TTL SERIES

TTL 52 / TTL 66 MODELS

CMZ

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

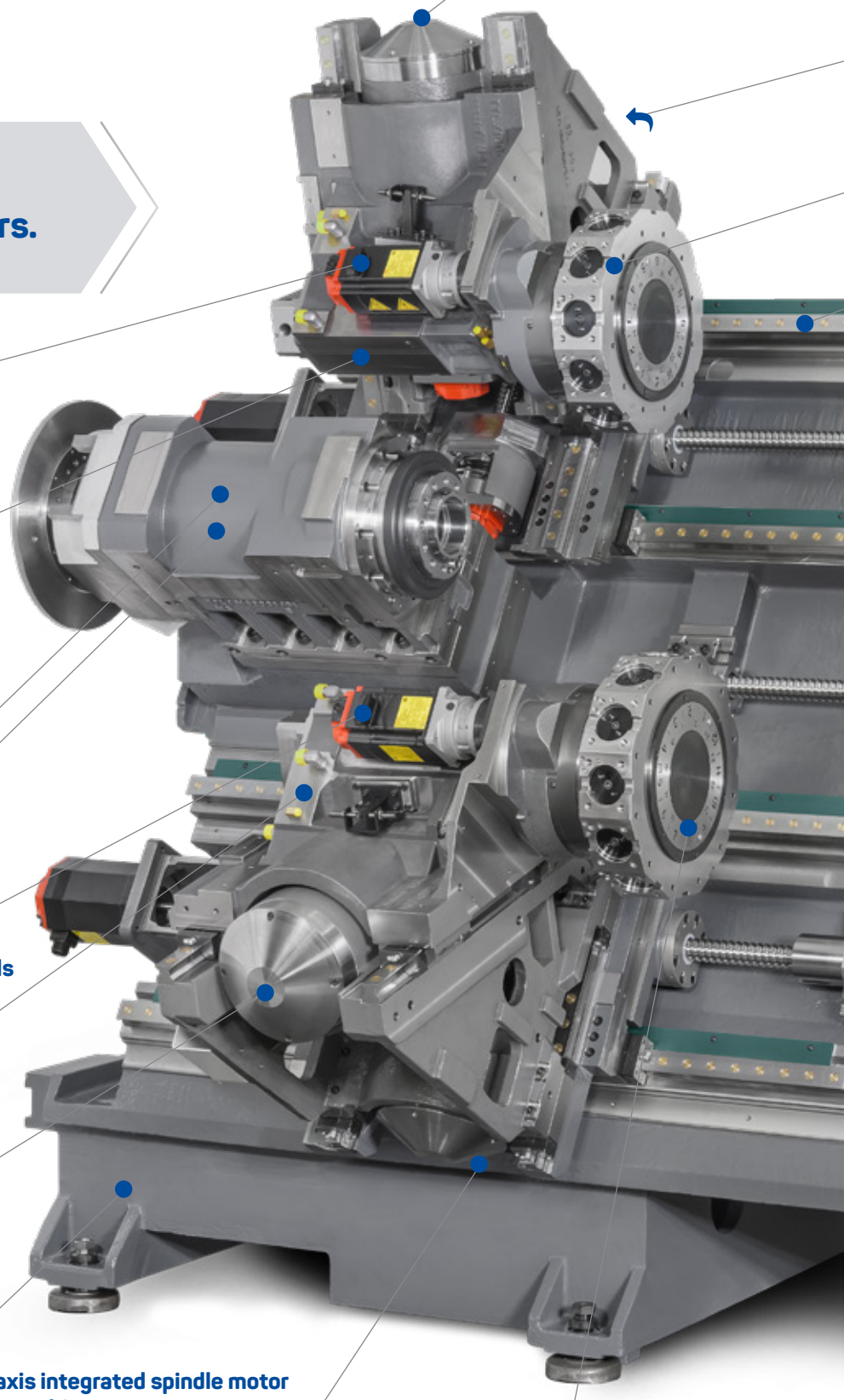
Lower Turret
- Without driven tools
- With driven tools
- With Y axis

TTL SERIES

TECHNICAL CHARACTERISTICS

TTL MODEL

Machine without belts.
Direct drive for all motors.



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

FANUC Servo Motor for turret indexing.

Integrated spindle motor for driven tools 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_3 axis ball screw mounts.
- The turrets.

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

Turret clamped with curvic coupling.

TTL SERIES

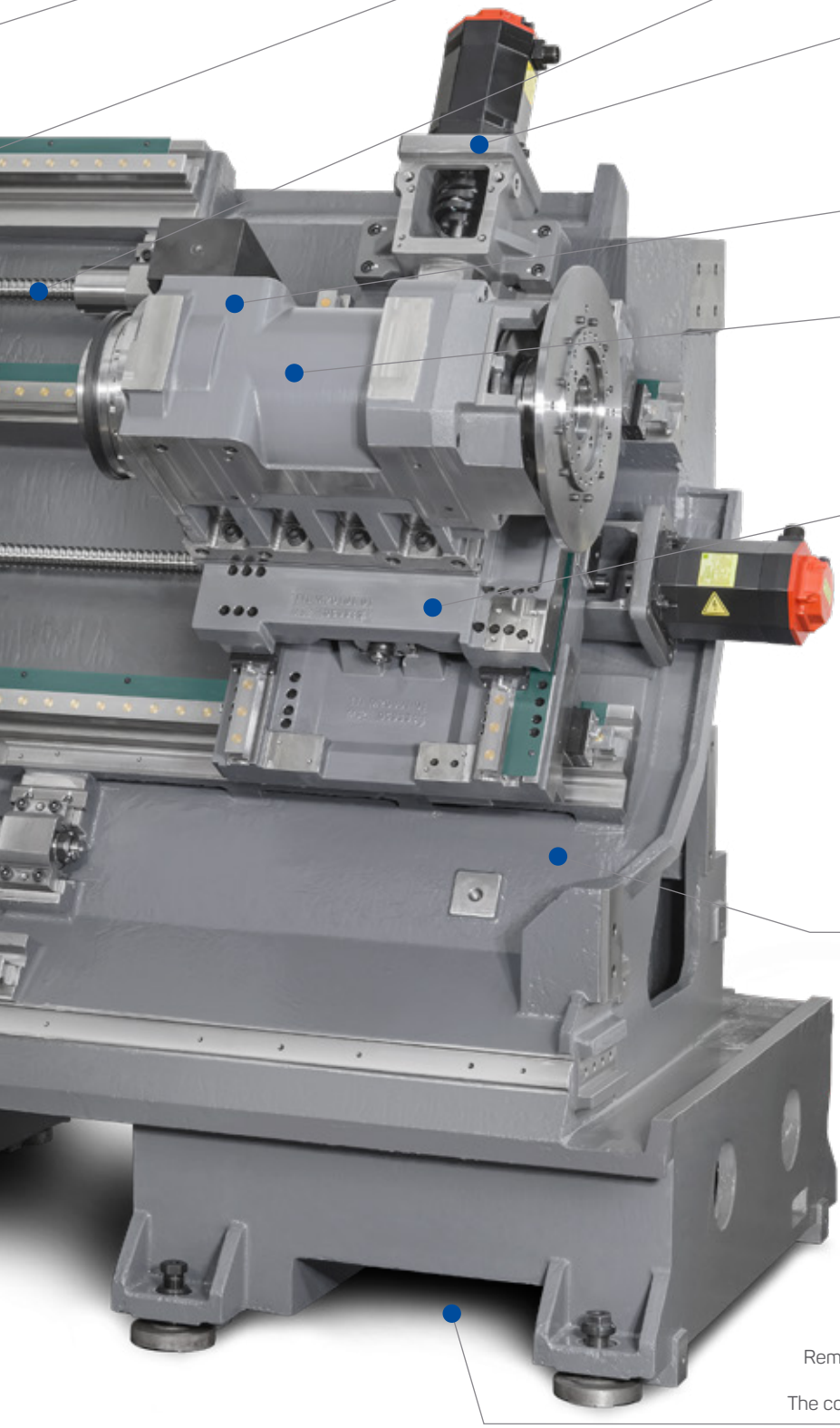
· X axis integrated spindle motor
· Direct drive
· Oil-cooled

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° 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.

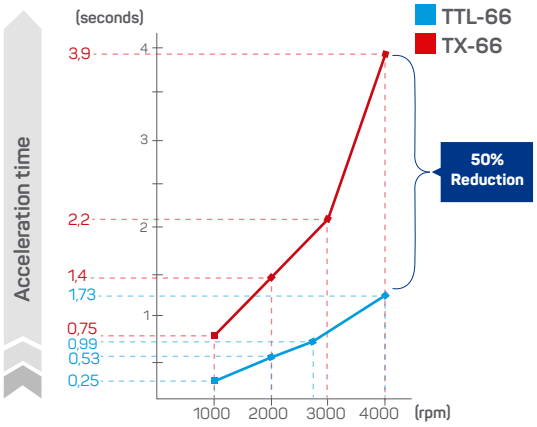
INTEGRATED SPINDLES WITH SYNCHRONOUS MOTORS

- SPINDLE REMAINS COOL
- REDUCED THERMAL EXPANSION
- SUPERIOR PRECISION

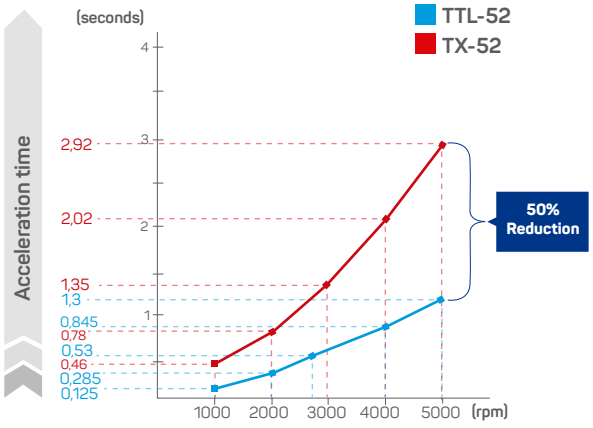
Built-in encoder.
Compensation of mensuration errors by laser measurement and bidirectional and interpolated error correction.

