

SOLUTION OF WORLDWIDE SALES NETWORK



Company Profile



- 1976 Metal Processing department established on Mar. 1st.
- 1993 Produce over 1800 sets of Knee-type Milling machine monthly.
- 1994 Launch first Vertical Machine Center MCV-610 to Asia and Europe market.
- 2005 Shanghai branch factory officially established.
- 2007 Launch double-column machining center FG series to the market.
- 2008 Cooperat with Japanese YASUNAGA CORPORATION to develop and release the first Horizontal machining center HT series to market.
- 2009 Cooperate with Italian 5Ax-specialized manufacturer MTT to develop both Gantry type 5Ax machining center Inspirer series and moving-column type 5Ax machining center Grander series, and officially launched to the market.
- 2012 Produce more than 250 sets of Vertical Tapping / Milling machine VF-500 monthly.
- 2016 Launch first moving-column type 5Ax machining center HORNET series to the market.

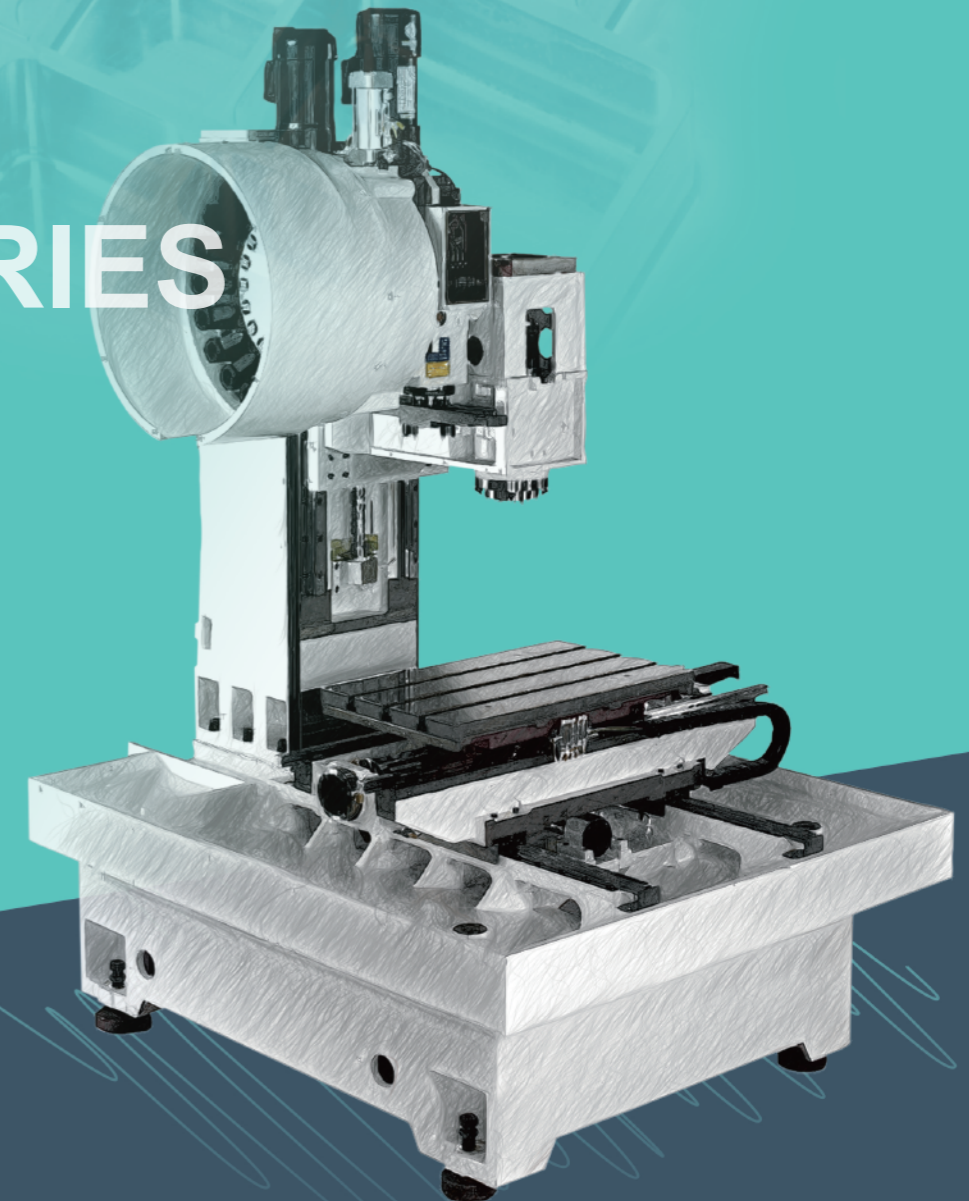
Twinhorn

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Design: 201811.1.VF Series(E1)1000P

