



Ultra Performance Horizontal Machining Center

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 (2,645 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.

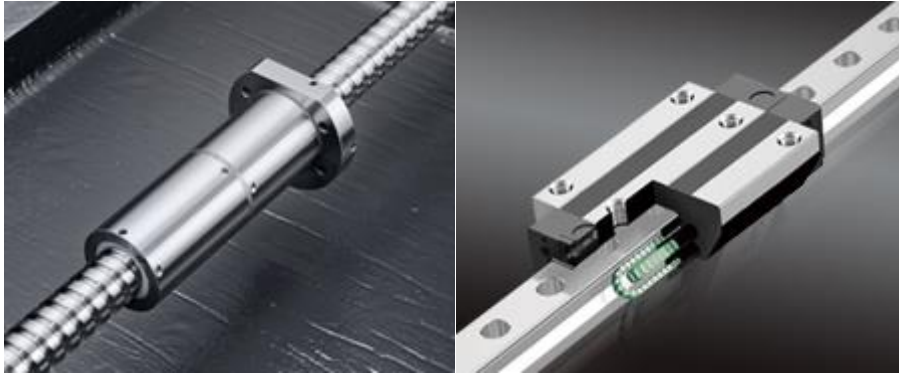
The complete coolant chip removal system consists of two chip augers, chip conveyor and a large volume tank that can remove chips efficiently.

High Rigidity Structure

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 \varnothing 50 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.

