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ISO 9001



ISO 14001



# FCV-620 Series

High Speed 5-Axis Machining Center



# FCV-620 Series

## High Speed 5-Axis Machining Center

Derived from AWEA's advanced R&D technology and high quality components, FCV-620 5-axis\*1 machining center offers high speed, high accuracy, easy operation and many other superior capabilities.

FCV-620 offers the best cost performance ratio than any other same class 5-axis machining centers in the field.

- Outstanding 5-axis\*1 simultaneous machining ability can finish complicated parts in a single setup which especially suits automobile, aerospace, medical and other industries that demand high accuracy.
- High performance B / C axes rotary working table. Table load capacity is up to 300 kg ( 0°~ 45° ). B-axis swiveling range is -50°~ +110°.
- Depending on machining requirements, FCV-620 provides 12,000 / 15,000 rpm direct-driven spindle or 16,000 / 20,000 rpm high speed built-in spindle for option.

\*1 FANUC Oi-MF is 4+1 axes.

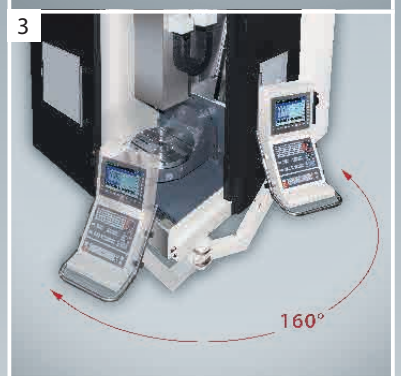
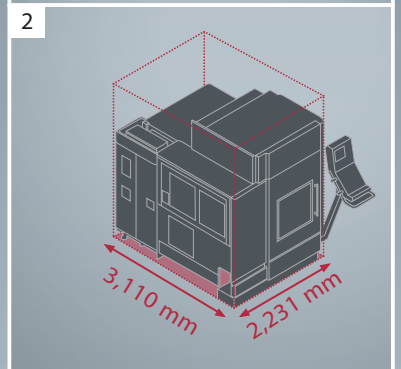
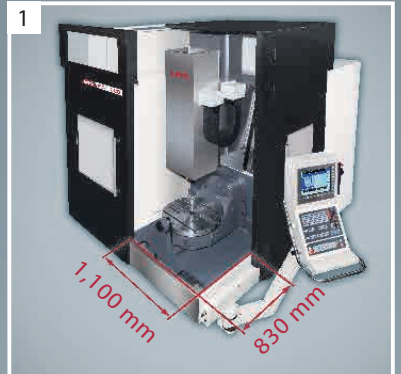


1 Double door design provides convenient work piece loading and unloading space.

2 Optimal compact structure design minimizes foot print increases the factory space efficiency.

3 Controller panel adopts 160° swivel design which ensures convenient operation.

4 High efficiency 32T arm type ATC system is equipped as standard accessory. 40T / 60T is also available for option.





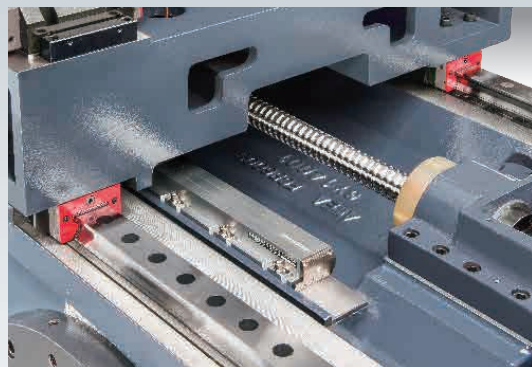
# FCV-620 Series

## High Speed 5-Axis Machining Center

Guided by Finite Element Analysis and utilizing high tension Meehanite casting structure allow one-piece bed, column and saddle to reach optimal design. Mechanical strength of machine can sustain extremely heavy cutting while maintaining long-term excellent accuracy. As a result, super rigidity structure of FCV-620 can also extend the life time of the tool usage.

