



**MCV-720**  
Vertical  
Machining Center



**DMV-800**  
Traveling Column  
Vertical Machining  
Center



**MCV-2100**  
Vertical Machining  
Center



**MCH-630**  
Horizontal  
Machining Center



**DAH LIH MACHINERY INDUSTRY CO., LTD.**

No. 3, Kung-Yeh Lane, Fengcheng Road, Nanshih Tsun,

Wufeng Shiang, Taichung Hsien, 413, Taiwan.

TEL:+886-4-2333-4567 FAX:+886-4-2330-7567

E-mail:dahlih1@ms77.hinet.net Http://www.dahlihmachinery.com.tw

1000\_03\_2005 (PT-V001)



# PT series

**PT-86**  
**PT-128 (with 4th/5th Axis)**

**PORTAL TYPE MACHINING CENTER**

# PORTAL TYPE MACHINING CENTER

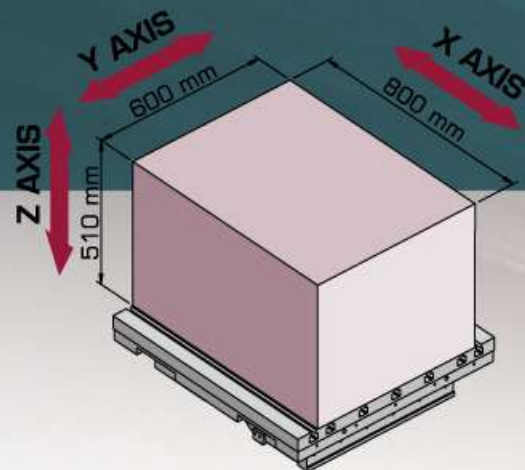


With 4th/5th Axis Rotary Table (opt.)

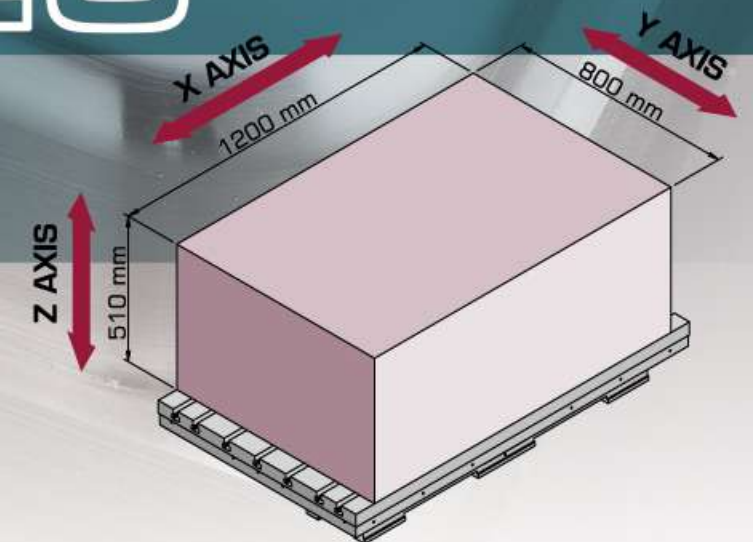
## PT - 128

## PT - 86

The PT-86 Machining Center Provides X/Y/Z Axes Travels of 800/600/510 mm.



The PT-128 Machining Center Provides X/Y/Z Axes Travels of 1,200/800/510 mm.



