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.

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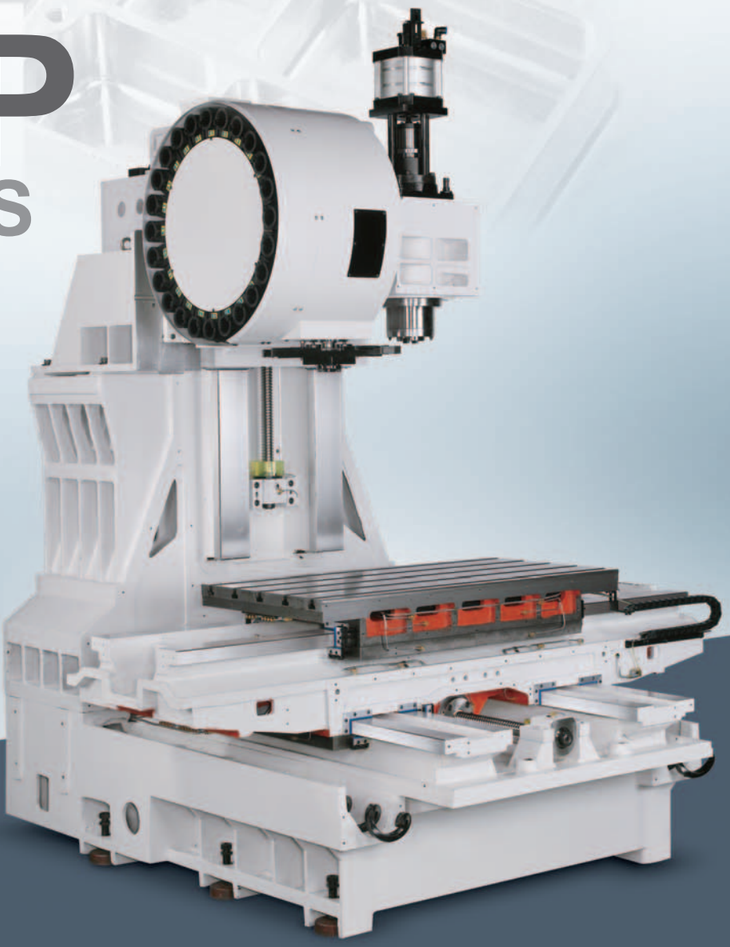
VTP SERIES



Vertical Machining Center

www.twinhorn.com.tw

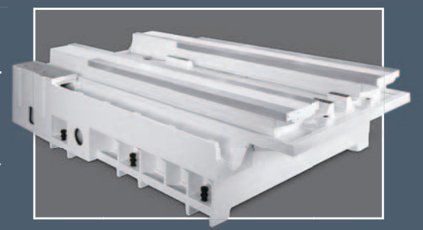
Twinhorn

VTP series is a one-piece fabricated with box ways design. The manufacturing of a machine with box ways construction require high manufacturing technology as well as experience. At Chi-Fa, we have an integrated manufacturing capability in combination with over 30 years in machine tools manufacturing experience. Unlike competitors procurement of parts from outside suppliers, Chi-Fa machines are designed, manufactured and quality controlled in-house for rigorous control throughout the entire manufacturing process.

High-Rigidity, High-Performance Design

VTP-1261

structure



VTP Structure —

Box ways on X, Y, Z-axis provide ultra-high rigidity that effectively overcome backlash error and vibration problems. 610 mm of Y-axis travel meets most of molds and parts machining requirements, making the machines excellent for high precision mold machining.