ACCELERATION TIME REDUCED BY HALF

TTL-66 vs TX-66



TTL-52 vs TX-52

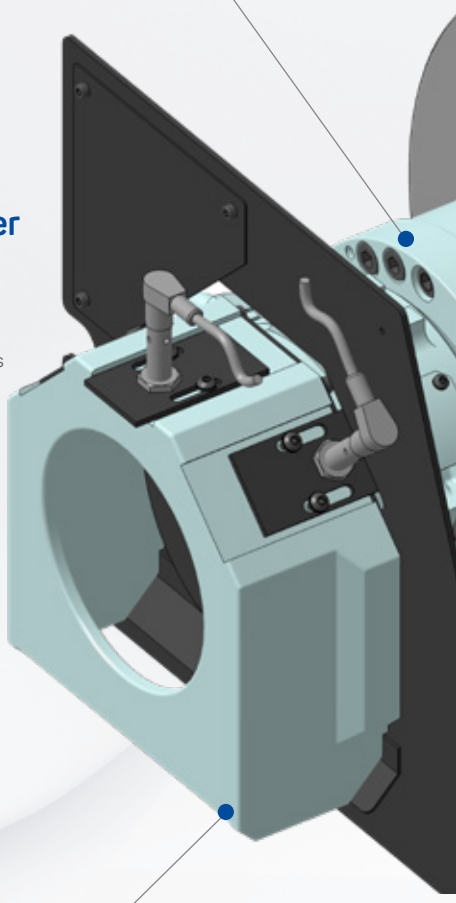


No pulleys or belts

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

Hydraulic cylinder at 45kg/cm2

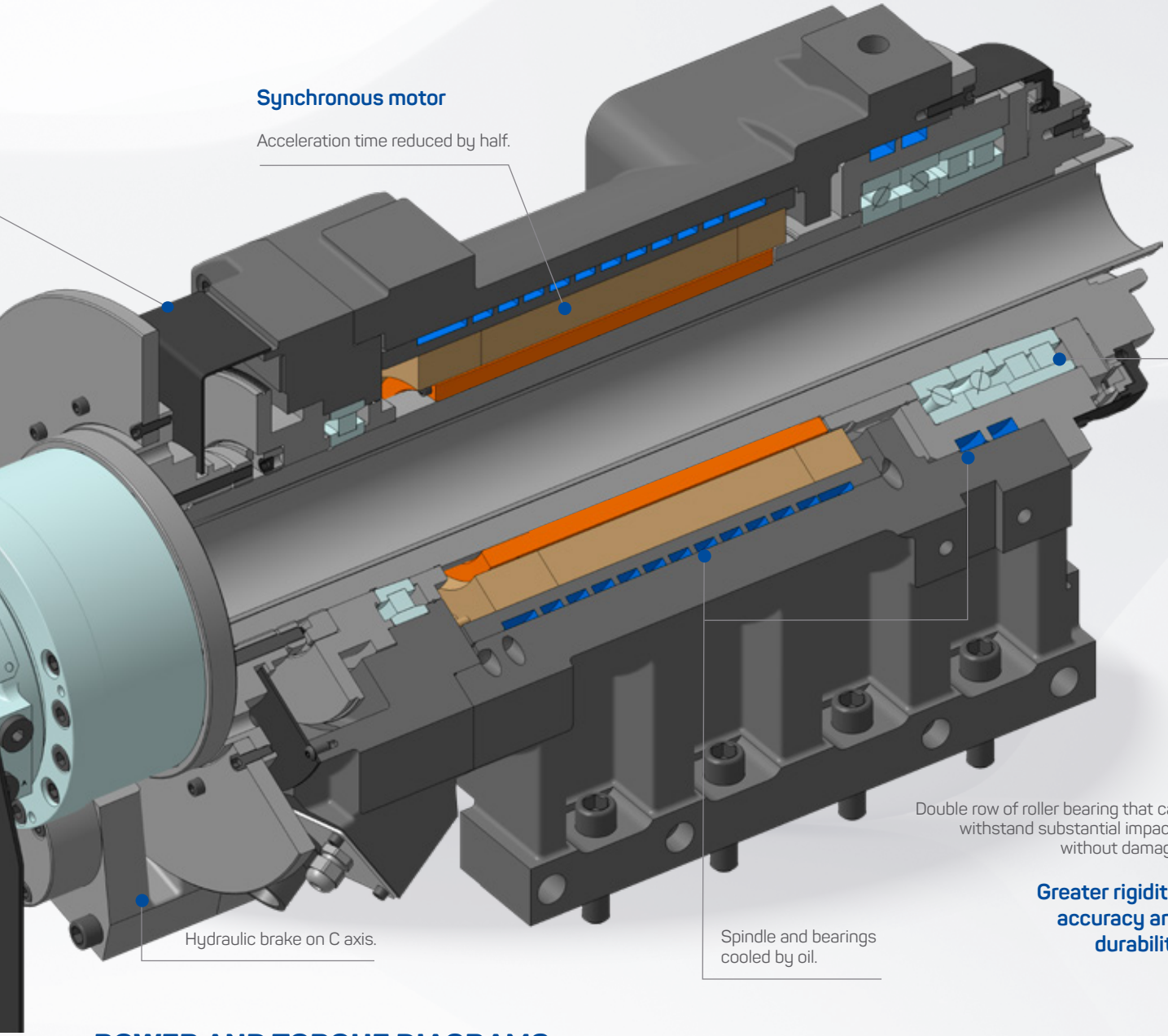
- More compact
  (Reduced cross-section means higher clamping speed)
- Greater sensitivity for light clamping



Special coolant collection tray manufactured by CMZ

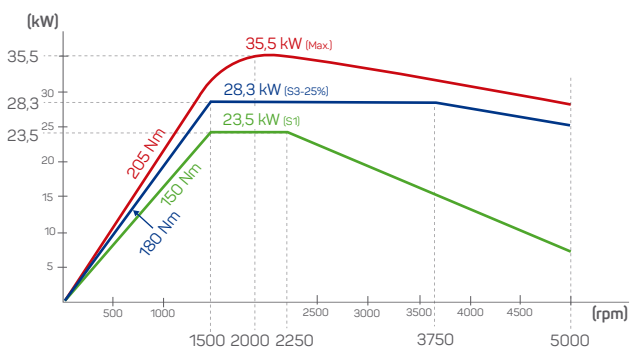
- Excellent access to adjust the detectors.
- Easy chip removal.
- Protection against coolant entering into the hydraulic circuit.

TTL SERIES

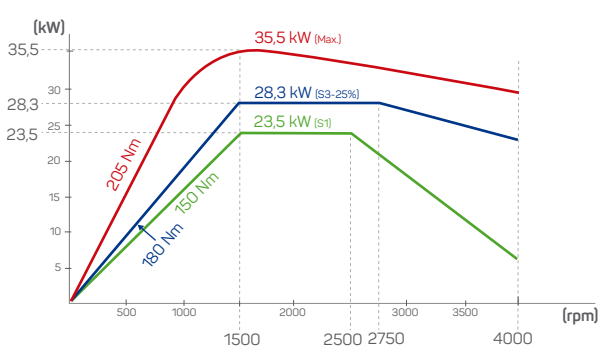


POWER AND TORQUE DIAGRAMS

TTL-52

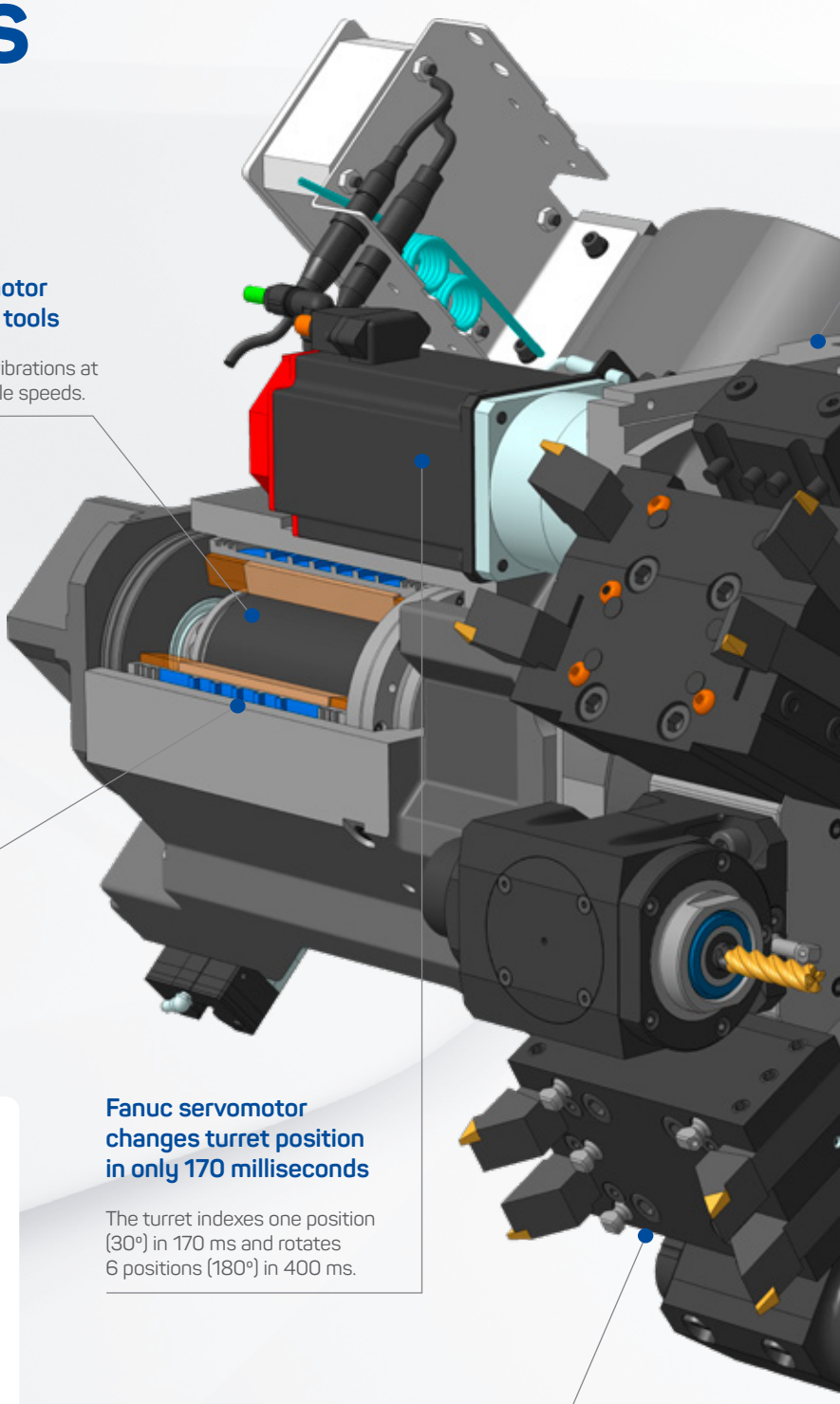


TTL-66



TURRET WITH 12,000 rpm DRIVEN TOOLS

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).

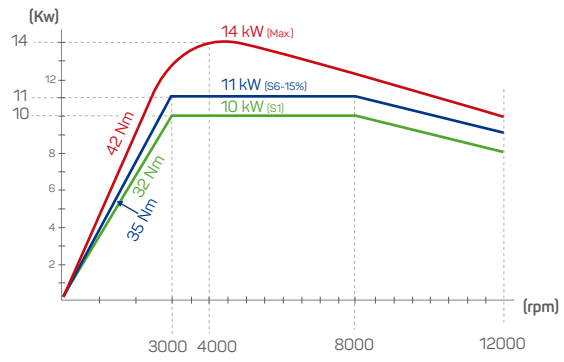
Fanuc servomotor changes turret position in only 170 milliseconds

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.

