

**Twinhorn**

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*Design* 201909.VTH Series(E4)1000P

**VTH-1055L3/1060L3**  
**VTH-1055F**

VERTICAL MACHINING CENTER  
FIVE AXIS MACHINING CENTER

# VTH Series

## Mechanical Features

- All major parts are built with high tensile Meehanite FC 30 casting alloy provides outstanding wear-resistance and rigidity.
- High precision D40 mm, C3 class ball-screw with double nut pre-tension design on all three axes to enhance axis rigidity and accuracy stability.
- Extra widened separated guide ways design on base.
- Counter weightless design, upgraded direct driven Z axis motor provide the best reaction on high speed movement.
- Three axes adapts linear guide ways: X / Y / Z : 35 / 45 / 45 mm. Z axis equipped with extra length carriage to enhance stability.

## The innovative design of high-performance high-precision

### Guide way cover

- Enlarged single piece of guide way cover on the rear side of Y axis with big slop design for best chip collect and remove.
- Big slop design on the front side of Y axis
- Widen design on X axis to fully cover the limit switch and optical scales device.

### Fully splash guard

- Provides safety machining enviroment and highly efficient chip removal functions.

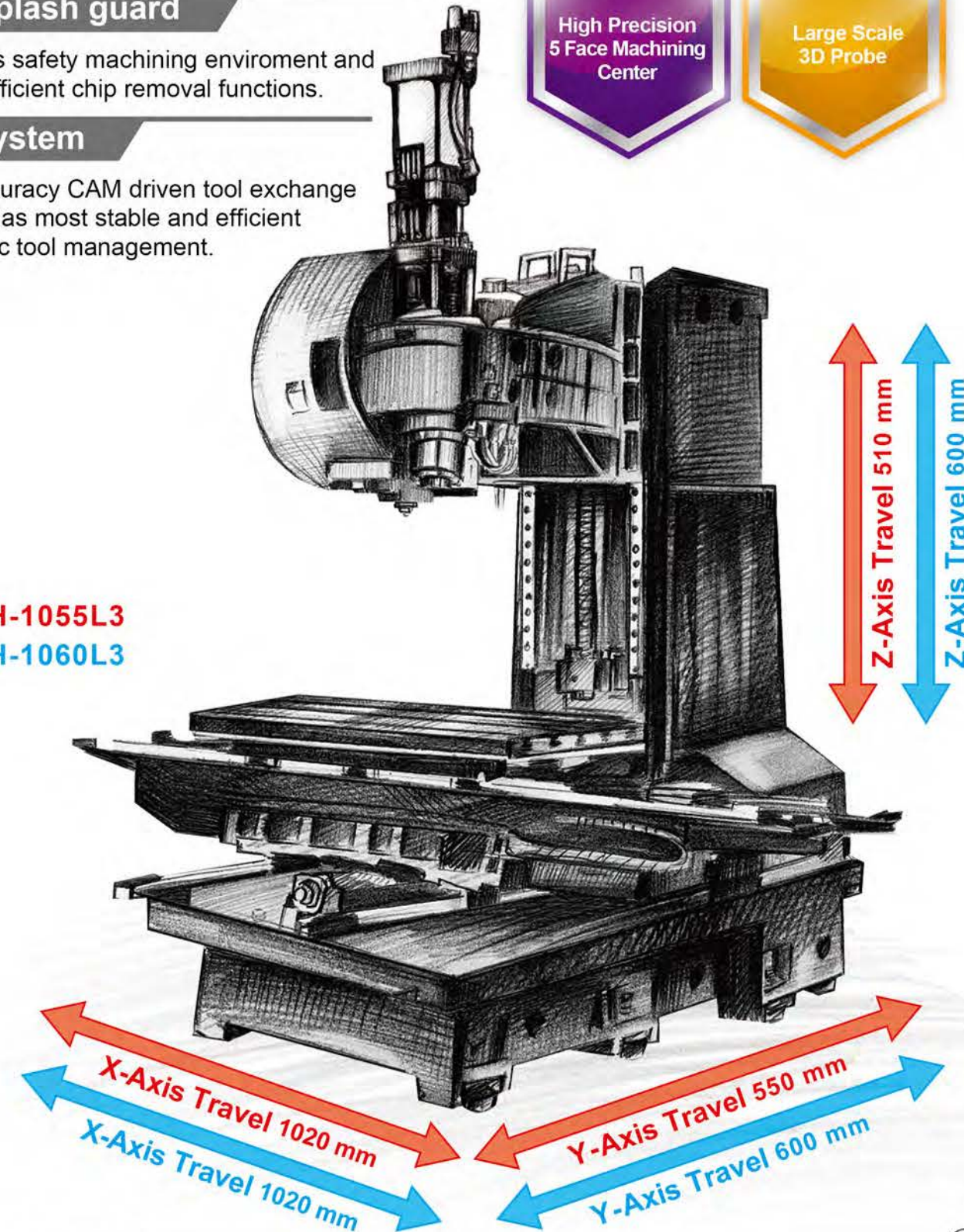
### ATC System

- High accuracy CAM driven tool exchange system has most stable and efficient automatic tool management.

