



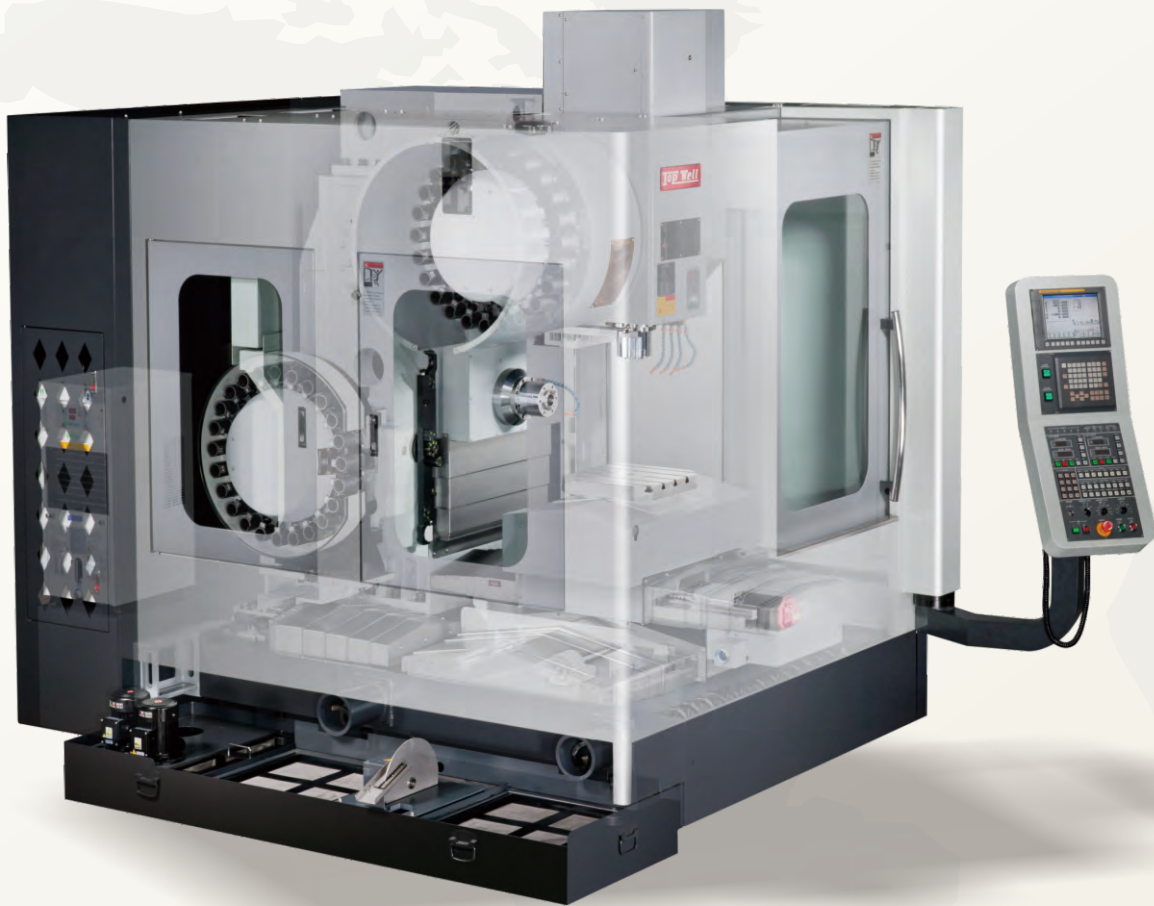
# TW-400HV TW-500HV

Combination – Universal  
Horizontal / Vertical  
Machining Center



# TW-400HV

NEW CENTURY  
NEW THINKING  
NEW GENERATION



## Parts Sample :



# TW-400HV

## Combination – Universal Horizontal / Vertical Machining Center

### Structure

- Analysis by FEA (Finite Element Analysis).
- Meehanite certified iron.

### Precision

- Optical scale is equipped for rotary table. (opt.)
- Minimize geometric error for 5 face job.
- Rigid tapping : M1 (Metric) or #0-80 (imperial)

### HI Speed

- 10,000rpm up Direct drive Spindle.
- Rapid travel 36M/min for each axes (48M/MIN Opt.)

### Practical

- Vertical / Horizontal mode is changed automatically.
- 24 tools for each magazine , high tool capacity.