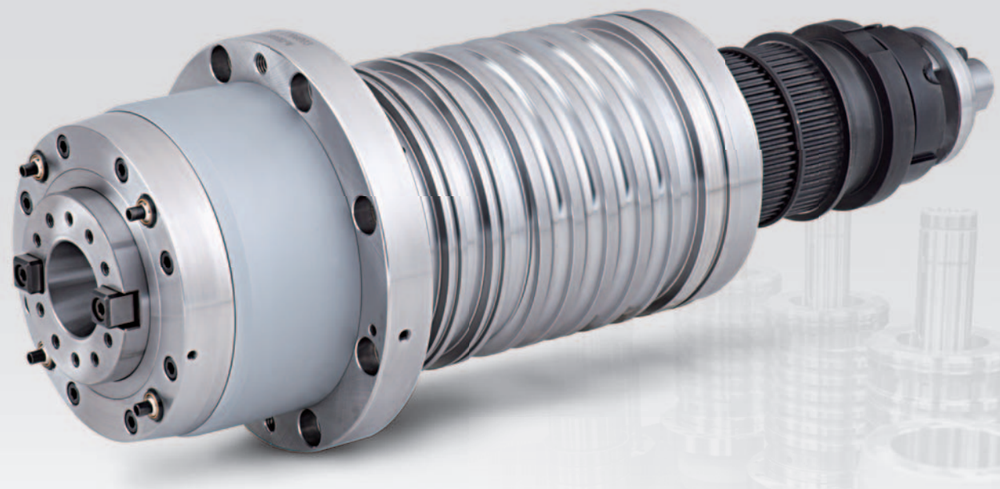
Direct drive of Z-axis motor in combination with the use of extra long sliding blocks allow feeds to be more accurate and sensitive especially in heavy cutting. The contracted simplified headstock dramatically reduces the distance between the headstock and the column, that eliminates deformation caused by a force or defection due to a gravity, increases rigidity to meet the requirement for high precision machining.

Three axes are transmitted through 40 x P10 mm, class C3 ball screws, pretensioned to enhance the axial rigidity and reduce thermal elongation to a minimum.

Four box ways an base are one-piece fabricated. Y-axis slide ways design is based on the optimal supporting distance. Four box ways design combined with greater span provide a solid support in the machining range of X-axis. Manufactured from high quality Meehanite cast iron, the base features high rigidity and high dampening capacity to increase cutting stability.

Powerful-Efficient

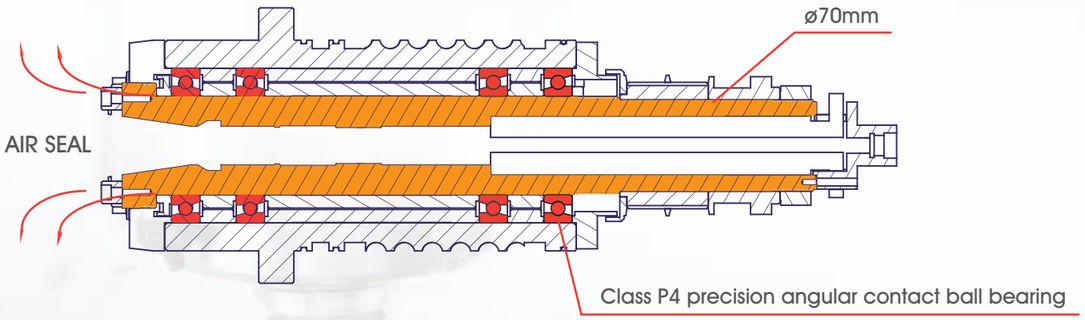
Great Torque Output High Efficiency



High Performance Belt-drive Spindle

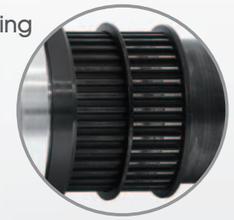
a. 70 mm extra large spindle diameter runs in 4 pieces of class P4 angular contact ball bearings deployed with great span, allowing the spindle to resist axial and radial loads.

b. The standard spindle features an air curtain to increase dust privation effect, which combined with spindle air blast device to ensure the spindle's cleanliness for extending its service life.



c. 4-nozzle coolant jets around the spindle thoroughly eliminates cutting contamination and two side holes are suitable for various tool lengths and diameters.

d. The belt-drive spindle is transmuted by HTD 8Y timing belts, allow-ing for effetively transmitting torque, reducing energy consumption, absorbing vibration resulting in high efficiency and high torque output. Standard spindle is 8,000 rpm (10,000 and 12,000 rpm are optional).



