

AE
series

AE SERIES

High Performance Vertical Machining Centers



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AE series | High Performance Vertical Machining Centers

With the rapid changes in the world nowadays, tight delivery and profitability are the issues that the manufacturing industry is increasingly facing. Therefore, seeking cost-effective processing equipment to improve production efficiency is more and more urgent. To resolve these issues, the AE series vertical machining center from AWEA is an epoch-making product, that exactly can meet your requirements.

The AE series maintains the advantages of high-speed, high-rigidity and long term, high precision machining. AWEA was able to achieve the goals of streamlining the production and designing modular machine components, thus ensuring continued high quality and faster assembly times. This is why our AE series is exceptionally cost-effective on the market.



Highly Cost-Effective Spindle

The spindle combines the capabilities of both precision and heavy-duty cutting. The 10,000 rpm belt drive spindle delivers a max. torque output of 70 Nm at 1,500 rpm.

The spindle is driven by a high-torque toothed belt without belt slippage. The transmission noise and heat generated is greatly reduced.
(Optional 12,000 rpm direct drive spindle)



High Speed Linear Guide Ways

The 3 axes are equipped with high-precision and low-friction linear guide ways, which provide optimum positioning accuracy and repeatability, even during high-speed motion.

The sliding blocks are pre-loaded to effectively eliminate play and provides the axial system with higher structural rigidity, thus improving machining accuracy.



NC Intelligence (Opt.)

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.

- Main Functions**
- Tool loading monitor
 - Spindle thermal compensation
 - Auto. tool length measurement
 - Circular / rectangular work-piece measurement
 - Adoptive feed control (AFC)
 - CNC parameter optimization

Finite Element Analysis (FEA)

- The Finite Element Analysis provides the optimal machine design to build a light-weight, yet super rigid machine structure.

High-grade MEEHANITE castings

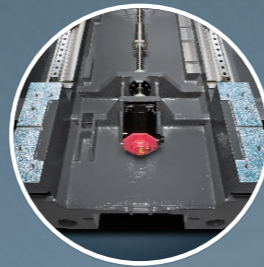
- The base, column and head stock are all cast from high-damping and low-deformation FC300 MEEHANITE. It can absorb shocks and vibrations more than 10 times better than steel. Therefore, the AE series not only has ultra-high structural rigidity but also is extremely durable.

Wide span column structure

Wide span column structure provides optimal machining rigidity. The headstock retains stability and accuracy even under high speed traveling.

Hand scraped craftsmanship

All the sliding or fix surface of machine bed, column, saddle, headstock, and ball screw holder are hand scraped to provide excellent assembly precision and load distribution, ensuring long term accuracy.

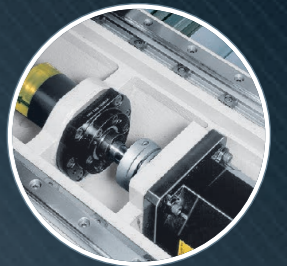


High-rigidity base

The base has quite thick walls and it is strengthened with special reinforcing ribs, which effectively improve the shock-absorption and rigidity of the structure. In addition, after completing the casting and precision processing of the base, AWEA will execute a comprehensive inspection to make sure all the strict quality requirements are met.

Direct drive servo motor

3 axes are driven by FANUC α i series absolute AC direct drive servo motor, which provides powerful thrust and fast acceleration and deceleration movement. It can greatly decrease motor load, and lower thermal expansion effects to minimum.



