

TECHNICAL DATA

Description	Unit	MCU		
		Table ø600	Table ø500x420	
HIGH DYNAMIC TABLE	Rotary table top diameter	mm	ø600 / ø500x420	
	Tilting axis A	degree	±120	
	Rotary axis C	degree	360	
	T-slots (number x width x pitch)	mm	7 x 14 x 75 / 5 x 14 x 75	
	Max. table load	kg	600	
LINEAR TRAVEL	X axis	mm	600	
	Y axis	mm	600	
	Z axis	mm	500	
	Spindle taper		ISO40	
IN-LINE SPINDLE	Spindle speed	rpm	15000	
	Motor output	kW	25/35	
	Motor torque	Nm	134/261	
	Spindle nose to rotary table clamping surface	mm	135~635	
	Spindle taper		HSK-A63	
BUILT-IN SPINDLE	Motor output	kW	20/25	
	Motor torque	Nm	32/40	
	Spindle speed	rpm	18000(std.) / 24000(opt.)	
	Spindle nose to rotary table	mm	175~675	
	ATC type		Carousel type / Chain type	
TOOL MAGAZINE	Magazine capacity		24(std.) / 32/48/60(opt.)	
	Tool shank		HSK A63/BT/DIN/CAT40	
	Max. tool length	mm	300	
	Max. tool diameter	mm	78	
	Max. tool diameter with adjacent station empty	mm	120	
	Max. tool weight	kg	7	
	Max. loading weight	kg	120 / 160/240/300	
	Tool changing time(T-T)	sec	1.51(50Hz) / 1.25(60Hz) / 1.94(50Hz) / 1.64(60Hz)	
	FEED RATE	X/Y/Z axes rapid feed	m/min	36/36/36
		A axis max. speed	rpm	16.6
C axis max. speed		rpm	90	
ACCURACY		Positioning accuracy	mm	0.005
	Repeatability	mm	±0.0025	
MACHINE DATA	Length	mm	3015	
	Width	mm	5050	
	Height	mm	3000	
	Floor space	mm	4000x4500	
	Weight	kg	9000	

*Specifications are subject to change without notice.

● Standard accessories ○ Optional accessories NA: No available

Description	MCU 4+1	MCU-5X
Linear scales in X,Y and Z axis	○	●
Rotary scales in A and C axis	●	●
DCM: Dynamic Collision Monitoring	NA	●
Kinematics	○	○
Preparation for 3xHydraulic + 1xPnematic port	●	●
20 bar coolant through spindle	●	●
Chip conveyor and oil skimmer	●	●
Separate type tank with paper filter	○	○
Oil Mist Collector	○	○
Overhead roof	○	○
Automatic roof	NA	○
Laser tool measurement integrated in table	○	○
Mechanical detachable tool setter	○	NA
20/70 bar CTS with separate tank and paper filter	○	○
TSC: Thermal Spindle Compensation	●	●

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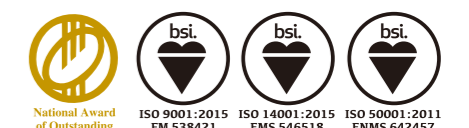


MICROCUT



MCU Series

Gantry type 5X Vertical Machining Center



MCU series

Gantry Type 5-Axis Machining Center

Brand New Design with Upgrade Performance brings high precision and high-speed 5-Axis machining

MCU is designed for complex and multi surface contour machining. The series has working capacity ideal for medium-size workpiece and offers superior performance in all aspects of milling - consistency, accuracy, and power, therefore serving as a critical asset to all industries. The upgraded gantry type design presents compact structure with maximum working area reserved.

