

Five-Axis Vertical Machining Center

CT-350



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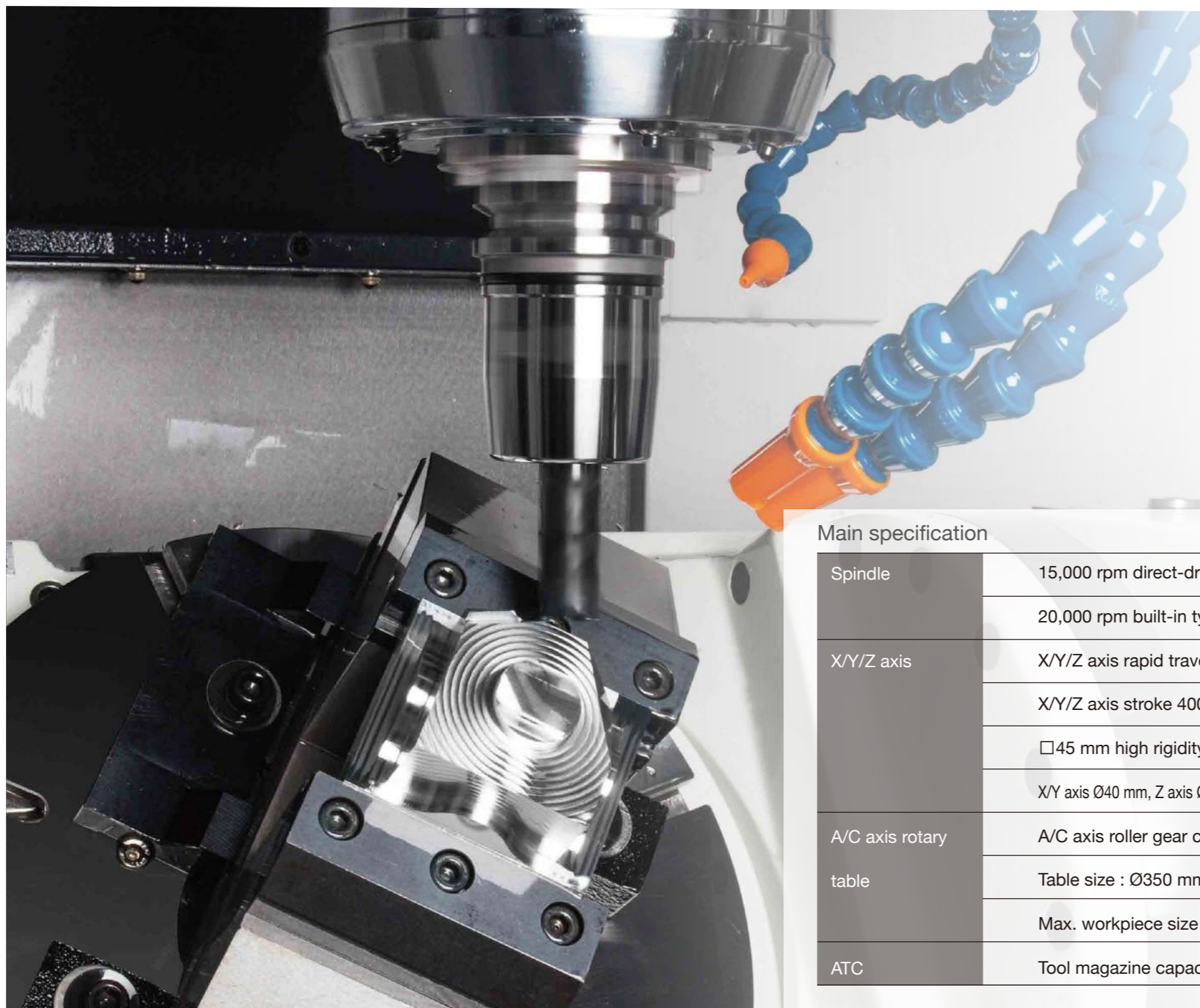


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CT-350



High performance design

Integrated with advanced technologies and R&D experience, the high performance vertical 5-axis machining center, CT-350, is able to process complicated and precision parts machining in different industries. These include: aerospace, automotive, biomedical, electronics, and mold industries. In addition, the CT-350 is effective for reducing set-up times and improving the machining efficiency.

