



**AWEA MECHANTRONIC CO.,LTD.**

Official distributor for Benelux



Jan Doustraat 37  
1689 XK Zwaag (NH)  
The Netherlands

Tel. +31(0)85 0022937  
info@tholitec.nl  
www.tholitec.nl

ISO 9001

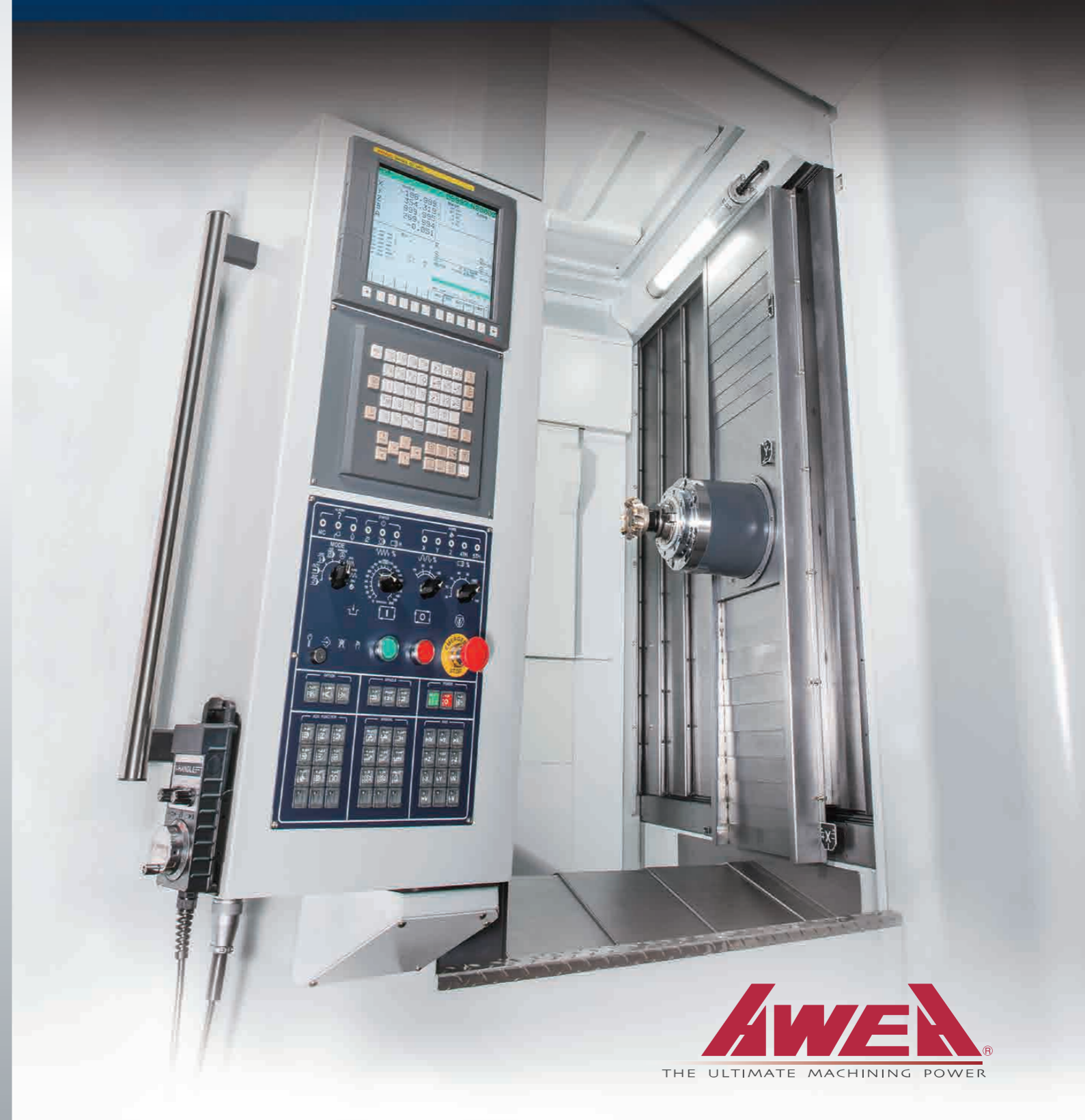


ISO 14001



# AH Series

Ultra Performance Horizontal Machining Centers



**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 AH series can be equipped with 10,000 rpm direct drive spindle or 705 N-m torque output 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.



AH-630

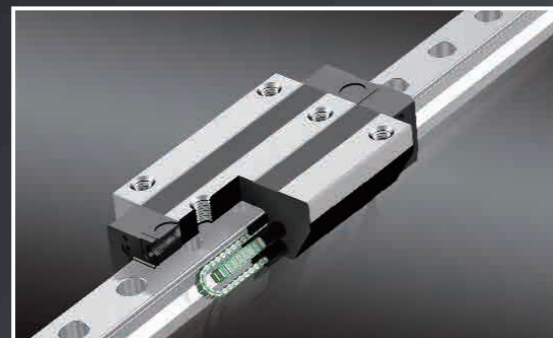
## Ultra Performance Horizontal Machining Centers

- The Finite Element Analysis ( FEA ) 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 super 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.