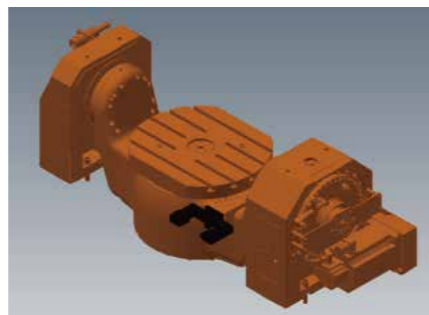


TABLE OPTION

Ø600mm

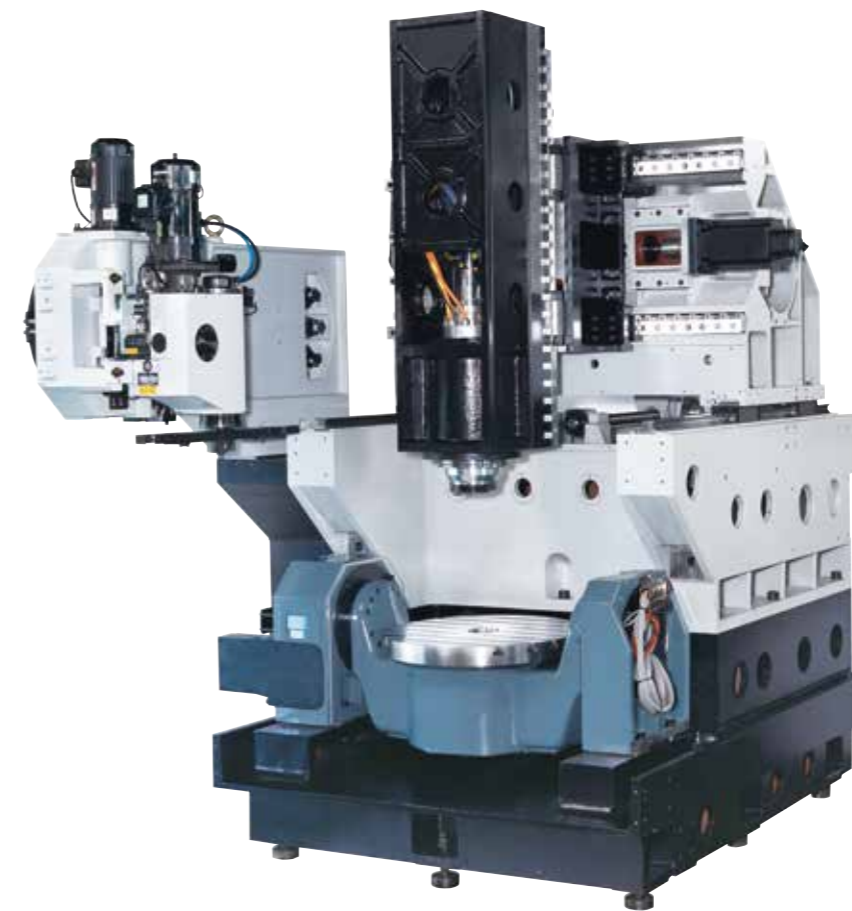


Ø500x420mm



Gantry structure

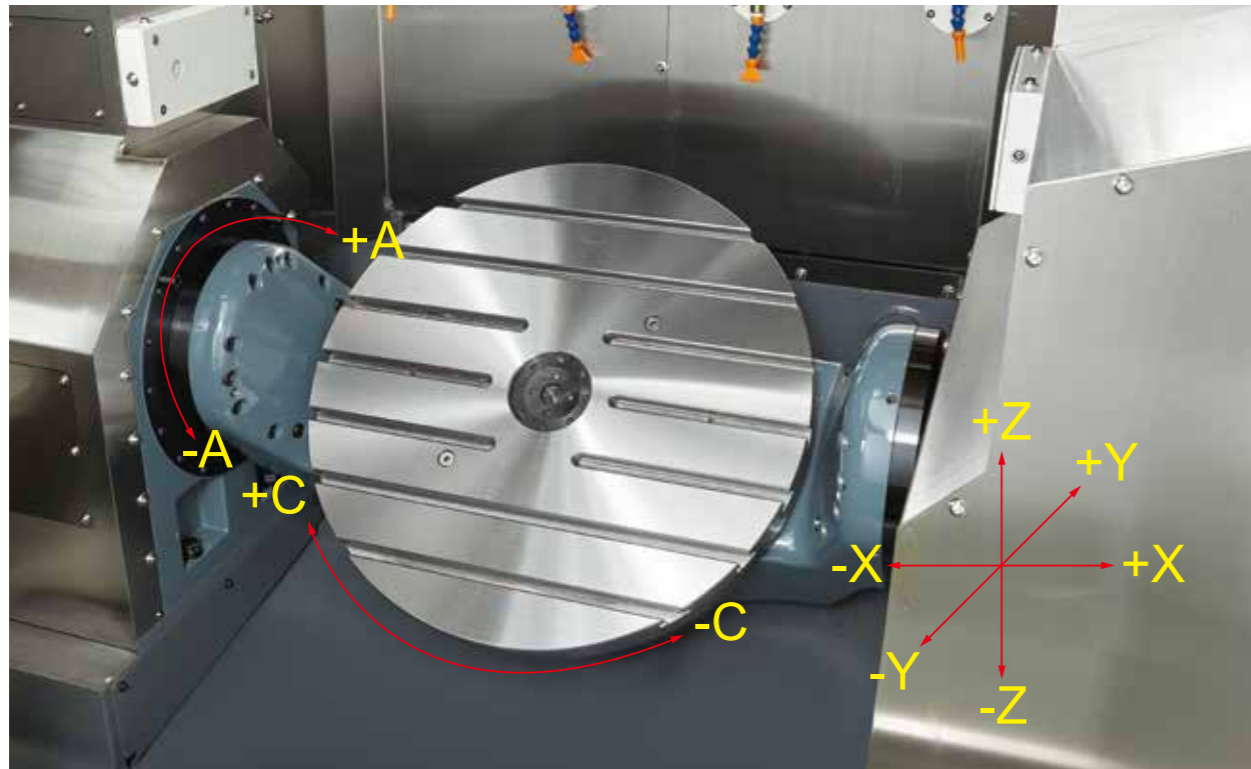
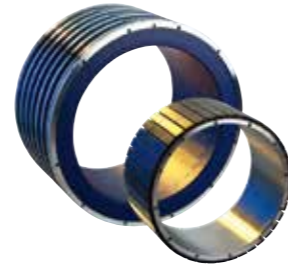
The gantry structure offers the best accuracy and rigidity for a 5-axis vertical machining center, allowing high-speed cutting process in complex parts with various materials.



- Spindle moves in linear axis XYZ, ensuring better machining rigidity
- Gantry moves fully supported in all Y-axis travel, for the best accuracy
- All body made of high-quality Meehanite casting, providing optimal damping of machining vibrations and homogeneous thermal behavior
- Excellent accessibility to working area

Table

Driving system



