

TTS SERIES

TTS 38 / TTS 46 / TTS 52 / TTS 66 MODELS



Turning the world

AVAILABLE OPTIONS

TTS SERIES

TTS MODEL

Left Spindle

- Ø38
- Ø46
- Ø52
- Ø66

Right Spindle

- Ø38
- Ø46
- Ø52
- Ø66

Upper Turret

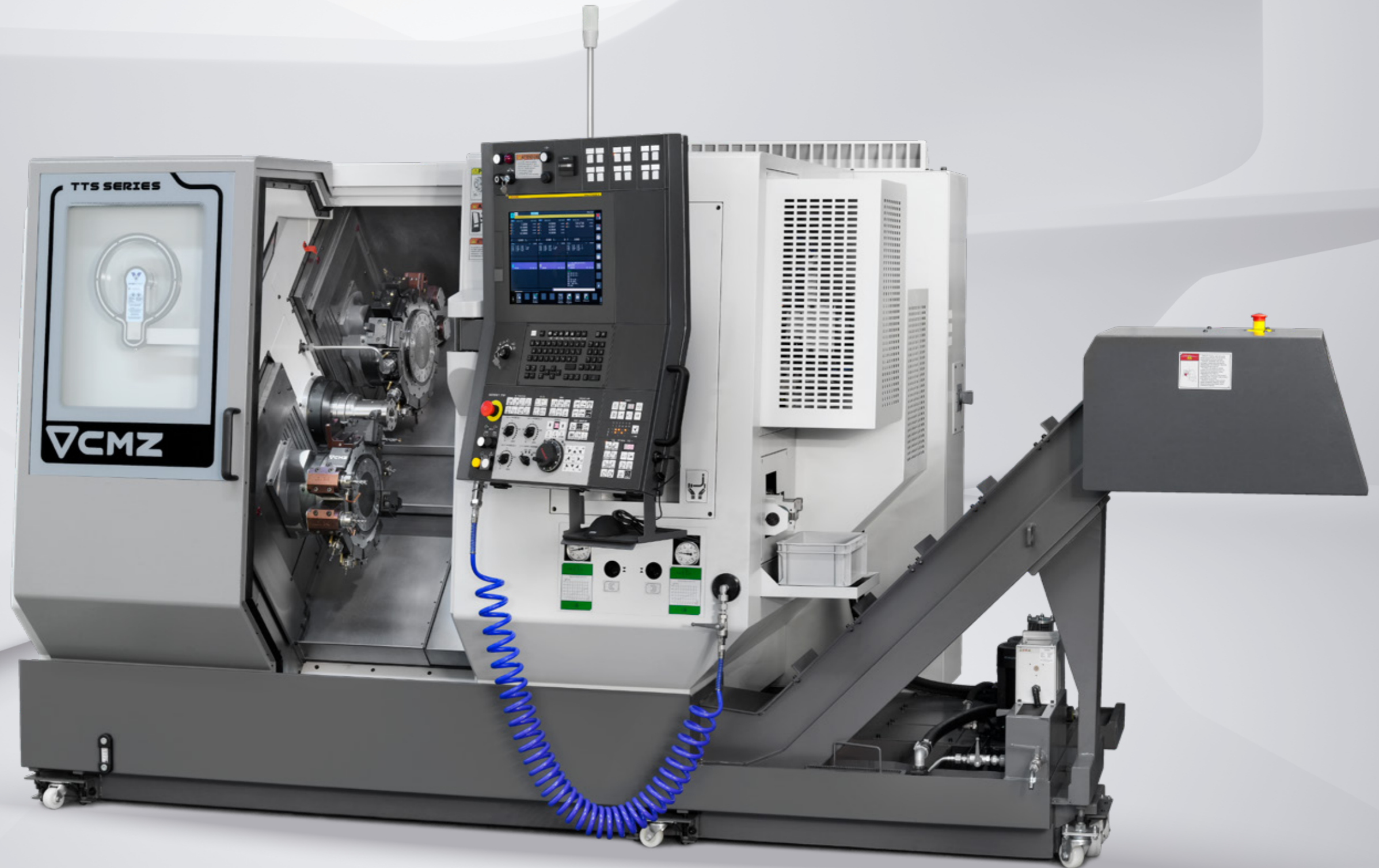
- Without driven tools
- With driven tools
- With Y axis

Lower Turret

- Without driven tools
- With driven tools
- With Y axis

Without Lower Turret.

It is possible to purchase the machine with only the upper turret.

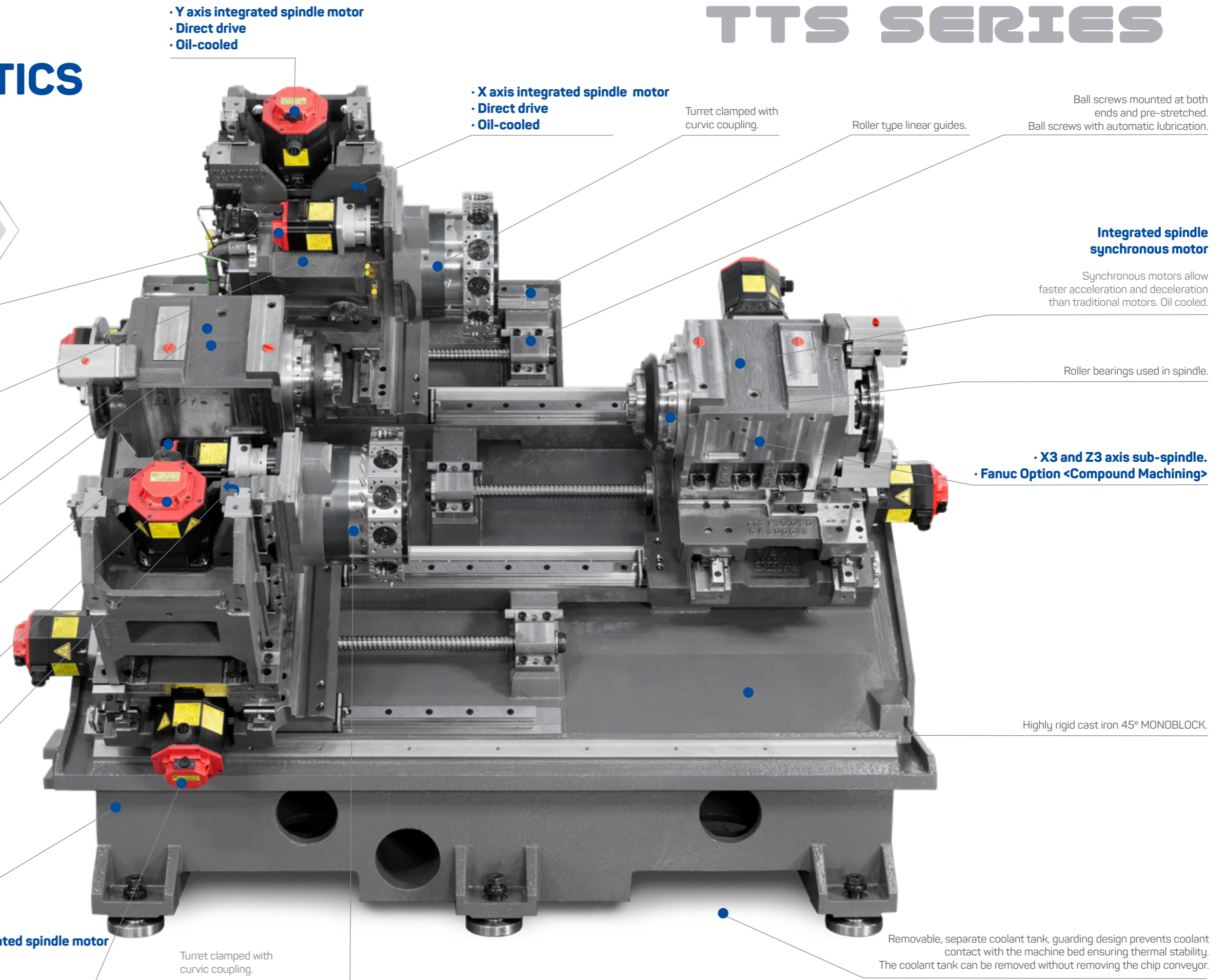


TECHNICAL CHARACTERISTICS

TTS SERIES

TTS MODEL

**Machine without belts.
Direct drive for all motors.**



• Y axis integrated spindle motor
• Direct drive
• Oil-cooled

• X axis integrated spindle motor
• Direct drive
• Oil-cooled

Turret clamped with curvic coupling.

Roller type linear guides.

Ball screws mounted at both ends and pre-stretched. Ball screws with automatic lubrication.

Integrated spindle synchronous motor

Synchronous motors allow faster acceleration and deceleration than traditional motors. Oil cooled.

Roller bearings used in spindle.

• X3 and Z3 axis sub-spindle.
• Fanuc Option <Compound Machining>

FANUC Servo Motor for turret indexing.

Integrated spindle motor for driven tools 13 kW, 26,8 Nm, 12,000 rpm

Oil-cooled turret.