# CAMERA CORE



**Total Machining Times: 4hrs 30min**  
**Surface Roughness: Ra 0.3  $\mu$ m**

#### Main Machining Conditions

Sample Size: 105 x 65 x 45 mm

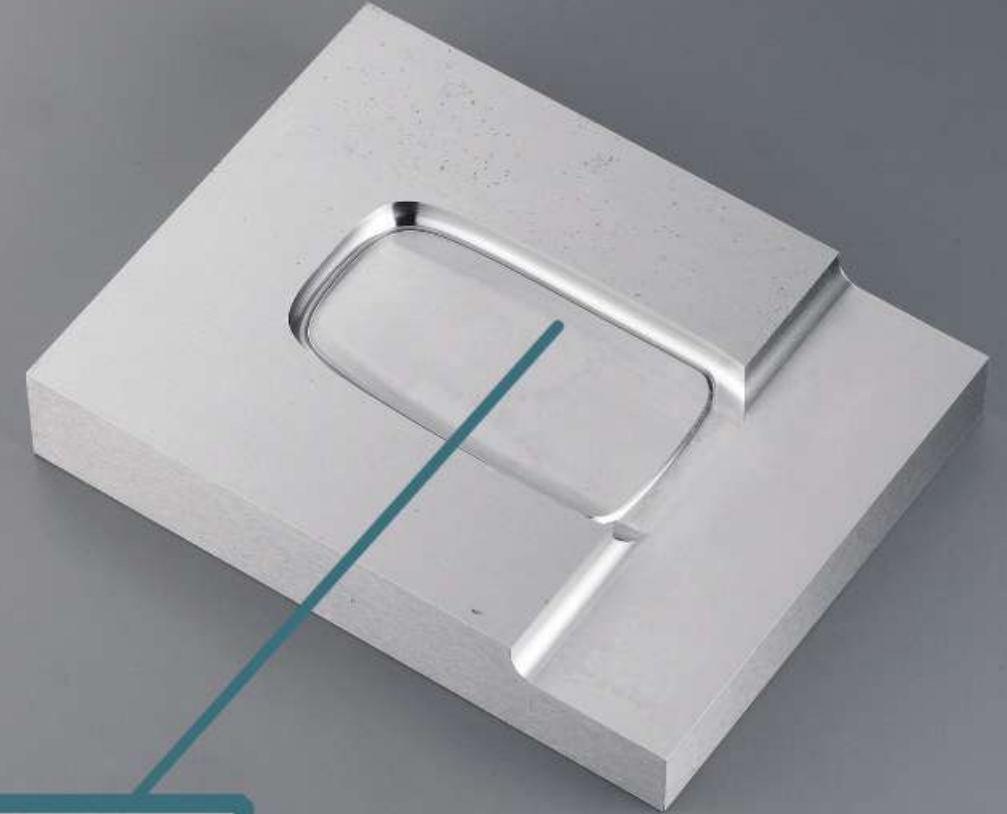
Material: NAK80 (HRC40)

Tool: R2 Ball - endmill

Spindle Speed: 14,000 rpm

Cutting Feed: 1,000 mm/min

# CELLULAR PHONE CAVITY



**Total Machining Times: 2hrs 30min**  
**Surface Roughness: Ra 0.3  $\mu$ m**

#### Main Machining Conditions

Sample Size: 130 x 100 x 24 mm

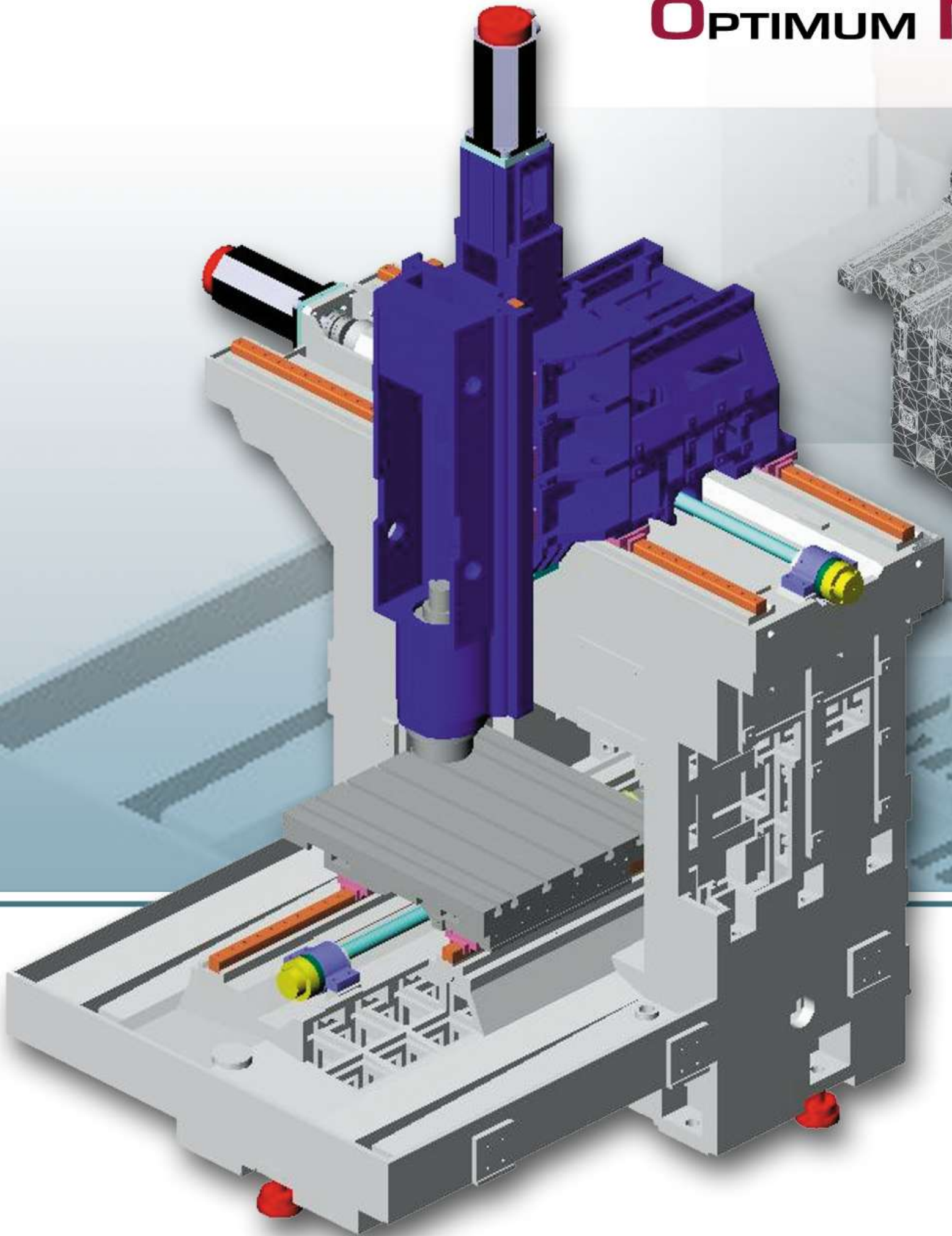
Material: NAK80 (HRC40)