Roller cam type A/C axis

Standard equipped with roller gear cam type A/C axis table, with the advantages of zero-backlash and high rigidity. This improves the machining precision dramatically.

High speed spindle

Standard equipped with 15,000 rpm direct-drive type oil-air lubrication spindle. In addition, depends on customer's machining requirements, 20,000 rpm build-in type oil-air lubrication spindle is also available.

Main specification

Spindle	15,000 rpm direct-drive type spindle (std.)
	20,000 rpm built-in type spindle (opt.)
X/Y/Z axis	X/Y/Z axis rapid traverse 36/36/30 m/min
	X/Y/Z axis stroke 400/510/510mm
	□45 mm high rigidity roller guide way
A/C axis rotary table	X/Y axis Ø40 mm, Z axis Ø45 mm High precision ballscrew
	A/C axis roller gear cam type
ATC	Table size : Ø350 mm
	Max. workpiece size : Ø380×H220 mm
	Tool magazine capacity 24 (opt. 30 or 40 tools)



Main structure

High rigidity structure

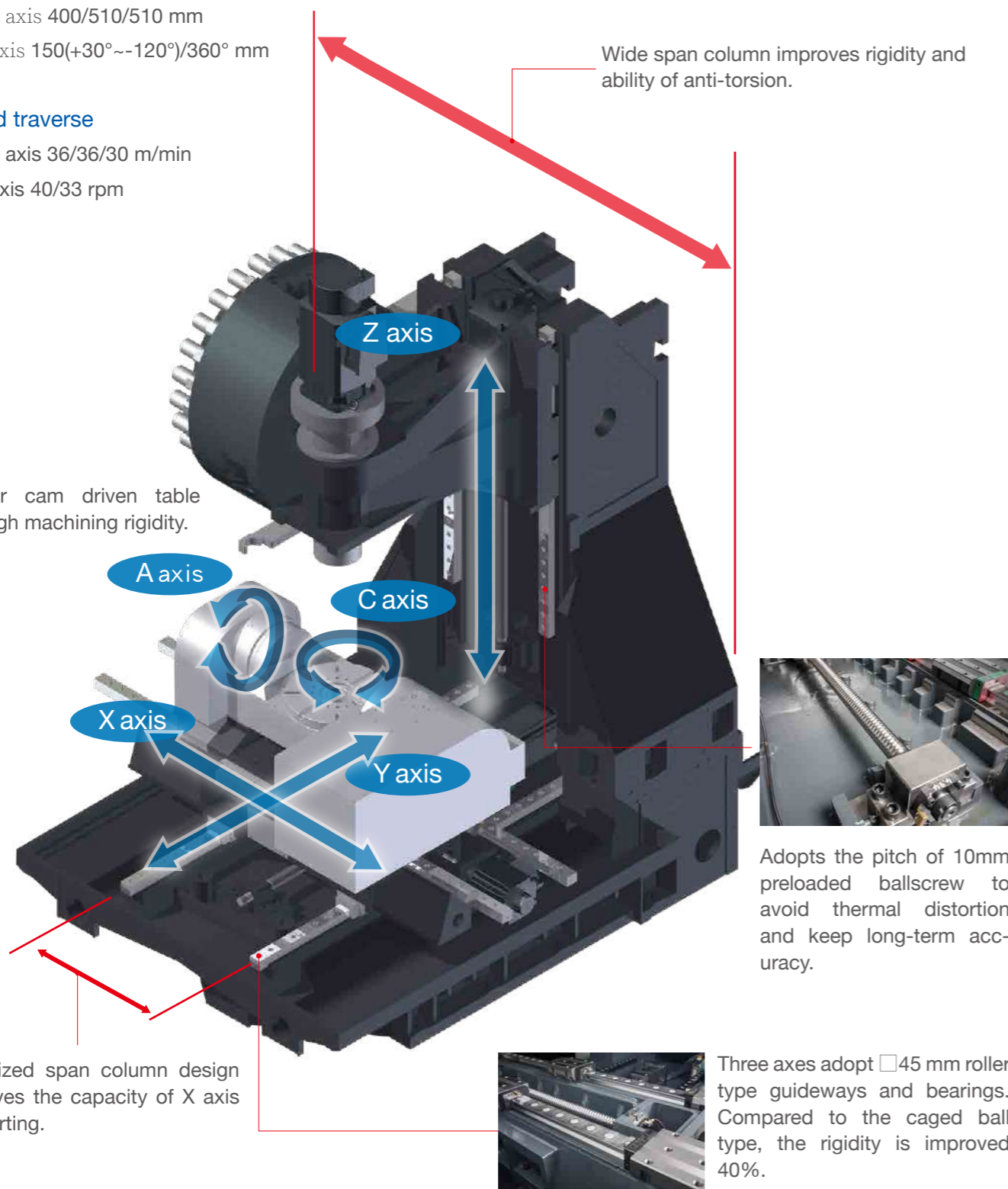
Stroke

