - No stoppages if you need to purchase spare parts (dropped screw, broken shim)





4. Eliminate coolant pipe setting

It varies from application to application, but when operators are setting the coolant pipe direction, it normally takes two to three attempts to get it right which keeps the red light on. Poor chip control often then knocks the pipe and then setting becomes a regular occurrence.



5. Quicker production start up

By eliminating the first test component or measuring cuts, scrap is reduced and the production rate increases. Compare it to the pit stop in motor racing. Over the course of a year, the use of quick change will result in significantly higher component production and reduced scrap.

First test component – higher volume production. The first component of every tool change is often scrapped and the tool change time needs to be considered as:

- change tool (keep old offset)
- cut complete part
- measure finished component
- adjust offset

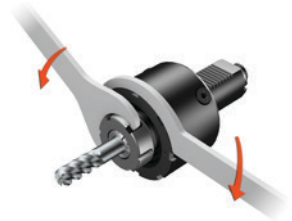
Measuring cuts – low/medium volume production. Taking a measuring cut with backed off offset ensures that the component is not scrapped but can take longer time. Tool change time needs to be considered as:

- change tool
- back off offset
- cut
- measure
- adjust offset

Improving operation conditions

User-friendly

- Changing the insert outside the machine reduces accidents and errors such as searching for dropped parts
- Eliminate coolant setting with fixed nozzle position
- Use Coromant Capto® instead of using ER driven tool holders to avoid the two “knuckle buster” wrenches.
- Offset dimensions in tool code – consistent for each size
- Only one version of coupling to reduce errors (ISO 26623)
- Refer to CAD drawings (.dxf) and 3D models (.stp) for clamping and cutting units for simulation at www.sandvik.coromant.com.



Versatile

- Modular solution makes it easy to build different tool combinations
- Large program of tools
- Next day delivery for orders
- Easy to standardize in all machine types

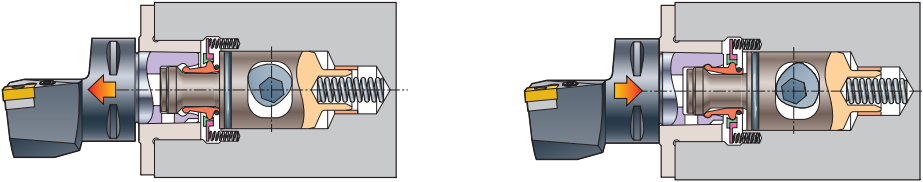


Ergonomic

- Lightweight cutting units – especially in VTLs and heavy duty lathes – where large shank tools (5050, 8080) are extremely heavy for handling which considerably increases the tool change time
- Units are easy to handle and store either at the machine or central location



Coromant Capto® quick change history and features

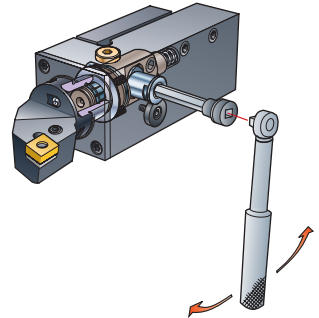


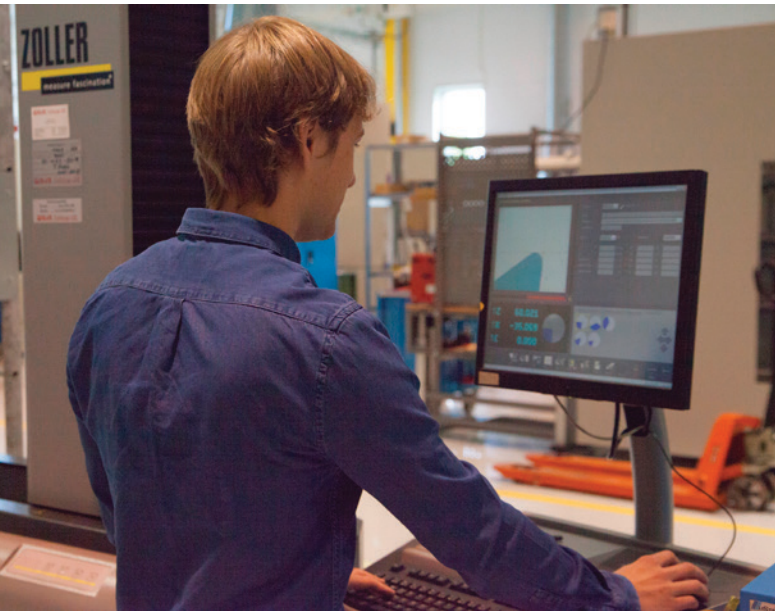
Introduced in 1990, Coromant Capto® has not undergone any modifications to the coupling design. In 2008, Coromant Capto became an ISO standard and is considered the industry standard for quick change on turning centers.

The cutting tool program has expanded over the years. Size C10 for heavy duty applications was added in 2010. The system ensures that machine utilization and metal cutting efficiency are maximized with a number of key benefits.

Segment clamping

The camshaft activated drawbar is used for both locking the coupling with segment clamping and for pushing out the cutting head. Only half a turn is needed to lock and unlock the manual clamping unit. The camshaft has a self locking angle and will not open during machining.

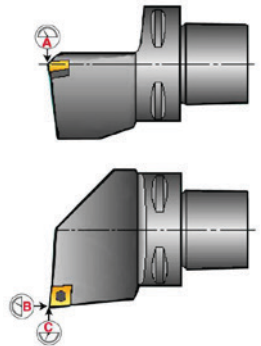




Repeatability and accuracy

The high precision of the coupling and the self-centering design ensures repeatable accuracy of less than \pm two microns in the X, Y and Z axes for one and the same cutting unit in the same female receiver.

This repeatability and accuracy allows for pre-setting outside the machine for high batch production or tool kits for batch change-overs. Both eliminate measuring cuts for faster start up time and reduced scrap rates.



