



## 5-AXIS VERTICAL MACHINING CENTER

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AX-320 / AX-450

BX-320C / BX-500C / BX-630C / BX-630CS

**CNC-TAKANG**

**CNC-TAKANG CO., LTD.**

**MANUFACTURER & EXPORTER**

**5-AXIS VMC Series**

## AX-320 / AX-450



▲ 5-AXIS synchronized machining saves machining time, reduces repetitive workpiece setup and error. Excellent for aerospace parts, multiple curved faces mold and multiple -faces parts machining.

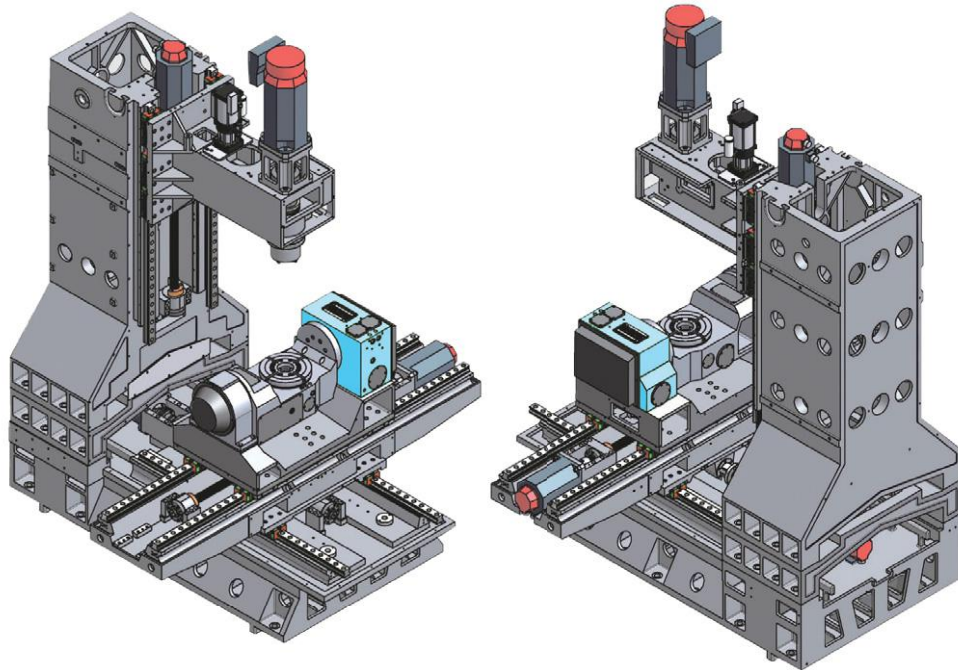
### ■ AX-320

X, Y, Z Axis Linear Way  
With 660mm / 610mm / 610mm Travel  
And Rapid Feed 30/30/24 m/min  
A Axis Tilt 150° (-120° to +30°)  
C Axis Rotary 360°  
ISO40 Spindle Taper

### ■ AX-450

X, Y, Z Axis Linear Way  
With 760mm / 610mm / 560mm Travel  
And Rapid Feed 30/30/24 m/min  
A Axis Tilt 220° (-110° to +110°)  
C Axis Rotary 360°  
ISO40 Spindle Taper

## ■ AX-320

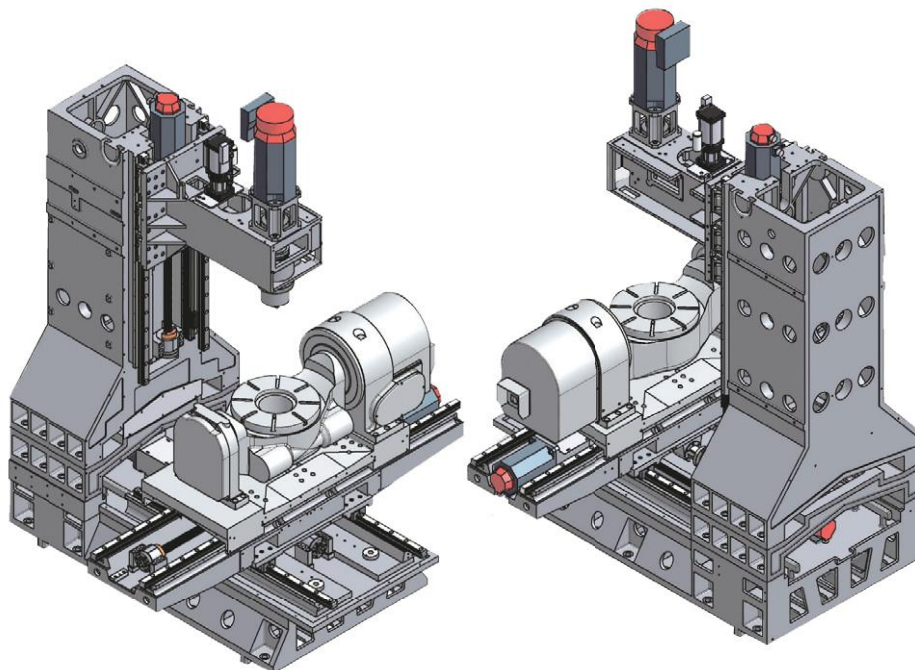


The major structural parts are made from high quality Meehanite cast iron (BG 300), tempered for stress relief with hardness over 190HB.