Tool: R2 Ball - endmill

Spindle Speed: 14,000 rpm

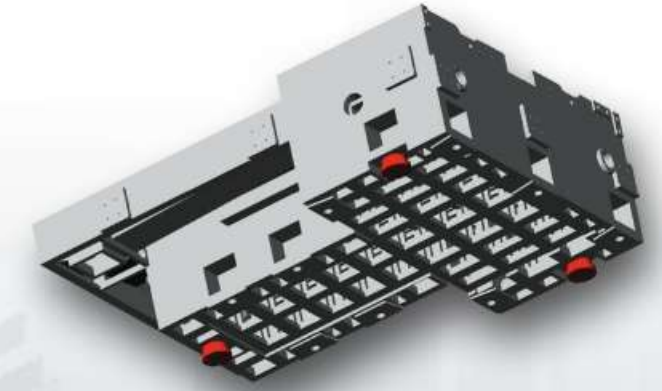
Cutting Feed: 1,000 mm/min

# OPTIMUM MACHINE STRUCTURAL DESIGN



## FINITE ELEMENT ANALYSIS

To ensure the best structural rigidity design and machine service life, the major casting parts are analyzed by advanced "Finite Element Analysis."

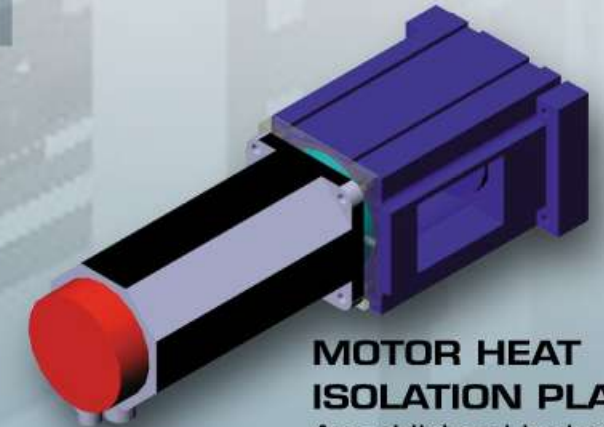
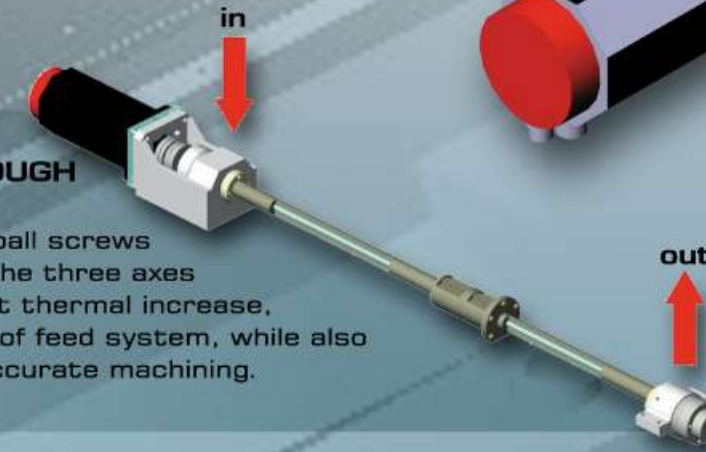


## THREE-POINT SUPPORT CONSTRUCTION

The base is three-point supported, providing a solid support for high speed, high precision machining.

## COOLANT THROUGH BALL SCREW

Coolant through ball screws and bearings on the three axes effectively prevent thermal increase, upgrade stability of feed system, while also ensuring highly accurate machining.



