THE ULTIMATE MACHINING POWER

AWEA MECHANTRONIC CO., LTD.

HEADQUARTERS
629, Suezhetou Section, Kwanpu Rd., Wenshan Li,
Hsinpu, Hsinchu 305, Taiwan
TEL : +886-3-588-5191
FAX : +886-3-588-5194
Website : www.awea.com

CENTRAL TAIWAN SCIENCE PARK BRANCH
15, Keyuan 2nd Rd., Central Taiwan Science Park,
Taichung 407, Taiwan
TEL : +886-4-2462-9698
FAX : +886-4-2462-8002
E-mail : sales@awea.com

ISO 9001 ISO 14001 CE

AGENT

A-AH SERIES-EN-F-20140630

AH SERIES

ULTRA PERFORMANCE HORIZONTAL MACHINING CENTERS

THE ULTIMATE MACHINING POWER

AH Series 500 / 630

ULTRA PERFORMANCE HORIZONTAL MACHINING CENTERS

The AH series undergoes a stringent inspection process and is the top horizontal machining center in its class, featuring advanced and progressive designs.

- In order to fulfill various working conditions, the machine can be equipped with a 10,000 rpm direct drive spindle or a 705 N-m gear spindle.
- The heavy-duty working table can hold up to 1,200 kgs (2645 lbs) and only takes 16 seconds to change, effectively increasing production.
- Three axes movement, tool changer, worktable, and other main components are driven by servo motors. This will control the speed of the movement efficiently thereby reducing heat.
- The complete coolant chip removal system consists of two chip augers, chip conveyor and a large volume tank that can remove chips efficiently.

AH-630 half cover

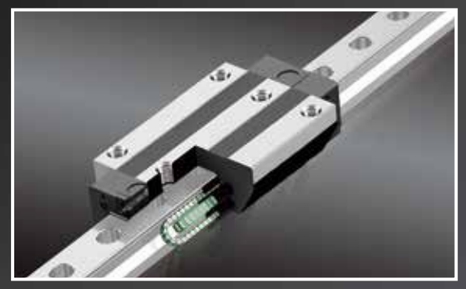
AH Series 500 / 630

ULTRA PERFORMANCE HORIZONTAL MACHINING CENTERS

- The Finite Element Method (FEM) analysis provides optimum machine design and light-weighted structural advantages to ensure the best machine rigidity.
- All contact surfaces of each main component : base, column, worktable and screw mounts, are precisely hand scraped through sophisticated procedures in order to achieve optimal assembly precision, structural strength and load distribution.
- Three axes are equipped with high rigidity roller type linear ways featuring the rigidity from the box way for heavy cutting and the characteristics of fast-moving and low-wearing of the linear guide way. The controllability and rigidity are significantly increased.