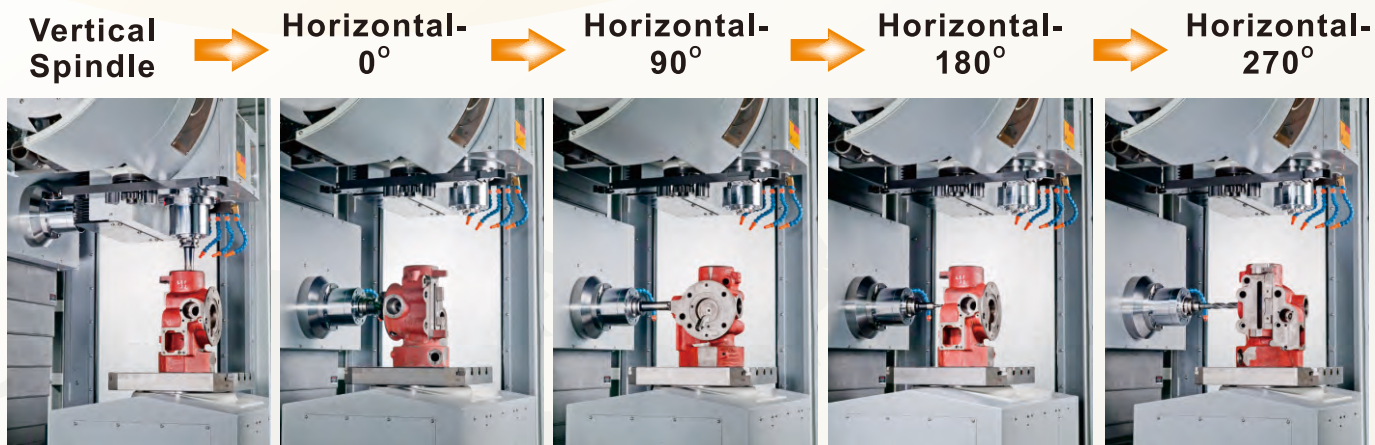
### Economy

- Reduce work piece upload time , and jig design cost.
- Double chip auger , and fast-return tank , 240L only.
- Floor space is 206cmx289cm only.
- Shipped by 40'HI-CU / 30% freight saved.






# TW-400HV

## 5 Sides Manufacturing at Once



## TW-400HV Excellent Efficiency

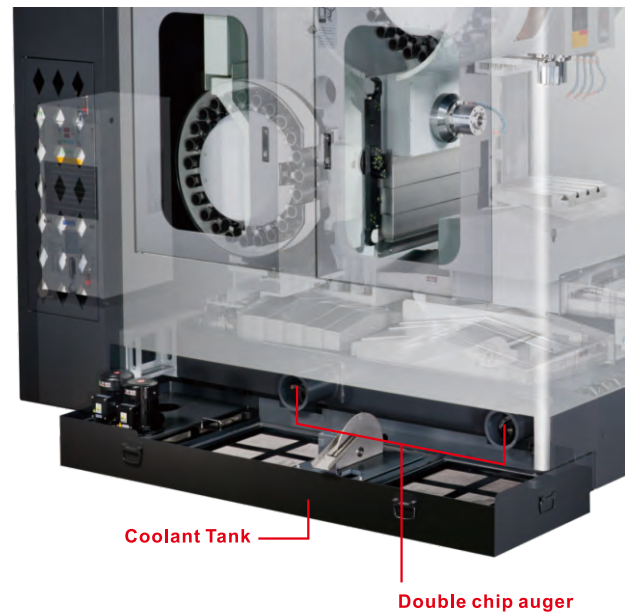
Model	TW-400HV Universal H/V Center	Vertical + Horizontal Center	Vertical Center
Item			
Preparing time	30 min. Setup once	55 min. Setup twice	150 min. Setup 5 time
work piece upload time	5 min	12 min	26 min
cutting time	135 min	148 min	164 min
total time	170 min	220 min	340 min
Efficiency	<b>130% WIN</b>	100%	60%

## Easy Operation

- **User friendly 180° console:**  
It can be operate at front door or side door.
- **Extra-wide front door & side door:**  
Table height form ground is 1080 mm easy for job loading.
- **Horizontal Spindle can be reached easily:**  
Easy for tool set up.