Increased stability

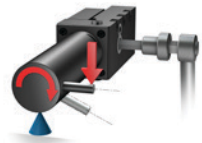
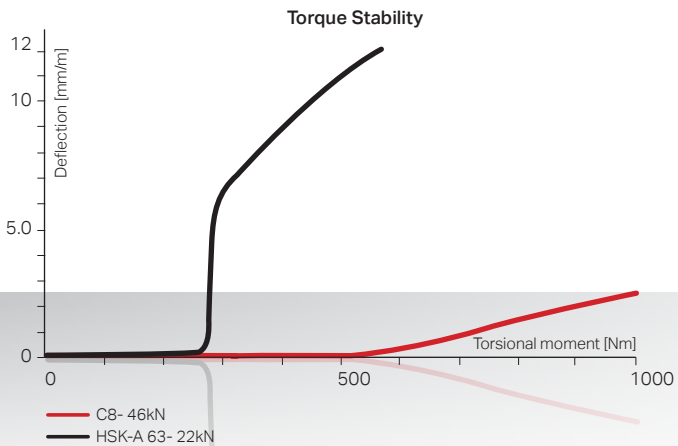
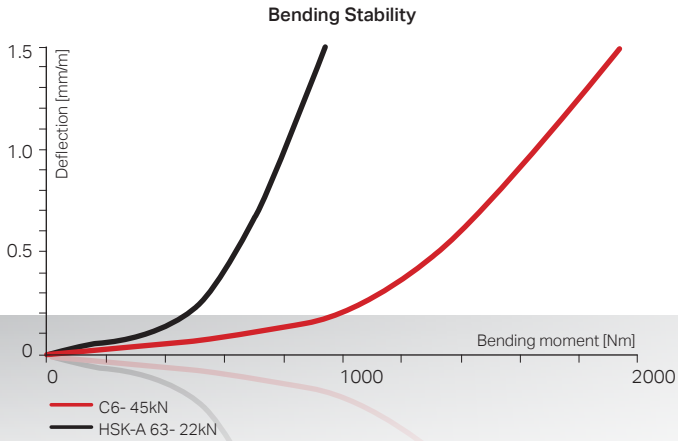
Stability is measured in terms of bending stiffness and torque transmission.



Key features of the Coromant Capto quick change include:

- **Face and taper contact** to resist bending and provide positional accuracy
- **Polygon coupling**, which offers a large contact area that transmits torque without any loose parts such as pins or keys. The torque load is spread symmetrically without peaks irrespective of direction with the polygon shape self centering for accurate tip seat center height.
- **High segment clamping force** ensures a press fit and a two-face contact that resists bending moments generated during cutting. When an external force is applied, a bending moment is the reaction causing the tool to bend.





In this example, the bending and torque stability between HSK-A 63 and Coromant Capto C6 was tested by the renowned RWTH Aachen University in Germany. The results show that the C6 has 2.88 times better resistance to the face opening up (from the moment it starts to bend) and 2.3 better torque resistance compared to HSK 63.

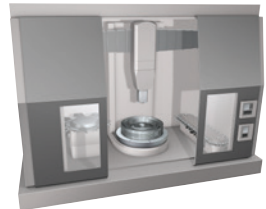
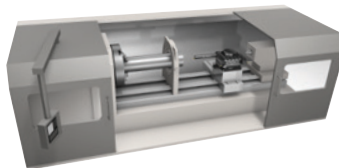
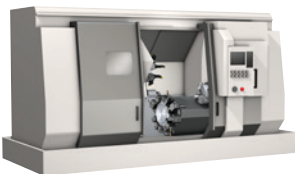
Clamping unit assortment

Coromant Capto sizes C3 through to C10 are all used for quick change on CNC lathes. The size is depending upon the machine size and cutting parameters. The following clamping units are available for the different machine and turret styles.

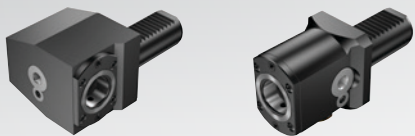


Coromant Capto size	Flange dia DCSFMS	Turning center - turret type				Flat bed lathe VDI 'Dovetail' (DIN 69881)	Vertical Lathe Ram size
		VDI (DIN 69880)	Shank	CBI Bolt on (hole dia)	CDI (hole diameter)		
C3	32	30	2020	40-55			
C4	40	40	2525	40-55-60-65-68	68		
C5	50	40-50-60	3225	60-68-75	80		
C6	63	60		75-85-110	80	115	250x250
C8	80					140	250x250
C10	100					140	350x350

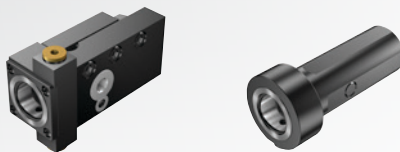
Vertical lathe ram interfaces vary and either the manual clamping unit block with Coromant Capto clamping units is supplied directly by the machine tool builder with the machine or it is ordered separately as a special block. Many vertical ram lathes today are equipped with an ATC and hydraulic clamping units.



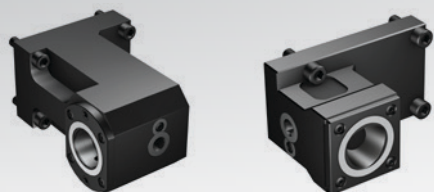
VDI-DIN 69880



Shank



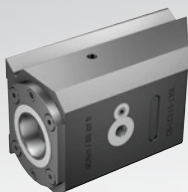
CBI (Bolt on)



CDI



Dovetail VDI-DIN 69881



VTL - machine



Coromant Capto® clamping units for Bolt on Interfaces (CBI)

Machine adapted clamping units (MACU) are available as standard products for the following machine tool builder's own turret interface designs:

- Biglia (BI)
- CMZ (MS)
- Doosan (DO, BT¹⁾)
- Mazak (MZ)
- EMAG (EM)
- EMCO (BT)
- FUJI (FJ)
- Goodway (MS)
- Haas (BT, OK)
- Hardinger (BT)
- Hwacheon (BT)
- Hyundai Wia (BT)
- DMG MORI (MS, GM)
- Romi (BT)
- Mori-Seiki (MS)
- Nakamura-Tome (NA)
- Muratec Murata (MA)
- Okuma (OK)

1) The BT interface is a common interface used by other machine tool builders.

