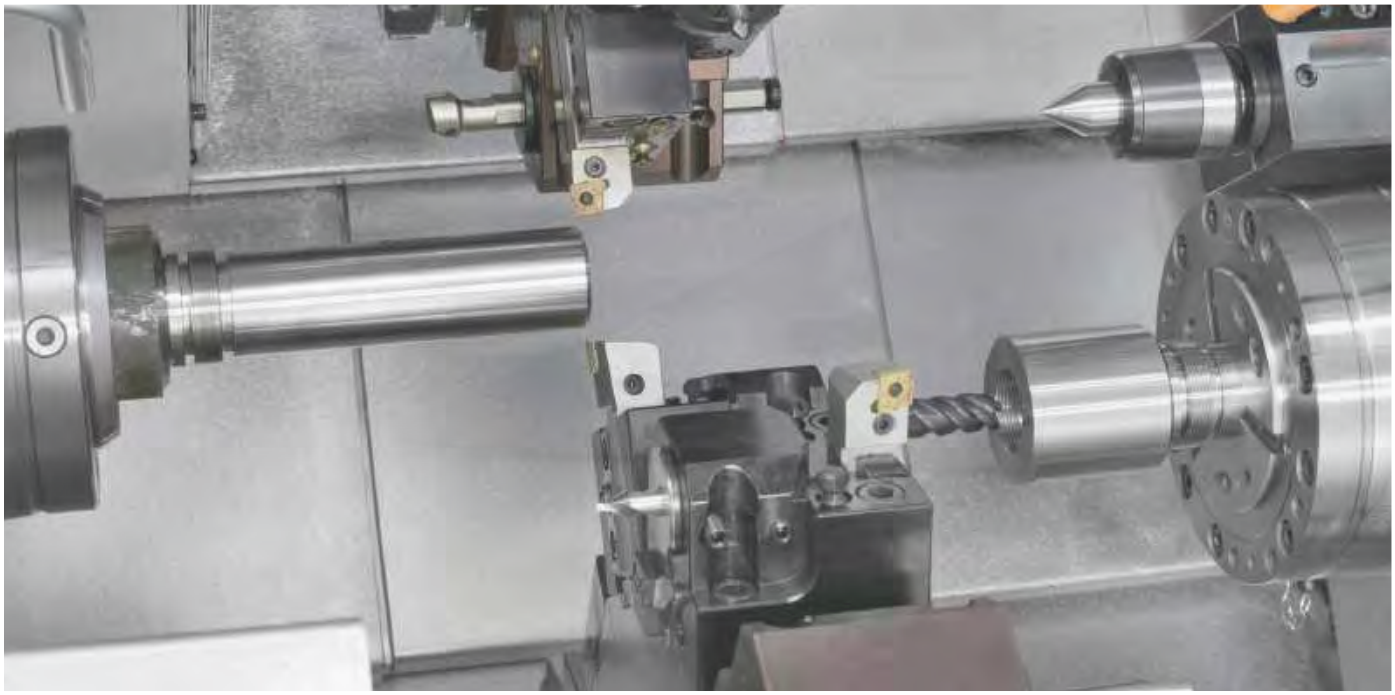
TWIN-TURRET HIGH-OUTPUT TURNING

VOLAR

TTL SERIES: TTL 52 / TTL 66 Models



Runs Faster, Sleeps Less!