- **Double chip auger can clean chip faster.**
- **Compact coolant tank: 240L required.**



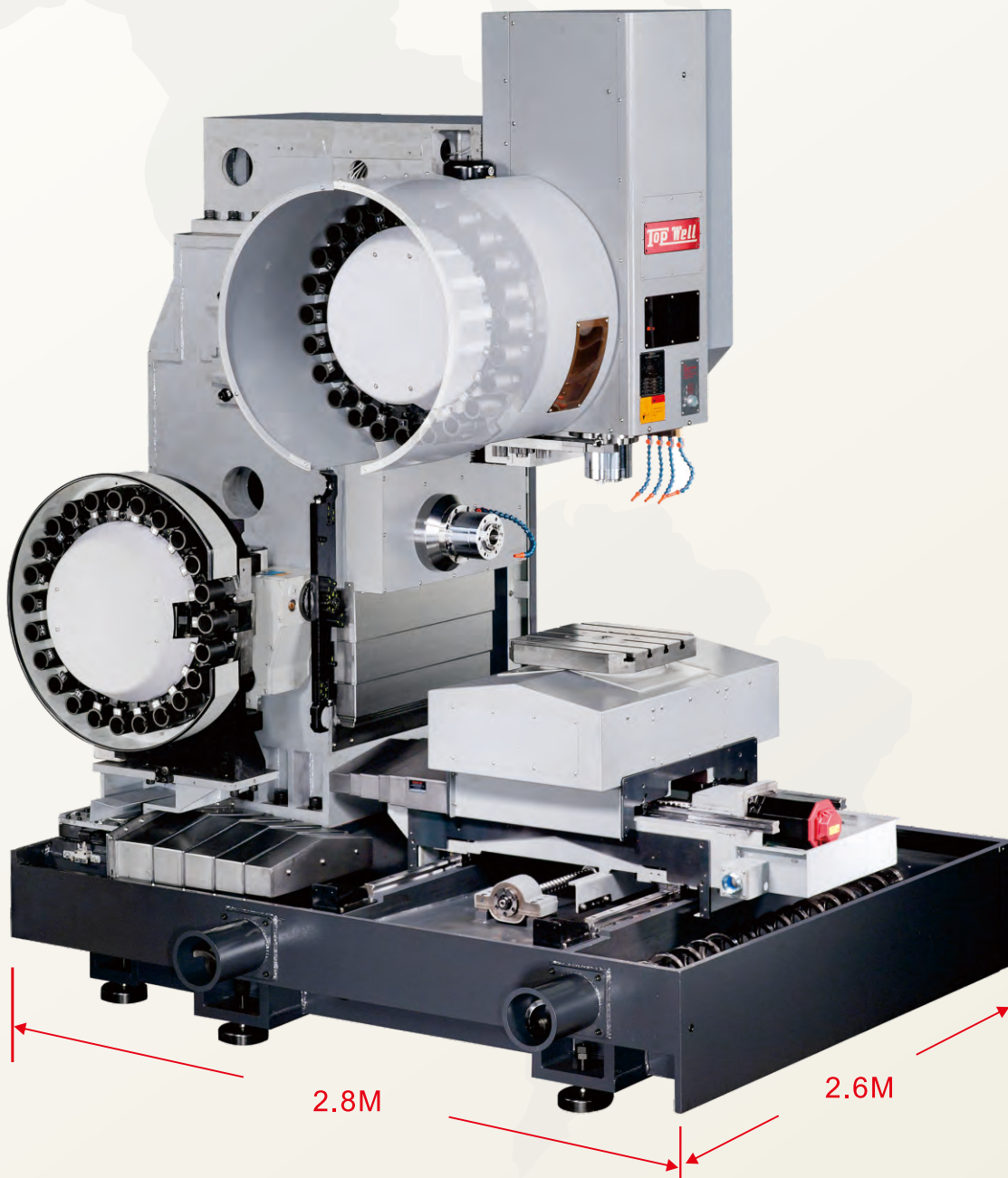
## Cutting Data

Cutting Date					
	Face Milling Dia.80mm		Drilling Outer Dia.22mm	Tapping (Max.) M24x3.0mm	Tapping (Min.) M1 & #0-80
Material	S45C	Al6061	S45C	S45C	Al6061
SP. Speed (rpm)	1000rpm	4500rpm	300rpm	200rpm	3000rpm
Feedrate. (mm/min)	1200 mm/min	6000 mm/min	60 mm/min	600 mm/min	952.5 mm/min
Cutting Width (mm)	60 mm	60 mm	—	—	—
Cutting depth (mm)	2.0 mm	2.0 mm	—	—	—
Peak of cut (cc/min)	144 cc / min	720 cc / min	—	—	—

