

 **TAKUMI**

VC Series



High Speed and Productivity
Vertical Machining Center

VC0852
VC1000
VC1052
VC1200
VC1500

02 Product Preview

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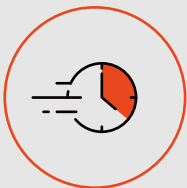
High rigidity frame structure

The VC Series achieves high-rigidity and optimal machine structure by using FEM analysis from the design.



High rigidity LM roller guideways

The new VC Series are equipped with Ø45 mm wide LM roller guideways, which features higher load capacity and greater rigidity even at high acceleration.



High speed, high productivity

Higher productivity is achieved by reducing non cutting time and improving the acceleration and deceleration times of all motion system axes.

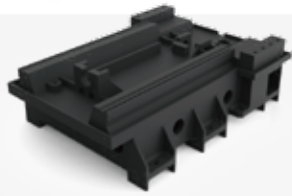
VC Series-Rigid and powerful for every applications

The VC Series can handle a wide range of workpieces for all kind of applications thanks to a highly versatile control system that comes with VC0852, VC1000, VC1052, VC1200, VC1500. The VC Series are designed for high rigidity, reliability and productivity, as demonstrated in both surface finish quality and repeatable precision.



Basic Structure

01



Robust one-piece casting bed

High rigidity one-piece bed provides excellent stability for the casting to absorb the thrust forces of rapid feedrates, coupled with roller guideways enhanced rigidity, which enables spindle to be stable and powerful at high speed.

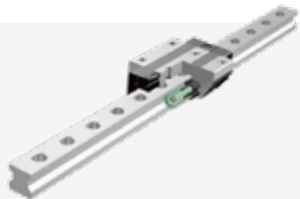
02



High speed direct drive spindle

The high-power direct drive spindle limits vibration, noise and power loss during high speed rotations to achieve superior part finish.

03



High speed, stable axis structure

The VC Series are equipped with roller type LM guideway providing fast acceleration and high precision ballscrews.

04



ATC and magazine

The tool magazine can store up to 24 tools and 30 tools as standard and up to maximum 40 tools as option depending on the model.

VC Series

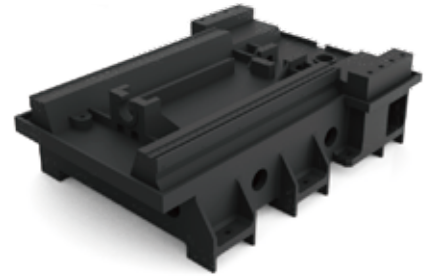


VC0852	36/36/24 m/min Rapid traverse (X/Y/Z-axis)	860/520/610 mm Travel (X/Y/Z-axis)
VC1000	36/36/24 m/min Rapid traverse (X/Y/Z-axis)	1067/610/610 mm Travel (X/Y/Z-axis)
VC1052	36/36/24 m/min Rapid traverse (X/Y/Z-axis)	1060/520/610 mm Travel (X/Y/Z-axis)
VC1200	36/36/24 m/min Rapid traverse (X/Y/Z-axis)	1270/660/610 mm Travel (X/Y/Z-axis)
VC1500	36/36/24 m/min Rapid traverse (X/Y/Z-axis)	1524/762/610 mm Travel (X/Y/Z-axis)

Robust one-piece casting bed

Integrated bed frame ensures high rigidity and excellent vibration absorption compare with separate structure providing excellent surface finishes.

The base width provides stability for large table loads and the increased weight absorbs the inertia of high rapids and fast cutting speeds.



High rigidity structure

Bed, columns, saddle and other main castings are made of Meehanite grade cast iron and remove the internal stress by heat treatment to ensure the best structural stability and positioning accuracy.

Hand scraping

Accuracy is ensured by hand scraped contact points. Contact surfaces such as column to base components, spindle cartridge to spindle housing, ball screw bearing block seats to bearing retainer and worktable to linear guide trucks and motor seat.

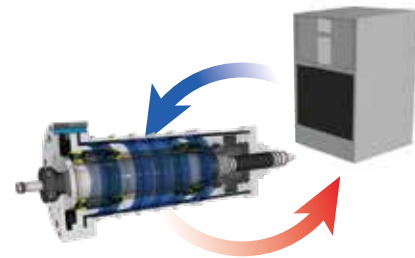
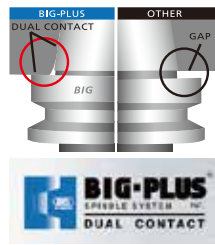
Hand scraping results in better mating surfaces of key components and will provide consistent results over a longer period of time.