EUROTECH

AVAILABLE OPTIONS

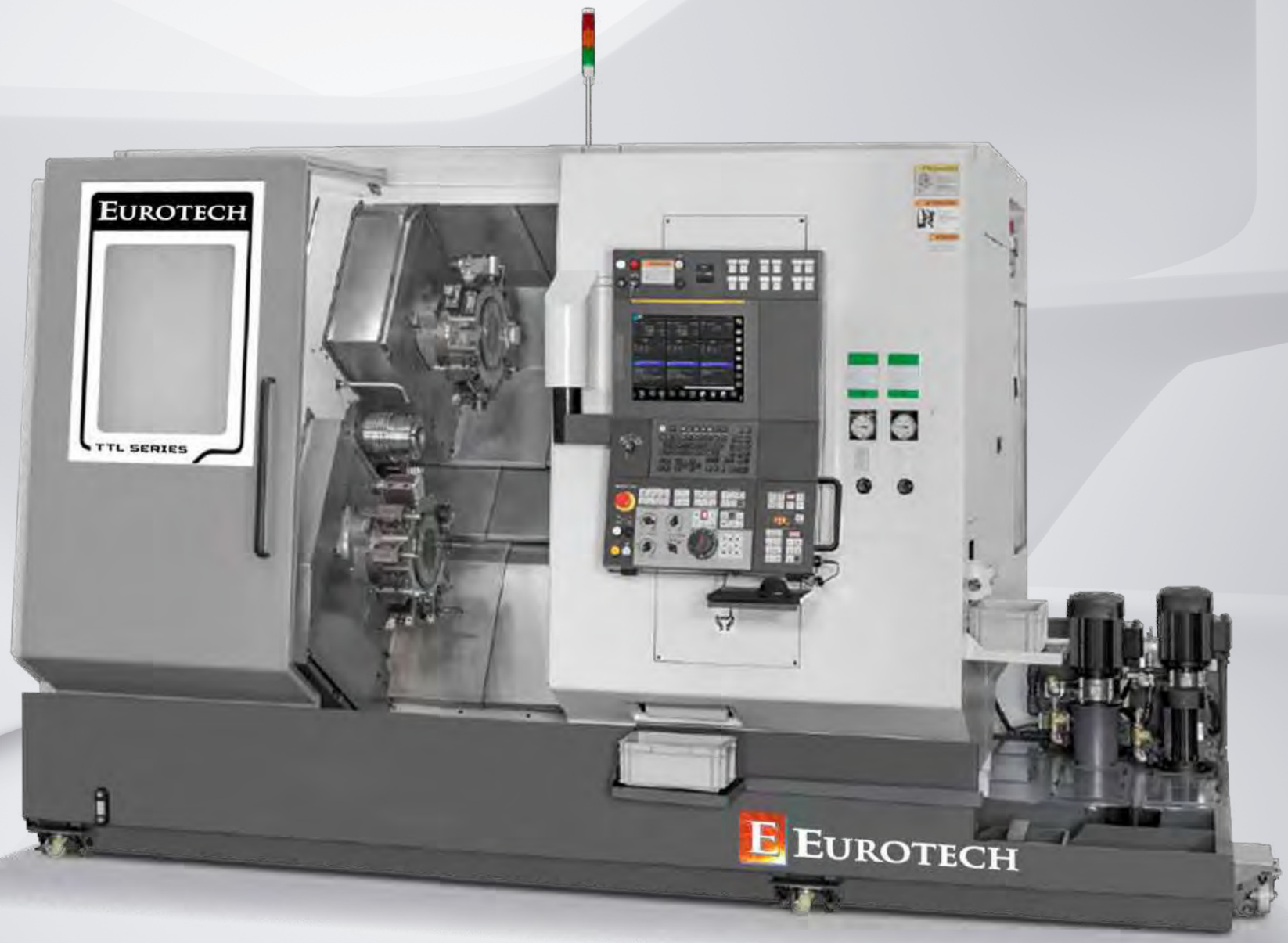
TTL MODEL

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

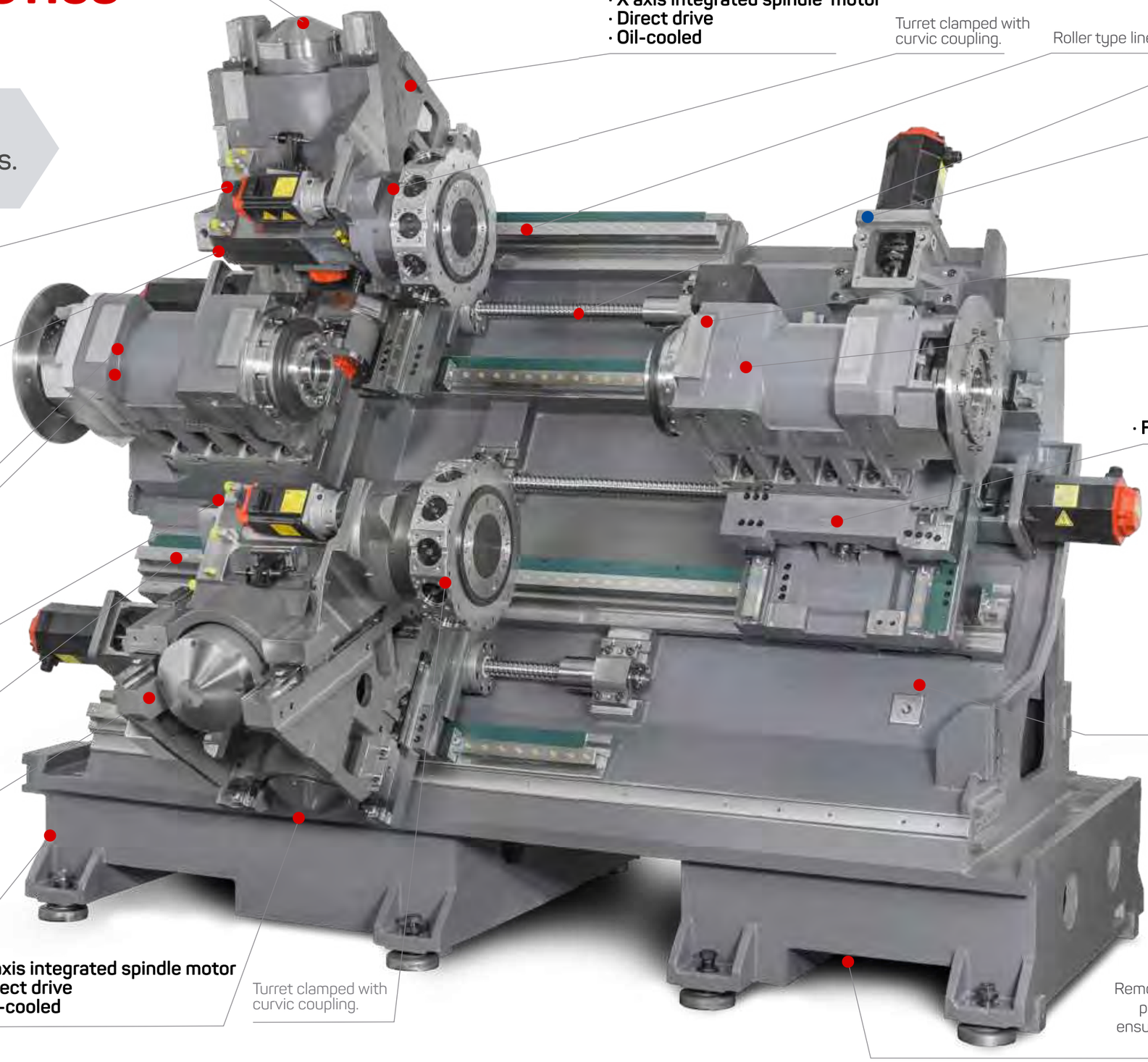


TECHNICAL CHARACTERISTICS

TTL MODEL

Machine without belts.
Direct drive for all motors.