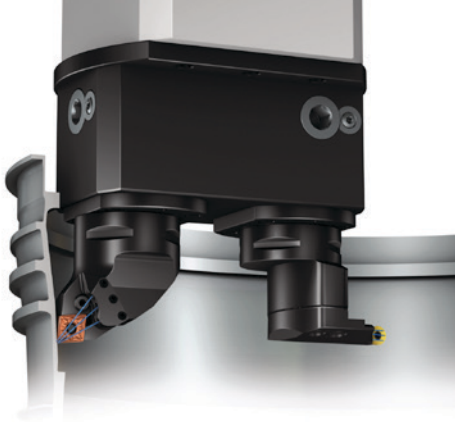


Coromant Capto® Disc Interface (CDI)

CDI was developed as a turret interface, which can be standardized as a replacement for VDI regardless of the machine type. The CDI turret option is available from the following machine builders:

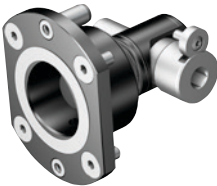
- Boehringer
- Emag
- Emco
- Famar
- Gildemeister
- Hessapp
- Index
- J.G Weisser
- Monforts
- Niles
- Pittler
- Takisawa



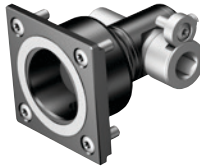


Nonstandard clamping units – clamping unit sets

Clamping unit sets are used to make clamping units to specific requirements. These are commonly used for tool blocks for vertical lathes, double units or retrofitting Quick Change onto existing turrets. The clamping set sleeves are available in different forms depending upon the application. Contact your local representative for more information.



General



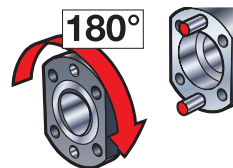
Square-double



Offset-boring bar applications

Sleeve rotation

The sleeve can be rotated 180 degrees to change the configuration from right to left hand or visa versa.



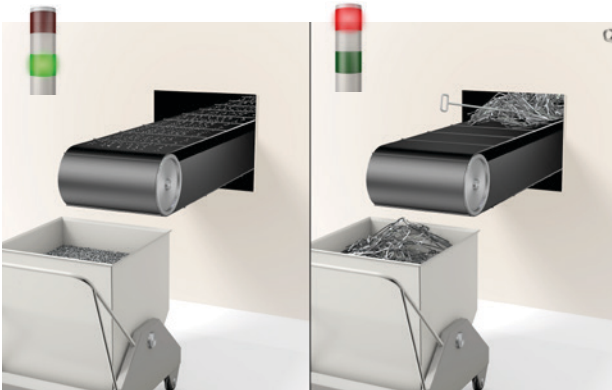
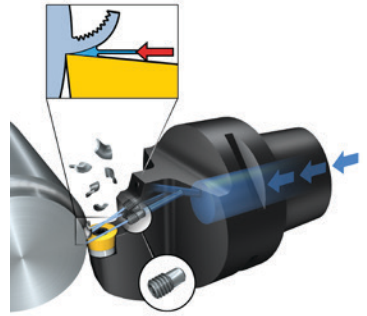
Increased metal cutting efficiency with Coromant Capto®

CoroTurn® HP for high pressure coolant

The majority of new machines have 35 to 80 bars as a standard option. Combining high pressure, optimized cutting tools and quick change significantly increases the return on investment due to:

- Fixed nozzle position – no need for operator setting removing stoppages and production variables
- Improved chip control – eliminate two of the biggest production 'time killers' when the red light is on
 - Fewer machine stoppages - long chips gathering around the tool or component
 - Continuous service – chips 'bailed' in the chip conveyor takes the machine out of action for hours or days
- Increased cutting speed – higher productivity

The one-time investment in quick change and high pressure system will be pay for itself in months and increase profitability during the life of the machine.

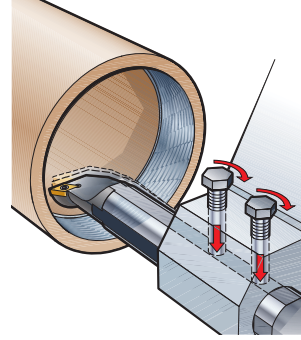


Boring bars and Silent Tools®

Boring bars present challenges with longer set up times (center height/length setting and coolant connection) and vibration with longer overhangs. The quick change function on a boring bar saves more production time compared to a normal external turning tool. When starting to implement quick change, it is not uncommon to start with just internal turning.

Long boring bars create extra issues with vibration and also collision risks when other tools are being used. Coromant Capto Silent Tools anti-vibration boring bars with cutting lengths up to $10 \times D$ can turn a potential problem into a competitive advantage.

TIP: For long boring bars, select the largest Coromant Capto size possible to get maximum stability from the coupling flange. (External clamping units do not need to be the same size as they are different tools anyway).



SL - Serration Lock modular system

Modularity is beneficial for two main reasons:

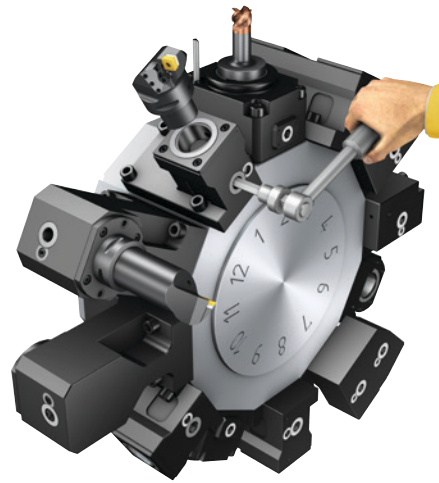
Combinations – A large range of combinations can be built with a relatively small number of adaptors and heads. This eliminates the need for most special tools ensuring that standard tools are always available even for some 'special' applications.

Cost reduction – Quick Change holders are more expensive than a shank tool or boring bar. Using SL heads on some of the higher risk applications helps to keep tool spend the same as for shank tools in the long run.



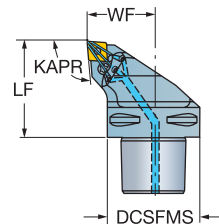
Coromant Capto® short

Each machine has a maximum turret swing diameter. All external tool projections need to be within this diameter to allow the turret to rotate without collision. Turning cutting units have a common length and offset dimension for each Coromant Capto size. The clamping units for each machine turret interface are designed so that the standard cutting units fit within the turret swing diameter.