01

**VC Series
Frame**

VC Series Spindle 02



High speed direct drive spindle

The high-power direct drive spindle limits vibration, noise and power loss during high speed rotations to achieve superior part finish.

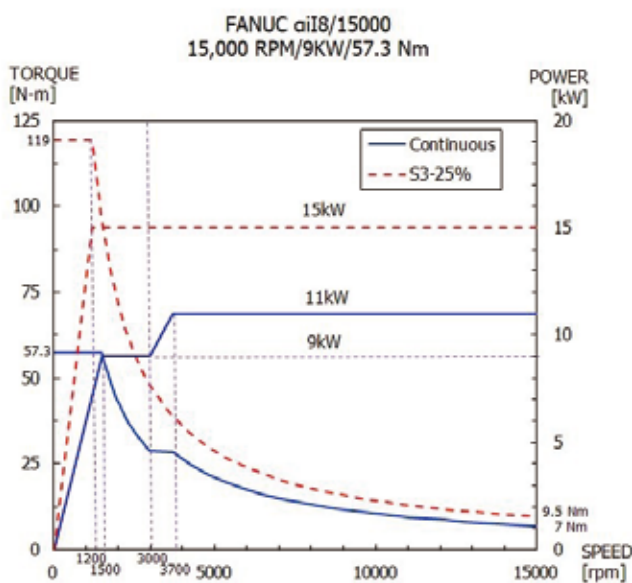
Dual surface contact design

The BIG-PLUS spindle system ensures superior finish thanks to simultaneous fit of taper and flange spindle which minimizes vibration.

Stable spindle cooling circulation option

Spindle temperature is constantly controlled by an oil chiller. Our test results have proven that the temperature of the circulating oil is controlled within certain variation, which minimizes thermal displacement during continuous operation at high speed.

Spindle Power - Torque Curve



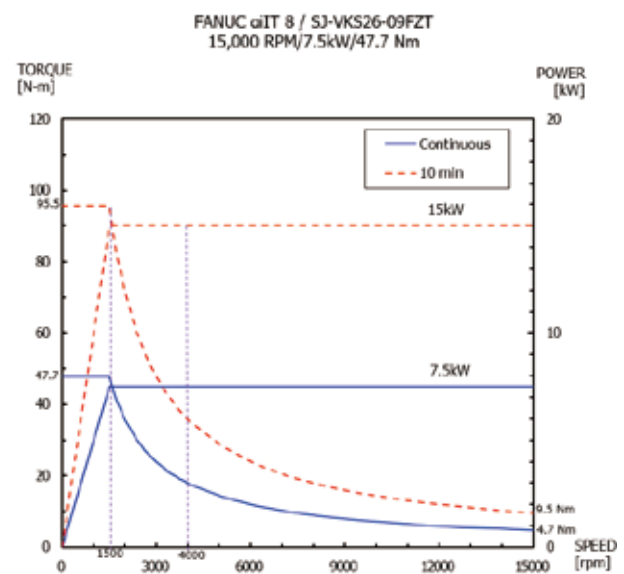
15,000rpm direct drive spindle (Spindle Motor: Fanuc W/O CTS)

9/15

kW Power (Cont./S3-25%)

57.3/119

N.m Torque (Cont./S3-25%)



15,000rpm direct drive spindle (Spindle Motor: Fanuc with CTS; Mitsubishi)

7.5/15

kW Power (Cont./S2-10min)

47.7/95.5

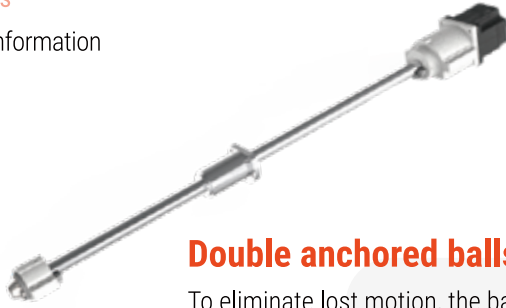
N.m Torque (Cont./S2-10min)

*Contact us for more options with Heidenhain and Siemens motors.