Integrated spindle synchronous motor

Synchronous motor allows faster acceleration and deceleration than traditional motors. Oil-cooled.

Roller bearings used in spindle.

FANUC Servo Motor for turret indexing.

Integrated spindle motor for driven tools 13 kW, 26,8 Nm, 12,000 rpm

• Y axis integrated spindle motor
• Direct drive
• Oil-cooled

Oil-cooled turret.

Thermal sensor in the bed

Controls the temperature of the oil that cools:

- The spindles.
- X and Y integrated spindle motors.
- X3 axis ball screw mounts.
- The turrets.

• X axis integrated spindle motor
• Direct drive
• Oil-cooled

Turret clamped with curvic coupling.

Highly rigid cast iron 45° MONOBLOCK.

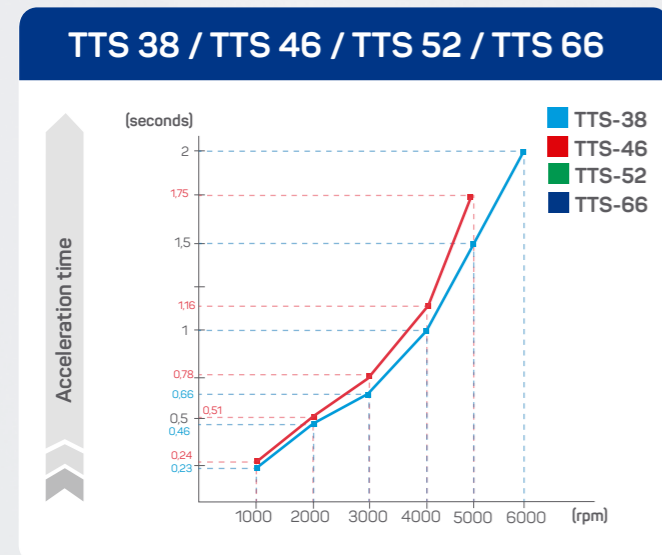
Removable, separate coolant tank, guarding design prevents coolant contact with the machine bed ensuring thermal stability. The coolant tank can be removed without removing the chip conveyor.

INTEGRATED SPINDLES WITH SYNCHRONOUS MOTORS

TTS SERIES

- SPINDLE REMAINS COOL
- REDUCED THERMAL EXPANSION
- SUPERIOR PRECISION

ACCELERATION TIME



No pulleys or belts

- No belt slippage
- Better surface finish
- Lower noise level
- Less maintenance

Hydraulic cylinder at 45kg/cm²

- More compact (Reduced cross-section means higher clamping speed)
- Greater sensitivity for light clamping

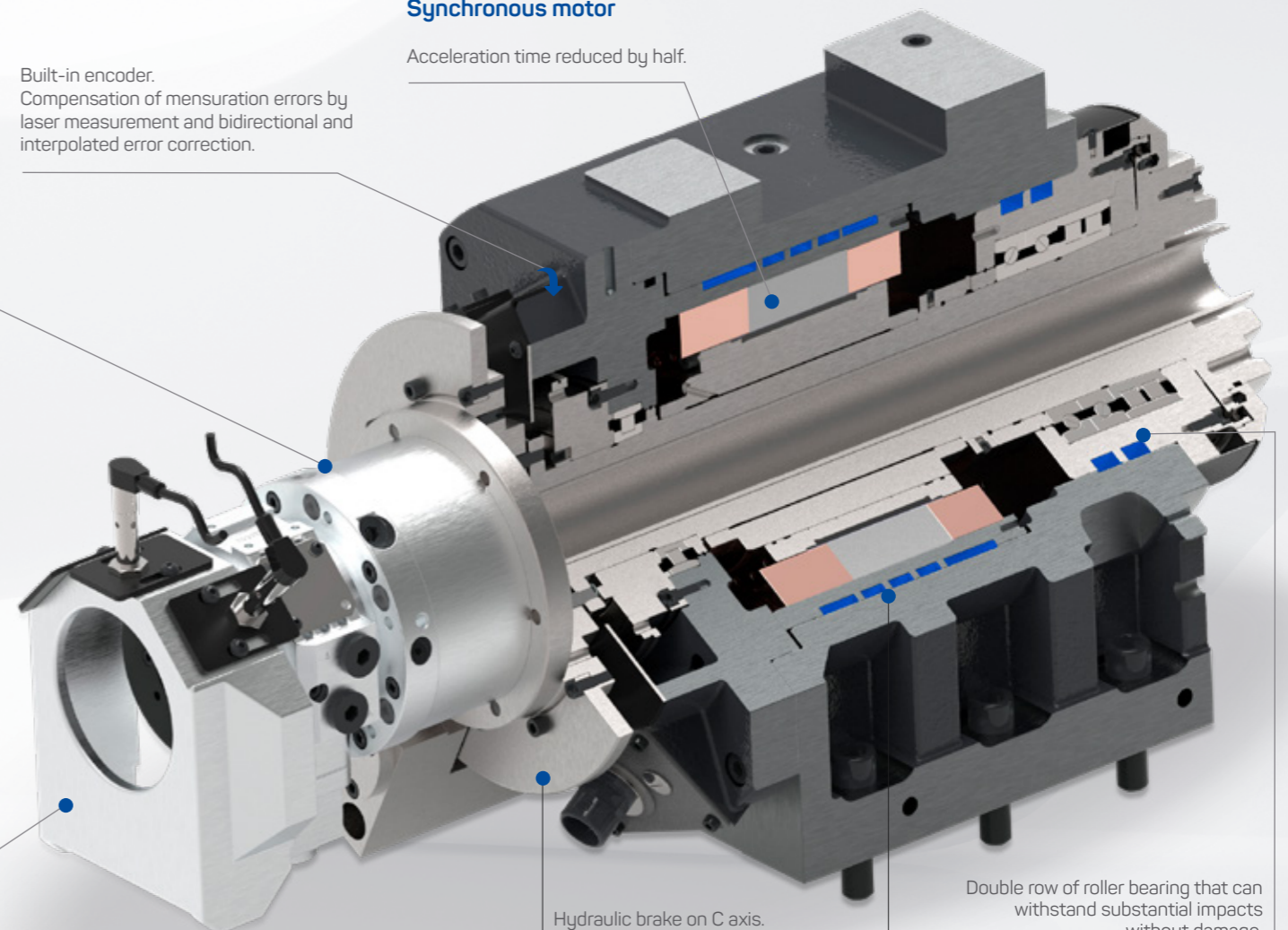
Special coolant collection tray manufactured by CMZ

- Excellent access to adjust the detectors.
- Easy chip removal.
- Protection against coolant entering into the hydraulic circuit.

Built-in encoder.
Compensation of mensuration errors by laser measurement and bidirectional and interpolated error correction.

Synchronous motor

Acceleration time reduced by half.

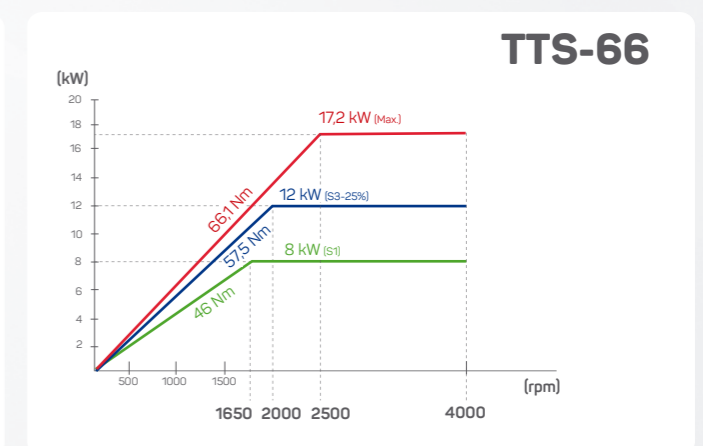
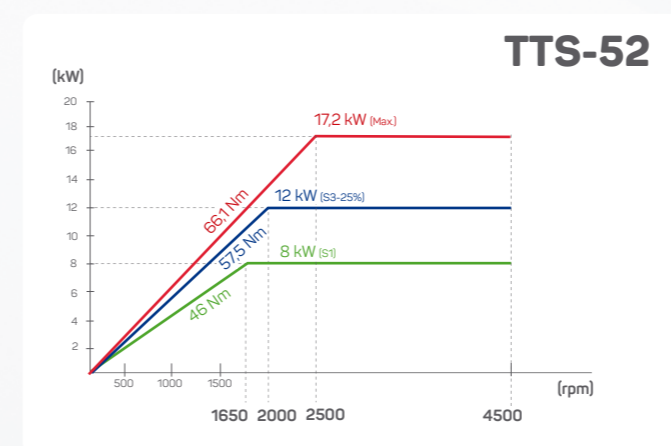
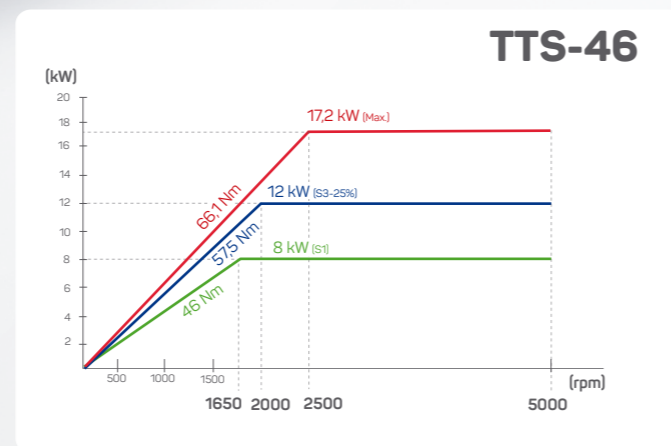
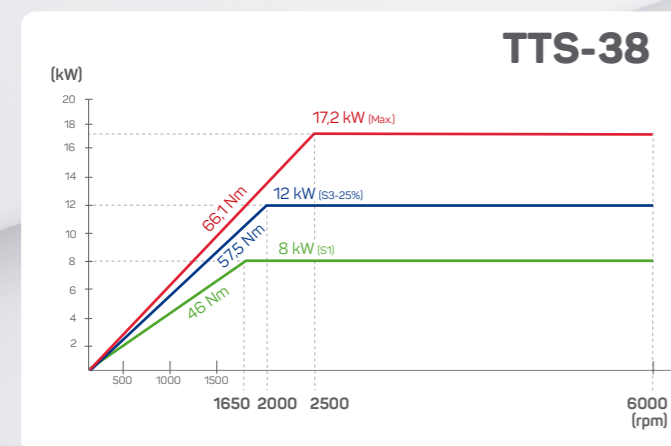