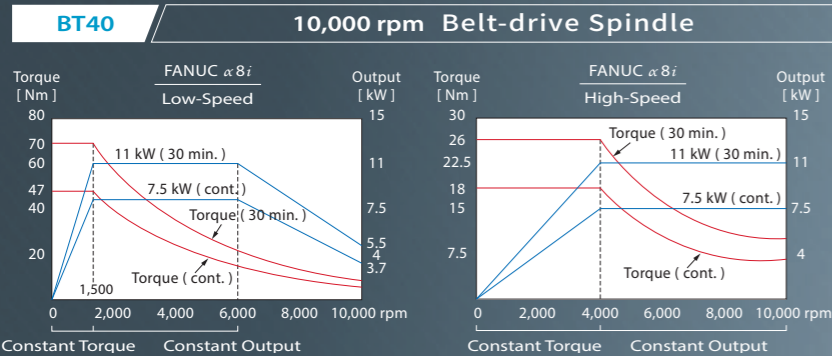
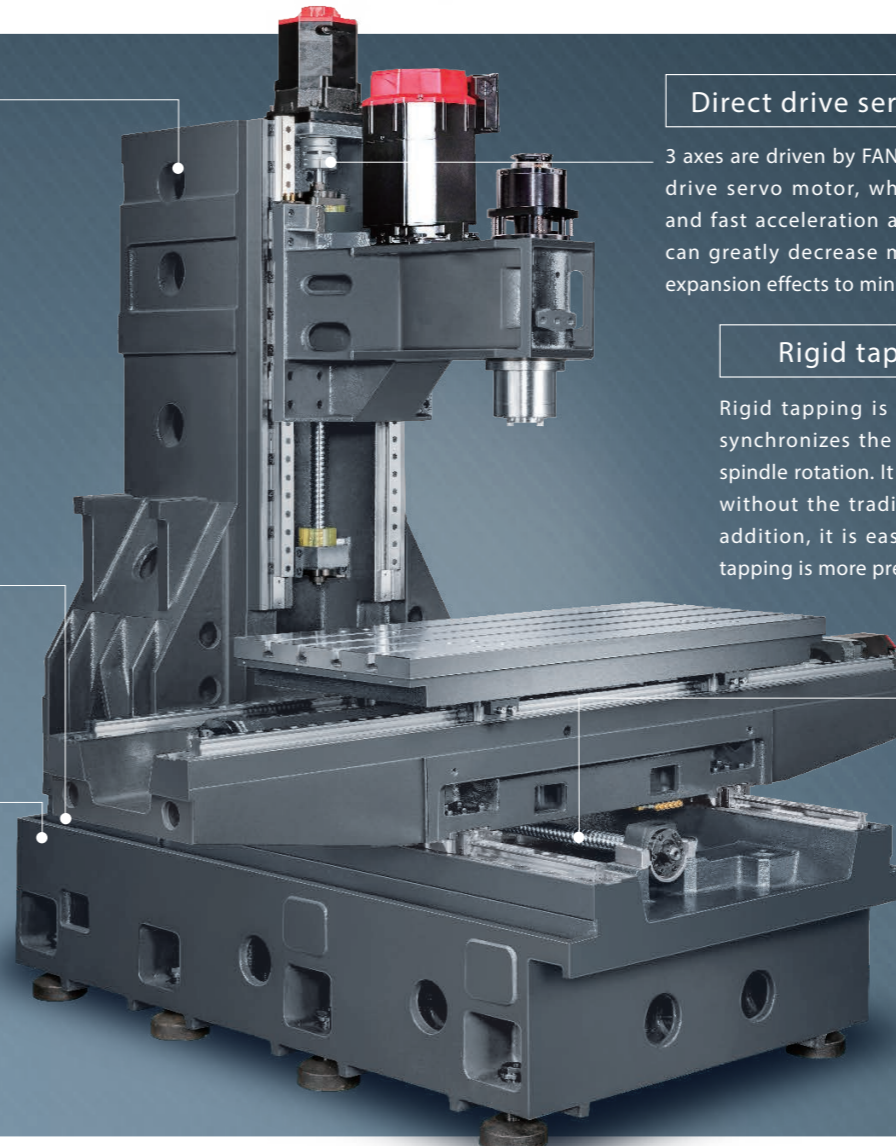
Rigid tapping

Rigid tapping is an AWEA standard function that synchronizes the movement of the Z-axis with the spindle rotation. It enables high-speed precise tapping without the traditional floating tapping sleeve. In addition, it is easy to set up and the depth of the tapping is more precise.



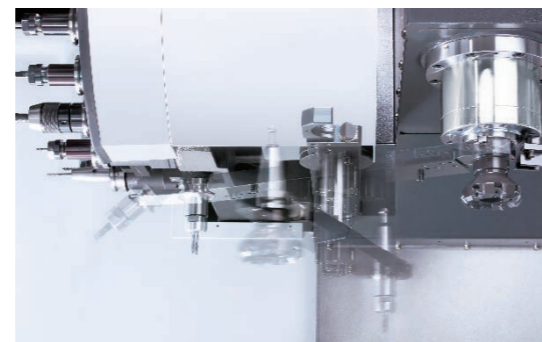
C3 grade ball screw

The heat-treated and precision-ground C3 grade ball screw offers the highest precision and long term durability. The standard assembly procedure includes adjustments to ensure perfect parallelism between the screw and the guide ways, and the optimal pre-loaded of the nut, which minimizes back lash and greatly improves machining accuracy.