X/Y/Z axis 400/510/510 mm
A/C axis 150(+30°~-120°)/360° mm

Rapid traverse

X/Y/Z axis 36/36/30 m/min
A/C axis 40/33 rpm

Roller gear cam driven table provides high machining rigidity.



Wide span column improves rigidity and ability of anti-torsion.



Adopts the pitch of 10mm preloaded ballscrew to avoid thermal distortion and keep long-term accuracy.



Three axes adopt □45 mm roller type guideways and bearings. Compared to the caged ball type, the rigidity is improved 40%.

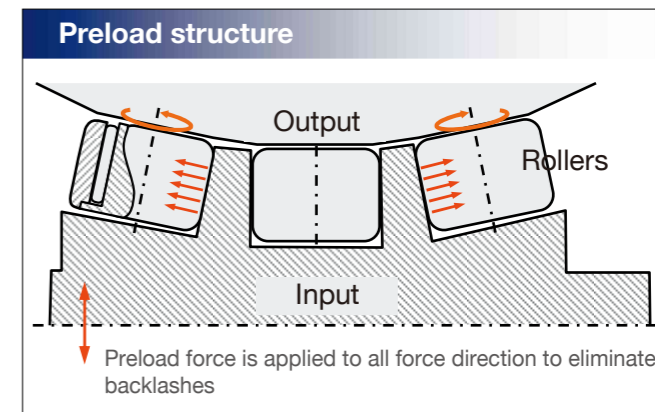
Rotary table

A/C axis : Roller gear cam type

The positioning accuracy, repeatability accuracy, backlash and durability performances of roller gear cam mechanism are all better than worm-gear mechanism.

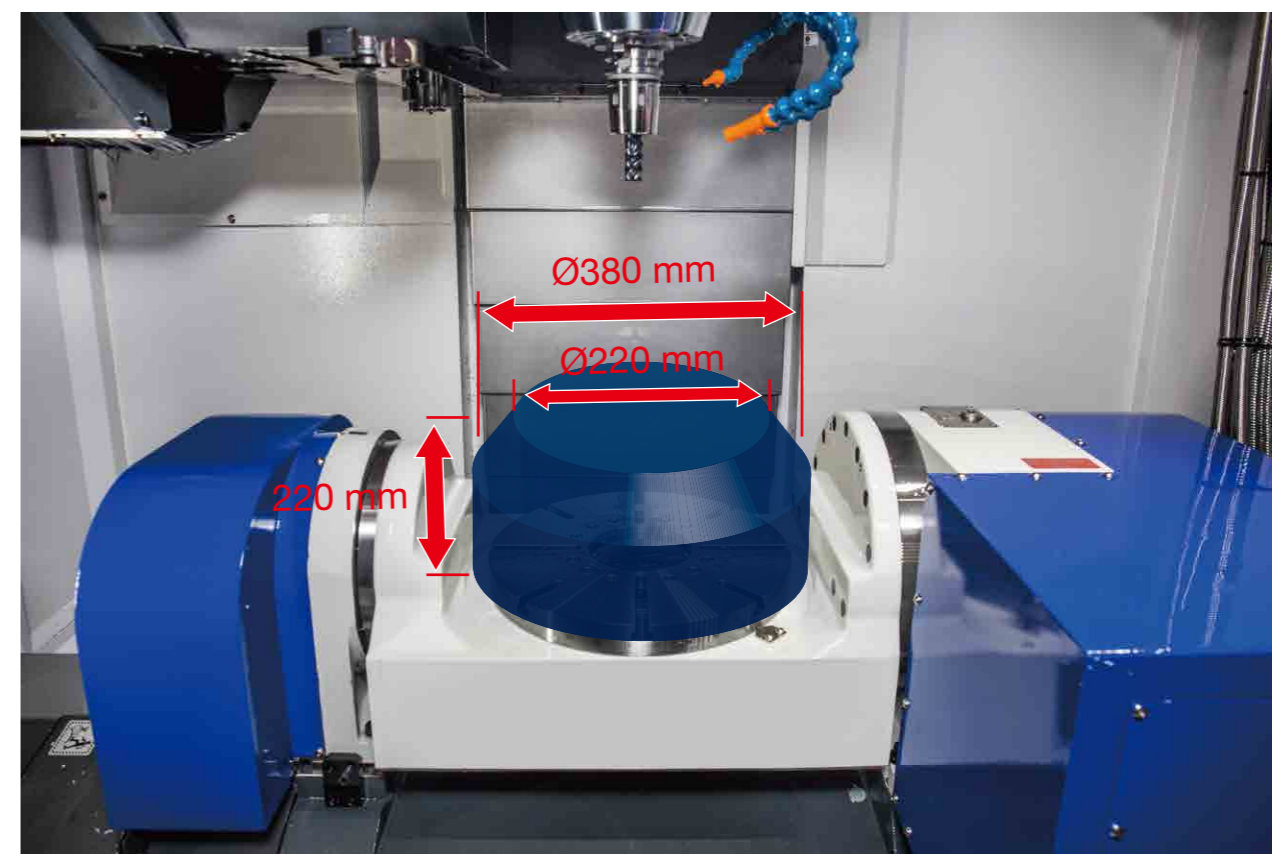
Because A/C axis rotary table is driven by roller gear cam with rolling contact between roller and cam, it can start at a lower torque. High accuracy is guaranteed under long-term heavy duty cutting.