Spindle and bearings cooled by oil.

Double row of roller bearing that can withstand substantial impacts without damage.

Greater rigidity, accuracy and durability

POWER AND TORQUE DIAGRAMS



TURRET WITH 12,000 rpm DRIVEN TOOLS

TTS SERIES

Indexing time
150 ms

The turret changes a position (30°) in 150 ms and indexes to the furthest position (180°) in 440 ms

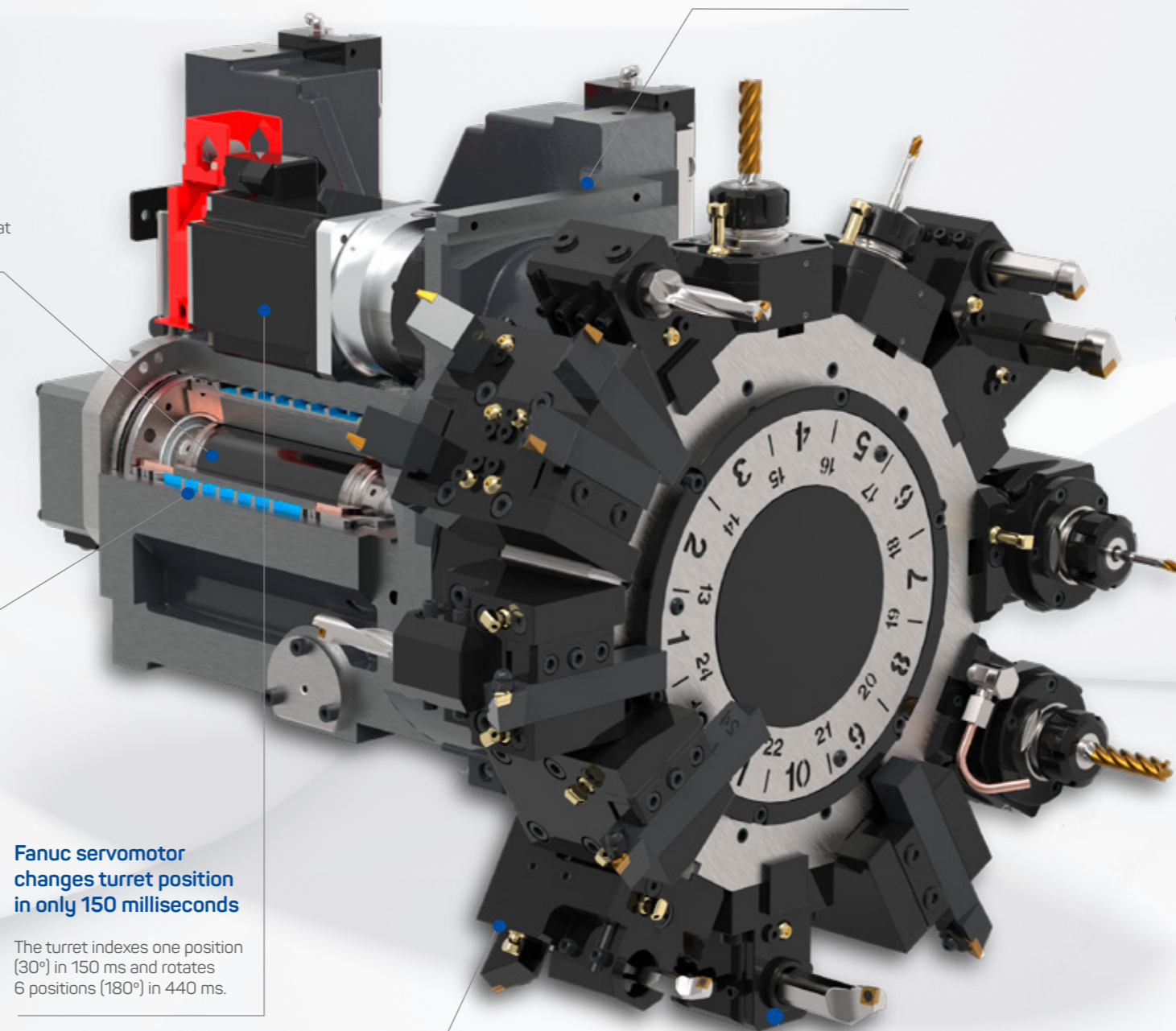
24
POSITIONS

Built-in motor for driven tools

Decreased vibrations at higher spindle speeds.

Motor and turret cooled with oil

Allowing driven tools to work continuously at 12,000 rpm (S1).



Hydraulic Clamping

Turrets hydraulically clamped with curvic couplings for accurate indexing and rigidity.

Fanuc servomotor changes turret position in only 150 milliseconds

The turret indexes one position (30°) in 150 ms and rotates 6 positions (180°) in 440 ms.

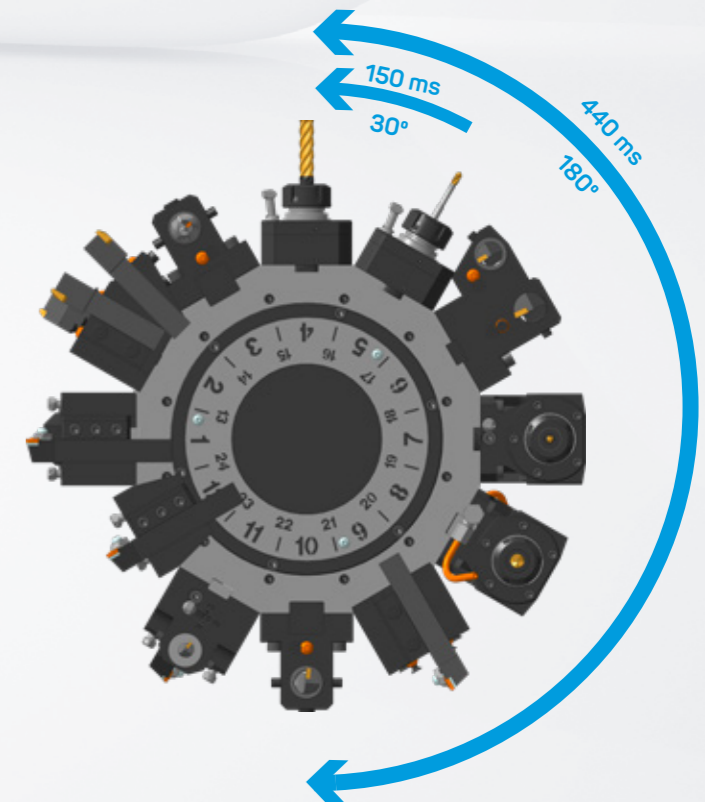
Standard tool holder BMT 44

BMT 44 is a popular standard toolholder.

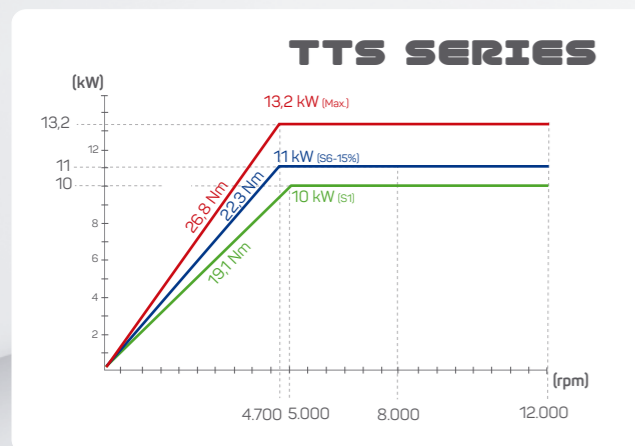
12,000 rpm driven tool holders

CMZ manufacture their own tool holders. 12,000 rpm with internal cooling.