## MOTOR HEAT ISOLATION PLATE

An additional isolation plate is equipped under the servo motor. It prevents the heat generated from motor transferring to the machine structure, while also ensuring the machine's accuracy.

## *Maximum Rigidity.... Maximum Stability*

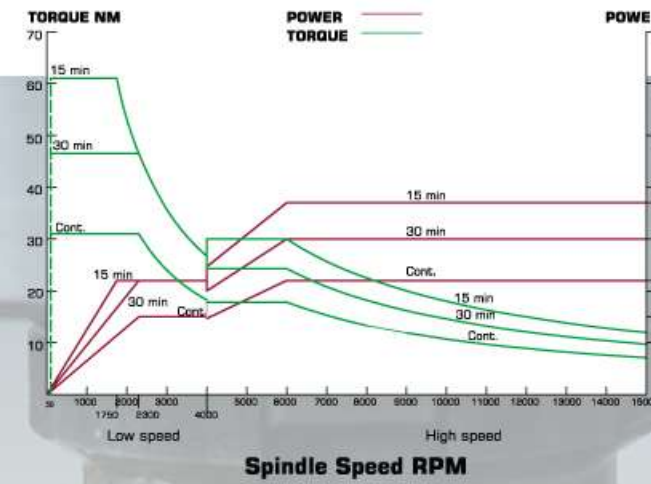
- Major structural parts of the machine are manufactured from high quality Meehanite cast iron for superior rigidity and machining stability.
- Major structural parts are scientifically reinforced by cross-shaped ribs for stable accuracy and good rigidity while lightening structural weight.
- X, Y-axes are separately located on columns and base to eliminate overlapped load and any overhang problems.
- Linear roller guide ways on three axes feature extra stable and smooth motion, and high speed.

# HIGH SPEED SPINDLE

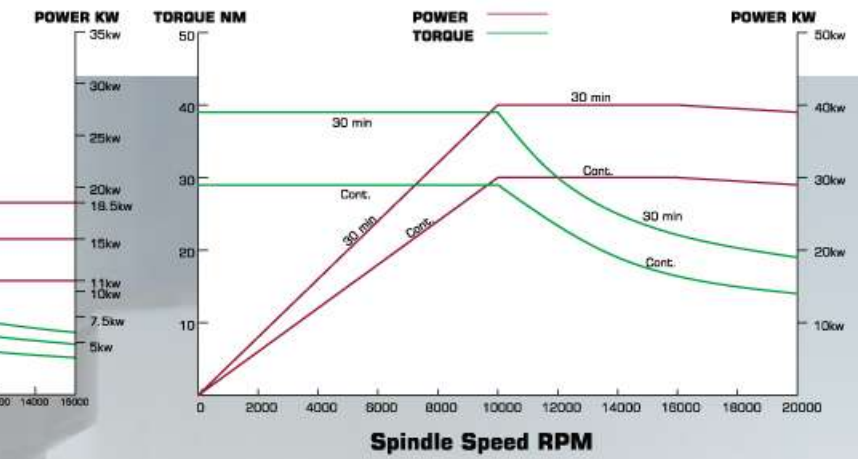


## SPINDLE POWER / TORQUE DIAGRAM

### 15,000 RPM (Std.)



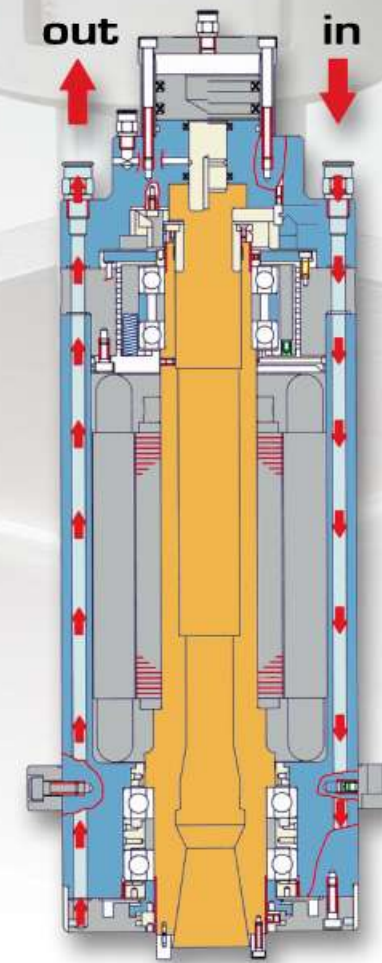
### 20,000 RPM (Opt.)



