



DAHLIH



Machines That Create Value



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The Latest and Best Quality Machinery.
DAHLIH®

PORTAL TYPE MACHINING CENTER

PT-128A
PT-1480



DAHLIH MACHINERY INDUSTRY CO., LTD.

Accuracy

Results from Our
Care to Every Detail



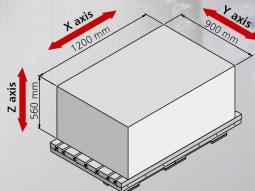
PT-128A / PT-1480

PORTAL TYPE MACHINING CENTER

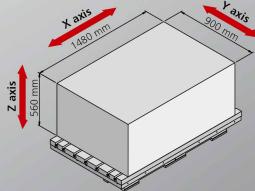
Outstanding Features:

- » Double column construction exhibits exceptional stability in high speed machining.
- » Choice of 12,000 or 15,000 rpm direct-drive spindle.
- » X, Y, Z axes are all mounted with roller type linear motion guides featuring outstanding heavy load capacity.
- » Rapid traverse rate on X, Y, Z-axes reach 30 m/min.
- » Innovative thermal compensation function for spindle.

PT-128A Maximum Processing Parts



PT-1480 Maximum Processing Parts



X / Y / Z-Axis Travel 1,200 / 900 / 560 mm
X / Y / Z-Axis Travel 1,480 / 900 / 560 mm

Applicable industries:

- » Aerospace parts machining.
- » Complex dies and mold machining.
- » Precision parts machining.



Double Column Construction with Optional Thermal Suppression

- » The symmetrical design of double column construction leads to an optimal thermal suppression features.
- » 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 base and columns to eliminate overlapped load.
- » The table is fully supported to eliminate overhang and displacement problems, while ensuring the highest machining accuracy.
- » Linear motion guides on three axes features extra stable smooth motions and meet the requirement of high speed machining.



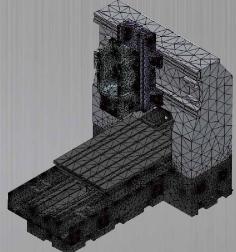
STABLE, HEAVY LOADING TABLE

The table moves on roller expa Linear guideways with six blocks that feature stable and fast movement as well as heavy loading resistance.



RAM TYPE SPINDLE HEAD

The spindle head is a ram type design in order to minimize temperature rise and deflection problem.



FINITE ELEMENT ANALYSIS

To ensure the best structural rigidity and machine life, the major casting parts are analyzed by advanced "Finite Element Analysis" software to achieve an optimum design of structure.



Ø50 LARGE DIAMETER BALL SCREW ON X-AXIS

X-axis is designed with precessioned disc spring, providing stable cutting feed and improved machining accuracy.

12,000/15,000 rpm Direct-Drive Spindle

With Lower Cost than that of a Built-in Type Spindle

Low Cost

» The high speed direct drive spindle is lower cost than that of a built-in type spindle.

Low Vibration & Low Noise

» The direct spindle is not affected by a side force that usually occurs on a belt drive spindle, therefore it helps to reduce vibration, noise and tool wear.

Convenient to Install and Maintain

» The direct drive spindle is easy to install. As the spindle and the motor is separated, its maintenance cost is lower than that of a built-in type spindle.

High Rigidity

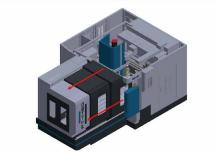
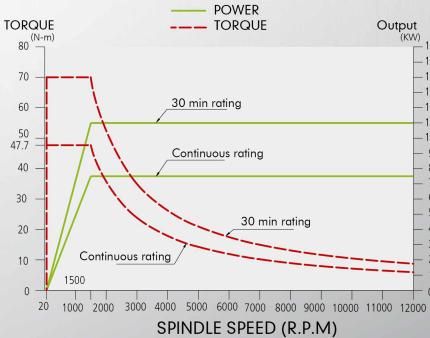
» The inside diameter of spindle bearing is Ø70mm, featuring high rigidity to resist heavy cutting.

High Precision

» The temperature growth and motor heat of the direct-drive spindle have less affection in spindle head displacement than a belt-drive spindle, as such it can provide more stable machining accuracy.