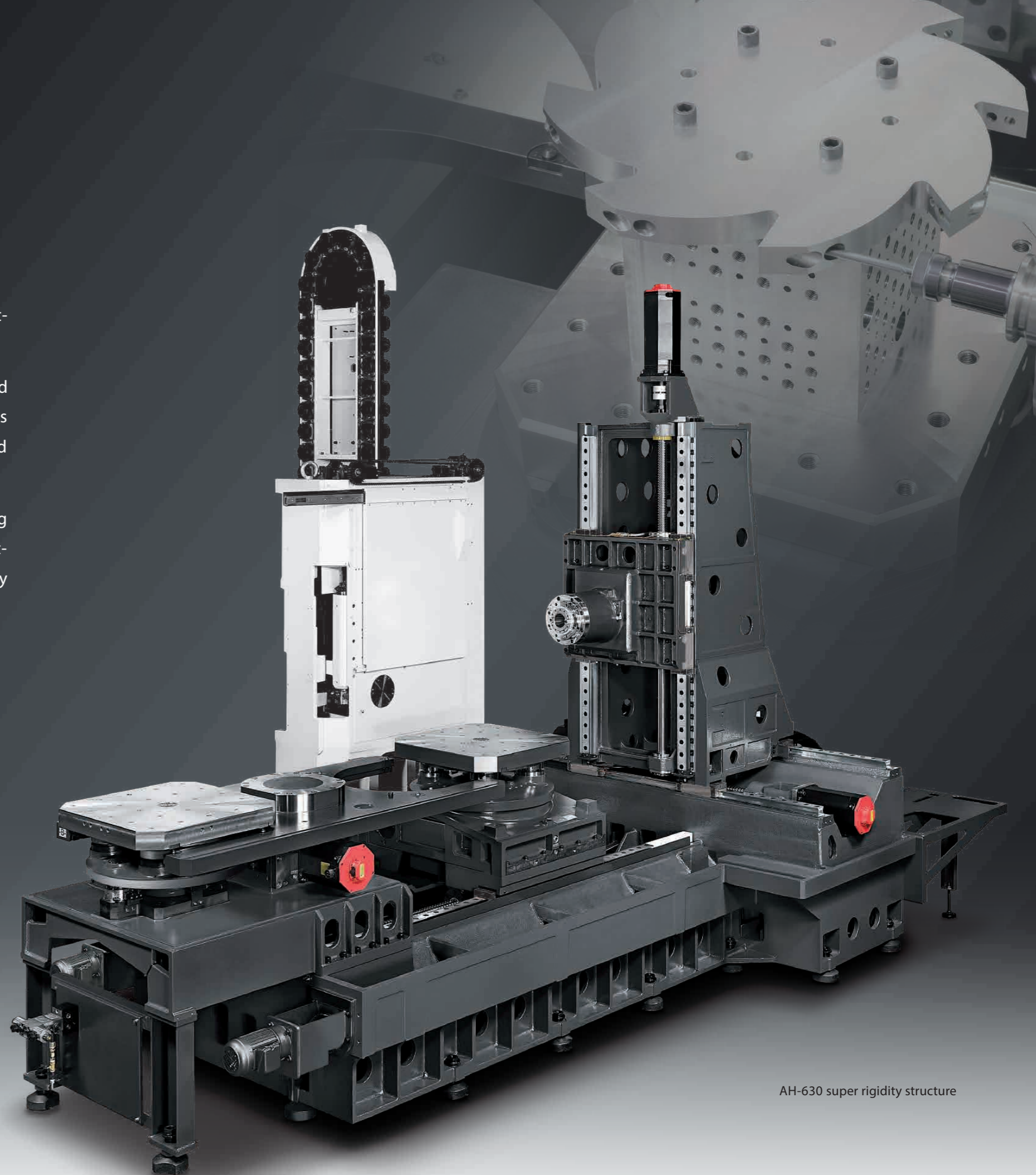
### ■ Double nut ball screw

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.

