

TTL SERIES

TTL 52 / TTL 66 MODELS



Turning the world

AVAILABLE OPTIONS

TTL MODEL

Left Spindle

- Ø66
- Ø52

Right Spindle

- Ø66
- Ø52

Upper Turret

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

Lower Turret

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



TTL SERIES

TECHNICAL CHARACTERISTICS

TTL SERIES

TTL MODEL

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

FANUC Servo Motor for turret indexing.

Integrated spindle motor for live tooling 14 Kw, 42 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 14 Kw, 42 Nm, 12,000 rpm

Oil-cooled turret.

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

Thermal sensor in the bed

Controls the temperature of the oil that cools:

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

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

Turret clamped with curvic coupling.

**• 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.

Motor mounting cooled with oil.

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>**

Highly rigid cast iron 60° MONOBLOC.

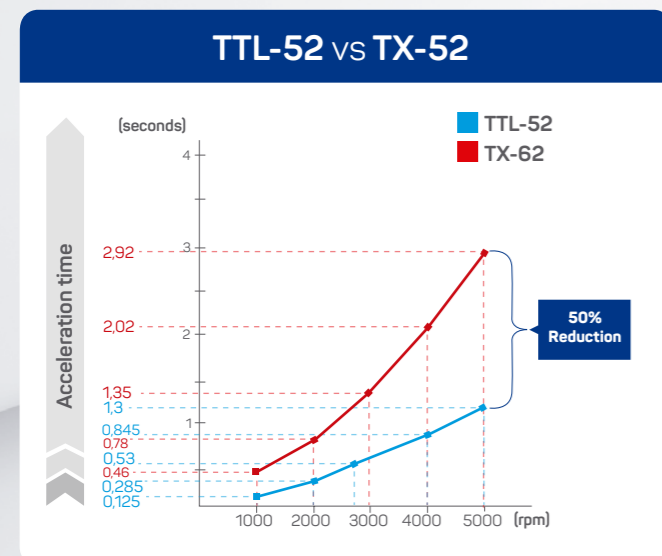
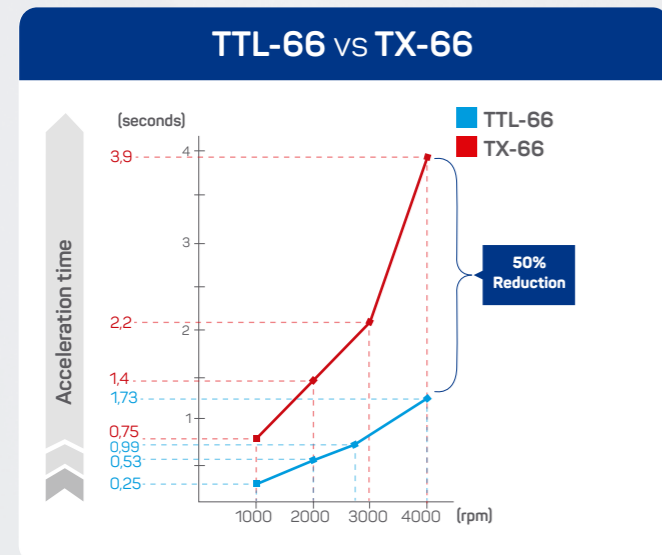
Removable, separate coolant tank, guarding design prevents coolant contact with the machine bed ensuring thermal stability. The coolant tank can be removed without removing the chip conveyor.

INTEGRATED SPINDLES WITH SYNCHRONOUS MOTORS

TTL SERIES

- SPINDLE REMAINS COOL
- REDUCED THERMAL EXPANSION
- SUPERIOR PRECISION

ACCELERATION TIME REDUCED BY HALF



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

Synchronous motor

Acceleration time reduced by half.

No pulleys or belts

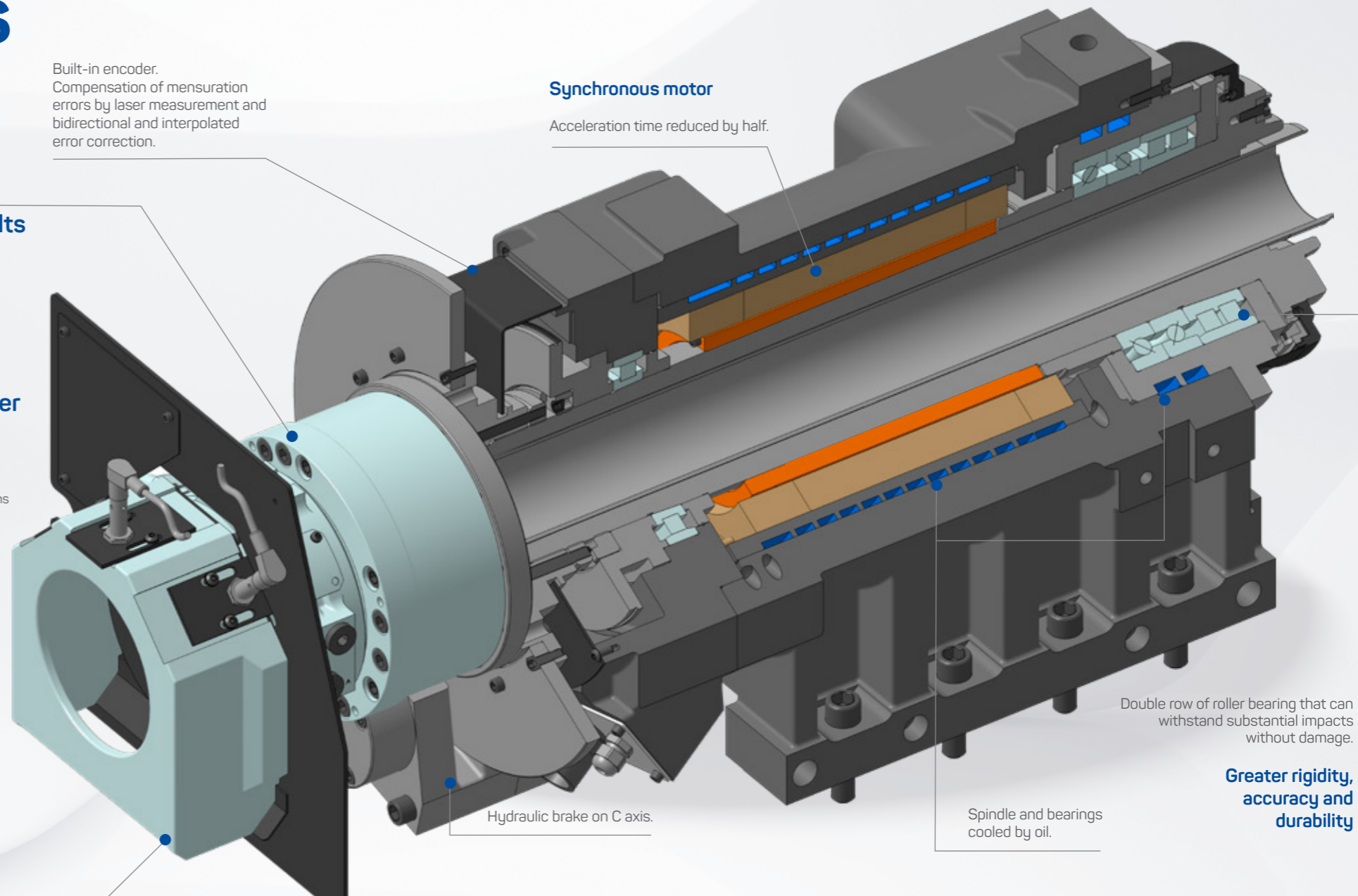
- No belt slippage
- Better surface finish
- Lower noise level
- Less maintenance

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.



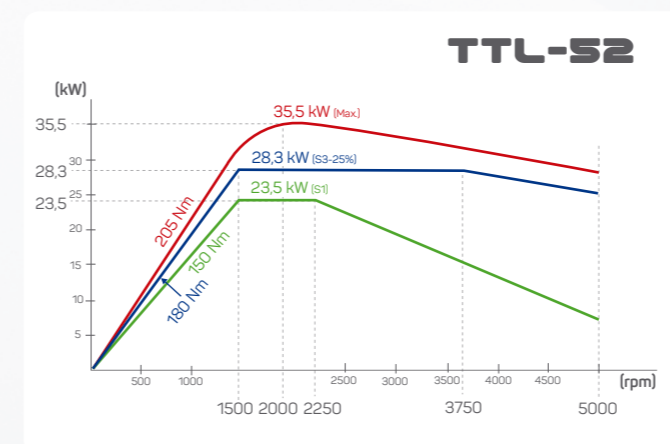
Double row of roller bearing that can withstand substantial impacts without damage.

Greater rigidity, accuracy and durability

Spindle and bearings cooled by oil.

Hydraulic brake on C axis.

POWER AND TORQUE DIAGRAMS



TURRET WITH 12,000 rpm DRIVEN TOOLS

TTL SERIES

24
POSITIONS

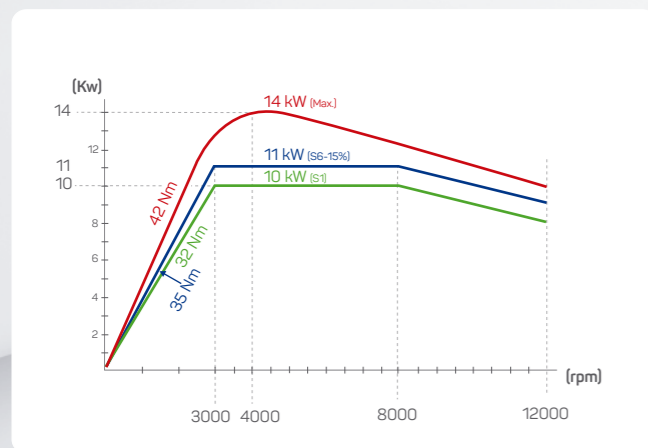
Built-in motor for driven tools

Decreased vibrations at higher spindle speeds.