Twinhorn  
High-quality

High Precision  
5 Face Machining  
Center

Large Scale  
3D Probe



- VTH-1055L3
- VTH-1060L3



### VTH-1055L3

Rapid feed rate : 48000 / 48000 / 32000 mm/min  
Travel : 1020 / 550 / 510 mm  
Table size : 1200mm x 530mm

### VTH-1060L3

Rapid feed rate : 48000 / 48000 / 32000 mm/min  
Travel : 1020 / 600 / 600 mm  
Table size : 1200mm x 600mm



EX : VTH-1060L3

## VTH-1055F

X / Y / Z axis rapid feed rate : 48000 / 48000 / 32000 mm/min

X / Y / Z axis travel : 900 / 520 / 510 mm

A axis (tilting) : +30° ~ -120°

C axis (rotating) : 360°

Max. C axis dia. : Ø400mm

Work table size : Ø320mm



## VTH-1055F Five axis machining center



# 5

## axis

High-efficiency, High-Accuracy

Multi-functional , High-efficiency

Rotary/ Tilting table  
Worm gear transmission

Max. work piece size  
Ø400mm x H300mm  
(Table size Ø320mm)  
Max. Loading: 100kg

400mm



C-Axis Travel 360°

A-Axis Travel +30°~-120°

Z-Axis Travel 510mm

Y-Axis Travel 520mm

X-Axis Travel 900mm

# VTH Series

## Belt type Spindle

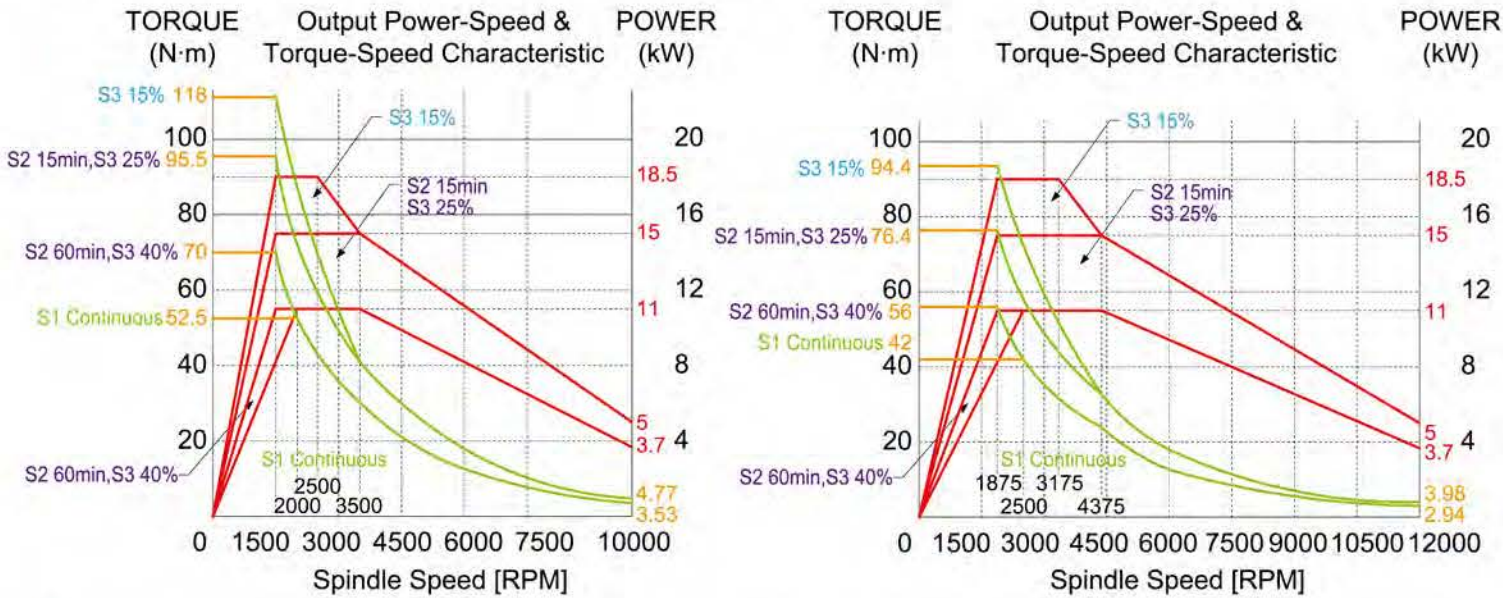
- P4 grade high precision angular contact bearings plus enlarged supporting position design largely increase axial and radial rigidity and cutting ability.
  - Special air-curtain design on spindle nose to prevent coolant / dust getting inside of the spindle.
  - Four pieces of powerful coolant nozzle around spindle nose plus two-hole nozzle aside.
  - New designed of V shape belt to reduce the noise.
- With standard spindle speed 8000 rpm  
(opt. 10000 / 12000 rpm)