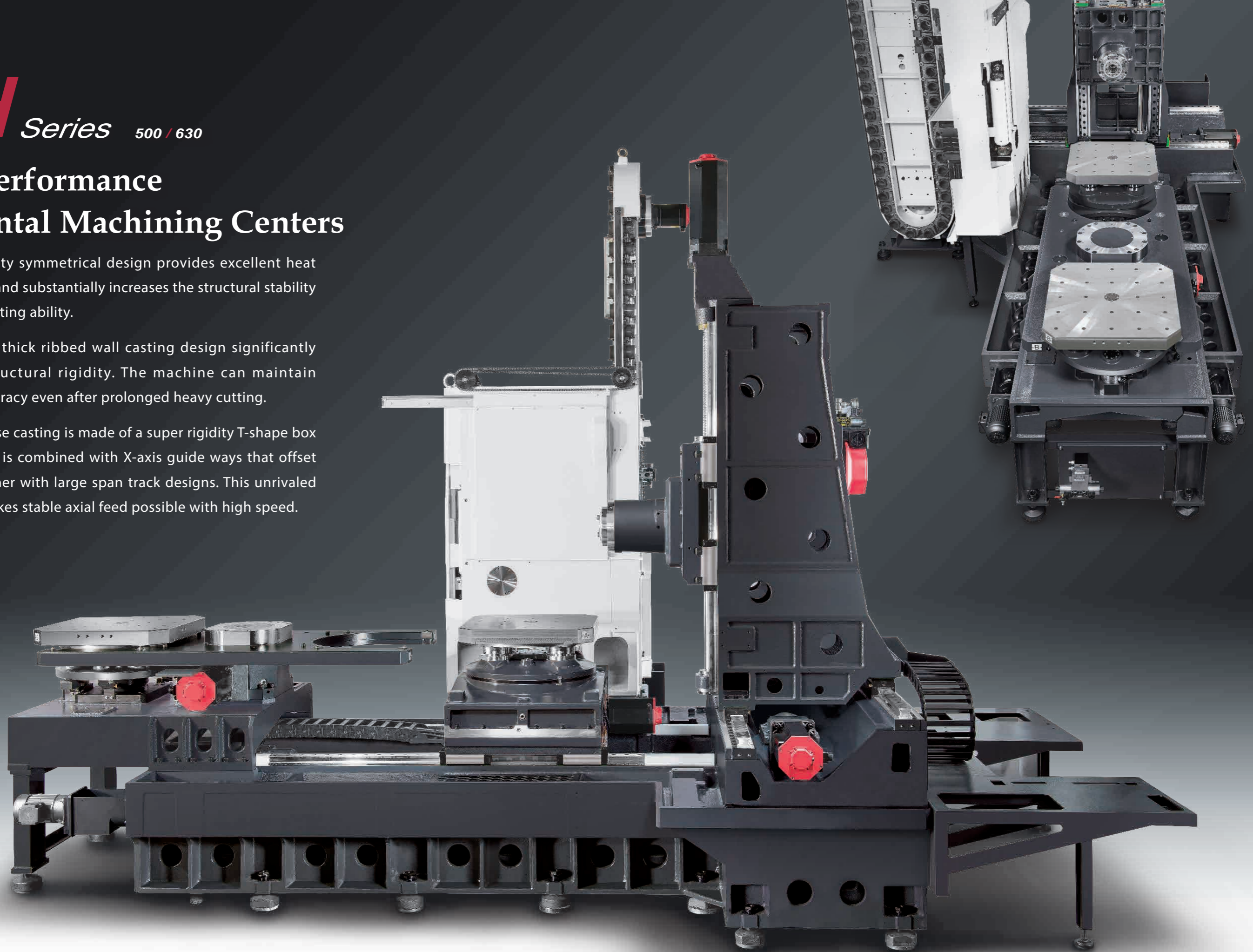


AH-630 super rigidity structure

**AH** Series 500 / 630

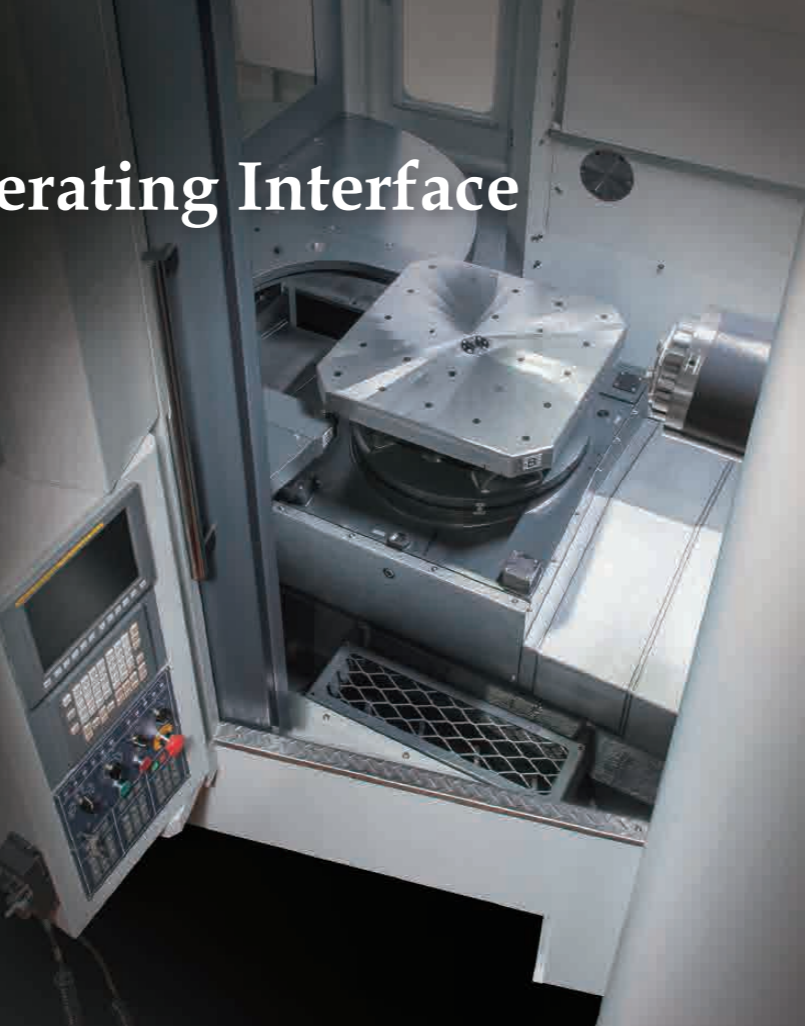
## Ultra Performance Horizontal Machining Centers

- A super 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 super 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.



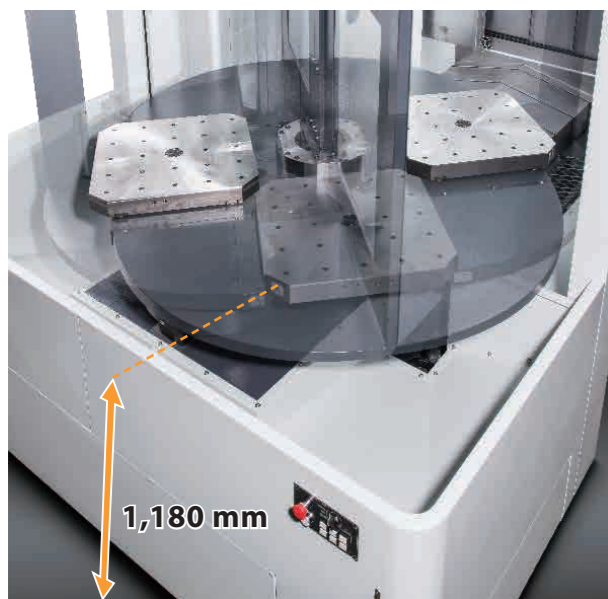
## Well Designed Operating Interface

- 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.