Motor and turret cooled with oil

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

POWER AND TORQUE DIAGRAM OF DRIVEN TOOL MOTOR



Fanuc servomotor changes turret position in only 170 milliseconds

The turret indexes one position (30°) in 170 ms and rotates 6 positions (180°) in 400 ms.

Standard tool holder N-55

N-55 is a popular standard toolholder.

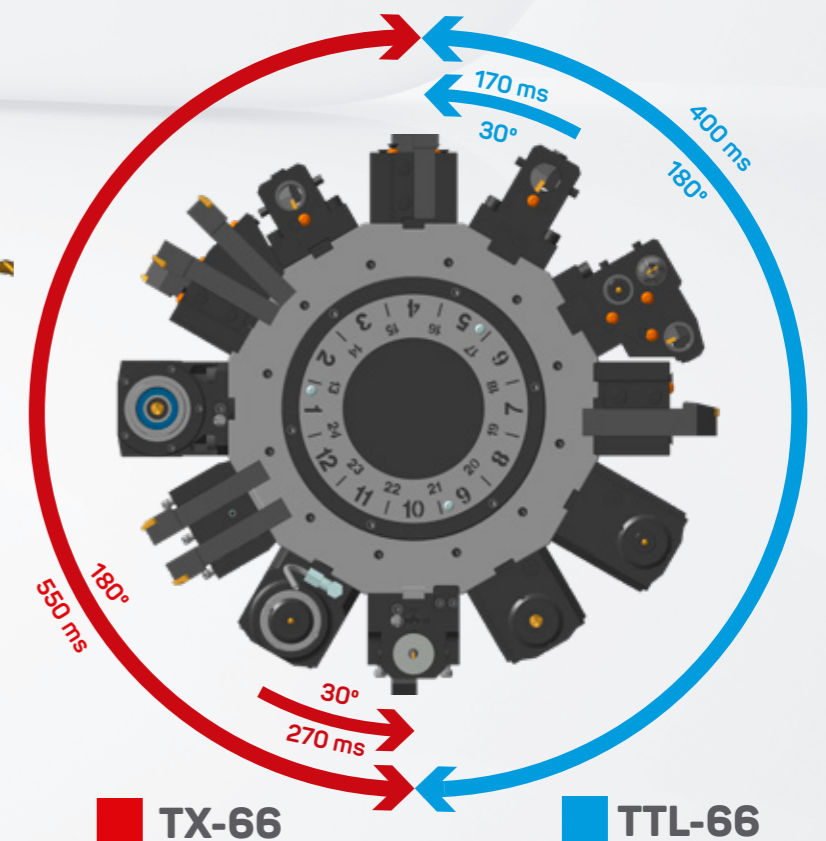
Hydraulic Clamping

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

Indexing time
170 ms
40% faster

The turret changes a position (30°) in 170 ms and indexes to the furthest position (180°) in 400 ms

This means an indexing time **40% faster** than the previous model (TX-Series)



12,000 rpm driven tool holders

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

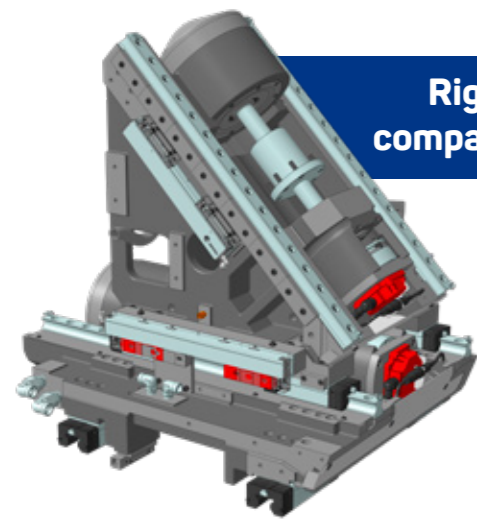
X AND Y AXIS INTEGRATED MOTORS

TTL SERIES

AXIS ENCODERS DIRECTLY ATTACHED TO THE BALL SCREW

Thermal stability and precision

X and Y axis without belts and oil-cooled



Rigid and compact design

Roller linear guides

Roller linear guides on all axes that provide great rigidity and vibration damping.

Pre-stretched ball screws

Pre-stretched ball screws mounted at both ends give the machine greater thermal stability.

30 m/min
in all axes

Linear Encoder (Optional)

Linear encoders are optional on all axes.

X and Y axis integrated motors

Without belts for increased accuracy.

±45 mm
Y axis travel

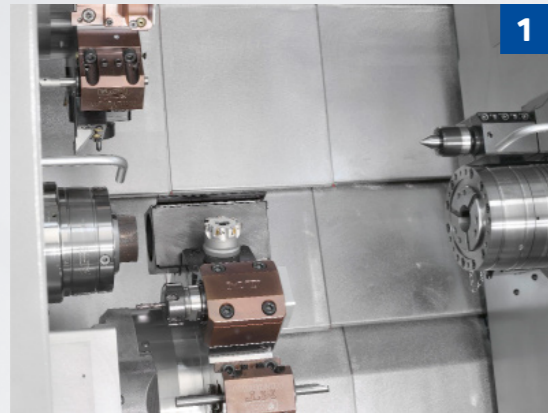
Encoders directly mounted to the ball screw

Without belts for increased accuracy.

PNEUMATIC PARTS CATCHER

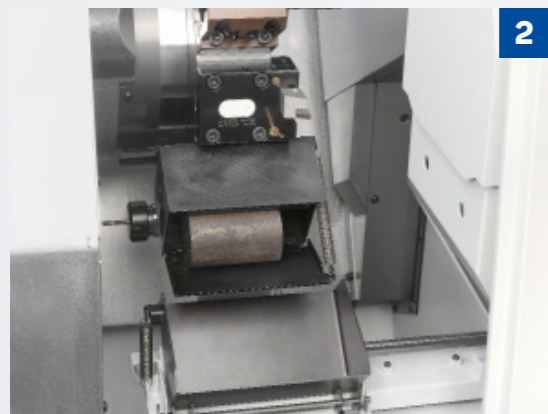
TTL SERIES

ACCESSORY FOR REMNANT COLLECTION



1 Pick up

The bar feeder pushes the remnant into the collector box, which is mounted onto one of the positions of the bottom turret.



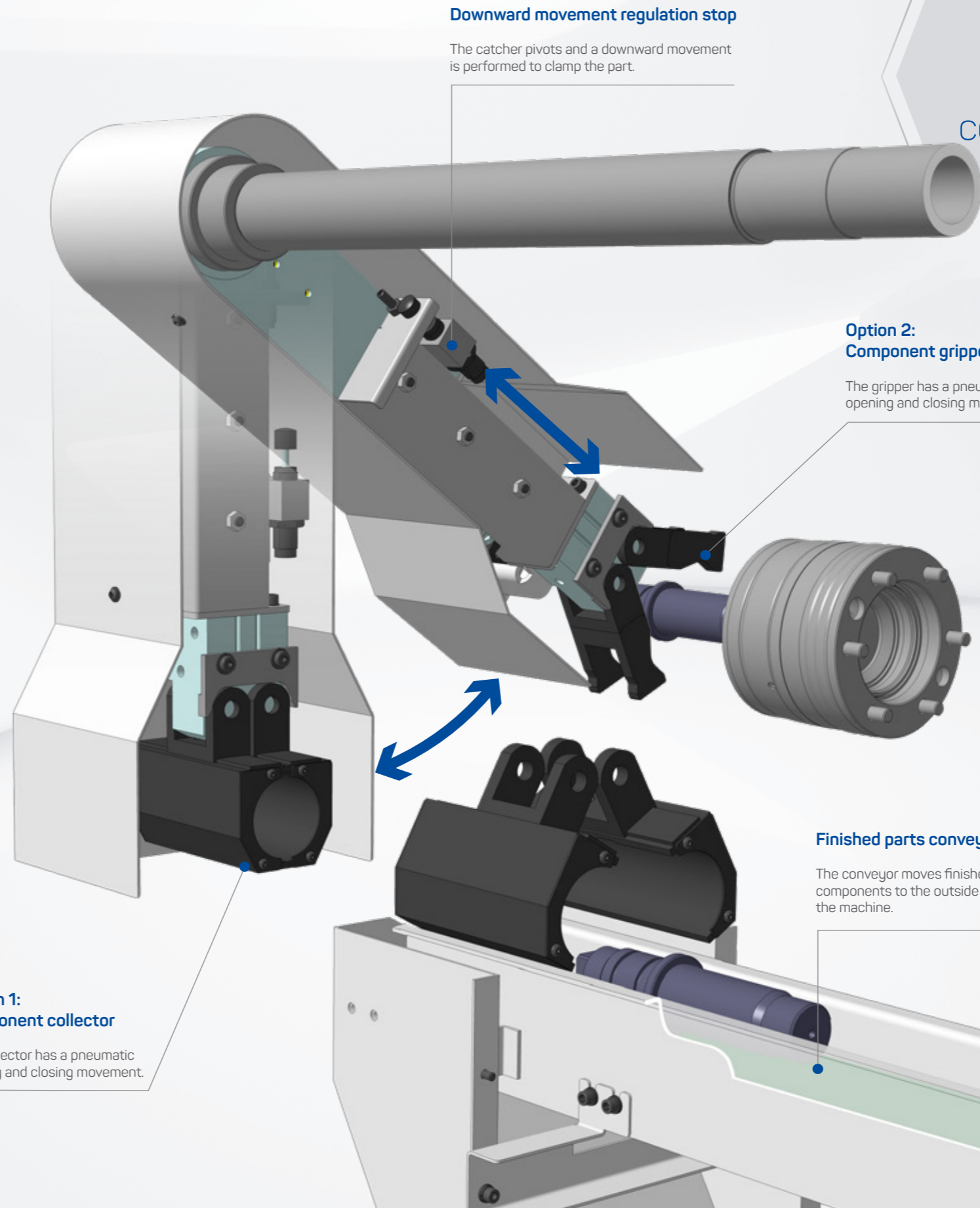
2 Transfer to the catcher

The turret rotates to a position where the remnant then rolls into the catcher.



