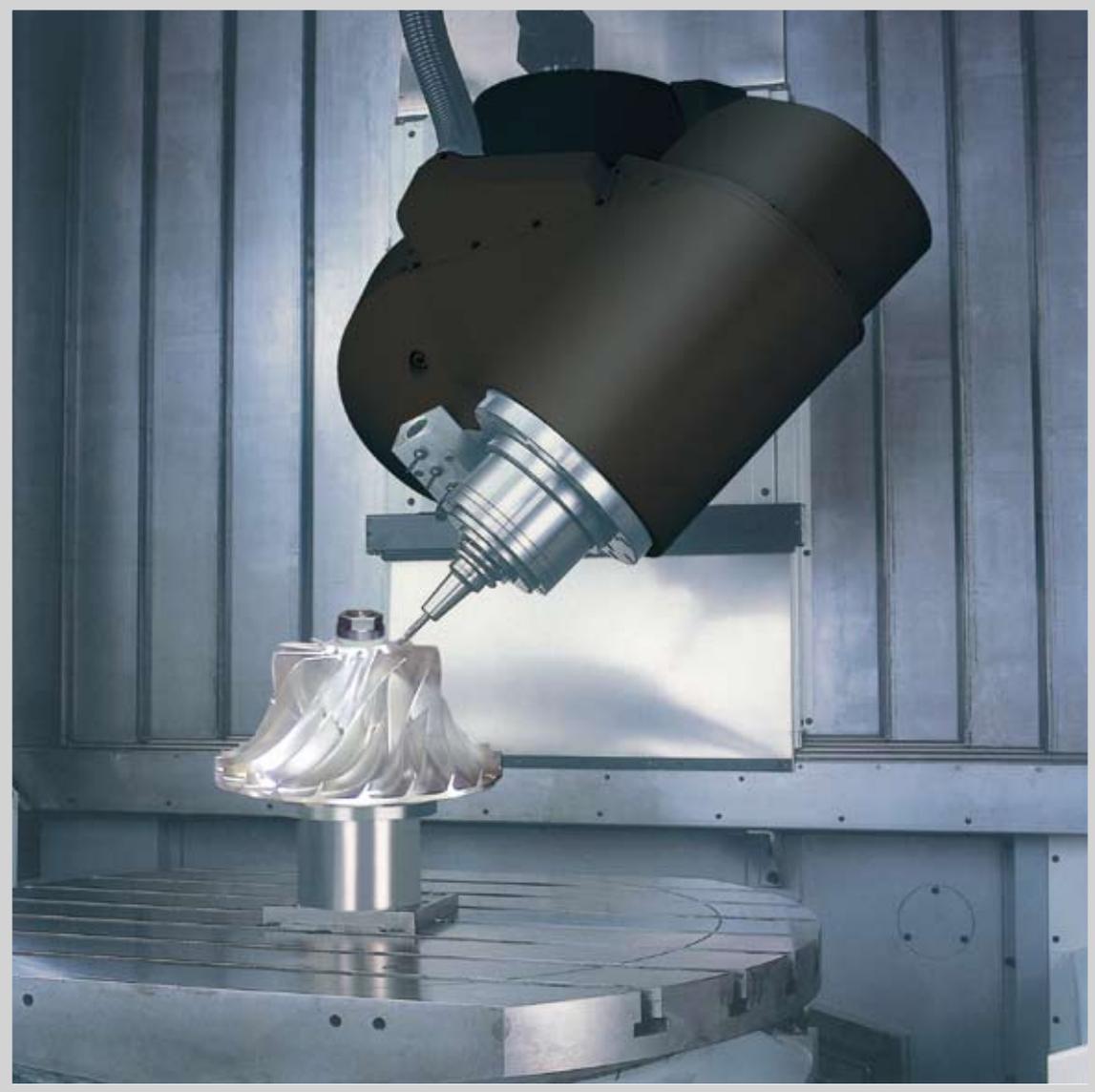


# Eumach

*Always A Step Ahead*



**UMC-1000**

**5 AXES MACHINING CENTER**

**5 AXES**

**A PROFESSIONAL CNC MACHINES MANUFACTURER**

# **THE MOST EFFICIENT & INTELLIGENT MACH PERFORMANCE MACHINING, INCREASE PRO**

## **• UMC-1000 5 AXIS SIMULTANEOUS MILLING CENTER :**

- 1000mm x 800mm x 700mm three axis travel
- 1000mm x 800mm working rotary table with 1500kg load
- 0.001 degree swivel milling head and rotary table :  
Torque motor driven B axis swivel milling head  
Worm gear driven C axis rotary table
- Standard 3 axis linear scales + 2 axis rotary encoders
- BT#40 / 14000RPM / 29.3KW motor spindle
- Time saving thanks to multi-sided machining without having re-set
- Maximum productivity thanks to rapid movement and high acceleration
- Unlimited flexibility & versatility when manufacturing individual part
- Maximum stability thanks to optimum load distribution