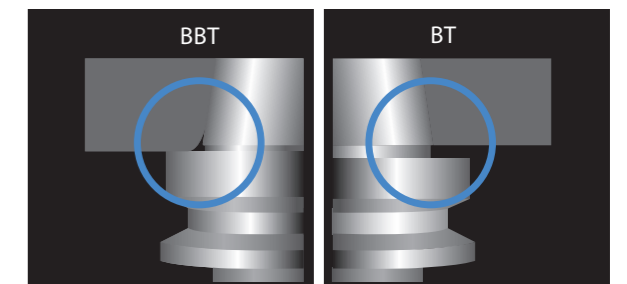
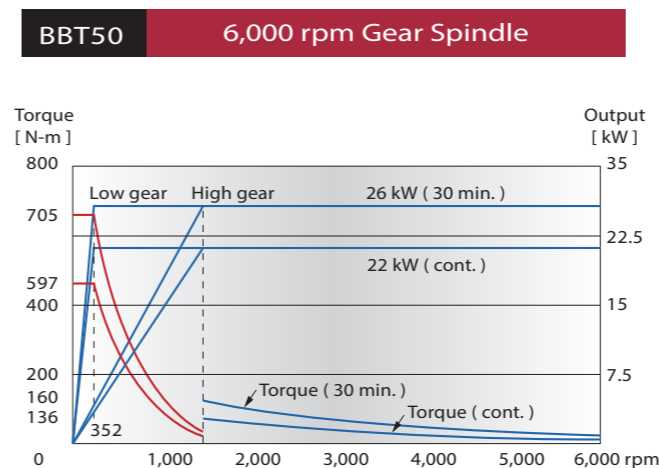


## High Performance Spindle System

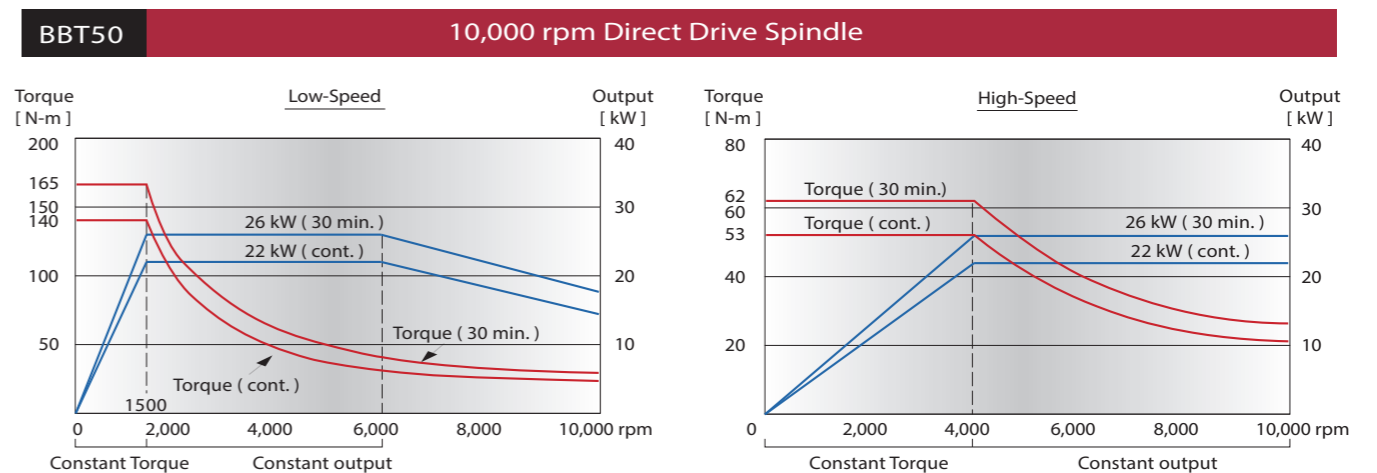
- The 10,000 rpm high speed direct drive spindle can effectively isolate the heat generated by the spindle rotation, thereby reducing heat deflection and enhancing precision under long working periods.
- The 6,000 rpm high torque gear spindle is equipped with a high horse power 26 kW spindle motor which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



- 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.