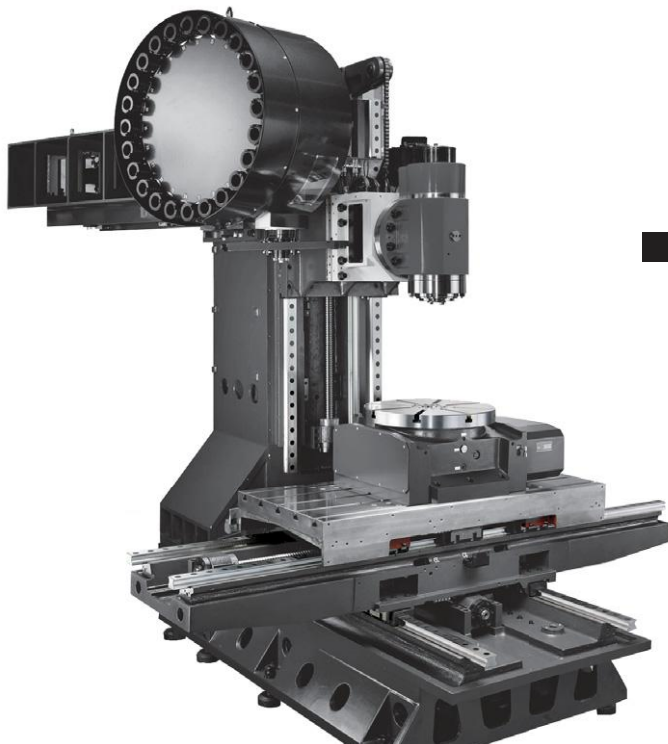
45mm roller linear way on X, Y & Z axis increases stability.

X, Y & Z axes are transmitted with class C3, Dia.40mm ball screws.

## ■ AX-450



## BX-320C / BX-500C / BX-630C



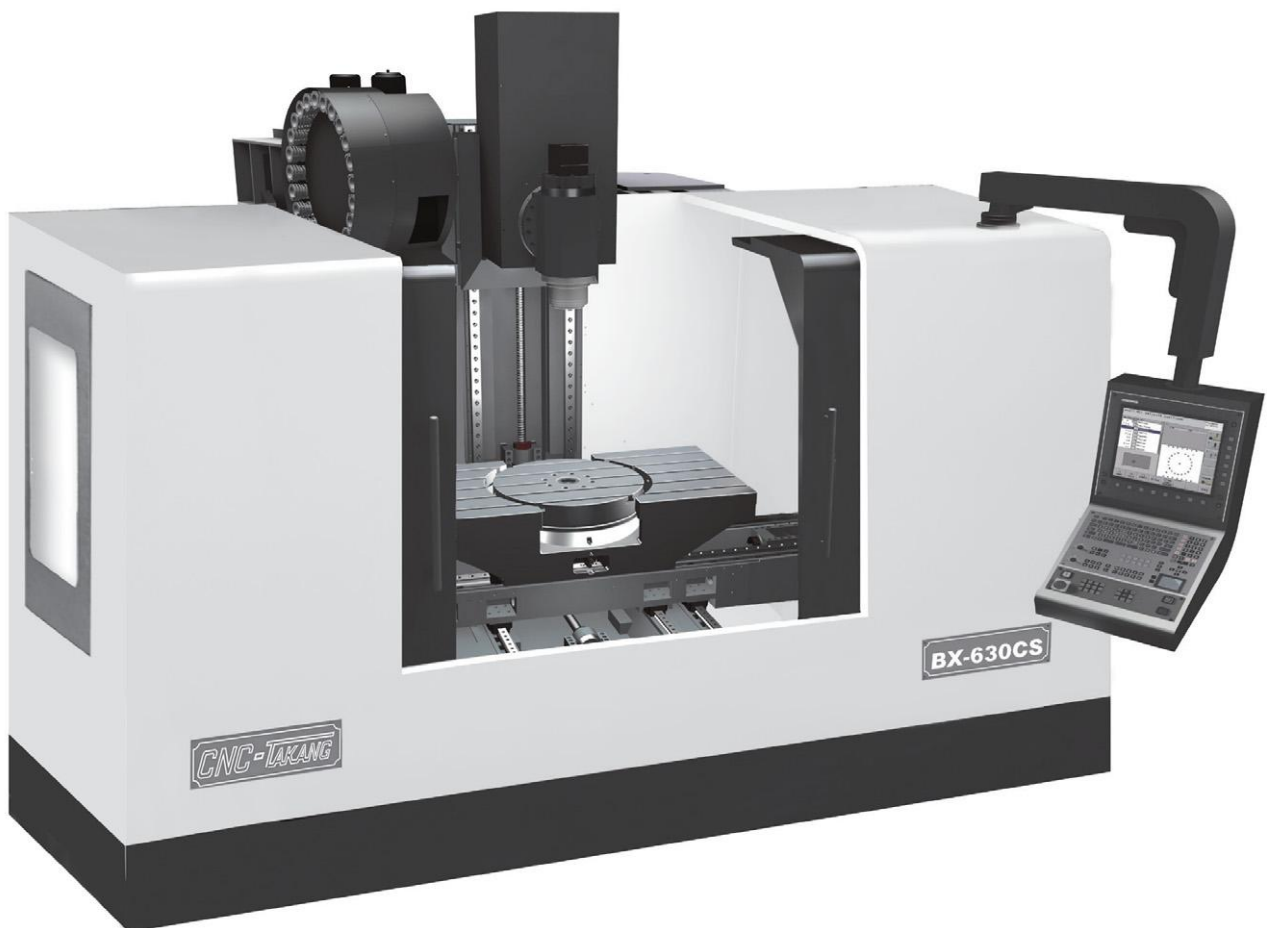
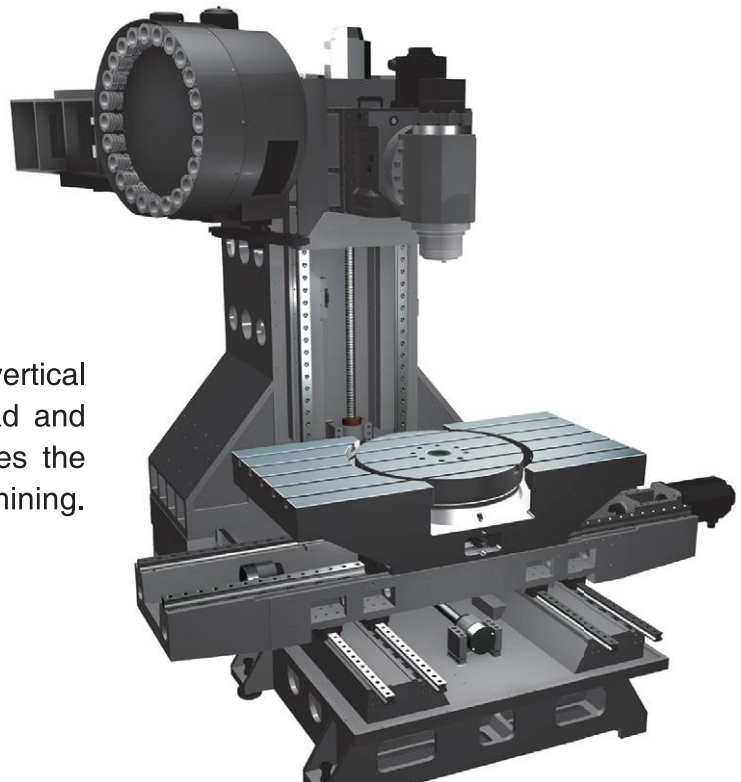
### ■ BX-320C / BX-500C / BX-630C