- Highest machine precision repeatability thanks to the avoidance of any axis overlapping

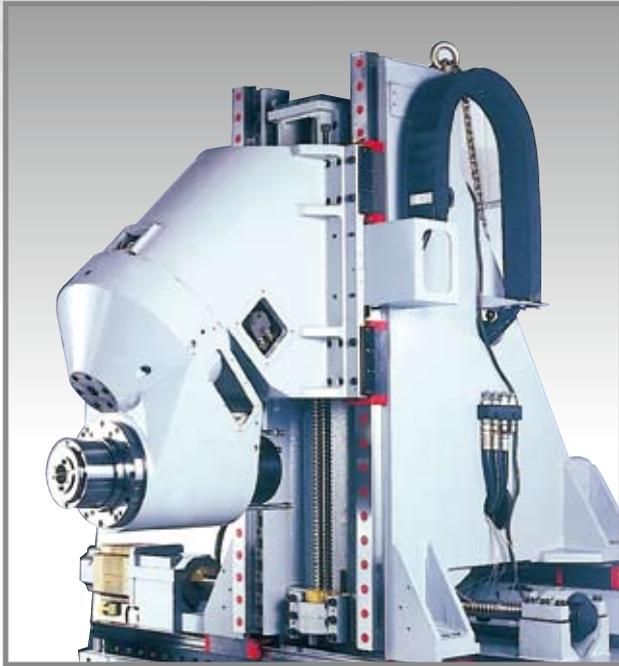


# ***INING CONCEPT FOR MULTI-SIDED HIGH DUCTIVITY, FLEXIBILITY AND REPEATABILITY***



**Sliding front & side doors with a super wide top opening, this make very easily for straight forward loading awkward shaped workpiece.**

# NEXT GENERATION



Automatic swiveling milling head

## ● ROLLER GUIDEWAYS

- ▶ The high rigid & heavy duty roller type linear motion guideways on 3 axes to provide low starting inertia, low friction and high acceleration, rates optimizing servo drive and ensure machine response immediately & precisely for high speed cutting requirements, especially in rapid positioning and contouring cutting.

## ● BALL SCREWS

- ▶ The high precise & rigid 50mm diameter ballscrews on 3 axes, driven by powerful AC servo motors, directly coupled by couplings provides the utmost results in high speed cutting for the very fine accuracy and finishing.