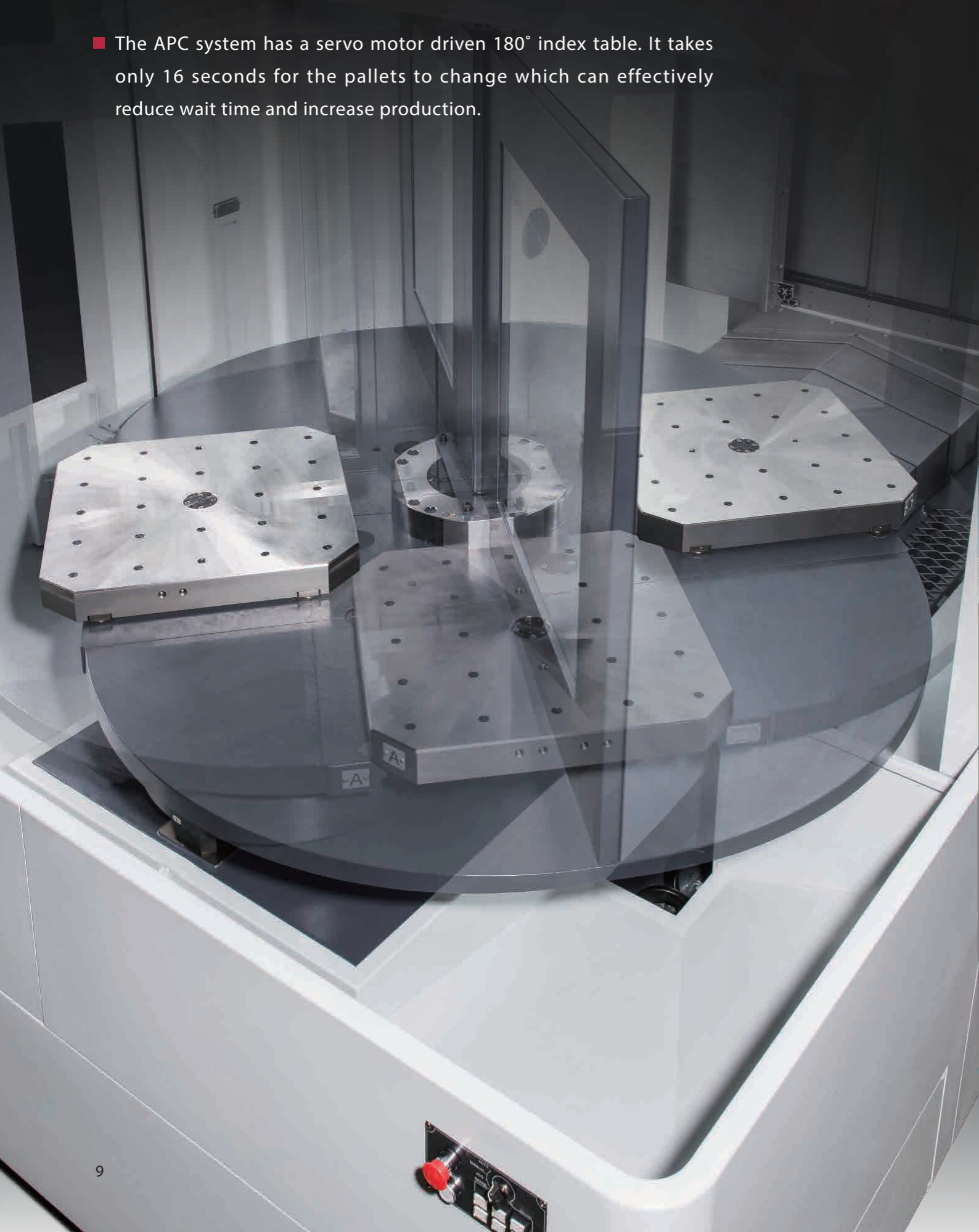


- The inner taper of the spindle conforms with the BBT50 tool to provide a firmer grip, therefore reducing the vibration from the tools.



# 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.



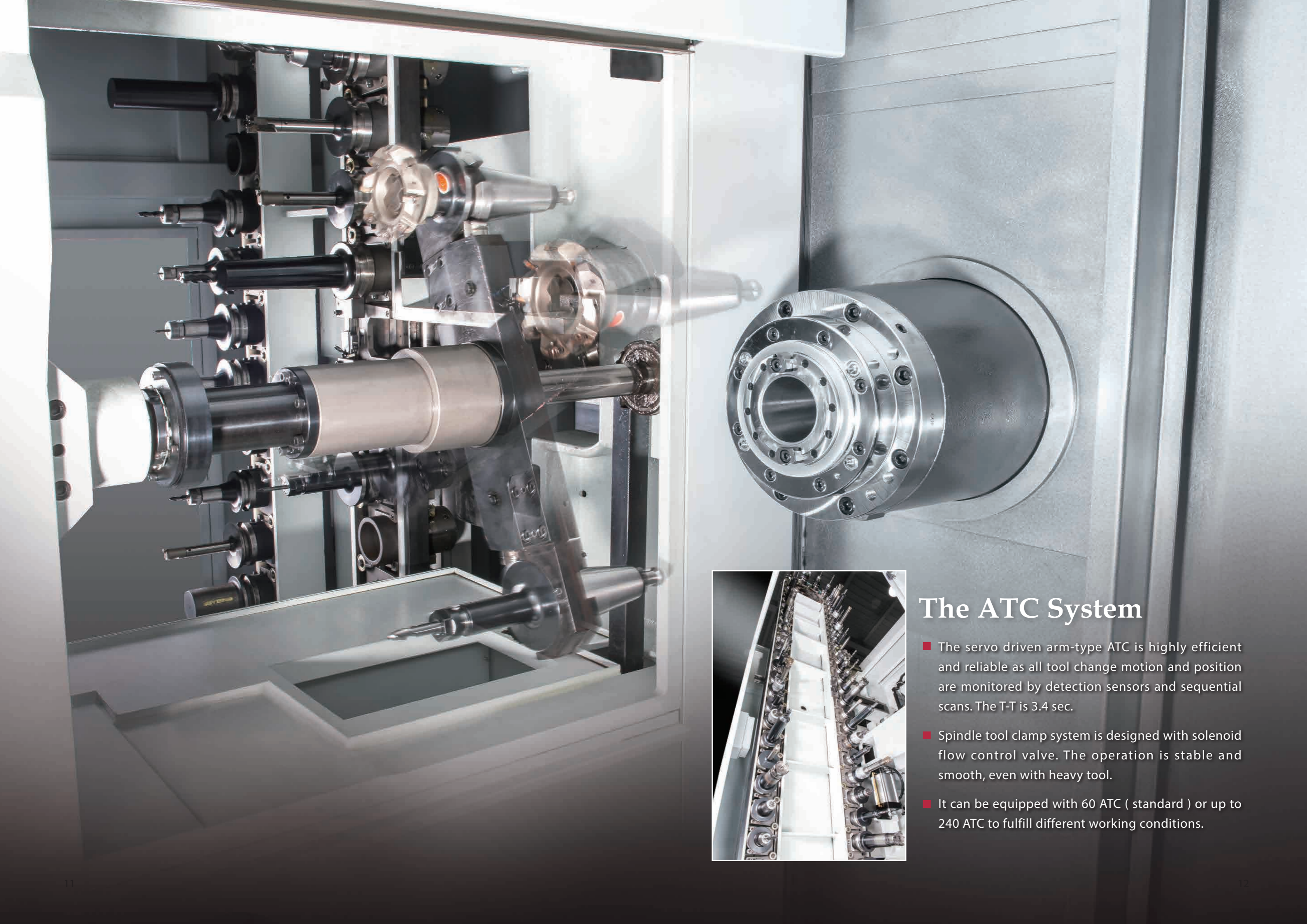
## 0.001° B-axis indexing

- 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 super rigidity characteristics and heavy cutting durability.



