DAHLIH

Machines That Create Value

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022-D2-00-038

1000.03, 2026E1

The Latest and Best Quality Machinery.

DAHLIH®

PORTAL TYPE
MACHINING CENTER

PT-128A
PT-1480

DAH LIH MACHINERY INDUSTRY CO., LTD.

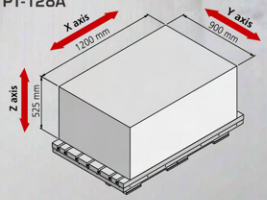
Accuracy
Results from Our Care to Every Detail

PT-128A / PT-1480
PORTAL TYPE MACHINING CENTER

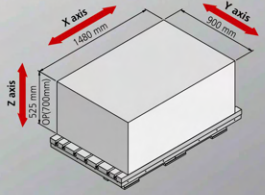
Outstanding Features:
» Double column construction exhibits exceptional stability in high speed machining.
» Choice of 12,000 or 15,000 rpm direct-drive spindle.
» X, Y, Z axes are all mounted with roller type linear motion guides featuring outstanding heavy load capacity.
» Rapid traverse rate on X, Y, Z-axes reach 30 m/min.
» Innovative thermal compensation function for spindle without need of temperature sensor. It provides automatic compensation for thermal deformation of spindle that upgrades machining accuracy, while ensuring stable machining over a long time.

Maximum Processing Parts

PT-128A



PT-1480

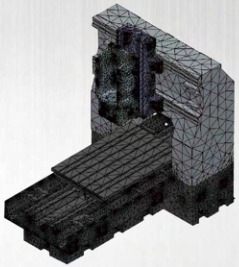


X / Y / Z-Axis Travel 1,200 / 900 / 560 mm
X / Y / Z-Axis Travel 1,480 / 900 / 560 mm (OP 700 mm)

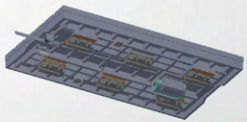
Applicable industries:
» Aerospace parts machining.
» Highly difficult complex mold and die machining.
» Precision parts machining.

Double Column Construction with Optional Thermal Suppression

» The symmetrical design of double column construction loads to an optimal thermal suppression features.
» All major structural castings are made of high-damping cast iron and optimized through CAE analysis to achieve superior structural 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 base and columns to eliminate overlapped load.
» The table is fully supported to eliminate overhang and displacement problems, while ensuring the highest machining accuracy.
» Roller-type linear guideways on three axes features extra stable smooth motions and meet the requirement of high speed machining.

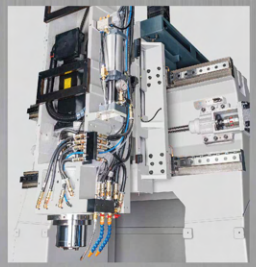


FINITE ELEMENT ANALYSIS
To ensure the best structural rigidity and machine life, the major casting parts are analyzed by advanced "Finite Element Analysis" software to achieve an optimum design of structure.

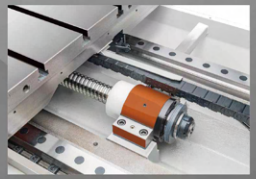


STABLE, HEAVY LOADING TABLE
PT-1480 the table moves on roller expe linear guideways with six blocks that feature stable and fast movement as well as heavy loading resistance.

RAM TYPE SPINDLE HEAD (PT-128A + PT-1480)
The spindle head is a ram type design in order to minimize temperature rise and defection problem.



RAM TYPE SPINDLE HEAD PT-1480 (Z-axis travel 700 mm is optional)
Upon request, Z-axis travel is available to increase ise to 700 mm for increasing working range. The spindle head moves on roller type linear gelide ways with & blocks, providing. maximum scability in machining and rapid traverse.



Ø50 LARGE DIAMETER BALL SCREW ON X-AXIS
X-axis is designed with precensioned disc spring, providing stable creting feed and improved machining accuracy.

Direct-coupled spindles offer lower maintenance costs compared to built-in spindles

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.

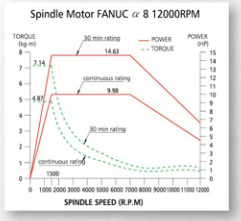
Convenient to Install and Maintain
» The direct drive spindle is easy to install. As the spindle and the motor is separated, its maintenance cost is lower than that of a built-in type spindle.