Basic Information

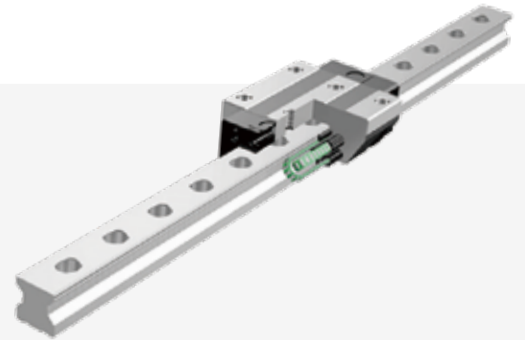
- Feed Axis

Machine Information



Double anchored ballscrew

To eliminate lost motion, the ballscrews are anchored on both ends and pre-tensioned. The motors are directly coupled to the ballscrews.



Roller type LM guide

The new VC Series are equipped with Ø45 mm wide LM roller guide-ways. These features higher load capacity and greater rigidity even at high acceleration. Additionally, they have greater contact area to support faster feeds, higher rigidity and higher weight bearing capability.

High precision ballscrews

VC Series are equipped with high precision ballscrews, featuring high load capacity while also providing high durability and rigidity during heavy duty cutting.



High accuracy linear scales

option

Linear scales are optional on all 3 axes. Mounted to the table, cross rail and head they take a direct reading of the true position of the axis. This compensates for thermal growth, mechanical flex and backlash, for improved accuracy and repeatability during the life of the machine.

03 VC Series Feed Axis

VC Series ATC

04



Automatic tool changer

24 tools (VC0852, VC1000, VC1052) and 30 tools (VC1200, VC1500) as standard and up to maximum 40 tools as option depending on the model.

Fast and precise indexing has been achieved thanks to the roller gear cam mechanism.

Big tool function allows designating pockets for large tooling to accommodate tools up to 150 mm.

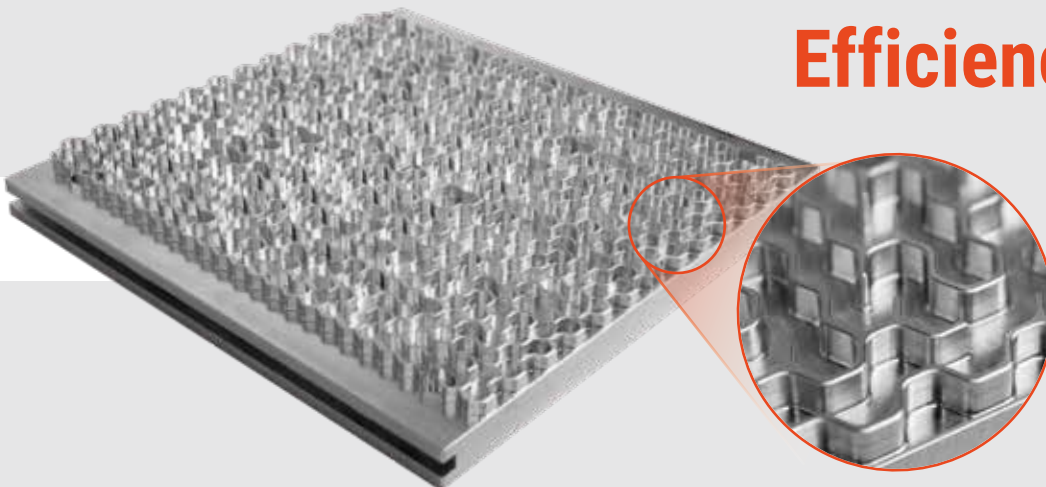
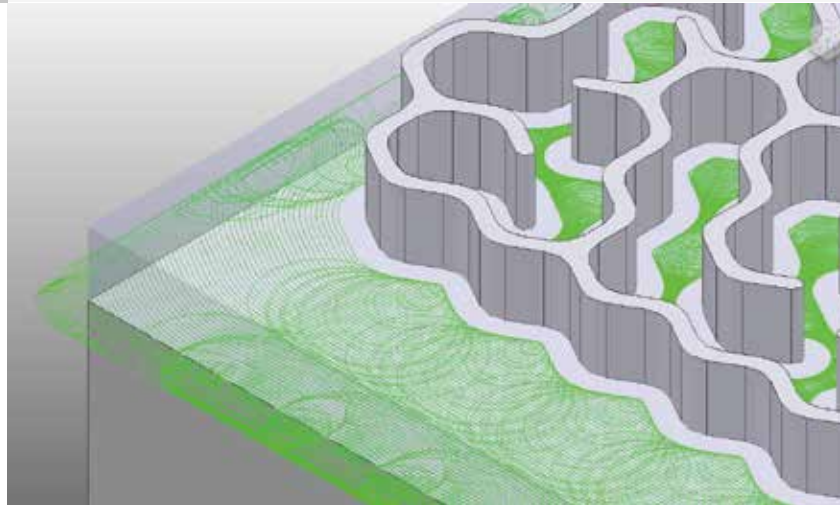
08 Automatic Tool Changer