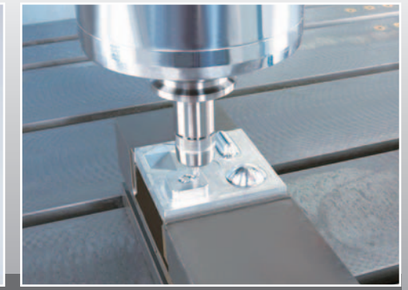
Precision Inspection System

Spindle run out inspection test

Y, Z axis vertical adjustment

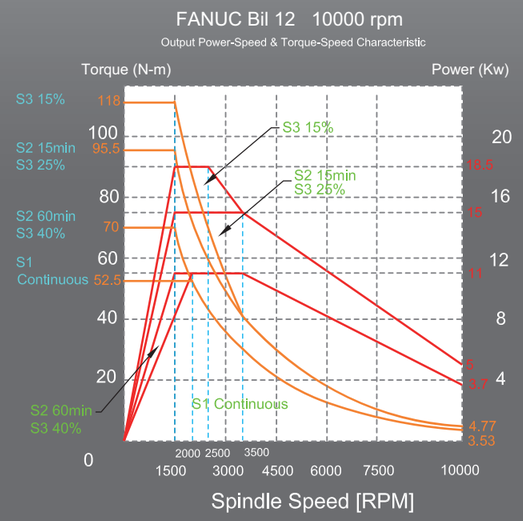
Laser inspection test

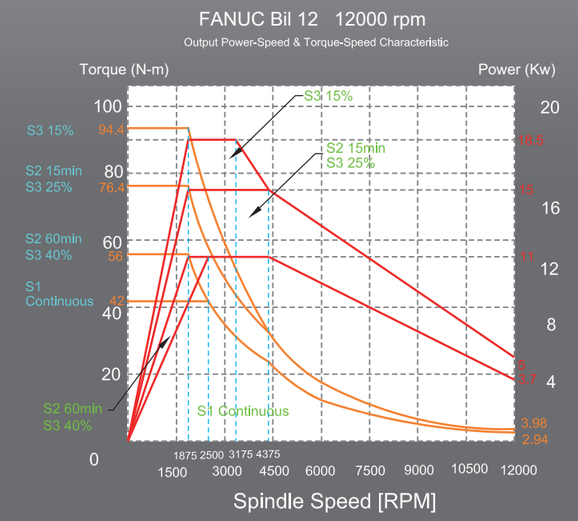
Circulation inspection



Standard work piece cutting test

Spindle Power-Torque Diagram





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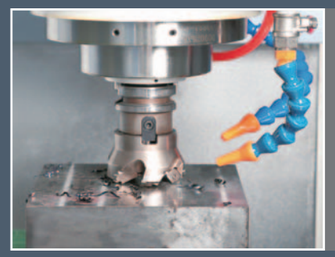
Cutting Ability



Face Milling

Cutter	Face mill 100 mm , 5 tooth , Dry
Work material	S50C (HRC 18°)
Spindle speed	1500 RPM
Feed rate	1000 mm/min
Cutting width	75 mm
Cutting depth	4 mm
Material removal	300 cc/min

End Milling

Cutter	Helical mill 40 mm , 4 tooth , Dry
Work material	S50C (HRC 18°)
Spindle speed	2500 RPM
Feed rate	2000 mm/min
Cutting width	4 mm
Cutting depth	30 mm
Material removal	240 cc/min

Drilling

Cutter	HSS Drill Ø 33mm
Work material	S50C (HRC 18°)
Spindle speed	200 RPM
Feed rate	60 mm/min
Feed per revolution	0.3 mm/rev