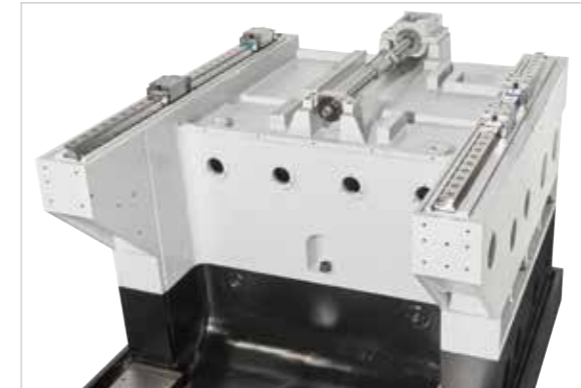
C-axis with torque motor ensures maximum speed and lifetime accuracy

High-repeatability in 4+1x operation

Endure excellent rigidity for roughing operations

A-axis with worm gear for high-torque in tilting operations

Allow best accuracy with maximum table load



Direct driven servomotors (no belts/gears) endure best dynamic and minimal elasticity in the driving system



Roller type, high rigidity, linear guideways for the best high-feed movement and vibration damping

Pre-loaded double-nut ballscrews minimize backlash and allow high-feed movements (36 m/min)

Accuracy

Linear axes

0.1µm resolution absolute linear scales in XYZ axes to compensate the ballscrew thermal growth and ensure the best 3X accuracy