## 1° B-axis indexing

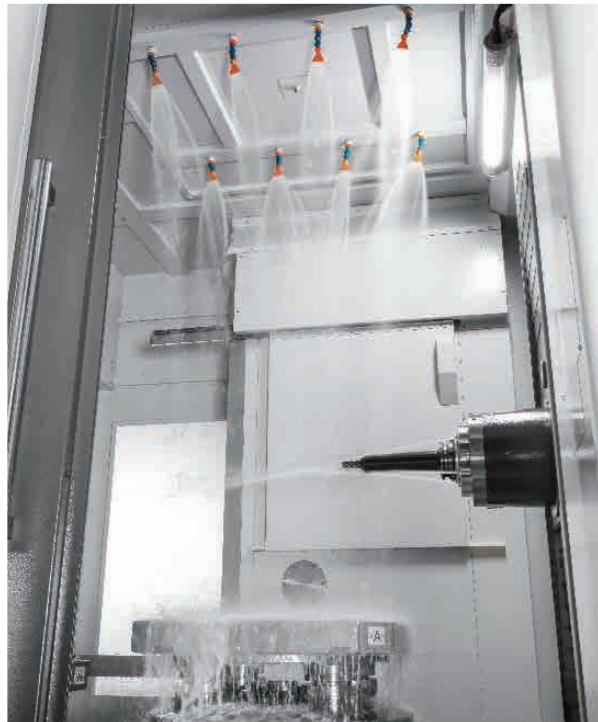
- Super rigidity clutch indexing, positioning accuracy 8", repeatability 2", makes it suitable for heavy table load and heavy-duty machining.



## The ATC 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 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.



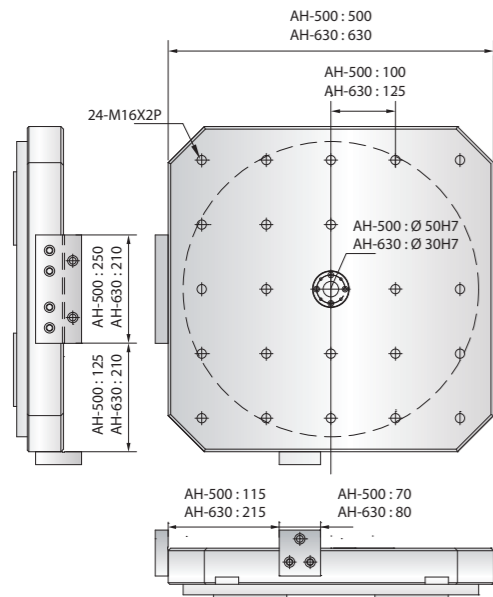
- The complete coolant chip removal system consists of two chip augers, chip conveyor and a large volume tank that can remove chips efficiently.