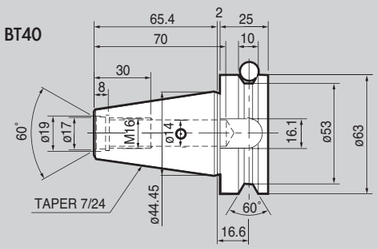
Tapping

Cutter	Spiral tapping , M27 mm
Work material	S50C (HRC 18°)
Spindle speed	117 RPM
Feed rate	351 mm/min
Pitch	3 mm
Cutting velocity	10 mm/min

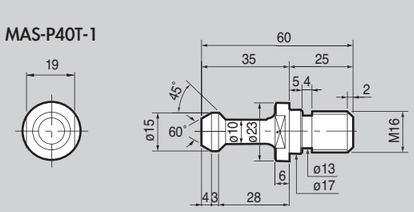
Pull Stud & Tool Shank Drawing

Unit: mm

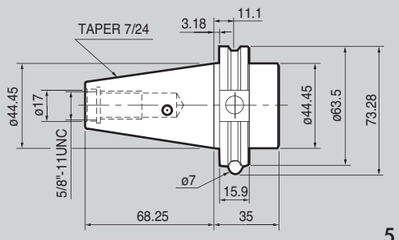
TOOL SHANK BT40



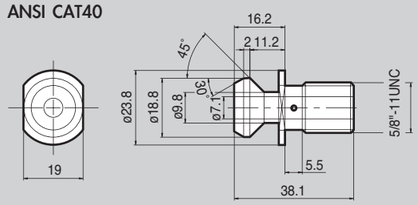
MAS-P40T-1



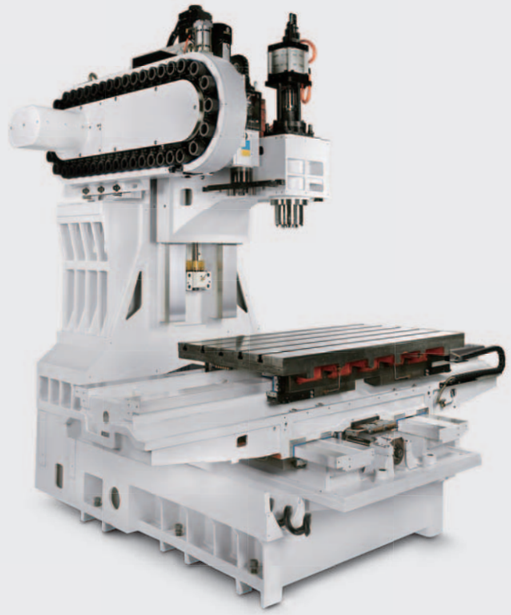
CAT40



ANSI CAT40

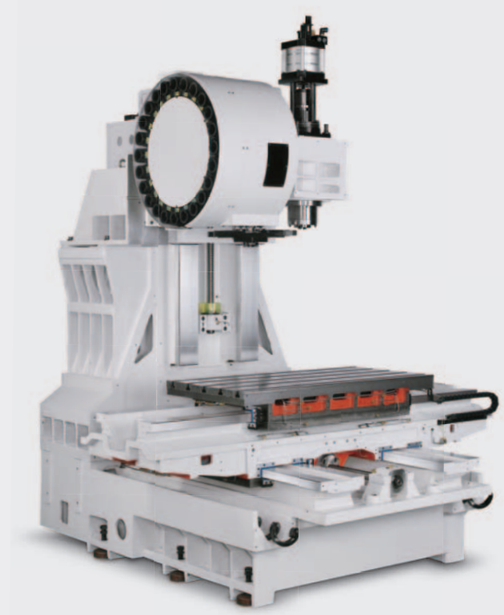


Perfect Configuration



a. 40 Tools (Opt.)

Permitting complex machining to be fast accomplished at a time.



b. Can Drive Arm Type Tool Changer 24 Tools (Std.)

The motor is controlled by a frequency inverter for short tool change time and high dependability.