TTL SERIES



· 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 60º 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.

Turret clamped with curvic coupling.

· X 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.
- X3axis ball screw mounts.
- The turrets.

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

Integrated spindle motor for driven tools, 14 Kw, 42 Nm, 12,000 rpm

Oil-cooled turret.

FANUC Servo Motor for turret indexing.

Roller bearings used in spindle.

Integrated spindle synchronous motor

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

Integrated spindle motor for driven tools 14 Kw, 42 Nm, 12,000 rpm

Oil-cooled turret.

FANUC Servo Motor for turret indexing.

EUROTECH

INTEGRATED SPINDLES WITH SYNCHRONOUS MOTORS

- SPINDLE REMAINS COOL
- REDUCED THERMAL EXPANSION
- SUPERIOR PRECISION

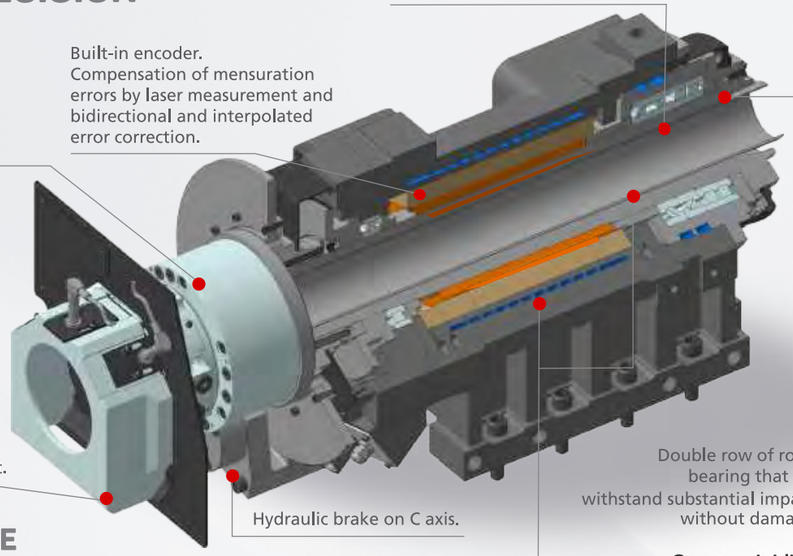
Hydraulic cylinder at 45kg/cm2

No pulleys or belts

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

Special coolant collection tray manufactured by CMZ

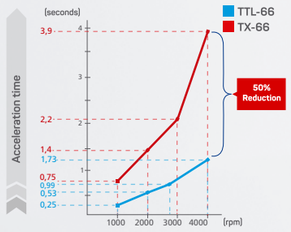
- Excellent access to adjust the detectors.
- Easy chip removal.
- Protection against coolant entering into the hydraulic circuit.



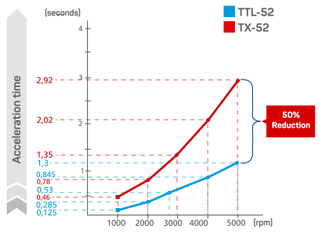
- More compact
  (Reduced cross-section means higher clamping speed)
- Greater sensitivity for light clamping

ACCELERATION TIME REDUCED BY HALF

TTL-66 vs TX-66

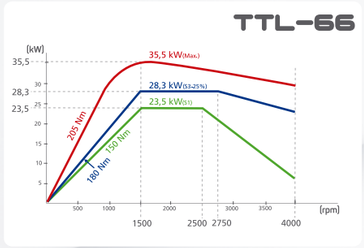


TTL-52 vs TX-52

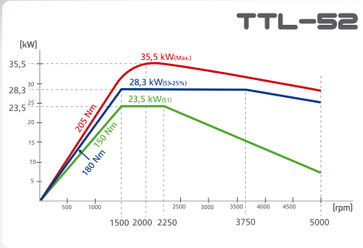


POWER AND TORQUE DIAGRAMS

TTL-66



TTL-52



TTL SERIES

TURRET WITH 12,000 rpm DRIVEN TOOLS

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)**

Hydraulic Clamping

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

Built-in motor for driven tools

Decreased vibrations at higher spindle speeds.