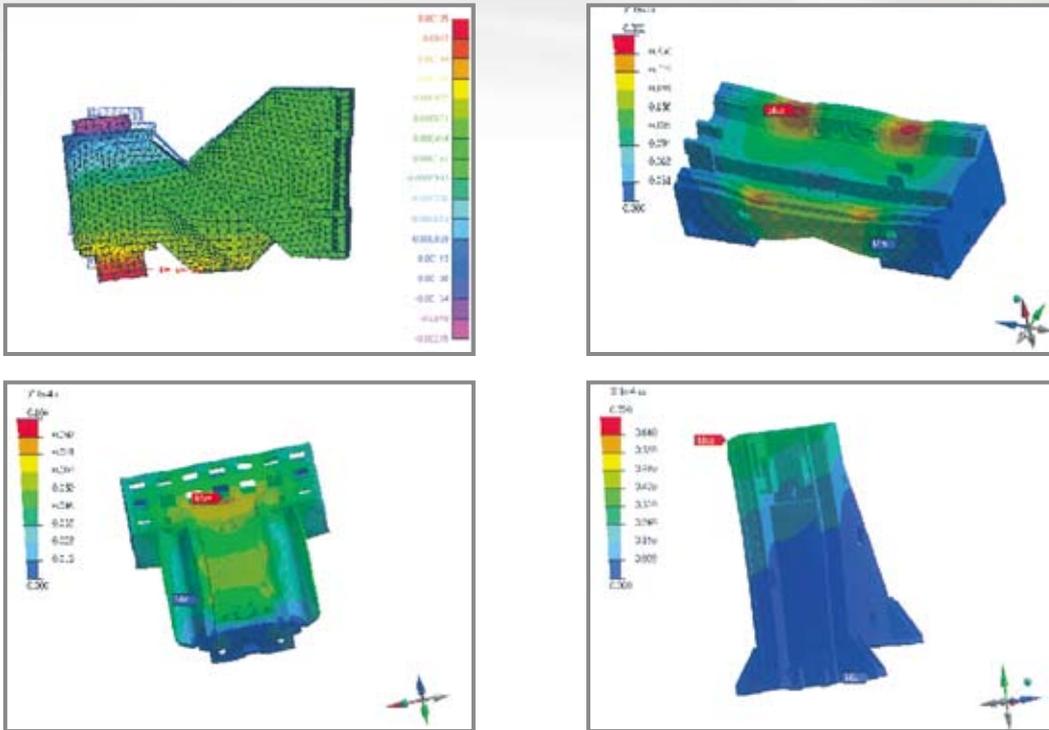


Hi-Lo ladder bed design to increase column resistant rigidity.

# TECHNOLOGY DESIGN

## ● RIGID CASTING FRAME

- ▶ Using the most advanced Computer Aided Design and Finite Element Method analysis programs, an extremely rigid casting frame is being created.



## ● OUTSTANDING ACCURACY

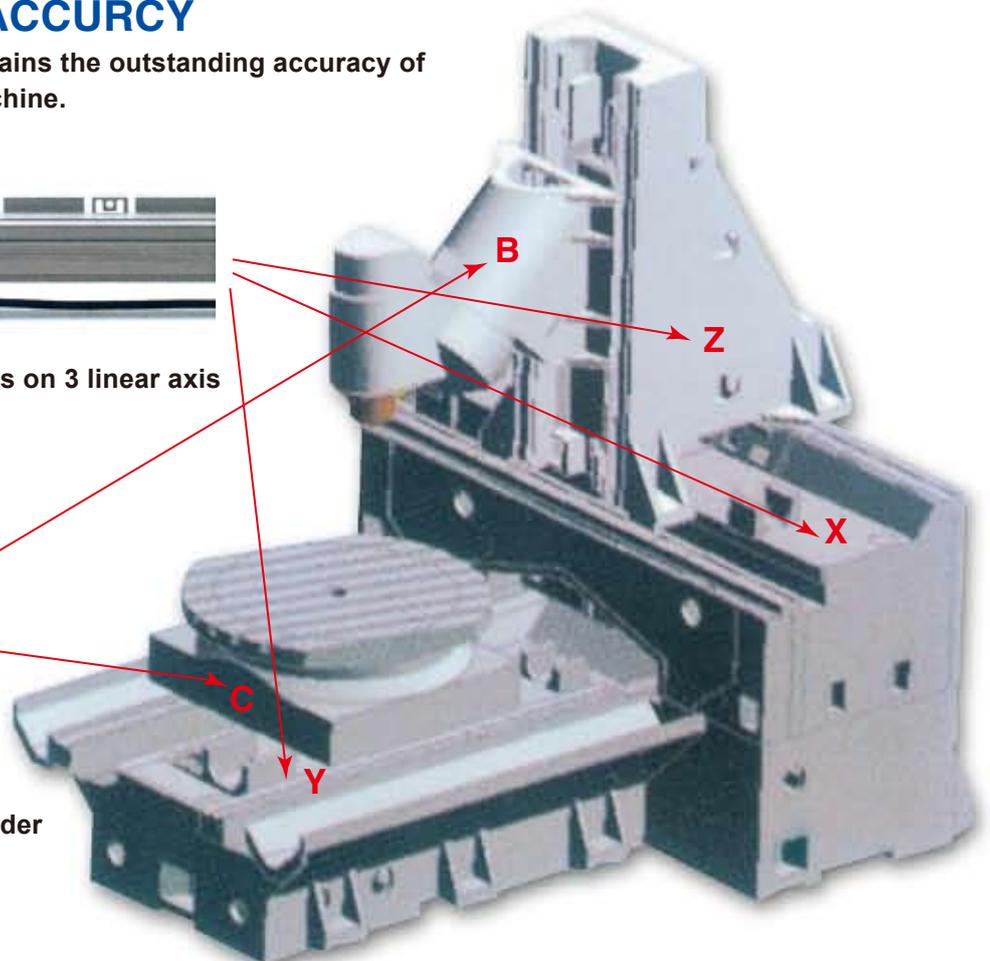
- ▶ Standard equipment maintains the outstanding accuracy of this high performance machine.