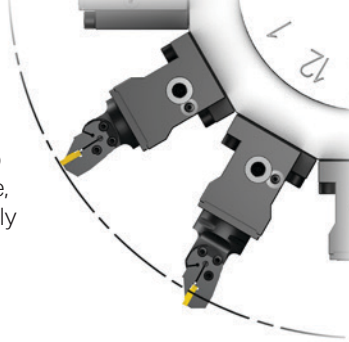
When using face milling holders on driven tools, it is also advised to keep the tool as short as possible. However, this is mainly for stability reasons rather than the swing diameter. The bearings on a driven tool holder are much closer together than a machining center. The short gauge line reduces vibration, boosting productivity with increased security.

Coromant Capto size	Flange diameter DCSFMS	Length LF	Offset WF
C3	32	40	22
C4	40	50	27
C5	50	60	35
C6	63	65	45
C8	80	80	55
C10	100	110	68



Note: External clamping units for revolvers are limited to maximum size C6 Tolerance on LF and WF is $\pm 0.15\text{mm}$.

For external tools which exceed these LF dimensions, the turret swing diameter can often be a limitation. For applications requiring tool penetration, Coromant Capto short tools are available to provide the shortest gauge line and fit within the turret clearance, they have no gripper grooves and are for manual tool change only including:



- Drilling - ER collet chucks
- End milling - CoroMill EH and ER collet chucks
- Parting/grooving - CoroTurn SL adaptors

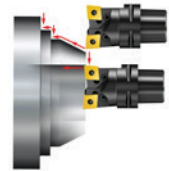


With larger cutting depths, the size and stability of the coupling is an important consideration. Radial forces are considerable, such as when using shoulder and face mills, particularly with long gauge length cutters. Coromant Capto enables a common tooling platform regardless of the type of machine interface. As many machines have coolant pressures of 70-150 bars (approximately 1015-2176 psi) as standard, this supports the use of high-pressure coolant, which is important for titanium machining. In addition, the coupling provides stability, minimizes deflection for all cutter types, and helps contribute to productivity, which lowers the overall cost per pocket.

TURBO bars (TURning and BORing)

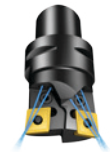
Two cutting edges on one tool for turning and boring for:

- Reduced indexing – three seconds per index saved
- Reduced maintenance
- Increased space for sister tools for longer run times



Available as standard product as:

- C4, C5, C6 with two x CNM* 12 inserts
- C5, C6, C8 with two x SL couplings to be able to use the complete range of the SL head program allowing turning, threading and grooving.



The same tool call up number is used but with two different offset numbers, for example:

- T0101 - OD turning
- T0121 - ID turning





Working with quick change from planning to production

Adoption of quick change is a decision to optimize the machine utilization ensuring maximum production output is as high as it can be. Combining quick change with efficient metal cutting ensures that a machine reaches maximum productivity output. For successful implementation it is important to consider the best way to work inside and outside the machine.

Pre-measuring and tool kits

Quick change can be compared to a pit stop in a Formula one race. When the machine is stopped for changing, all preparations should be complete and available in line with 5S lean manufacturing: Sort, Systemize, Sanitize, Standardize, Sustain

- Replacement tools should be stacked and with offsets available
- Necessary torque wrenches and insert keys are at hand

Preparing the tool offsets are generally done by pre-measuring outside the machine or by using tool kits.



Pre-measuring unit

- Enables pre-setting of Coromant Capto cutting units in measuring machines with steep taper size 50.
- Coromant Capto interface: C4, C5, C6 and C8
- Two ball datum point allows for quick calibration on pre-setting machines.
- New front mounted segment clamping design (patented), allows quick change with integrated polygon providing better precision than a sleeve solution.



Tool kits

Tool kits are used more for batch production where the styles of tools are changed depending upon the component being produced. At the end of each component the tools are removed with tool position and offset saved and stored in a tool kit together with the fixtures. When that component is to be machined again, the tools go back into the same clamping unit and with the repeatability of \pm two microns the first part is cut accurately in the shortest possible time.



Machine options

There is a wide range of machine options which will affect which clamping units are best. The type of components being produced obviously determines the requirements. Careful consideration of both the machine and options will ensure an optimal process.

Tool holder offset function

Turning centers often have an optional tool holder offset function. This allows the machine operator to set offset values on each tool holder, so that correct values can be applied for the cutting tool itself. With additional software, these calculations can also be done on some presetting machines as well.

Turret interface options

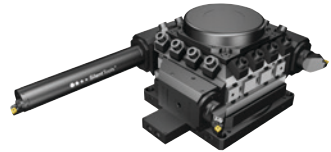
The two traditional types of turrets, Shank and VDI, were developed when turning centers only carried out turning and center line drilling operations. The development of the driven tool holders has reduced their suitability for multi-functional turning centers but the VDI dovetail is still the most robust for heavier applications on flat bed lathes.



Shank



VDI (DIN 69880)



VDI (DIN 69881)

Bolt on turrets are well suited for multi-functional turning centers thanks to the additional room inside the turret for the driven tool holder bearings. This provides the best stability and shortest gauge lengths.



CBI - Bolt on interface



CDI

The bolt on interfaces are unique to each machine tool builder. The machine adapted clamping units (MACU) suit the specific machine model.

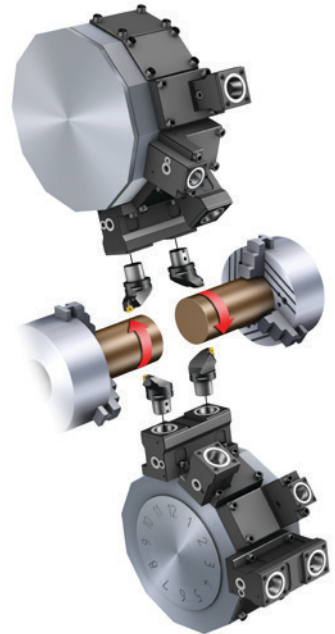
CDI (Coromant Capto disc Interface) was developed as a turret interface which can be standardized on regardless of the machine type. European machine builders mostly supply CDI as a replacement to VDI.