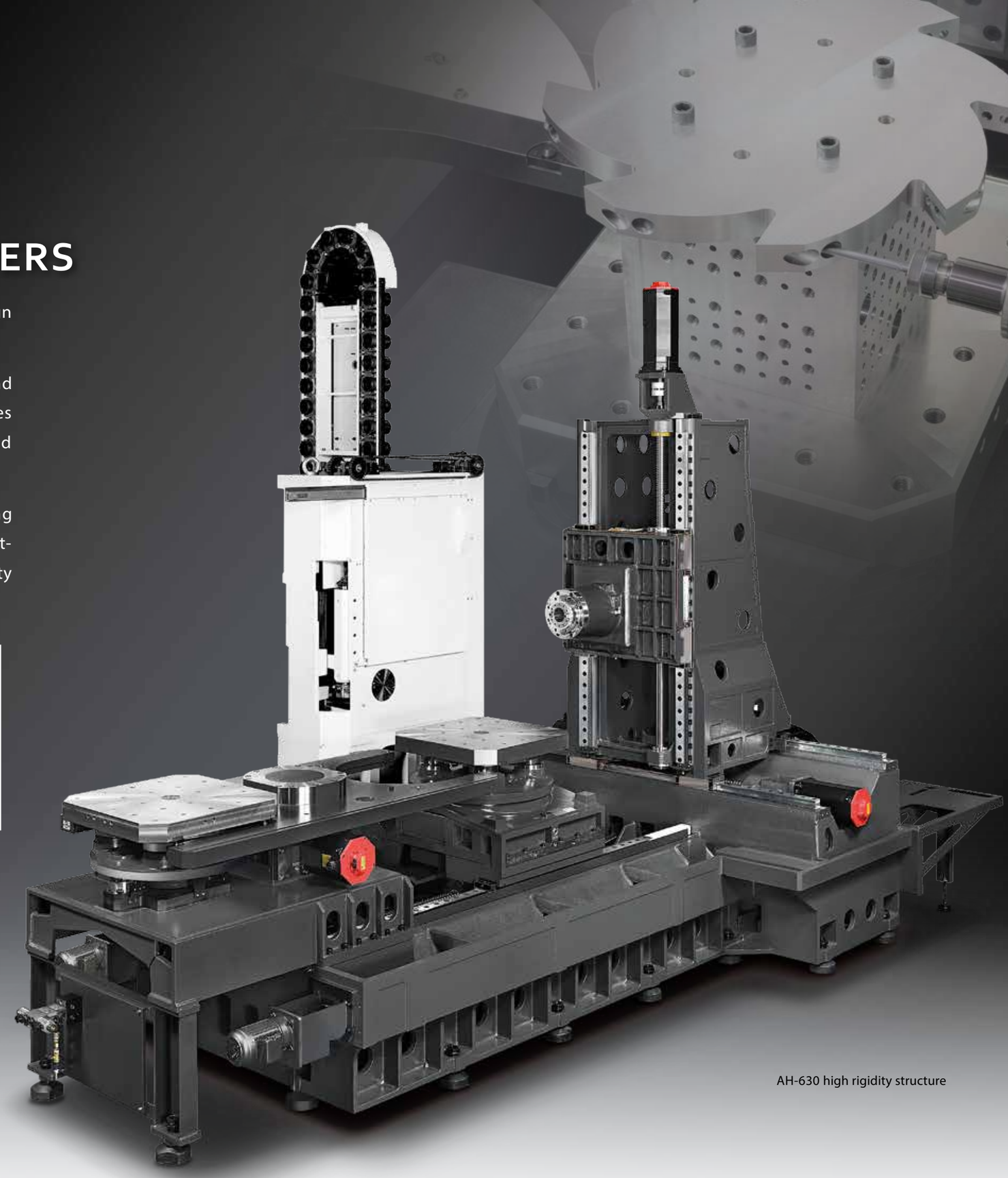
- Double nut ball screw

  The Ø50 mm high precision double nut rotation of the ball screw provides excellent rigidity for heavy cutting and ensures the precision and durability of the ball screw.



- Roller type linear guide way

  The linear guide way is larger by 20% compared to standard guide ways, providing greater rigidity.



AH-630 high rigidity structure

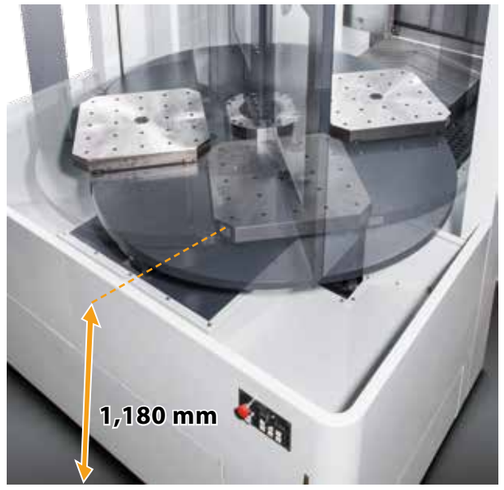
AH Series 500 / 630

ULTRA PERFORMANCE HORIZONTAL MACHINING CENTERS

- A high rigidity symmetrical design provides excellent heat flow balance and substantially increases the structural stability and heavy cutting ability.
- Double layer thick ribbed wall casting design significantly improves structural rigidity. The machine can maintain excellent accuracy even after prolonged heavy cutting.
- One-piece base casting is made of a high rigidity T-shape box structure and is combined with X-axis guide ways that offset from each other with large span track designs. This unrivaled solid base makes stable axial feed possible with high speed.

Well Designed Operating Interface

- Good splash guard design reduces the distance between the work area and operator, improving output efficiency and maintenance safety.
- Based on an ergonomic concept, the rotatable control panel is designed to be on the operators left side, allowing for easy operation.