Motor and turret cooled with oil

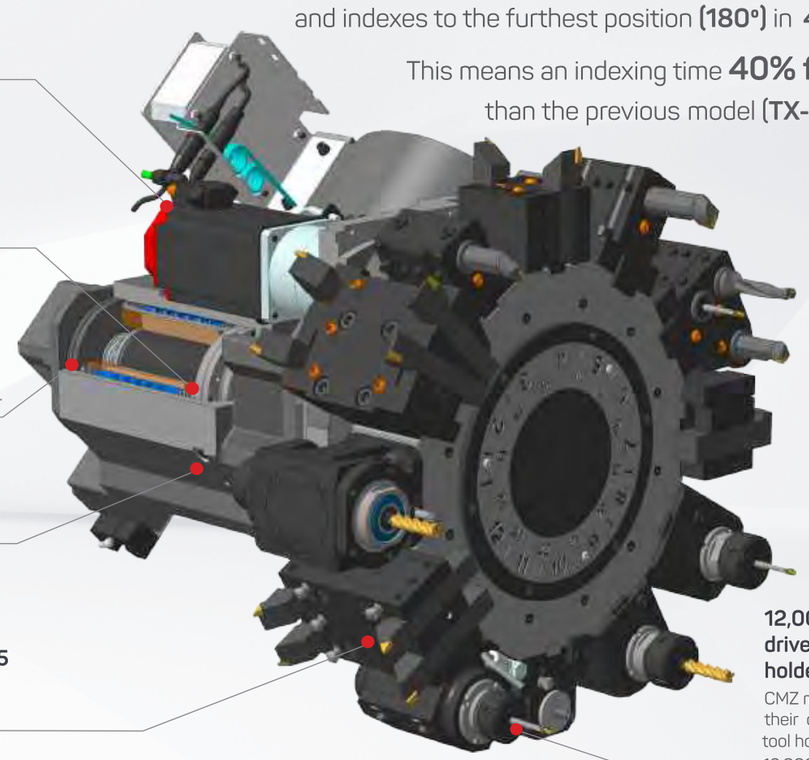
Allowing driven tools to work continuously at 12,000 rpm (S1).

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

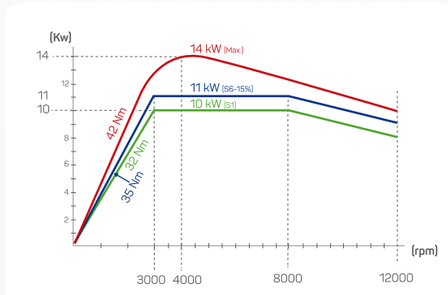
N-55 is a popular standard toolholder.

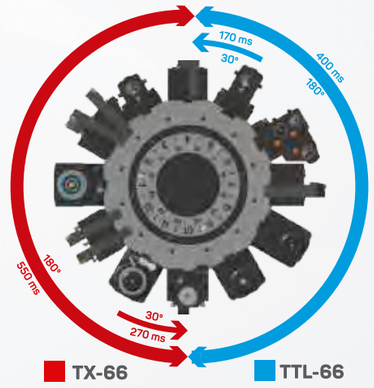


12,000 rpm driven tool holders

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

POWER AND TORQUE DIAGRAM OF DRIVEN TOOL MOTOR





24 POSITIONS

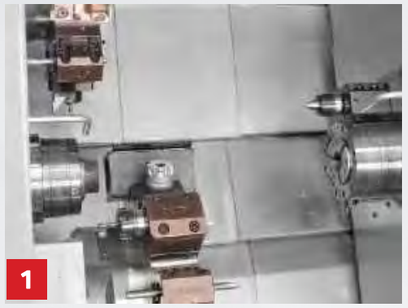
EUROTECH

8 Seconds*
Total time for component collection

PNEUMATIC PARTS CATCHER

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

ACCESSORY FOR REMNANT COLLECTION



Pick up

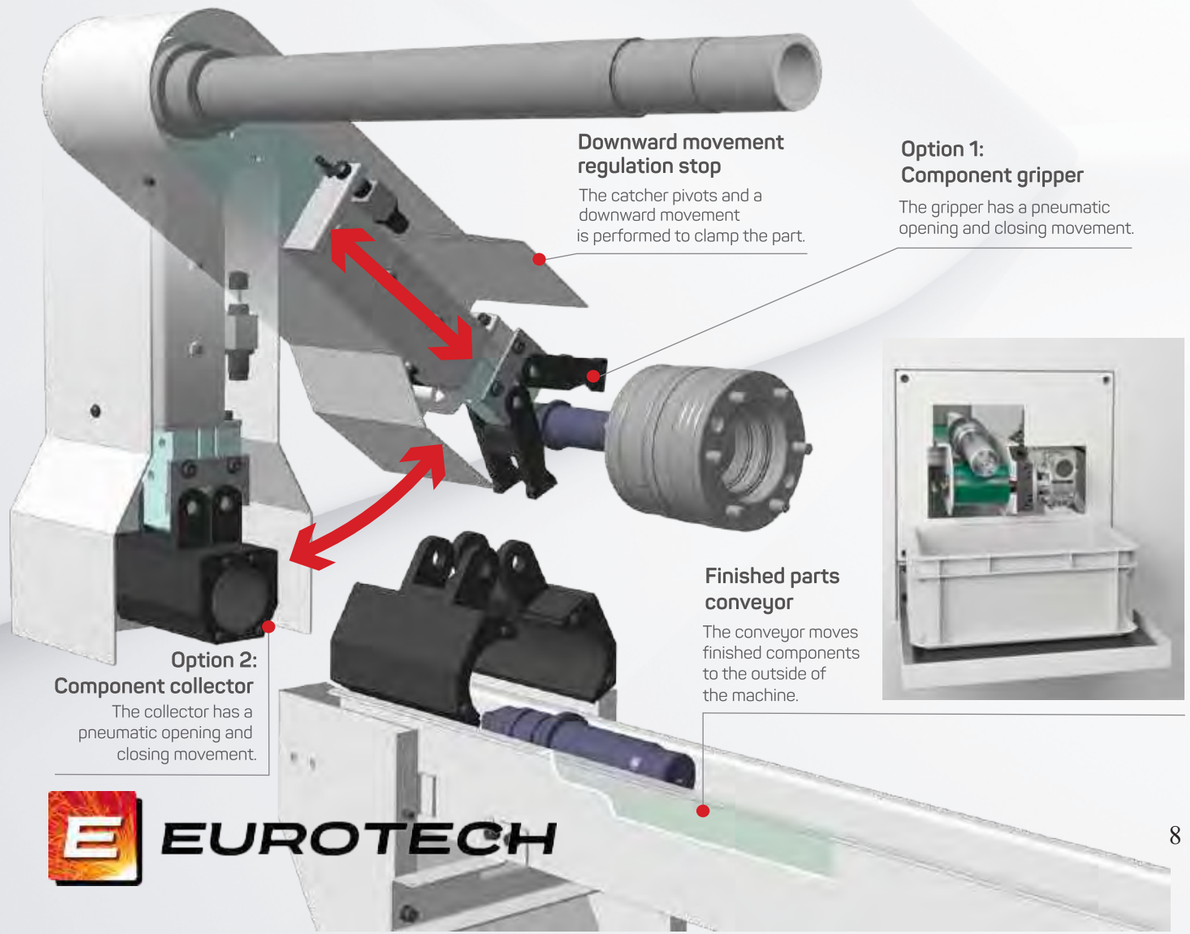
The bar feeder pushes the remnant into the collector box, which is mounted onto one of the positions of the bottom turret.