POWER AND TORQUE DIAGRAM OF DRIVEN TOOL MOTOR

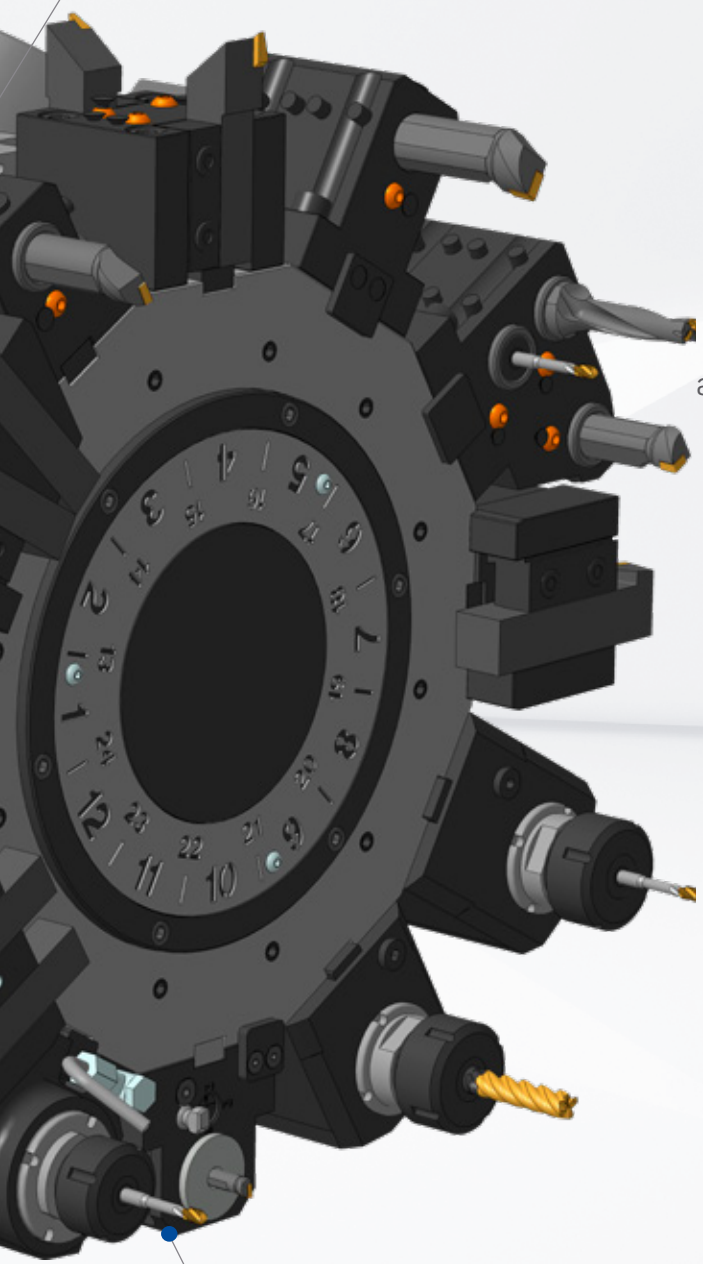


CMZ

TTL SERIES

Hydraulic Clamping

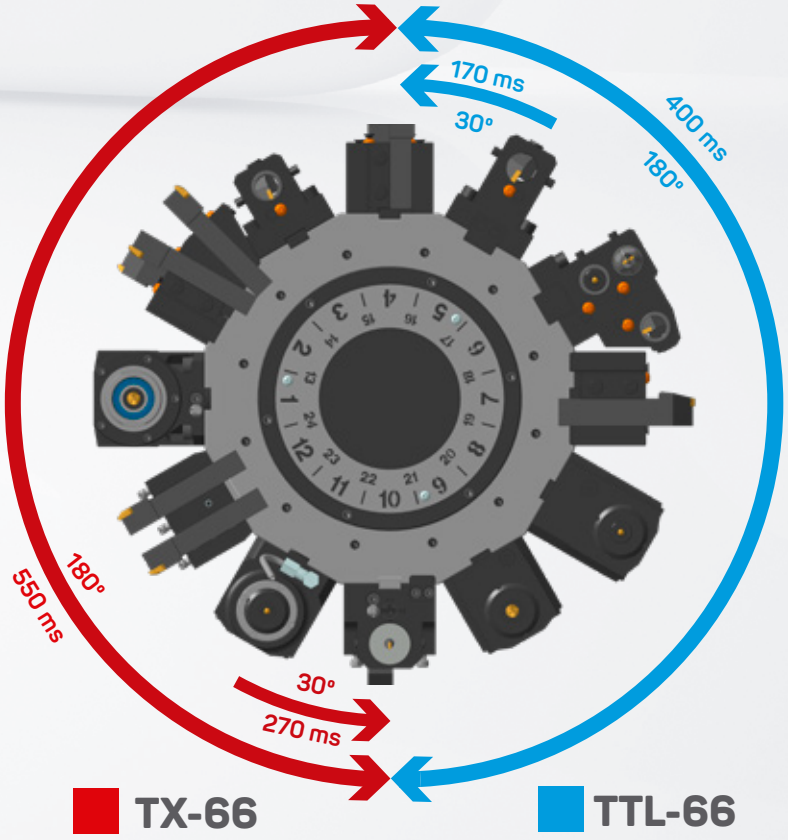
Turrets hydraulically clamped with curvic couplings for accurate indexing and rigidity.



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)

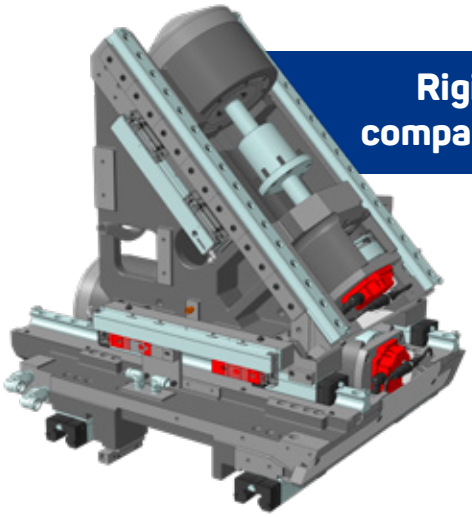


12,000 rpm driven tool holders

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

X AND Y AXIS INTEGRATED MOTORS

AXIS ENCODERS DIRECTLY ATTACHED TO THE BALL SCREW



Rigid and compact design

30 m/min
in all axes

Roller linear guides

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

±45 mm
Y axis travel

Linear Encoder (Optional)

Linear encoders are optional on all axes.

X and Y axis integrated motors

Without belts for increased accuracy.

DCMZ

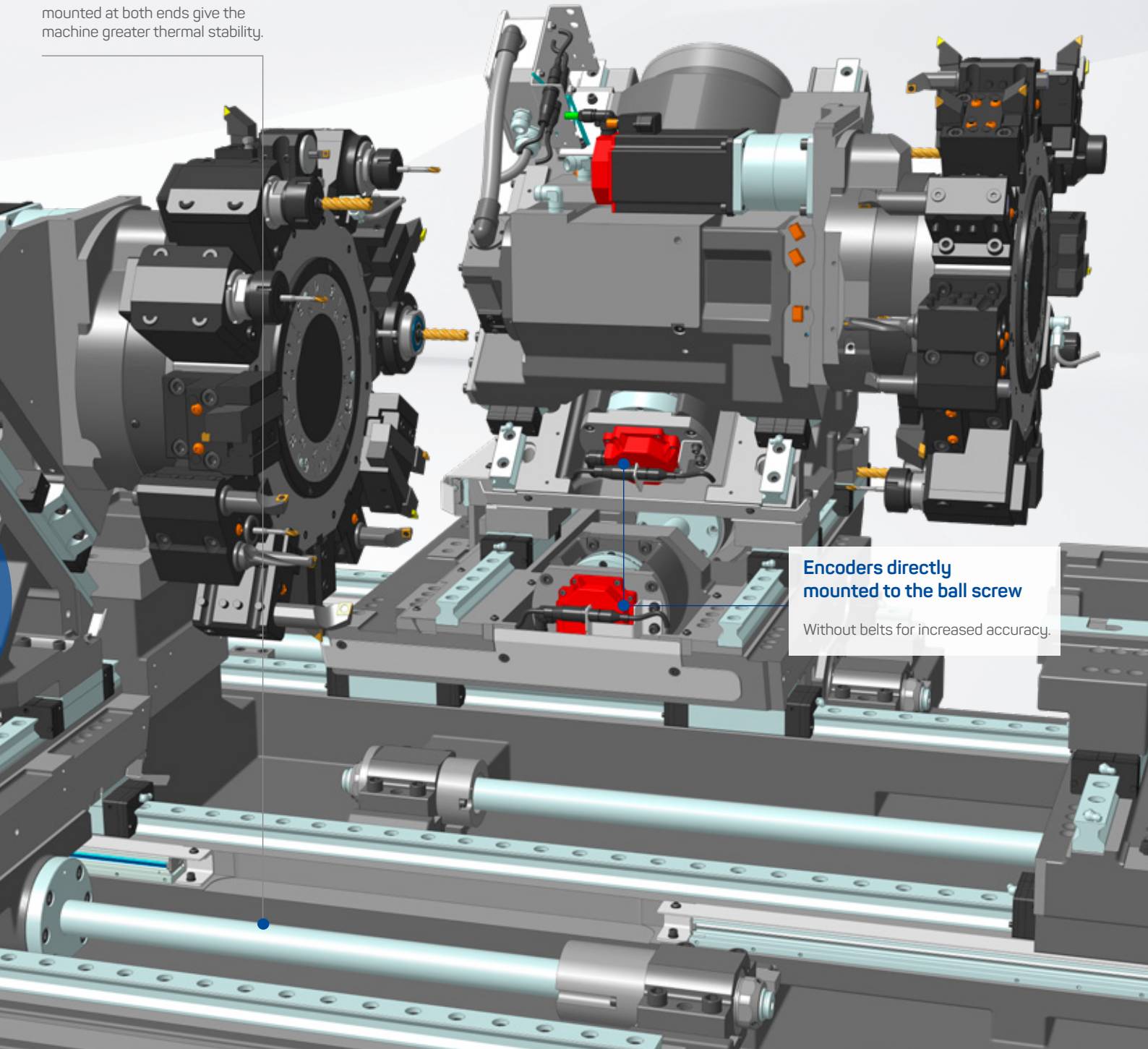
TTL SERIES

Thermal stability and precision

X and Y axis without belts and oil-cooled

Pre-stretched ball screws

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

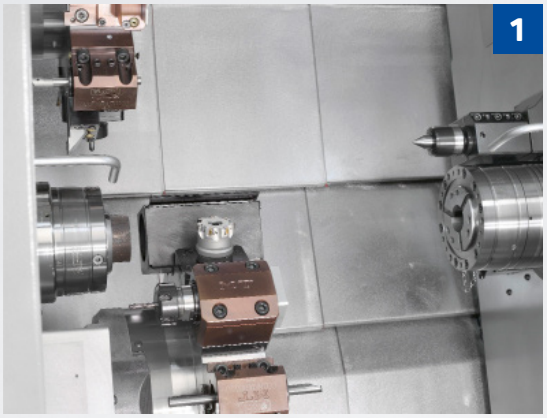


Encoders directly mounted to the ball screw

Without belts for increased accuracy.

PNEUMATIC PARTS CATCHER

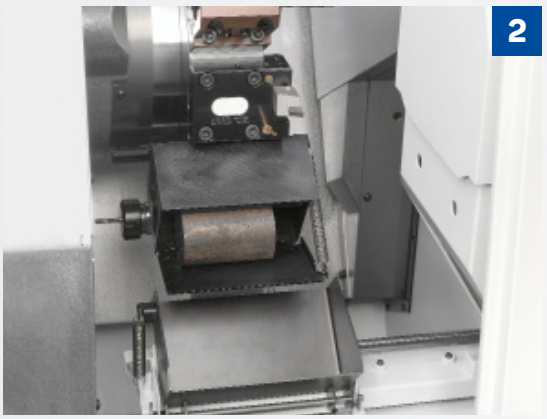
ACCESSORY FOR REMNANT COLLECTION



1

Pick up

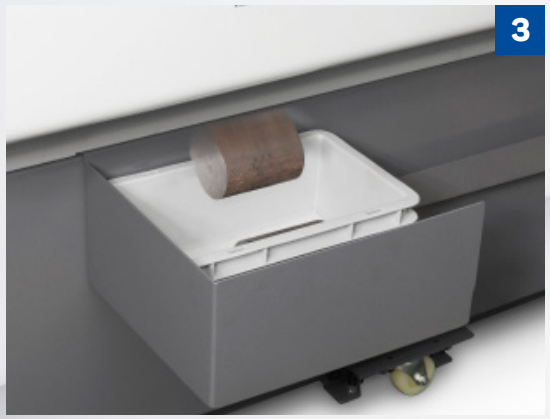
The bar feeder pushes the remnant into the collector box, which is mounted onto one of the positions of the bottom turret.