- ▶ High precision linear scales on 3 linear axis X & Y & Z.



- ▶ High precision rotary encoder on 2 rotary axis B & C.

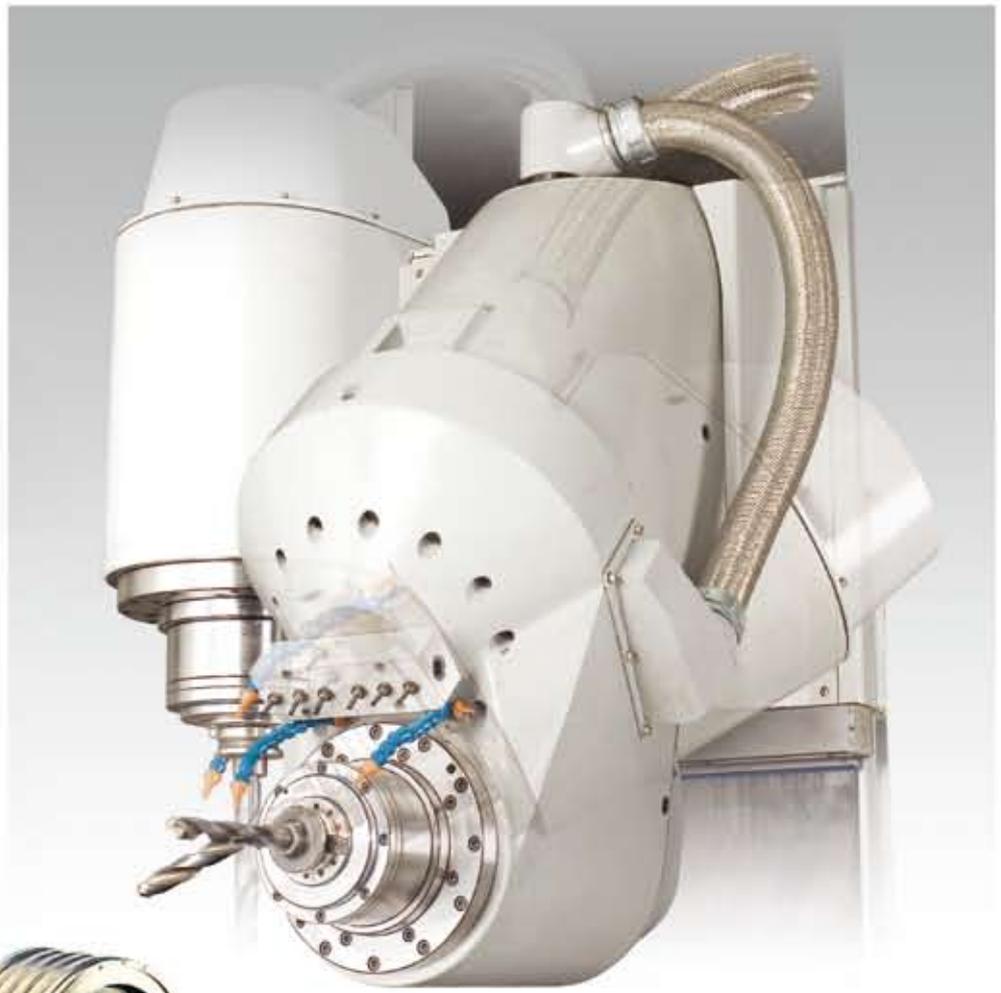


# ***B AXIS INNOVATIVE SWIVEL MILLING HEAD***



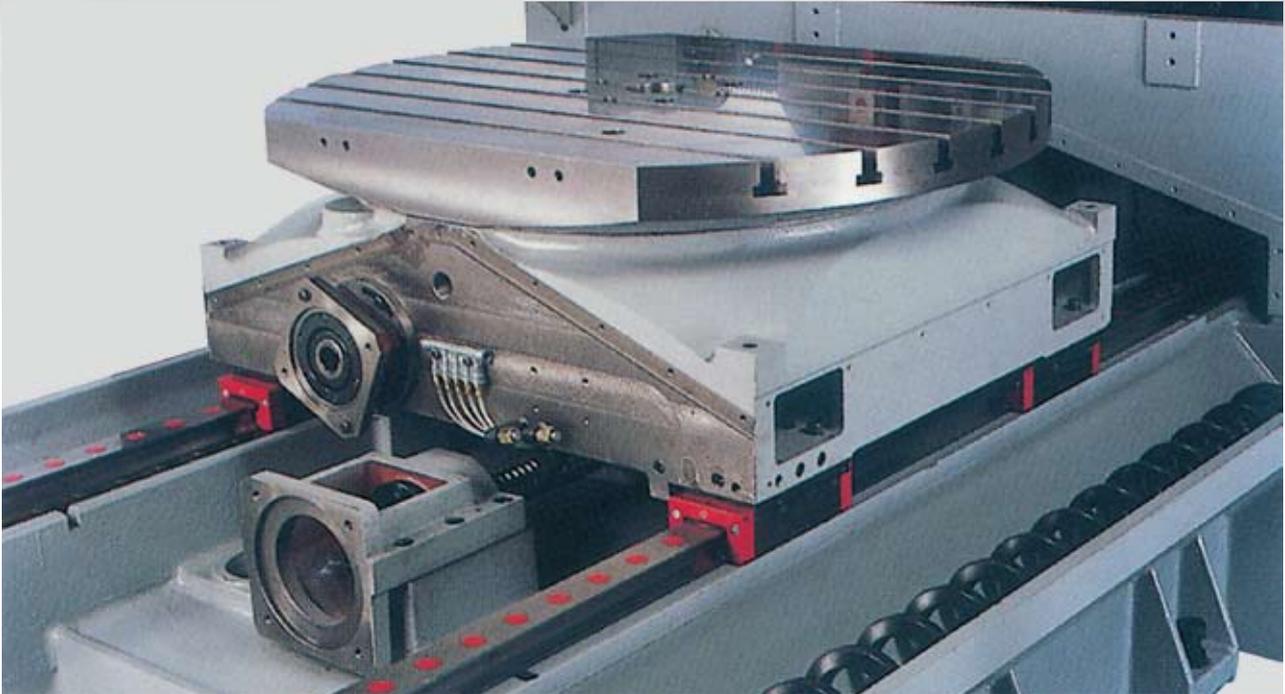
► The latest technology torque motor manages the B axis continuous swivel milling head , it guarantees maximum movement dynamic and linearity and thanks to the absence of those traditional mechanical kinematics parts, it results a much higher performance on finishing surface. The direct reading system by a high precision angular encoder is being integrated for maximum precision.

► As a controlled B-axis, the swivel head changes from vertical to horizontal machining in seconds.



► Offers an extra flexibility; the fully automatic 0.001 indexing from vertical to horizontal positions by means of torque motor, this gives operator an extra flexibility: multi-sided machining without re-setting the workpiece; manufacture of complex components with a single set-up; 5 sided machining without additional fixture; 5 axis machining in combination of rotary table.