5-axis control vertical machining center with a swivel head and rotary table design. With removable rotary table, machine can work as 4-axis machine.

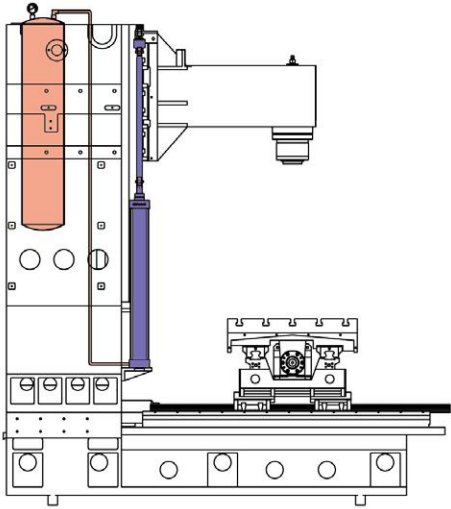


## ■ BX-630CS

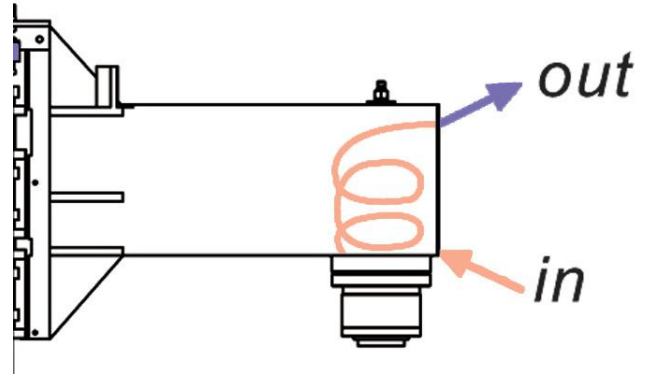
High precision, 5-axis controlled vertical machining center with swivel head and DD motor on rotary table achieves the highest productivity in 5-axis machining.