Sub spindle

To be able to complete a part, often machining from both sides is required. Sub spindles are often used in combination with a bar feed, allowing for unmanned production of completed parts is possible.

Lower revolver

For higher volume production, the lower revolver can halve the cycle time compared to a single revolver. Typical applications are long slender components like shafts and machines with sub spindles. The drawbacks of the lower revolver are reduced component diameter and increased programming and set up time. This makes it suitable mainly for turning centers bought for dedicated components.



Driven tool

Driven tools allow for milling and drilling operations. Without a Y axis, just two axis operations can be carried out, e. g. keyway slots or holes on the center line. To be able to mill pockets or drill off center line then a Y axis option is needed. For drilling operations it is best to use DTHs with internal coolant supply and high pressure coolant to provide the best chip evacuation and process security.



Y axis

The Y-axis option allows for the use of driven tools for three axes milling and drilling off center line. Most features requiring milling operations benefit from Y-axis. The added benefit is that double turning positions can be added thereby increasing the number of tools for sister tooling or increased variety of holders reducing the need to change tool holder styles.



Half turret indexing

Half turret indexing allows double turning positions to be used increasing the number of tools. This option is not required if a Y-axis is available so it is generally selected on turning centers without driven tools.



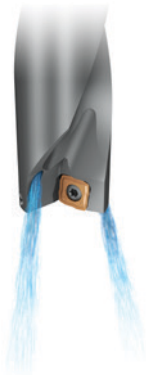
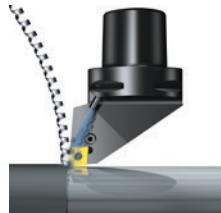
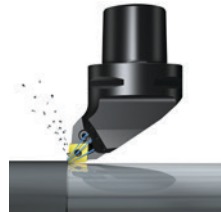
High pressure coolant (HPC)

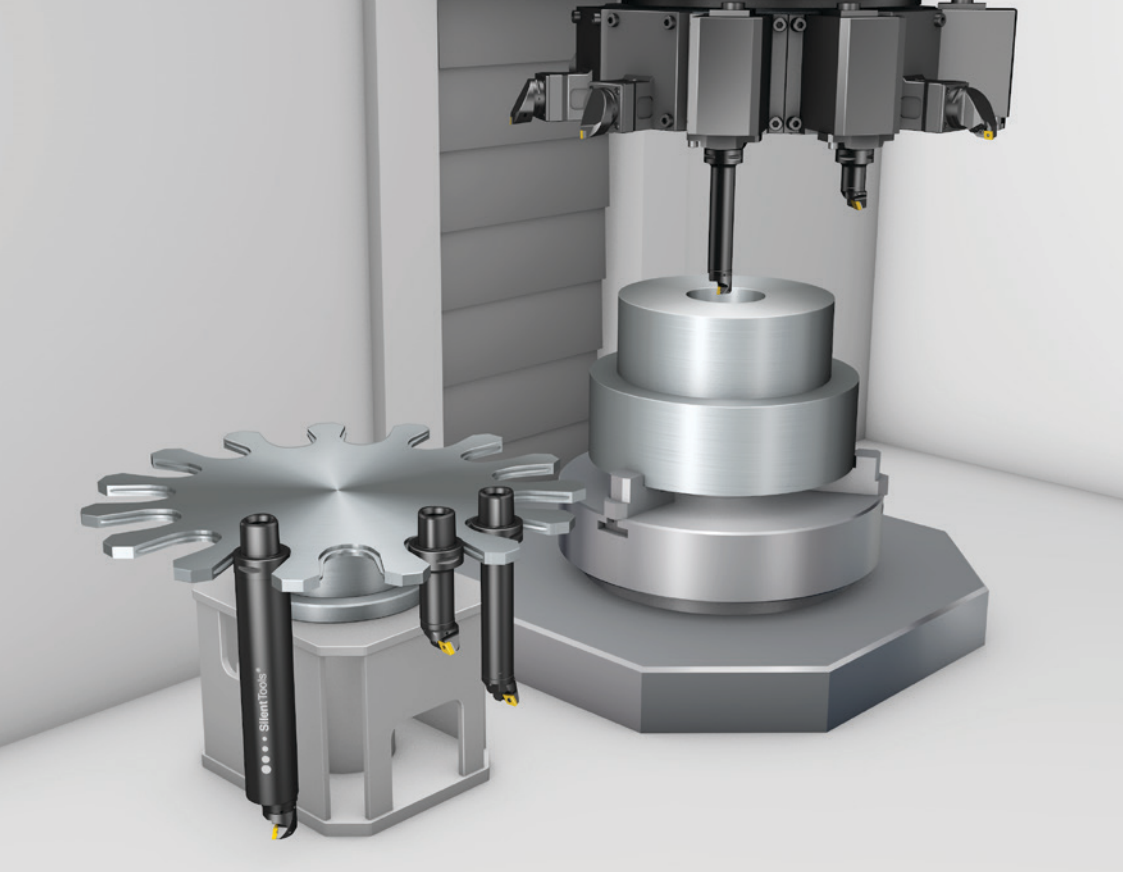
Most machines now offer a HPC capability around 70 bars. The benefits are great for both turning and drilling operations and offer quick payback due to increased machine utilization and increased metal cutting efficiency. Chip 'bird nests' around tools and 'bailing' in the conveyor are common causes of machine stoppages.



System requirements to consider include:

- Filter – 20 microns.
- Pressure – the pressure requirement to break the chip varies depending upon the material and the cutting parameters but 70 bars is adequate for most applications.
- Flow – the flow required is driven by the number and diameter of coolant outlets.
- Turning - Using CoroTurn HP the flow requirement of 20 litres/min.
- Drilling - with internal through coolant
- Through coolant helps with chip evacuation preventing chip jamming in the flute. The coolant hole diameter increase with the drill diameter meaning that a higher flow rate is needed for larger diameter drills. A variable pressure pump is recommended.