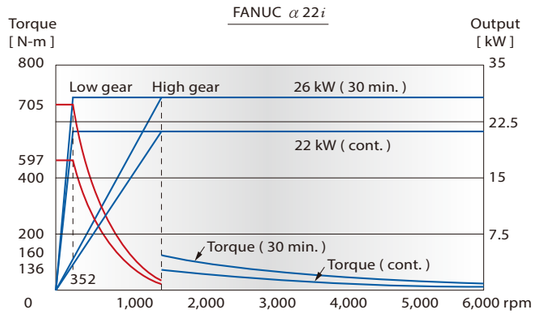


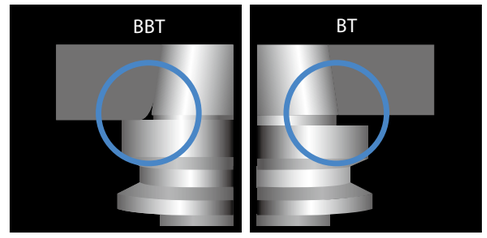
- The distance from floor to work table is 1,180 mm; this allows workers to load the work-piece conveniently and easily.
- The distance from the ground floor to the center of the operator screen is 1,620 mm, the average eye level, providing comfort to the machine operator.
- Large impact resistant windows provide a convenient and safe operating environment.

High Performance Spindle System

- The 10,000 rpm high speed direct drive spindle can effectively isolate the heat generated by the spindle rotation, thereby reducing heat deflection and enhancing precision under long working periods.
- The 6,000 rpm high torque gear spindle is equipped with a high horse powered 26 kw spindle motor which can offer maximum torque of 705 N-m at 352 rpm.
- 20 bar coolant through spindle (Opt.)

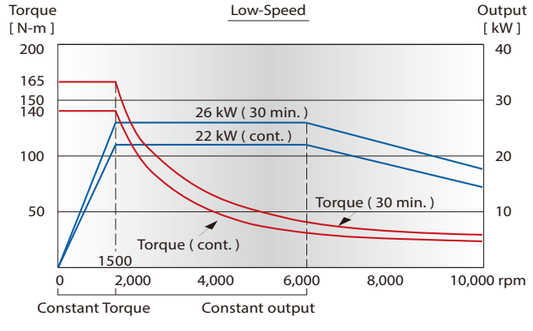
BBT50 **6,000 rpm Gear Spindle**

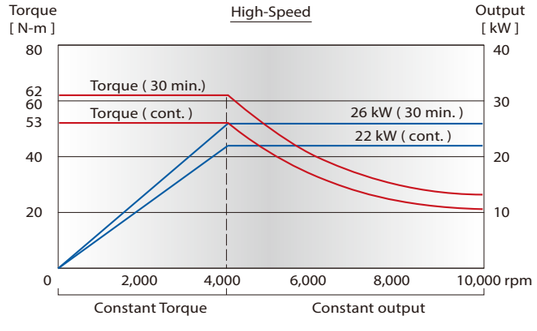




- The inner taper of the spindle conforms with the BBT50 tool to provide a firmer grip, therefore reducing the vibration from the tools.

BBT50 **10,000 rpm Direct Drive Spindle**





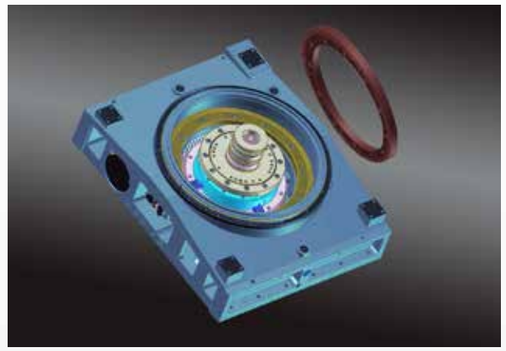
The APC System

- The APC system has a servo motor driven 180˚ index table. It takes only 16 seconds for the pallets to change which can effectively reduce wait time and increase production.

- The clamping mechanism uses a four hydraulic cylinder and cone seat design which provides stable machine accuracy and ample clamping force to the work table
- The cone seat uses air blow cleaning and air pressure detection mechanism in order to enhance the clamping reliability and position accuracy.