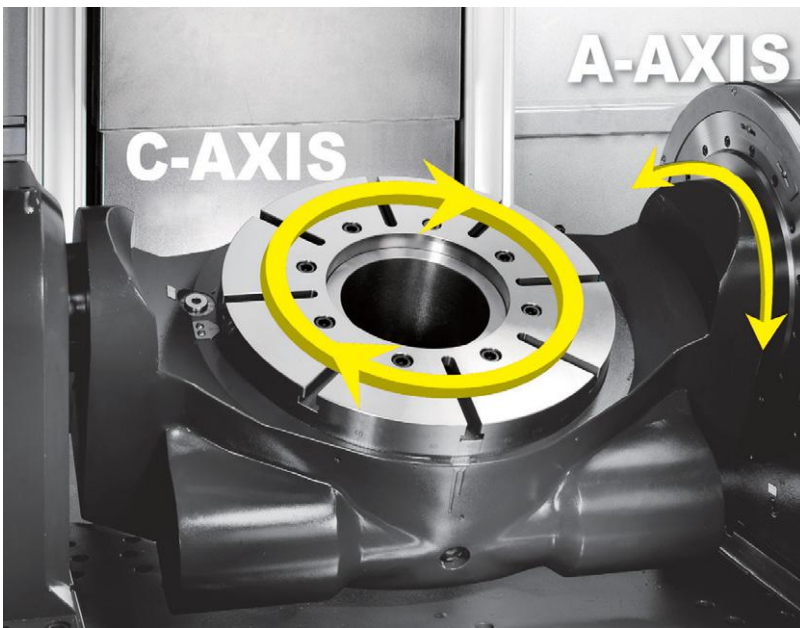
# AX Series



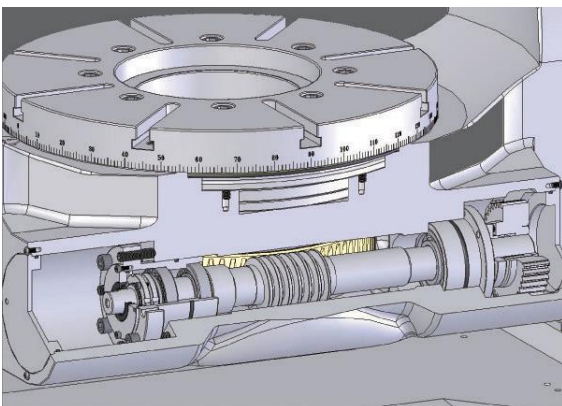
▲ PNEUMATIC COUNTER BALANCE SYSTEM



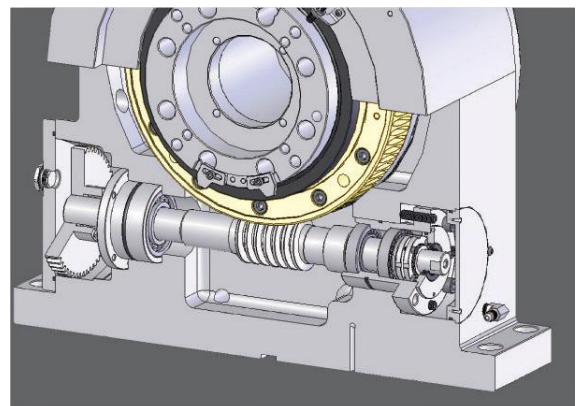
▲ COOLING SYSTEM TO SPINDLE



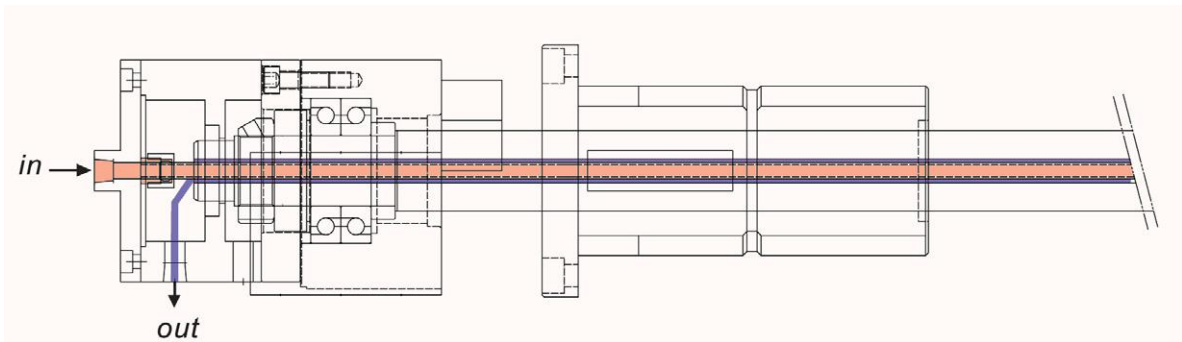
▲ Rotary Table diameter 320 / 450mm  
Table rotation and tilting are driven by servo motors.



▲ Rotating index accuracy 15 arc sec.



▲ Tilting index accuracy 45 arc sec.



▲ COOLANT THROUGH BALL SCREW ( AX & BX Series )

## ■ BX series

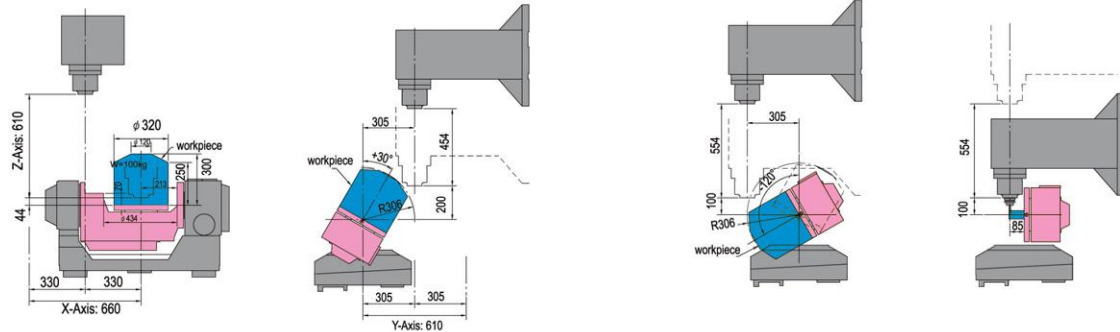


- ▲ Built-in 15,000rpm spindle with  $\pm 120^\circ$  swing.  
B axis swivel head is designed with dual pitch worm gear set to eliminate teeth backlash and create excellent transmission.

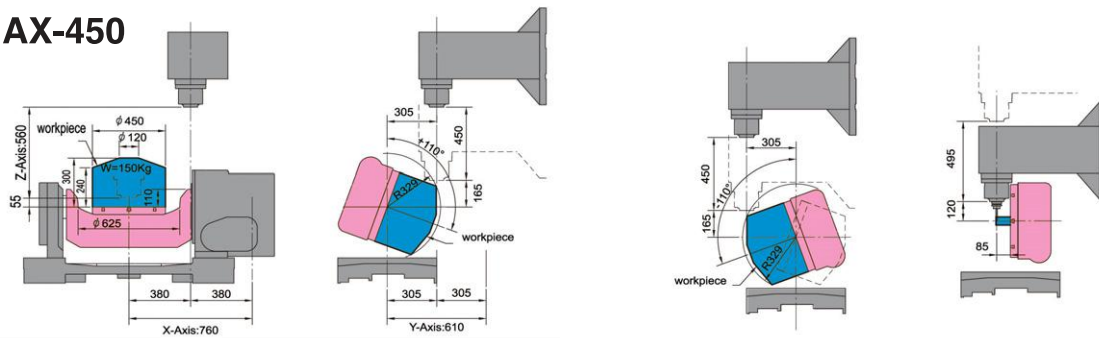
# AX-320 / AX-450

## WORK RANGE (unit:mm)

### AX-320

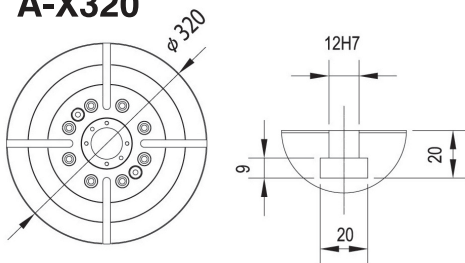


### AX-450

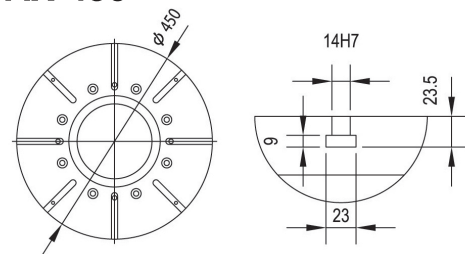


## TABLE SIZE (unit: mm)

### A-X320

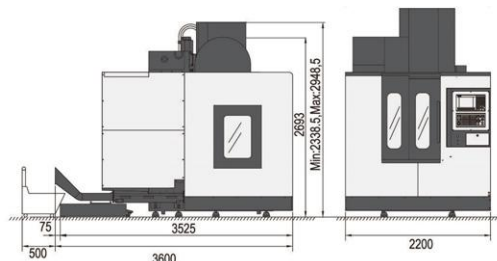
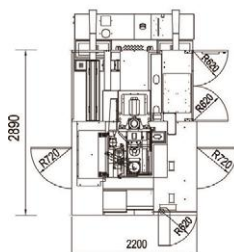