- Movable column C-shape structure design provides the best structural rigidity and minimizes floor space at the same time.
- Column adopts one-piece thick ribs structure with 4 large-sized linear blocks well support saddle which remains steady while fast movement machining on Y-axis.
- All axes adopt roller type linear guide ways, featuring heavy cutting capability of box ways, and fast movement and low wear capabilities of linear guide way.
- X / Y / Z axes are direct driven by AC servo motor with absolute encoder, which provide powerful thrust and fast acceleration / deceleration movement with extreme accuracy.

**36 m/min** X / Y / Z axes rapid feed rate



### ■ Linear Scale ( Opt. )

The optional high resolution close-loop linear scale ensures excellent positioning and repeatability accuracy.

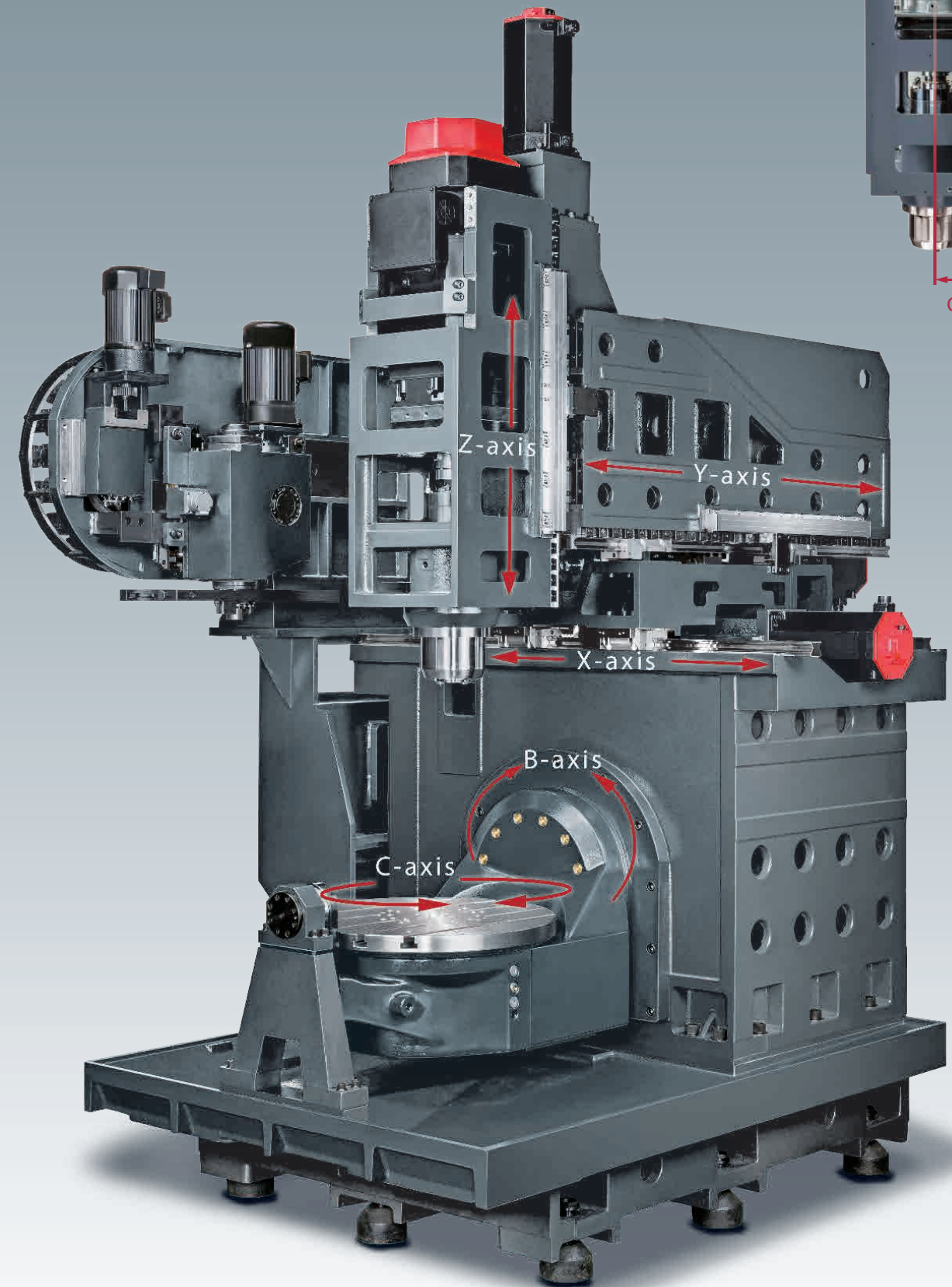
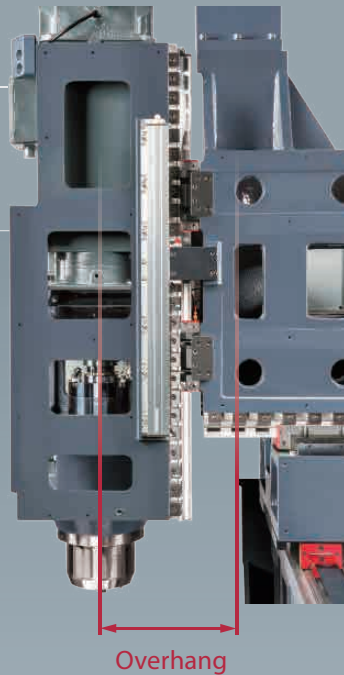