Smart Operation Interface

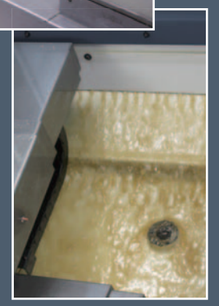
The fast pulling door is designed to comply with human engineering theorem. Proper handle and table height designs provide smooth door movement and shortened door open/close time. Upon request, an automated door opening is optional.

Widened Telescopic Guards on X-axis.

The telescopic guards completely cover the X-axis limit switches and linear scale and ensure the cleanliness of the axial mechanism, maintain machine accuracy and service life.

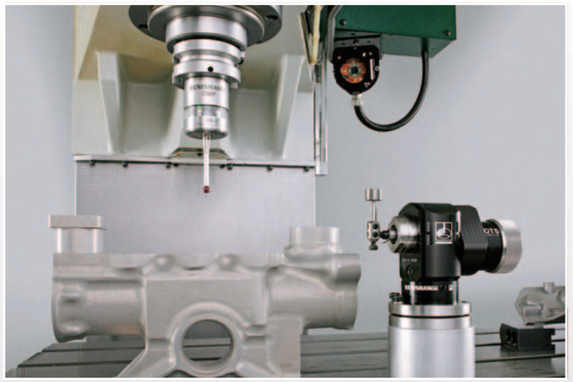
Efficiency & Cleanliness

Inclined fully guarded chassis in combination with twin chip augers and chip flushing devices at both right and left side enable most chips to be delivered to the front-mount link chain type chip conveyor (optional). As such, an excellent chip removing effect can be achieved.



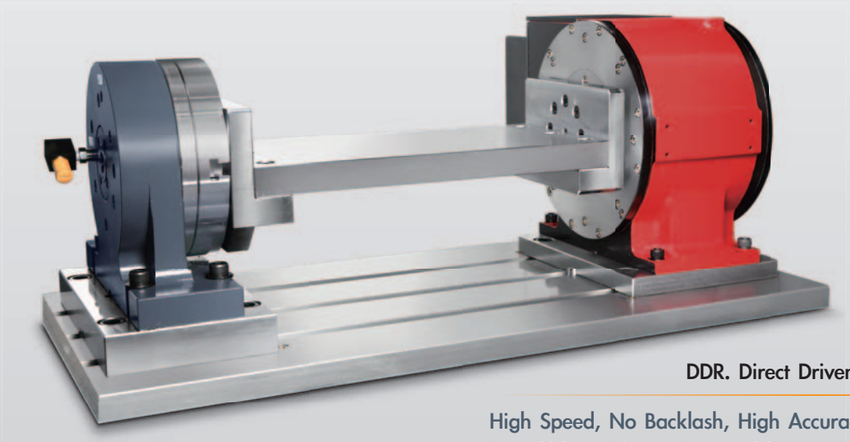
VTP series solutions

Efficient Manufacturing Strategy



High Efficiency Complex Machining

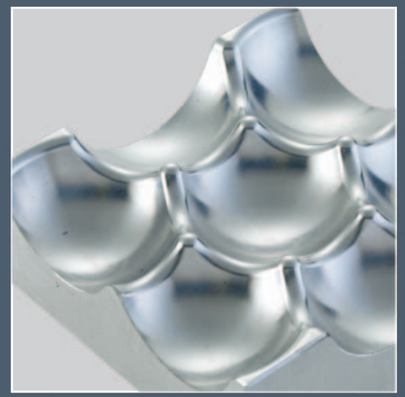
The use of the 4th axis and the tailstock make it possible to perform complex machining. It permits complicated machining to be performed efficiently and even a complicated geometry can be produced with ease.