### AX-450

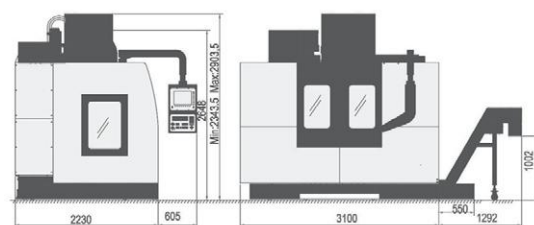
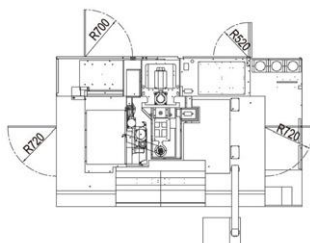


## FLOOR SPACE (unit: mm)

### AX-320



### AX-450





## SPECIFICATIONS

| MODEL / DESCRIPTION |                                 | AX-320   | AX-450   |
|---------------------|---------------------------------|--|--|
| Table               | Table size                      | Dia. 320 mm (12.6")                                  | Dia. 450 mm (17.72")                                 |
|                     | Travel ranges (X / Y / Z)       | 660 x 610 x 610 mm<br>(25.98" x 24.02" x 24.02")     | 760 x 610 x 560 mm<br>(29.92" x 24.02" x 22.05")     |
|                     | T slot size                     | 12 mm x 90° (0.47" x 90°)                            | 14 mm x 45° (0.55" x 45°)                            |
|                     | Max. able load (0° / 90°)       | 150 / 150 kgs  | 300 / 250 kgs  |
|                     | Max. workpiece size (W x H)     | Dia. 420 x 300 mm (16.54" x 11.81")                  | Dia. 600 x 300 mm (23.62" x 11.81")                  |
|                     | Diameter of table hole          | 50 mm (1.97")  | 171 mm (6.73")                                       |
|                     | Spindle nose to table surface   | 50 ~ 605 mm (1.97" ~ 23.82")                         | 50 ~ 565 mm (1.97" ~ 22.24")                         |
|                     | A axis, tilt (deg) / (0.001°)   | 150° (-120° / + 30°)                                 | 220° (± 110°)  |
|                     | C axis, rotary (deg) / (0.001°) | 360°   |  |
| Spindle             | Tool shank and pull stud        | ISO 40   |  |
|                     | Spindle inner diameter          | 70 mm (2.76")  |  |
|                     | Spindle speed direct drive      | 10000 rpm  |  |
|                     | Spindle speed built-in          | 15000 rpm  |  |
|                     | Main motor (con / 30 min)       | 9 / 12 kw  |  |
| Axis Servo Motor    | Rapid feed rate (X / Y / Z)     | 30 / 30 / 24 M / min.                                |  |
|                     | Feed rate (X / Y / Z)           | 10000 mm / min.                                      |  |
|                     | Feed rate (A / C)               | 5.5 / 11.5 rev / min.                                |  |
|                     | X axis rated torque             | 10 Nm  |  |
|                     | Y axis rated torque             | 10 Nm  |  |
|                     | Z axis rated torque             | 10 Nm  |  |
|                     | A axis rated torque             | 5 Nm   | 10 Nm  |
|                     | C axis rated torque             | 3.8 Nm   | 10 Nm  |
| Auto Tool Changer   | ATC type                        | DISK / CHAIN (Opt.)                                  |  |
|                     | CAM type                        | ARM  |  |
|                     | Tool selection (Bi-direction)   | RANDOM   |  |
|                     | Tool storage capacity           | 24 pcs / 30, 40 pcs (Opt.)                           |  |
|                     | Max. tool diameter              | 90 mm (3.54") / 76 mm (2.99") (Opt.)                 |  |
|                     | Max. tool length                | 300  |  |
|                     | Max. tool weight                | 8  |  |
| Miscellaneous       | Air requirement                 | 6 kg / cm <sup>2</sup>                               |  |
|                     | Hydraulic requirement           | 40 kg / cm <sup>2</sup> , 30 L                       |  |
|                     | Power requirement               | 40 KVA   |  |
|                     | Coolant tank capacity           | 300 L  |  |
|                     | Machine weight                  | 6500 kgs   | 7000 kgs   |
|                     | Machine height                  | 2900 mm (114.17")                                    |  |
|                     | Floor space (L x W)             | 2660 x 2230 mm (104.72" x 87.8")                     | 3100 x 2230 mm (122.05" x 87.8")                     |
|                     | Packing size (L x W x H)        | 2660 x 2230 x 2560 mm<br>(104.72" x 87.8" x 100.79") | 3100 x 2230 x 2560 mm<br>(122.05" x 87.8" x 100.79") |

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### STANDARD ACCESSORIES:

- Spindle oil chiller
- Cutting air blower
- Coolant and auto lubrication system
- Full splash guard
- Z axis pneumatic balance system
- Hollow ball screws with cooling system
- Encoder for A/C axes (AX series)
- Encoder for B/C axes (BX series)
- Rigid tapping
- Remote MPG
- RS-232C interface
- Operation status light
- Work light
- Tool box and tools
- Leveling bolts and pads
- Operation and program manuals
- Linear guideways on X, Y, Z axis
- Metal way chip cover for 3 axes (AX series)
- Heidenhain linear scales for X, Y, Z axes