Transfer to the catcher

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

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 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.

EUROTECH

TTL SERIES

X- & Y-AXIS INTEGRATED MOTORS

AXIS ENCODERS DIRECTLY ATTACHED TO THE BALL SCREW

Thermal stability and precision

X and Y axis without belts and oil-cooled

X and Y axis integrated motors

Without belts for increased accuracy.

Pre-stretched ball screws

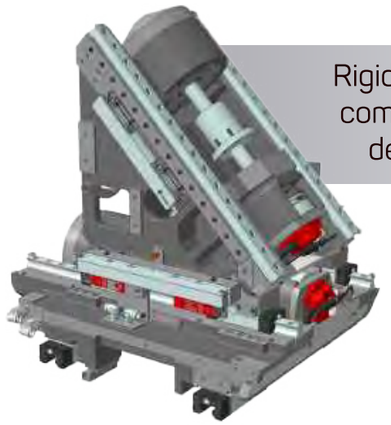
Pre-stretched ball screws mounted at both ends give the machine greater thermal stability.

Linear Encoder (Optional)

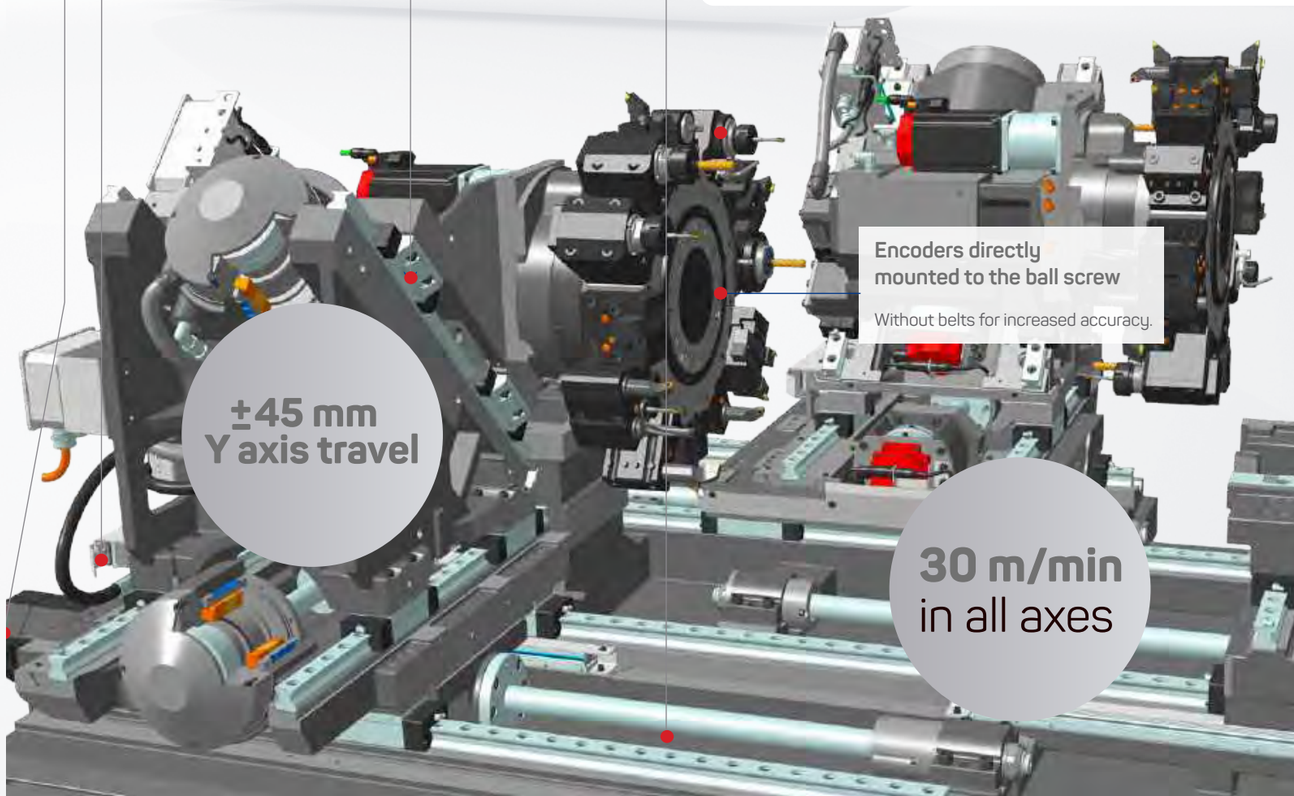
Linear encoders are optional on all axes.