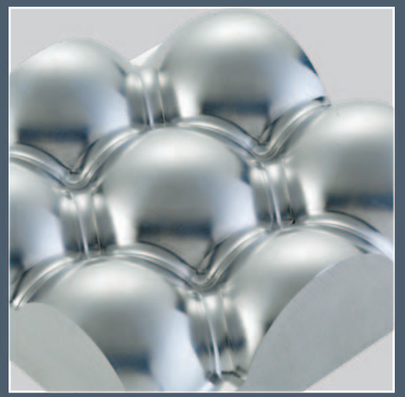


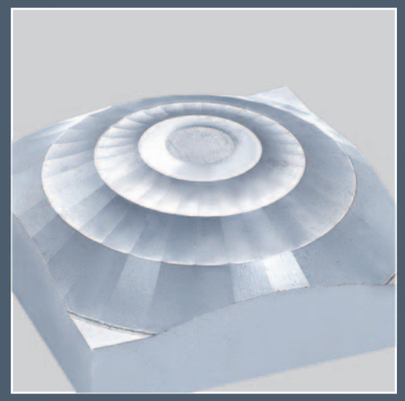
DDR. Direct Driven Rotary Table

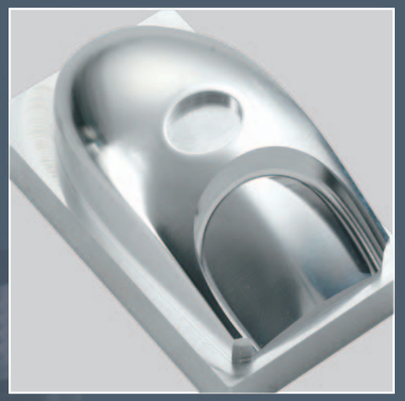
High Speed, No Backlash, High Accuracy Direct drive rotary unites are incredibly quick, precise, and low-maintenance. There is no worm gear or mechanical gearing, eliminating wear and backlash error.

Machining Parts









VTP series is designed with box ways and features high speed and high torque output.
The series of machines are especially ideal for complex machining such as molds.

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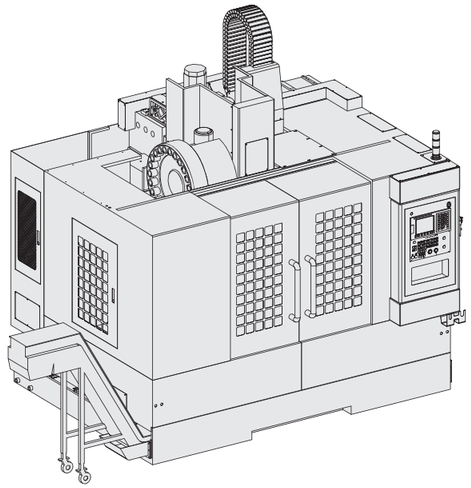
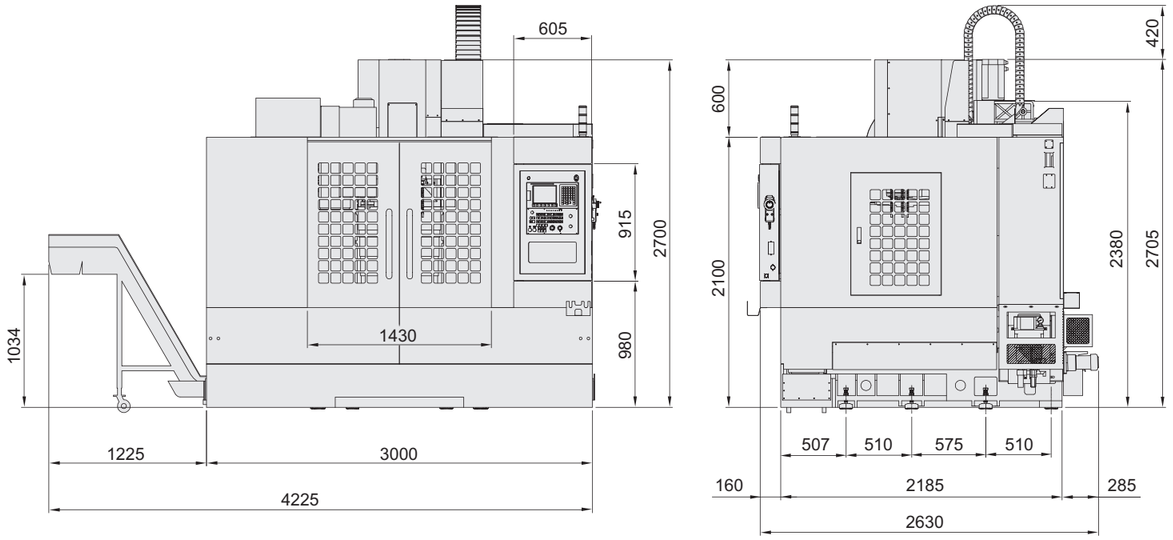
Machine Dimension