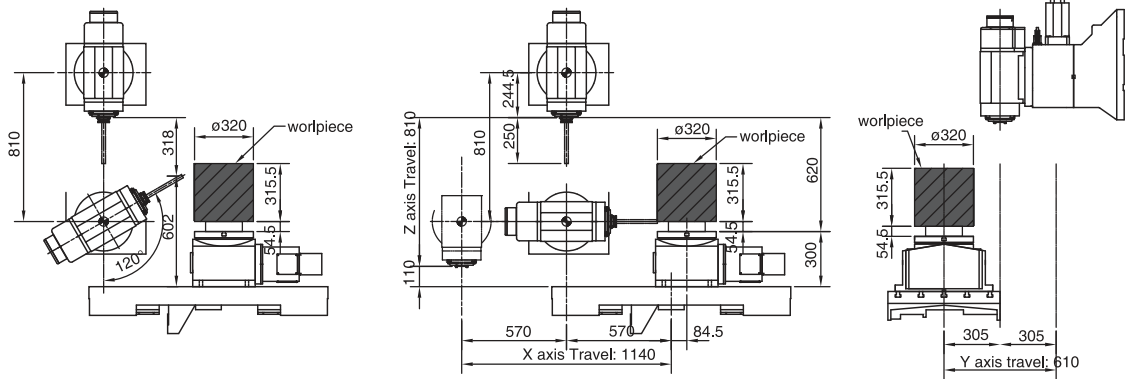
### OPTIONS:

- Coolant through spindle
- Auto tool length measurement
- Auto workpiece measurement
- Transformer
- CE mark

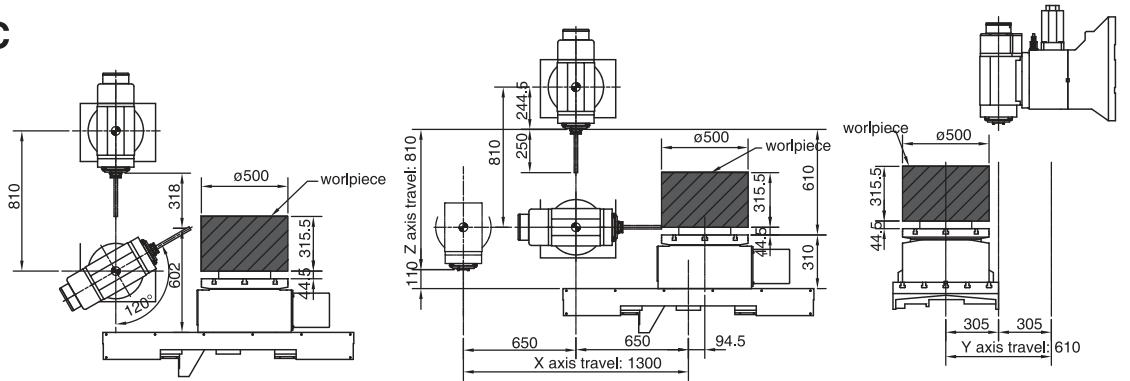
# BX Series

## ■ WORK RANGE (unit: mm)

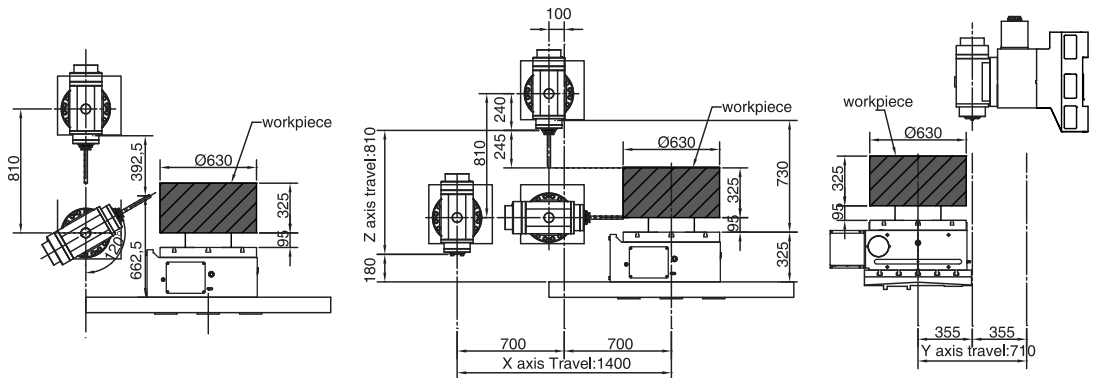
### BX-320C



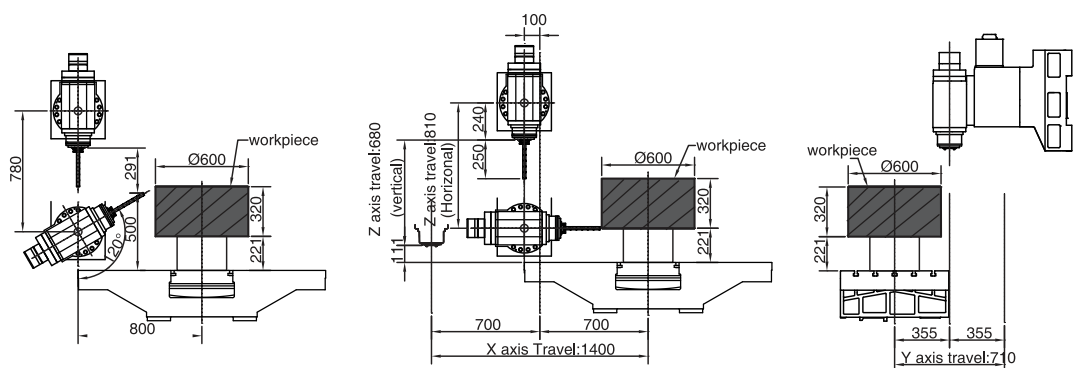
### BX-500C



### BX-630C

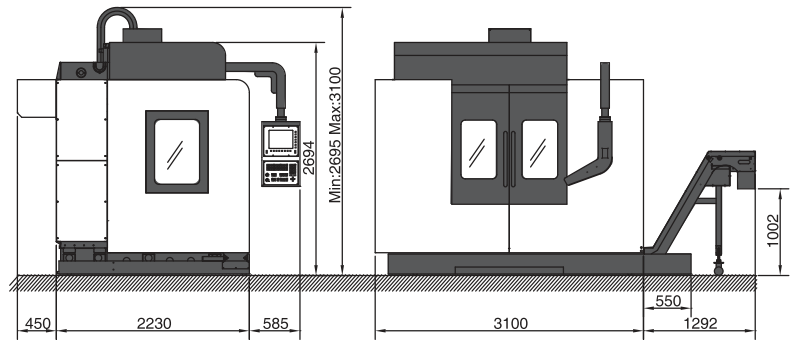
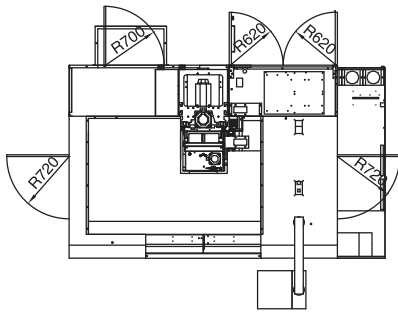