High speed, high productivity

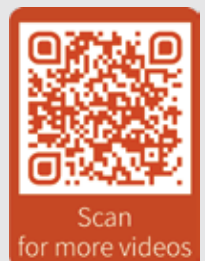
The VC series provides the best cutting performance in its class to optimize productivity.

Sample workpiece

Material	Aluminium (AL6061)
Size	400 x 450 x 50mm
Chip removal rate	402cm ³ /min
Feed rate	6684mm/min
Cutting depth	10mm
Cutting width	6mm



Efficiency **UP** 27%



05 VC Series Machining Area

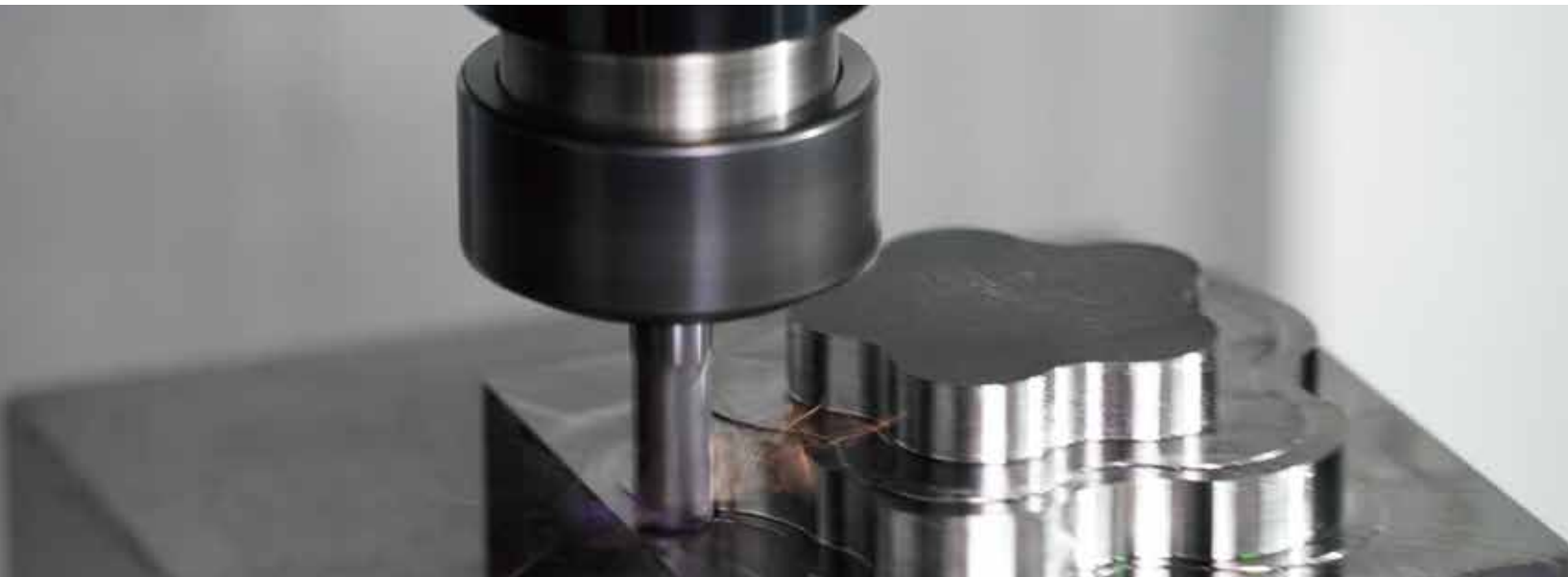
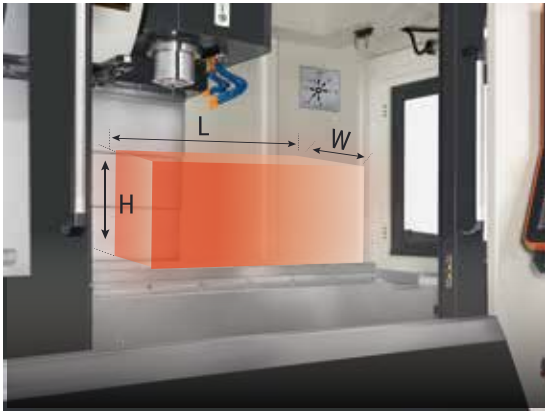
Wide machining area