INDEXING TIME



POWER AND TORQUE DIAGRAM OF DRIVEN TOOL MOTOR



PNEUMATIC PART CATCHER

TTS SERIES

8 Seconds*
Total time for
component collection

* Could be higher depending on the type of component

Downward movement regulation stop

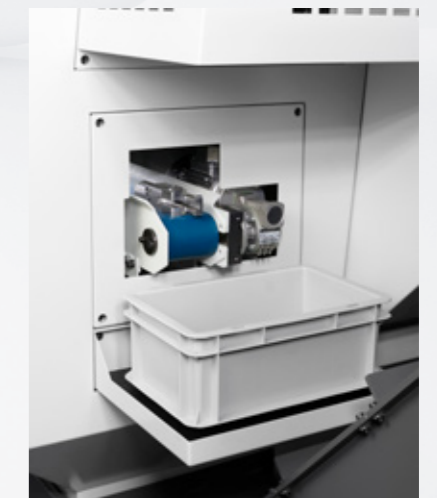
The catcher pivots and a
downward movement is
performed to clamp the part.

Option 1: Component gripper

The gripper has a pneumatic
opening and closing movement.

Option 2: Component collector

The collector has a pneumatic
opening and closing movement.



Finished parts conveyor

The conveyor moves finished
components to the outside of
the machine.

EXAMPLES OF USE

TTS SERIES



Working with sub-spindle displaced downwards

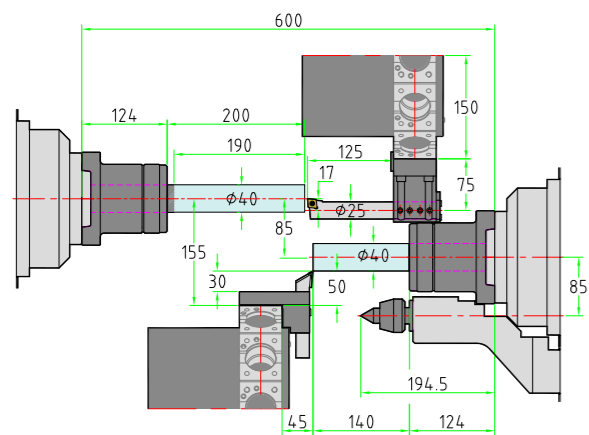
The displacement of the sub-spindle below the main spindle significantly reduces the interference between the two turrets and the spindles.

The machine is much easier to program and set.

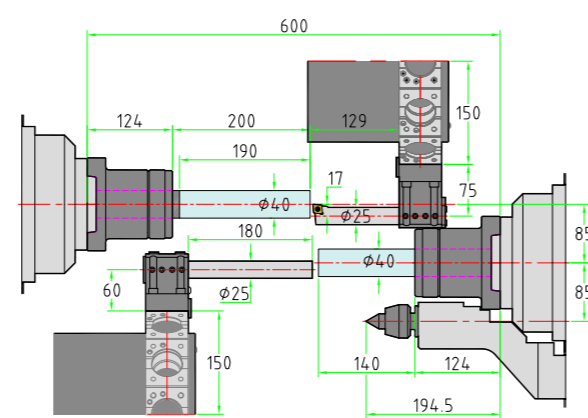


Operating with tailstock (option)

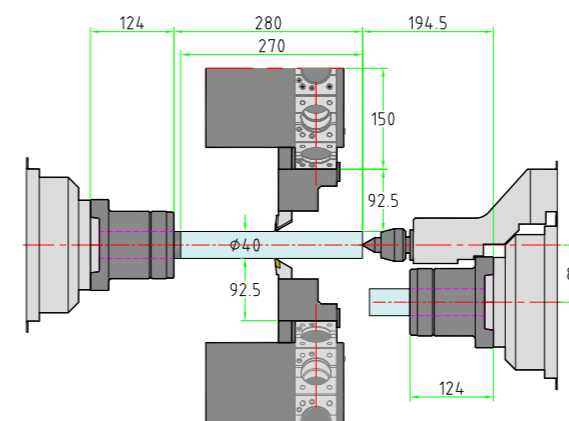
While supporting the workpiece with the tailstock, the machine allows work to continue in the sub-spindle.



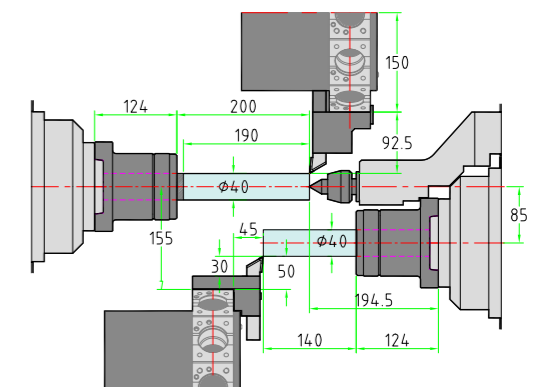
Movement of the sub-spindle reduces any interference.



The position of the sub-spindle allows the machining of very long components.