Rotary axes

±5" accuracy absolute rotary scale feedback for the best rotary axes accuracy



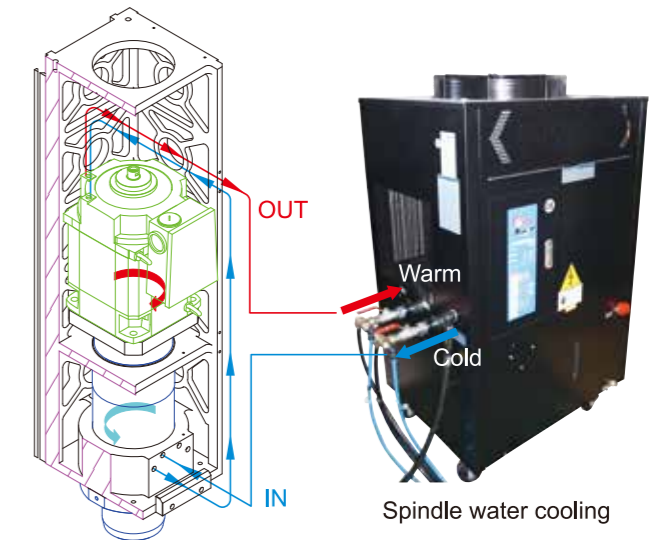
Linear-Rotary axes relative positioning

CNC embedded compensation functions like Kinematics (Heidenhain), Kinematic chain (Siemens) and Tilted working plane indexing (Fanuc)



Thermal stability

The heat generated by the spindle motor, the spindle cartridge, and the C-axis torque motor is dissipated by a main cooler

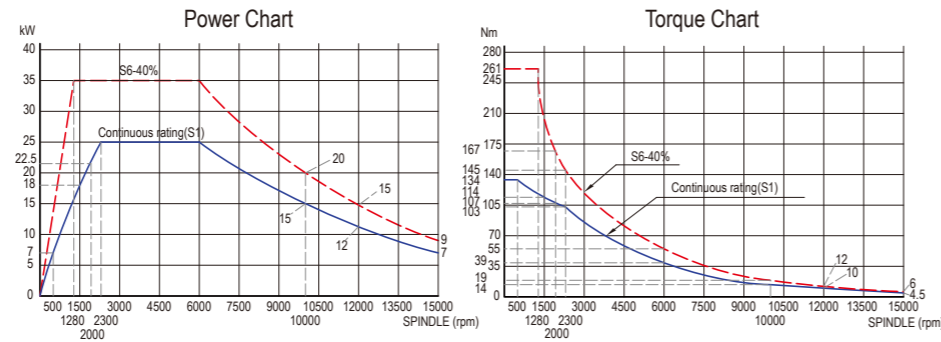


Thermal reduction Design

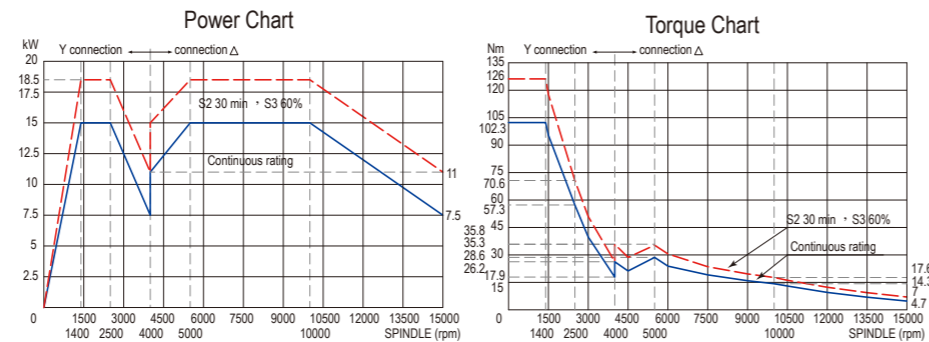
Spindle

• High-torque in-line spindle (#40)

- HEIDENHAIN
or SIEMENS control
- Double winding motor
 - Water-cooled
 - 15.000 rpm max speed
 - 261 Nm at S6(40%)
 - 35 kW at 1280 rpm