3 Remnant eject

The catcher withdraws back to its home position and the remnant exits machine.



Downward movement regulation stop

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

Option 2: Component gripper

The gripper has a pneumatic opening and closing movement.

Finished parts conveyor

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

Option 1: Component collector

The collector has a pneumatic opening and closing movement.

8 Seconds*

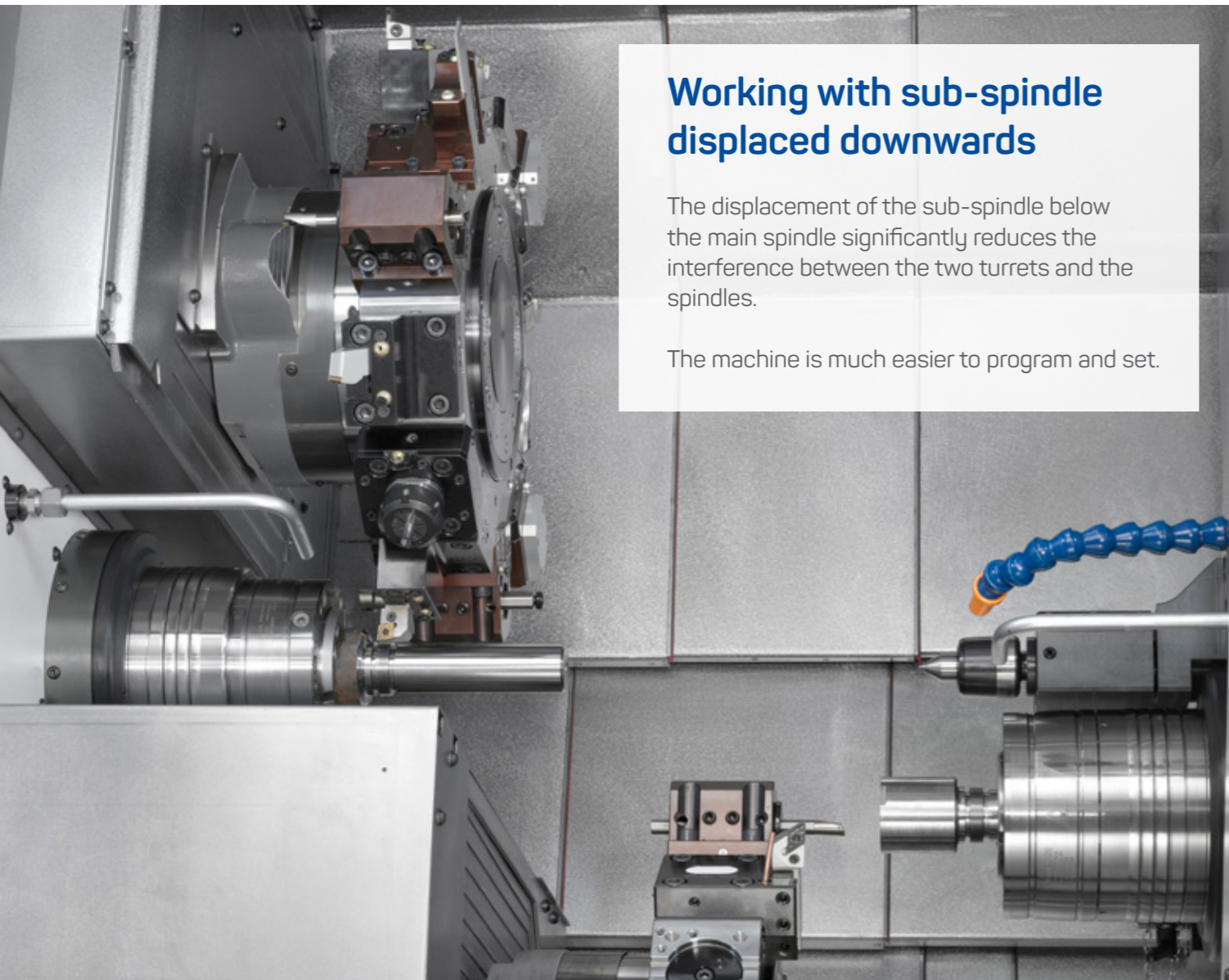
Total time for component collection

* Could be higher depending on the type of component being collected.



EXAMPLES OF USE

TTL SERIES



Working with sub-spindle displaced downwards

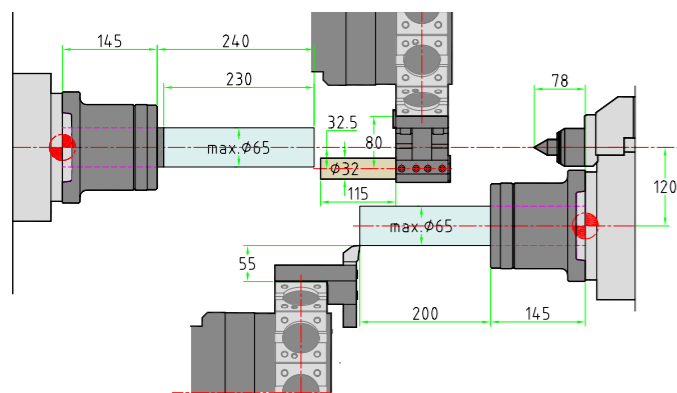
The displacement of the sub-spindle below the main spindle significantly reduces the interference between the two turrets and the spindles.

The machine is much easier to program and set.

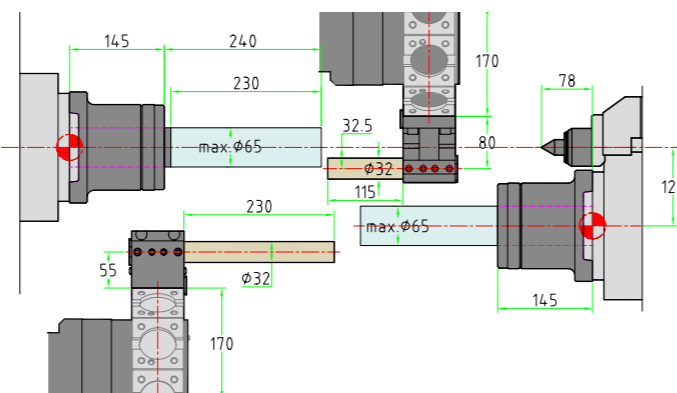


Operating with tailstock (option)

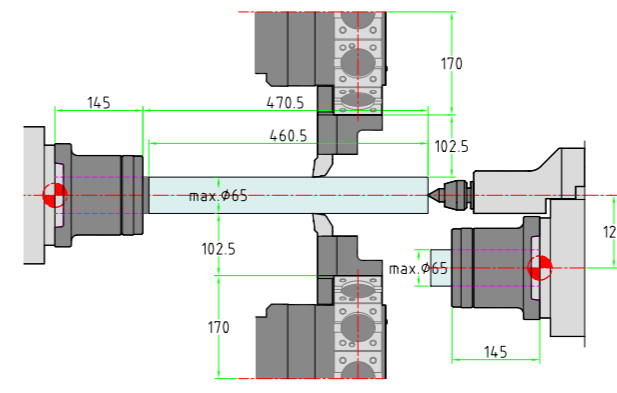
While supporting the workpiece with the tailstock, the machine allows work to continue in the sub-spindle.



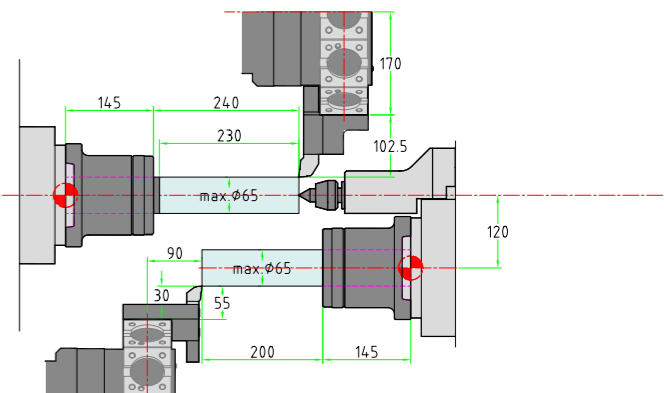
Movement of the sub-spindle reduces any interference.