VF SERIES



Vertical High Efficiency Machining Center

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VERTICAL

Special design

The machine structure is a foundation of the machine's accuracy. In order to ensure a long term accuracy of the machine, all structural parts are machined by SNK five sided machining center. It allows the workpiece to be machined in only one set up. After machining, a large three-dimensional coordinate measuring machine is applied for precision inspection. All structural parts are manufactured from high rigidity Meehanite cast iron, featuring maximum dampening capacity and wear-resistance.



STRUCTURE



VF SERIES

High Efficiency Machining Center

The machine is designed specifically for high precision and high productivity machining, and suitable for IT industry, mass production of small automotive parts and 4C components.

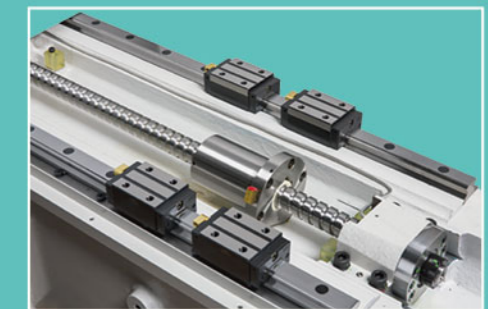
	Direct driven	Built-in type
VF500/700		
Spindle speed	12000,15000,20000 rpm	24000 rpm
Tool change time	T-T : 1sec C-C : 2.5 sec	
Rapid feed rate	X,Y,Z = 48 M/min	

The structure of the VF series is a symmetrical design, which does not require warm-up running. In addition, it can suppress thermal extension on the spindle head(Z-axis) to keep high accuracy for a long time of machining.

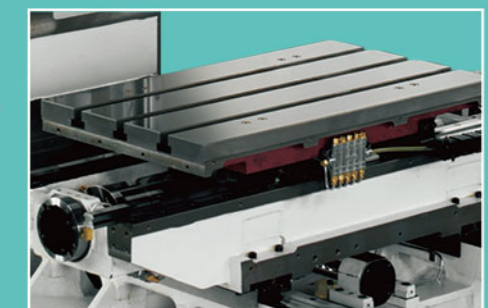
VF structure —



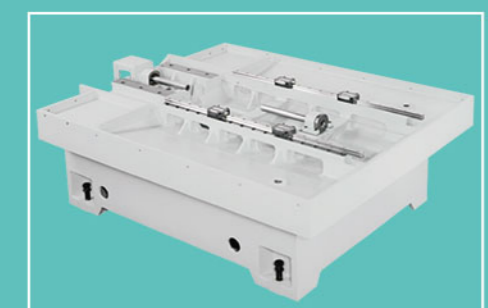
Direct-driven of Z-axis motor, no counter balance weight combined with extra long slide blocks make more accurate and sensitive especially in high speed feeds and high cutting speed.



Three axes are transmitted through class C3, ø32mm precision ball screws which are directly driven by servo motors. The motor mounting base and the machine structure are one-piece fabricated, and are machined by five sided machining center in only one set up so as to ensure assembling accuracy on each axis.



One-piece fabricated massive base is manufactured from high quality Meehanite cast iron, featuring high rigidity and high dampening capacity to ensure machining stability. Great slant rear flushing design keeps machine interior clean.