### ■ Rotary Working Table

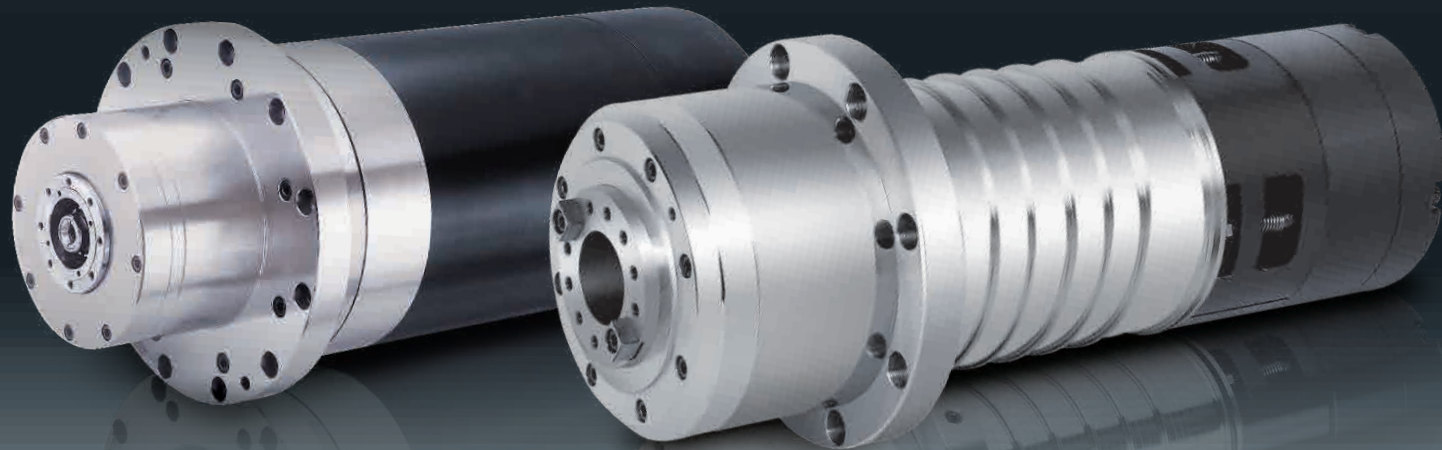
Advanced design of rotary table is unilateral driven and supported by both sides of structure to provide outstanding performance and accuracy.

### ■ Extremely Short Spindle Overhang

Minimal spindle overhang design ensures structural rigidity of spindle and machining accuracy.