Arm type ATC magazine

- The 24T arm type tool magazine can rotate in both ways quickly and always selects the shortest direction so that the time of selecting the tool can be effectively shortened.
- The cam curve of the ATC mechanism is specially designed to avoid damage caused by the tool hitting the inner cone of the spindle during tool changes, thus ensuring a long spindle service life.



Screw type chip auger

- With high-performance screw chip augers as standard, chips can be quickly removed and reliably separated from the coolant. It successfully reduces both the workload of personnel cleaning and the risk of machining accuracy being affected by chips piling up.



Chips flush coolant system

- The chip wash down coolant system adopts corrosion-resistant copper alloy nozzle, which has wide water output reach and easy angle adjustment. It can effectively remove the chips remaining in the base (Opt.)



High pressure coolant systems

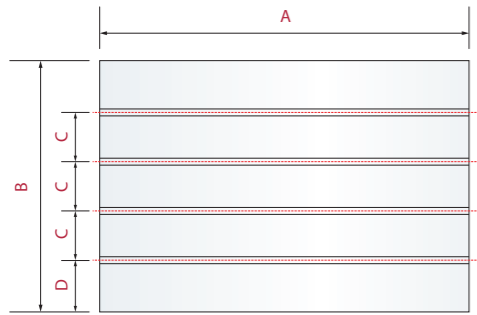
- The high-pressure cooling system enables higher cutting speeds, extends the tool life, and improves the chip removal capacity when deep drilling. It is the most economical processing mode and can vastly improve capacity.
- With the most advanced models on the market, AWEA offers a choice of pressure and flow specifications from 20 to 100 bar.



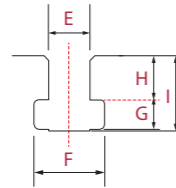
AE series | Dimensions

(Unit : mm)

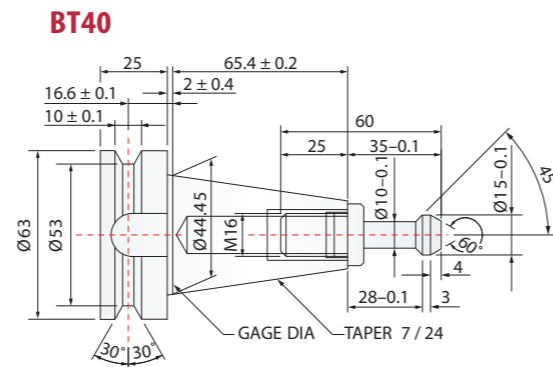
Table Dimensions



T-slot Dimensions



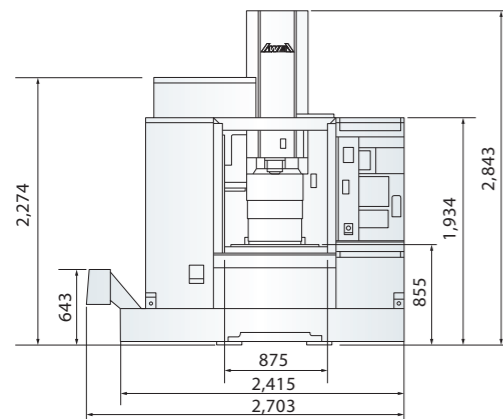
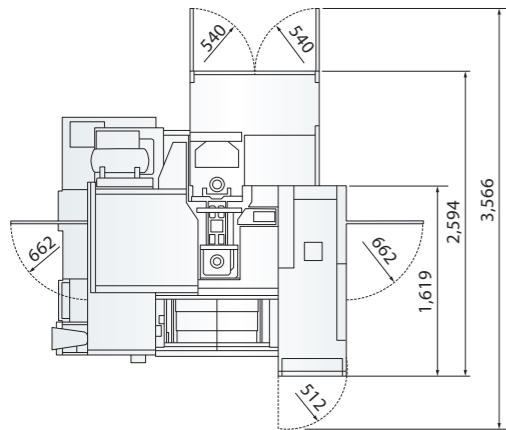
Tool Shank Dimensions