## Spindle Motor Power-Torque diagram

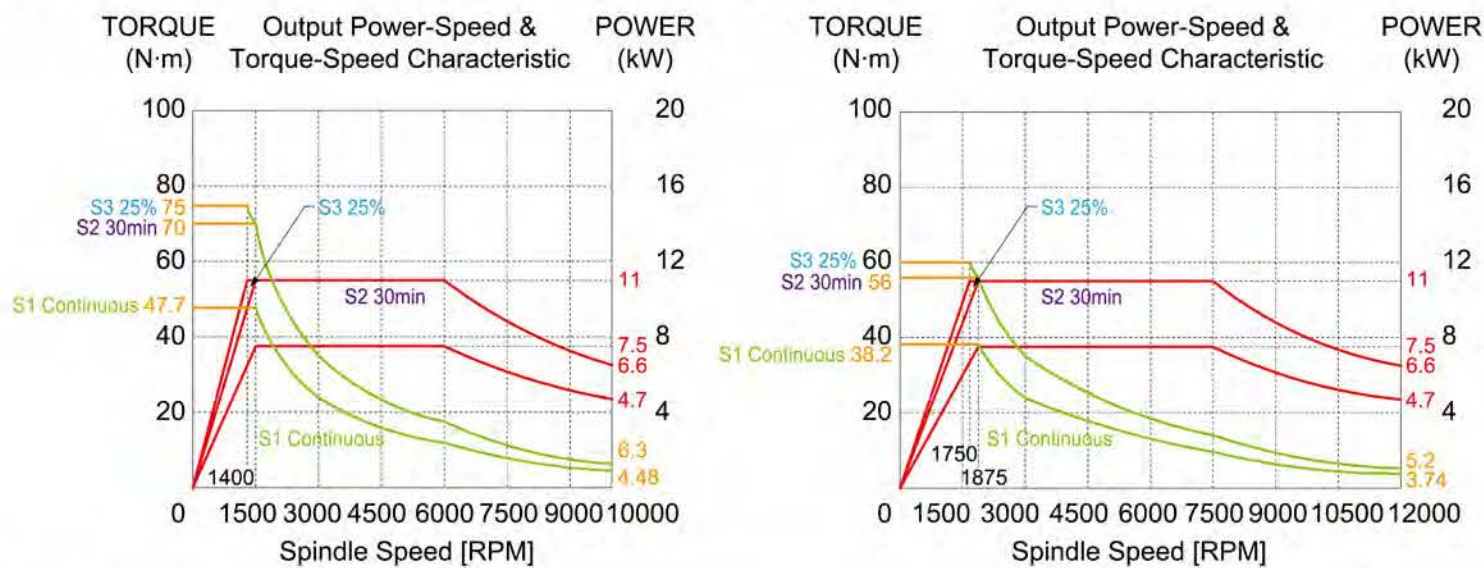
### Fanuc

#### Fanuc $\beta$ il 12/10000



### Mitsubishi

#### Mitsubishi SJ-DG11/100



## Built-in type Spindle

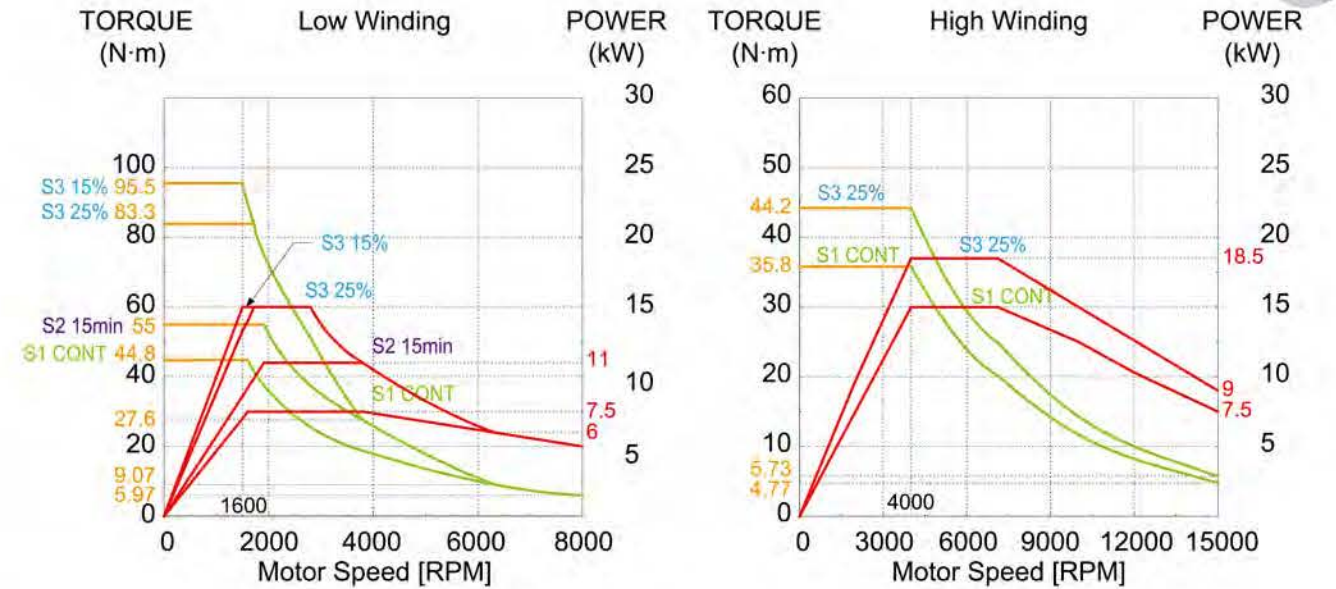
- Adapt powerful spindle motor, suitable for high dynamic machining with low vibration.
- Standard speed BBT-40 12000 rpm (opt. 15000 rpm)
- Spindle is with air-curtain design. Lubricant with grease.