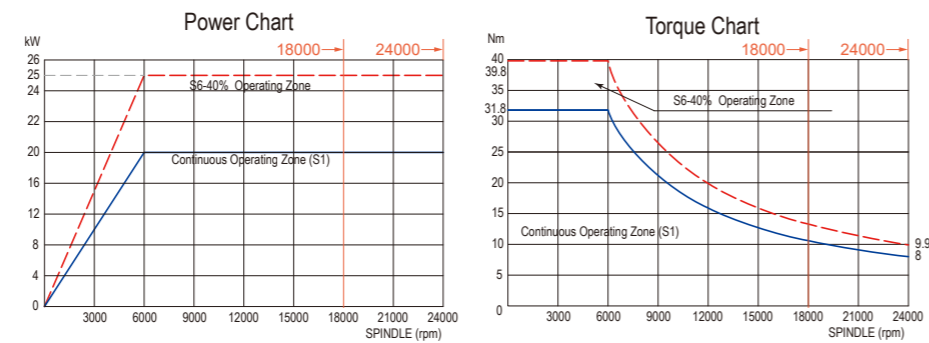


- FANUC control
- Double winding motor
 - Air-cooled
 - 15.000 rpm max speed



• High-speed built-in spindle (HSK-A63)

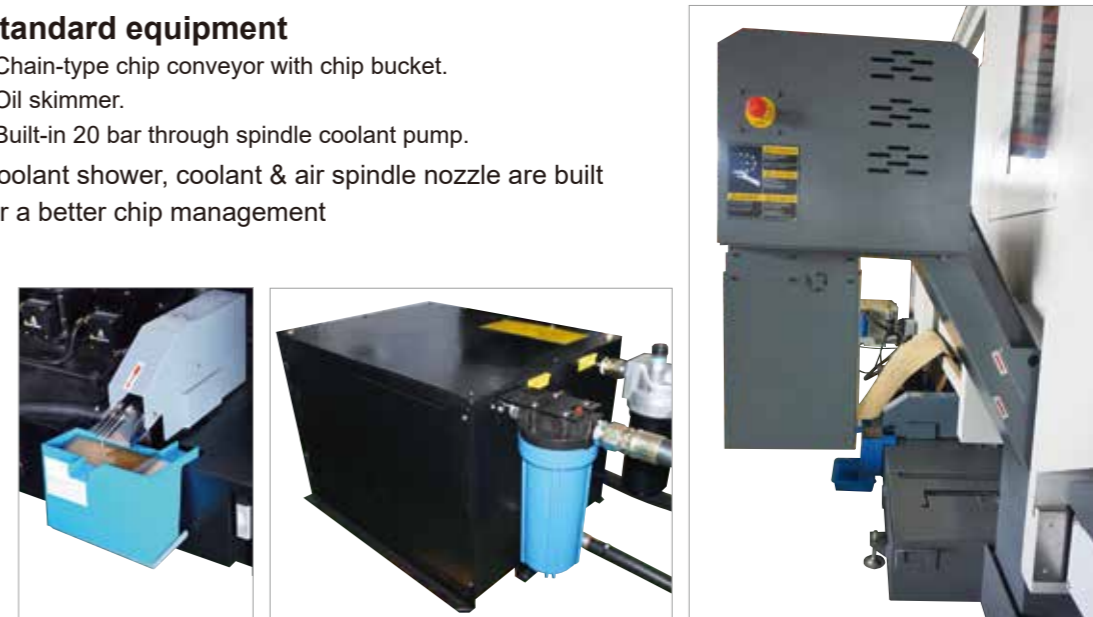
- 18000 rpm
24000 rpm
- Single winding motor
 - Water-cooled
 - 40 Nm at S6(40%)
 - 25 kW at 6000 rpm



Chip management

Standard equipment

- Chain-type chip conveyor with chip bucket.
 - Oil skimmer.
 - Built-in 20 bar through spindle coolant pump.
- Coolant shower, coolant & air spindle nozzle are built for a better chip management



Tool management



Tool accessibility

Tools are accessible from the left side of the machine if 48 or 60 tool magazine is chosen

Tools can be easily changed during automatic operation, to avoid idle times between up cutting time

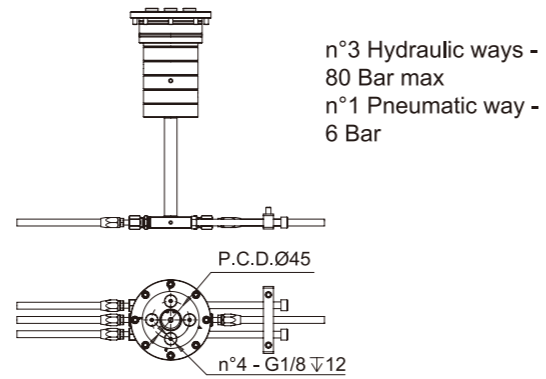
Premium equipment

Ergonomy and Maintenance

Standard

Integrated preparation for **3xhydraulic (80bar) and 1xpneumatic (6 bar)** ports. Clamping and unclamping functions by softkeys in the control panel and/or by M-function.

