

Vertical Machining Center

TMV-1350A/1600A



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TMV-1350A/1600A



High rigidity and heavy duty cutting performance

With high rigidity box-way design, long machining stroke and high torque output spindle, TMV-1350A/6000A is suitable for heavy duty cutting.

High efficiency chip disposal

Equipped with two chip augers and flushing system, these can easily dispose chips to prevent chip storing while plenty of chips were generated during machining.

Main specifications

Spindle	Spindle nose 7/24 taper No.50 3,500 rpm Belt-driven spindle (Optional 6,000 rpm) 6,000 rpm Belt-driven spindle with gear box (Optional) 3,500 rpm High torque spindle with gear box (Optional for TMV-1600A)
Three axes	X/Y/Z axis Rapid traverse TMV-1350A 20/20/15 m/min TMV-1600A 15/15/12 m/min X/Y/Z axis stroke TMV-1350A 1,350/750/700 mm TMV-1600A 1,600/800/700 mm High rigidity box-way structure X/Y/Z axis Ø50 mm high precision ballscrews
ATC	TMV-1350A Tool capacity 24 pcs (Optional 32 pcs) TMV-1600A Tool capacity 32 pcs (Optional 40 pcs)

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Main structure

High rigidity box-way structure

Stroke

X/Y/Z axis

TMV-1350 1,350/750/700 mm

TMV-1600 1,600/800/700 mm

Rapid traverse

X/Y/Z axis

TMV-1350 20/20/15 m/min

TMV-1600 15/15/12 m/min

Z axis is blanced by counter-weight to reduce the loading of servo motor and improve its machining precision.



Casting components on this machine are made of high quality cast iron, and through finite element analysis(FEA), the static and dynamic rigidity can be ensured.

- With huge size box-way design, heat treatment, and precision grinding, these features can reach the requirements of heavy duty cutting and high rigidity.
- Turcite-B and precise scraping is applied on slide surface of box-way to ensure the best lubrication effect.
- The Y axis employs four guideways to offer superior support of the X axis saddle and best accuracy.

High torque spindle with gear box

Gear box type spindle is equipped with cooler, which can restrain the heating occurred by gear box, reduce the thermal deformation and extend spindle life.

Standard 3,500 rpm belt-driven spindle with nose BT50 can optionally be changed as gear box type spindle, to reach the maximum output torque 731 Nm providing higher torque for heavy duty cutting.

Specification	TMV-1350A / TMV-1600A			TMV-1600A
	TMV-1350A	TMV-1600A	TMV-1600A	
Max. speed	3,500 rpm	6,000 rpm	6,000 rpm	3,500 rpm
Driven Type	Belt-driven	Belt-driven	Belt + gear box	Gear box
Horse power	15/11 kW	15/11 kW	15/11 kW	15/11 kW
Torque	239/175 N m	191/140 N m	382/280 N m	731/536 N m



ATC

With cam type tool changer, it can achieve high precision and low noise; moreover, the stable tool clamping can ensure spindle accuracy and extend bearing life.

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Tool capacity

TMV-1350A 24 pcs (Optional 32 pcs)

TMV-1600A 32 pcs (Optional 40 pcs)



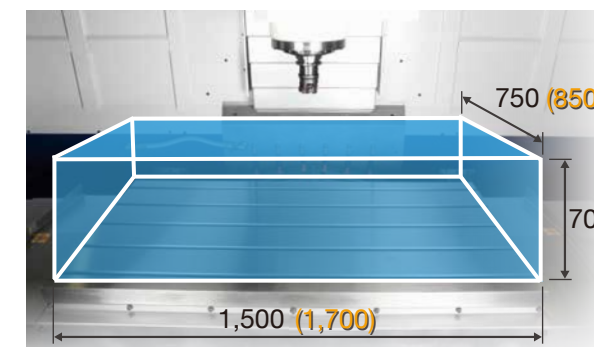
· 24 pcs



· 32 pcs

Working area

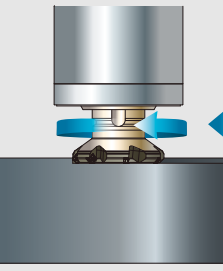
Specification	TMV-1350A	TMV-1600A
Table size	1,500×750 mm	1,700×850 mm
Max. table loading	1,300 kg	2,000 kg