## Spindle Motor Power-Torque diagram

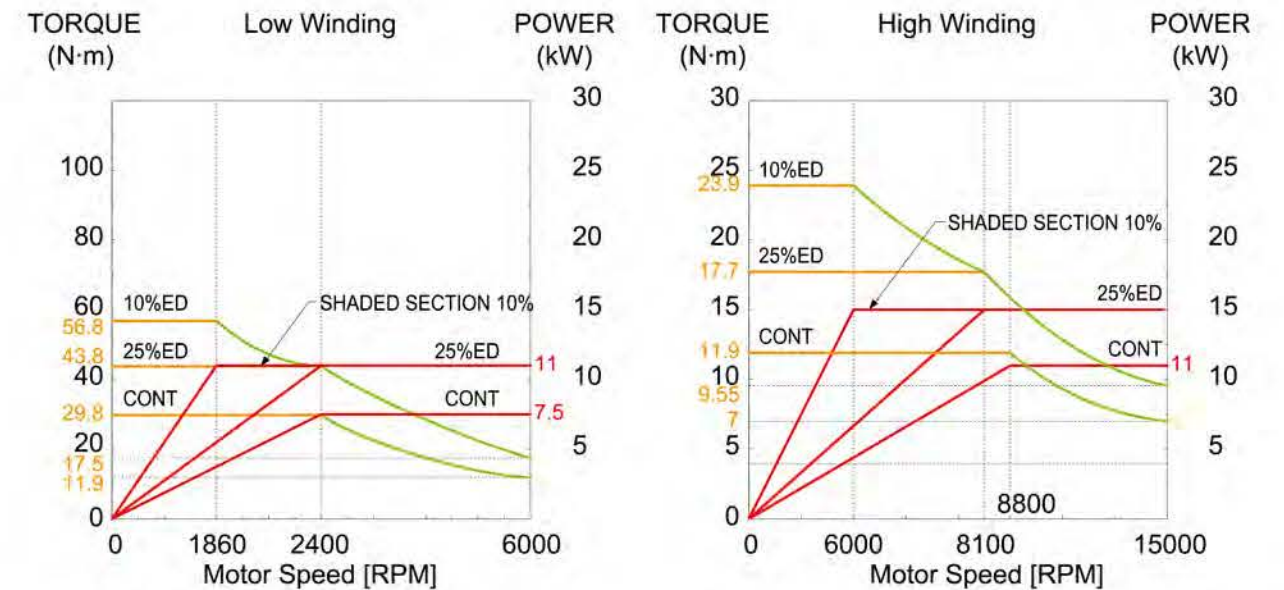
### Fanuc

#### Fanuc $\beta$ il 112S/15000



### Mitsubishi

#### Mitsubishi SJ-2B4357TKH

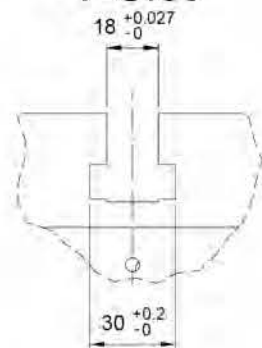


## VTH-1055L3/1060L3

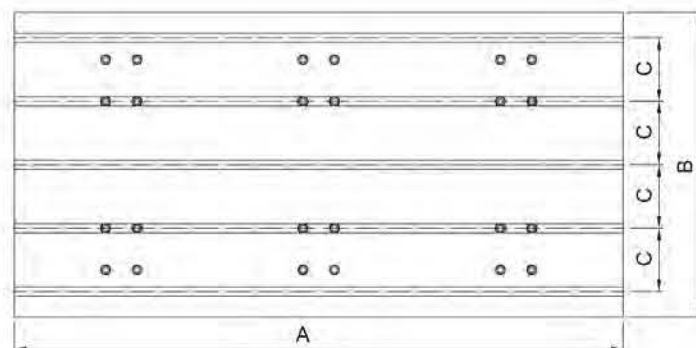
Unit:mm

### Working table dimension

#### T-Slot

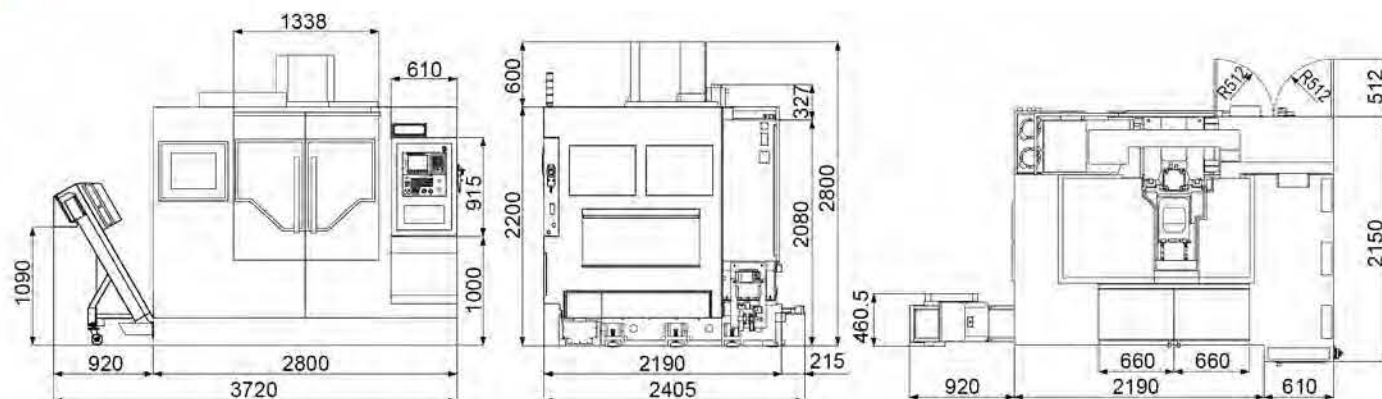


	1055L3	1060L3
A	1200	1200
B	530	600
C	100	125



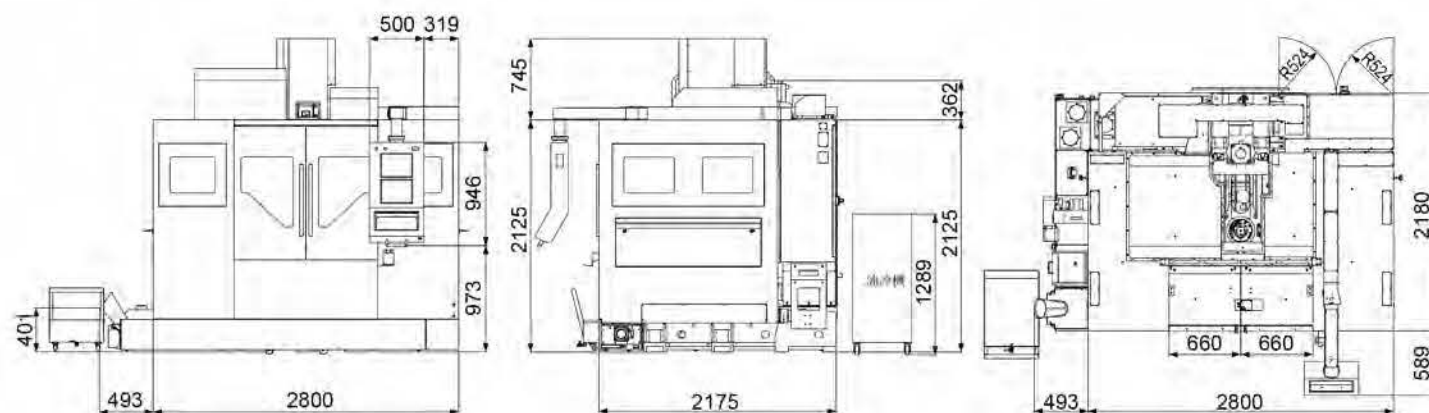
## VTH-1055L3/1055F

### Machine dimension



## VTH-1060L3

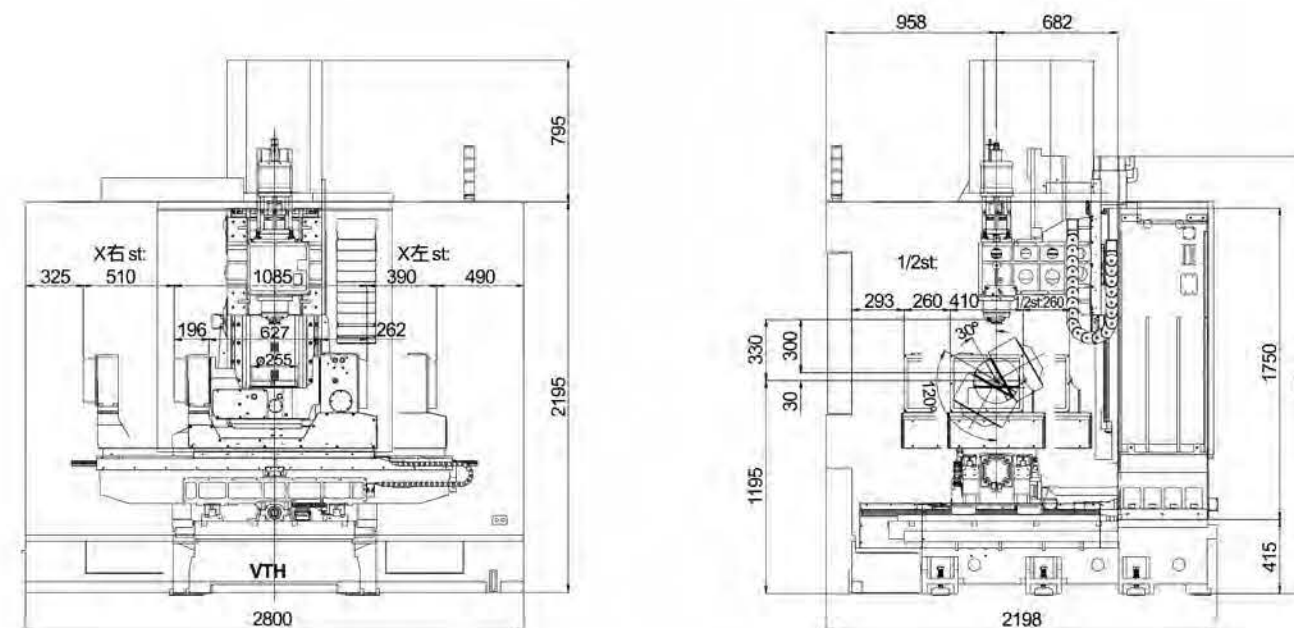