# TW-400HV

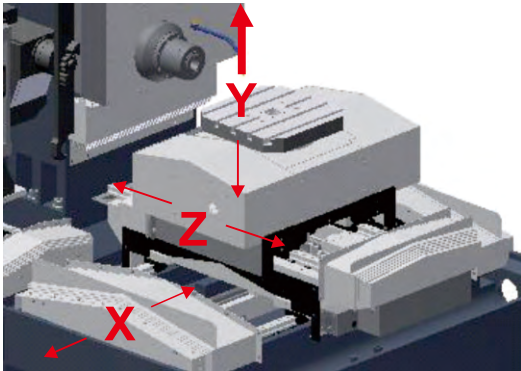
## Complex Vertical / Horizontal unique design

- Five-face job finished in a program.
- Work piece set up once time.
- Reduce work piece load time, and jig design cost.
- Compact floor space to save factory building cost.



### X-axis full support design

- Reduce motor load, when table Move to back and forth.
- Easy for rigid tapping of Horizontal mode.
- Reduce X-axis twist, when table move right, and left.

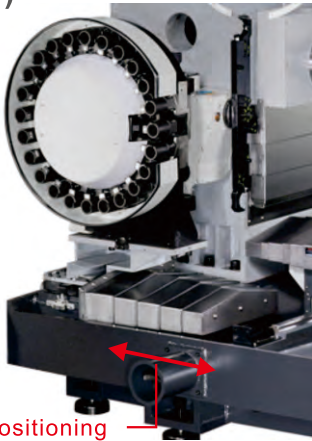


### HI-Precision Rotary Table

- 1/1000° minimum indexing unit.
- 4 axes contouring.
- Auto hydraulic clamping system.
- Accuracy is 2 sec, equipped with Heidenhain ERN-180 optical scale (Opt.)

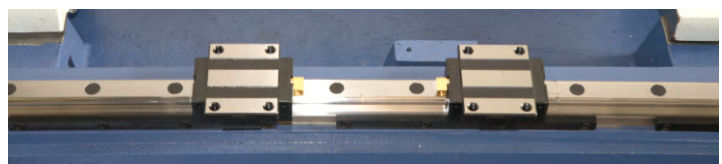


### 32 M positioning for magazine Tool change time : 1.8sec. (T to T)



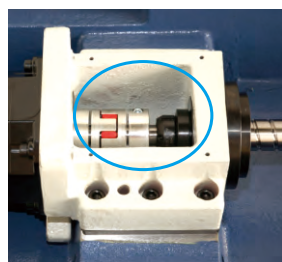
### High Precision Linear guide ways

The high precision Japanese roller linear Guide ways (opt.) provides higher rigidity of the machine, and improve the machine stability, and machining ability.



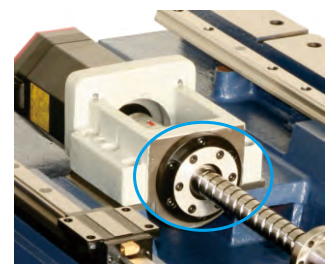
### Each axes equipped with German Made Hi-Torque coupling

The German made coupling connecting The ball screw and motor shaft can ensure the Accuracy at high speed movement.



### C 3 Class double Nuts Ball Screw

With high precision C3 class double Nut ball screw, and applying suitable pre-tension, the ball screw backlash can be reduced and the accuracy can ensured.



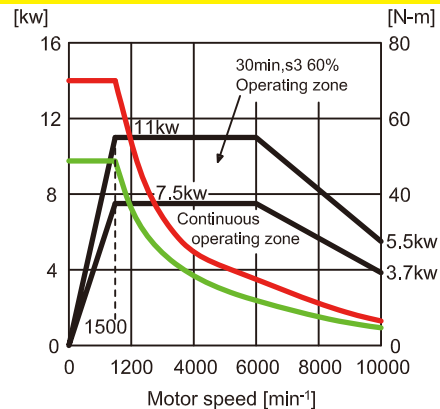
# TW-400HV

## 10,000 rpm Isolated Direct Drive Spindle



- Rigid tapping: M1 (Metric) / #0-80 (Imperial).
- The noise of spindle is less than 67dB.
- Ceramic bearing extends spindle life at high speed.
- Floating tool unclamp system can avoid the bearing hit by the cylinder.
- Spindle air sealing can prevent the coolant.
- Oil chiller can reduce the spindle and motor heat transmission.