# Ultimate Machining Power

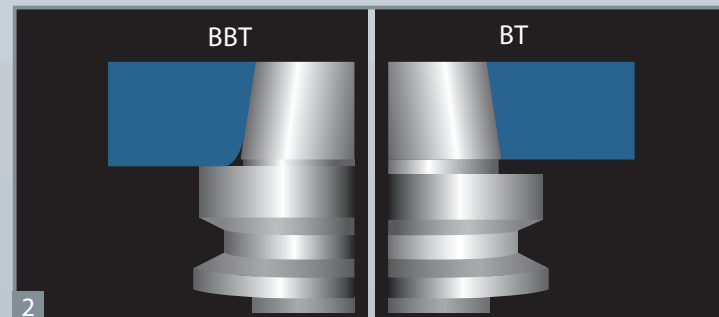


## High Speed Built-in Spindle

Built-in spindle efficiently lowers vibration of spindle while machining, which also extends life time of spindle and promote long period of machining accuracy.

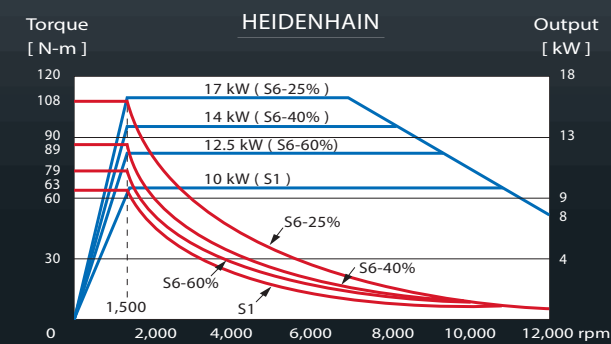
## High Speed Direct-driven Spindle

Direct driven design efficiently isolates heat from motor, reduces thermal deformation and maintain long period of machining accuracy.

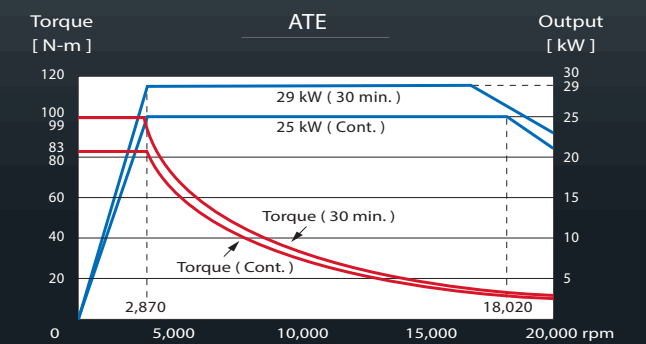


- 1 Optional coolant through spindle. ( 20 bar / 70 bar )
- 2 The inner taper of the spindle conforms with BBT40 tool to provide a firmer grip to the tools, which prevents tool vibration that affects machining accuracy. ( HSK-A63 is optional )

