

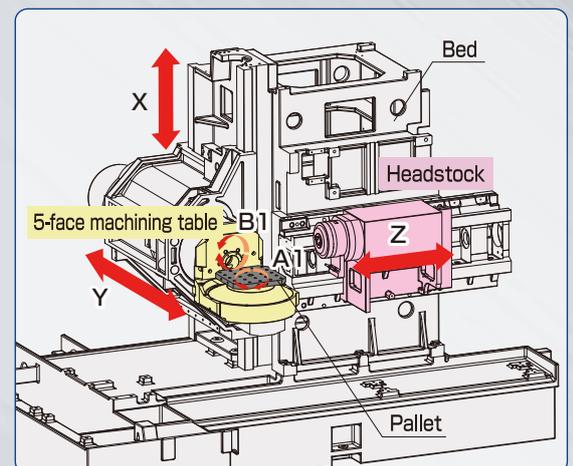


Horizontal Machining Center **FMA5-V**

**TSUGAMI's unique and high performance
Machining Center Secures space saving
and long-term continuous machining**



- Since the Headstock and X-axis slide on two orthogonal sides of the vertical bed, the force loop is short and high rigidity is ensured.
- Vertical bed and vertical pallet make free-chip-flow possible in which chips directly drop into the chip pan.
- Compared to normal horizontal machining center, coolant is not directly applied to the bed, and harmful effect from chips and coolant is absorbed. Less thermal displacement and stable machining are obtained.
- Space saving is realized by the vertical pallet magazine.



Machine specifications

Item		Specifications
Stroke	X axis	560 mm
	Y axis	350 mm
	Z axis	500 mm
	Distance between spindle end face and B-axis center	150 mm to 650 mm
Pallet	Pallet size	300mm x 300mm
	Max. allowable size on pallet	φ410 mm (Width across flats: 350 mm) x 310 mm
	Max. allowable weight on pallet	80 kg
	Pallet indexing angle (A axis/B axis)	1 deg per direct command (360 positions)
	Number of pallet	10 or 20
Spindle	Rotation speed	Max.10,000 min ⁻¹ (Rated speed: 8,000 min ⁻¹)
	Taper size	7/24 taper No.40
Feedrate	Rapid traverse rate	20 m/min (X, Y), 24 m/min (Z)
	Tool shank configuration	BIG PLUS BBT40
ATC	Tool pull stud	MAS403-1982 P40T-2
	Tool changing method	Double arm
	Tool selection	Specified address, random indexing
	Tool storage capacity	62
	Max. tool size (φ x L)	φ90 mm x 330 mm
Motors	Max. tool weight	9 kg
	Spindle(Continuous/S2 30 min/S3 25%)	22/26/37 kW
	Hydraulic unit	5.5 kW
	ATC	0.75 kW
	Linear axes(X, Y, Z)	4.0 kW
	A axis	0.5 kW
	B axis	1.2 kW
Power supply and others	Tool magazine	0.5 kW
	Weight	10,800 kg(10P), 12,800 kg(20P)
	Power source requirement	49 kVA
	Compressed air requirement	0.5 MPa or more
	Air discharge rate	300 NL/min
	Coolant tank capacity	330 L
Width x Depth x Height		4,149 mm x 2,998 mm x 2,740 mm (10P) 4,149 mm x 4,077 mm x 2,740 mm (20P)

NC specifications

Item	Specifications
Controlled axes	X, Y, Z, A1, B1, T1, T2
Least input increment	0.001 mm
Max. programmable value	±8 digits
Interpolation method	Linear, Circular
Feedrate	1 to 6,000 mm/min
Feedrate override	0 to 200%
Dwell	G04,0 to 99999.999
Number of tool offset	400
LCD / MDI	10.4" color LCD
Display language	English
Part program storage size	2 Mbyte
Number of registerable programs	1,000
Miscellaneous functions	M3-digits
Spindle functions	S5-digits
Tool functions	T3-digits

Machine standard accessories

Spindle cooling unit	Pallet changer
ATC shutter	Pallet tilting table
Internal light	Pallet automatic drawer
Work table	Pallet magazine (10P, 20P)
Coolant returning pump	Tool clamp failure detection
Wash down coolant	A/B-axis indexing (1 deg)
Swiveling type operation panel	Air blow for tool cleaning

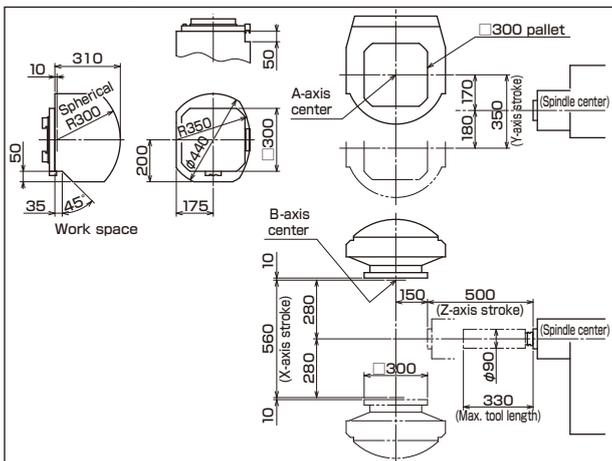
NC standard accessories

Canned drilling cycle	Run time & parts number display
Tool length compensation	Tool life management function
Tool dia./tool nose radius compensation	Memory card interface
Display language	USB memory interface
Background editing	Embedded ethernet
Rigid tap	Power consumption monitor
Energy saving mode	ECO operation mode

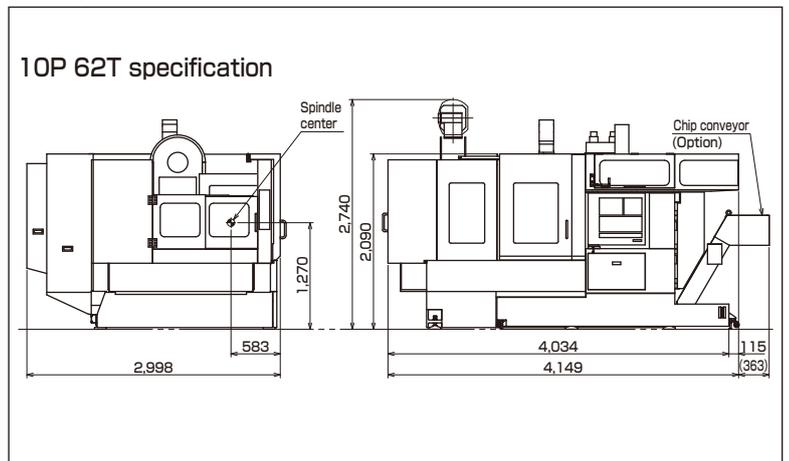
Options

126 tool magazine	18,000 min ⁻¹ spindle	High pressure pump for through-spindle coolant	Automatic power shut off
190 tool magazine	Through-spindle coolant	Touch-tool type drill breakage detection	Pallet automatic return function
Scraper type chip conveyor	Flood coolant	Automatic centering function	Helical interpolation

Tooling zone



Layout



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The specifications of this catalogue are subject to change without prior notice.



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