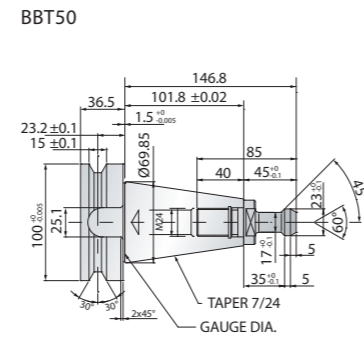


# Dimensions

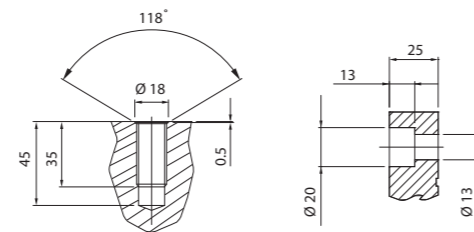
## Table Dimensions



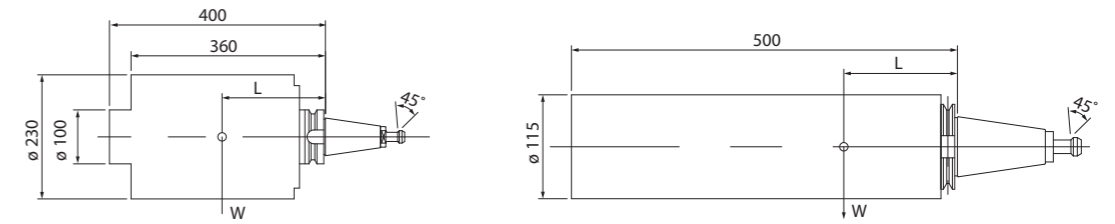
## Tool Shank and Pull Stud Dimensions



## Bolt-slot Dimensions



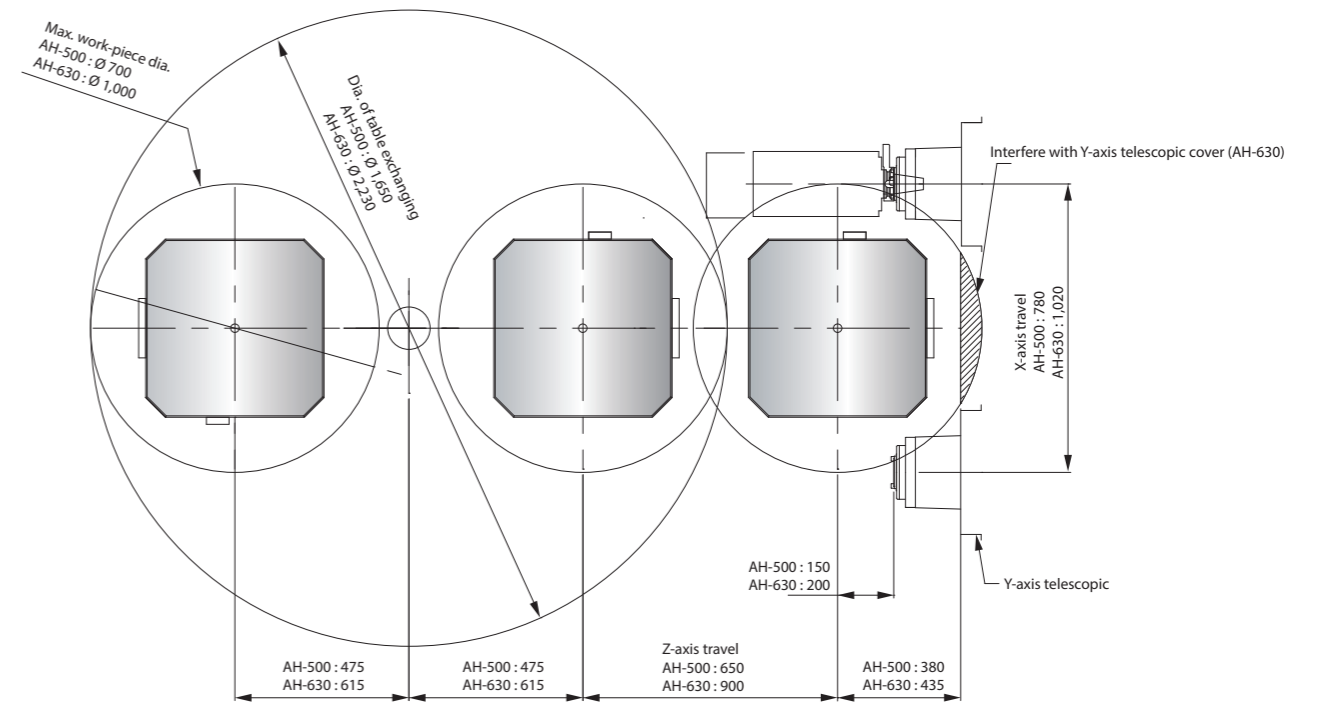
## Tool Standard



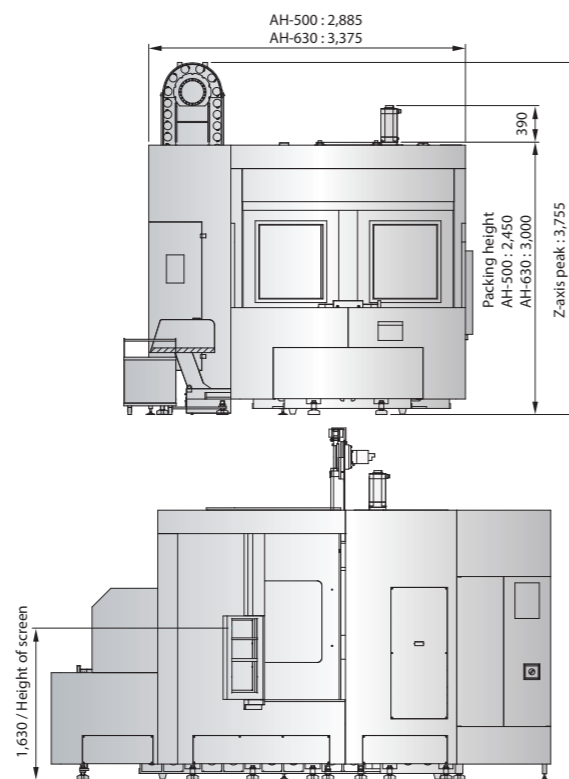
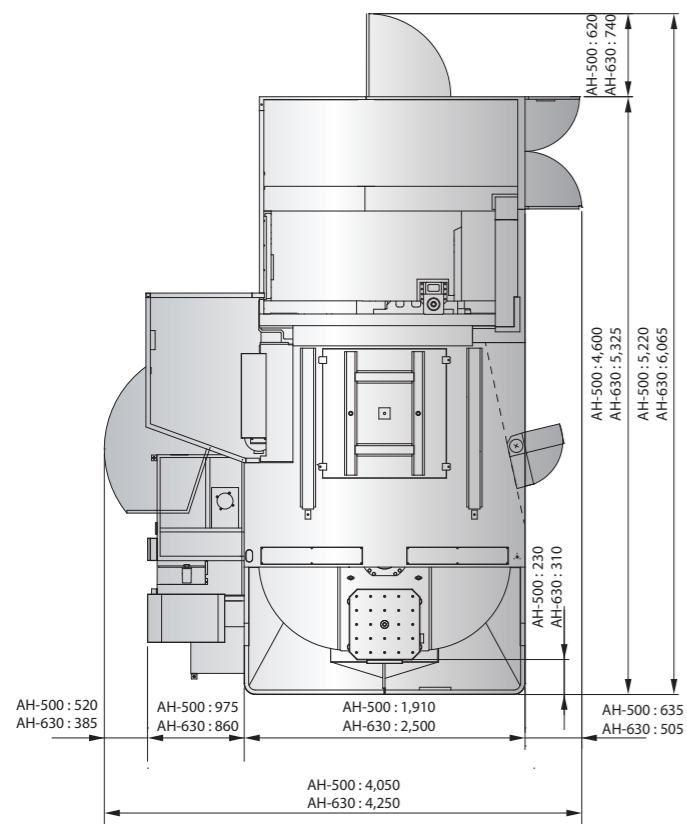
AH-500 Tool Shank & Pull Stud Type	
Type	BBT50 / CAT50
Max tool length	400 mm
Max tool dia. / adj. pocket empty	Ø 115 / 230 mm
Max torque (W x L)	3,000 kgf-mm
Max weight	20 kgs