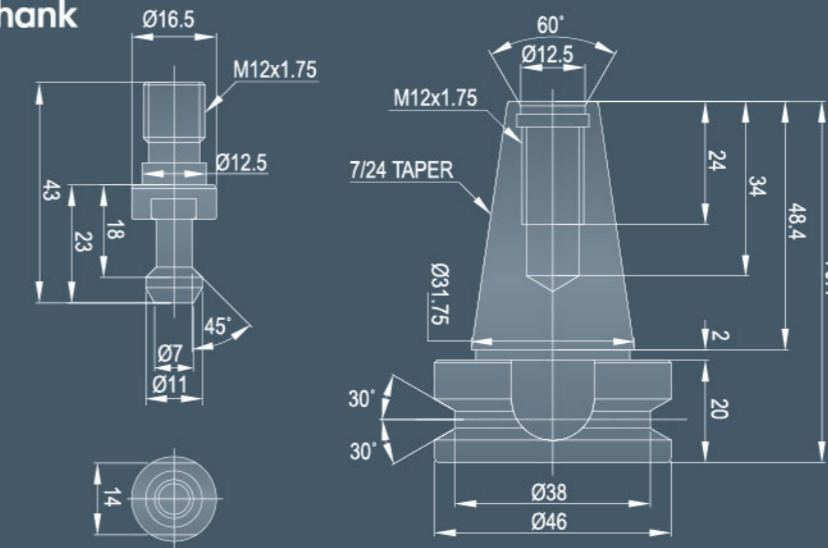
Efficiency - Rigidity



Rigid, Precise Direct-driven Spindle

- Increased diameter of spindle bearing up to 50mm dramatically upgrades cutting rigidity.
- The spindle runs in class P4 high precision angular contact ball bearing in combination with great span of support, which is not only provides high running accuracy but also resists higher axial and radial forces.
- The spindle nose is design with labyrinth together with spindle air curtain to effectively prevent dusts from entering, while ensuring the spindle accuracy and service life.
- Standard spindle speed is 12,000rpm. 15,000/20,000rpm are optional. Also, 24,000rpm built-in type spindle is optional.

Pull Stud & Tool Shank



unit : mm

Cutting Ability



Face Milling

Material	S50C	Aluminum 6061
Spindle speed	2000 rpm	1500 rpm
Cutting feed	1000 mm/min	2600 mm/min
Cutting width	40 mm	40 mm
Cutting depth	3.5 mm	4.2 mm
Chip removal	140 cc/min	437 cc/min



Drilling

Material	S50C	Aluminum 6061
Spindle speed	1000 rpm	650 rpm
Cutting feed	500 mm/min	300 mm/min
Drill diameter	14 mm	17.5 mm
Chip removal	77 cc/min	72 cc/min



Tapping

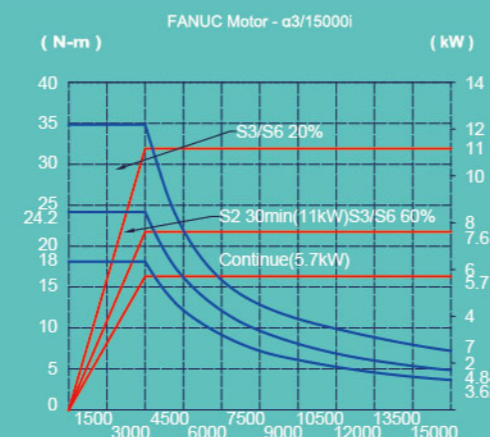
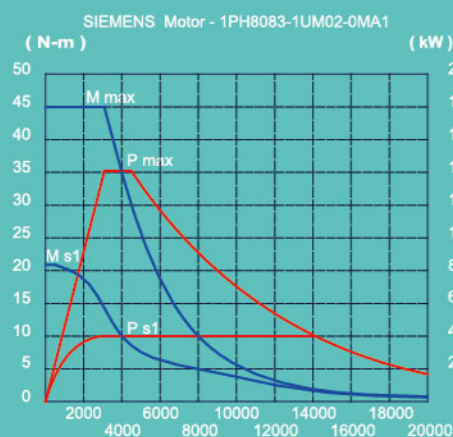
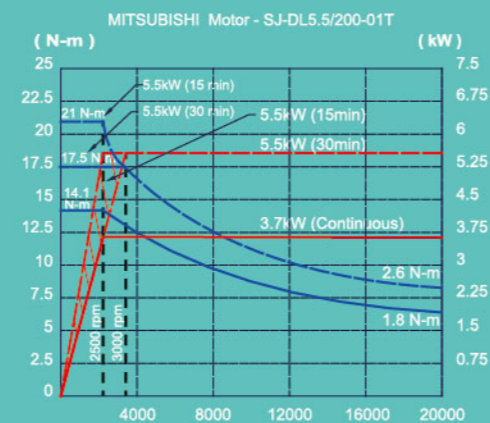
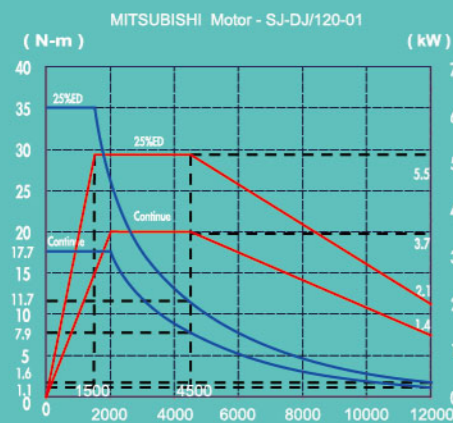
Material	S50C	Aluminum 6061
Spindle speed	800 rpm	250 rpm
Cutting feed	1000 mm/min	625 mm/min
Tap Dimension	M16 × 2.0P	M20 × 2.5P