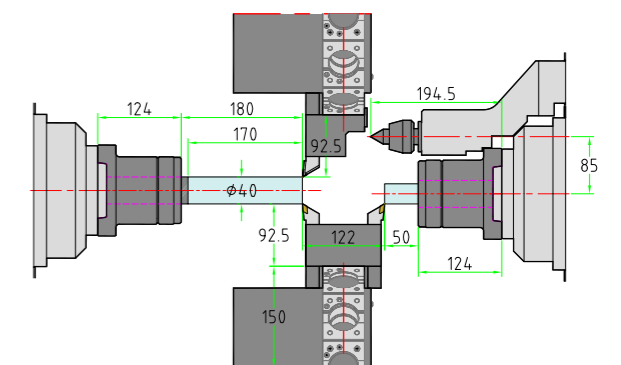
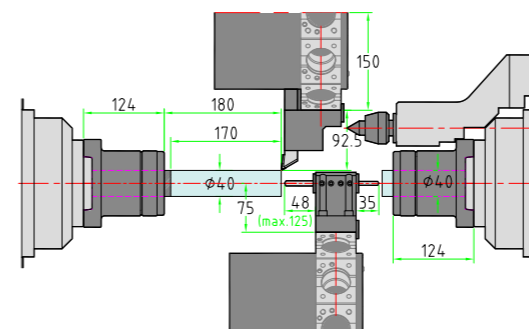
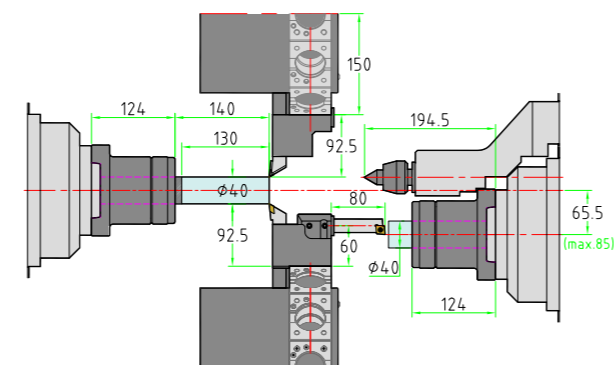
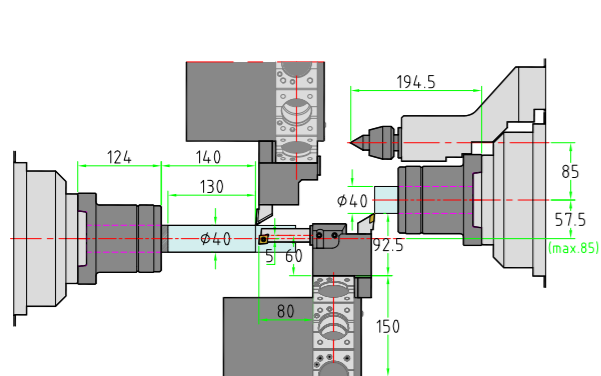
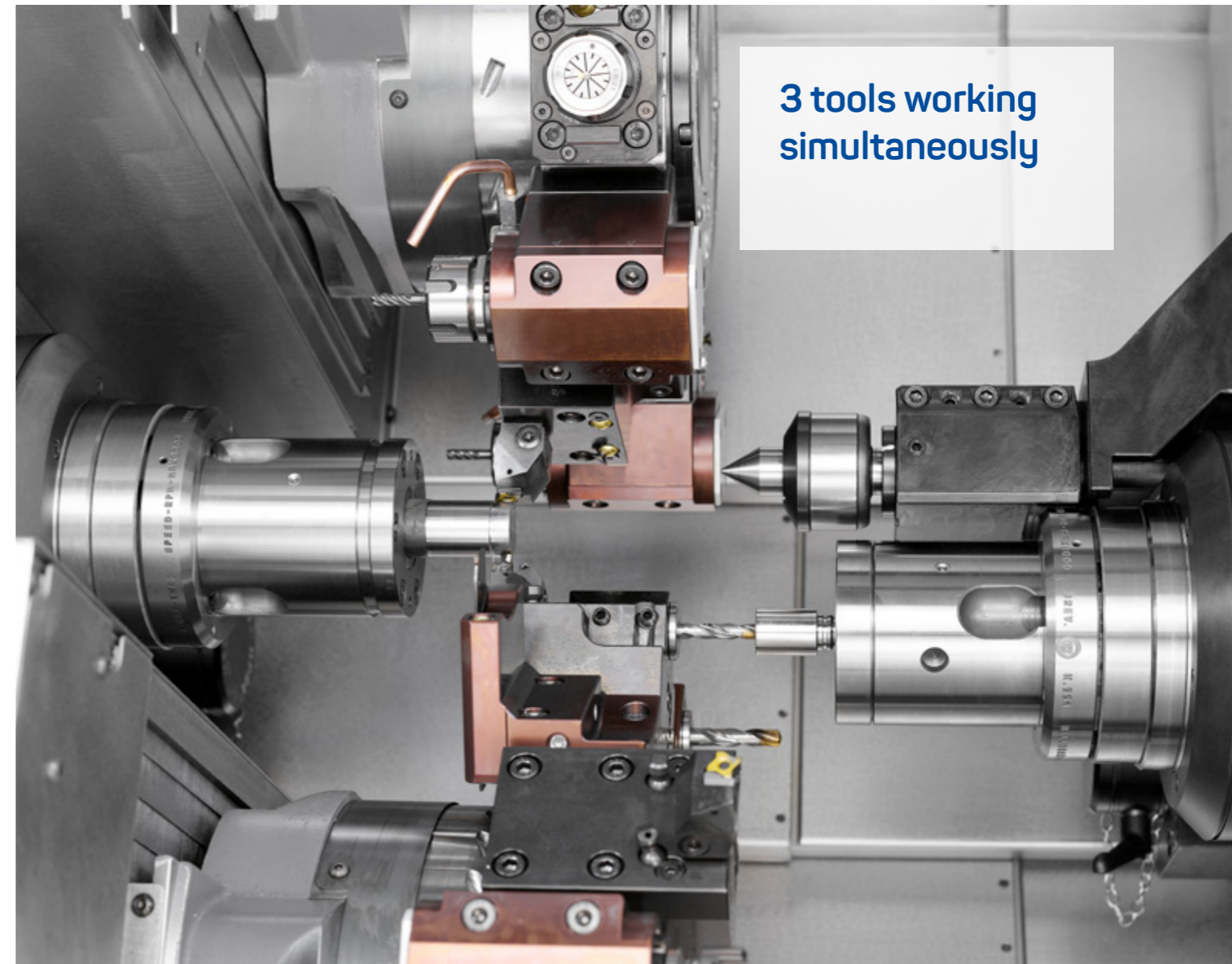
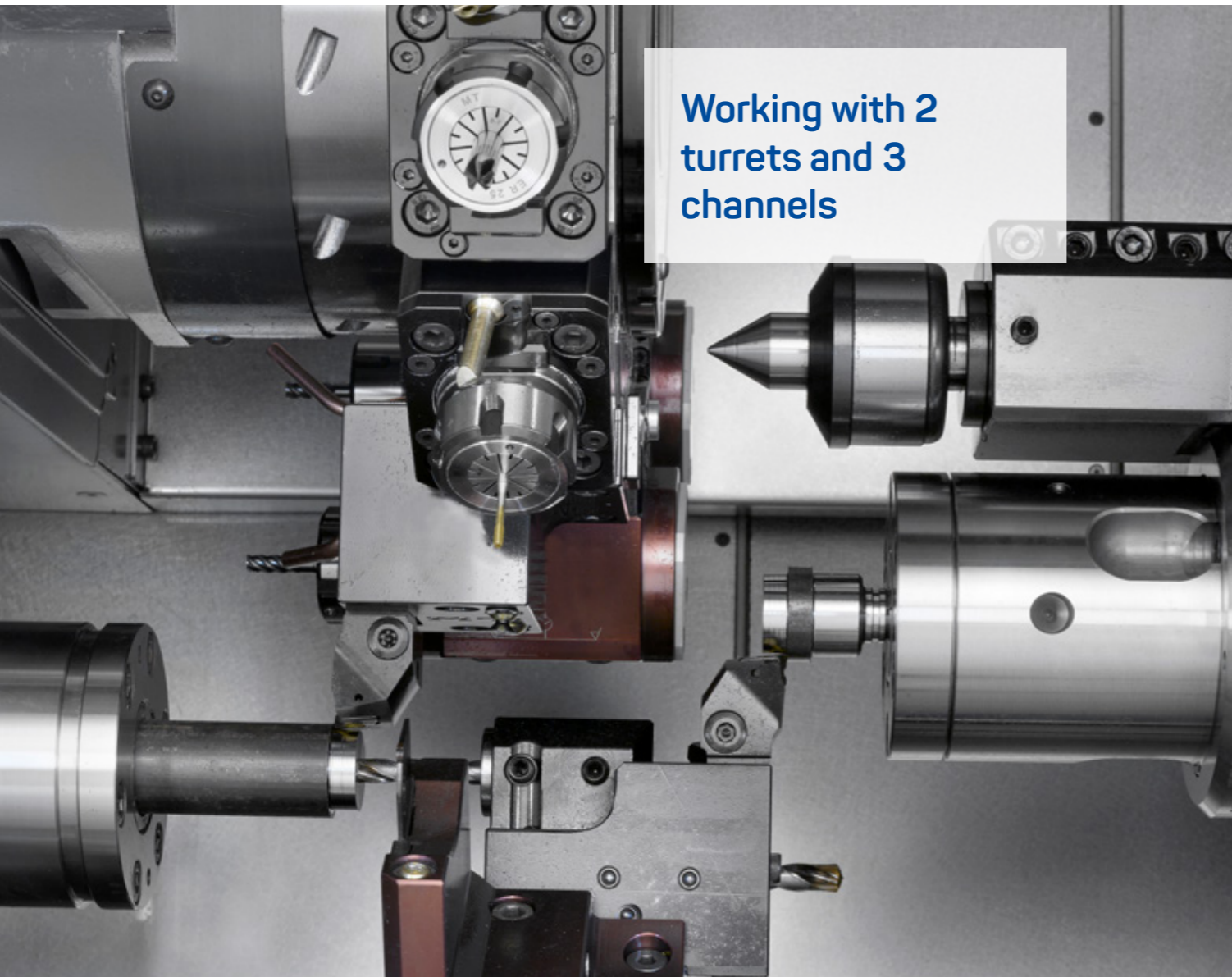
Balanced cutting reduces vibration, allowing increased material removal.



The machine can finish the part in the sub-spindle while machining continues between main spindle and tailstock.

EXAMPLES OF USE

TTS SERIES



The large travel of the sub-spindle allows simultaneous working with 3 tools in varied conditions.

The third CNC channel gives the flexibility to program multiple applications using 3 tools simultaneously.

Drill simultaneously using the 2 spindles without programming limitations.

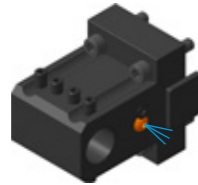
Any shape can be turned in the sub-spindle, while the same turret works on the main spindle.

TOOL HOLDERS

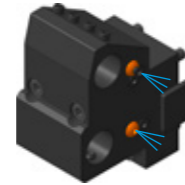
Boring bar holders Ø25



Ø25-H=60 mm
310.04.092142



Ø25-H=75 mm
310.04.092143



Ø25 (2X)
310.04.092145



[Ø25-Ø20] 310.04.092022
[Ø25-Ø16] 310.04.092020
[Ø25-Ø12] 310.04.092018
[Ø25-Ø10] 310.04.092017
[Ø25-Ø08] 310.04.092016
[Ø25-Ø06] 310.04.092015



[Ø25-ER25] 310.04.092013
[Ø25-ER20] 310.04.092152

Boring bar holders Ø20



Ø20-H=70 mm
310.04.092144

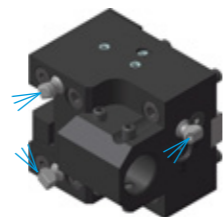


[Ø20-Ø16] 310.04.092147
[Ø20-Ø12] 310.04.092148
[Ø20-Ø10] 310.04.092149
[Ø20-Ø08] 310.04.092150
[Ø20-Ø06] 310.04.092151



Ø20/ER20
310.04.092153

Holder for compound machining

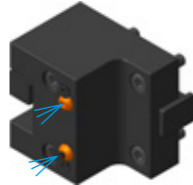


Ø25-H=60 mm
TTS/10300/20

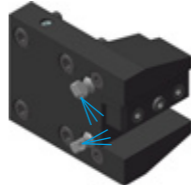


[Ø25-Ø20] TTL/10300/20
[Ø25-Ø16] TTL/10300/16
[Ø25-Ø12] TTL/10300/12
[Ø25-Ø10] TTL/10300/10
[Ø25-Ø08] TTL/10300/08
[Ø25-Ø06] TTL/10300/06