Simplifies 5X workpiece clamping.



Optional equipment

Separate type cooling unit including:

- Through spindle 20 bar centrifugal pump or...
- Through spindle 70 bar screw type pump with stepless programmable pressure
- Paper filter • Oil skimmer • Coolant chiller

Recommended for high aluminum or cast iron material cutting

Overhead roof type

Easy loading and unloading of heavy and bulky workpieces by over-head crane



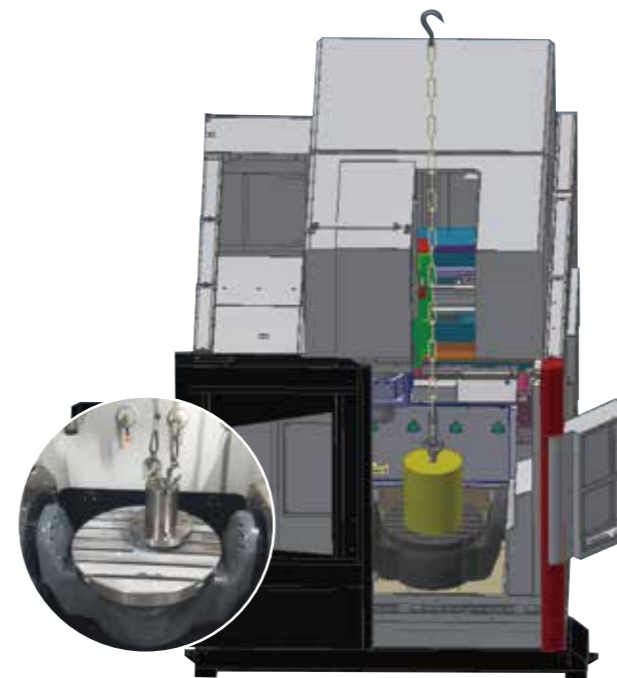
Automatic roof type

Convenient to open ceiling working area automatically

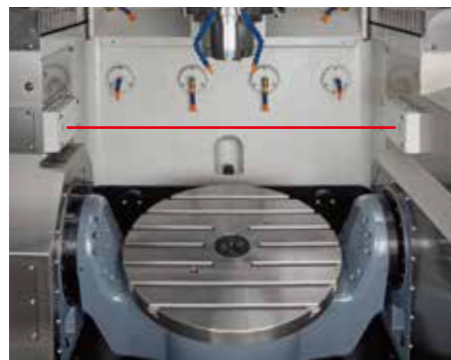


Large front door opening

Comfortable access to work area for workpiece preparation and supervision



All consumables are located in the same area for easier maintenance activities. Electrical cabinet comes std with air conditioning system.



Separate type laser tool setter

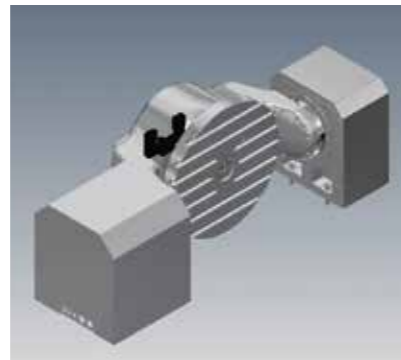


Table-mounted laser tool setter

Laser tool measurement installed for highest accuracy.