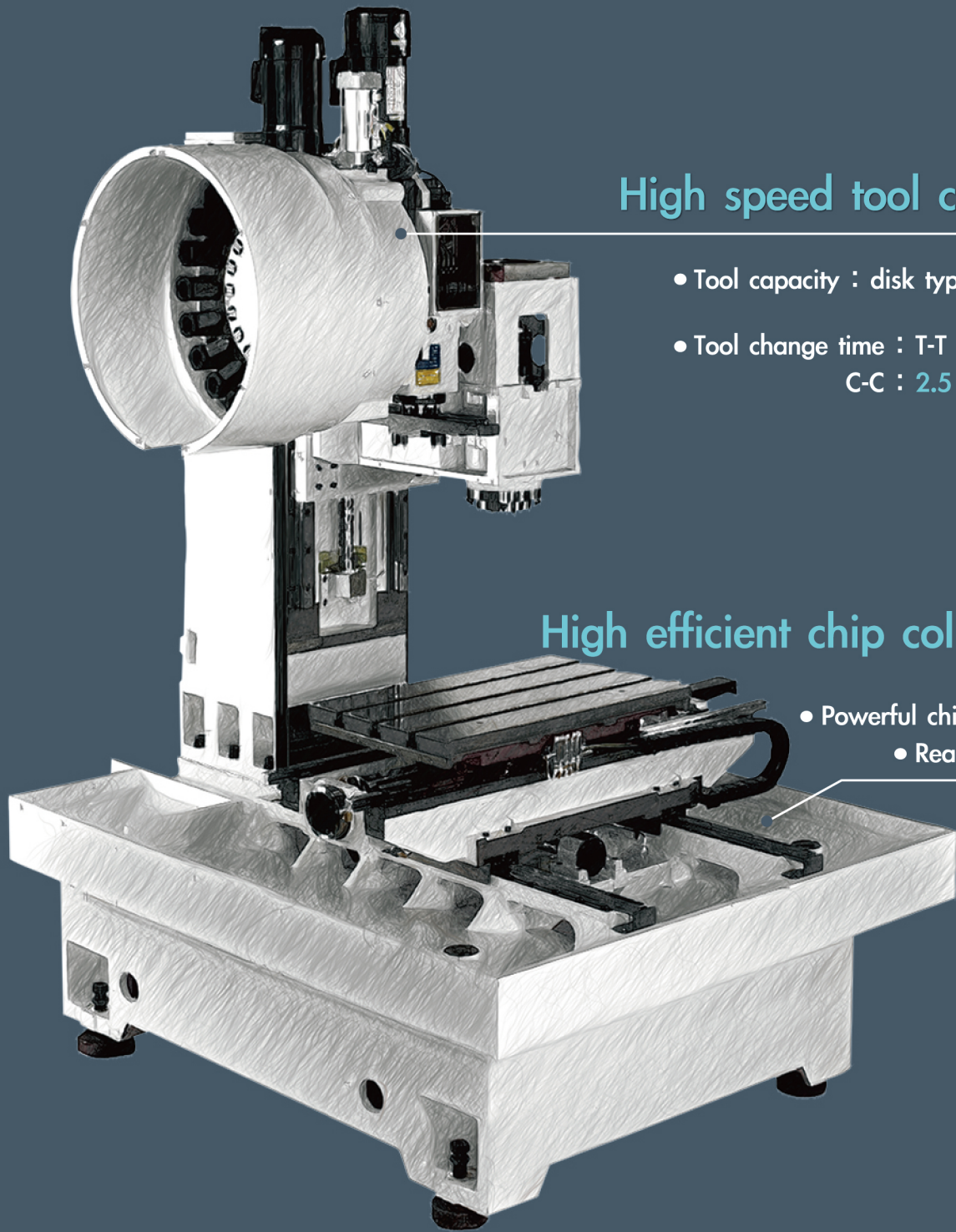
End Milling

Material	S50C	Aluminum 6061
Spindle speed	1500 rpm	1500 rpm
Cutting feed	600 mm/min	1440 mm/min
Cutting width	4 mm	5 mm
Cutting depth	24 mm	30 mm
Chip removal	57.6 cc/min	216 cc/min