Maximum workpiece size (L x W x H)

VC0852	860 x 520 x 610mm
VC1052	1060 x 520 x 610mm
VC1000	1067 x 610 x 610mm
VC1200	1270 x 660 x 610mm
VC1500	1524 x 762 x 610mm

Maximum workpiece weight

VC0852	500kg
VC1052	650kg
VC1000	1000kg
VC1200	1360kg
VC1500	1360kg



VC Series User Convenience

06



Ergonomic design

Table height of 915 mm, front door opening wider than the table and wide side access doors make loading parts and set up easier and faster.



Large Z axis travel

Large 610 mm Z axis travel capable of positioning the spindle nose within 115 mm of the table, reducing the need for expensive fixtures to raise the part or extended tool holders.



Ergonomic swivel operation panel

The operation panel can swivel 120°, and the height is designed to be at the operator's viewpoint.



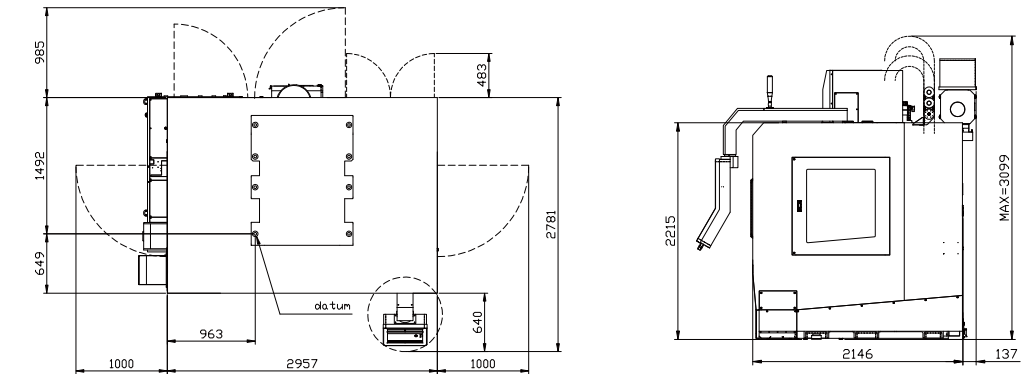
Excellent chip removal

The sheet metal of the enclosure is designed with the proper slope to augment the high-volume programmable wash down system, automating cleanup while saving valuable time for running parts.