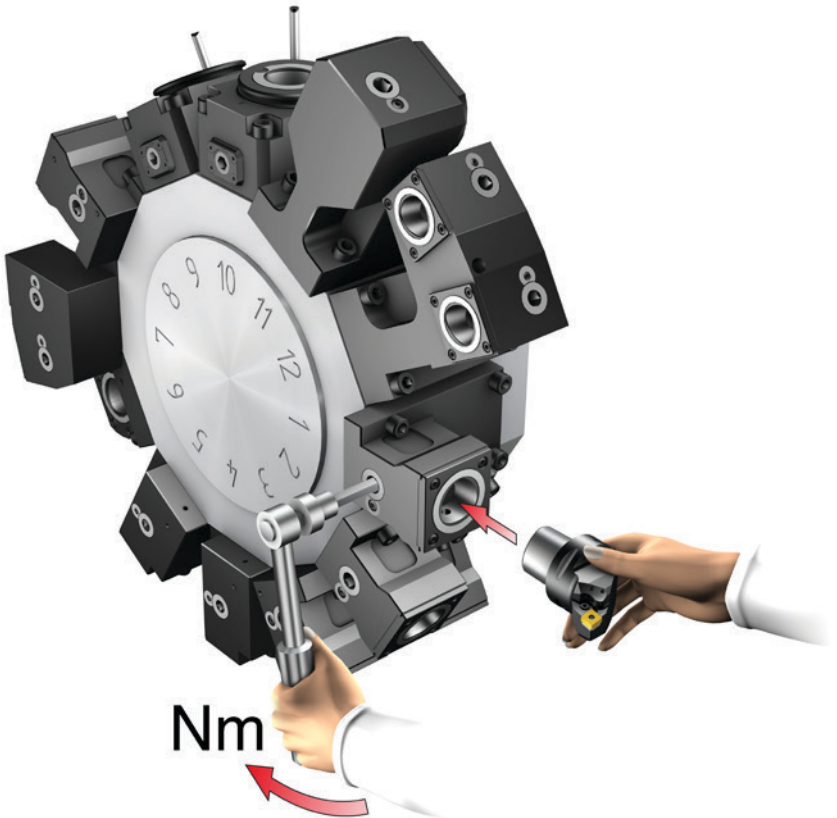


Automatic Tool Changers (ATC)

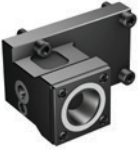
Turning centers have developed in many ways with Y-axis, multiple revolvers, sub spindles, etc. However changing of tool holders and worn inserts is traditionally a manual intervention. For larger vertical turning centers, automatic tool change option with Coromant Capto® is available with a disc magazine. This offers advantages for long boring bars and unmanned production. This trend will likely continue with horizontal turning centers using a gantry load system which will increase the machine efficiency especially for unmanned production.

Clamping unit styles and options

The machine options selected or available will dictate which clamping units are possible to use for each machine. For bolt on turrets, the wide range of styles of machine adapted clamping units (MACU) allow operators to really tailor and optimize the turret to the type of components being machined within the machine option capabilities.



External – OD turning



Cx-TRE-xxxxA
Single external



Cx-TRE-xxxxA-DT
Double for sub
spindle



Cx-TRE-xxxxA-YT
Y axis



Cx-TRE-xxxxA-TT
Half Turret



Cx-TRE-xxxxA-ET
Single extended



Cx-TRE-xxxxA-DE
Double extended



Cx-TRE-xxxxA-SP
Short projection



Cx-TRE-xxxxA-DY
Double Y-axis

Internal – ID turning/drilling



Cx-TLI-xxxxA
Single internal



Cx-TRI-xxxxA-SS
Sub spindle



Cx-TLI-xxxxA-DT
Double for sub
spindle



Cx-TRI-xxxxA-YT
Y axis



Cx-TRI-xxxxA-TT
Half Turret



Cx-TRI-xxxxA-DY
Double Y-axis



Cx-TRI-xxxxA-XT
Double X-axis

E = External coolant
I = Internal coolant

Driven toolholders



Cx-DNE-xxxxA-E/I
OD milling/drilling



Cx-DNI-xxxxA-E/I
ID milling/drilling



Cx-DNI-xxxxA-DTE
ID milling/drilling -
Double

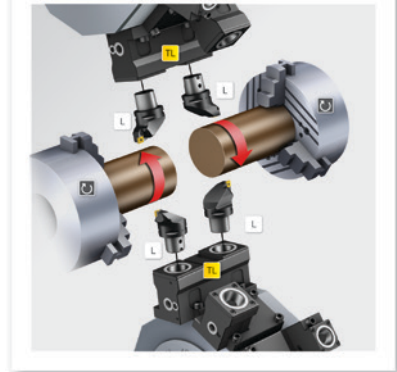
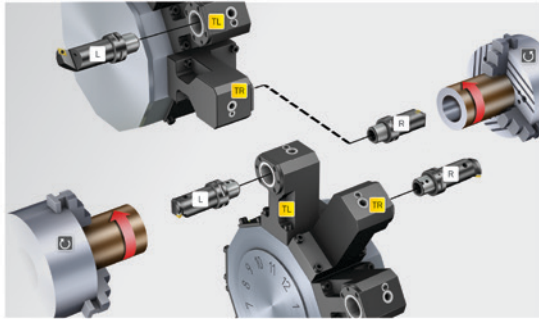
Parting blade holders for CoroCut QD



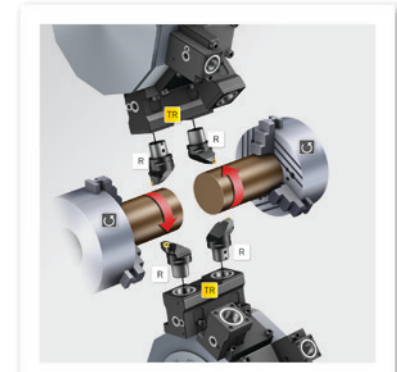
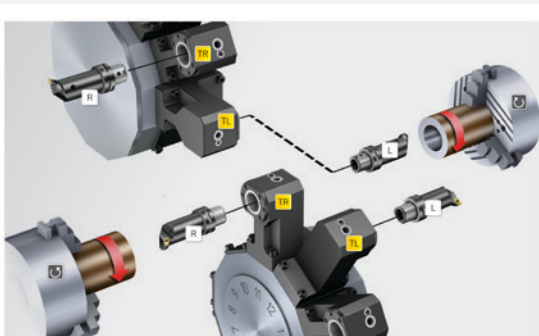
APBR/L-xxxxA-
25-HP
Parting blade
adaptor