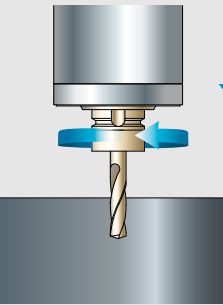
Unit : mm

Milling ability

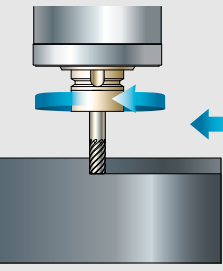
TMV-1350A Belt-driven Spindle Material : S45C



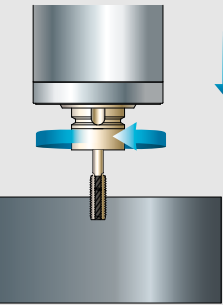
Milling	
Chip removal rate	342 cm ³ /min
Tool	Ø125 (9 teeth)
Spindle speed	600 rpm
Traverse	1,623 mm/min
Widening	100 mm
Cutting	2 mm



Drilling	
Chip removal rate	143 cm ³ /min
Tool	Ø65
Spindle speed	122 rpm
Traverse	43 mm/min

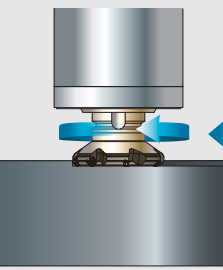


Milling	
Chip removal rate	238 cm ³ /min
Tool	Ø45 (6 teeth)
Spindle speed	700 rpm
Traverse	1,060 mm/min
Widening	45 mm
Cutting	5 mm

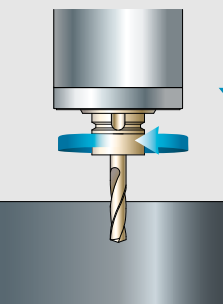


Tapping	
Chip removal rate	M30×P2
Tool	150 rpm
Spindle speed	300 mm/min

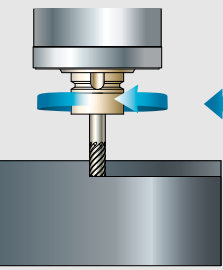
TMV-1600A Gear type Spindle Material : S45C



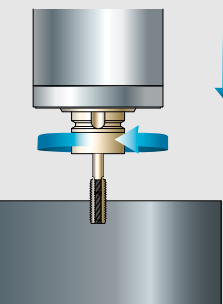
Milling	
Chip removal rate	458 cm ³ /min
Tool	Ø125 (9 teeth)
Spindle speed	254 rpm
Traverse	537 mm/min
Widening	100 mm
Cutting	8 mm



Drilling	
Chip removal rate	143 cm ³ /min
Tool	Ø65
Spindle speed	122 rpm
Traverse	43 mm/min



Milling	
Chip removal rate	286 cm ³ /min
Tool	Ø45 (6 teeth)
Spindle speed	350 rpm
Traverse	636 mm/min
Widening	45 mm
Cutting	10 mm



Tapping	
Chip removal rate	M30×P2
Tool	150 rpm
Spindle speed	300 mm/min

Operation · Maintenance



With the door opened, the top side is wide open, providing a wide space for loading work. The distance and height of table are very ergonomic. It provides the operator a very comfortable and convenient working area.



The control panel can be rotated 90°, besides, as equipped with manual pulse generator, operator can adjust for the best view while working.



The wide door opening provides a spacious area for the during operation and processing maintenance.

Door opening width
 TMV-1350A 1,490 mm
 TMV-1600A 1,870 mm



Pneumatic unit, lubricant pump, and some maintenance items are located on the rear left side of machine, with easy access.

Peripheral accessories

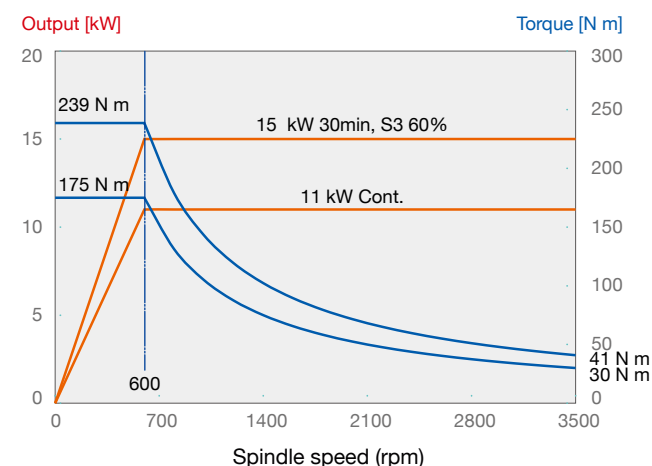
Chip disposal

Equipped with two chip augers and flushing system, it can easily remove chips to prevent chip storing, even plenty of chips were generated during machining.