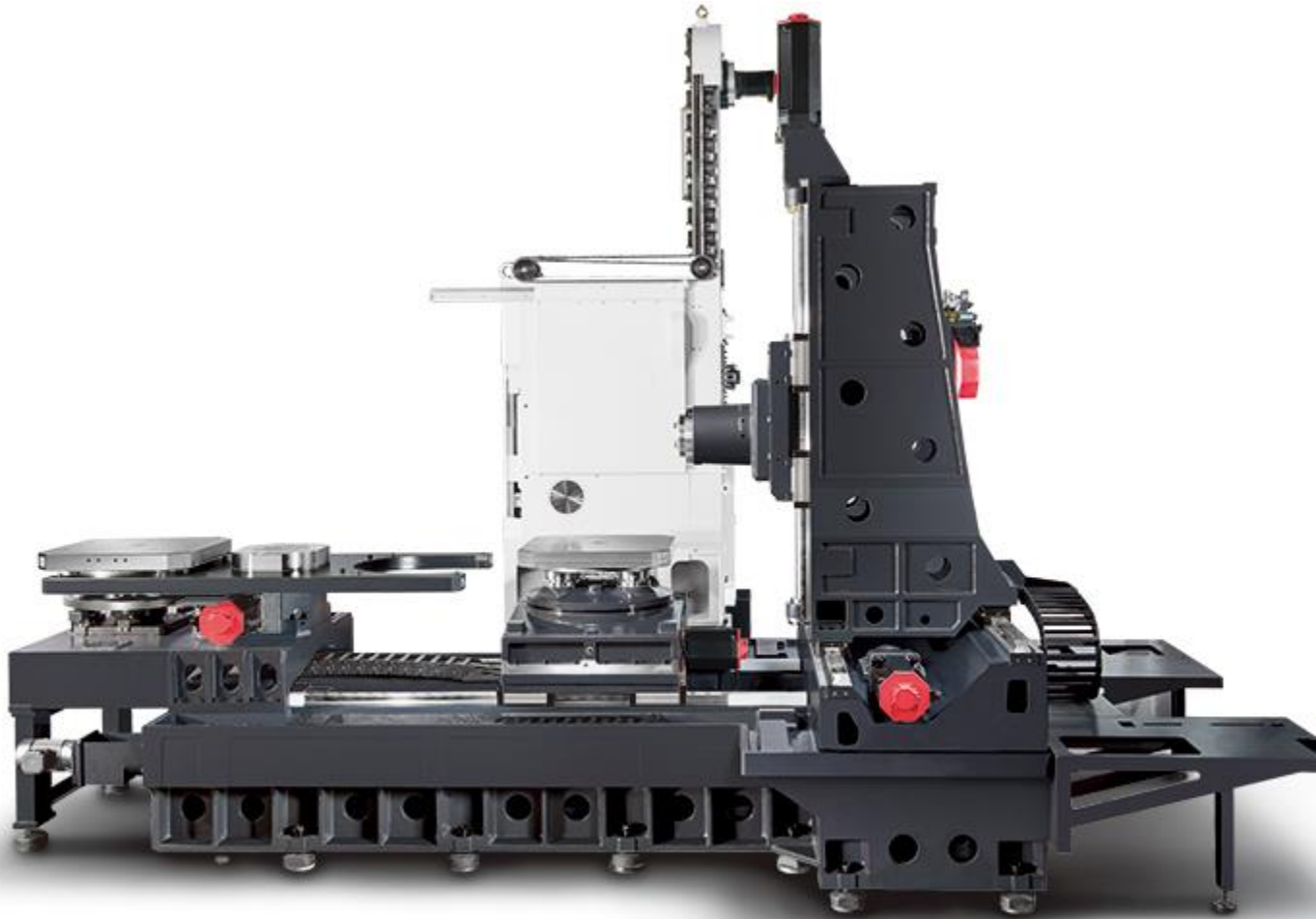
Roller type linear guide way

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

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.



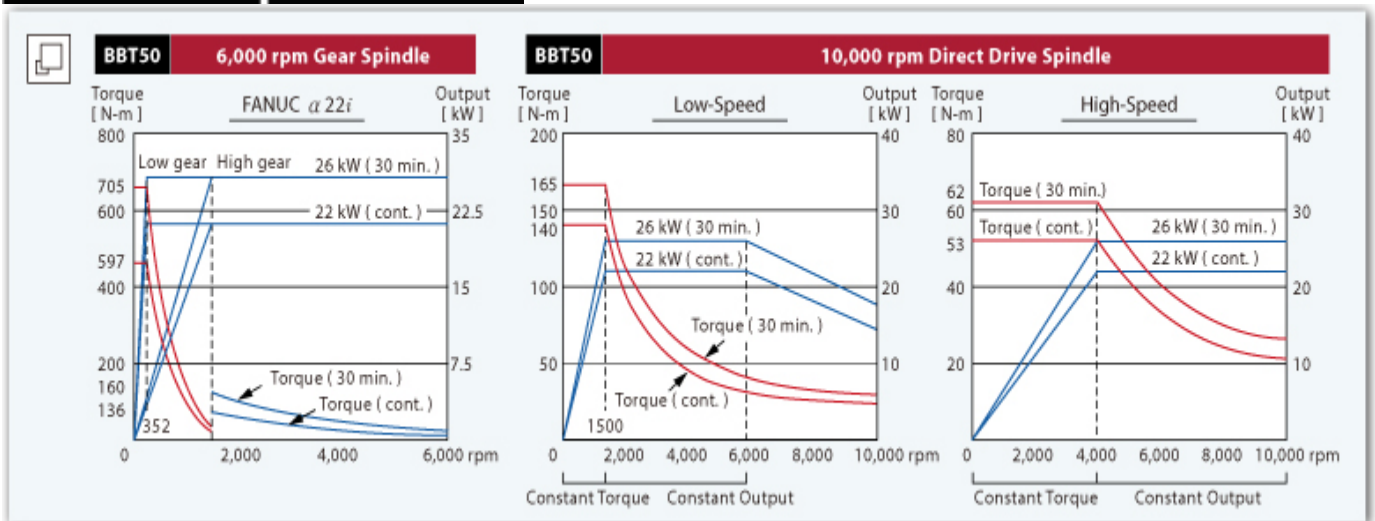
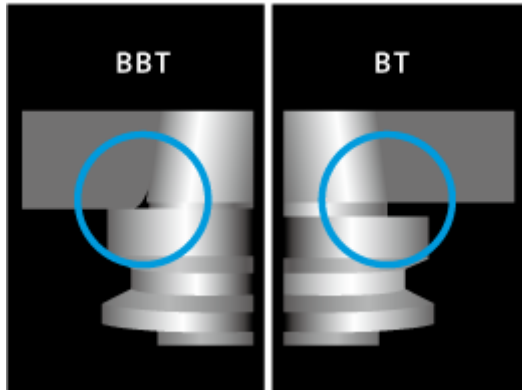
High Performance Spindle System

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.)