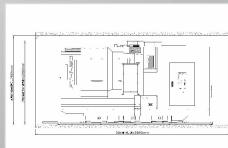


12,000 rpm Direct-Drive Spindle



OPEN-TOP GUARD

The machine top and front have fully opened doors, allowing the operator to load and unload workpiece with ease by hand or crane.



CONTAINER LOADING ABLE TO SAVE FREIGHT COSTS

The PT-128A can be directly fitted into a container for saving freight and reassembling time.



OPTIONAL EQUIPMENT



Air conditioner



Automatic workpiece measuring device



4th axis rotary table



Paper filter



Coolant through spindle device (20,30,50,70 kgs)



Automatic tool length measuring device (Dah Lih, Renishaw or Blum)

Providing Users With a Perfect Solution For Higher Quality and Efficiency



Lift up type chip conveyor

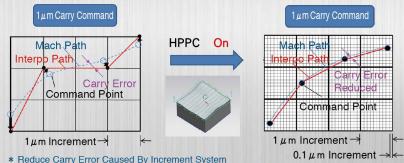
Chip shape	Material	Steel belt chip conveyor	Screw type conveyor
Metallic chip		<input type="radio"/>	<input type="radio"/>
Cast chip			<input type="radio"/>
Curly Aluminum chip		<input type="radio"/>	
Aluminum Chip			<input type="radio"/>
Non-Metallic chip		<input type="radio"/>	<input type="radio"/>

Fine Surface Control (FSS)

A Combination of Speed, Accuracy, and Quality

HIGH PRECISION PROGRAM COMMAND (HPPC)

The increase of program accuracy may reduce pitch errors, which in turn upgrades the smoothness of curve connection, reduces level difference on machining surface, while keeping the same machining time.

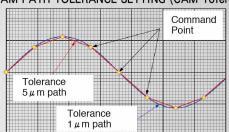


SMOOTH TOLERANCE CONTROL (STC)

The poor machining surface caused by tool path usually consists of many short lines. Now with the use of the Smooth Tolerance Control function of the CNC, smoother surface effects can be achieved. The STC Function offers the operator a choice , either by selecting the tolerance of 5μm – this provides the fastest cycle time or with the tolerance 1μm provides the best profile with a smoothed tool path.

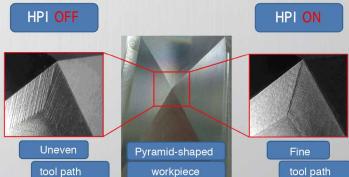


PROGRAM PATH TOLERANCE SETTING (CAM Tolerance)



HIGH PRECISION INTERPOLATION (HPI) (An Optional Function for Mold Machining Equipment):

The submicron command control technology in combination with high resolution program path planning can reach the optimal tool path grain on surfaces, which aids in dramatically upgrading the machining surface quality.



Advanced CNC Controller

This machine is possible to be equipped with various controllers, such as FANUC, HEIDENHAIN or other brands of CNC controllers.



Outstanding Machining Capacity

FACE MILLING

Chip Removal Rate

367 cc/min

Tool: Ø63mm x 6T
Spindle speed: 1500 rpm
Feed rate: 2250 mm/min
Machining width: 60 mm
Machining depth: 2.7 mm

FACE MILLING

Cutting Depth

7.5 mm

Tool: Ø80 mm x 5T
Spindle speed: 477 rpm
Feed rate: 238 mm/min
Machining width: 65 mm
Machining depth: 116 cc/min

END MILLING

Chip Removal Rate

367 cc/min

Tool: Ø16 mm x 4T
Spindle speed: 2995 rpm
Feed rate: 2388 mm/min
Machining width: 10 mm
Machining depth: 15.4 mm

END MILLING

Chip Removal Rate

1206 cc/min

Tool: Ø40mm x 4T
Spindle speed: 12000 rpm
Feed rate: 5000 mm/min
Machining width: 28 mm
Machining depth: 8.62 mm

DRILLING

Drilling Diameter

Ø48 mm

Tool: Ø48 mm x 2T
Spindle speed: 1150 rpm
Feed rate: 230 mm/min

DRILLING

Tapping

M30

Tool: M30
Spindle speed: 58 rpm
Feed rate: 203 mm/min

* The spindle motor power required for above-mentioned machining examples is 15/18.5KW.