	w/o linear scale	With linear scale
positioning accuracy	15"	6"
repetition accuracy	10"	5"



Zero backlash	Low abrasion
High positioning accuracy	Higher durability

Max. workpiece size



Spindle

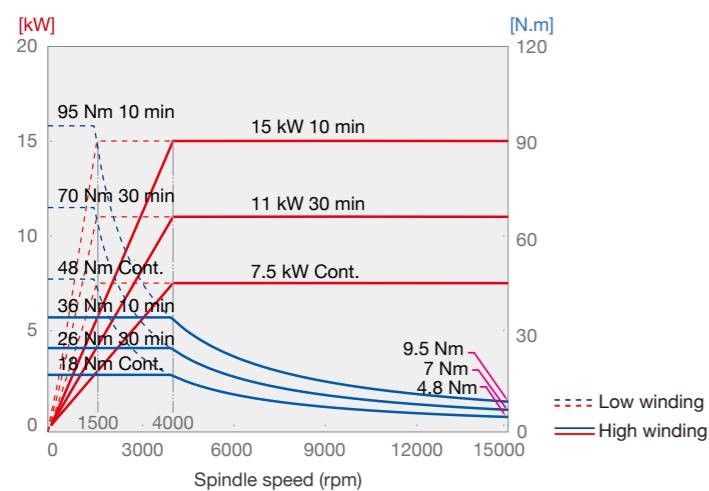
Specifications	Max. speed	H.P. output	Torque output
Direct-drive type 15,000 rpm(Opt.)	15,000 rpm	15/11/7.5 kW	95/70/48 Nm
Built-in type (Opt.)	20,000 rpm	40/30 kW	38/29 Nm



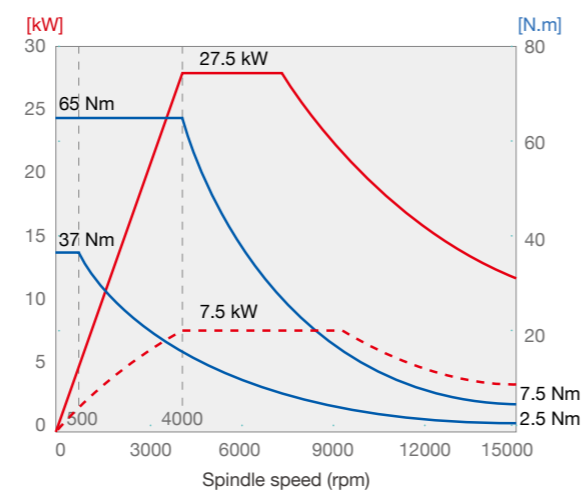
- The spindle of CT-350 is equipped with oil-air lubricated bearings and oil-cooling cartridge. This constrains the thermal generation and reduces the thermal expansion in the spindle.
- BBT dual-contact tool holder is equipped to enhance the stability and machining quality.