Spindle Motor Power-Torque diagram



The perfect match with structure



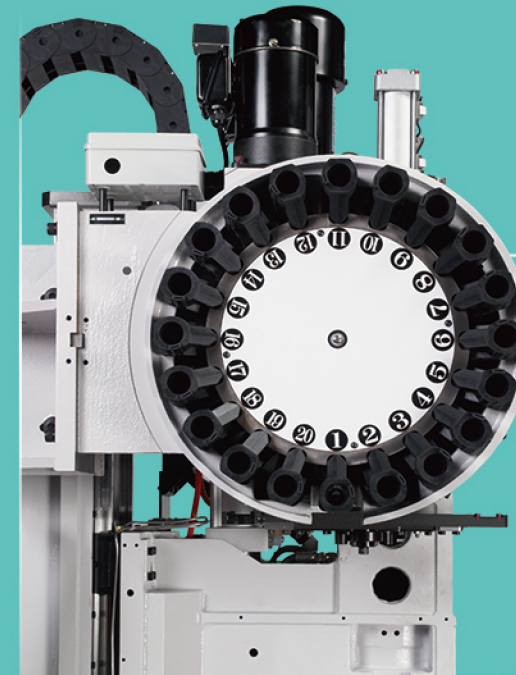
High speed tool change system

- Tool capacity : disk type 20 tools
- Tool change time : T-T : 1 sec
C-C : 2.5 sec

High efficient chip collect and remove

- Powerful chip flush system
- Rear side chip collect system

The structure of the perfect, equipped with more



Disk Type and Arm Type Tool Changer

- The fast and reliable arm type tool changer machining efficiency.
- The 20 tool magazine(standard) allows for bi-directional tool change with stable and dependable motions.



Extra Powerful Chip Removing Design



- Three sets of independent great slant telescopic guards make chip removal easier without chip jamming problem.
- These together with one-piece fabricated great slant base combined with right and left powerful flushing devices, provide fast and efficient chip removing, ensuring a clean interior of the machine.



User-friendly Design

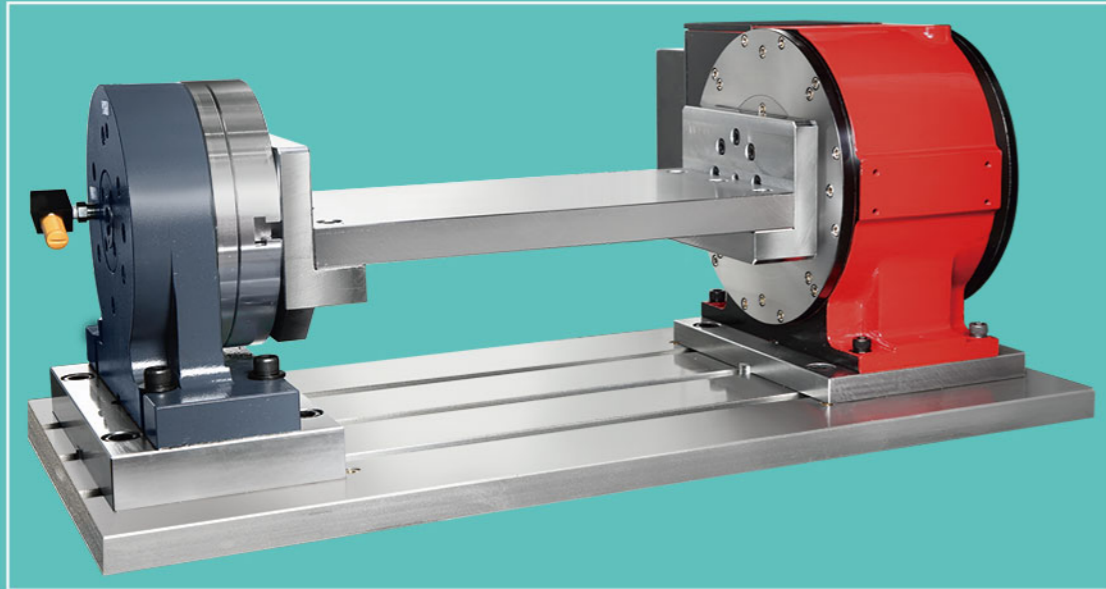


- The fast opening single door is designed to meet human engineering theorem with appropriate handle and table height. Smooth door slide and shortened door opening/closing times. An automatic door opening is optional.
- Oversized operation panel in combination with movable M.P.G. handwheel make operation more convenient.