Roller linear guides

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



Rigid and compact design



Encoders directly mounted to the ball screw

Without belts for increased accuracy.

±45 mm Y axis travel

30 m/min in all axes

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)

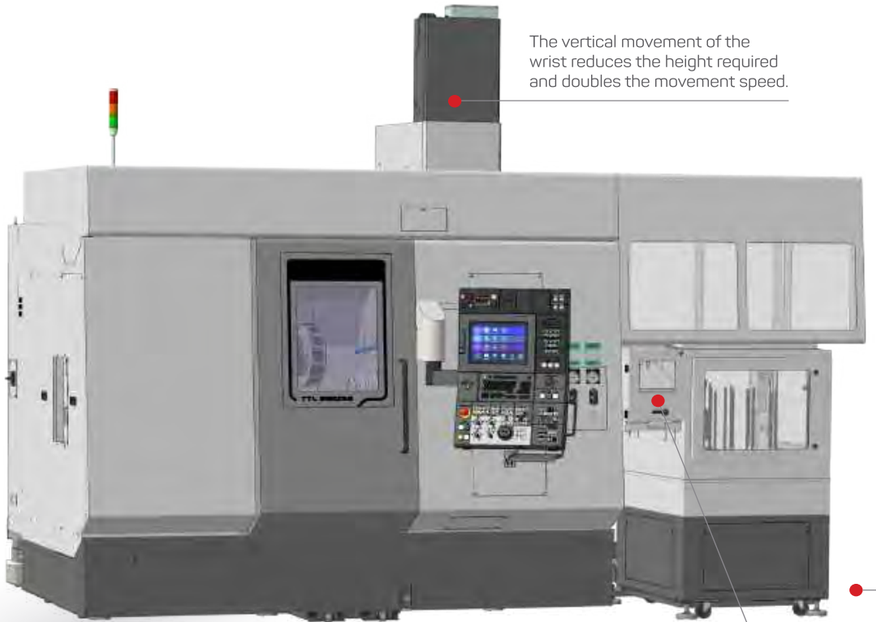
Very easy to use

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.

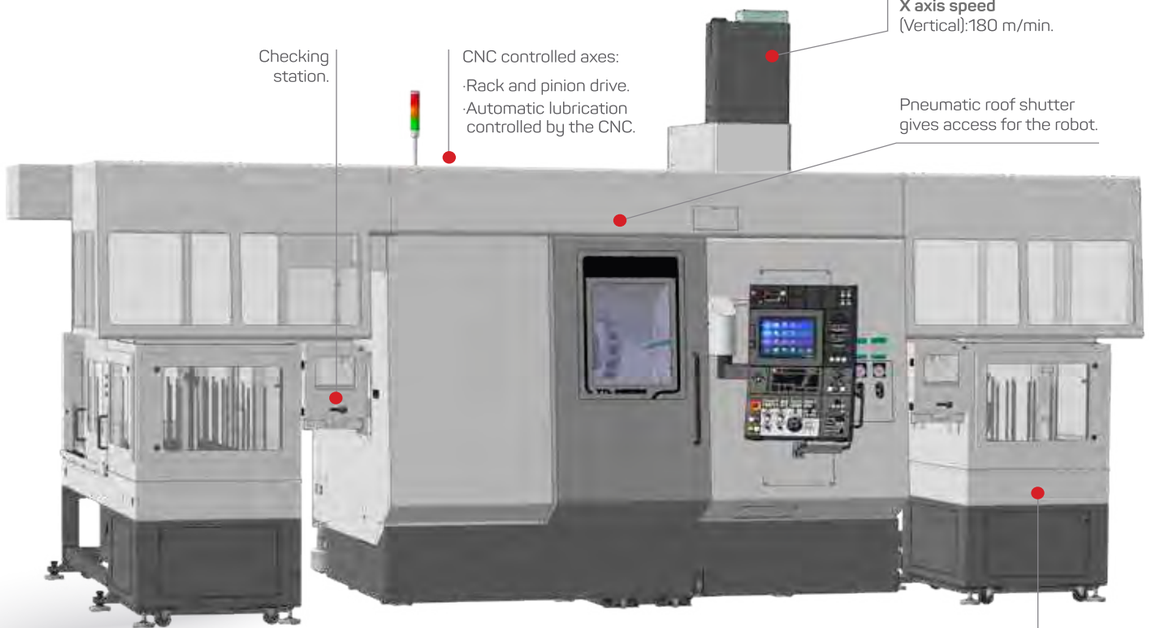
X axis speed (Vertical):180 m/min.

Checking station.

CNC controlled axes:

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

Pneumatic roof shutter gives access for the robot.



WS280

CNC FANUC SERIES 30

WITH iHMI INTERFACE AND NEW HARDWARE STEP 2

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.

Visualize your PC in the lathe

2 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.

15" Touch screen

Adjustable height **100 mm**

2 GB Part program memory

Data Transfer

- Ethernet
- USB
- PCMCIA

Ready for Industry 4.0

Conversational programming

The CNC is equiped 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.