0.001˚ B-axis indexing

- High precision two-piece worm gear mechanism has contact teeth and contact area that are twice as more compared to conventional designs, ensuring table rotation accuracy and the ability to provide complex work-piece machining.
- Hydraulic brake system with full circumference will help prevent deformation of the brake disks due to its high rigidity characteristics and heavy cutting durability.



1˚ B-axis indexing

- High rigidity clutch indexing, positioning accuracy 8", repeatability 2", makes it suitable for heavy table load and heavy-duty machining.

Fast Auto Tool Change System

- The servo driven arm-type ATC is highly efficient and reliable as all tool change motion and position are monitored by detection sensors and sequential scans. The T-T time is 3.4 sec.
- Spindle tool clamp system is designed with solenoid flow control valve. The operation is stable and smooth, even with heavy tool.
- It can be equipped with 60 ATC (standard) or up to 240 ATC to fulfill different working conditions.

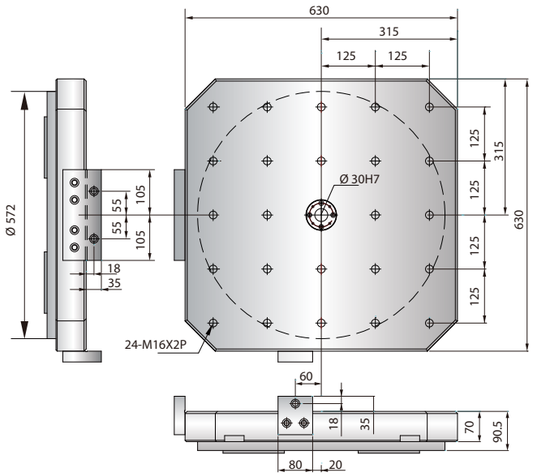
High Efficiency Chip Removal System

- The coolant flushing system around the spindle and roof can effectively flush chips away from the working area in order to ensure stability and precision of the machine.

- The complete coolant chip removal system consists of two chip augers, chip conveyor and a large volume tank that can remove chips efficiently.