### Machine dimension



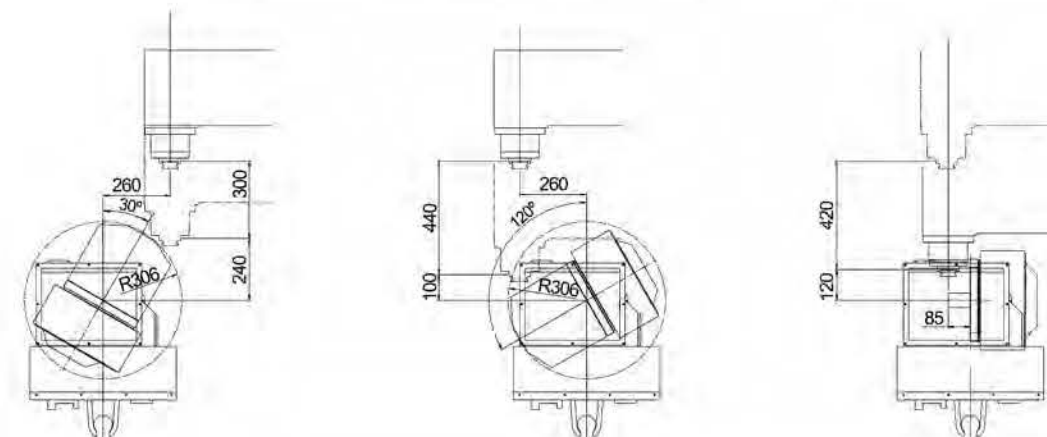
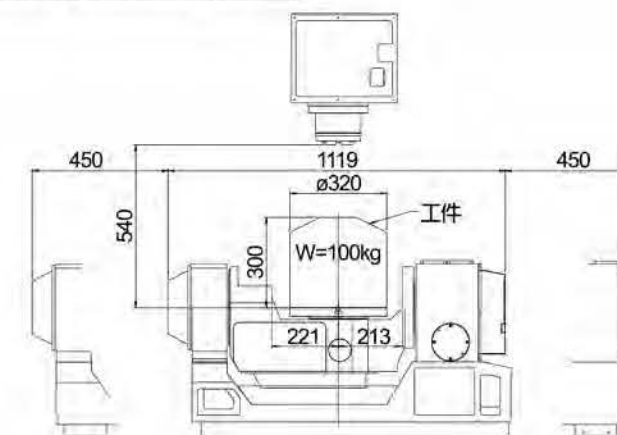
## VTH-1055F

Unit:mm

### Five axis working area



### Five axis working example



## VTH-1055L3/1060L3 Specification

Model	VTH-1055L3	VTH-1060L3
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Work Table		
Table size	1200 x 530 mm (47.24" x 20.86")	1200 x 600 mm (47.24" x 23.62")
T-slot number / wide / pitch	5 x 18 mm x 100 mm (5 x 0.71" x 3.93")	5 x 18 mm x 125 mm (5 x 0.71" x 4.92")
Max. loading	600 kg (1321 lbs)	

Travel		
X axis	1020 mm (40.1")	
Y axis	550 mm (21.65")	600 mm (23.62")
Z axis	510 mm (20")	