2

Transfer to the catcher

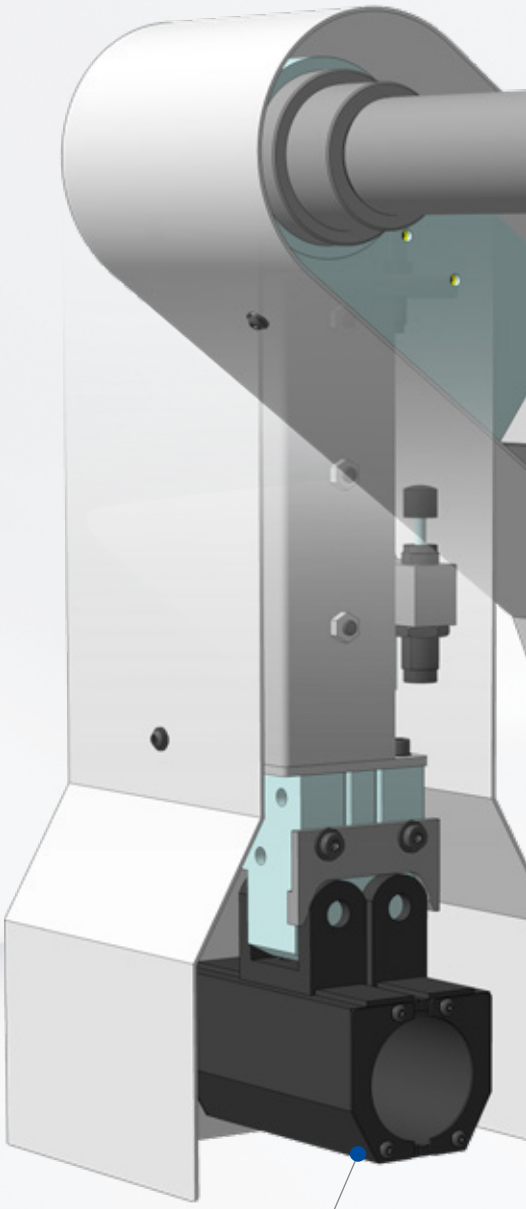
The turret rotates to a position where the remnant then rolls into the catcher.



3

Remnant eject

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



Option 2: Component collector

The collector has a pneumatic opening and closing movement.

TTL SERIES

8 Seconds*

Total time for component collection

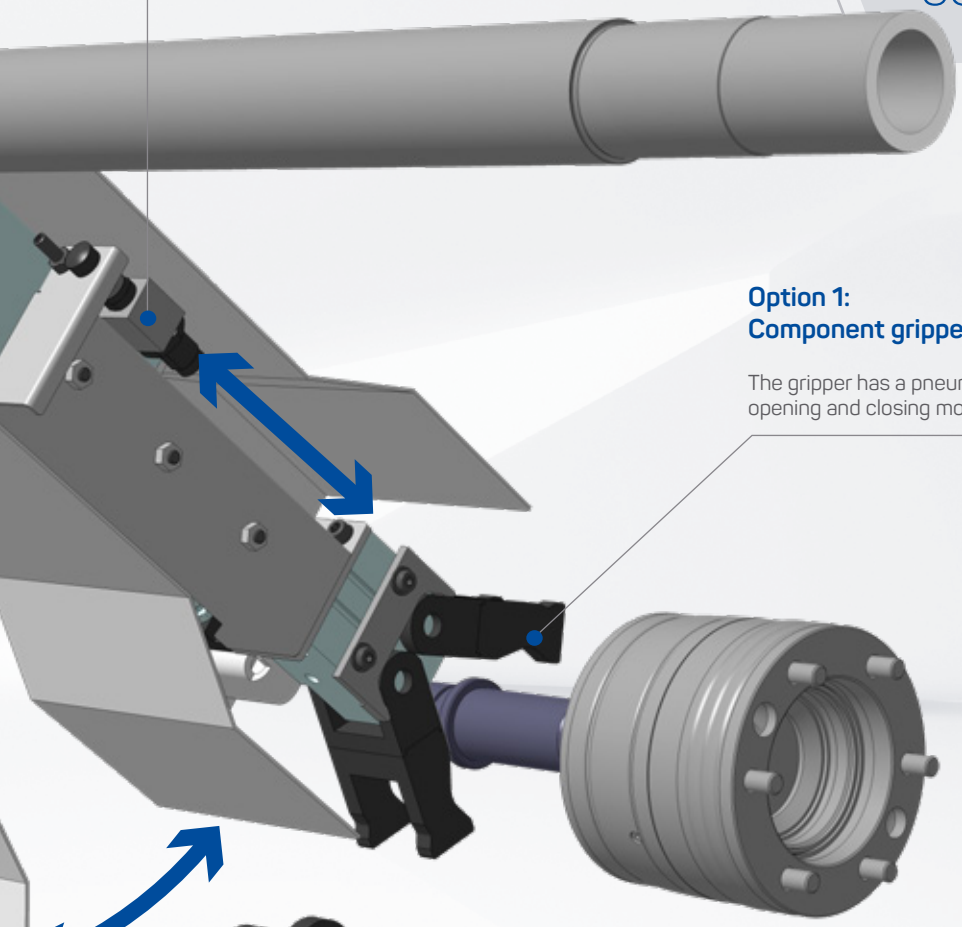
* Could be higher depending on the type of component being collected.

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.



Finished parts conveyor

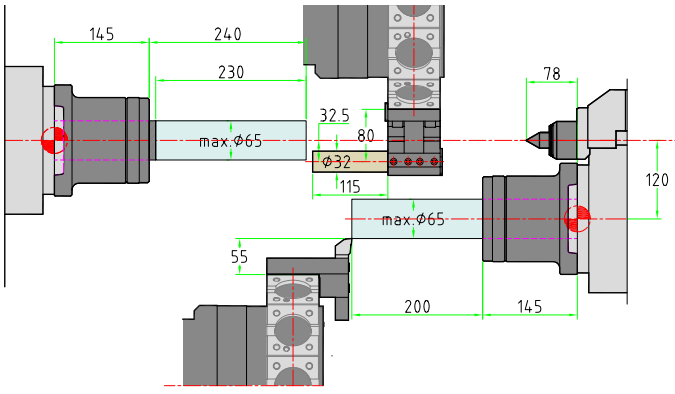
The conveyor moves finished components to the outside of the machine.

EXAMPLES OF USE

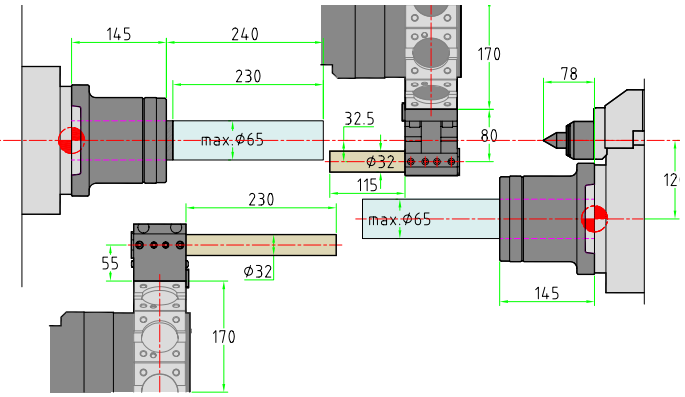
Working with sub-spindle displaced downwards

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.



Movement of the sub-spindle reduces any interference.

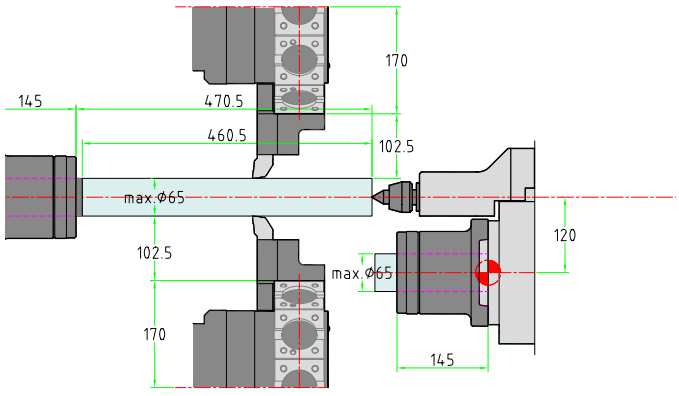


The position of the sub-spindle allows the machining of very long components.

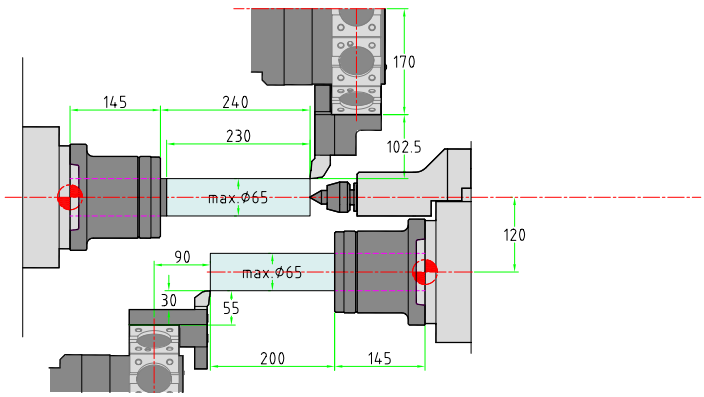
TTL SERIES

Operating with tailstock (option)