(The machine specifications, accessories and appearance are subject to change without prior notice.)





Standard Accessories

1. ARM type 24-tool ATC System
2. Coolant system
3. Fully enclosed splash guard
4. Work lamp
5. Automatic lubrication system
6. Auto power off (M30)
7. Spindle air blast device
8. Cutting air blast device
9. Powerful chip flush system
10. Rigid tapping
11. Heat exchanger for electrical cabinet
12. Tools & tool box
13. Leveling bolts & blocks
14. Operation & maintenance Pads
15. Twin chip augers
16. Spindle oil cooler
17. Air gun
18. Coolant gun

Optional Accessories

1. 10,000 / 12,000 rpm belt type spindle
2. Ready for 4th axis installation
3. Full set of 4th axis rotary table
4. Auto. tool length measurement device
5. Coolant through spindle device
6. Chain type chip conveyor
7. 32 tool arm-type ATC system
8. CE regulation
9. Transformer

Machine Specification

MODEL	VTP-1061	VTP-1261
WORK TABLE		
Table size	1200 x 600 mm (47.2" x 23.6")	1400 x 680 mm (55.12" x 26.7")
T-slot (no. x size x pitch)	5 x 18 mm x 125 mm (5 x 0.71" x 4.92")	
Max. loading	1000 kg (2200 lbs)	1200 kg (2640 lbs)
TRAVEL		
X-axis	1020 mm (40.1")	1250 mm (49.21")
Y-axis	610 mm (24")	
Z-axis	610 mm (24")	
SPINDLE		
Spindle nose to work table surface	125~735 mm (4.92" ~ 28.94")	
Spindle center to column front	895 mm (35.23")	
Spindle taper	7/24 No. 40	
Spindle speed	Belt type : 8000 rpm	
Spindle diameter	70 mm (2.75")	
FEED		
Rapid feed rate (X/Y/Z)	24000/24000/24000 mm/min (945/787.4 ipm)	
Cutting feed rate	10000 mm/min (394 ipm)	
ACCURACY (ISO-230)		
Positioning accuracy	± 0.004 / 300 mm	
Repeatability	± 0.003 mm	
ATC SYSTEM		
Tool shank	BT40	
Tool capacity	Arm type 24 tools	
Tool exchange time	Arm T-T 1.8 sec, C-C 5 sec	
Pull stud	MAS 403 P40T-1	
Max. tool diameter (with adj. tool)	80 mm (3.15")	
Max. tool diameter (w/o adj. tool)	125 mm (4.92")	
Max. tool length	300 mm (11.8")	
Max. tool weight	7 kg (15.4 lbs)	
MOTOR		
Spindl motor	(F) : 11/15 kw	
Cutting fluid pump motor	1 HP	
Side flushing pump motor	1.5 HP	
OTHER		
Power required	25 kVA	
Air pressure required	6 kg/cm² , 300 L/min	
Machine dimension (WxDxH)	3000 x 2650 x 2750 mm (118.1" x 104.33" x 108.3")	3500 x 2650 x 2750 mm (137.8" x 104.33" x 108.3")
Machine weight	8000 kg (17600 lbs)	8500 kg (18700 lbs)

(Both specifications & design characteristics are subject to change without prior notice.)