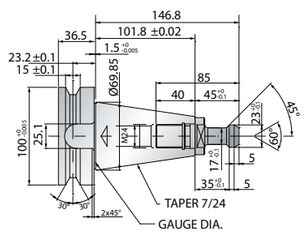
Dimensions

Table Dimensions

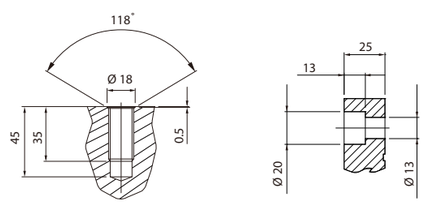


Tool Shank and Pull Stud Dimensions

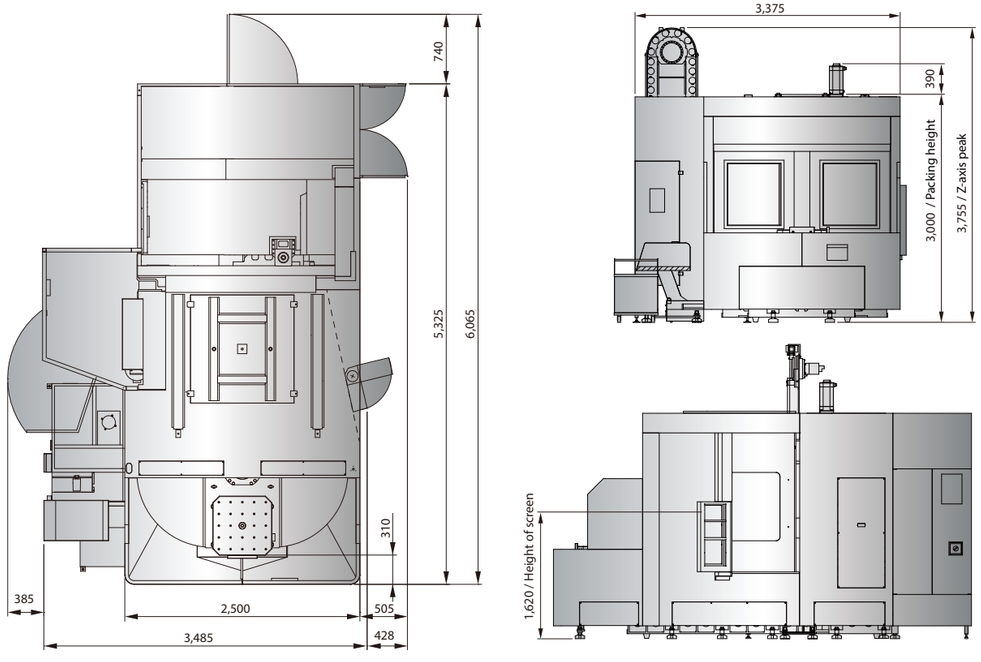
BBT50



Bolt-slot Dimensions

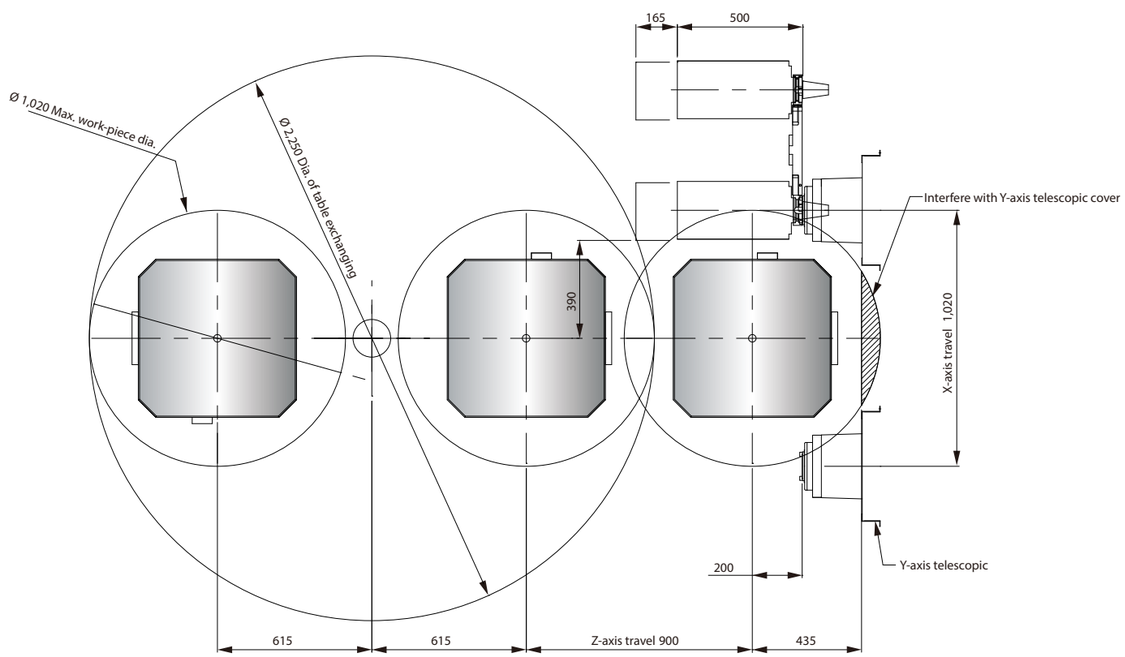


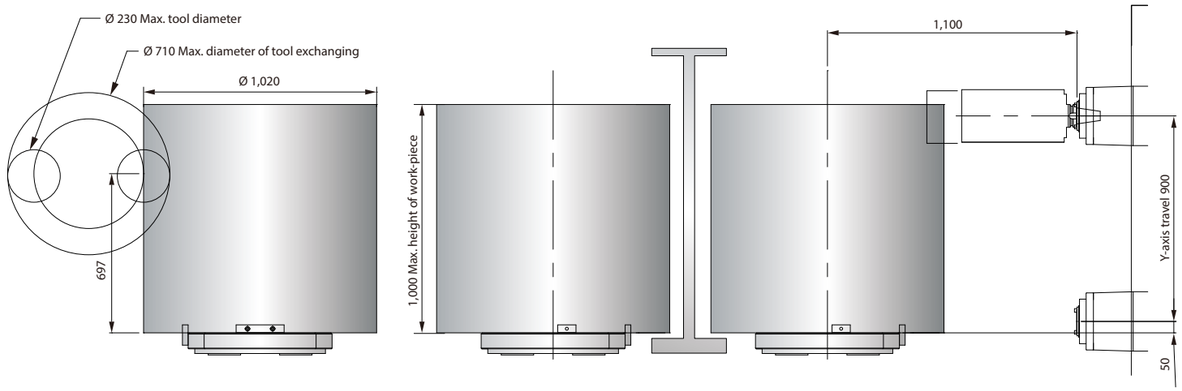
Machine Dimensions



(Unit : mm)