# C AXIS DURABLE CNC ROTARY TABLE



## ● STANDARD:

- ▶ 1000mm x 800mm dimension with 1500kg load driven by AC servo motor, it can be indexing  $0.001^\circ$  by high precision worm gear, clamping force up to 9000kg, positioning by hydraulic cylinder; a high precision rotary encoder is included.

## ● OPTIONAL:

- ▶ 1000mm diameter torque motor drive rotary table with maximum rotation 60 RPM, 1820Nm peak torque, 4000Nm brake torque, 1200kg load,  $\pm 5'' / \pm 2.5''$  positioning / repeatability accuracy, German made !



|                    | Standard milling | Optional milling | Optional mill & turn |
|--------------------|------------------|------------------|----------------------|
| Transmission       | Worm gear        | Torque motor     | Torque motor         |
| Table surface size | 1000mm x 800mm   | 1000mm diameter  | 800mm diameter       |
| Max. speed RPM     | 11               | 60               | 500                  |
| Maximum load       | 1500kgs          | 1200kgs          | 500kgs or 800kgs     |
| Country made       | Taiwan           | Germany          | German or Italy      |

# OPERATOR WORKING



## ● USER-FRIENDLY FULL GUARDINGS



## ● WIDE THROAT DISTANCE

- ▶ A very wide distance 700mm between spindle center and X axis slideway cover, this gives operator a great convenience of different workpiece setup.