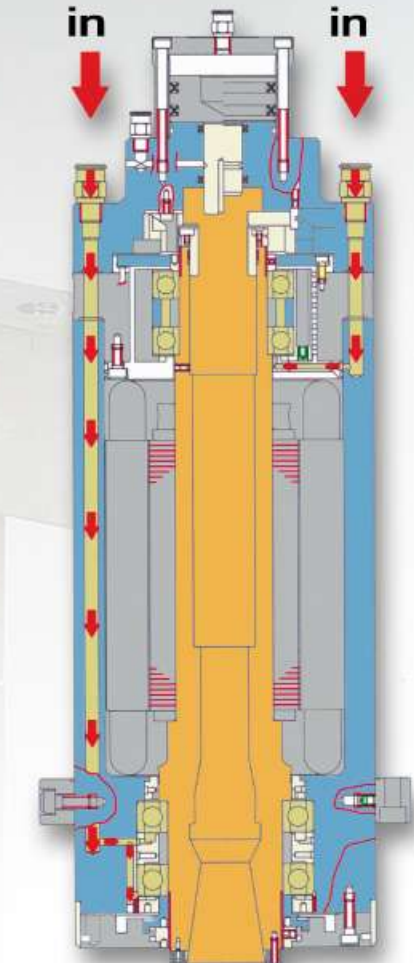
## SPINDLE TEST REPORT

Thermal displacement	under 20 $\mu\text{m}$
Vibration value	under 1.5 $\mu\text{m}$
Dynamic balance	under G1
Noise value	under 78dB
Continuous running test for 72 hours	
(Test in a controlled, room-temperature environment.)	

- The advanced built-in type spindle provides maximum speed up to 20,000 rpm, making it excellent for mold and precision parts machining.
- To ensure the long service life of the spindle running at high speed, the spindle is mounted on ceramic bearings. An oil air lubrication system (20,000 RPM) is applied to directly lubricate the bearings for minimizing heat generation on the spindle.
- A heat sensor is equipped to detect the spindle temperature. Once overheating occurs, the spindle stops running automatically.
- The forced cooling system for the spindle completely removes heat from the spindle, assuring maximum machining stability.
- The advanced built-in type spindle features simplified construction, full output of horsepower and torque.



Cooling System



Lubrication System

## SEPARATELY MOUNTED MAGAZINE



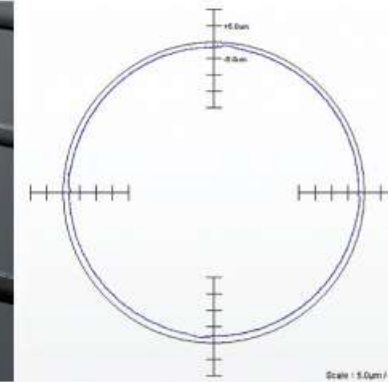
- The tool magazine is separately mounted from the machining area to prevent contamination from chips or coolant.
- The disc type magazine provides a choice of 20 or 40 (PT-128 Opt.) tool loading capacity with #40 tool shank.
- The tool magazine is driven by a servomotor for upgrading tool change speed and accuracy.
- The separate tool magazine also allows for machining increased-size workpieces.

## MEETS ENVIRONMENTAL PROTECTION REQUIREMENTS



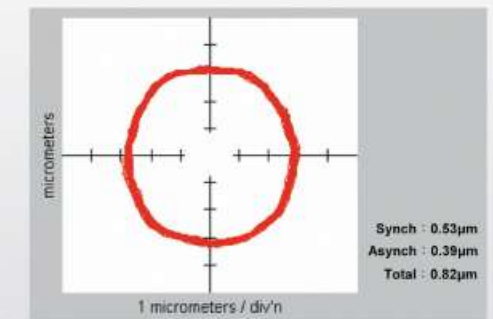
Ball screws and linear motion guides on 3 axes are manually greased, providing convenient maintenance and reducing lubricant consumption.

## SOPHISTICATED INSPECTION INSTRUMENTS ALLOWS HIGH PRECISION INSPECTIONS.



### Grid Encoder Test

To assure outstanding two-dimensional contour accuracy



### Spindle Dynamic Running Accuracy Test

Sophisticated spindle running testing equipment is applied to inspect the spindle running accuracy.

## Automatic Tool Length Measuring Device (optional)



### Contact Type

The tool length measuring device is used for detecting the tool wear condition while assuring machine accuracy at all times.