### 12,000 rpm direct-driven Spindle

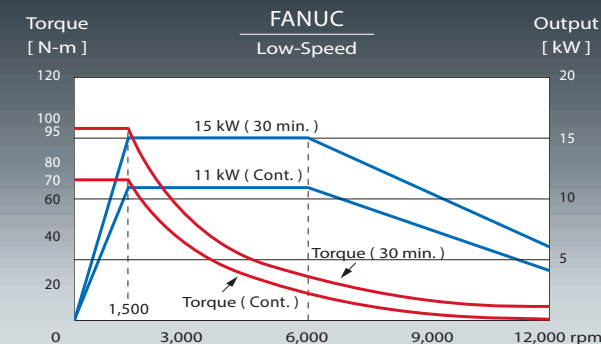


### 20,000 rpm Built-in Motorized Spindle

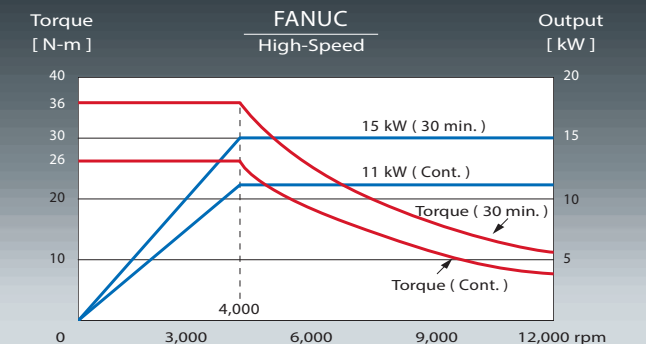


▶ other motors is also available

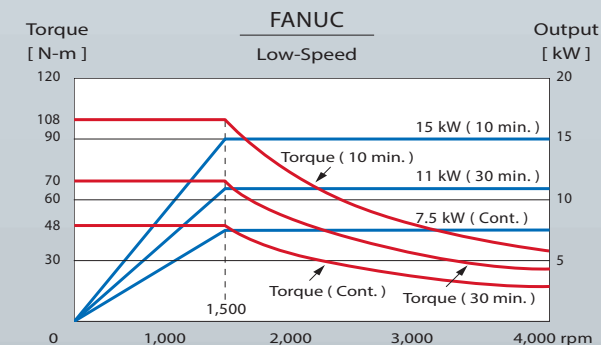
### 12,000 rpm direct-driven Spindle



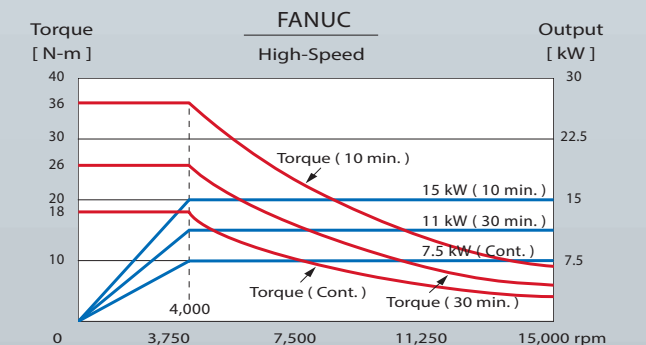
### 12,000 rpm direct-driven Spindle



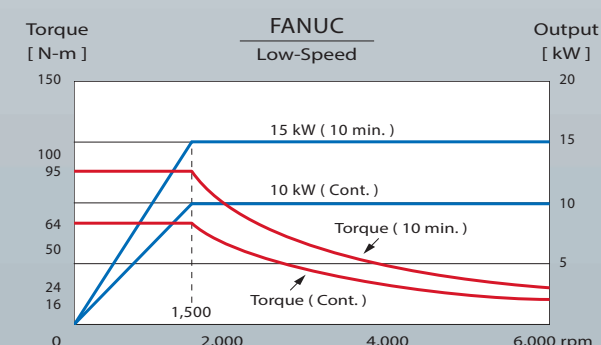
### 15,000 rpm direct-driven Spindle



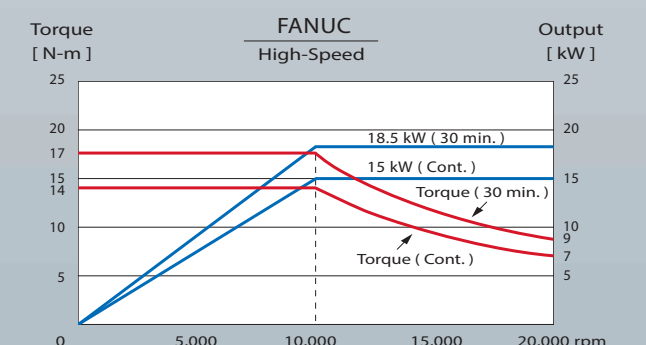
### 15,000 rpm direct-driven Spindle



### 20,000 rpm Built-in Motorized Spindle



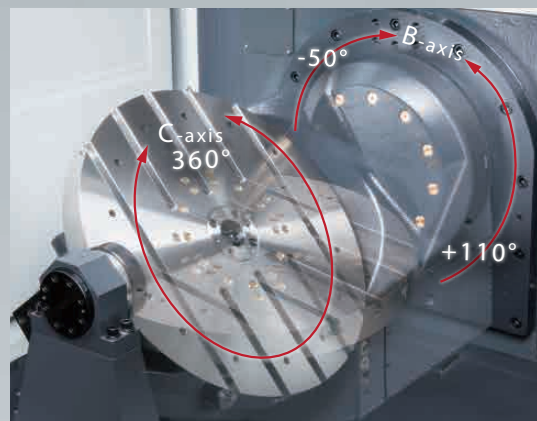
### 20,000 rpm Built-in Motorized Spindle





# High Performance Rotary Working Table

Rotary table adopts one-piece spheroidal graphite casting iron which provides excellent ductility and great anti-vibration ability to ensure optimal machining accuracy.