Spindle output and torque chart

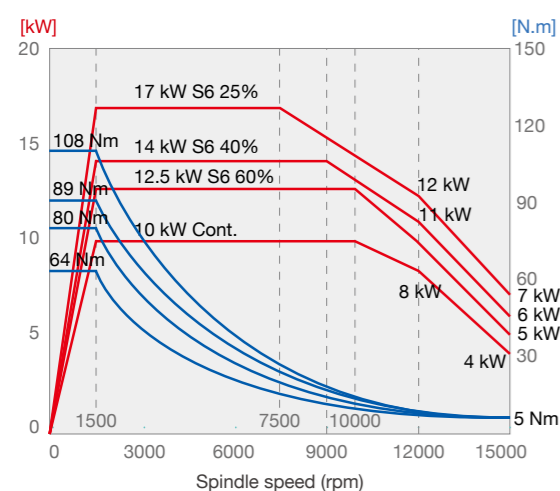
15,000rpm Direct-drive spindle (FANUC)



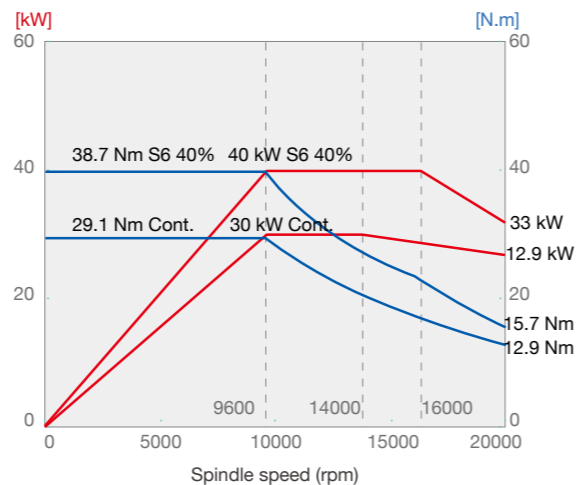
15,000rpm Direct-drive spindle (Siemens)(Opt.)