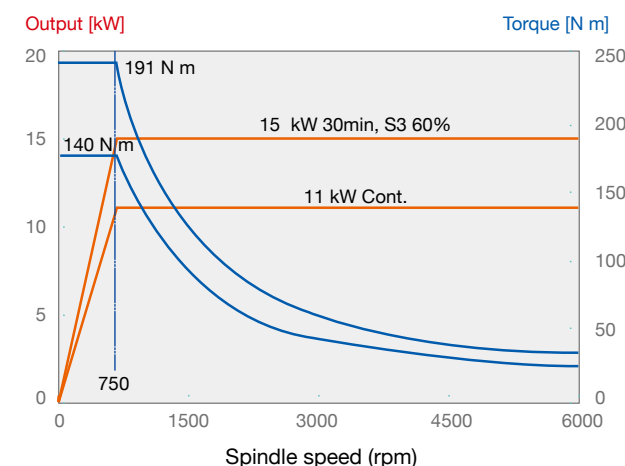


Spindle output and torque chart

3,500 rpm Belt-driven type



6,000 rpm Belt-driven type



Chip conveyor (Optional)

According to different materials and chip size, Tongtai provide various chip conveyors for the best chip disposal.

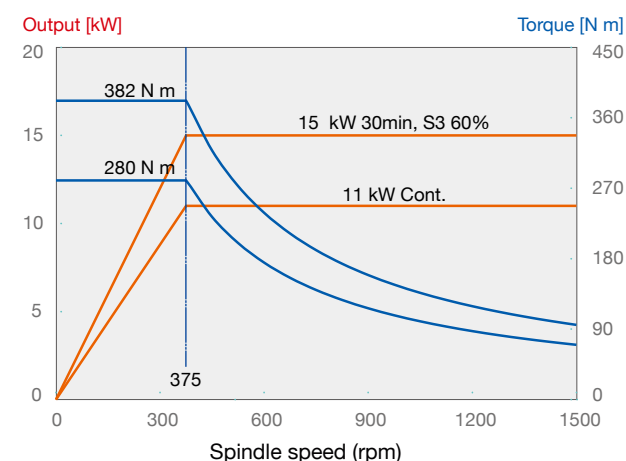
Specification	Steel		Cast iron		Aluminum/ Non-ferrous metal		
	Long/Curl chips	Short chips	Powder chips	Short chips	Long/Curl chips	Short chips	Powder chips
Hinge type	O	X	X	X	O	X	X
Scraper type	X	O	O	O	X	O	O
Magnetic scraper type	O	O	O	O	X	X	X

O: Suitable X: Non-suitable

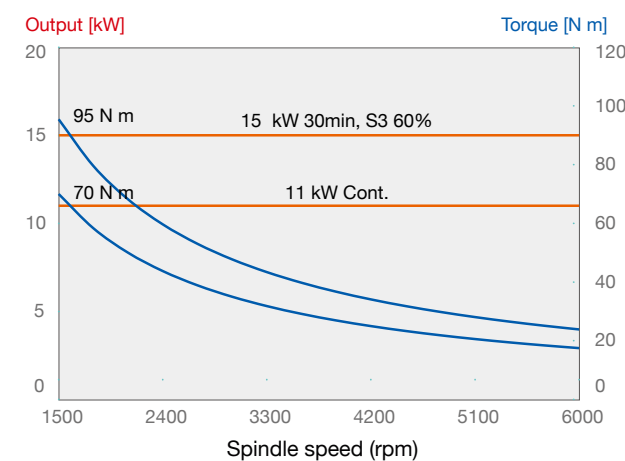
Short chips: Chips shorter than 60 mm or ball type chips smaller than Ø40 mm.

Curl long chips: Chips' length is longer than short ones.