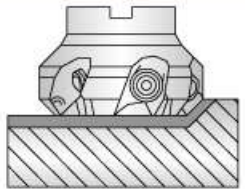
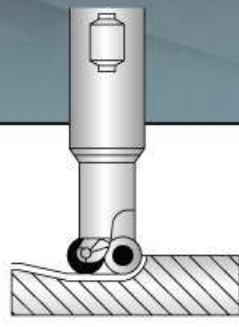
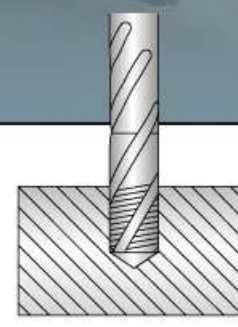
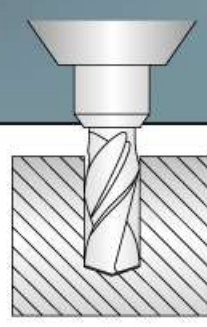


### Non-Contact Type

The laser tool length measuring device is used for detecting the tool wear condition while assuring machine accuracy at all times.

# MACHINING CAPABILITY

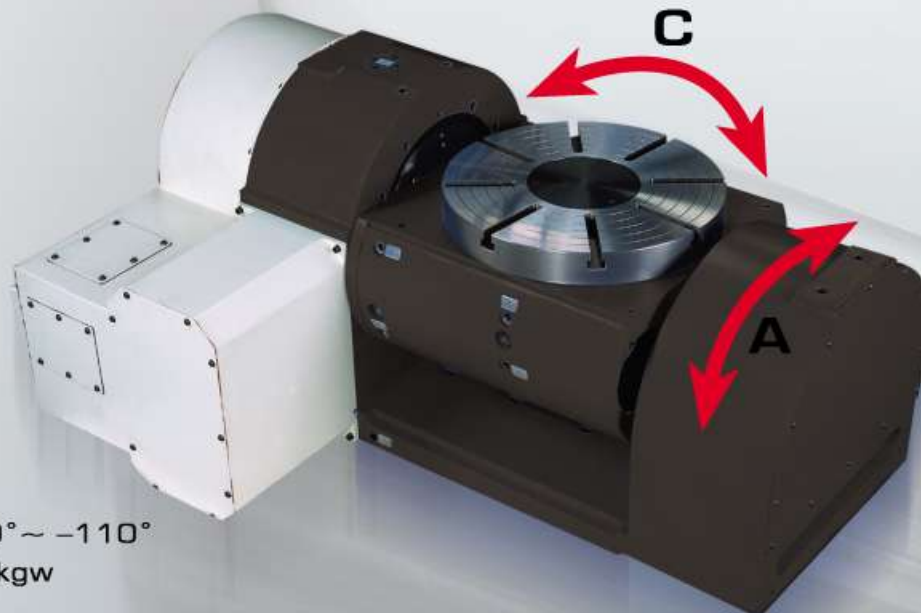


			
<b>Face Milling</b>	<b>End Milling</b>	<b>Drilling</b>	<b>Tapping</b>
Ø50 252 cc/min 2 mm Depth	Ø35 R5 225 cc/min F 7500	Ø18 F 100 mm/min 30 mm Depth	M16 F 280 mm/min 25 mm Depth

## 4th/5th AXES ROTARY TABLE (EQUIPPED ON PT-128 ONLY)

Allowing flexible machining of circular and prismatic parts.

- C-axis rotating angle: 360°
- A-axis rotating angle: +110° ~ -110°
- Max. loading capacity: 300 kgw



# CONVENIENT SETUP AT ALL TIMES



## CONVENIENT STORAGE CABINET

Additional storage space for convenient storage of operation manuals.



## CONVENIENT TOOL SETUP

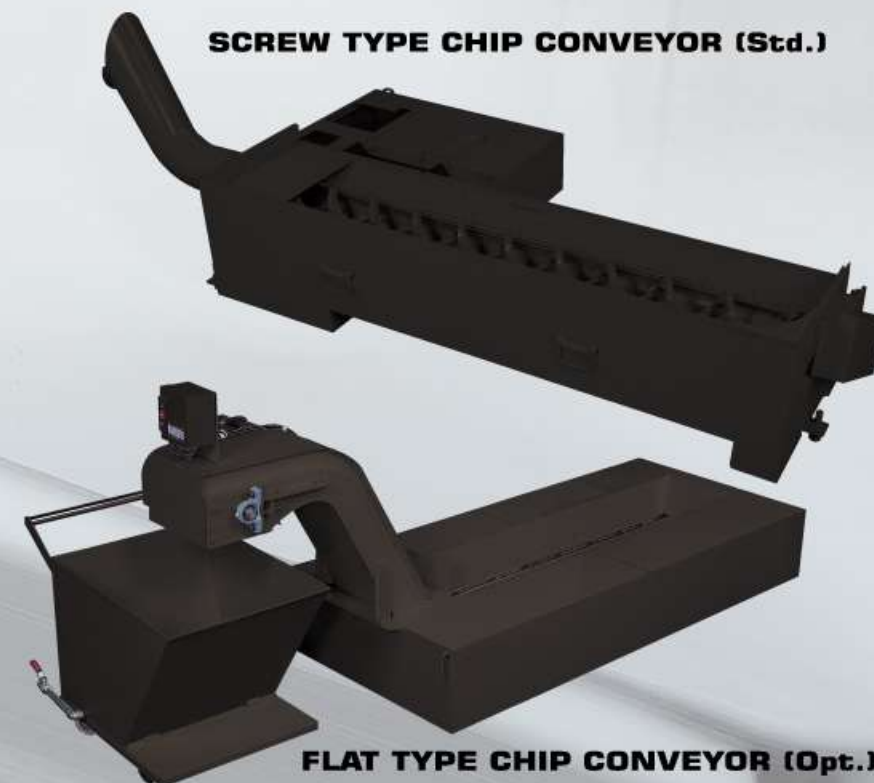
The tool magazine door is located at the side of the machine and is convenient for tool setup.