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.

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 maneu - vers, motor temperature and pressure measurements are easily monitored live.

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 wear or breakage. This reduces the manual handling in an unmanned process.

Execution of program with the MPG handwheel

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

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.

TOOL HOLDERS TTL SERIES

Boring holders Ø32

Ø32-H=55 mm
310.04.NKM0113220

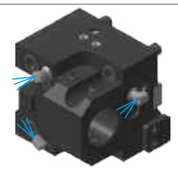
Ø32-H=75 mm
310.04.NKM0113200

Ø32-H=80 mm
310.04.NKM0113240

Ø32-H=75 mm
310.04.NKM0113201

Ø32-H=55 mm
310.04.NKM0113221

Holder for compound machining



20/Ø32-H=55 mm
□ TTL/10300/36

(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

(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

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

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

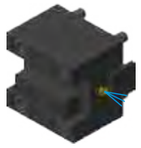
(Ø25-ER25) 310.04.BLCT2500ER25_L70
(Ø25-ER32) 310.04.BLCT2500ER32_L70
(Ø32-ER25) 310.04.BLCT3200ER25_L70
(Ø32-ER32) 310.04.BLCT3200 ER32_L70

Turning holders

□20
310.04.NKM1712000

□20
310.04.NKM0162000

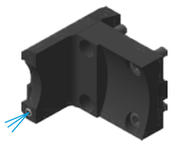
□25
310.04.NKM0162500



□20
310.04.NKM0182000

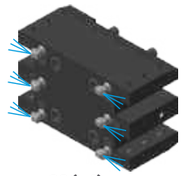
□20 (x2)
310.04.NKM0152000

(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

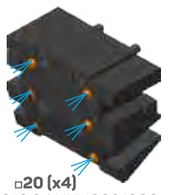


□20
310.04.NKM0170132

□20 (x2)
TTL/10300/37



□20 (x4)
TTL/10300/38



□20 (x4)
310.04.NKM0221000

Live centre

310.04.CPT_D25_4_01
310.04.NKM0112530

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

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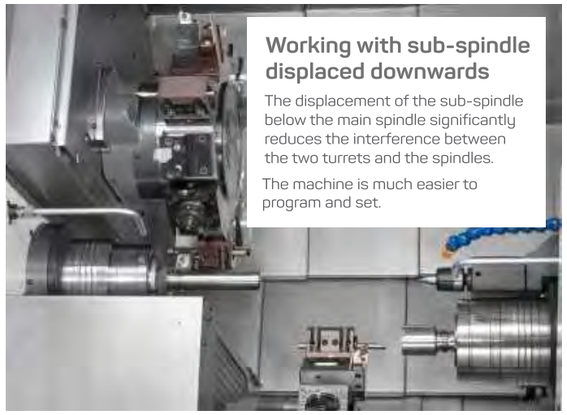
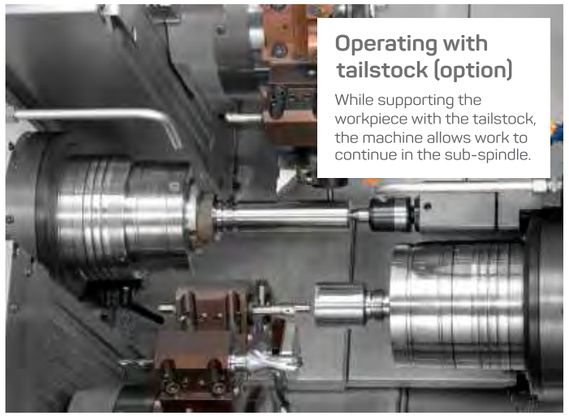
EXAMPLES OF USE TTL SERIES



Working with sub-spindle displaced downwards

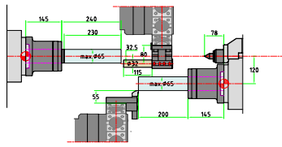
The displacement of the sub-spindle below the main spindle significantly reduces the interference between the two turrets and the spindles.

The machine is much easier to program and set.

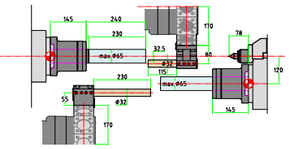


Operating with tailstock (option)

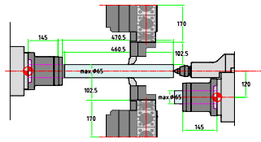
While supporting the workpiece with the tailstock, the machine allows work to continue in the sub-spindle.



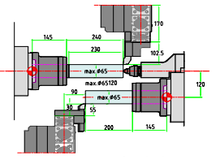
Movement of the sub-spindle reduces any interference.



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



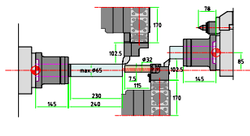
Balanced cutting reduces vibration, allowing increased material removal.



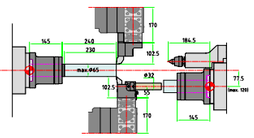
The machine can finish the part in the sub-spindle while machining continues between main spindle and tailstock.

Working with 2 turrets and 3 channels

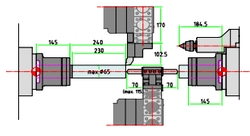
3 tools working simultaneously



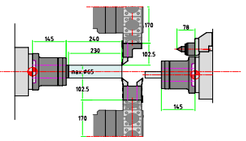
The large travel of the sub-spindle allows simultaneous working with 3 tools in varied conditions.