External Dimension

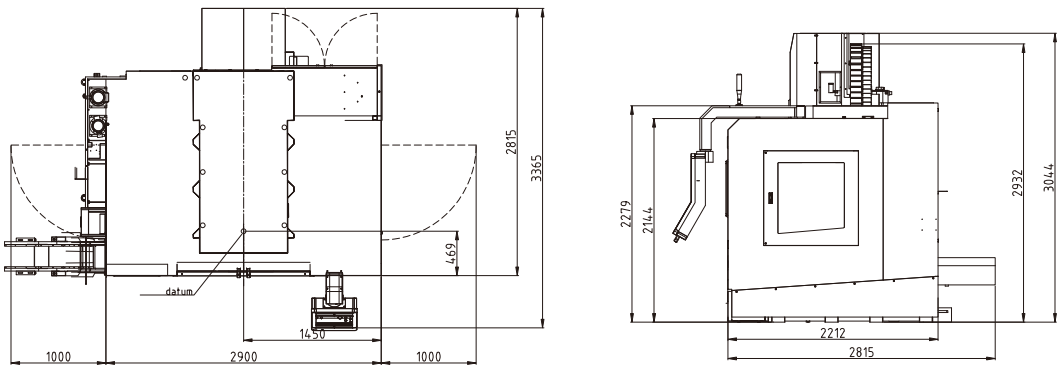
VC0852/VC1052

Unit : mm



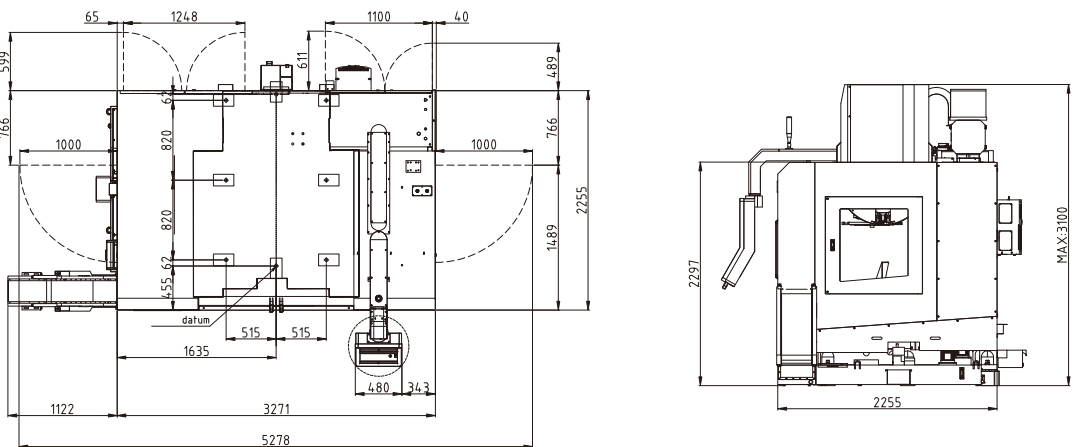
VC1000

Unit : mm



VC1200

Unit : mm



VC1500

Unit : mm

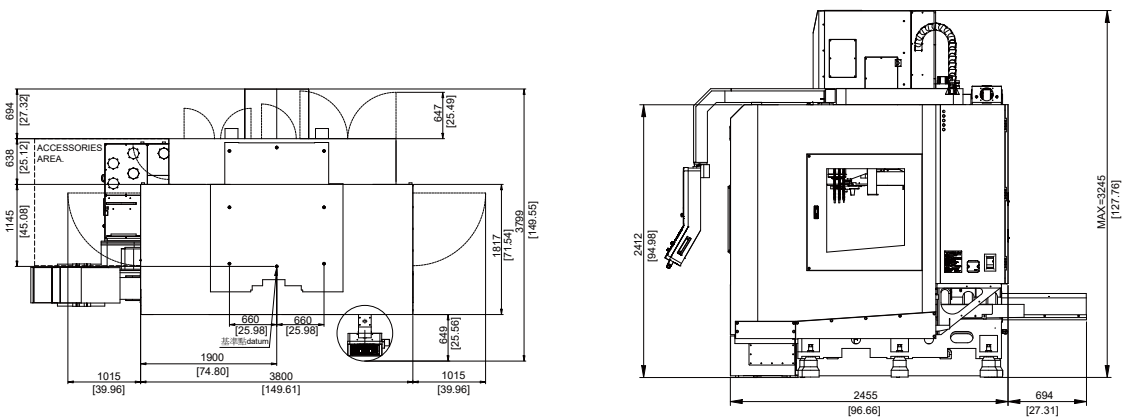
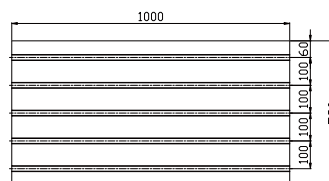
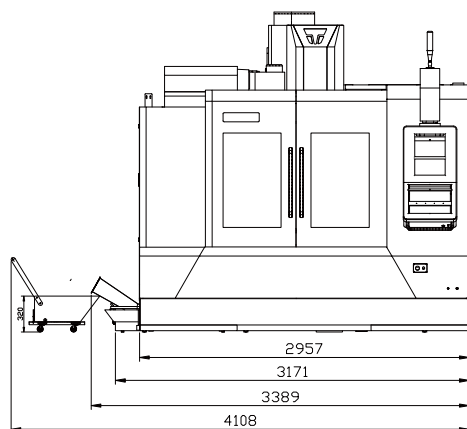
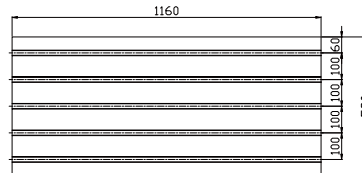