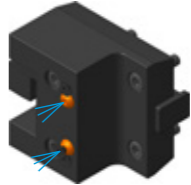
Static holders



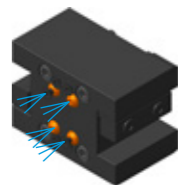
Ø20
310.04.092136



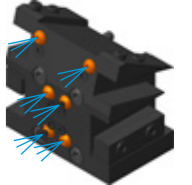
Ø20
TTS/10300/39



Ø25
310.04.092137



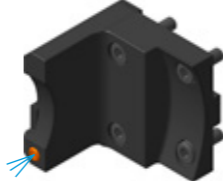
Ø20
310.04.092138



Ø20 (x4)
310.04.092139



Ø20
310.04.092140



H=32
310.04.092141

Driven holders



Max. 6.000 rpm
ERA 20
310.04.092128



Max. 6.000 rpm
ERA 20
310.04.092129



Max. 6.000 rpm
ER25
310.04.092130



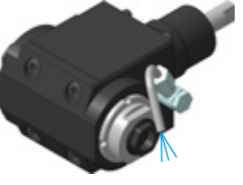
Max. 12.000 rpm
ER25
TTS/10400/05



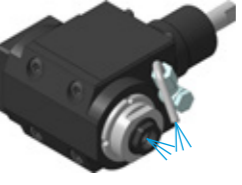
Max. 6.000 rpm
ER25
310.04.092131



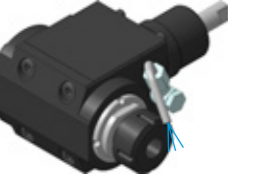
Max. 12.000 rpm
ER25
TTS/10400/09



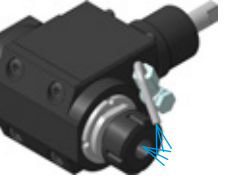
Max. 6.000 rpm
ERA 20-H=60
310.04.092132



Max. 6.000 rpm
ERA 20-H=60
310.04.092133



Max. 6.000 rpm
ER25-H=60
310.04.092134



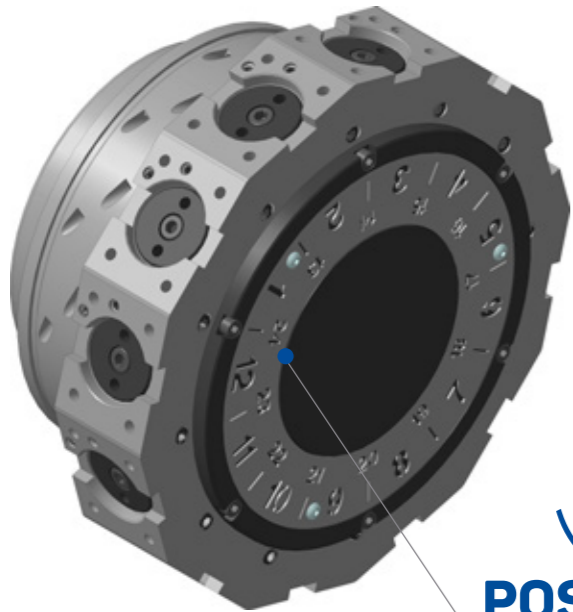
Max. 6.000 rpm
ER25-H=60
310.04.092135



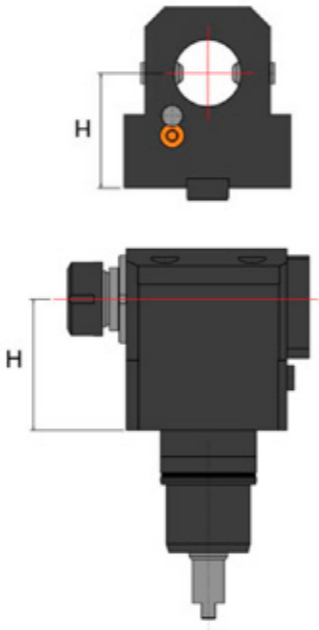
Max. 12.000 rpm
ER25-H=60
TTS/10400/02



Max. 12.000 rpm
ER25-H=60
TTL/10400/04



24 POSITIONS



CNC FANUC SERIES 30

WITH IHMI INTERFACE
AND NEW HARDWARE STEP 2

15" Touch screen

Data Transfer



- Ethernet
- USB
- PCMCIA

2 GB

Part program memory



Ready
for Industry
4.0

TTS SERIES



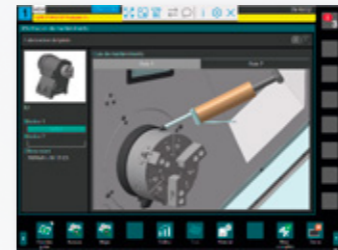
Conversational programming

The CNC is equipped with the **New Manual Guide i** conversational programming system. It allows programming and simulating the programs in 3D.



Manuals

Check any machine manual instantly in the CNC. The files are indexed so that you can access the information you require directly from the table of contents of the manual.



Maintenance manager

The Maintenance manager will guide you to perform the recommended maintenance tasks. The dates when the maintenance was performed will be saved automatically when "Maint. complete" is pushed.



Easy diagnosis

Easy detection of machine faults through the graphical interface that shows the signals that control the different devices in the machine. Status of the detectors, signals to activate the hydraulic maneuvers, motor temperature and pressure measurements are easily monitored live.



Tool life (option)

The CNC allows to define groups of sister tooling. When a tool finishes its life due to the number of times being called or its cutting time, it is automatically substituted by its sister tool.



Tool monitoring (option)

This functions memorises the power consumption of each tool. Once the values are obtained it monitors the power consumption of each tool to detect tool wear or breakage. This reduces the manual handling in an unmanned process.



Tool catalogue

The control has a tool catalogue from which we can select the tools we want to use in our machining process. This permits to directly get the geometry of the tool for simulation purposes.



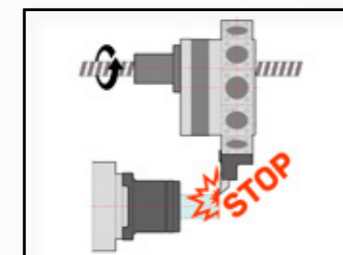
Execution of program with the MPG handwheel

This function allows checking the programs executing them back and forth with the MPG handwheel.



Variable speed function (Anti vibration)

With a simple setup to define the period and amplitude of a sinusoidal curve to modify the spindle speed, very good results are obtained in reducing chatter vibration. This function is available for turning with or without tailstock.



Electronic detection of collisions (airbag).

The CNC detects impacts through monitorisation of the motors' forces and following errors. With an overload the axes and spindles are stopped to prevent further damages.



Visualize your CNC in your PC

1

Use **VNC Viewer** software to see the CNC screen of your lathe in any computer sharing the screen with your operator and being able to get support online in a very simple and efficient way.