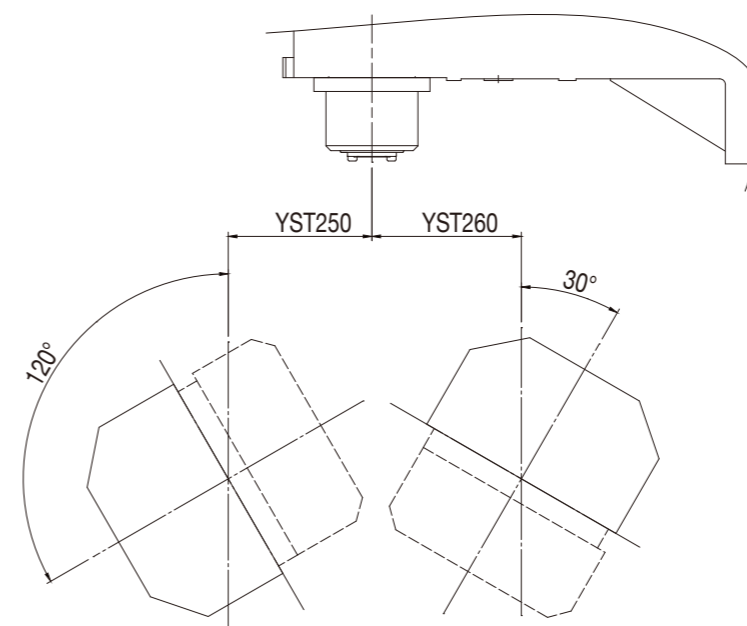
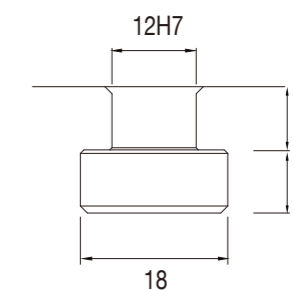
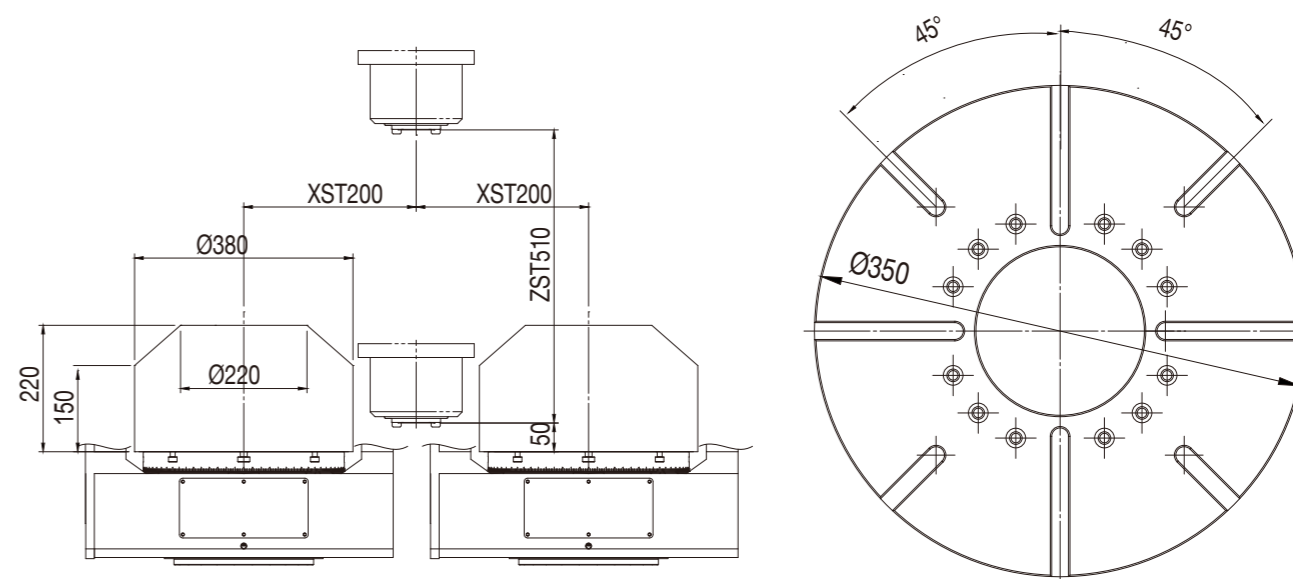
15,000rpm Direct-drive spindle (Heidenhain)(Opt.)



20,000 rpm Built-in spindle(Opt.)



Working area



Operation

Easy daily maintenance

Through centralized management of air FIRL unit and lubricant pump, daily maintenance is done easily.



Swivel-type operation panel

The operation panel is able to swivel up to 90 degrees, which improves visibility during operation.



ATC

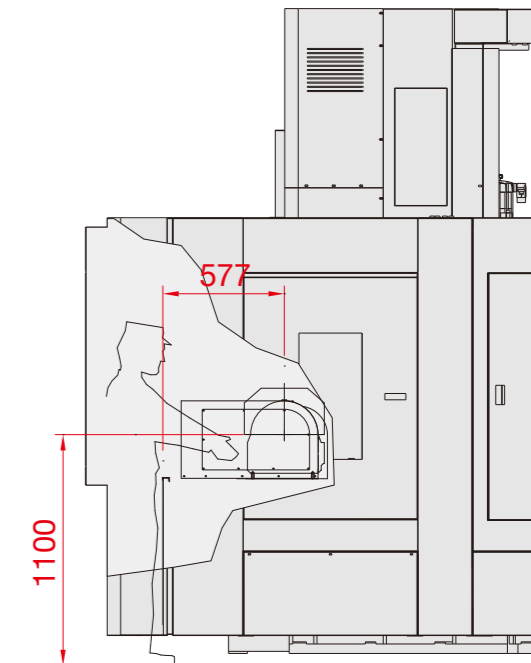
The roller gear cam type tool changer has higher accuracy and lower noise. In addition, the stable tool clamping can ensure spindle accuracy and expand bearing life.

- Tool capacity 24 tools
- 30 tools (opt.)
- 40 tools (opt.)