Table & T-Slot Dimension

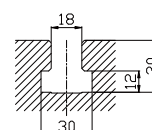
Unit : mm



VC0852

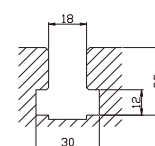
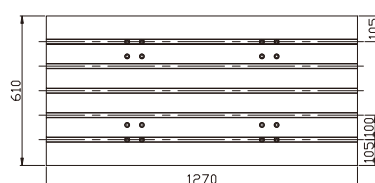
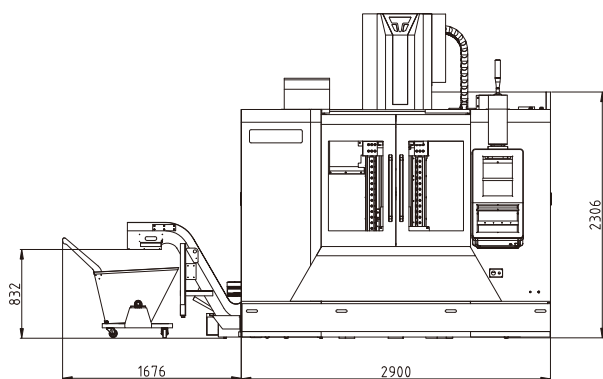


VC1052



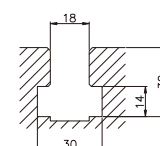
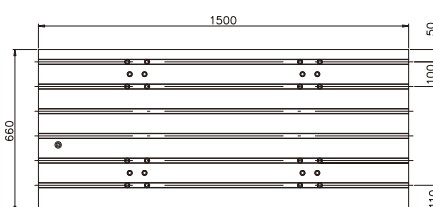
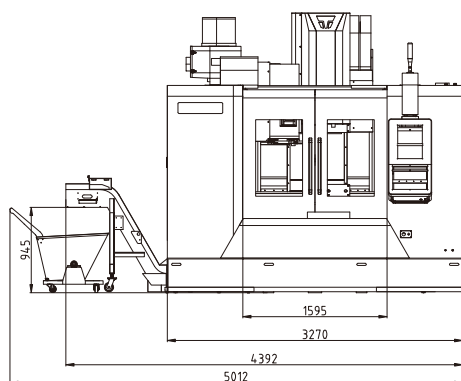
VC1000

Unit : mm



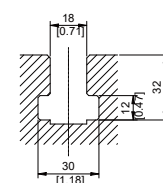
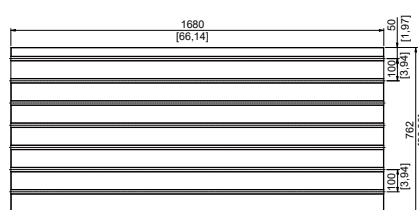
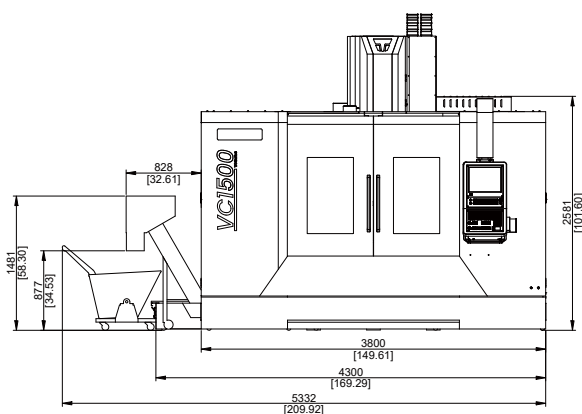
VC1200

Unit : mm



VC1500

Unit : mm



Machine Specification

Travel	VC0852	VC1052	VC1000	VC1200	VC1500
X/Y/Z-axis	860 / 520 / 610mm	1060 / 520 / 610mm	1067 / 610 / 610mm	1270 / 660 / 610mm	1524 / 762 / 610mm
Distance from spindle nose to table	115-725mm	115-725mm	141-751mm	150-760mm	120-730mm