### BX-630CS

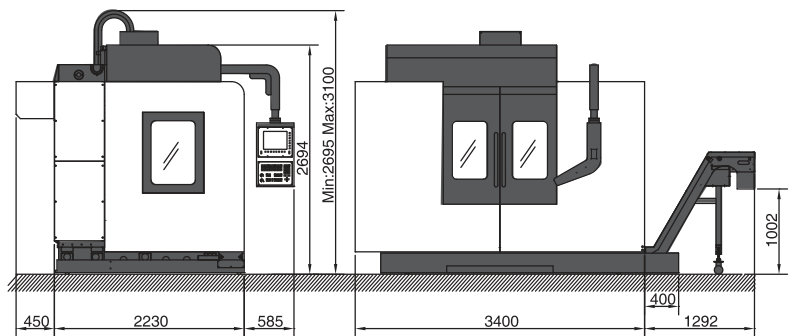
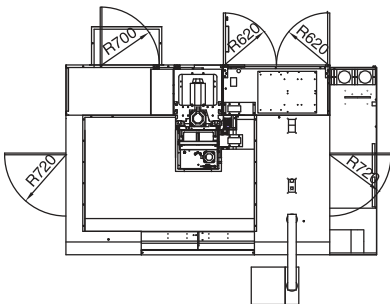


## ■ FLOOR SPACE (unit: mm)

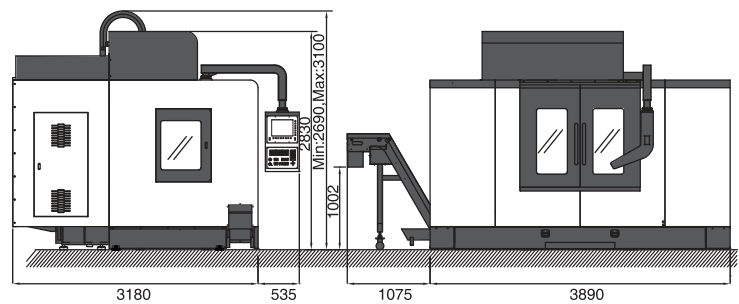
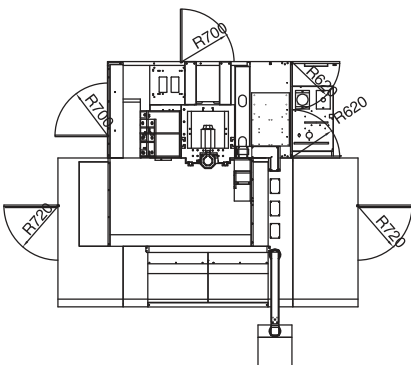
### BX-320C



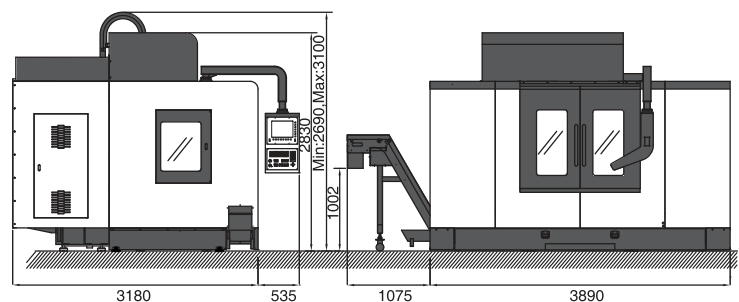
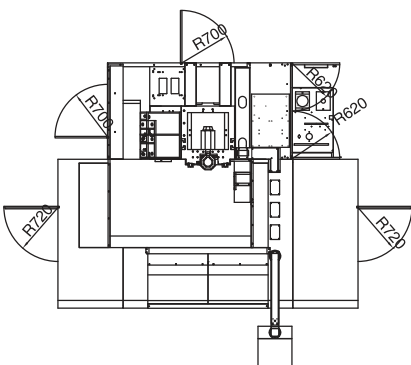
### BX-500C