Spindle		
Spindle nose to work table surface	150-660 mm (5.9"-26")	150-750 mm (5.9"-29.53")
Spindle center to column front	585 mm (23")	627 mm (24.69")
Taper	BT40 (opt. CAT40, DIN40)	
Speed	Belt type 8000 rpm	
Front bearing dia.	70 mm (2.8")	

Feed		
Rapid (X / Y / Z)	48000 / 48000 / 32000 mm / min opt. 36000 / 36000 / 32000 mm / min	
Cutting	10000 mm / min (394 rpm)	
Z axis counter balance	Without	
Ball screw dia. & pitch	Ø40 mm , P16 / 16 / 12 mm opt. P12 / 12 / 12 mm	
Guide way	Linear guide way W35 / 45 / 45 mm	

Accuracy VDI 3441 (JIS B6338)		
Positioning	P 0.014 mm (±0.004 / 300 mm)	
Repeatability	PS 0.010 mm (±0.003 mm)	

ATC System		
Taper	BT 40	
Tool capacity	24T	
Tool exchange time	T-T 1.8 sec, C-C 3.8 sec	
Max. tool dia. (w/ adjacent tool)	75 mm ( 2.95" )	
Max. tool dia. (w/o adjacent tool)	125 mm ( 4.92" )	
Max. tool length	300 mm (11.81")	
Max. tool weight	7 kg, 120 kg ( 17.6 lbs, 264.2lbs )	

General		
Power required	25 kVA	
Air pressure required	6 kg / cm <sup>2</sup> , 200 L / min	
Machine dimension (W x D x H)	2800 x 2405 x 2800 mm ( 110.2" x 94.6" x 110.2" )	3370 x 2765 x 2870 mm ( 132.7" x 108.9" x 113.0" )
Machine weight	6500 kg (14317lbs)	7000 kg (15414lbs)