## POWERFUL COOLANT WASH DEVICE

- Powerful coolant wash devices are provided at the both side of the machine base flushing the chips to the front of machine.
- The coolant wash device quickly removes chips and dissipate heat on the chips.

# RECOMMENDED TYPES OF CHIP CONVEYORS



SCREW TYPE CHIP CONVEYOR (Std.)

FLAT TYPE CHIP CONVEYOR (Opt.)

Cutting Shape	Material	Steelbelt Chip Conveyor	Screw Type Conveyor
Metallic Chip		<input type="radio"/>	<input type="radio"/>
Cast Chip		<input type="radio"/>	<input type="radio"/>
Curly Aluminum Chip		<input type="radio"/>	<input type="radio"/>
Aluminum Chip		<input type="radio"/>	<input type="radio"/>
Non-Metallic Chip		<input type="radio"/>	<input type="radio"/>

## Machine Specifications

MODEL	PT-86	PT-128
<b>TABLE</b>		
Working surface	800 x 750 mm	1350 x 800 mm
T slot (size x number x distance)	18 x 5 x 125 mm	18 x 5 x 125 mm
Max. table load	800 kgw	1600 kgw
<b>TRAVEL</b>		
Longitudinal travel (X)	800 mm	1200 mm
Cross travel (Y)	600 mm	800 mm
Headstock travel (Z)	510 mm	
Distance between spindle nose and table top	150~660 mm	
<b>SPINDLE</b>		
Spindle taper	No. 40	
Spindle speeds	15000 (20000) r.p.m.	
<b>FEED</b>		
Cutting feed	1~20000 mm/min	
Rapid traverse	30/30/30 m/min	
Minimum input increment	0.5 μm	
<b>ATC (Auto. Tool Changer)</b>		
Tool storage capacity	20 tools	20 (40) tools
Tool holder	BBT40	
Max. tool dia. x length	∅ 90x300 mm	
Max. tool weight	7 Kgw	
Max. tool dia. of adjacent pots are empty	∅ 135 mm	
Tool selection	Random	
<b>ACCURACY</b>		
Positioning accuracy (ISO 230-2)	0.010 mm	
Repeatability accuracy (ISO 230-2)	0.007 mm	
<b>MOTORS</b>		
Spindle motor (30 min. rating/continuous rating)	15/11 (40/30) Kw	
Drive motors (X,Y,Z axis)	7 Kw	
<b>INSTALLATION REQUIREMENTS</b>		
Power requirement	220V±10%; 50/60HZ±2%; 55KVA	
Air pressure	6 bar (kgf/cm <sup>2</sup> )	
Air flowrate	1000 l/min	
Floor space	4250 x 4110 mm	4300 x 4910 mm
Net weight	12000 Kgw	13500 Kgw
<b>CNC CONTROLLER</b>		
Controller	FANUC 18i	

■ Design and specifications are subject to change without prior notice.