Examples Of Parts Machining

AEROSPACE PART



Material: Aluminum 7075-T6
Sizes: 430 x 430 x 80mm
Machining time: **8** hours

PNEUMATIC PART



Material: Stainless steel
Sizes: 150 x 150 x 25mm
Machining time: **20** hours

BLADE



Material: Aluminum 7075-T6
Sizes: Ø100 x 55mm
Machining time: **6** hours

PRECISION MOLD



Material: P20 (HRC30)
Sizes: 420 x 360 x 60mm
Machining time: **7** hours

FORGING MOLD



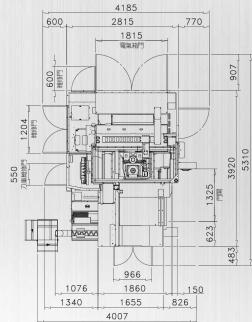
Material: SKD61 (HRC43)
Sizes Ø140 x 70mm
Machining time: **4** hours

INJECTION MOLD

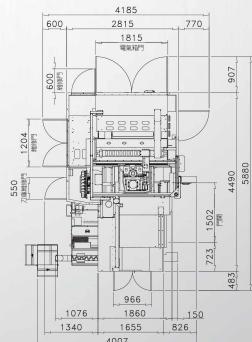


Material: NAK80 (HRC40)
Sizes: 160 x 120 x 40mm
Machining time: **10** hours

Machine Dimensions



PT-128A



PT-1480

Specifications, Accessories and Dimensions

SPECIFICATIONS

MODEL	UNIT	PT-128A	PT-1480
TABLE			
Table work surface area (X axis x Y axis)	mm	1350 x 900	1600 x 900
T-slot (W x no. x pitch)	mm	18 x 5 x 125	18 x 5 x 125
Max. table load	kgw	1600	2500
Distance from table to floor	mm	820	820
TRAVEL			
X-axis travel	mm	1200	1480
Y-axis travel	mm	900	900
Z-axis travel	mm	560	560
Dist. from spindle nose to table surface	mm	150~710	150~710
Distance between columns	mm	1040	1040
Slideway type (X / Y / Z-axis)		Roller type linear way	
X, Y, Z-axis transmission		Flexible type	
FEED			
Rapid traverse rate	mm/min	30, 30, 30	30, 30, 30
Cutting feed rate	mm/min	1~20000	1~20000
Min. feed unit	mm	0.001	0.001
SPINDLE			
Spindle type		Direct-drive	
Spindle motor (continuous rating/30 min.rating)		α 8/12000i, 11kW(14.7HP)	α 8/12000i, 11(14.7)
Spindle nose taper		N.T.40	N.T.40
Spindle speed	rpm	12000	12000
Spindle bearing bore diameter	mm	Ø70	Ø70
Cooling / Lubrication		Oil cooling / grease lub.	Oil cooling / grease lub.
ATC (Automatic Tool Changer)			
Tool magazine capacity	tools	24	24
Tool shank type		BBT40	BBT40
Pull stud		Jaw type 45° pulling head	Jaw type 45° pulling head
Max. tool weight	kgw	7	7
Max. tool length	mm	300	300
Max. tool dia. (without adjacent tool)	mm	Ø75 (Ø150)	Ø75 (Ø150)
Tool selection		Random	Random
CNC CONTROLLER			
		FANUC 0iMF	FANUC 0iMF
OTHERS			
Power required	KVA	36	36
Air pressure required (Air supply)	kg/cm ²	6	6
Coolant tank capacity (Full / actual capacity)	l	300	300
Machine weight	kgw	11200	12000
Space occupied	mm	4185 x 5310	4185 x 5880

■ Specifications are subject to change without prior notice.

» STANDARD

1. Spindle cooling device
2. Heat exchange
3. Removable manual pulse generator
4. X,Y,Z-axis roller type linear guide ways
5. Screw type chip conveyor + chip wagon
6. Call light (three layers)
7. Work light
8. Coolant and air gun
9. Enclosed splash guard
10. Tool kits

» OPTIONS

1. 15,000 rpm direct-drive spindle
2. 15,000 rpm built-in type spindle
- 20,000 rpm built-in type spindle
3. Coolant through spindle device (15,30,50,70 bar)
4. Coolant through ball screw on 3 axes
5. Linear scales on 3 axes
6. Oil mist device
7. Oil mist collector
8. Flat type chip conveyor + chip wagon
9. Oil skimmer
10. Automatic centering device
11. Tool breakage detecting device
12. Tool length measuring device
13. Air conditioner for electrical cabinet