Ultra performance B / C axes

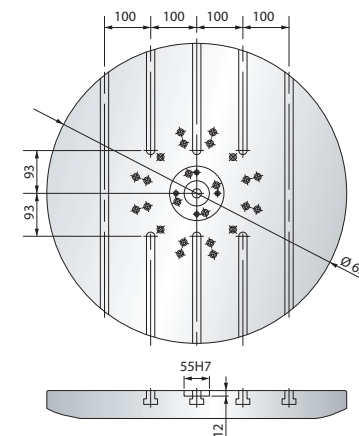
- Worm gear driven by servo motor
- Circular hydraulic brake system
- HEIDENHAIN rotary linear scale as standard accessory



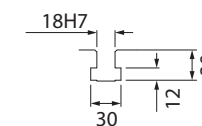
- Working table equips super rigidity tailstock support which ensures excellent machining accuracy during heavy loading or unbalancing force on table.

## Dimensions

### Table Dimensions

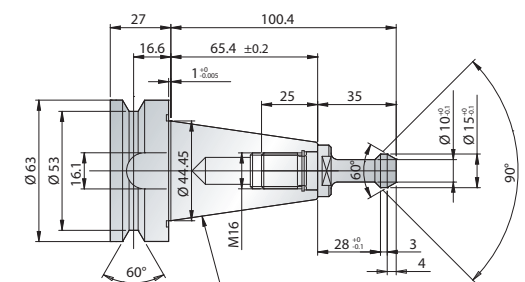


### T-slot Dimensions

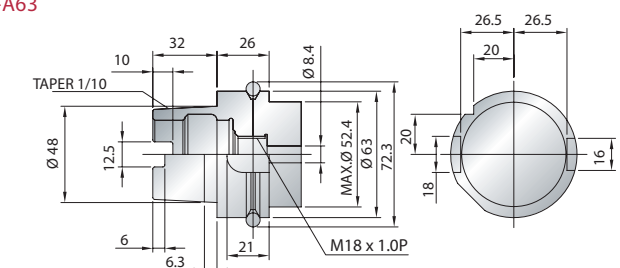


### Tool Shank and Pull Stud Dimensions

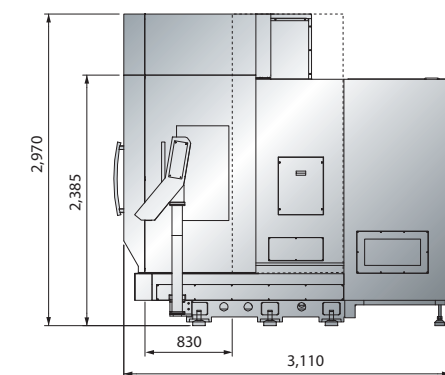
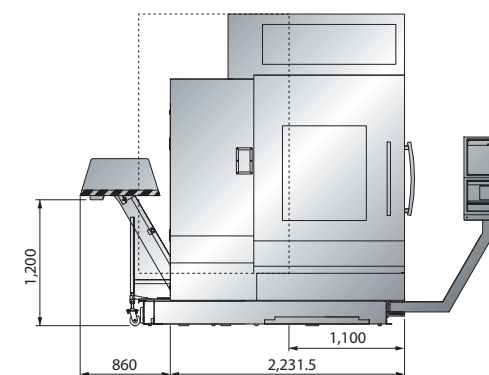
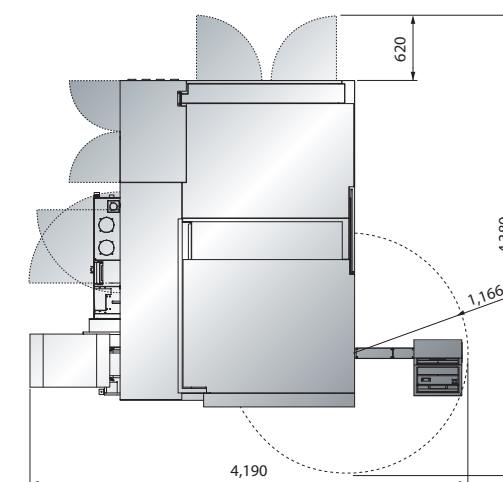
BBT40