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

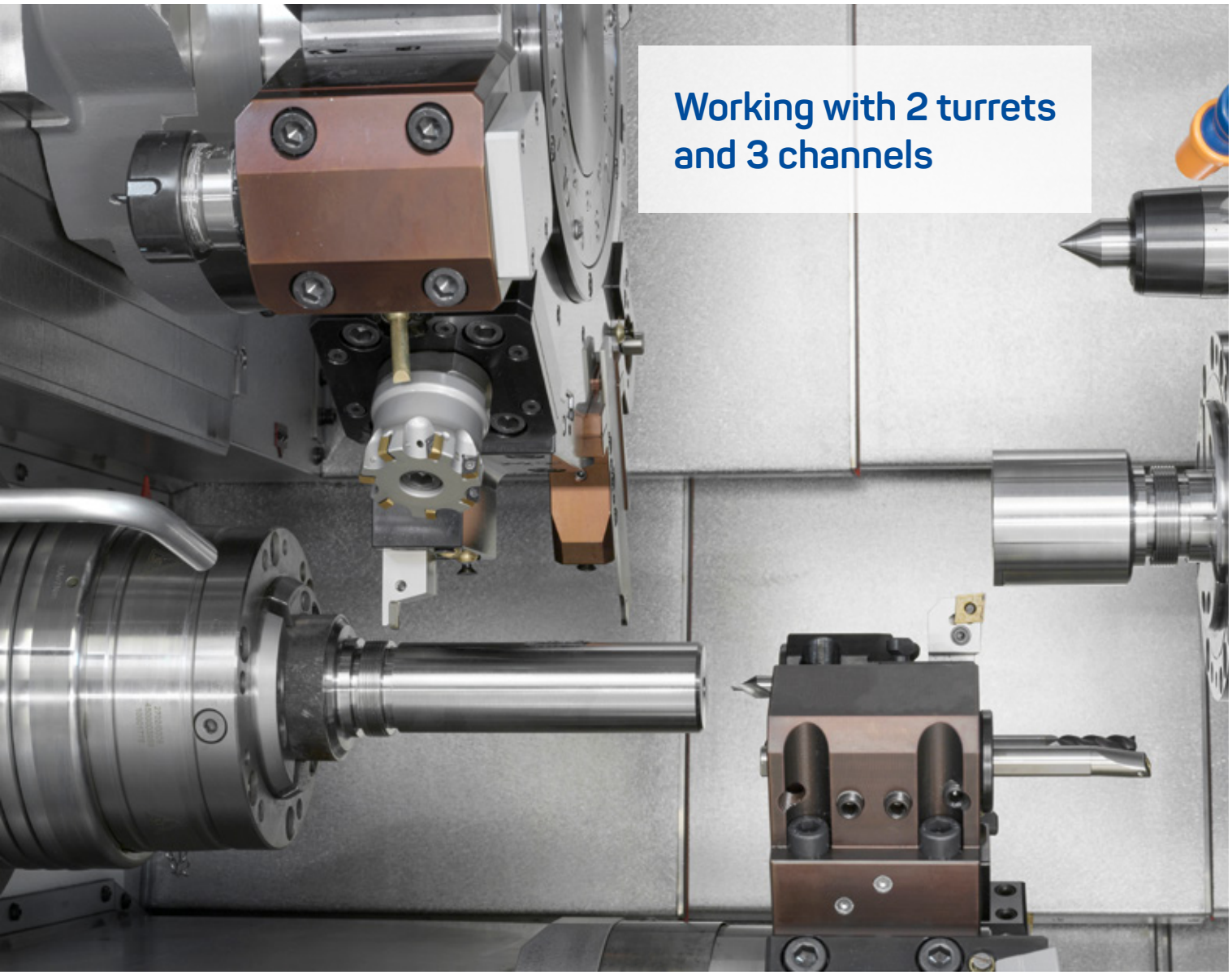


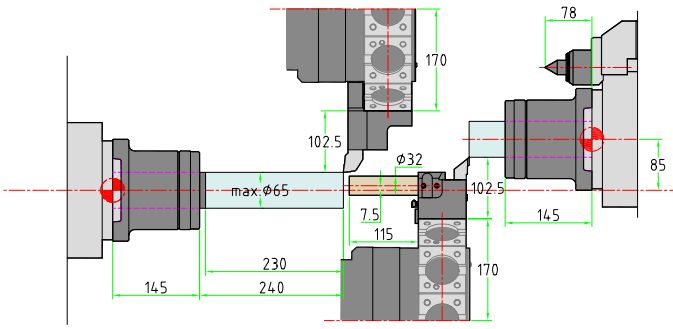
Balanced cutting reduces vibration, allowing increased material removal.



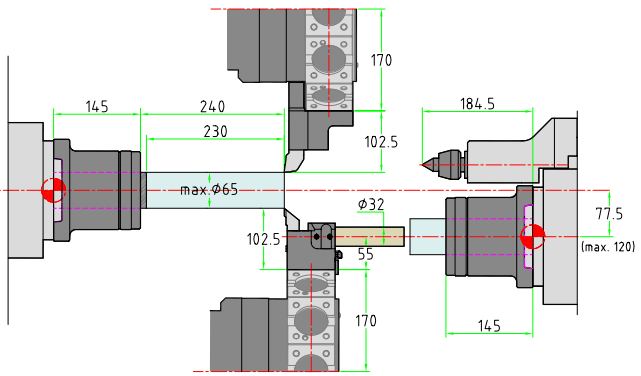
The machine can finish the part in the sub-spindle while machining continues between main spindle and tailstock.

EXAMPLES OF USE



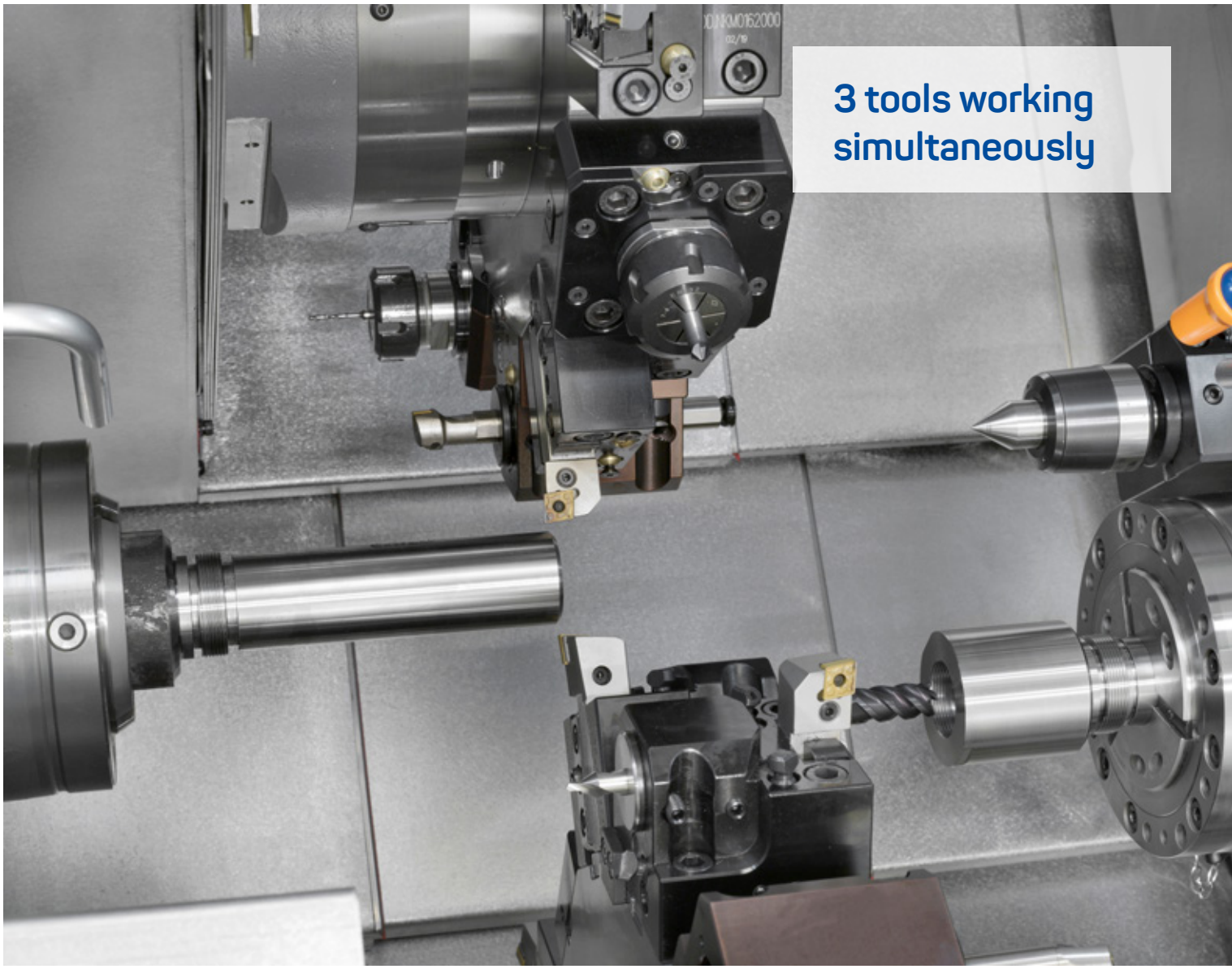


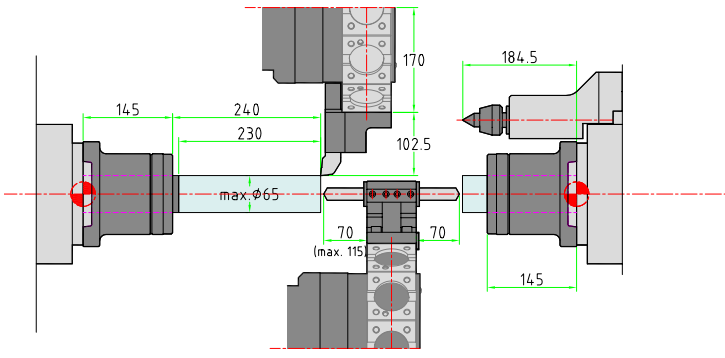
The large travel of the sub-spindle allows simultaneous working with 3 tools in varied conditions.



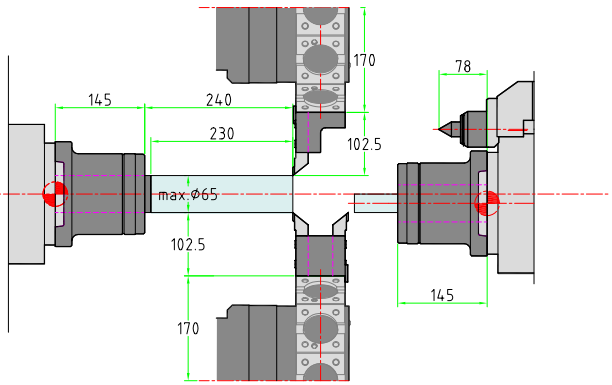
The third CNC channel gives the flexibility to program multiple applications using 3 tools simultaneously.

TTL SERIES





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.