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.

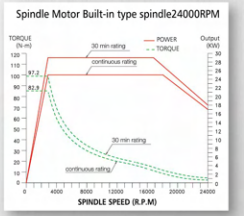
SPINDLE POWER / TORQUE DIAGRAM

DIRECT DRIVE SPINDLE
» Spindle taper: BBT/HSK
» Selection of spindle speeds:
12,000 / 15,000 / 18,000 rpm

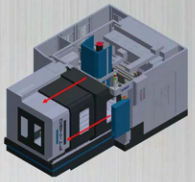


12,000 RPM
Direct drive spindle (Optional)
15,000 rpm direct-drive spindle (optional)
15,000/18,000 rpm direct-drive
oil mist lubricated spindle (optional)

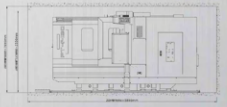
BUILT-IN TYPE SPINDLE
» Spindle taper: HSK
» Selection of spindle speeds:
20,000 / 24,000 rpm



24,000 RPM
Built-in type spindle (Optional)



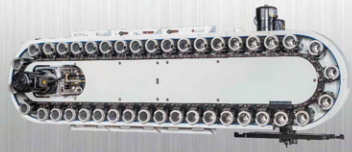
OPEN-TOP GUARD
The machine top and front have fully opened doors, allowing the operator to load and unload workpiece with ease by hand or crane.



CONTAINER LOADING ABLE TO SAVE FREIGHT COSTS
The PT-128A can be directly fitted into a container for saving freight and reassembling time.
(PT-1480 with optional 700 mm of Z-axis travel should be dismantled before loading it into a container.)

Quality and Efficiency - The Perfect Solution from **DAHLIH**

SEPARATE MOUNT CHAIN TYPE MAGAZINE

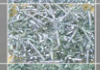


The cam type magazine rotation is driven by cylindrical cam for fast and dependable tool change. Random tool selection provides efficient tool changing.

Cam Mechanism ATC		24	40 / 60
Max. Tool Dia. x Length	Ø x mm Ø x inch	Ø75 x 300 Ø2.95 x 11.81	Ø75 x 300 Ø2.95 x 11.81
Max. Tool Weight	kg lbs	7 15	7 15
Max. Tool Dia. of Adjacent Pots are Empty	Ømm Øinch	Ø150 Ø5.9	Ø127 Ø5

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		○	○
Cast chip			○
Curly Aluminum chip		○	
Aluminum Chip			○
Non-Metallic chip		○	○

More Powerful and Efficient Operations with Extra Optional Accessories

Air conditioner

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

Automatic workpiece measuring device

4th axis rotary table

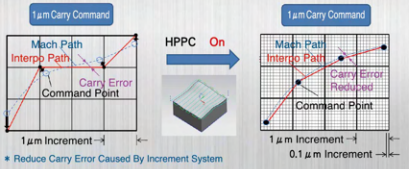
Paper filter

Coolant through spindle device (20,30,50,70 kgs) (Tool not included)

Fine Surface Control (FSS) A Combination of Speed, Accuracy, and Quality

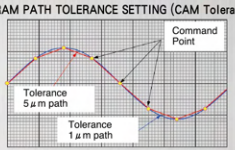
HIGH PRECISION PROGRAM COMMAND (HPPC)

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.



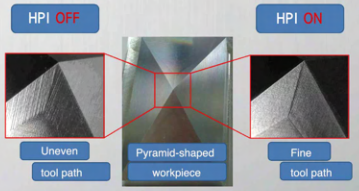
SMOOTH TOLERANCE CONTROL (STC)

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.



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

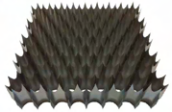
＊The spindle motor power required for above-mentioned machining examples is 15/18.5KW.