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



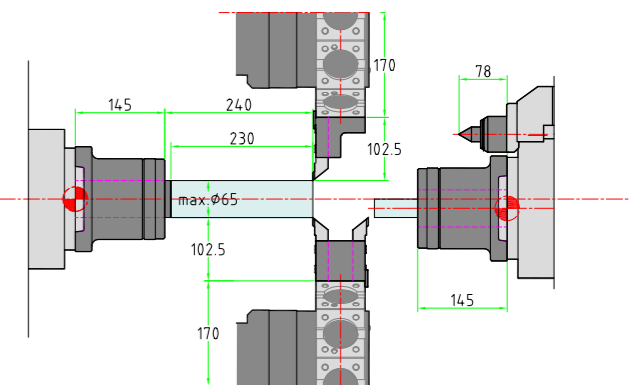
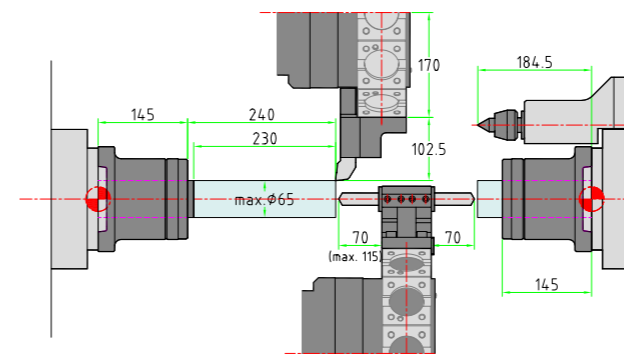
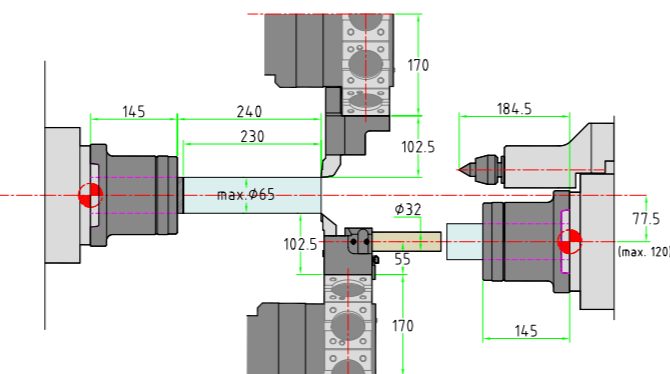
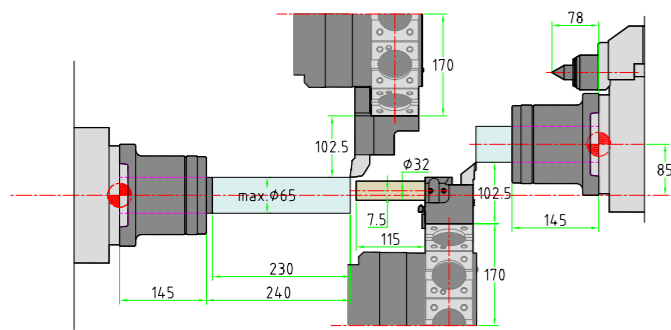
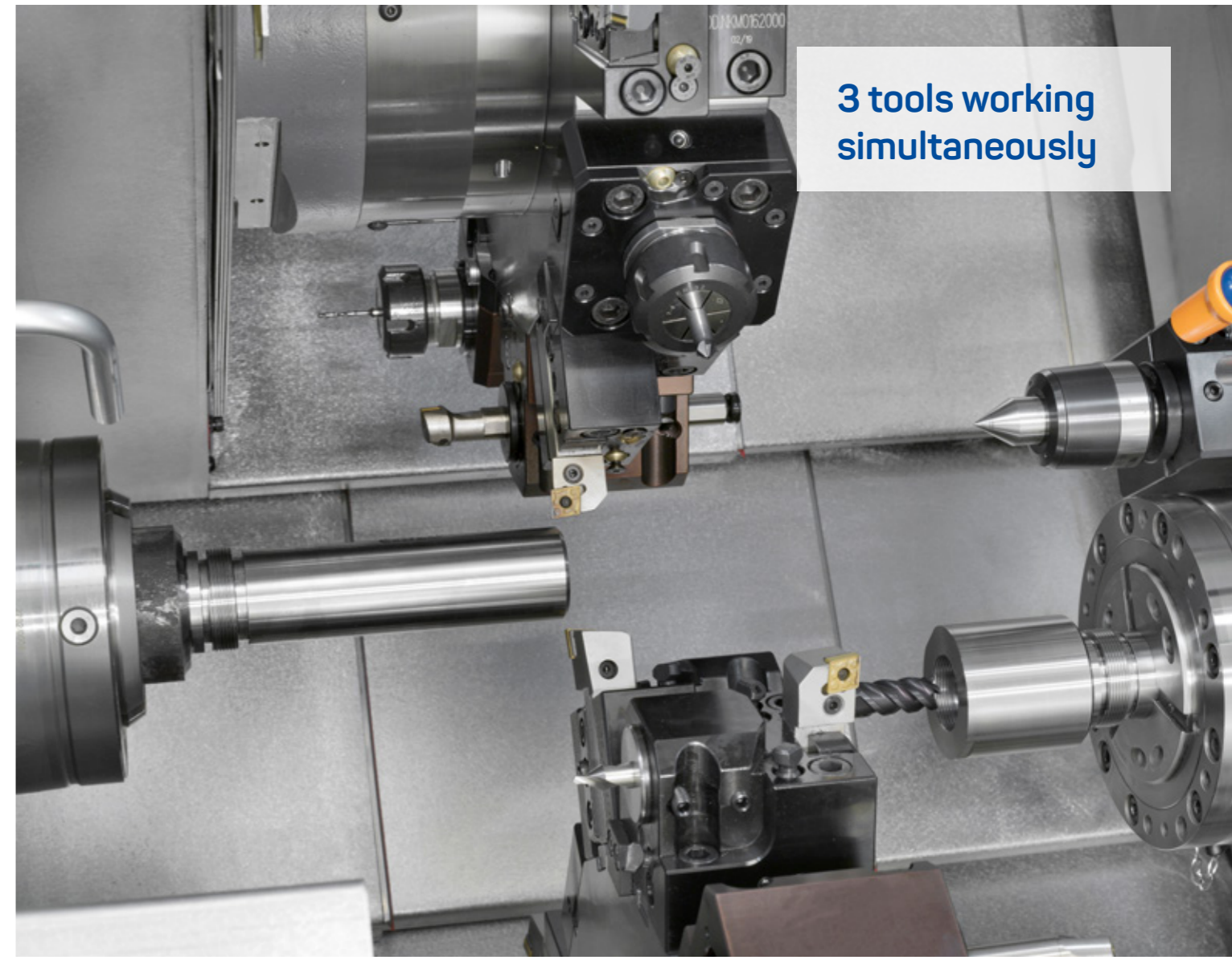
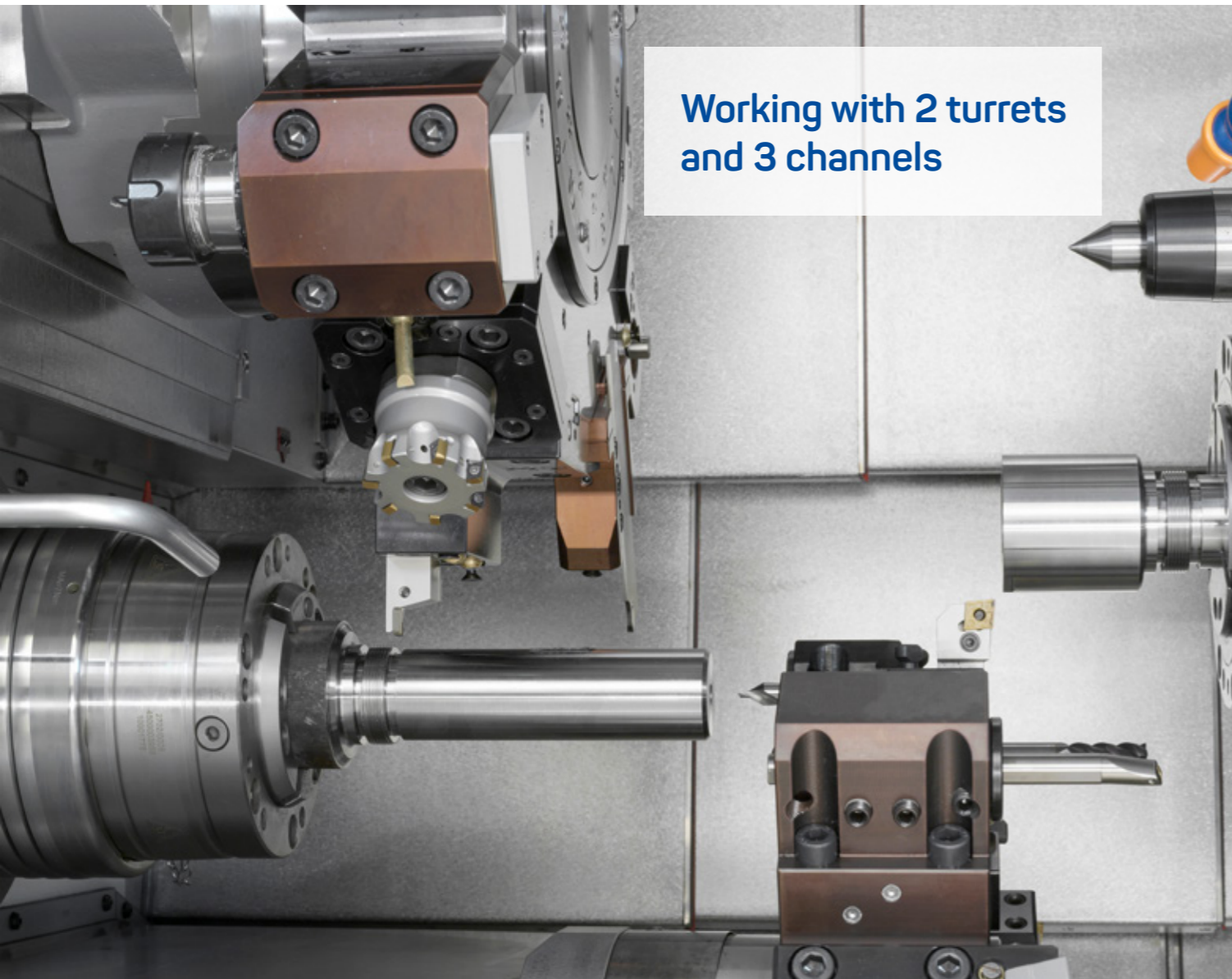
Balanced cutting reduces vibration, allowing increased material removal.