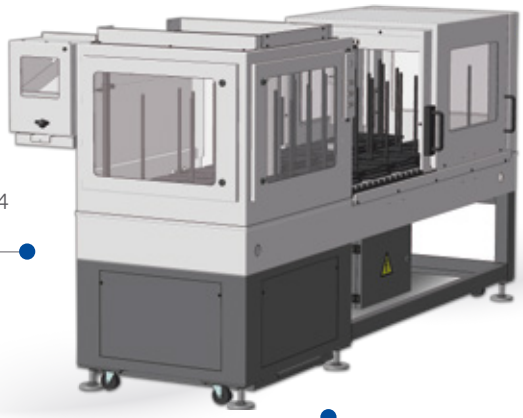
ROBOT GL20 II

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

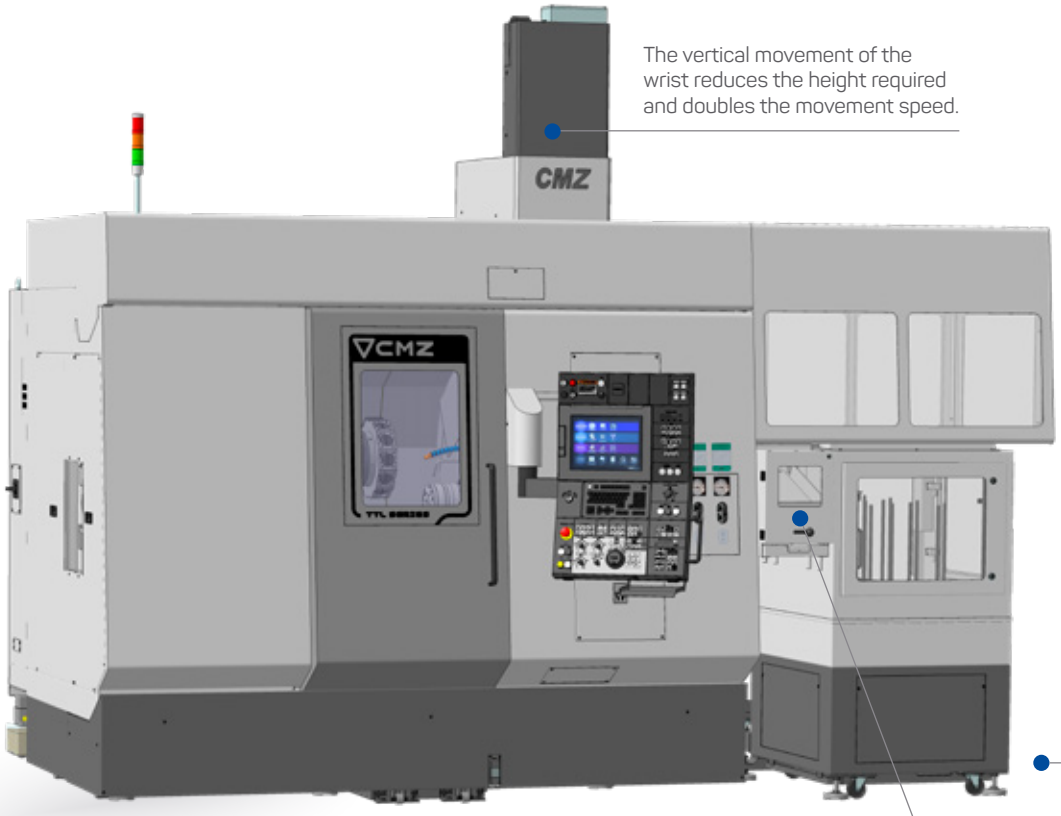
Easy to use and to program. CMZ has developed a conversational programming system that makes it very easy to set and use the GL20 II and GL6 gantry robots.



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.



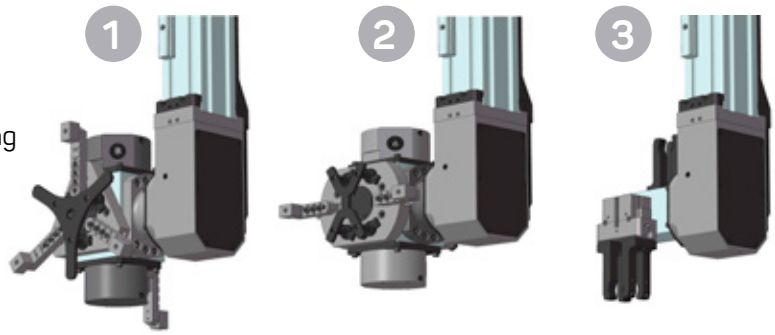
The vertical movement of the wrist reduces the height required and doubles the movement speed.

WS280

Checking station.

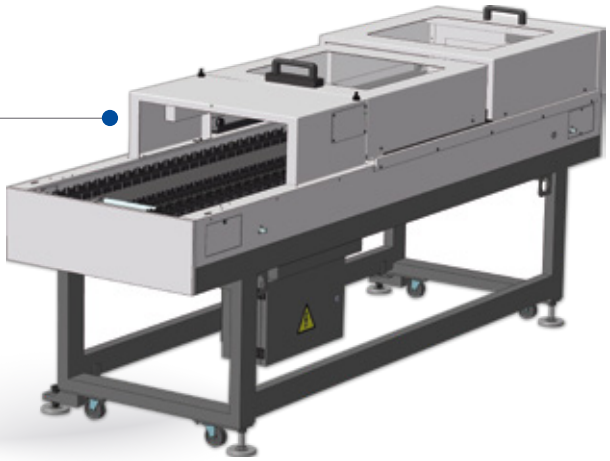
TTL SERIES

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.

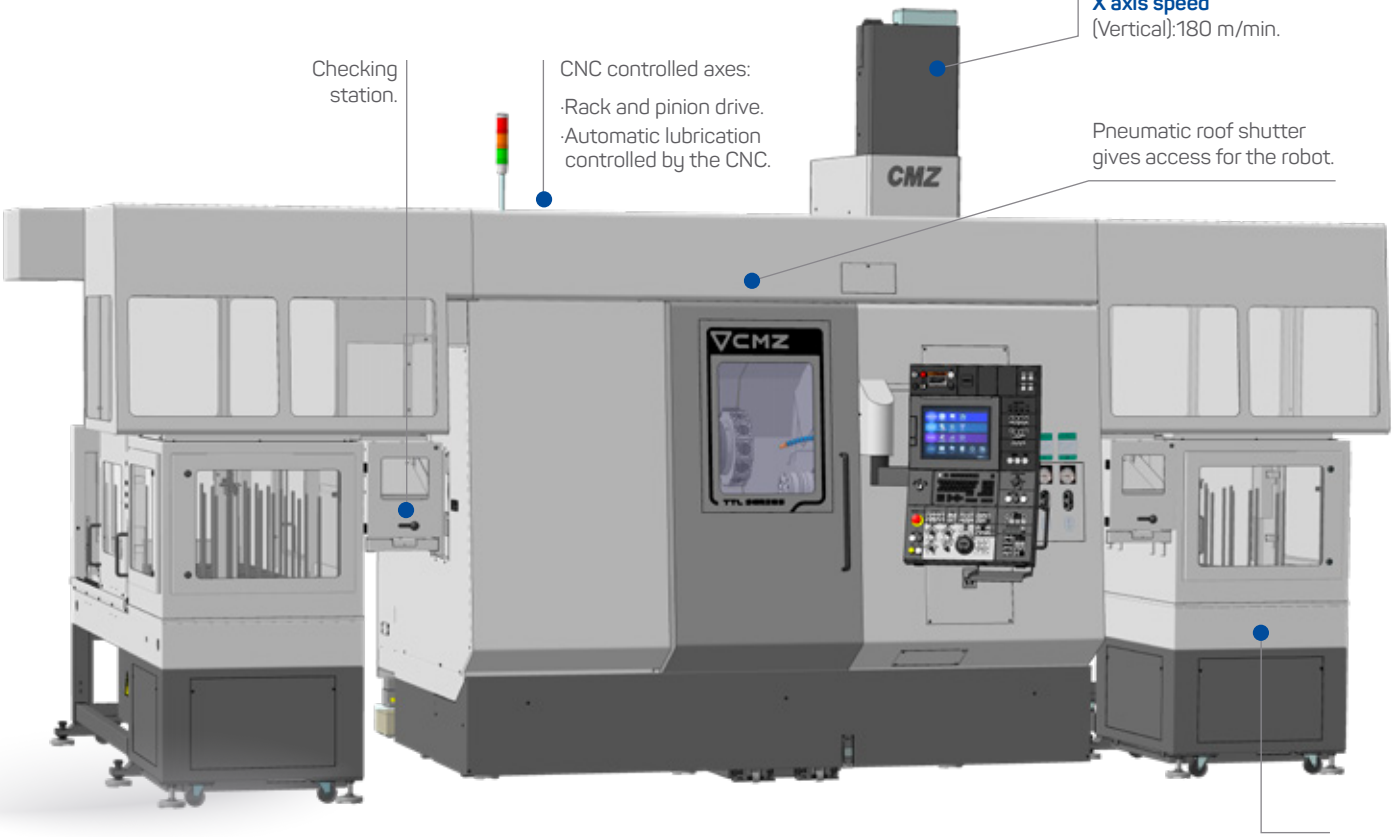
Y axis speed
(Transverse):120 m/min.

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

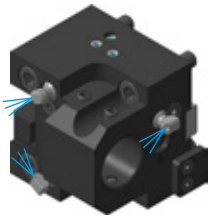
Boring holders Ø32

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



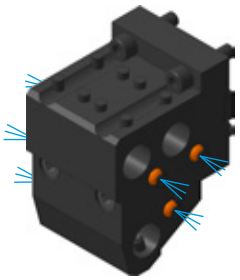
□20/Ø32-H=55 mm
TTL/10300/36

(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

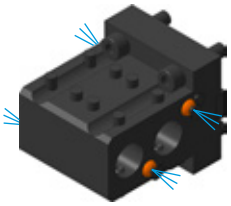
Boring holders Ø25

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

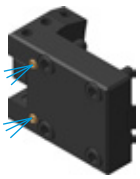
(Ø25-ER25) 310.04.BLCT2500ER25_L70
(Ø25-ER32) 310.04.BLCT2500ER32_L70
(Ø32-ER25) 310.04.BLCT3200ER25_L70
(Ø32-ER32) 310.04.BLCT3200 ER32_L70

Live centre

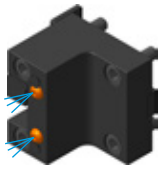
310.04.CPT_D25_4_01
310.04.NKM0112530

TTL SERIES

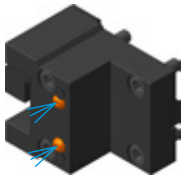
Turning holders



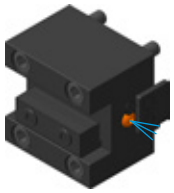
□20
310.04.NKM1712000



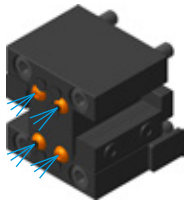
□20
310.04.NKM0162000



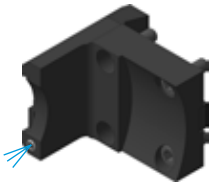
□25
310.04.NKM0162500



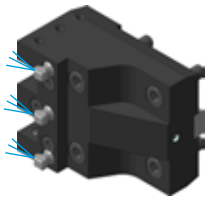
□20
310.04.NKM0182000



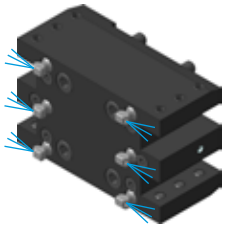
□20 (x2)
310.04.NKM0152000



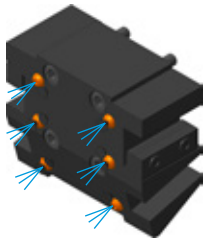
□20
310.04.NKM0170132



□20 (x2)
TTL/10300/37



□20 (x4)
TTL/10300/38

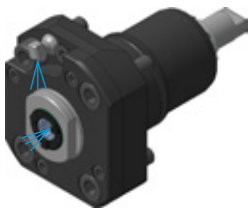


□20 (x4)
310.04.NKM0221000

Driven holders

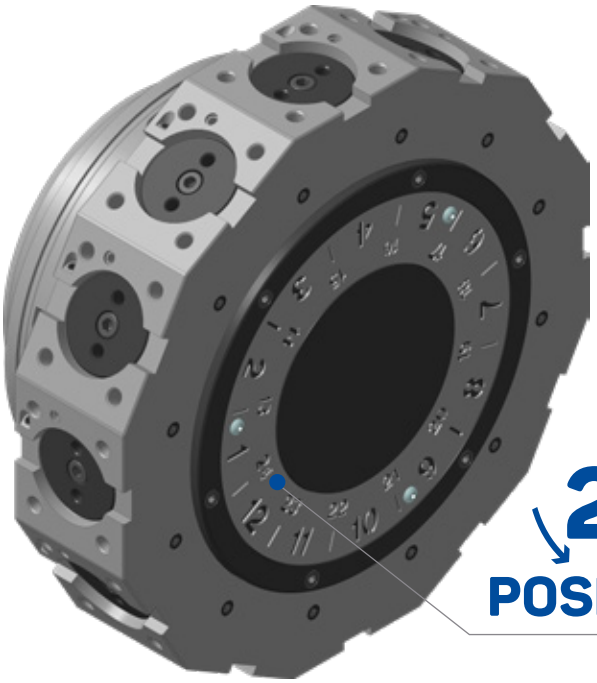
Máx. 12.000 rpm
ER32-H=55 mm
TTL/10400/02