Cutting Interference





(Unit : mm)

i Console



Multiple Functions Status Display

- Real time operation information
- Tool list
- Work piece measurement
- M code illustration
- PLC function
- Calculator
- CNC optimize parameter (Opt.)
- Spindle thermal compensation (Opt.)

Trouble Shooting

When the alarm appears, the program will display the breakdown cause and a troubleshooting procedure. Users can easily troubleshoot minor problems to save machine shutdown time.

Circular Work-piece Measurement

The circular work-piece program can calculate the center coordinate of a work piece by measuring point A, B and C coordinates.

CNC Optimized Parameter

From rough cutting to fine machining, users can select different working modes, determine the allowable tolerance and the weight of the work piece, based on your desired working condition.

Rectangular Work Piece Measurement

The rectangular work piece program can calculate the center coordinate and the slant angle of a work piece by measuring point A, B, C, D and E coordinates; the calculated center coordinate can be inputted into the work piece coordinate program (G54 ~ G59).

Manual Tool Length Measurement

After manually measuring the tool length, the controller will automatically calculate the tool tip position and input the data into the tool length offset table.

		AH-500		AH-630	
SPECIFICATIONS					
X-axis travel	mm	700		1,020	
Y-axis travel	mm	650		900	
Z-axis travel	mm	650		900	
Distance from spindle center to table top	mm	100 ~ 750		50 ~ 950	
Distance from spindle nose to table center	mm	150 ~ 800		200 ~ 1,100	
WORKING TABLE					
Table size	mm	500 x 500		630 x 630	
Min. table index (B-axis)		0.001°	1°	0.001°	1°
Max. work-piece diameter / height	mm	Ø 700 / 800		Ø 1,020 / 1,000	
Table load capacity	kg	600		1,200	
SPINDLE					
Spindle motor (cont. / 30 min.)	kW	22 / 26			
Spindle speed	rpm	Direct drive 10,000	Gear 6,000	Direct drive 10,000	Gear 6,000
Spindle taper		BBT50			
FEED RATE					
X-axis rapid feed rate	m/min	60		48	
Y-axis rapid feed rate	m/min	48		36	
Z-axis rapid feed rate	m/min	60		48	
B-axis rapid feed rate	rpm	11.1			
Cutting feed rate	m/min	1 ~ 10			
TOOL MAGAZINE					
Tool magazine capacity	T	60			
Max. tool length	mm	400		500	
Max. tool weight	kg	20			
Max. tool diameter / adj. pocket empty	mm	Ø 115 / Ø 230			
ACCURACY					
Positioning accuracy (VDI 3441)	mm	P ≤ 0.010 / Full travel			
Repeatability (VDI 3441)	mm	Ps ≤ 0.015			
GENERAL					
Control system		FANUC Oi-MD			
Pneumatic pressure requirement	kg/cm²	6			
Machine dimension (L x W x H)	mm	4,600 x 3,035 x 3,745		5,325 x 3,485 x 3,755	
Machine weight	kg	12,000		16,500	

Specifications are subject to change without notice.

Standard Accessories

- Spindle cooling system
- Centralized auto. lubricating system
- Semi enclosed splash guard
- Coolant system with pump and tank
- Foundation bolt kit
- Tool box
- Alarm light
- Air gun
- Automatic power off system
- Two screw type chip augers and chip conveyor

Option Accessories

- Control system : MITSUBISHI / SIEMENS
- Fully enclosed splash guard
- Tool magazine : 40 / 50 / 80 / 100 / 120 ~ 240 T
- X / Y / Z / B axes optical linear scale
- Spindle thermal compensation
- Coolant through spindle (Form A)
- Auto. tool length measurement
- Auto. work-piece measurement
- Rear exit auger type chip conveyor
- Oil mist cooling system
- Disc type oil skimmer