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

EXAMPLES OF USE

TTL 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.

ROBOT GL20 II

AUTOMATE SHORT AND LONG BATCH RUNS

A range of gripper heads with 2 x 10 kg capacity to suit your needs (GL20 II)

Very easy to use



Easy to use and to program. CMZ have developed a conversational programming system that makes it very easy to set and use the GL20 II and GL6 gantry robots.



Workstocker WS-280x400x14 with 14 pallets.

A wide range of large capacity workstockers are available allowing for long periods of unmanned operation.

The workstocker can accommodate components up to a maximum diameter of 280mm and maximum stacked height of 500mm (maximum travel of 400mm). The 14 rotary pallets each have a maximum carrying capacity of 75 kg.

The vertical movement of the wrist reduces the height required and doubles the movement speed.

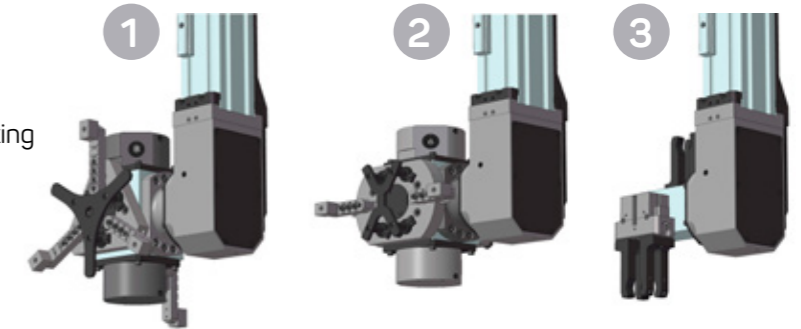


WS280

Checking station

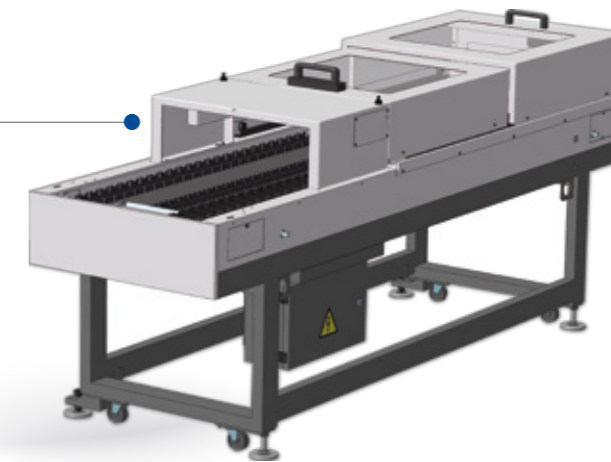
TTL SERIES

- 1 3-jaw servo gripper with 2 x 180° indexing
- 2 2-jaw servo gripper with 2 x 180° indexing
- 3 Servo gripper for shafts with 2 x 90° indexing



Workstocker WS-700 for shafts.

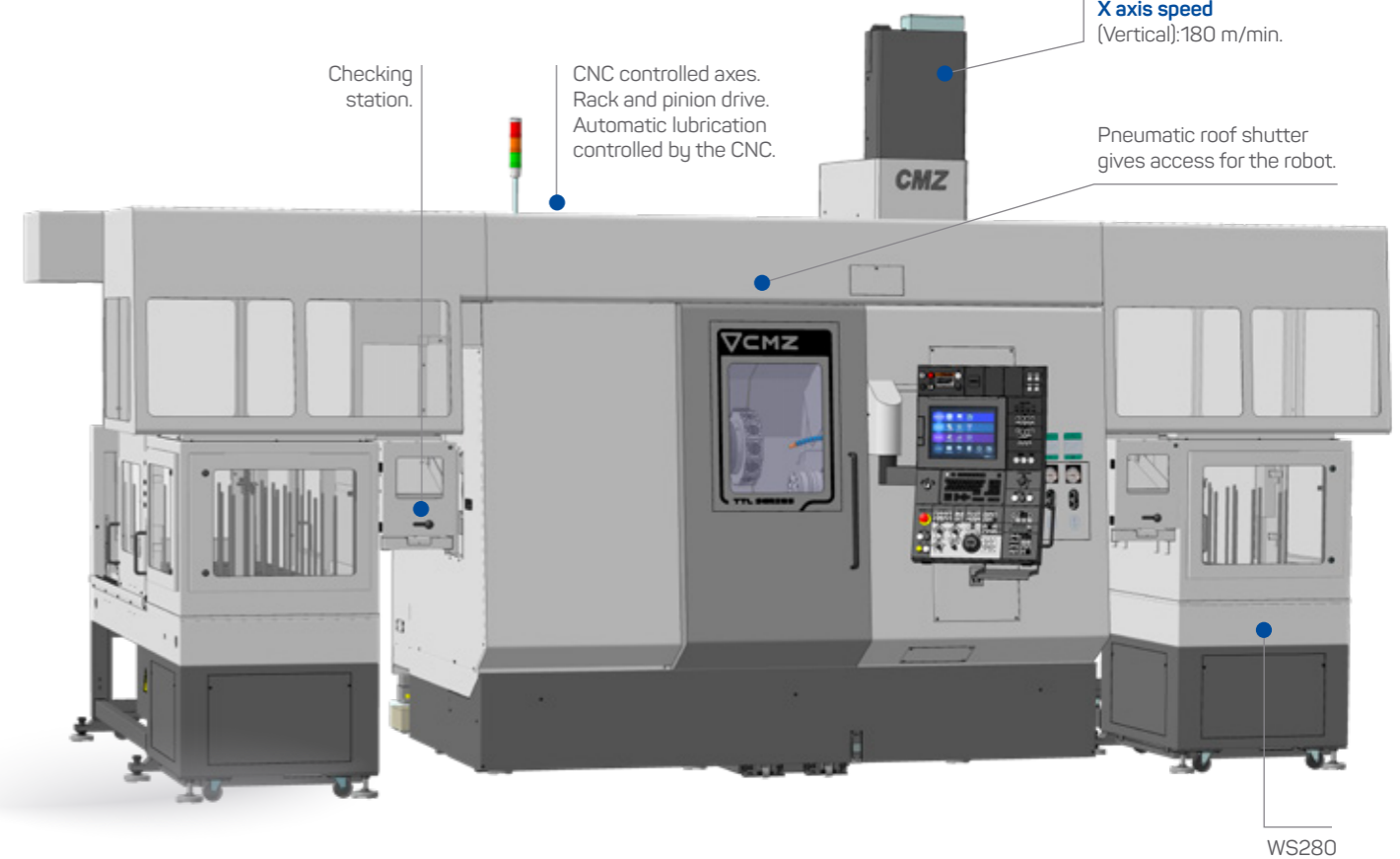
Workstocker for shafts from 80 mm to 700mm long and from 10 mm to 80mm diameter. Contact CMZ for other sizes.



Z axis speed
(Longitudinal):180 m/min.

Y axis speed
(Transverse):120 m/min.

X axis speed
(Vertical):180 m/min.



Checking station.

CNC controlled axes. Rack and pinion drive. Automatic lubrication controlled by the CNC.

Pneumatic roof shutter gives access for the robot.