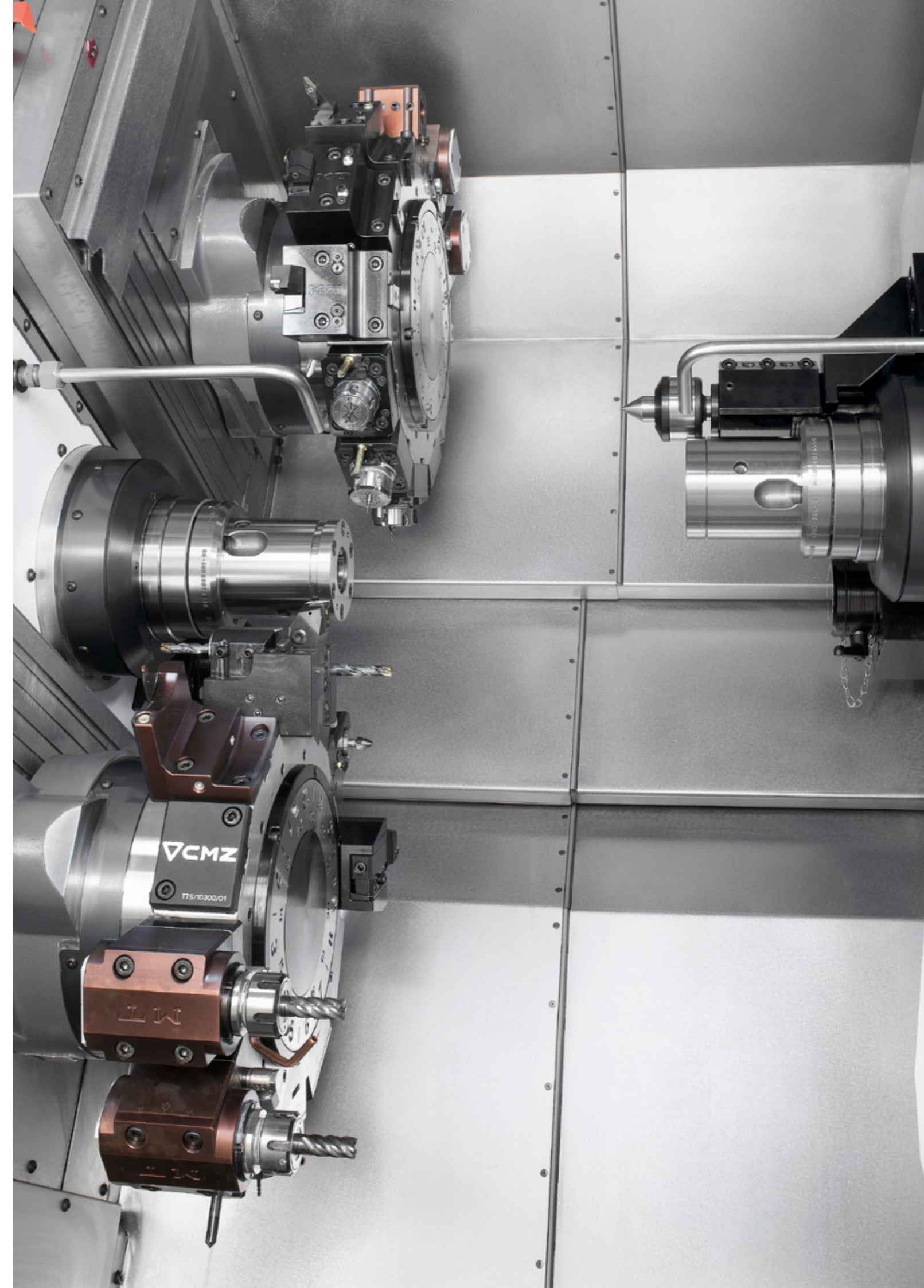
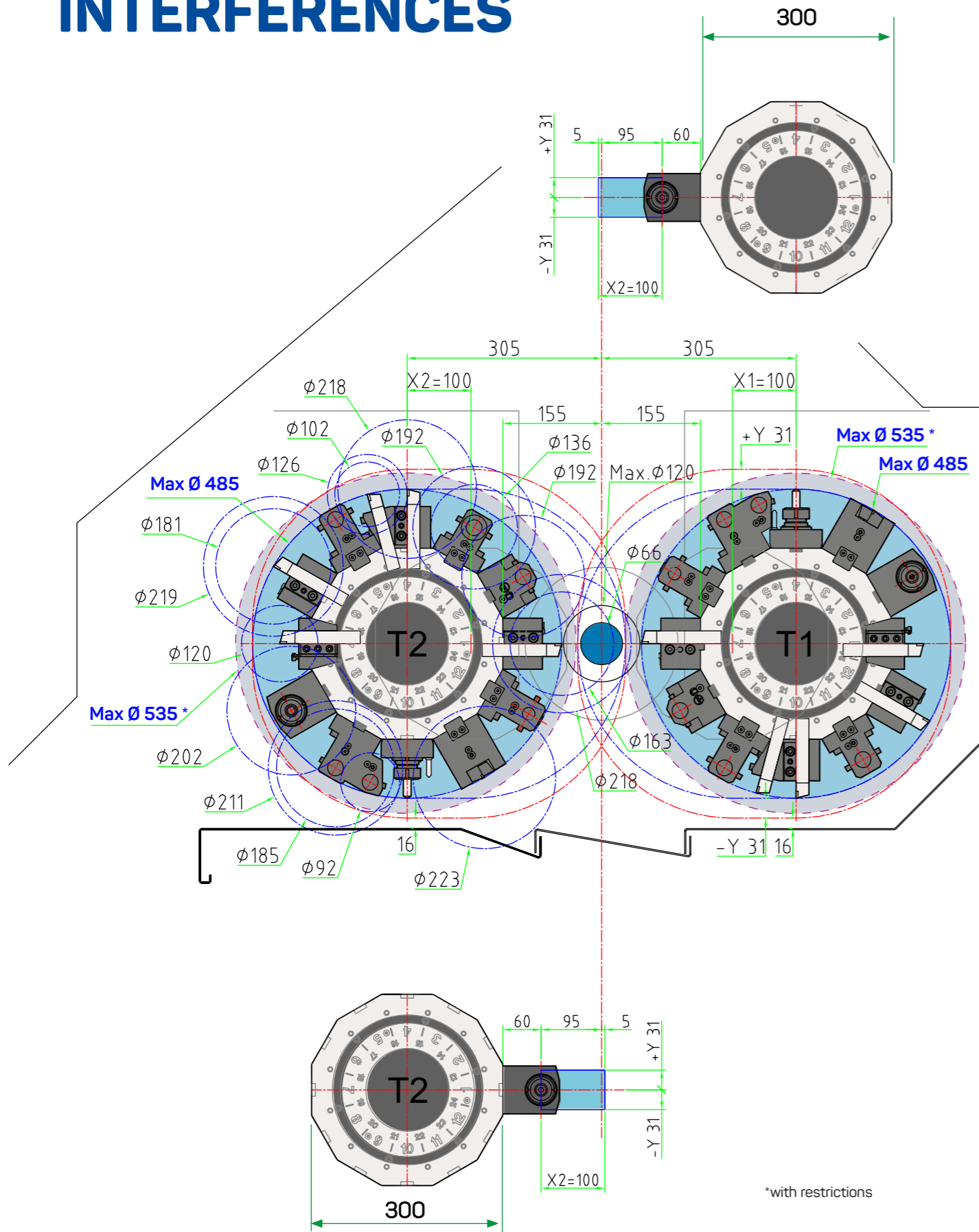
2

Visualize your PC in the lathe

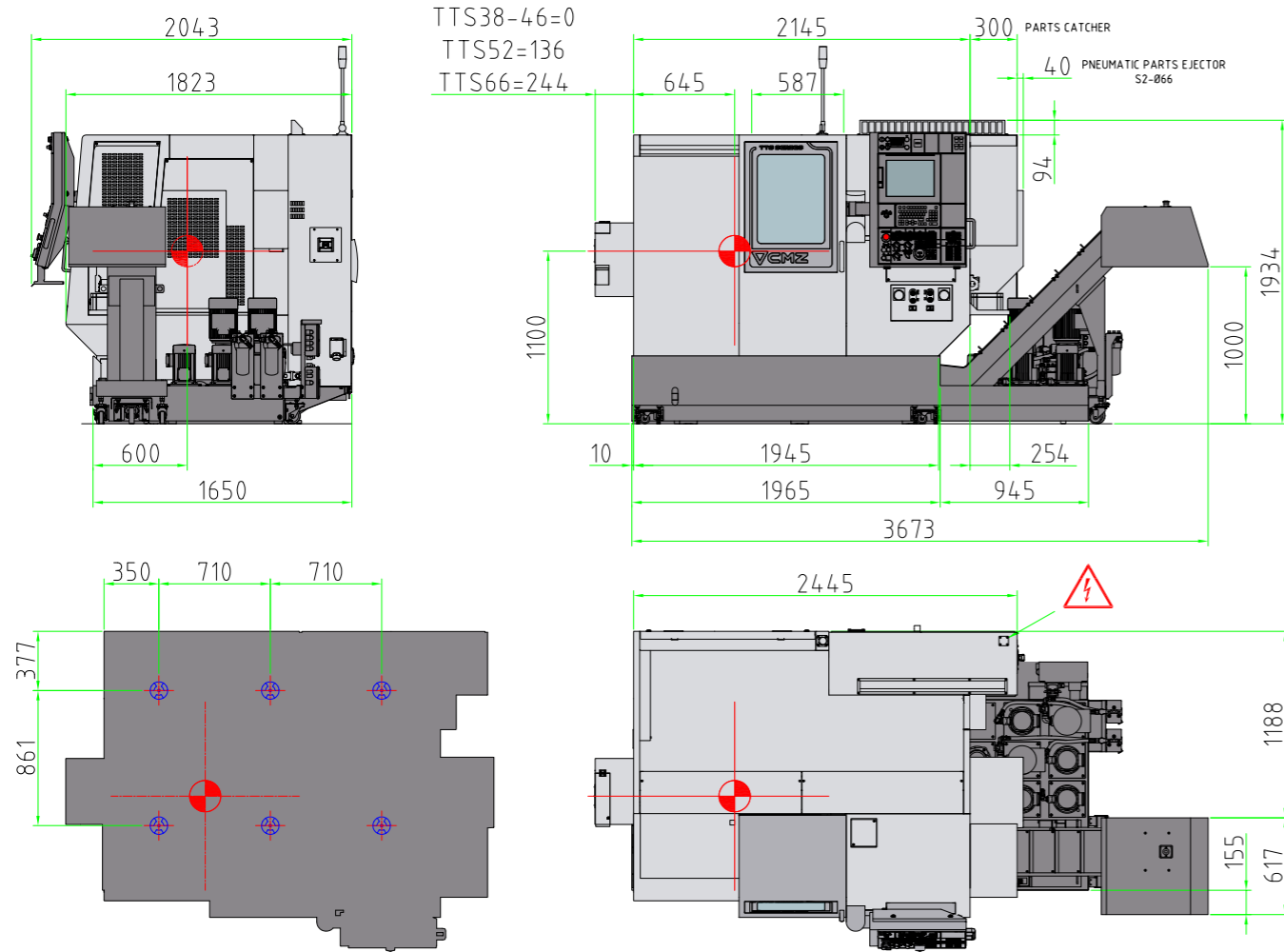
The operator can access to a desktop screen through the CNC. With this functionality software like ERP, Excel, email, Autocad, CAD/CAM... can be used from the lathe.