6,000 rpm Belt-driven with gear box (Low-winding)



(High-winding)

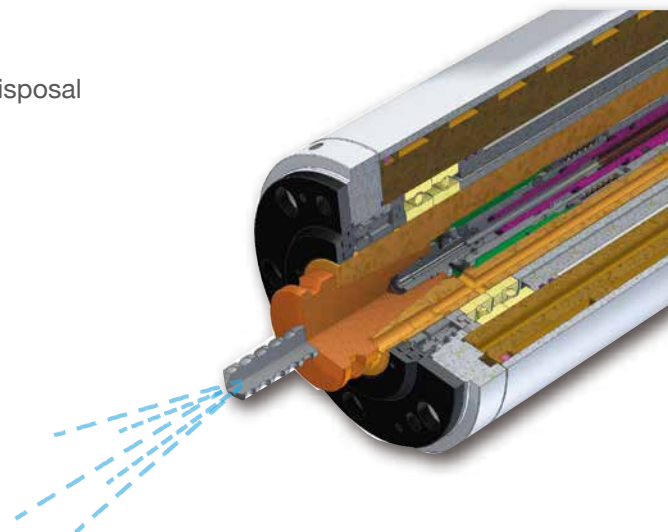


Coolant Through Spindle

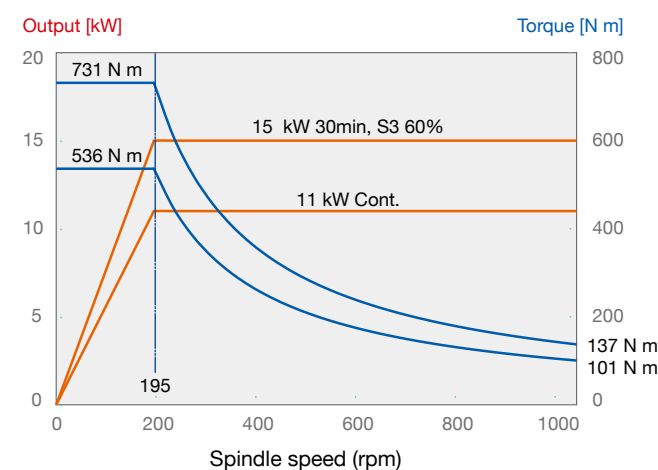
Coolant through spindle increases the efficiency of chip disposal and extends the tool life.

Discharge pressure: 15/40/70 bar
(1.5/4.0/7.0 MPa)

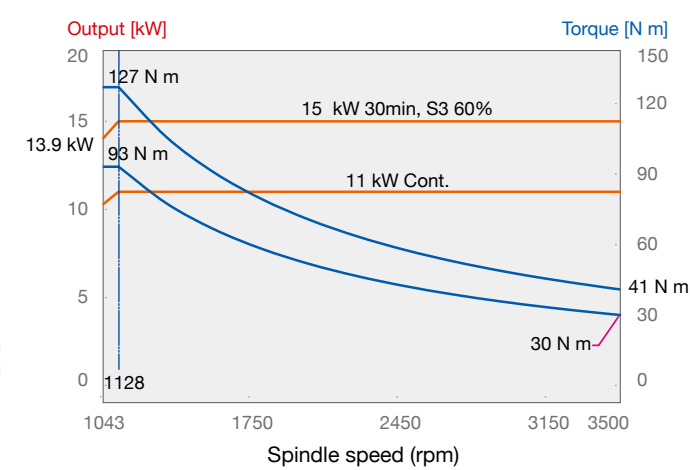
Filtering accuracy: 40 µm



3,500 rpm Gear box type (Optional for TMV-1600A) (Low-winding)



(High-winding)



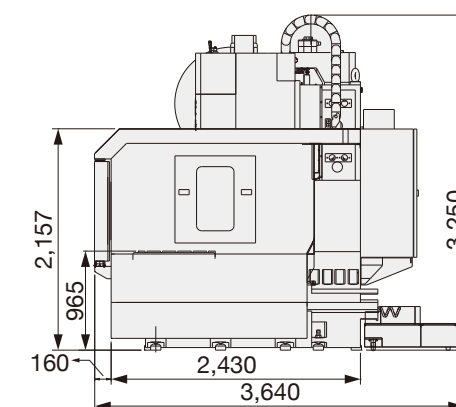
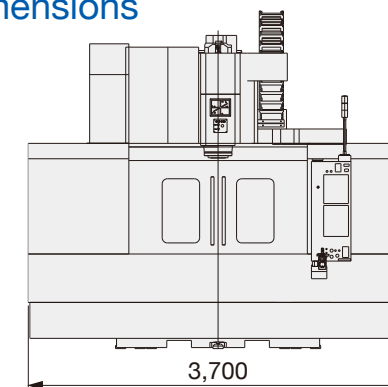
Standard/optional accessories