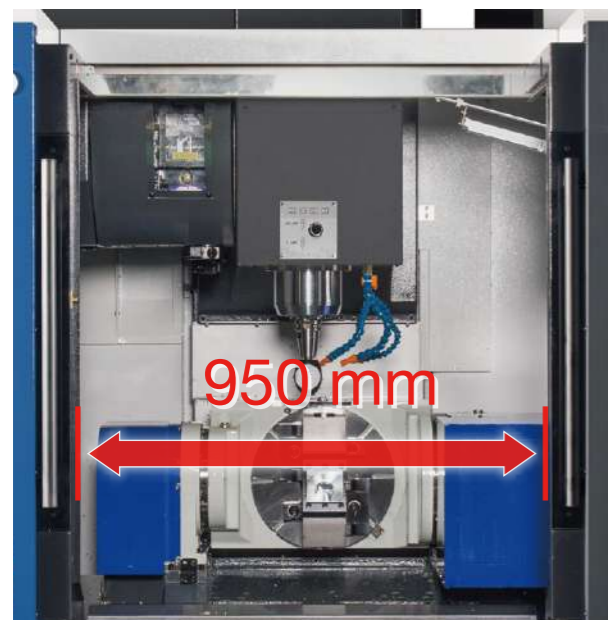
Accessibility

Suitable table height and reasonable distance between table and operator provide an excellent machining experience during operation.

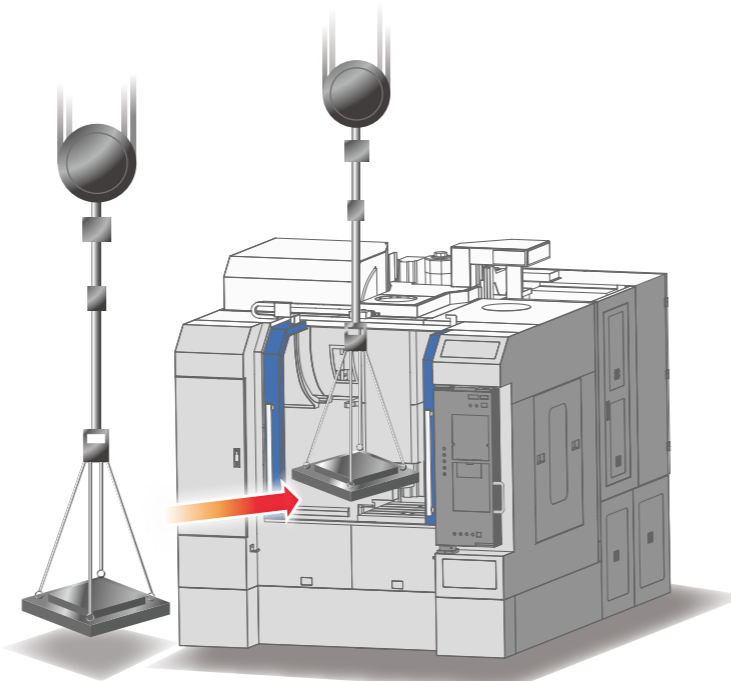


Door opening width

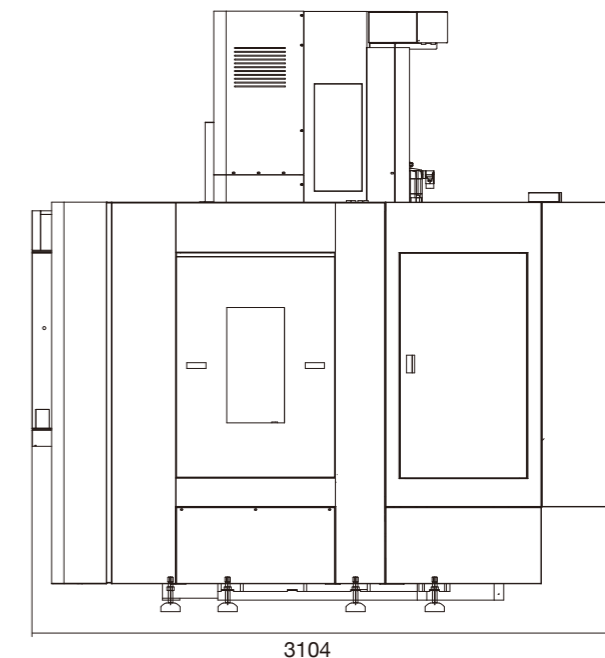
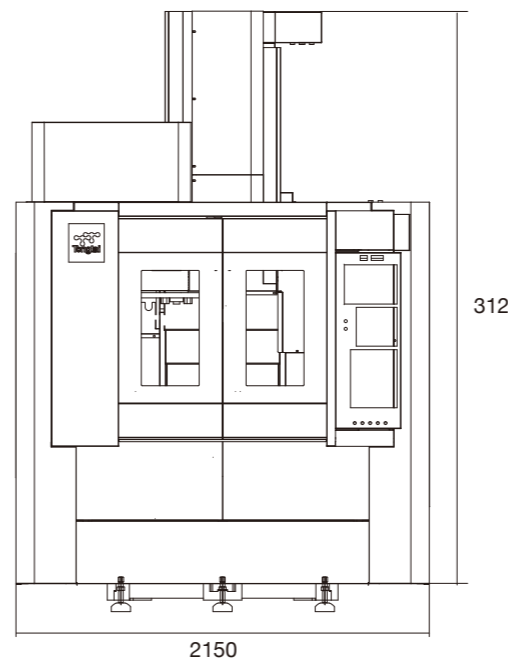
The wide door opening makes machine operation and loading/ unloading more convenient.