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

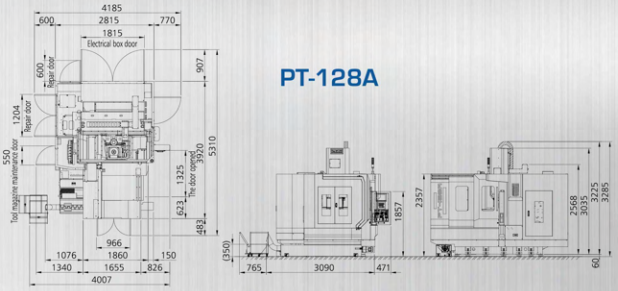
Material: SKD61 (HRC43)
Sizes Ø140 x 70mm
Machining time: **4** hours

INJECTION MOLD

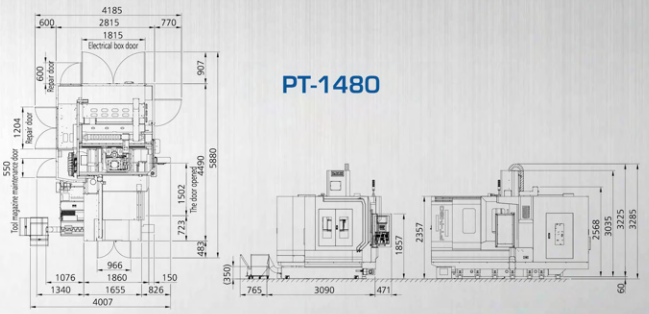
Material: NAK80 (HRC40)
Sizes: 160 x 120 x 40mm
Machining time: **10** hours

Machine Dimensions

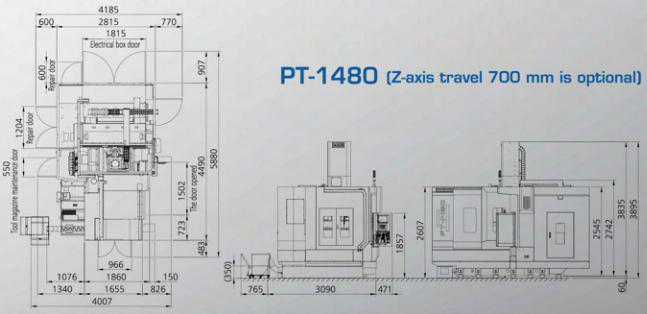
PT-128A



PT-1480



PT-1480 (Z-axis travel 700 mm is optional)



Specifications, Accessories and Dimensions

SPECIFICATIONS

MODEL	UNIT	PT-128A	PT-1480	PT-1480 (Z-axis travel 700 mm is optional)
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 150	18 x 5 x 150	
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	700
Dist. from spindle nose to table surface	mm	150~710	150~710	100~800
Distance between columns	mm	1040	1040	
Slideway type (X / Y / Z-axis)		Roller type linear way		
X, Y, Z-axis tramsnission		Flexible type		
FEED				
Rapid traverse rate	m/min	30, 30, 30		
Cutting feed rate	mm/min	1~20000		
Min. feed unit	mm	0.001		
SPINDLE				
Spindle type		Direct-drive		
Spindle motor (continuous rating/30 min.rating)		α8/12000i, 11(14.7)		
Spindle nose taper		N.T.40		
Spindle speed	rpm	12000		
Spindle bearing bore diameter	mm	Ø70		
Cooling / Lubrication		Oil cooling / grease lub.		
ATC (Automacic Tool Changer)				
Tool magazine capacity	tools	24		
Tool shank type		BBT40		
Pull stud		Jaw type 45° pulling head		
Max. tool weight	kgw	7		
Max. tool length	mm	300		
Max. tool dia. (without adjacent tool)	mm	Ø75 (Ø150)		
Tool selection		Random		
CNC CONTROLLER		FANUC 0iMF		
OTHERS				
Power required	KVA	36		
Air pressure required (Air supply)	kg/cm²	6		
Coolant tank cappacity (Full / actual capacity)	l	300		
Machine weight	kgw	11200	12000	13000
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 / 18,000 rpm direct-drive oil mist lubricated spindle.
3. 20,000 / 24,000 rpm built-in type spindle
4. Coolant through spindle device (20, 30, 50, 70 bar)
5. 40T / 60T Chain type tool magazine
6. Linear scales on 3 axes
7. Oil mist device
8. Oil mist collector
9. Flat type chip conveyor + chip wagon
10. Oil skimmer
11. Automatic centering device
12. Tool breakage detecting device
13. Tool length measuring device
14. Air conditioner for electrical cabinet