### BX-630C



### BX-630CS



## SPECIFICATIONS

| MODEL / DESCRIPTION      |   | BX-320C   | BX-500C   | BC-630C                             | BC-630CS                         |                        |
|--------------------------|---|---|---|-------------------------------------|----------------------------------|------------------------|
| Table                    | Table Size  | Dia. 1300 x 610 mm<br>(51.18 x 24.02")              | Dia. 1450 x 610 mm<br>(57.09 x 24.02")              | Dia. 1600 x 700 mm (62.99 x 27.56") |                                  |                        |
|                          | Travel range (X)                                    | 1140 mm (44.88")                                    | 1300 mm (51.18")                                    | 1400 mm (55.12")                    |                                  |                        |
|                          | Travel range (Y)                                    | 610 mm (24.02")                                     |   | 710 mm (27.95")                     |                                  |                        |
|                          | Travel range (Z)                                    | 810 mm (31.89")                                     |   |                                     | Vertical milling 680             | Horizontal milling 810 |
|                          | Max. table load                                     | 850 kgs   |   | 1000 kgs                            | 1000 kgs                         |                        |
|                          | Spindle nose to table surface<br>(vertical)         | 110 ~ 920 mm (4.33 ~ 36.22")                        |   | 180 ~ 990 mm<br>(7.09 ~ 38.98")     | 110 ~ 790 mm<br>(4.33 ~ 31.1")   |                        |
|                          | Spindle nose to table surface<br>(horizontal)       | 355 ~ 1165 mm (13.98 ~ 45.87")                      |   | 420 ~ 1230 mm<br>(16.54 ~ 48.43")   | 220 ~ 1030 mm<br>(8.66 ~ 40.55") |                        |
|                          | T slot size   | 18 x 125 x 5 mm (0.71 x 4.92 x 0.2")                |   |                                     |                                  |                        |
| Built-in Spindle         | Spindle taper                                       | DIN 40  |   |                                     |                                  |                        |
|                          | Spindle inner diameter                              | 70 mm (2.76")                                       |   |                                     |                                  |                        |
|                          | Spindle center to column                            | 675 mm (26.57")                                     |   | 760 mm (29.92")                     |                                  |                        |
|                          | Spindle speed                                       | 15000 rpm   |   |                                     |                                  |                        |
|                          | Draw bar force                                      | 800 ± 100 kgf                                       |   | 900 ± 100 kgf                       |                                  |                        |
|                          | Main motor (con / S6 60%)                           | 15 / 18 kw  |   | 15 / 19.4 kw                        |                                  |                        |
|                          | Motor type  | INDRAMAT<br>IMB 160F-4B                             |   | E+A<br>mW16/17-8                    |                                  |                        |
|                          | Motor torque (con / max)                            | 48 / 120 Nm   |   | 71.6 / 172 Nm                       |                                  |                        |
| Swing Head               | Driver type   | WORM GEAR   |   |                                     |                                  |                        |
|                          | Reduction ratio                                     | 1 : 72  |   | 1 : 120                             |                                  |                        |
|                          | Tilting range (deg)                                 | ± 120°  |   |                                     |                                  |                        |
|                          | Max. speed  | 25 rpm  |   | 16.6 rpm                            |                                  |                        |
|                          | Min. unit   | 0.001°  |   |                                     |                                  |                        |
|                          | Clamp torque  | 1157 Nm   |   | 1765 Nm                             |                                  |                        |
|                          | Working torque                                      | 764 Nm  |   | 765 Nm                              |                                  |                        |
| Rotary Table             | Drive type  | WORM GEAR   |   |                                     | DIRECT DRIVE                     |                        |
|                          | Type  | SEPARATED   |   | SEPARATED                           | EMBEDDED                         |                        |
|                          | Table diameter                                      | 320 mm (12.6")                                      | 500 mm (19.69")                                     | 630 mm (24.8")                      |                                  |                        |
|                          | Center bore diameter                                | 70 mm (2.76")                                       | 60 mm (2.36")                                       | 75 mm (2.95")                       | 60 mm (2.36")                    |                        |
|                          | Rotation speed                                      | 22.2 rpm  | 11.1 rpm  | 11.1 rpm                            | 50 rpm                           |                        |
|                          | Min. index  | 0.001°  |   |                                     |                                  |                        |
|                          | Max. table load                                     | 350 kgs   | 500 kgs   | 800 kgs                             | 1000 kgs                         |                        |
| Axis Servo Motors        | Rapid feed rate (X / Y / Z)                         | 36 / 36 / 24 M / min                                |   |                                     |                                  |                        |
|                          | Feed rate (X / Y / Z)                               | 10000 mm / min.                                     |   |                                     |                                  |                        |
|                          | Rated torque (X / Y / Z)                            | 11 / 11 / 11 Nm                                     |   | 18.1 / 18.1 / 18.1 Nm               |                                  |                        |
|                          | B axis rated torque                                 | 11 Nm   |   |                                     |                                  |                        |
|                          | C axis rated torque                                 | 11 Nm   |   | 533 Nm                              |                                  |                        |
| Tool magazine            | ATC type  | CHAIN   |   |                                     |                                  |                        |
|                          | CAM type  | Dual ARM  |   |                                     |                                  |                        |
|                          | Tool selection (Bi-direction)                       | RANDOM  |   |                                     |                                  |                        |
|                          | Tool storage capacity                               | 30 pcs / 40, 60 pcs (Opt.)                          |   | 40 pcs / 60 pcs (Opt.)              |                                  |                        |
|                          | Max. tool diameter                                  | 75 mm   |   |                                     |                                  |                        |
|                          | Max. tool length                                    | 250   |   |                                     |                                  |                        |
| Accuracy                 | Max. tool weight                                    | 8   |   |                                     |                                  |                        |
|                          | Positioning XYZ linear axis                         | 0.005 mm  |   |                                     |                                  |                        |
|                          | BC rotary   | 14 / 14 sec.  |   | 14 / 10 sec.                        |                                  |                        |
|                          | Repeatability XYZ linear axis                       | 0.003mm   |   |                                     |                                  |                        |
| Miscellaneous            | BC rotary   | 8 / 8 sec.  |   | 8 / 6 sec.                          |                                  |                        |
|                          | Air requirement                                     | 6 kg / cm <sup>2</sup>                              |   |                                     |                                  |                        |
|                          | Power requirement                                   | 40 KVA  |   |                                     |                                  |                        |
|                          | Coolant tank capacity                               | 300 L   |   | 450 L                               |                                  |                        |
|                          | Machine weight                                      | 6500 kgs  | 6800 kgs  | 11000 kgs                           | 12000 kgs                        |                        |
|                          | Machine height                                      | 3100 mm (122.05")                                   |   |                                     |                                  |                        |
|                          | Floor space (L x W)                                 | 3100 x 2230 mm<br>(122.05 x 87.8")                  | 3400 x 2230 mm<br>(133.86 x 87.8")                  | 3890 x 3180 mm<br>(153.15 x 125.2") |                                  |                        |
| Packing size (L x W x H) | 3150 x 2300 x 2550 mm<br>(124.02 x 90.55 x 100.39") | 3450 x 2300 x 2550 mm<br>(135.83 x 90.55 x 100.39") | 3230 x 2300 x 2560 mm<br>(127.17 x 90.55 x 100.79") |                                     |                                  |                        |

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### ■ STANDARD ACCESSORIES & OPTIONS:

Same as AX series (p.9)

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