E = External coolant
I = Internal coolant



Selecting Correct Clamping Unit Configuration



Single version also left hand



Single version also right hand

- R** Right-hand cutting unit
- L** Left-hand cutting unit
- TR** Right hand clamping unit
- TL** Left hand clamping unit
-  Clockwise spindle rotation (M04)
-  Counter clockwise spindle rotation (M03)

Left hand for
clockwise
Right hand for
counter clockwise

Driven tool holders (DTH)

Operation instructions

Coolant requirements

- Coolant filter max 50 μm (0.002 in).
- DTH with internal coolant supply must not be operated without coolant – Coolant must be turned on and present before tool rotation. Running dry will damage the internal seals. Seal damage is not covered under warranty.
- For machining cast iron, only external coolant design should be used.
- All DTH's with IC (internal coolant supply) are specified for a max coolant pressure of 80 bars up to their maximum n (6000 rpm).
- For drilling operations it is best to use internal coolant DTHs with high pressure coolant.



Break in period

A break in period for DTH is essential for long life. Running the DTH for a break in period removes the intensified friction in all of the internal components and helps to distribute the lubrication applied during assembly. Attention: Run DTH at 50% of maximum output rpm for one hour without load. The max rpm is specified on the DTH. For DTH with internal coolant, apply coolant even during the break in period.

Service interval

The life expectancy of a DTH is application dependent. Periodically, perishable parts such as bearings and seals will need to be replaced. Operating under normal conditions with two shifts we recommend to send the DTH for service after one year. When operating under three shifts or heavy conditions or high RPM a more frequent inspection is recommended.

It is recommended that maintenance is done by Sandvik Coromant.

Service time is up to three weeks - ensure back up or schedule service.

For this reason it is good to standardize on the same unit (Cx size and internal or external coolant) for:

- OD/External – often this is for just milling operations and internal coolant is not needed.
- ID/Internal – often used for some drilling operations and internal coolant is recommended.



OD/external



ID/internal

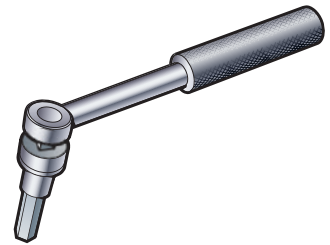
Accessories to be considered for quick change

Torque Wrench

Always to be used for clamping and unclamping the cutting units in the machine and the pre-measurement fixture. This is recommended to prevent any damage to the cam shaft but also clamping force to ensure consistent repeatability. The correct clamping torque is marked on each clamping unit.

Torque wrench	Coromant Capto size	Key size mm	Key adaptor
C-TK-01M	C3*	5	5680 035-08
C-TK-01M	C3	8	5680 035-05
C-TK-01M	C4	10	5680 035-06
	C5	12	5680 035-07
	C6	12	5680 035-07
C-TK-02	C8	12	5680 035-07
C-TK-03	C10	17	5680 035-10

* C3 Driven tools only



Cover Plug

When you have clamping units in the turret and not in use, always have a tool or cover plug clamped to protect the ground surface of the polygon sleeve from dirt or damage. The following plugs are available:

- Cx-CP01 - manual clamping with segment clamping
- Cx-CP11 - NC3000 units using center bolt clamping
- Cx-CPA-01 - automatic tool change (ATC)

When the clamping units are stored, the plug should also be clamped slightly. Ensure they are cleaned and greased to protect them from rust.