Spacious working zone facilitates operation of overhead travelling crane.



Machine dimensions



Standard/optional accessories

		Standard	Optional
Spindle	Built-in type 15,000 rpm	●	
	Built-in type 20,000 rpm		○
Table	Roller gear type A axis	●	
	Roller gear type C axis	●	
Tool Shank	BBT-40	●	
	HSK-A63		○
Tool capacity	24 tools	●	
	30 tools		○
	40 tools		○
Coolant through spindle pump	20 bar		○
	50 bar		○
	70 bar		○
Cooling system	Spindle coolant system	●	
	Air conditioner for electrical cabinet		○
Chip conveyor	Scraper type conveyor		○
	Hinge type conveyor		○
Lubrication system	General lubrication system	●	
	LHL integrated lubrication system		○
Positioning accuracy system	Three axes linear scale 5μm resolution		○
	Three axes linear scale 3μm resolution		○
	A axis linear scale (±3 sec)		○
	C axis linear scale (±3 sec)		○
Automatic tool length detector	Marposs Mida Laser 75P tool breakage detector		○
	Renishaw TS-27R		○
	Blum P87.0634-014-NT-A3		○
Others	Workpiece measuring device		○
	Machining air blow	●	
	Air gun	●	
	Coolant gun		○
	Oil skimmer		○
	Oil mist collector		○
Controller	(MQL) Minimal Quantity Lubrication System		○
	FANUC 0i-MF	●	
	FANUC 31i-MB		○
	SIEMENS 840D		○
	HEIDENHAIN TNC640		○

Specifications

Item	Specification	Unit	CT-350
Table	Table size (LxW)	mm	Ø350
	Max. loading capacity	kg	200
	Table height from floor	mm	1,100
	Max. workpiece dimension (diameter×height)	mm	Ø380×220
	A/C axis min. indexing increment	deg	0.001°
Spindle	Spindle taper		7/24 Taper No.40
	Spindle speed	rpm	15,000 (Opt. 20,000)
Stroke	X/Y/Z axis stroke	mm	400/510/510
	Spindle nose to table	mm	50-560
	A axis stroke	deg	+30 ~ -120
	C axis stroke	deg	±360
Feed	X/Y/Z axis rapid traverse	m/min	36/36/30
	A/C axis rapid traverse	rpm	40/33.3
	Cutting feedrate	mm/min	1-10,000
ATC	Tool shank		BBT-40 (Opt. HSK-63A)
	Tool capacity	pc	24 (Opt. 30, 40)
	Max. tool diameter	mm	Ø76
	Max. tool diameter (w/o adjacent tool)	mm	Ø125
	Max. tool length	mm	300
	Max. tool	kg	7
Motor	Spindle motor (15,000)	kW	7.5/11/15 (FANUC)
	Spindle motor (20,000)	kW	7.5/27.5 (SIEMENS)
	X/Y/Z axis servo motor	kW	2.7/2.7/4 (FANUC) 3.3/3.3/4.87 (SIEMENS)
	Coolant motor	kW	0.37×2
Machine size	Wide×Depth×Height	mm	2,150×3,104×3,121
	Weight	kg	7,000

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