### FANUC 11KW-10000 rpm spindle motor



## Hi-Precision Controller and AI Operation method

### • FANUC-0i-MD /32i-MB (opt.) Controller

The new controller has faster processing capacity, and the hardware has highly stability, and reliability.

### • AI style Vertical / Horizontal mode change function

Our experienced IT technician develops the program, the user can use standard program for other machine, and combined it together for 5 face program.

The machine can finish the job at one time, and mode can be see on the panel.

### • Easy, and user Friendly operation panel provide convenient for user.

### • The cabinet is complied with CE regulation, and continuous test over 96 hours.

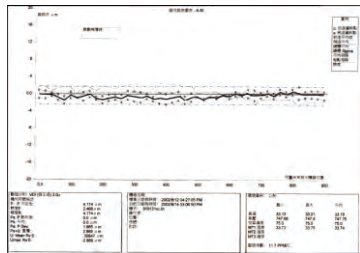
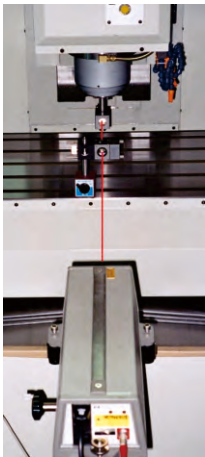




# High standard inspection is Quality insurance

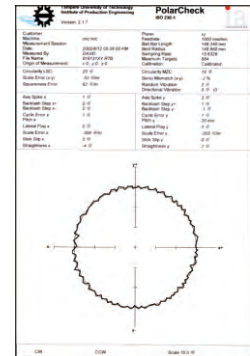
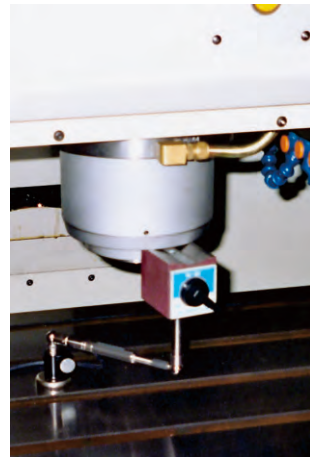
## High standard inspection is Quality insurance

- The machine's dynamic accuracy and repeatability's tested by the **RENISHAW Laser system**.



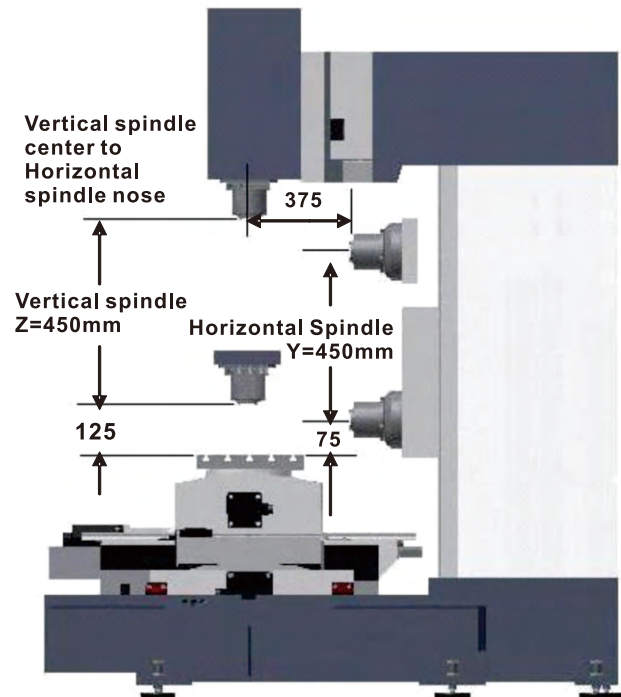
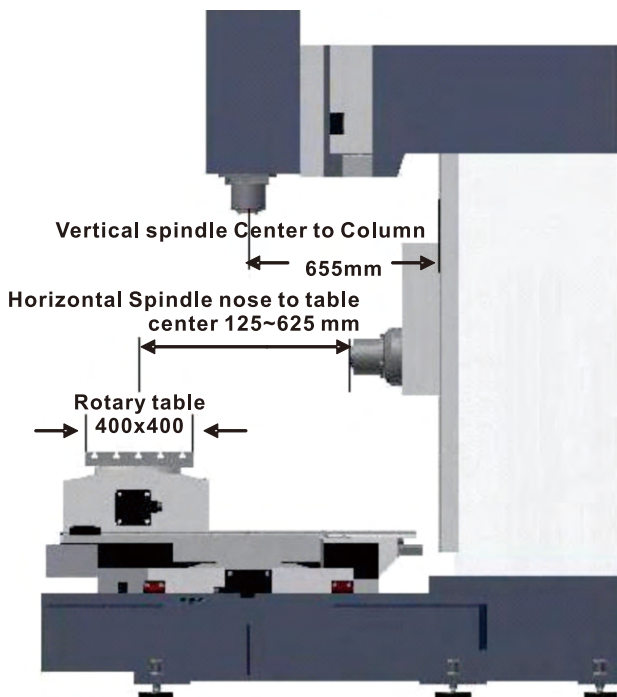
Laser Linear inspection (ISO 10791-4)