Cx-CP01



Cx-CP11

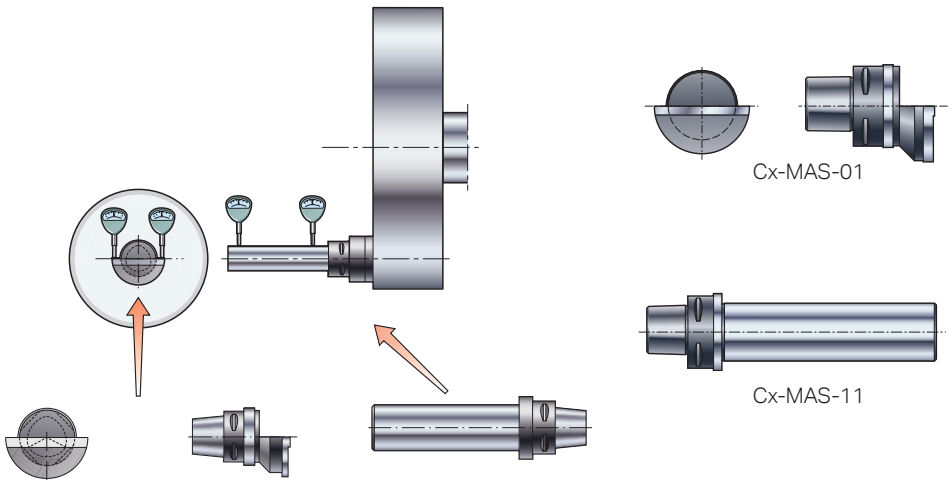


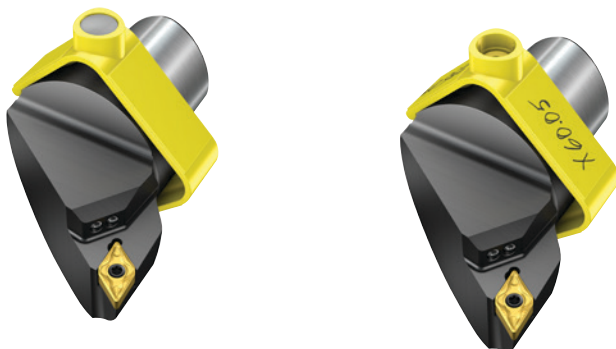
Cx-CPA-01



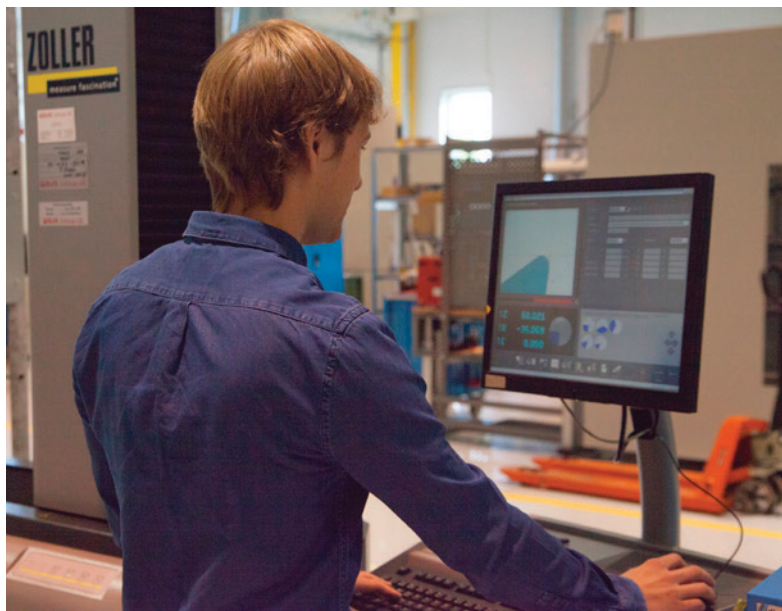
Master Gauge

- Cx-MAS-01 - To qualify the datum position on all clamping units and pre-measuring units
- Cx-MAS-11 - For clamping unit alignment which is important for drilling





Simplify data transfer and drastically reduce tool change time with Coromant Capto pre-measuring clips. Available for Coromant Capto sizes C3-C8.



Tool storage

Working with tool kits and sister tooling provides savings in batch and tool change over time. It is important to have the replacement tools or kits close at hand. The tool storage wagon is used mainly for tool kits for batch production and for transport when using a central pre-setting facility. The wagon kit (CCW-KIT) is delivered with four tool cradles.

The bench stand is for sister tooling or when pre-setting is done at the machine using the pre-measuring fixture. The bench stand kit (BS-KIT) is delivered with three tool cradles.



Tool storage wagon

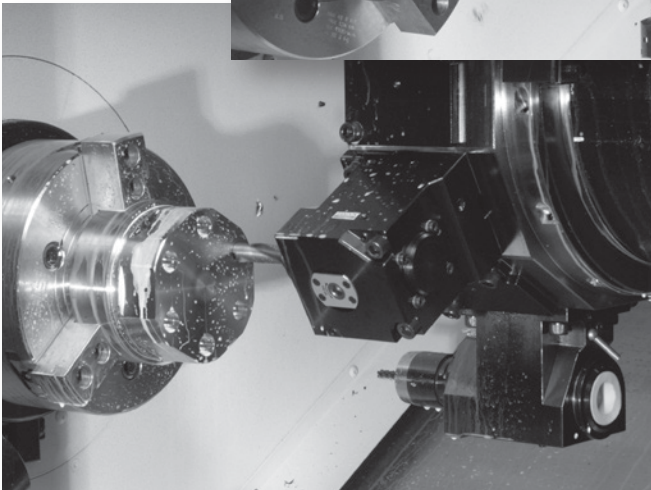
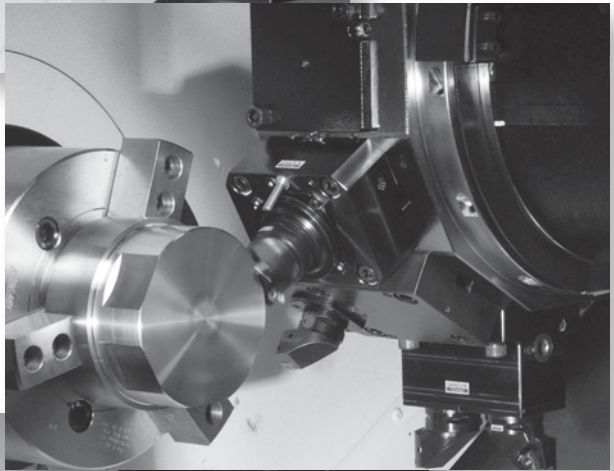
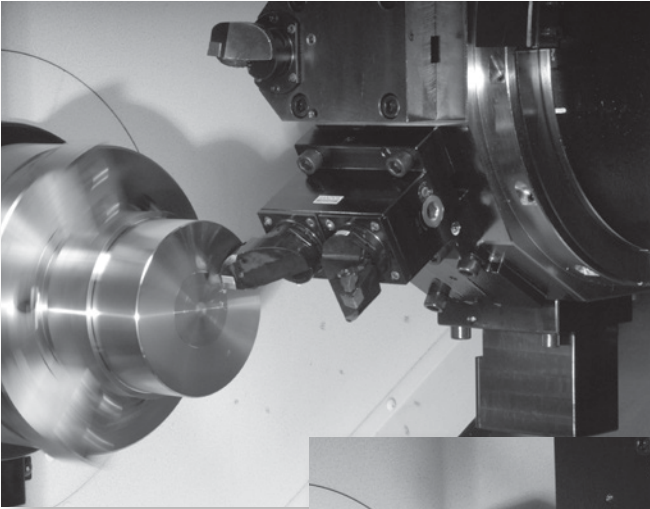


Bench stand

Tool holders

Molded tool holders for each Coromant Capto size are ordered separately. These universal holders fit both the tool cradles (for the wagon) and the bench stand. They are made from ABS high impact oil resistant plastic.

Ordering Code	Description	
CCW-KIT	Wagon kit 990x508x927 mm	
BS-KIT	Bench stand kit 660x500x395 mm	
Tool holders		# holders/cradle
C3-IC-1	C3	9
C4-IC-1	C4	9
C5-IC-1	C5	8
C6-IC-1	C6	6
C8-IC-1	C8	5
C10-IC-1	C10	4
Accessories		
TC-0	Tool Cradle	
TCC-2	Pair of Cradle Carriers	



For more information contact your local
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