- * Non-contact laser tool setter with separated transmission and receiver units
- * Table-mounted laser tool setter

Accurate tool measurement in length, radius and shape

In-process tool measurement at working conditions (spindle running at thermal stable conditions)



Mechanical tool setter removable. Used for:

Accurate tool measurement in length, radius and shape

The tool setter is placed when tool setting and removed to avoid interferences during machining



Controller versions and Panel

Dimensions and Interference

5X



Heidenhain TNC 640
Controller with Standard:
• Kinematics Opt
• Tool center point management
• Tilted working plane
• Dynamic Collision Monitoring: DCM
Perfect for 5X operation



Siemens 840D sl Controller
with Standard:
• Kinematics chain
• 5X transformation with tool orientation
• Swivel the coordinate system
• Collision avoidance
Perfect for 5X operation

4+1 or 3+2 X



Siemens 828D Controller
with Standard:
• Kinematics chain
• 5X transformation with tool orientation
• Swivel the coordinate system
Cost-effective for 4+1X operation



Fanuc 0iM Controller
with Standard:
• Manual Guide i
• Tilted working plane indexing
Cost-effective for 4+1X operation

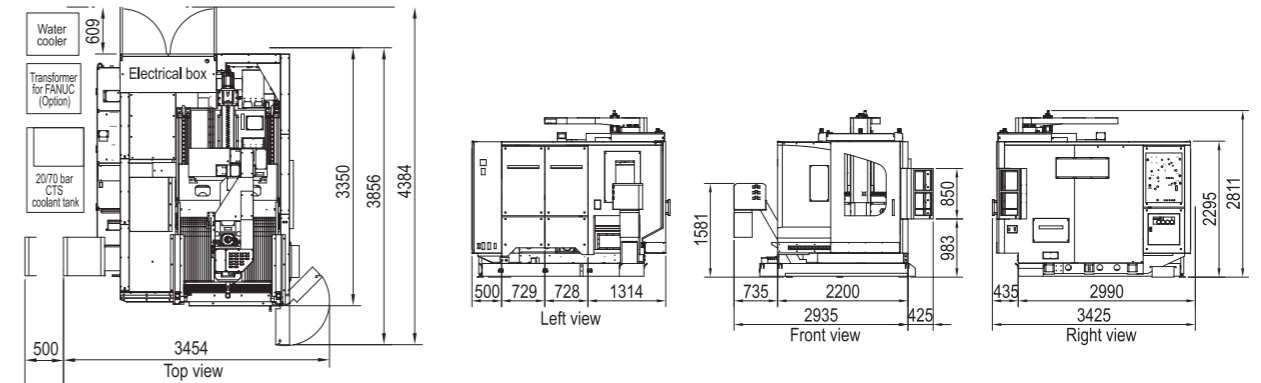
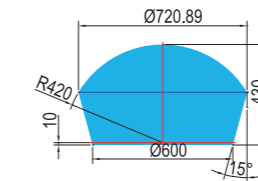
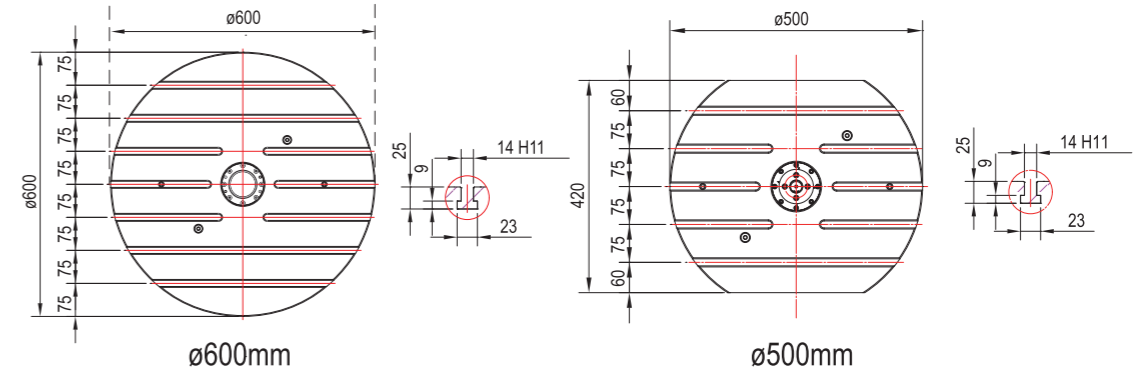


Table Ø600mm/Table Ø500x420mm



Maximum workpiece



Flexible controller selection



Pending panel Best ergonomcy for long-lasting CNC operations at the machine



Swivelling panel Best for space requirement