WS280

TOOL HOLDERS

Boring holders Ø32



Ø32-H=55 mm
310.04.NKM0113220



Ø32-H=75 mm
310.04.NKM0113200



Ø32-H=80 mm
310.04.NKM0113240



- (Ø32-Ø6) 310.04.BLCT3206
- (Ø32-Ø8) 310.04.BLCT3208
- (Ø32-Ø10) 310.04.BLCT3210
- (Ø32-Ø12) 310.04.BLCT3212
- (Ø32-Ø16) 310.04.BLCT3216
- (Ø32-Ø20) 310.04.BLCT3220
- (Ø32-Ø25) 310.04.BLCT3225

Boring holders Ø32



Ø32-H=75 mm
310.04.NKM0113201

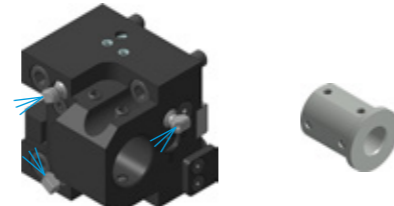


Ø32-H=55 mm
310.04.NKM0113221



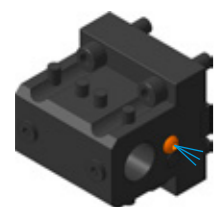
- (Ø32-Ø10) 310.04.BLCT3210
- (Ø32-Ø12) 310.04.BLCT3212
- (Ø32-Ø16) 310.04.BLCT3216
- (Ø32-Ø25) 310.04.BLCT3225

Holder for compound machining



- 20/Ø32-H=55 mm TTL/10300/36
- (Ø32-Ø6) TTL/10300/6
- (Ø32-Ø8) TTL/10300/8
- (Ø32-Ø10) TTL/10300/10
- (Ø32-Ø12) TTL/10300/12
- (Ø32-Ø16) TTL/10300/16
- (Ø32-Ø20) TTL/10300/20
- (Ø32-Ø25) TTL/10300/25

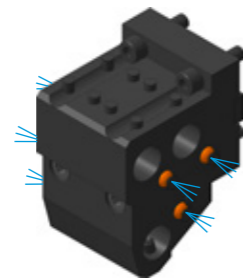
Boring holders Ø25



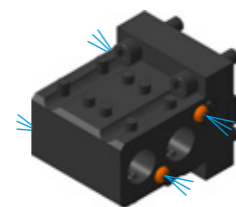
Ø25-H=55 mm
310.04.NKM0112500



Ø25-H=75 mm
310.04.NKM0112520



Ø25 (X3)
310.04.NKM0211000



Ø25 (X2)
310.04.NKM0142500



- (Ø25-Ø6) 310.04.BLCT2506
- (Ø25-Ø8) 310.04.BLCT2508
- (Ø25-Ø10) 310.04.BLCT2510
- (Ø25-Ø12) 310.04.BLCT2512
- (Ø25-Ø16) 310.04.BLCT2516
- (Ø25-Ø20) 310.04.BLCT2520



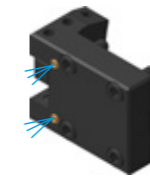
- (Ø25-ER25) 310.04.BLCT2500ER25_L70
- (Ø25-ER32) 310.04.BLCT2500ER32_L70
- (Ø32-ER25) 310.04.BLCT3200ER25_L70
- (Ø32-ER32) 310.04.BLCT3200ER32_L70

Live Centre

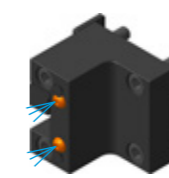


310.04.CPT_D25_4_01
310.04.NKM0112530

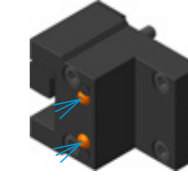
Turning holders



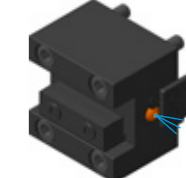
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310.04.NKM01712000



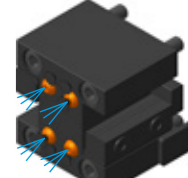
□20
310.04.NKM0162000



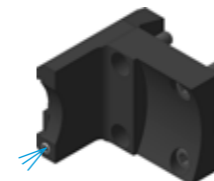
□25
310.04.NKM0162500



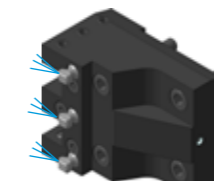
□20
310.04.NKM0182000



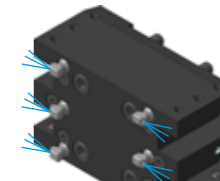
□20 (x2)
310.04.NKM0152000



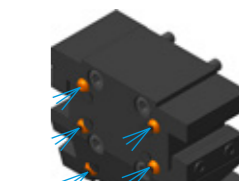
□20
310.04.NKM0170132



□20 (x2)
TTL/10300/37



□20 (x4)
TTL/10300/38



□20 (x4)
310.04.NKM0221000

Driven holders



ER32 Máx. 12.000 rpm
TTL/10400/02



Máx. 6.000 rpm
310.04.NKM0492525 ER25-H=55 mm
310.04.NKM0492532 ER32-H=55 mm
310.04.NKM0492525 ER25-H=75 mm
310.04.NKM0492532 ER32-H=75 mm



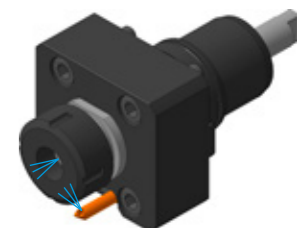
ER16 Máx. 12.000 rpm
TTL/10400/09



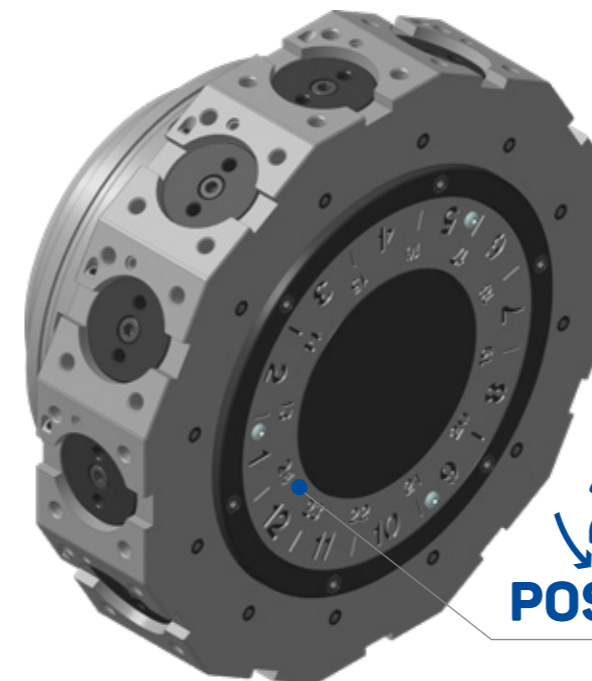
ER32 Máx. 12.000 rpm
TTL/10400/05



ER32 Máx. 6.000 rpm
310.04.NKM0700132



ER32 Máx. 6.000 rpm
310.04.NKM0700232



24
POSITIONS

CNC FANUC SERIES 30

WITH IHMI INTERFACE
AND NEW HARDWARE STEP 2

15" Touch screen

Adjustable
height
100 mm

Data Transfer



- Ethernet
- USB
- PCMCIA

2 GB

Part program memory

Ready
for Industry
4.0



1 Visualize your CNC in your PC



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.



Conversational programming

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



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.



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 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.



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.



Manuels

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.



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.



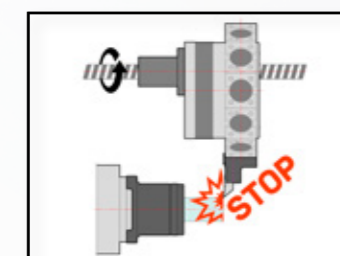
Tool monitoring (option)

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.



Execution of program with the manual handle

This function allows to check the programs executing them back and forth with the manual handle.