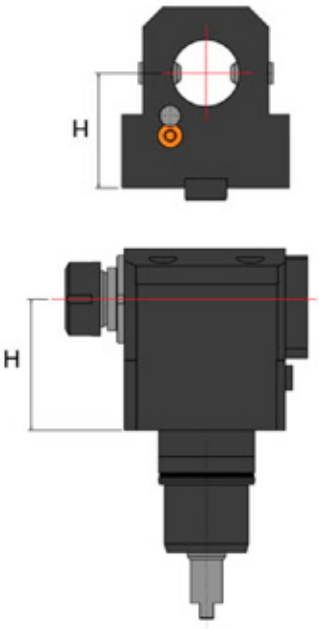
Máx. 6.000 rpm
310.04.NKM0492525 **ER25-H=55 mm**
310.04.NKM0492532 **ER32-H=55 mm**
310.04.NKM0492525 **ER25-H=75 mm**
310.04.NKM0492532 **ER32-H=75 mm**



Máx. 12.000 rpm
ER16
TTL/10400/09

Máx. 12.000 rpm
ER32
TTL/10400/05





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

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.

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.

2 Visualize your PC in the lathe

CMZ

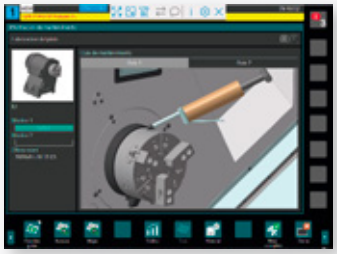
TTL SERIES

Conversational programming

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

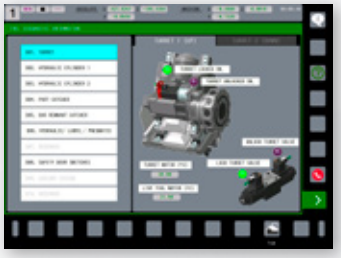
Manuals

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 dectectors, 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 fuctions 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

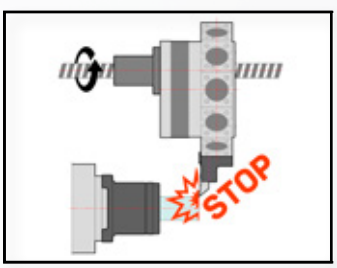
The control has a tool catalogue from which we can select the tools we want to use in our machining process. This permits to directly get the geometry of the tool for simulation purposes.

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)

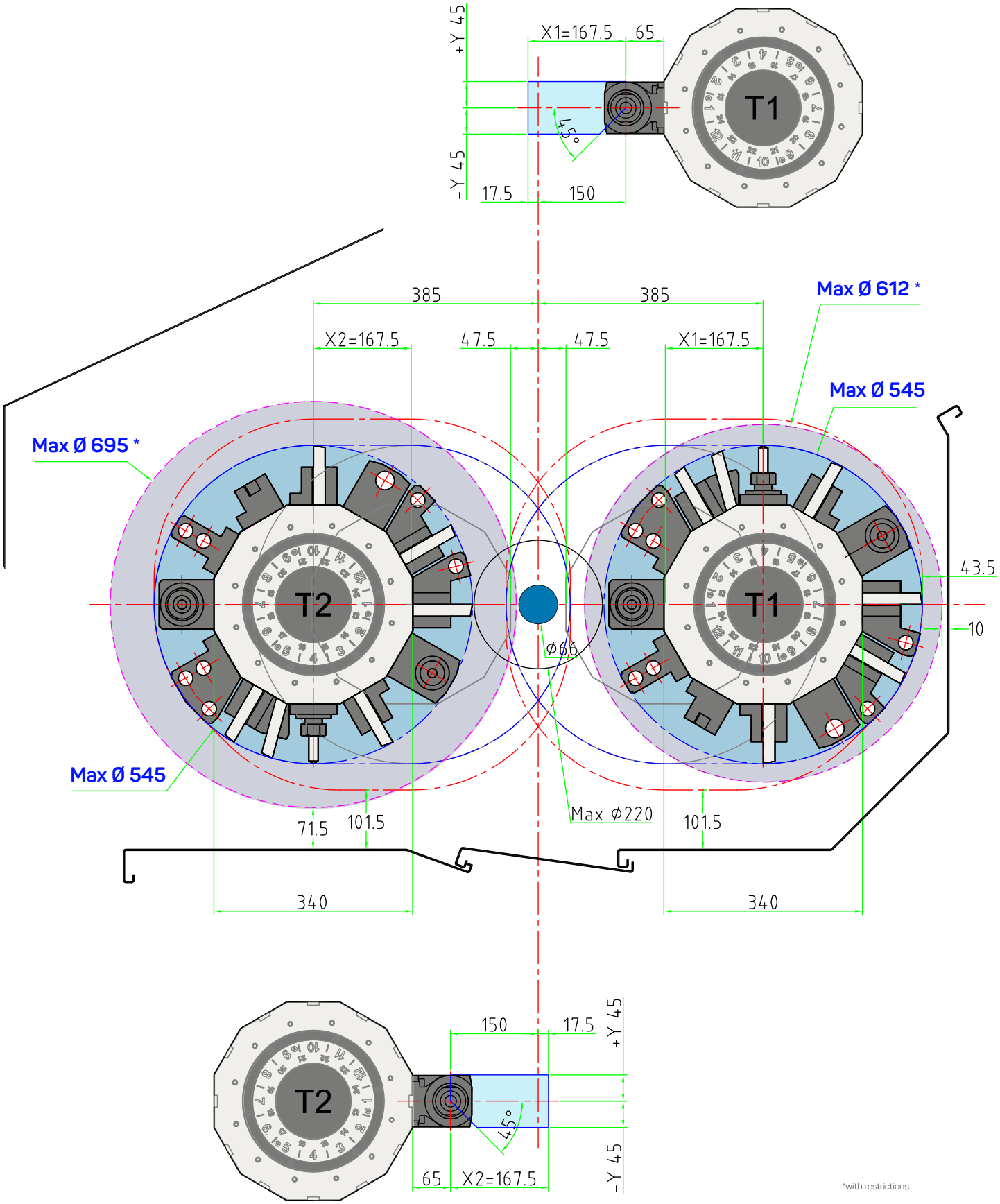
With a simple setup to define the period and amplitude of a sinusoidal curve to modify the spindle speed, very good results are obtained in reducing chatter vibration. This function is available for turning with or without tailstock.



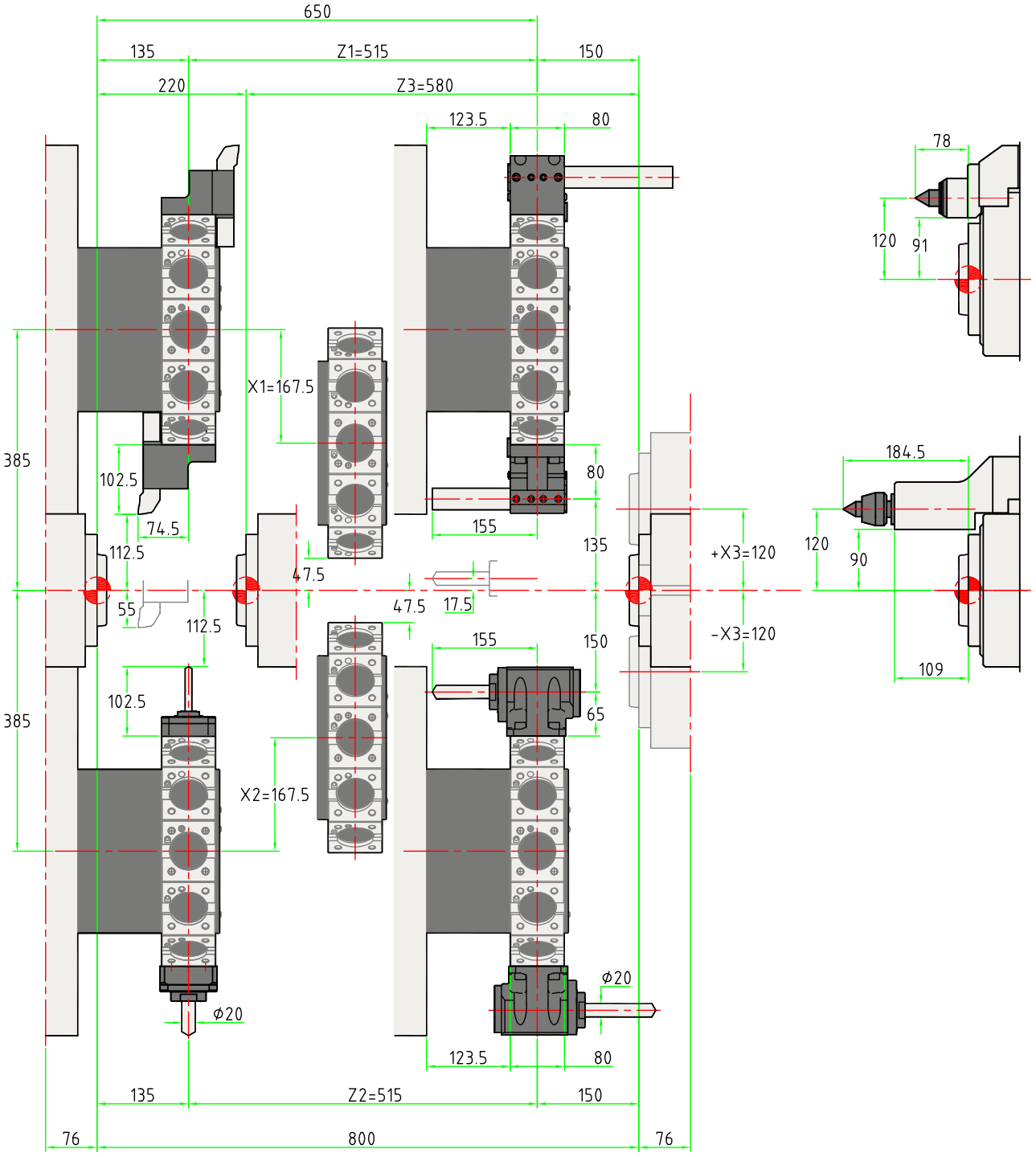
Electronic detection of collisions (airbag).

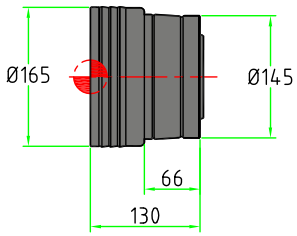
The CNC detects impacts through monitorisation of the motors' forces and following errors. With an overload the axes and spindles are stopped to prevent further damages.