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.

EUROTECH

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 (in)		9.4			9.4			9.4			9.4		
	Maximum turning diameter (in)		8.7			8.7			8.7			8.7		
	Distance between spindle nose and tailstock centre (in)		24.2			24.2			24.2			24.2		
	Distance between centres (in		31.5			31.5			31.5			31.5		
	X1_X2-axis travel (in)		6.6			6.6			6.6			6.6		
	X3-axis travel (in)		+4.72 -4.72			+4.72 -4.72			+4.72 -4.72			+4.72 -4.72		
	Z1_Z2-axis travel (in)		20.3			22.3			22.3			22.3		
	Z3-axis travel (in)		22.8			22.8			22.8			22.8		
	Y-axis travel (in)		–		+1.77 -1.77	–		+1.77 -1.77	–		+1.77 -1.77	–		+1.77 -1.77
	Fast feedrate X (ips)		45.7			45.7			45.7			45.7		
	Fast feedrate Z (ips)		45.7			45.7			45.7			45.7		
	Fast feedrate Y (ips)		30.5			30.5			30.5			30.5		
	Axis acceleration		1g=32 f/s2			1g=32 f/s2			1g=32 f/s2			1g=32 f/s2		
SPINDLE	Maximum speed (rpm)		4500			4500			4000			4000		
	Bearing outside diameter (in)		5.9			5.9			5.9			5.9		
	Bearing inside diameter (in)		3.9			3.9			3.9			3.9		
	Spindle nose		ASA 6" A2			ASA 6" A2			ASA 6" A2			ASA 6" A2		
	Spindle inside diameter (in)		2.4			2.4			2.9			2.9		
	Drawtube bore (in)		2.0			2.0			2.6			2.6		
	Chuck diameter (in)		6.9/ 8.3			6.9/ 8.3			8.3			8.3		
	Maximum bar diameter (in)		2.2 / 2.0			2.2 / 2.0			2.6			2.6		
	Spindle power (HP (max./S2 25%/ S1)		47.6 / 37.9 / 31.5			47.6 / 37.9 / 31.5			47.6 / 37.9 / 31.5			47.6 / 37.9 / 31.5		
	Turning torque (ft/lb) (max./S3 25%/ S1)		151 / 133 / 111			151 / 133 / 111			151 / 133 / 111			151 / 133 / 111		
TAILSTOCK	Morse taper		CM3			CM3			CM3			CM3		
	Tailstock travel (in)		22.8			22.8			22.8			22.8		
	Max. force (lbf)		1102			1102			1102			1102		
TURRET	Number of positions (Number of index positions)		12 (24)			12 (24)			12 (24)			12 (24)		
	Section of tools (in)		.75x.75 / 1.0x1.0			.75x.75 / 1.0 x1.0			.75x.75 / 1.0 x1.0			.75x.75 / 1.0 x1.0		
	Changing time (S)		0,1 7			0,1 7			0,1 7			0,17		
	Interlocking force at 45 bar (lbf)		7055			7055			7055			7055		
DRIVEN TOOLS	Number of driven tools		-	12		-	12		-	12		-	12	
	Turning speed (rpm)		-	12000		-	12000		-	12000		-	12000	
	Power (kW) (max./S1)		-	18.8 / 13.4		-	18.8 / 13.4		-	18.8 / 13.4		-	18.8 / 13.4	
	Maximum torque (Nm) (max./S1)		-	31/ 23.6		-	31/ 23.6		-	31/ 23.6		-	31/ 23.6	
SUBSPINDLE	Maximum speed (rpm)		4500			4000			4500			4000		
	Bearing outside diameter (in		5.9			6.7			5.9			6.7		
	Bearing inside diameter (in)		3.9			4.3			3.9			4.3		
	Spindle nose		ASA 6" A2			ASA 6" A2			ASA 6" A2			ASA 6" A2		
	Spindle inside diameter (in)		2.4			2.8			2.4			2.8		
	Drawtube bore (in)		2.0			2.6			2.0			2.6		
	Chuck diameter in)		6.9 / 8.3			8.3			6.9 / 8.3			8.3		
	Chuck bore (in)		2.2 / 2.0			2.6			2.2 / 2.0			2.6		
	Power (hp) (max./ S3 25%/ S1))		47.6 / 37.9 / 31.5			47.6 / 37.9 / 31.5			47.6 / 37.9 / 31.5			47.6 / 37.9 / 31.5		
	Turning torque (lb/ft) (max./S3 25%/ S1)		151 / 133 / 111			151 / 133 / 111			151 / 133 / 111			151 / 133 / 111		
MISCELANEOUS	Coolant tank (gal)	Side	135			135			135			135		
		Rear	87			87			87			87		
	Hydraulic oil tank (gal)		2.6			2.6			2.6			2.6		
	Lubrication oil tank (gal)		1.0			1.0			1.0			1.0		
	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 (°F)		95 °			95 °			95 °			95 °		
	Total weight (lb)		24,250			24,250			24,250			24,250		
	Dimensions (in)		112.6x93.6x90			112.6x93.6x90			112.6x93.6x90			112.6x93.6x90		
	Internal volume ft³)		60			60			60			60		

(*) Approximate weights.

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

TESTIMONIALS

"I will recommend this training to anyone who would like to understand the Mitsubishi control more in-depth. Hats off to our instructor, Art, and everyone at Eurotech. Thanks again!"

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