INTERFERENCES



DIMENSIONS



TECHNICAL SPECIFICATIONS

TECHNICAL DATA		TTS-38-38			TTS-46-46			TTS-52-52			TTS-66-66		
		T1-T2	T1M-T2M	TTY-T2Y	T1-T2	T1M-T2M	TTY-T2Y	T1-T2	T1M-T2M	TTY-T2Y	T1-T2	T1M-T2M	TTY-T2Y
GENERAL DATA	Maximum diameter of swinging allowed (mm)	240			240			240			240		
	Maximum turning diameter (mm)	120			120			120			120		
	Distance between spindle nose and tailstock centre (mm)	404			404			423			423		
	Distance between centres (mm)	600			600			638			638		
	X1_X2-axis travel (mm)	100			100			100			100		
	X3-axis travel (mm)	+85			+85			+85			+85		
	Z1_Z2-axis travel (mm)	-85			-85			-85			-85		
	Z3-axis travel (mm)	368			368			368			368		
	Y-axis travel (mm)	-	+31	-31	-	+31	-31	-	+31	-31	-	+31	-31
	Fast feedrate X (m/min)	18			18			18			18		
Fast feedrate Z (m/min)	30			30			30			30			
Fast feedrate Y (m/min)	18			18			18			18			
Axis acceleration	1g=9.8 m/s ²			1g=9.8 m/s ²			1g=9.8 m/s ²			1g=9.8 m/s ²			
SPINDLE	Maximum speed (rpm)	6000			5000			4500			4000		
	Bearing outside diameter (mm)	125			140			150			170		
	Bearing inside diameter (mm)	80			90			100			110		
	Spindle nose	ASA 5° A2			ASA 5° A2			ASA 6° A2			ASA 6° A2		
	Spindle inside diameter (mm)	44,5			55,5			61			72,5		
	Drawtube bore (mm)	38			46			52			66		
	Chuck diameter (mm)	140			165			175/210			210		
	Maximum bar diameter (mm)	38			46			52			66		
	Spindle power (kW) (max./S2 25%/ S1)	17,2 / 12 / 8			17,2 / 12 / 8			17,2 / 12 / 8			17,2 / 12 / 8		
	Turning torque (Nm) (max./S3 25%/ S1)	66,1 / 57,5 / 46			66,1 / 57,5 / 46			66,1 / 57,5 / 46			66,1 / 57,5 / 46		
TAILSTOCK	Morse taper	CM3			CM3			CM3			CM3		
	Tailstock travel (mm)	368			368			368			368		
	Max. force (kgf)	400			400			400			400		
TURRET	Number of positions (Number of index positions)	24			24			24			24		
	Section of tools (mm)	20x20			20x20			20x20			20x20		
	Indexing time (S)	0,1 S			0,1 S			0,1 S			0,1 S		
	Interlocking force at 45 bar (kgf)	3200			3200			3200			3200		
DRIVEN TOOLS	Number of driven tools	-	12		-	12		-	12		-	12	
	Turning speed (rpm)	-	12000		-	12000		-	12000		-	12000	
	Power (kW) (max./S1)	-	13,2 / 10		-	13,2 / 10		-	13,2 / 10		-	13,2 / 10	
	Maximum torque (Nm) (max./S1)	-	26,8 / 19,1		-	26,8 / 19,1		-	26,8 / 19,1		-	26,8 / 19,1	
	Maximum speed (rpm)	6000			5000			4500			4000		
	Bearing outside diameter (mm)	125			140			150			170		
SUBSPINDLE	Bearing inside diameter (mm)	80			90			100			110		
	Spindle nose	ASA 5° A2			ASA 5° A2			ASA 6° A2			ASA 6° A2		
	Spindle inside diameter (mm)	44,5			55,5			61			72,5		
	Drawtube bore (mm)	38			46			52			66		
	Chuck diameter (mm)	175 / 210			210			175 / 210			210		
	Chuck bore (mm)	38			46			52			66		
	Power (kW) (max./ S3 25%/ S1)	17,2 / 12 / 8			17,2 / 12 / 8			17,2 / 12 / 8			17,2 / 12 / 8		
	Turning torque (Nm) (max./S3 25%/ S1)	66,1 / 57,7 / 46			66,1 / 57,7 / 46			66,1 / 57,7 / 46			66,1 / 57,7 / 46		
	Coolant tank (litres)	280			280			280			280		
	Hydraulic oil tank (litres)	18			18			18			18		
MISCELLANEOUS	Lubrication oil tank (litres)	4			4			4			4		
	Installed power (kVA)	45	45	45	45	45	45	45	45	45	45	45	
	Functioning voltage	400 V 50 Hz ±5% [230 V 50 Hz ±5%]			400 V 50 Hz ±5% [230 V 50 Hz ±5%]			400 V 50 Hz ±5% [230 V 50 Hz ±5%]			400 V 50 Hz ±5% [230 V 50 Hz ±5%]		
	Maximum environmental temperature (°C)	35°C			35°C			35°C			35°C		
	Total weight (kg)	6600			6600			6800			6900		
	Dimensions	2445x2043x1934			2445x2043x1934			2445x2043x1934			2445x2043x1934		
	Internal volume (m ³)	1			1			1			1		

CMZ, THE POWER OF A MANUFACTURER

CMZ has been manufacturing machine tools for more than 75 years. Being part of an ever-changing sector has forced us to reinvent ourselves, renew and improve our production processes.

We continuously strive to produce the best CNC lathes we can. Built with a focus on precision and performance at a competitive price, we produce strong, reliable machines that offer longevity and continued machining accuracy. Practically all of our parts are produced at the various manufacturing plants within our group. This has helped us to acquire a very broad and professional vision of the product.

Together with more than 350 people and 32,000 square metres of facilities, we deliver almost three machines per day to customers throughout Europe.

HEADQUARTERS

CMZ HEADQUARTERS



CENTRAL SERVICES | TECHNICAL ASSISTANCE SERVICE
Zaldibar – Spain

CMZ Germany



COMMERCIAL OFFICE | TECHNICAL ASSISTANCE SERVICE
Stuttgart – Germany

CMZ France



COMMERCIAL OFFICE | TECHNICAL ASSISTANCE SERVICE | SHOWROOM
Vaulx Milieu – France

CMZ Italy



COMMERCIAL OFFICE | TECHNICAL ASSISTANCE SERVICE | SHOWROOM
Milan – Italy

CMZ UK



COMMERCIAL OFFICE | TECHNICAL ASSISTANCE SERVICE
Rugby – United Kingdom



European official distributors:
Switzerland, Sweden, Finland,
Norway, The Netherlands,
Denmark, Austria...

MANUFACTURING PLANTS

CMZ ASSEMBLY PLANT 1



CNC lathes Assembly plant
5,500 m2 | Zaldibar – Spain

CMZ ASSEMBLY PLANT 2 | SEUNER



CNC lathes Assembly plant
10,000 m2 | Mallabia – Spain

CAFISUR



Sheet metal plant
15,000 m2 | Cádiz – Spain

NEOPREC



New machining plant
10,000 m2 | Mallabia – Spain

MECANINOR



Machining plant
4,900 m2 | Elorrio – Spain

PRECITOR



Machining plant
970 m2 | Elorrio – Spain

MEYDI



Assembly plant for electrical cabinets
1,250 m2 | Zaldibar – Spain



Expansion of our machining plant, Precitor.

CMZ Deutschland GmbH

Holderäckerstr. 31
70499 Stuttgart (Germany)
Tel. +49 (0) 711 469204 60
info-de@cmz.com
www.cmz.com

CMZ France SAS

Parc Technologique Nord
65, Rue Condorcet
38090 Vaulx Milieu (France)
Tel. +33 (0) 4 74 99 03 22
contact@cmz.fr
www.cmz.com

CMZ Italia S.r.l.

Via Arturo Toscanini 6
20020 Magnago (Mi) Italy
Tel. +39 (0) 331 30 87 00
info-it@cmz.com
www.cmz.com

CMZ Machinery Group S.A.

Azkorra s/n.
48250 Zaldibar (Spain)
Tel. +34 94 682 65 80
info@cmz.com
www.cmz.com

CMZ UK Ltd.

6 Davy Court
Central Park
Rugby
CV23 0UZ (United Kingdom)
Tel. +44 (0) 1788 56 21 11
info-uk@cmz.com
www.cmz.com



Agent:

CMZ Machine Tool Manufacturer, S.L.

Azkorra, s/n.
48250 Zaldibar (Spain)
Tel. +34 946 826 580
info@cmz.com
www.cmz.com