Table					
Dimension	1000 x 520mm	1160 x 520mm	1270 x 610mm	1500 x 660mm	1680 x 762mm
Max. load	500kg	650kg	1000kg	1360kg	1360kg
T-slot (width x pitch x number)		18 x 100 mm x 5		18 x 100mm x 6	18 x 100mm x 7

Spindle					
Spindle type			Direct drive		
Spindle speed			15000rpm		
Spindle motor power			9kW/15kW (Cont./S3-25%)		
Spindle taper			BBT40		

Feed					
Rapid feed (X/Y/Z)			36/36/24m/min		
Cutting feed			12000mm/min		
Motor power (X/Y/Z)	3.0/3.0/3.0kW	3.0/3.0/3.0kW	3.0/4.0/4.0kW	4.0/4.0/7.0kW	4.0/7.0/7.0kW

ATC & Magazine					
ATC type			Arm		
Number of tools		24		30	
Max. tool diameter			75/125mm		
Max. tool length			300mm		
Max. tool weight			7kg		

Supply					
Air pressure			6kgf/cm ²		
Electric power supply		30kVA		40kVA	50kVA

Net Weight					
Machine weight	5500kg	5800kg	6750kg	9000kg	11000kg

* The specifications and information may be changed without prior notice.

Standard & Optional

● : Standard ○ : Option ✕ : Non Applicable

Spindle		VC0852	VC1052	VC1000	VC1200	VC1500
15,000rpm		●	●	●	●	●
ATC						
ATC Extention	24T	●	●	●	✕	✕
	30T	✕	✕	✕	●	●
	32T	○	○	✕	✕	✕
	40T	✕	✕	○	○	○
Tool Shank Type	BBT40/CAT40/SK40	●	●	●	●	●
Coolant System						
Coolant Through Spindle	30bar	○	○	○	○	○
Spindle Air Blast		●	●	●	●	●
Spindle Cooling Blast		●	●	●	●	●
Cutting Air Blast		●	●	●	●	●
Chip Disposal						
Coolant Tank & Coolant Flushing System		●	●	●	●	●
Full Chip Enclosure		●	●	●	●	●
Chip Disposal	Chip Auger with Lift Up Exhaust Tube	●	●	●	✕	✕
	Chain Type	○	○	○	●	●
	Scraper Type	○	○	○	○	○
Feed Axis						
Linear Scales (X/Y/Z)		○	○	○	○	○
3-Axis Absolute Encoder Motors		●	●	●	●	●
Automatic Centralized Lubrication System		●	●	●	●	●
Electric Device						
3-Color Signal Light		●	●	●	●	●
Working Light		●	●	●	●	●
Heat Exchange for Electrical Cabinet		●	●	●	●	●
Air Conditioner for Electric Cabinet		○	○	○	○	○
Measuring Device						
Workpiece Measurement		○	○	○	○	○
Tool Measurement		○	○	○	○	○
Environment						
Oil Skimmer		○	○	○	○	○
Oil Mist Collector		○	○	○	○	○
Oil Mist Cutting Device		○	○	○	○	○
Control						
Fanuc OiMF-Plus 10.4"		●	●	●	●	●
Mitsubishi M80VA 10.4"		○	○	○	○	○
Heidenhain TNC640 15"		○	○	○	○	○
Transformer / Stabilizer						
Transformer		○	○	○	○	○
Stabilizer		○	○	○	○	○
4th & 5th Axis						
4th Axis Wiring Preparation		○	○	○	○	○
4th Axis Rotary Table Set		○	○	○	○	○
Manual Tail Stock		○	○	○	○	○
4/5th Axis Tilting Rotary Table Set		○	○	○	○	○
ETC						
Leveling Block and Screws		●	●	●	●	●
Maintenance Tools		●	●	●	●	●
Manuals		●	●	●	●	●
Washing Gun & Air Gun		●	●	●	●	●
Manual Pulse Generator (MPG)		●	●	●	●	●
USB / Ethernet / RS-232C Interface		●	●	●	●	●
CE Certified		○	○	○	○	○

TAKUMI When Precision Matters



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