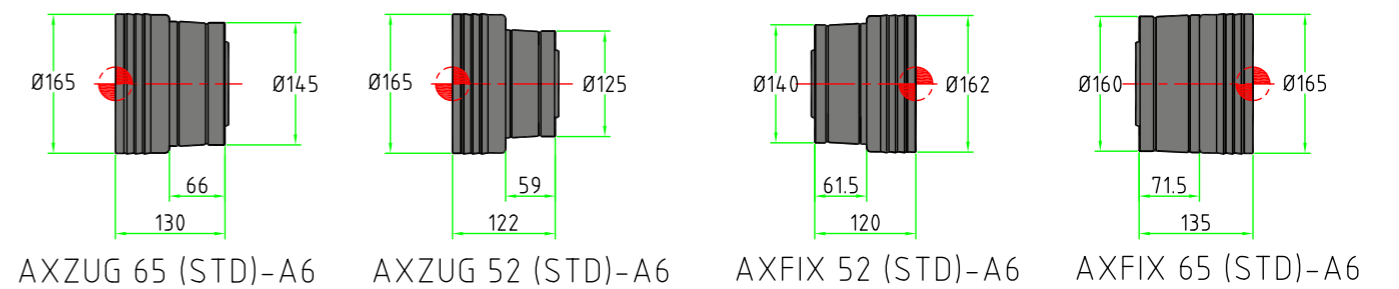
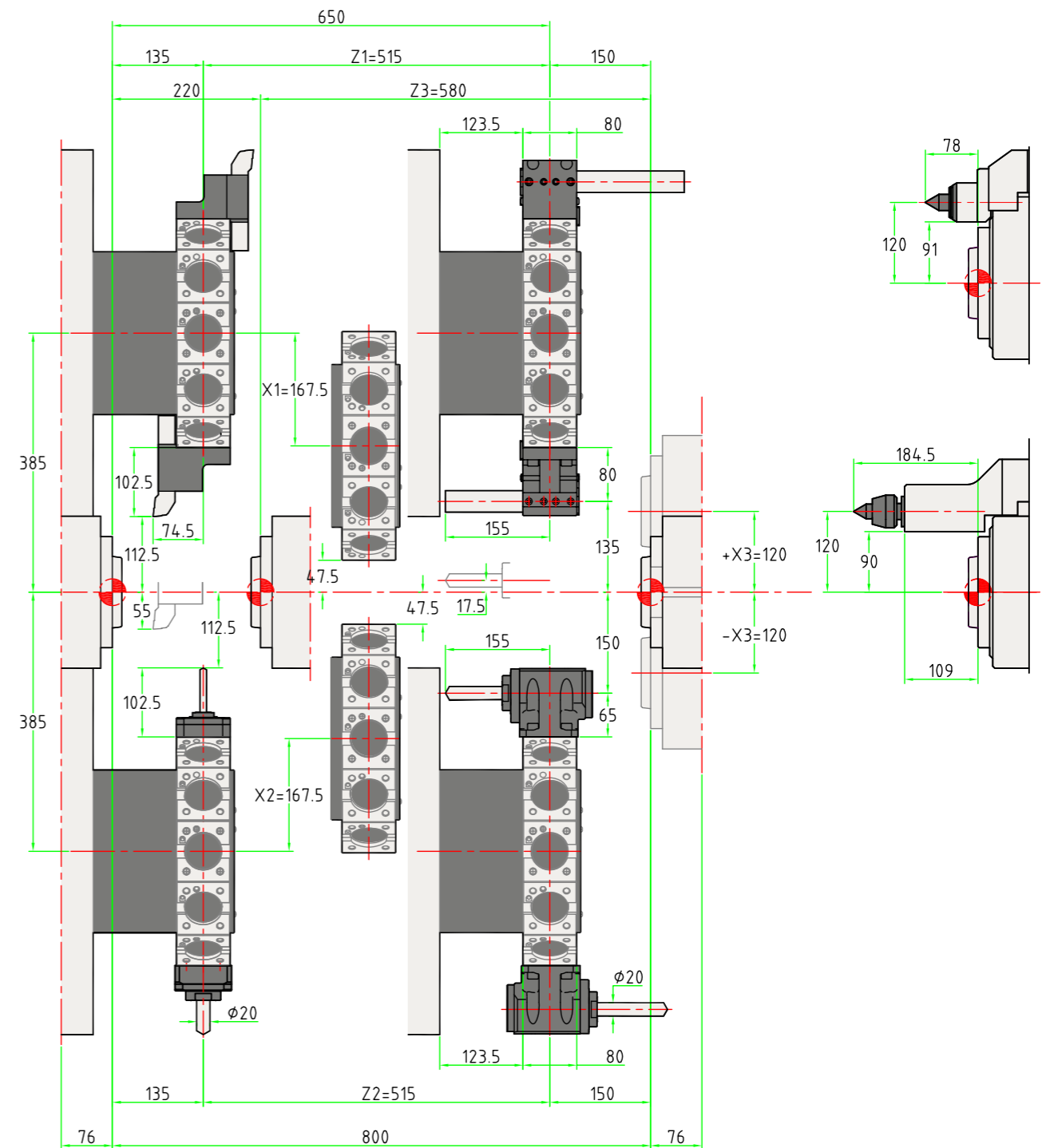
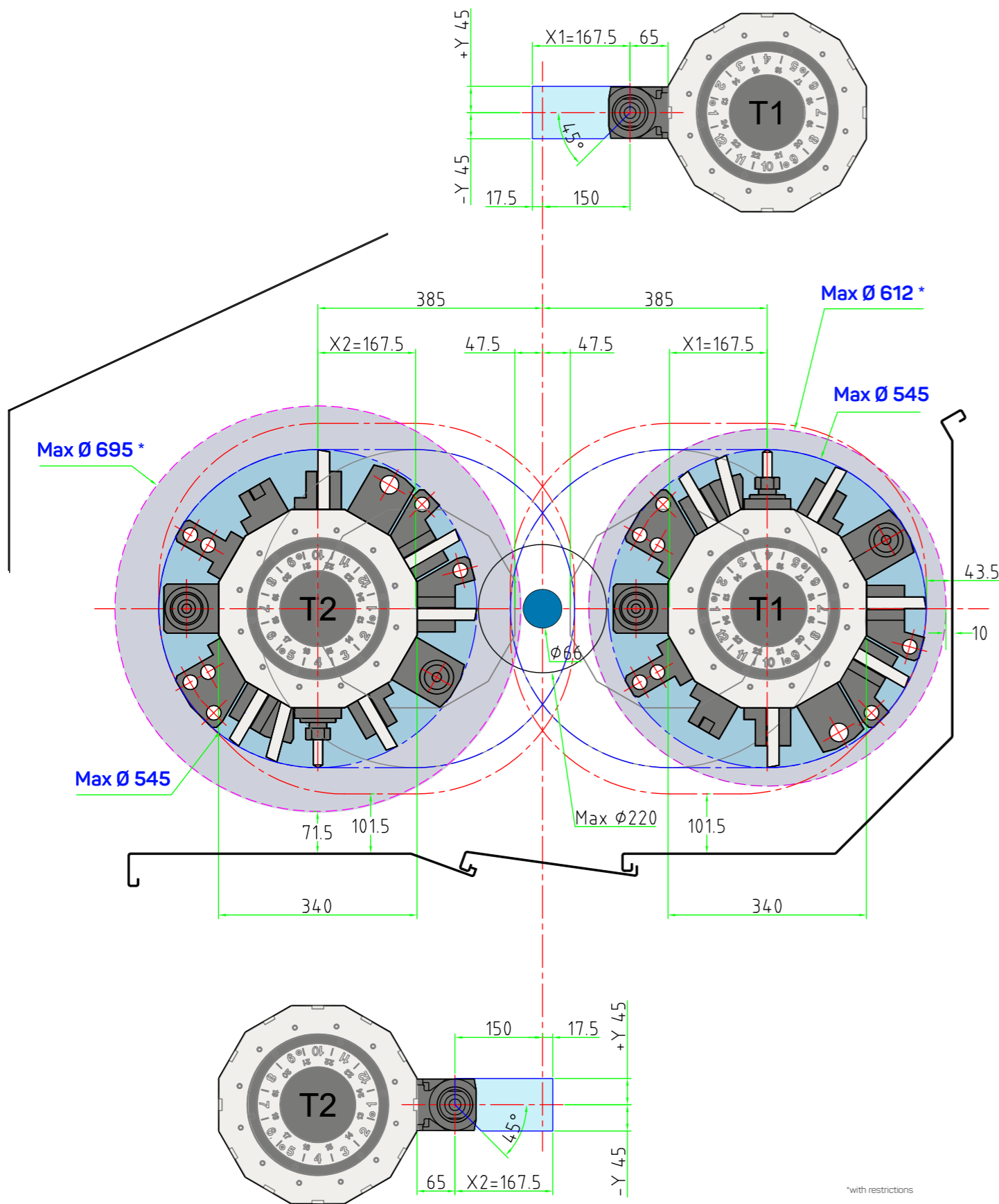


Electronic detection of collisions (airbag).

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.