HSK-A63



### Machine Dimensions

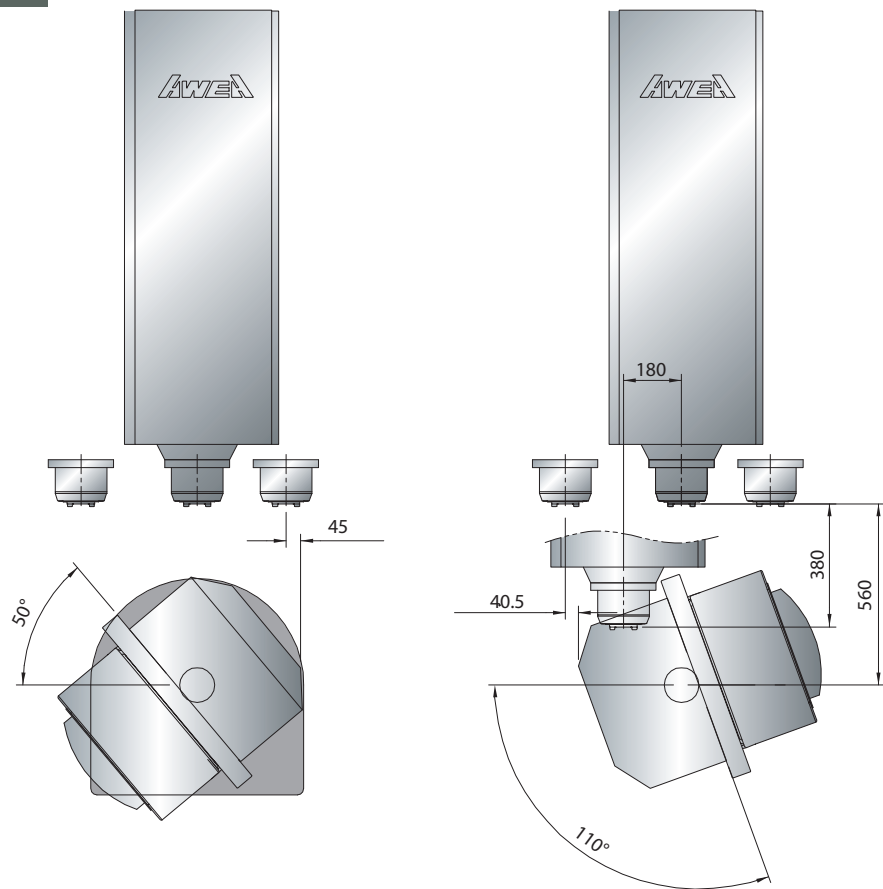


(unit : mm)