Model	VF-500	VF-700
Width	542mm	672mm



VF series solutions



A. DD rotary table

DD Rotary Table

High Speed, No Backlash, High Accuracy

Direct-driven rotary units are incredibly quick, precise, and low-maintenance. There is no worm gear or mechanical gearing, eliminating wear and backlash error.

Efficient Compensation Inspection System

With the use of workpiece inspection and tool length compensation system, and error can be detected during automata machining process so as to avoid repetitive defect. This not only reduces defect percentage but upgrades the overall production efficiency.



B. Auto work piece measurement device



C. Auto tool length measurement device

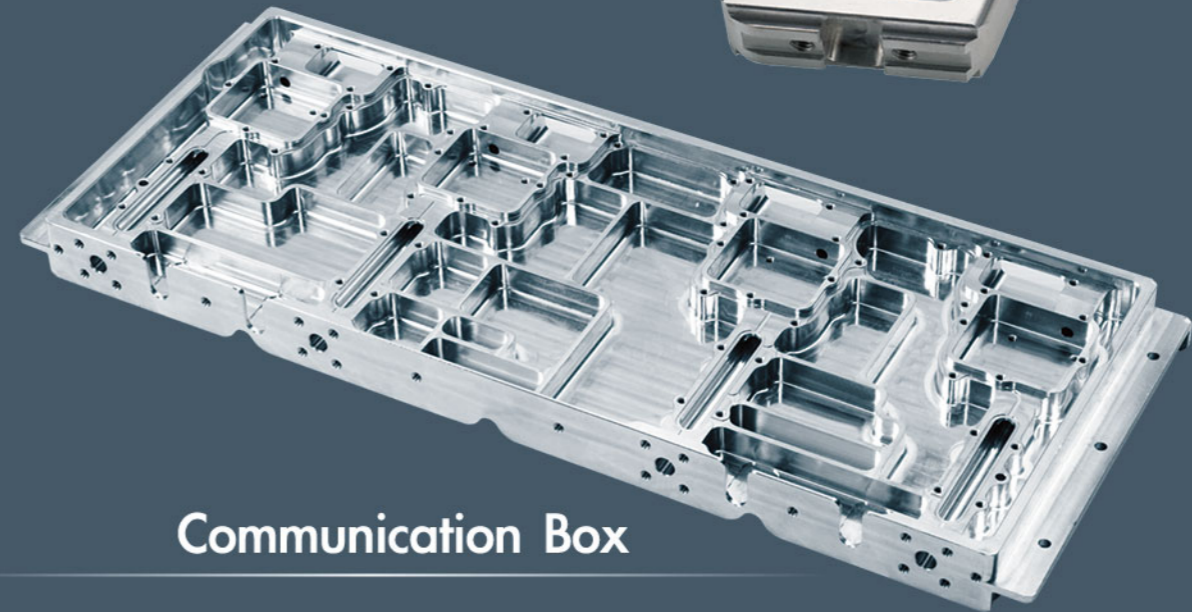
Machining Parts



Consumer electronics shell



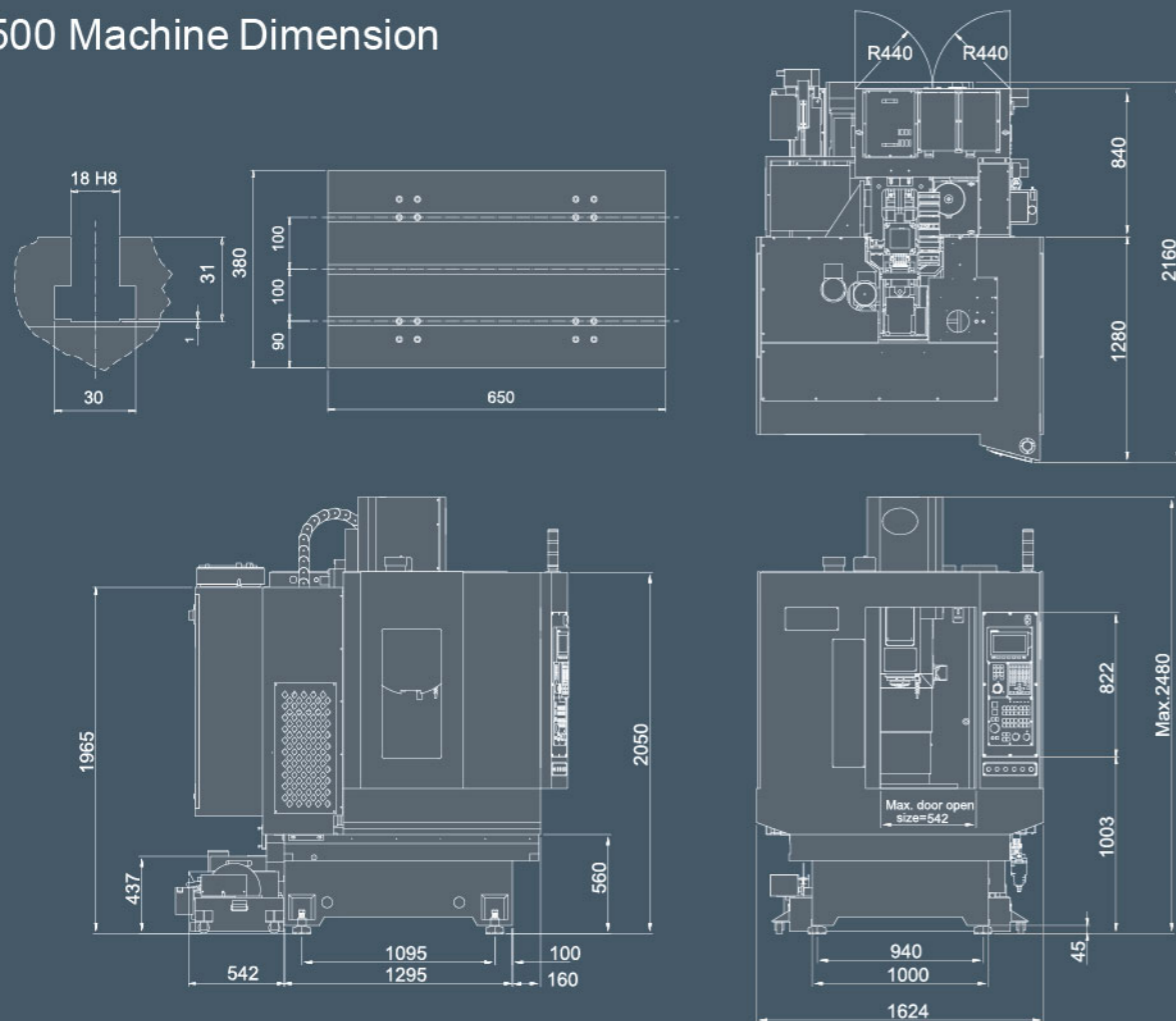
Paintball gun handle



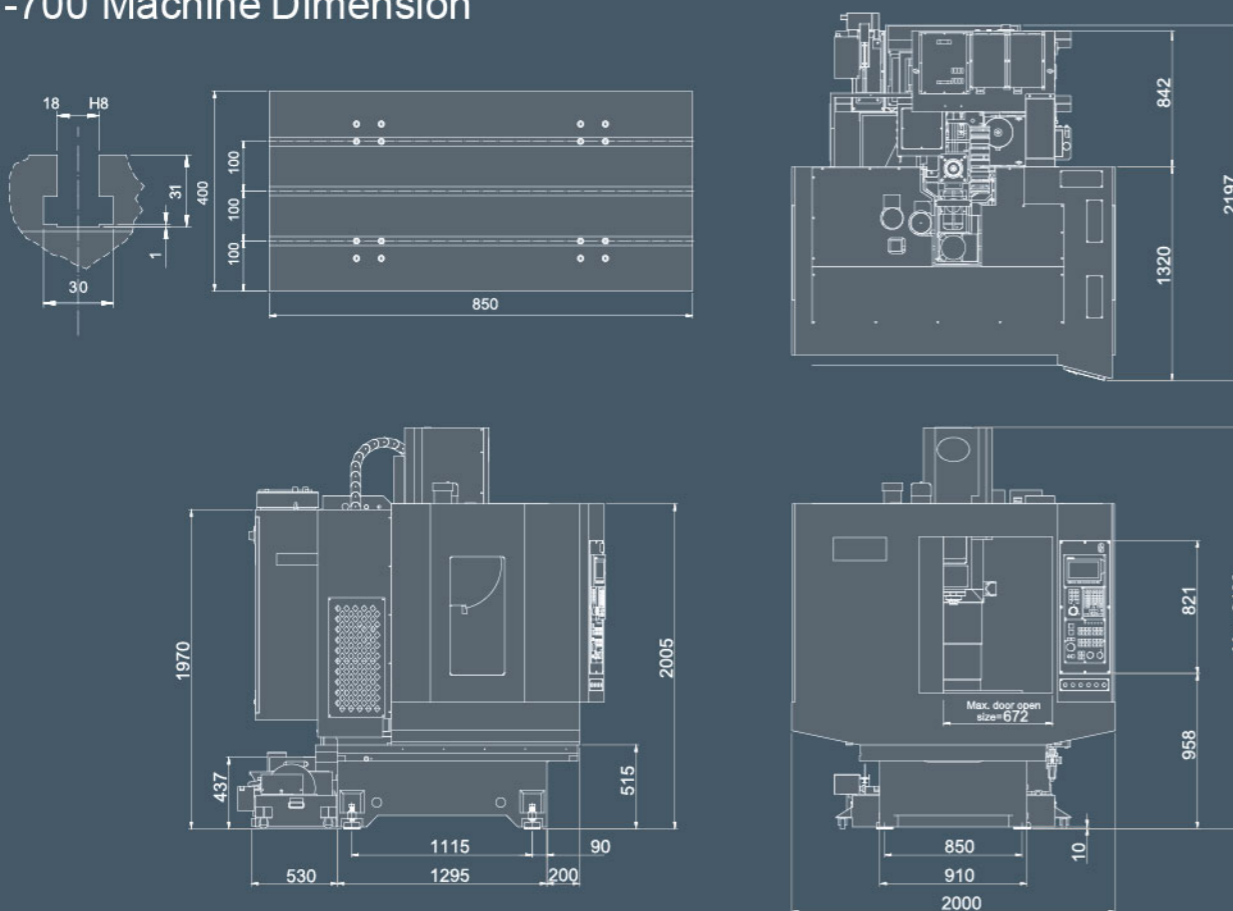
Communication Box

VF Series

VF-500 Machine Dimension



VF-700 Machine Dimension



Specification

Item	VF-500	VF-700
Travel		
X-axis	500 mm	700 mm