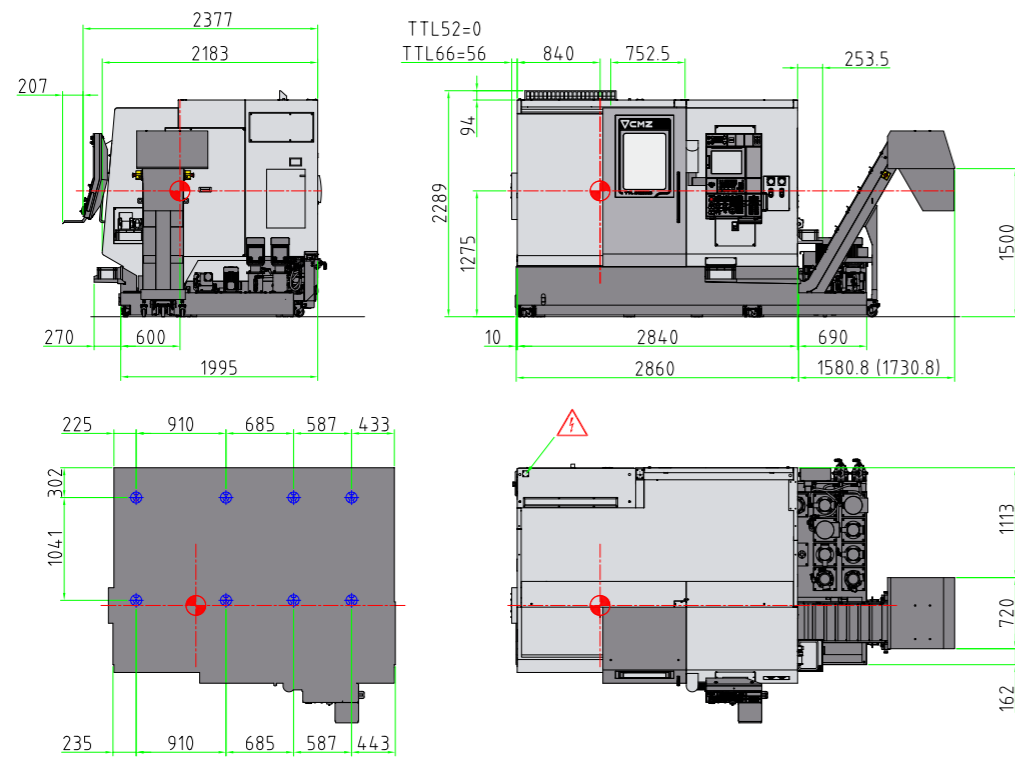
TRAVELS

TTL SERIES

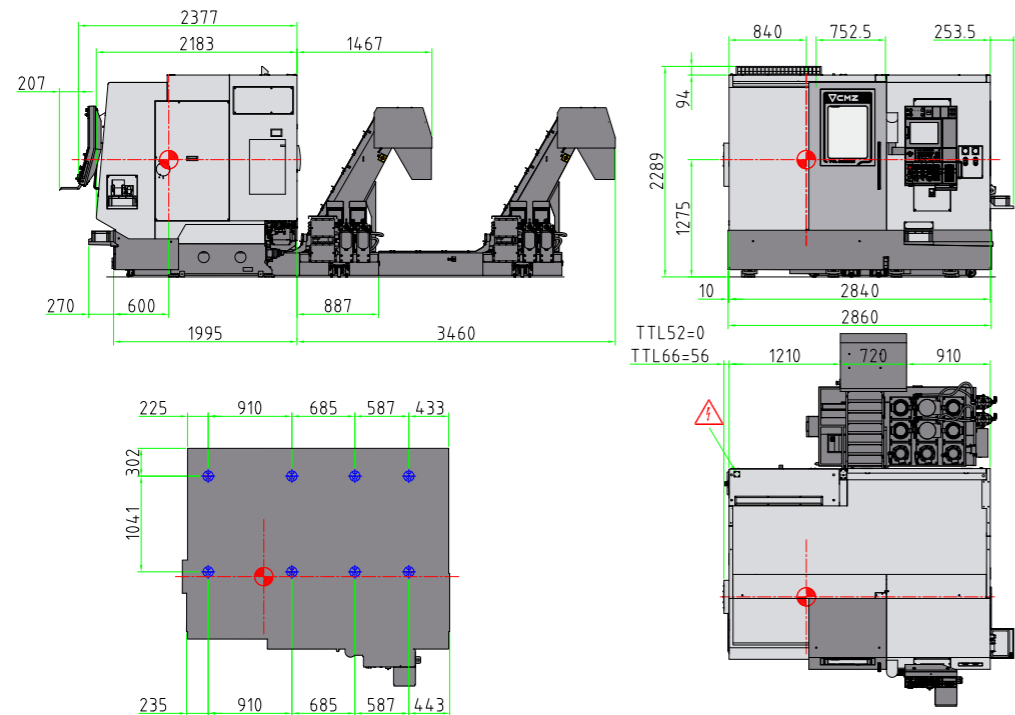


DIMENSIONS

1 Side Exit Chip Conveyor



2 Rear Exit Chip Conveyor



TECHNICAL SPECIFICATIONS

TECHNICAL DATA	TTL-52-52			TTL-52-66			TTL-66-52			TTL-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)	220			220			220			220		
Distance between spindle nose and tailstock centre (mm)	614			614			614			614		
Distance between centres (mm)	800			800			800			800		
X1_X2-axis travel (mm)	167,5			167,5			167,5			167,5		
X3-axis travel (mm)	+120			+120			+120			+120		
Z1_Z2-axis travel (mm)	-120			-120			-120			-120		
Z3-axis travel (mm)	580			580			580			580		
Y-axis travel (mm)	-			+45			-			+45		
Fast feedrate X (m/min)	30			30			30			30		
Fast feedrate Z (m/min)	30			30			30			30		
Fast feedrate Y (m/min)	20			20			20			20		
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)	4500			4500			4000			4000		
Bearing outside diameter (mm)	150			150			170			170		
Bearing inside diameter (mm)	100			100			110			110		
Spindle nose	ASA 6" A2			ASA 6" A2			ASA 6" A2			ASA 6" A2		
Spindle inside diameter (mm)	61			61			72,5			72,5		
Drawtube bore (mm)	52			52			66			66		
Chuck diameter (mm)	175 / 210			175 / 210			210			210		
Maximum bar diameter (mm)	56 / 52			56 / 52			66			66		
Spindle power (kW) (max./S2 25%/ S1)	35,5 / 28,3 / 23,5			35,5 / 28,3 / 23,5			35,5 / 28,3 / 23,5			35,5 / 28,3 / 23,5		
Turning torque (Nm) (max./S3 25%/ S1)	205 / 180 / 150			205 / 180 / 150			205 / 180 / 150			205 / 180 / 150		
TAILSTOCK												
Morse taper	CM3			CM3			CM3			CM3		
Tailstock travel (mm)	580			580			580			580		
Max. force (kgf)	500			500			500			500		
TURRET												
Number of positions (Number of index positions)	12 (24)			12 (24)			12 (24)			12 (24)		
Section of tools (mm)	20x20 / 25x25			20x20 / 25x25			20x20 / 25x25			20x20 / 25x25		
Changing time	0,17 s			0,17 s			0,17 s			0,17 s		
Interlocking force at 45 bar (kgf)	3200			3200			3200			3200		
DRIVEN TOOLS												
Number of driven tools	-			12			-			12		
Turning speed (rpm)	-			12000			-			12000		
Power (kW) (max./S1)	-			14 / 10			-			14 / 10		
Maximum torque (Nm) (max./S1)	-			42 / 32			-			42 / 32		
SUBSPINDLE												
Maximum speed (rpm)	4500			4000			4500			4000		
Bearing outside diameter (mm)	150			170			150			170		
Bearing inside diameter (mm)	100			110			100			110		
Spindle nose	ASA 6" A2			ASA 6" A2			ASA 6" A2			ASA 6" A2		
Spindle inside diameter (mm)	61			72,5			61			72,5		
Drawtube bore (mm)	52			66			52			66		
Chuck diameter (mm)	175 / 210			210			175 / 210			210		
Chuck bore (mm)	56 / 52			66			56 / 52			66		
Power (kW) (max./ S3 25%/ S1)	35,5 / 28,3 / 23,5			35,5 / 28,3 / 23,5			35,5 / 28,3 / 23,5			35,5 / 28,3 / 23,5		
Turning torque (Nm) (max./S3 25%/ S1)	205 / 180 / 150			205 / 180 / 150			205 / 180 / 150			205 / 180 / 150		
MISCELLANEOUS												
Coolant tank (litres)	Side			510			Side			510		
	Rear			330			Rear			330		
Hydraulic oil tank (litres)	10			10			10			10		
Lubrication oil tank (litres)	4			4			4			4		
Installed power (kVA)	87			87			87			87		
Functioning voltage	400 V 50 Hz ±5%			400 V 50 Hz ±5%			400 V 50 Hz ±5%			400 V 50 Hz ±5%		
	[230 V 50 Hz ±5%]			[230 V 50 Hz ±5%]			[230 V 50 Hz ±5%]			[230 V 50 Hz ±5%]		
Environmental temperature	35 °C			35 °C			35 °C			35 °C		
Total weight (kg)	11000			11000			11000			11000		
Dimensions	2860x2377x2289			2860x2377x2289			2860x2377x2289			2860x2377x2289		
Internal volume (m ³)	1,7			1,7			1,7			1,7		

(*) Approximate weights.

Due to constant development of our products all specifications given here in are subject to change without notice.

CMZ, THE POWER OF A MANUFACTURER

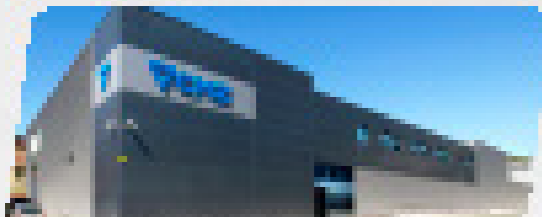
CMZ has been manufacturing machine tools for more than 70 years. Being part of an ever-changing sector has forced us to reinvent ourselves, renew and improve our production processes.

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 with our group. This has helped us to acquire a very broad and professional vision of the product.

Together with more than 200 people and 32,000 square metres of facilities, we deliver almost three machines per day to customers throughout Europe.

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CMZ HEADQUARTERS



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CMZ France



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Switzerland, Sweden, Finland,
Norway, The Netherlands,
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MANUFACTURING PLANTS

CMZ ASSEMBLY PLANT 1



CNC lathe assembly plant
6,600 m² | Zaldivar - Spain

CMZ ASSEMBLY PLANT 2 | SEUNER



CNC lathe assembly plant
10,000 m² | Mañabo - Spain

MECANNOR



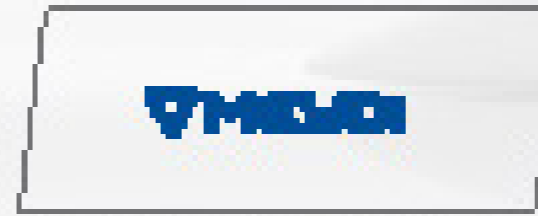
Machining plant
4,800 m² | Girona - Spain

PRECITOR



Machining plant
870 m² | Eibar - Spain

MEYDI



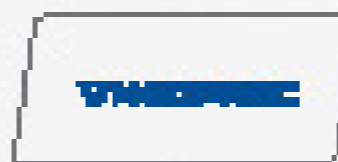
Assembly plant for reelectrical cabinets
1,200 m² | Zaldivar - Spain

CARBUR

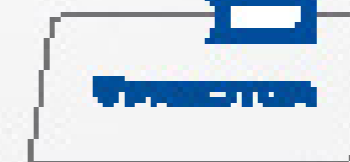


Industrial boiler company
16,000 m² | Oñate - Spain

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#wearecmz

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