AH-630 Tool Shank & Pull Stud Type	
Type	BBT50 / CAT50
Max tool length	500 mm
Max tool dia. / adj. pocket empty	Ø 115 / 230 mm
Max torque (W x L)	3,000 kgf-mm
Max weight	20 kgs

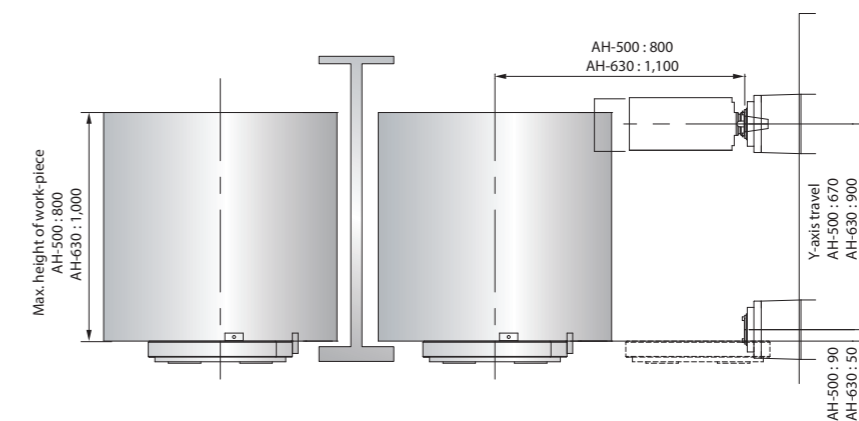
## Cutting Interference



## Machine Dimensions



(Unit: mm)



(Unit: mm)

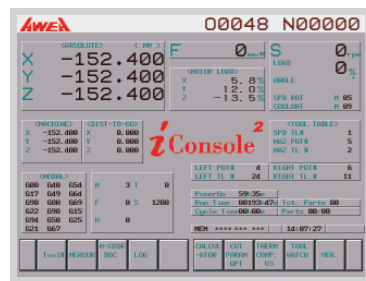
# i Console

AWEA's self-developed **i Console** intelligent software enhancement system provides you with a user-friendly interface, real-time machine status information and diagnosis functions. It not only effectively reduces complex working process but also increases intelligent machining abilities.

(For 10.4" LCD only)

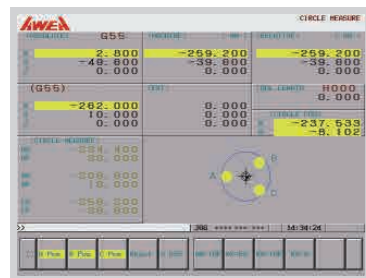


## Multiple Functions Status Display



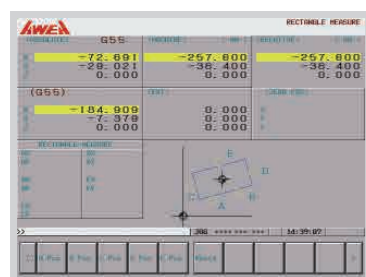
- Real time operation information
- Tool list
- Work piece measurement
- M code illustration
- PLC function
- Calculator
- CNC optimize parameter (Opt.)
- Spindle thermal compensation (Opt.)

## Circular Work Piece Measurement



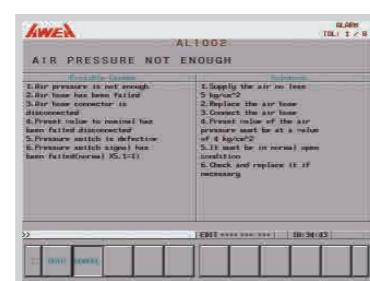
The circular work piece program can calculate the center coordinate of a work piece by measuring point A, B and C coordinates.

## Rectangular Work Piece Measurement



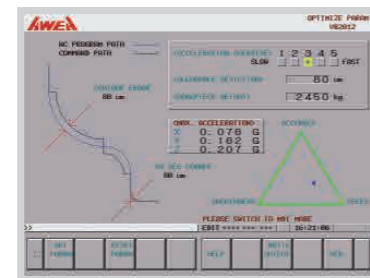
The rectangular work piece program can calculate the center coordinate and the slant angle of a work piece by measuring point A, B, C, D and E coordinates; the calculated center coordinate can be inputted into the work piece coordinate program (G54 ~ G59).

## Trouble Shooting



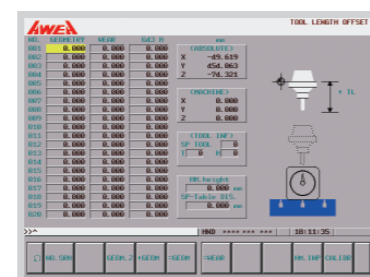
When the alarm appears, the program will display the breakdown cause and a troubleshooting procedure. Users can easily troubleshoot minor problems to save machine shutdown time.

## 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.

## 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
<b>SPECIFICATIONS</b>			
X-axis travel	mm	780	1,020
Y-axis travel	mm	670	900
Z-axis travel	mm	650	900
Distance from spindle center to table top	mm	90 ~ 760	50 ~ 950
Distance from spindle nose to table center	mm	150 ~ 800	200 ~ 1,100
<b>WORKING TABLE</b>			
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	500	1,200
<b>SPINDLE</b>			
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	
<b>FEED RATE</b>			
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	
<b>TOOL MAGAZINE</b>			
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	
<b>ACCURACY</b>			
Positioning accuracy ( VDI 3441 )	mm	P ≤ 0.010 / Full travel	
Repeatability ( VDI 3441 )	mm	Ps ≤ 0.008	
<b>GENERAL</b>			
Control system		FANUC Oi-MF	
Pneumatic pressure requirement	kg/cm <sup>2</sup>	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 : 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