- The circularity is tested by the **RENISHAW Ball-Bar system** in order to ensure the profile.



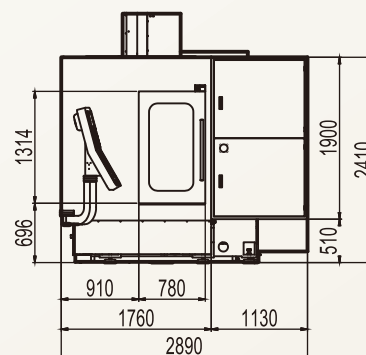
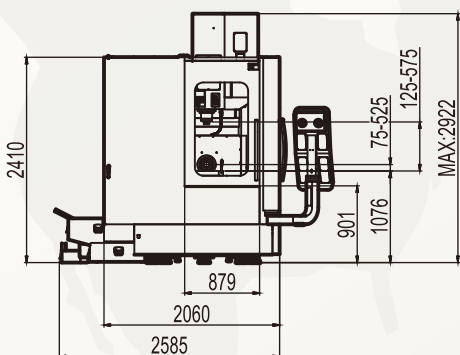
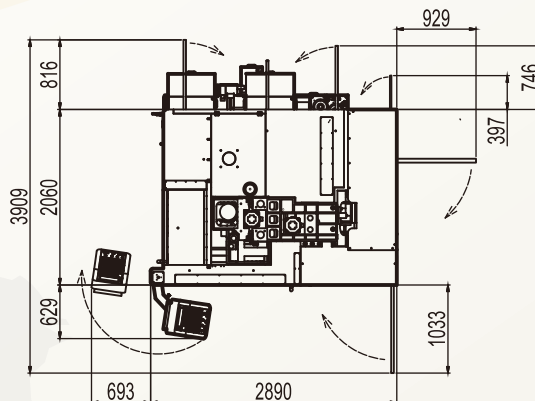
Ball-Bar testing Report (ISO 230-4)

## Working Envelope

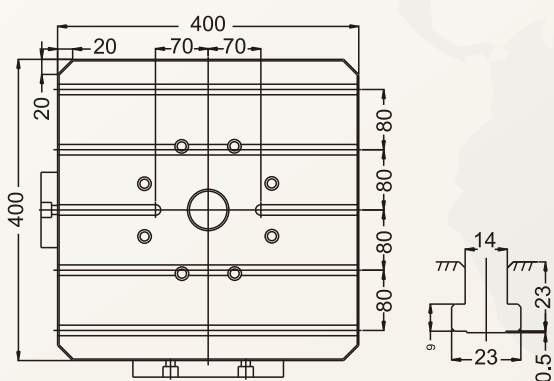


# TW-400HV

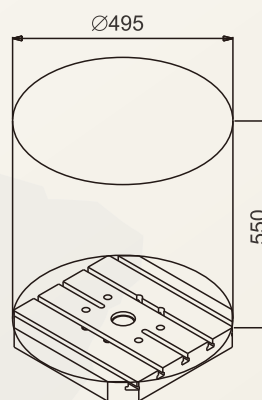
## Machine Dimensions



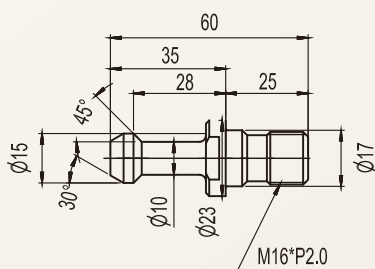
## Table Dimensions(mm)