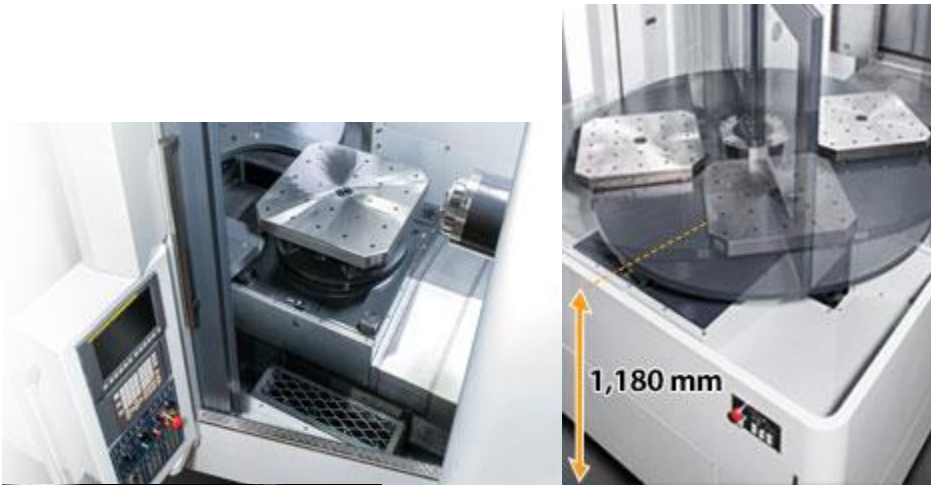
The inner taper of the spindle conforms to the BBT50 tool to provide a firmer grip, therefore reducing the vibration from the tools.



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.

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.

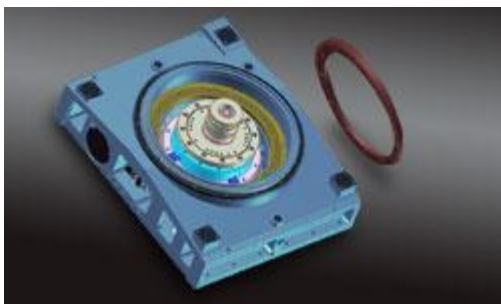


indexing

0.001° B-axis

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.



AH Series

CAPACITY	AH-500		AH-630	
X-axis travel	780 mm		1,020 mm	
Y-axis travel	670 mm		900 mm	
Z-axis travel	650 mm		900 mm	
Dist. from spindle center to table top	90 ~ 760 mm		50 ~ 950 mm	
Dist. from spindle nose to table center	150 ~ 800 mm		200 ~ 1,100 mm	
WORKING TABLE				
Table size	500 x 500 mm		630 x 630 mm	
Min. table index (B-axis)	0.001°	1°	0.001°	1°
Max. work-piece diameter / height	Ø 700 / 800 mm		Ø 1,020 / 1,000 mm	
Table load capacity	500 kg		1,200 kg	
SPINDLE				
Spindle motor (cont. / 30 min.)	22 / 26 kW			

Spindle speed	Direct Drive 10,000 rpm	Gear 6,000 rpm	Direct Drive 10,000 rpm	Gear 6,000 rpm
Spindle taper	BBT50			
Feed rate				
X-axis rapid feed rate	60 m/min.		48 m/min.	
Y-axis rapid feed rate	48 m/min.		36 m/min.	
Z-axis rapid feed rate	60 m/min.		48 m/min.	
B-axis rapid feed rate	11.1 rpm			
Cutting feed rate	1 ~ 10 m/min.			
TOOL MAGAZINE				
Tool magazine capacity	60 T			
Max. tool length	400 mm		500 mm	
Max. tool weight	20 kg			
Max. tool diameter / adj. pocket empty	Ø 115 / Ø 230 mm			
ACCURACY				
Positioning accuracy (VDI 3441)	P ≤ 0.010 mm / Full travel			
Repeatability (VDI 3441)	Ps ≤ 0.015			
GENERAL				
Control system	FANUC Oi-MD			
Pneumatic pressure requirement	6 kg / cm ²			
Machine dimension (L x W x H)	4,600 x 3,035 x 3,745 mm		5,325 x 3,485 x 3,755 mm	
Machine weight	12,000 kg		16,500 kg	