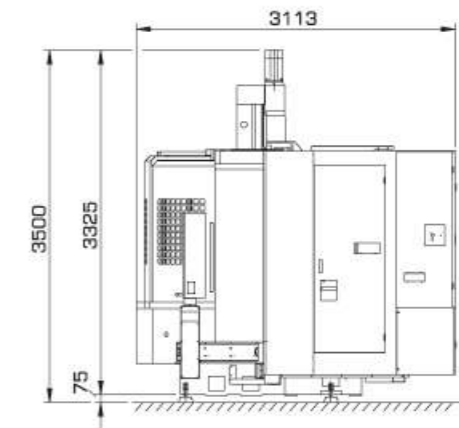
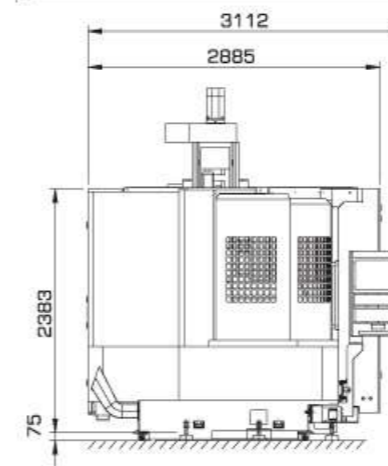
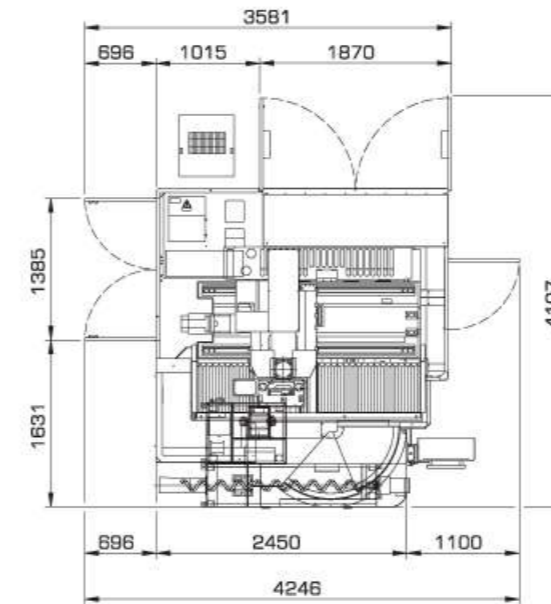
### STANDARD ACCESSORIES:

- Spindle cooling device
- Heat exchanger
- Removable manual pulse generator
- X, Y, Z coolant through ballscrew
- X, Y, Z linear guide ways
- X, Y, Z linear scale system
- Coolant wash device
- Screw type chip conveyor + chip wagon
- Call light
- Work light
- Coolant and air gun
- Enclosed splash guard
- Tool kit

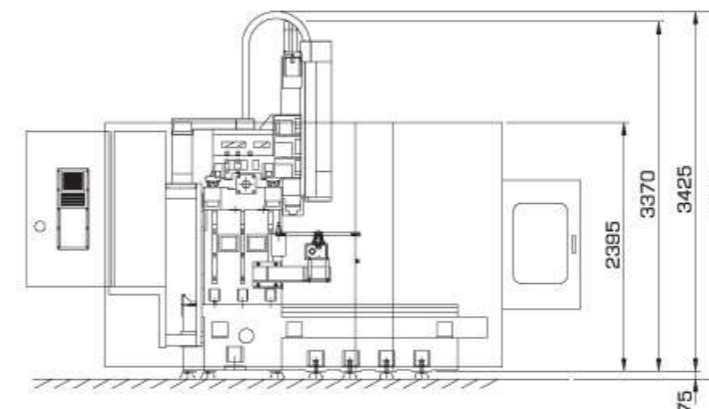
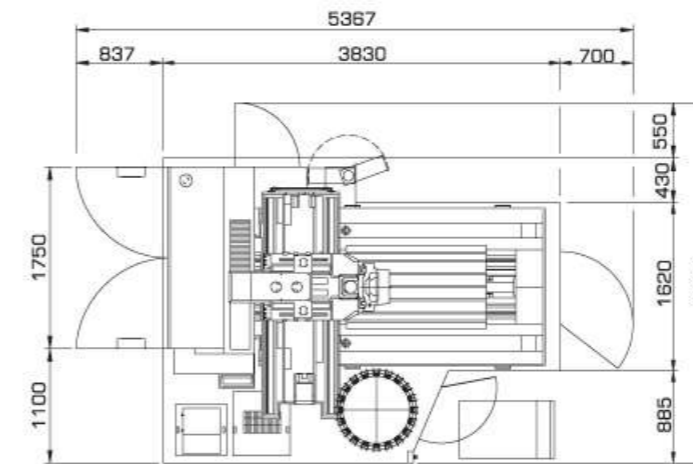
### OPTION ACCESSORIES:

- 20,000 r.p.m spindle speeds
- Coolant system:
  - a. Coolant through tool
  - b. Coolant through spindle with filter
  - c. Coolant filter for through spindle
  - d. Coolant around spindle
- Oil mist device
- Oil mist collector
- Flat type chip conveyor+chip wagon
- Oil skimmer
- Automatic centering device
- Tool breakage detection device
- Tool length measuring device
- Air conditioner
- 40 tools cam type A.T.C (PT-128 only)

## Machine Dimensions



### PT-86



### PT-128