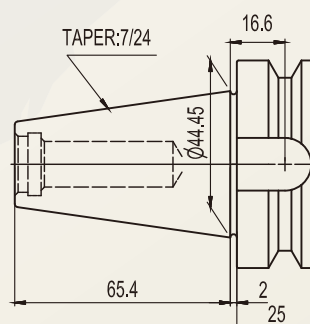
## Max. Cutting Area(mm)



## Tool Shank & Pull Studs



NAS-P40T-1



BT-40#

## Specifications

Model	TW – 400HV	TW – 500HV
X Axis travel	500 mm	650 mm
Y Axis travel - Vertical	500 mm	600 mm
Z Axis travel - Vertical	450 mm	450 mm
Y Axis travel - Horizontal	450 mm	450 mm
Z Axis travel - Horizontal	500 mm	600 mm
Vertical Spindle center to column	655mm	655mm
Vertical Spindle nose to table top	125 -575 mm	115 -565 mm
Horizontal Spindle nose to table center	125 -625 mm	125 -725 mm
Horizontal Spindle center to table top	75 -525 mm	90 -540 mm
Table height from the floor	1080 mm	1090 mm
Table load capacity	350kg	400kg
Spindle nose (BT / CAT / DIN)	Bt40 / CAT40 / ISO40	
Spindle RPM (Vertical)	75~10,000rpm (opt.12,000)	
Spindle RPM (Horizontal)	75~10,000rpm (opt.12,000)	
Main motor (cont./ 30min)	7.5 / 11Kw (Direct Drive)	
A.T.C. Magazine for arm type (H/V)	24/24 (opt. 24/40)	
A.T.C. tool diameter	76 / 127 mm	
A.T.C. tool length	250 mm	
A.T.C. tool weight	7 Kg	
Rapid traverse	32 m / opt. 48m	
Cutting feed	1 ~ 15,000 mm	
Positioning	± 0.003 mm	
Repeatability	± 0.002 mm	
Rotary table – Table top dimension	400 x 400 mm	500 x 500 mm
Rotary table – T-slots( wide× no.× pitch)	14H7 x 5x 80 mm	14H7 x 5x 100 mm
Rotary table – Speed reduction ratio	1: 120	
Rotary table – Min. indexing (degree)	0.001°	
Rotary table – Max. rotation speed	16.6	
Rotary table – Positioning accuracy	15"	
Rotary table – Repeatability	± 4"	
Rotary table – Max. load	350Kg	400Kg
Coolant system	580 W	
Lubrication system	25 W	
Air pressure	6Kg / cm <sup>2</sup> over	
Machine weight	8,500kg	9,050kg
Floor space ( L x W x H )	2890x2689x2922 mm	3050x2689x2922 mm
CNC controller	Fanuc 0i-MF / 32i-MB	

• Specification and design characteristics Are Subject to change without Prior notice.

### Standard equipment :

- 0.001° Rotary table (400x400mm)
- Spindle chilling system
- M30 Auto-power OFF
- Auto Lubrication system
- Full enclosure Guard
- 10,000 RPM spindle Direct (H/V)
- H/V-Arm type A.T.C. (24 tools)
- Auger type Chip conveyor
- Electrical / Machine manual
- Coolant chip flushing
- Air Gun
- Water Gun
- M-code Air blast
- Heat exchanger
- Coolant system
- Rigid tapping
- Work lamp
- Alarm tower
- Tools & tool box
- External MPG

### Optional Accessories :

- Transformer/stabilizer
- Safety switch on both door
- Disk Type Oil Skimmer
- CE Electrical
- Chain type Chip conveyor
- Auto tool length
- Coolant Through Spindle
- 12,000 RPM spindle Direct Drive
- Air con. for electrical Cabinet
- Scale / Rotary table Optical scale



Linear Way Vertical machining



HSHP Vertical machining Center



Box Way Vertical machining Center



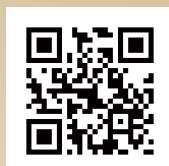
Vertical Traveling Machining Center



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