		Standard	Optional
Tool Shank	BT-50	●	
	HSK-A100		○
Coolant through spindle pump	15 bar		○
	40 bar		○
	70 bar		○
Cooling system	Spindle cooler		○
	Hydraulic temperature control system		○
	Coolant temperature control system		○
	Air conditioner for electrical cabinet		○
Chip conveyor	Two chip augers	●	
	Bed flushing pump	●	
	Scraper type conveyor		○
	Magnetic scraper type conveyor		○
	Hinge type conveyor		○
Lubrication system	General lubrication system	●	
	LHL integrated lubrication system		○
Positioning accuracy system	Three axes linear scale 5 μ resolution		○
	Three axes linear scale 3 μ resolution		○
	Three axes magnetic scale 5 μ resolution		○
Tool measuring system	Tongtai made touch type tool breakage detector		○
	Laser type tool measurement		○
4th axis rotary table			○
Others	Workpiece measuring device		○
	Machining air blow		○
	Air gun		○
	Coolant gun		○
	Oil skimmer		○
	Oil mist collector		○
Controller	FANUC 0i-M	●	
	FANUC 31i-M		○

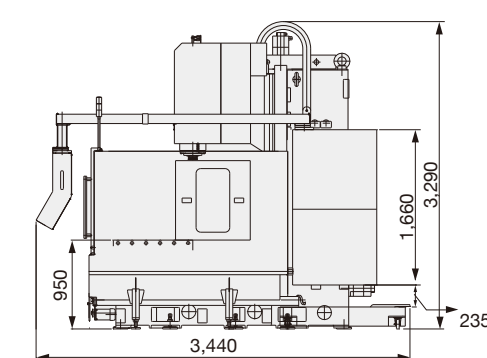
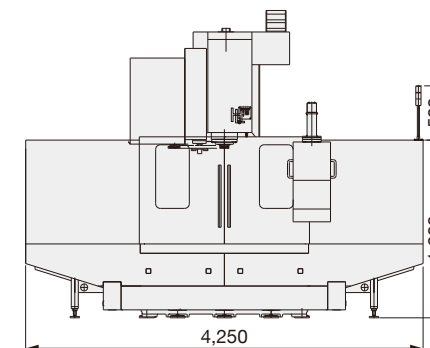
Machine dimensions • Specifications

Machine dimensions

TMV-1350A



TMV-1600A



Unit : mm

Specifications

Item	Specification	Unit	TMV-1350A	TMV-1600A
Table	Table size	mm	1,500x750	1,700x850
	Max. loading capacity	kg	1,300	2,000
	Table height from floor	mm	950	
	T-slot (size×No.)	mm	18x5	18x6
Spindle	Spindle taper		7/24 Taper No.50	
	Spindle speed	rpm	3,500 (6,000)	
Travel	X/Y/Z axis travel	mm	1,350/750/700	1,600/800/700
	Distance from table surface to spindle gage line	mm	200~900	
Feed	X/Y/Z axis rapid traverse	m/min	20/20/15	15/15/12
	Cutting feedrate	mm/min	0~5,000	
ATC	Tool shank	m/min	BT-50	
	Tool capacity	pc	24 (32)	32 (40)
	Max. tool diameter	mm	Ø110 (Ø125)	Ø125
	Max. tool diameter(w/o adjacent tool)	mm	Ø200 (Ø220)	Ø220
	Max. tool length	mm	350	300
	Max. tool weight	kg	15	
Motor	Spindle motor	kw	15/11	15/11 (18.5/15)
	X/Y/Z axis servo motor	kw	4.0/4.0/7.0	
Machine size	Width×depth×height	mm	3,700x3,640x3,250	4,250x3,440x3,290
	Weight	kg	13,000	15,000
Controller			FANUC 0i-MF	

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