Y-axis	380 mm	400 mm
Z-axis	400 mm	400 mm
Table		
Table size	650 × 380 mm	850 × 400 mm
T-slot (Number×Width×Pitch)	3 × 18 mm 100 mm	
Loading capacity	200 kg	300 kg
Spindle		
Spindle nose to work table surface	150-550 mm	
Spindle center to column front	430 mm	427 mm
Spindle taper	7/24 No.30	
Spindle speed	Direct-driven spindle 12000 rpm (optional 15000 / 20000 / Built-in type 24000 rpm)	
Feed		
Rapid feed rate	48 / 48 / 48 m/min (Opt. 36 / 36 / 36 m/min)	
Cutting feed rate	10 m/min	
Z-axis counter weight	W/O counter weight	
Ballscrew diameter	32 mm	
Precision (ISO-230)		
Positioning	±0.004 / 300 mm	
Repeatability	±0.003 mm	
ATC System		
Tool shank	BT30	
Tool capacity	Arm type 20 tools	
Tool change time	60 Hz : T-T 1 sec, C-C 2.5 sec	
Pull stud	MAS 403 P30T-1	
Max. tool diameter (with adjacent tool)	60 mm	
Max. tool diameter (w/o adjacent tool)	100 mm	
Max. tool length	200 mm	
Max. tool weight	3 kg	
Motor		
Spindle motor	3.7 kW / 5.5 kW (15 min)	
Coolant pump	1 HP	
Others		
Power required	10 kVA	
Air pressure required	5-6 kg/cm ² , 150 L/min	
Machine dimension (W×D×H)	1624 × 2160 × 2370 mm	2100 × 2400 × 2370 mm
Machine weight	2800 kg	3100 kg

※Specification and design characteristics subject to change without prior notice.

Standard Accessories

- 12000 rpm Direct-driven spindle (Mitsubishi)
- 15000 rpm Direct-driven spindle (Fanuc, Siemens)
- ATC system (arm type 20T)
- Coolant system
- Powerful chip flush system
- Work lamp
- Indicating light
- Spindle air blast
- Auto lubrication system
- Fully enclosed splash guard
- Auto power off (M30)
- RS 232 Interface
- Heat exchanger for elec. cabinet
- Rigid tapping
- Tool box with adjustment tools
- Leveling bolts & pads
- Operation & maintenance manual
- Water gun / Air gun

Optional Accessories

- 20000 rpm Direct-driven spindle
- 24000 rpm built-in type spindle
- Spindle oil cooler
- Coolant through spindle (built-in spindle)
- 4th axis system
- Auto tool length measurement device
- Auto workpiece measurement device
- Transformer
- CE regulation

Option controller

- Fanuc Oi-MF
- Mitsubishi M80
- Siemens 828D