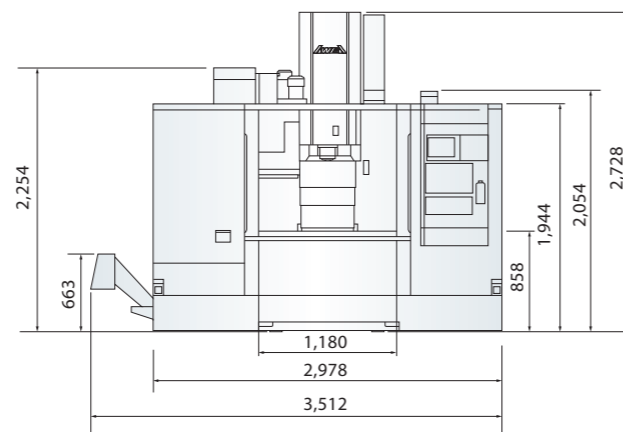
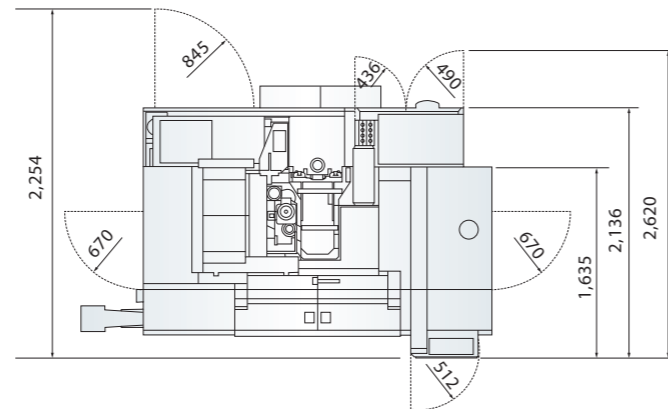
Models	A	B	C	D	E	F	G	H	I
AE-600	750	510	100	105	14	24	10	15	25.5
AE-800	860	510	100	105	14	24	10	15	25.5
AE-1000	1,200	510	100	105	18	30	13	20	34

Machine Dimensions

AE-600 / AE-800



AE-1000



AE series | Specifications

		AE-600	AE-800	AE-1000
SPECIFICATIONS				
X-axis travel	mm	600	800	1,020
Y-axis travel	mm	510		
Z-axis travel	mm	510		
Dist. from spindle nose to table top	mm	100 ~ 610		
TABLE				
Table size (X direction)	mm	750	860	1,200
Table size (Y direction)	mm	510		
Table load capacity	kg	500		700
T-slot (Width x Pitch x No.)		14 mm x 100 mm x 4		18 mm x 100 mm x 4
SPINDLE				
Spindle taper		BT40		
Spindle motor (Cont. / 30 min.)	kW	7.5 / 11		
Spindle speed	rpm	Belt-drive 10,000		
FEED RATE				
X / Y axes rapid feed rate	m/min.	48		32
Z-axis rapids feed rate	m/min.	32		24
Cutting feed rate	m/min.	1 ~ 15		
TOOL MAGAZINE				
Tool magazine capacity		Arm Type 24T		
Max. tool length	mm	250		
Max. tool weight	kg	8		
Max. tool diameter / adj. pocket empty	mm	Ø80 / Ø150		
ACCURACY				
Positioning accuracy (ISO230-2)	mm	0.006		
Repeatability (ISO230-2)	mm	0.005		
GENERAL				
Control system		FANUC Oi-MF / MITSUBISHI M80		
Pneumatic pressure requirement	kg/cm ²	6		
Power requirement		220 ± 10 % Vac / 20 kVA		
Machine dimension (W x D x H)	mm	2,595 x 2,500 x 2,845		2,314 x 3,513 x 2,718
Machine weight	kg	4,200	4,400	5,200

Specifications are subject to change without notice.

Standard Accessories

- Spindle air curtain
- Coolant nozzle around spindle
- Spindle cooling system
- Centralized automatic lubricating system
- Fully enclosed splash guard w/ roof
- Screw type chip auger
- Coolant system with pump and tank
- Heat exchanger for electric cabinet
- Automatic power-off system
- Status signal lamp
- Halogen light
- Foundation bolt kit
- Tool box
- Air gun system
- Water gun

Optional Accessories

- 10,000 / 12,000 rpm direct-driven spindle
- Automatic work piece measurement
- Automatic tool length measurement
- Coolant through spindle
- Spindle thermal compensation
- Gravity axis anti-drop function
- X / Y / Z axes optical linear scale
- Chips flush coolant system
- Caterpillar type chip conveyor and bucket
- CNC rotary table
- Disk type oil skimmer