

# TSUGAMI

HIGH SPEED VERTICAL MACHINING CENTER

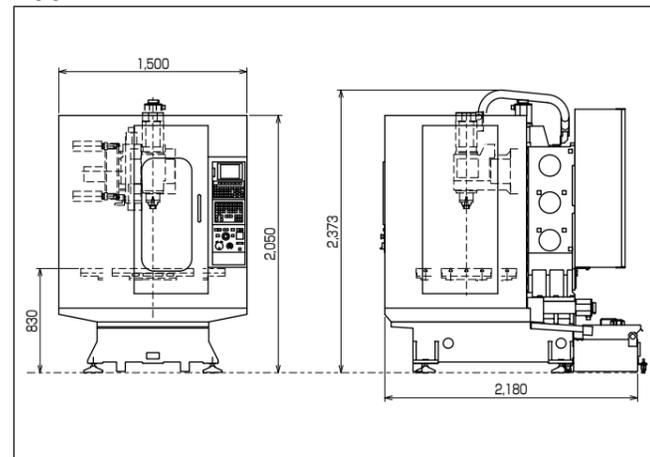
## VA3

### Standard machine specifications

Item	VA3	
Spindle	ID taper	7/24 taper No. 30
	Spindle speed	200 to 20,000 min <sup>-1</sup>
	Motor output (10 min. 25%ED/Cont.) <sup>Note1</sup>	9.0/3.7 kW
Table	Table size	650 x 400 mm
	Table height	830 mm
	T-slot size	14H8 x 3 P = 125 mm
	Distance between spindle face and table face	150 to 500 mm
	Maximum weight on table	250 kg (uniformed load)
Stroke	X-axis stroke	500 mm
	Y-axis stroke	400 mm
	Z-axis stroke	350 mm
Feed rate	Rapid traverse rate (X, Y, Z axis)	48 m/min
	Cutting feed rate	1 to 30,000 mm/min
ATC	Tool shank	JIS B 6339-1998 BT30
	Pull stud	MAS4003-1982 P30T-1
	Tool changing method	Double arm
	Tool selection	Random in nearest direction
	Tool storage capacity <sup>Note2</sup>	20 tools (Max. mountable tool number: 21 tools)
	Maximum tool size (φ x L) <sup>Note2</sup>	φ60 x 250 mm
	Maximum tool weight <sup>Note3</sup>	3.0 kg
Coolant	Tank capacity	130 L
	Pump discharge volume	60 L/min
	Motor	0.18 kW
Power requirement	21 KVA	
Machine size (Width x Depth x Height)	1,500 x 2,180 x 2,373 mm	
Machine weight	2,600 kg	

Note1: Spindle motor output varies according to the spindle speed.  
 Note2: If the tool size is larger than φ60, adjacent tool pot cannot be used. Tool storage capacity is restricted.  
 Note3: Maximum tool weight depends on the position of the center of gravity. Stated value is a reference value.

### Appearance



### Standard NC specifications

項目	VA3	
Control unit	NC unit	FANUC Oi-MD
	Axis name	X, Y, Z
	Least input increment	0.001 mm
	Position detector	Absolute pulse coder
Feed function	Rapid traverse override	F0, 25, 50, 100%
	Feed per minute	mm/min
	Federate override	0 to 200%
	Optional block skip	1
Programming	Workpiece coordinate system	G54 to G59
	Canned cycle for drilling	Standard
	Auxiliary function	M3 digits
Miscellaneous function/ Spindle function	Spindle function	S5 digits
	Tool function	T2 digits
Tool function/ Tool offset function	Tool offset pairs	400
	Tool length compensation	Standard
	Cutter and tool nose radius compensation	Standard
	Part program storage size	512 Kbyte
Edition	Registered programs	400
	Multi-language display	Standard
Setting/Display	Self-diagnosis function	Standard
	Alarm display	Standard
	Alarm history display	Standard
	Memory card, RS232C, USB	Standard
Input/output interface	Standard	
Others	Display unit	8.4" color LCD

### Machine standard accessories

Coolant splash guard
Coolant system (chip pan and coolant tank)
Air blower for tool cleaning (Through-spindle at ATC operation)
Automatic lubrication unit
Pneumatic unit
Internal illumination light (LED)

### Machine option

Signal indicator
Coolant flow on bed
CNC rotary table (1 axis)
Oil mist collector
Oil skimmer
Touch-switch type tool breakage detector

### NC option

Part program storage size 2 MB
AI contour control II
Bell-type acceleration/ deceleration before look ahead interpolation



High speed and high accuracy vertical machining center  
 Wide tooling zone corresponding various applications.



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

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# Realizing high speed and high accuracy

## Wide tooling zone



Wide tooling zone



The spindle is separated from the ATC arm and the tool magazine. Regardless of the magazine interference, tooling zone is fully usable.



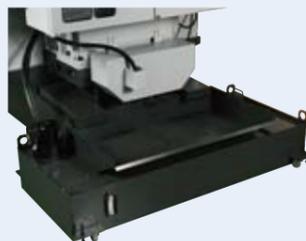
The tool can be inserted directly into the spindle or removed from the spindle manually from the front of the machine.



### Standard

#### Coolant tank 130 L (Standard)

Large capacity (130 L) coolant tank is provided as standard to correspond to the wide variety of tooling.



#### LED illumination light (Standard)

Eco-friendly LED internal illumination light is provided as standard.



### Option

#### CNC rotary table 1 axis (Option)

By mounting the CNC rotary table, contour control processing of 4-axis simultaneous control is possible.



#### Signal indicator (Option)

The machine status are indicated by the 3 colors of lamps.



#### Coolant flow on bed (Option)

Improving chip disposal capability in case of large-volume cutting.



### High speed

- 20,000 min<sup>-1</sup> max. spindle speed
- High rapid traverse speed of X, Y and Z axes with 48 m/min
- High speed ATC is realized by simultaneous tool changing with swiveling arm.
- Tool changing time (Cut to Cut) : 1.6 sec. at tool weight 1.5 kg or less

### Wide tooling zone Long stroke

- X-axis stroke: 500 mm
- Y-axis stroke: 400 mm
- Z-axis stroke: 350 mm

### ATC, Tool magazine

- The main spindle is separated from the ATC arm and the tool magazine, only the main spindle moves vertically.
- 20 tools can be stored in the tool magazine as standard. (Maximum mountable tool numbers: 21 tools)