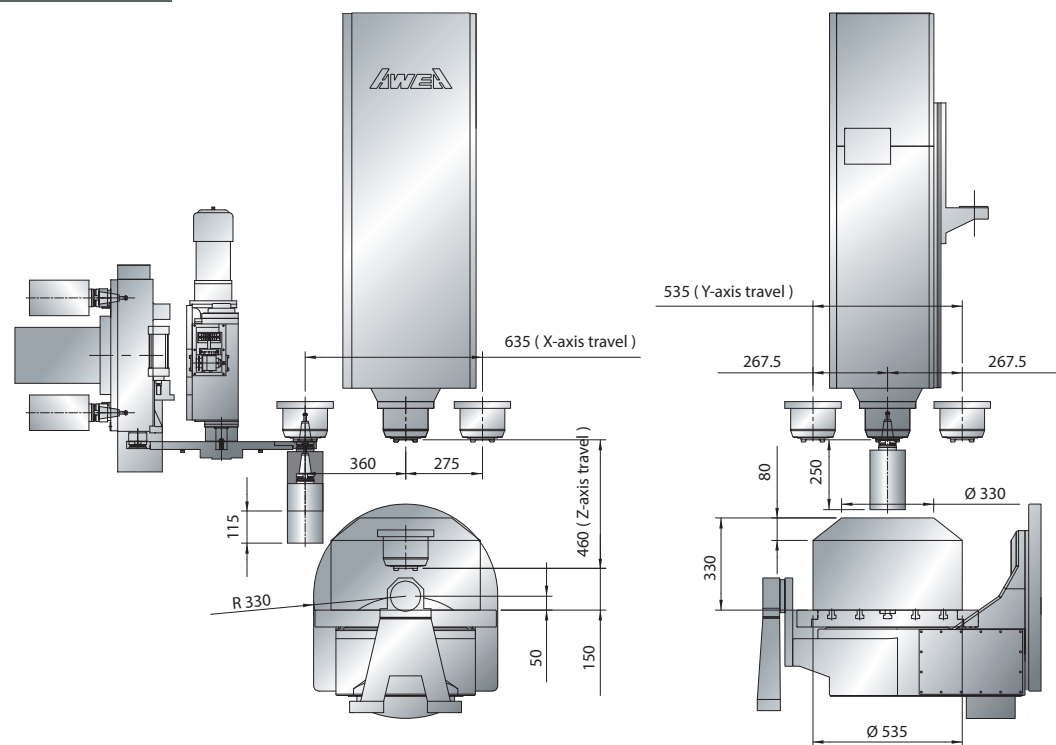
# Dimensions

## Interference Diagram

( unit : mm )



## Working Area



FCV-620

### SPECIFICATIONS

X-axis travel	mm	635
Y-axis travel	mm	535
Z-axis travel	mm	460
B-axis swiveling range		-50° ~ +110°
C-axis rotary range		360°
B / C axes swiveling speed	rpm	25
Distance from spindle nose to table center	mm	150 ~ 610

### WORKING TABLE

Table diameter	mm	Ø 650
Table load capacity ( 0°~ 45° )	kg	300
Table load capacity ( 45°~ 90° )	kg	200
T-slot ( width x no. x space )	mm	18 x 5 x 100

### SPINDLE

Spindle taper		BBT40 / HSK-A63
Spindle speed	rpm	Direct drive spindle 12,000 ( 15,000 ) Built-in spindle 16,000 ( 20,000 )
Spindle motor ( cont. / 30 min )	kW	11 / 15 ( FANUC 12,000 rpm )

### FEED RATE

X / Y / Z axes rapid feed rate	m/min.	36
Cutting feed rate	m/min.	1 - 20

### TOOL MAGAZINE

Tool magazine capacity	T	32 ( 40 / 60 )
Max. tool diameter / adj. pocket empty	mm	Ø 75 / Ø 127
Max. tool length	mm	250
Max. tool weight	kg	6

### ACCURACY

Positioning accuracy ( VDI 3441 )	mm	P ≤ 0.012 / Full Travel
Repeatability ( VDI 3441 )	mm	Ps ≤ 0.008

### GENERAL

Control system		HEIDENHAIN iTNC 640 / FANUC Oi -MF*1
Pneumatic pressure requirement	kg/cm <sup>2</sup>	6
Power requirement	kVA	50
Machine weight	kg	8,500

\*1 For 4+1 axes

Specifications are subject to change without notice.

### Standard Accessories

- B / C axes rotary encoder
- Spindle cooling system
- Spindle air curtain
- Coolant nozzle around spindle
- Centralized automatic lubricating system
- Chain type 32T tool magazine
- Coolant equipment system ( Pump & tank )
- Caterpillar type chip conveyor and bucket
- Roof enclosed splash guard
- AC cooler for electrical cabinet
- Water gun and air gun for cleaning
- LED work light + LED tube
- Standard RS-232 transmission interface + network interface card ( NIC )
- Tool box and anchor bolts
- Operation manual + maintenance guide
- Chips wash down
- Alarm light
- HEIDENHAIN iTNC 640 control system
- 15,000 rpm direct-driven spindle

### Optional Accessories

- 16,000 / 20,000 rpm built-in spindle
- Coolant through spindle
- Spindle thermal compensation
- Automatic power off system
- X / Y / Z axes linear scale
- Chain type 40 / 60 T tool magazine
- Oil skimmer
- Automatic tool length measurement
- Automatic work piece measurement
- Transformer