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

### Standard Features

- 24 tool arm-type ATC system
- Coolant system
- Fully enclosed splash guard
- Work lamp
- Auto. lubrication system
- Indicating light
- Spindle air blast function
- Sides and rear chip flush system
- Cutting air blast function
- Spindle air curtain system
- Rigid tapping
- Heat exchanger for electrical cabinet
- Tool box and adjusting tools
- Leveling bolts and pads
- Spindle oil cooler
- Air gun
- Coolant gun

### Optional features

- Belt type Spindle  
10000 / 12000 rpm
- Direct driven Spindle  
12000 rpm
- Built-in type Spindle  
12000 / 15000 rpm
- 30 tool arm-type ATC system
- 32 tool arm-type ATC system
- X / Y / Z axis roller type linear guide way
- 4<sup>th</sup> axis system interface ready (pre-wired only)
- 4<sup>th</sup> axis system
- Auto. tool length measuring
- CTS (Coolant Through Spindle)
- Y direction dule screw type chip conveyor
- Chain type chip conveyor
- Axis optical scale system
- Transformer

## VTH-1055F 5 Axis Specification

Model	VTH-1055F
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Travel	
X Axis	900 mm (35.43")
Y Axis	520 mm (20.47")
Z Axis	510 mm (20")
A Axis (tilting)	+ 30° ~ -120°
C Axis (rotating)	360°
Max. C axis dia.	Ø400 mm
Max. A axis speed	25 rpm
Max. C axis speed	25 rpm
Work table size	Ø320 mm
T-slot size	12 mm
Max. loading	100 kg (220.2 lbs)

Spindle	
Spindle nose to work table surface	30-540 mm (1.19"-21.25")
Spindle center to column front	958 mm (37.71")
Taper	BT40 (opt. CAT40, DIN40)
Speed	Belt type 8000 rpm
Front bearings dia.	70 mm (2.8")

Feed	
X / Y / Z rapid feed rate	48000 / 48000 / 32000 mm / min opt. 36000 / 36000 / 32000 mm / min
X / Y / Z cutting feed rate	10000 mm / min (394 rpm)
Z axis counter balance	Without
Ball screw dia. & pitch	Ø40 mm , P16 / 16 / 12 mm opt. P12 / 12 / 12 mm
Guide way	Linear guide way W35 / 45 / 45 mm

Accuracy VDI 3441 (JIS B6338)	
X / Y / Z axis positioning	P0.014 mm (±0.004 / 300 mm)
X / Y / Z axis repeatability	PS0.010 mm (±0.003 mm)
C axis positioning	20"
A axis positioning	20"
C axis repeatability	6"
A axis repeatability	4"

ATC System	
Taper	BT 40
Tool capacity	24T
Tool change time	T-T 1.8 sec , C-C 3.8 sec
Max. tool dia. (w/ adjacent tool)	75 mm ( 2.95" )
Max. tool dia. (w/o adjacent tool)	125 mm ( 4.92" )
Max. tool length	300 mm (11.81")
Max. tool weight	7 kg, 120 kg ( 17.6 lbs, 264.2lbs )

General	
Power required	25 kVA
Air pressure required	6 kg / cm <sup>2</sup> , 200 L / min
Machine dimension (W x D x H)	2800 x 2405 x 2800 mm ( 110.2" x 94.6" x 110.2" )
Machine weight	6650 kg (14647 lbs)

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

### Standard Features

- 24 tool arm-type ATC system
- Coolant system
- Fully enclosed splash guard
- Work lamp
- Auto. lubrication system
- Indicating light
- Spindle air blast function
- Sides and rear chip flush system
- Cutting air blast function
- Spindle air curtain system
- Rigid tapping
- Heat exchanger for electrical cabinet
- Tool box and adjusting tools
- Leveling bolts and pads
- Spindle oil cooler
- A-axis angular encoder system
- Air gun
- Coolant gun

### Optional features

- Belt type Spindle  
10000 / 12000 rpm
- Direct driven Spindle  
12000 rpm
- Built-in type Spindle  
12000 / 15000 rpm
- 30 tool arm-type ATC system
- 32 tool arm-type ATC system
- X / Y / Z axis roller type linear guide way
- Auto. tool length measuring
- CTS (Coolant Through Spindle)
- Y direction dule screw type chip conveyor
- Chain type chip conveyor
- Axis optical scale system
- Transformer