TRAVELS

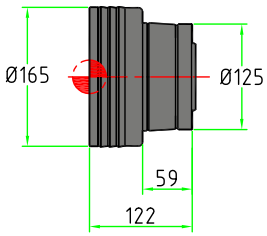


*with restrictions.

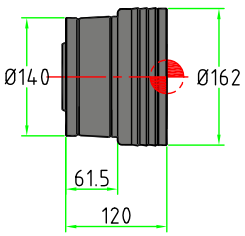




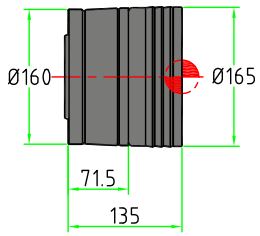
AXZUG 65 (STD)-A6



AXZUG 52 (STD)-A6

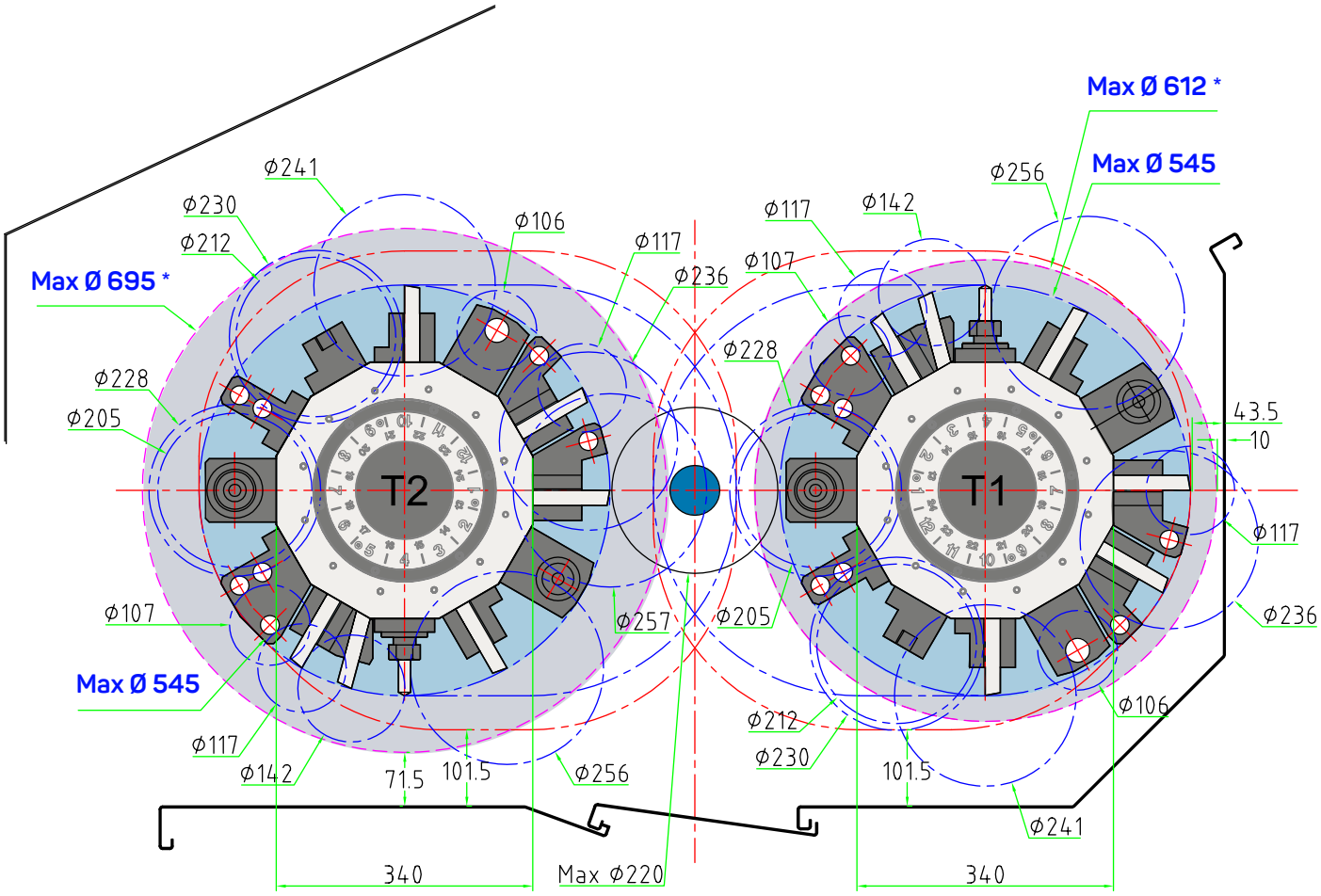


AXFIX 52 (STD)-A6



AXFIX 65 (STD)-A6

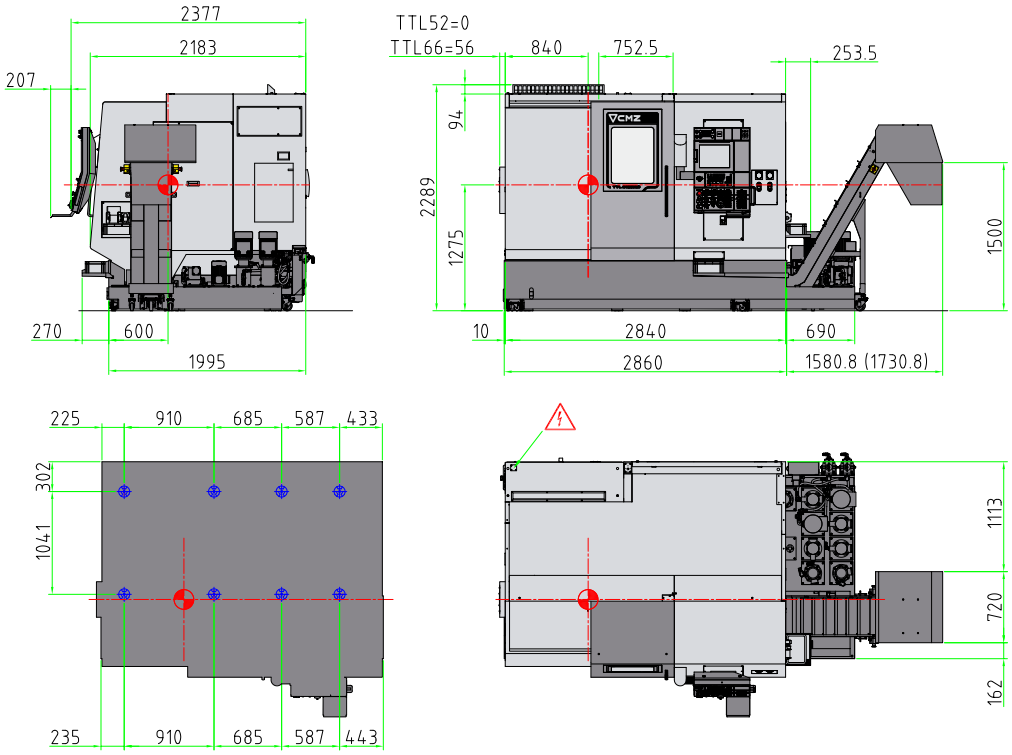
INTERFERENCES



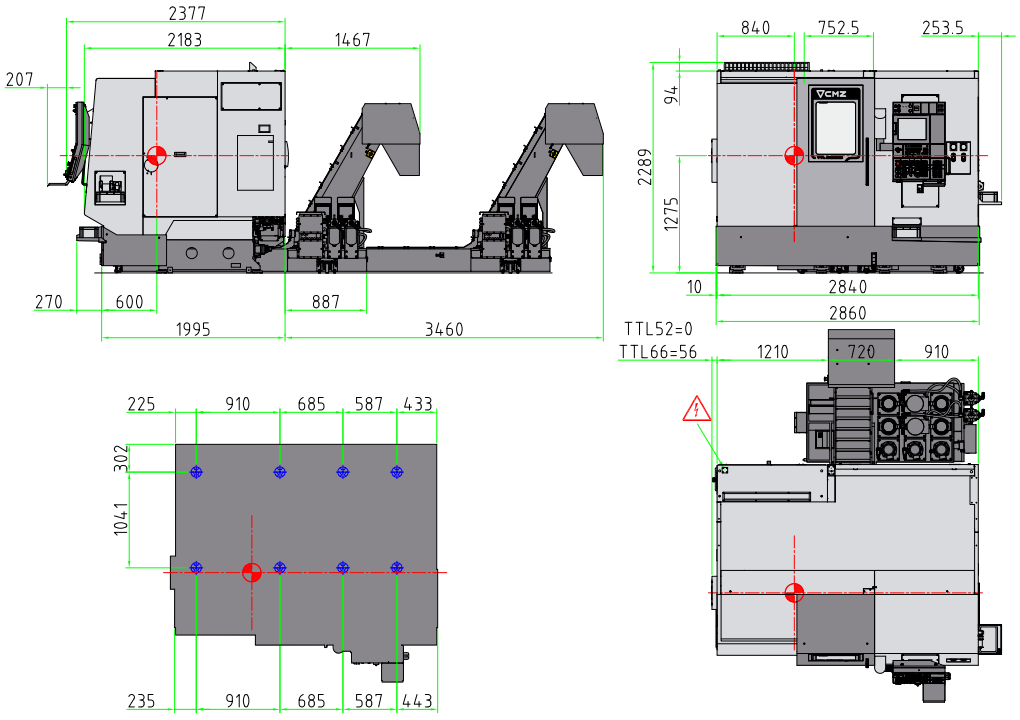
*with restrictions.

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	T1Y-T2Y	T1-T2	T1M-T2M	T1Y-T2Y	T1-T2	T1M-T2M	T1Y-T2Y	T1-T2	T1M-T2M	T1Y-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			+120 -120			+120 -120		
	Z1_Z2-axis travel (mm)		515			515			515			515		
	Z3-axis travel (mm)		580			580			580			580		
	Y-axis travel (mm)		–		+45 -45	–		+45 -45	–		+45 -45	–		+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/s2			1g=9,8 m/s2			1g=9,8 m/s2			1g=9,8 m/s2		
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 (S)		0,1 7			0,1 7			0,1 7			0,17		
	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)		-	14 / 10		-	14 / 10		-	14 / 10		-	14 / 10	
	Maximum torque (Nm) (max./S1)		-	42 / 32		-	42 / 32		-	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		
MISCELANEOUS	Coolant tank (litres)	Side	510			510			510			510		
		Rear	330			330			330			330		
	Hydraulic oil tank (litres)		10			10			10			10		
	Lubrication oil tank (litres)		4			4			4			4		
	Installed power (kVA)		87	87	87	87	87	87	87	87	87	87	87	87
	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 °			35 °			35 °			35 °		
	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 within our group**. This has helped us to acquire a very broad and professional vision of the product.

Together with more than **300 people** and **32,000 square metres** of facilities, we deliver almost **three machines per day** to customers throughout the World.

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, Austira

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

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

CAFISUR

Industrial boiler company
15,000 m2 | Cádiz – Spain

COOMING SOON

NEOPREC

New machining plant equipped with FMS, automatic storage and the latest technologies.

Expansion of our machining plant, Precitor.

#wearecmz

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

Distributor:

CMZ Machine Tool Manufacturer, S.L.
Azkorra, s/n.
48250 Zaldibar (Spain)
Tel. +34 946 826 580
info@cmz.com
www.cmz.com

Catalogue TTL SERIES_EN_v1