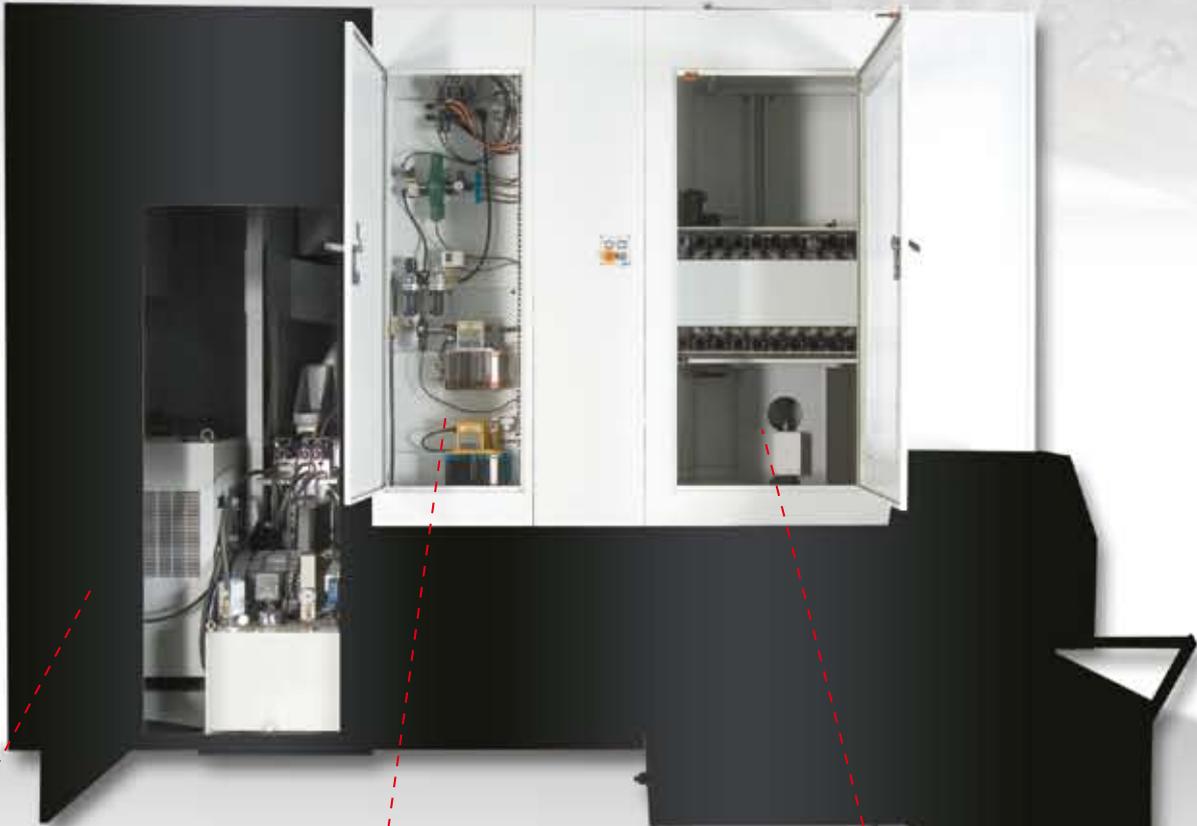


## ● AUTOMATIC TOOL CHANGER

- ▶ A 40 positions double swing arm ATC provides as standard for most of machining applications.

# CONSIDERABLE ORIENTATION

## • TOTALLY COVERED GUARDING



▶ hydraulics, spindle water cooler  
all in machine back for easy  
maintenance with safety door

▶ manual tool loading from automatic  
tool changer magazine side door  
with transparent window

▶ centrally arranged for all solenoids,  
pneumatics and lubrication device  
in one area



▶ cabinet for  
documentations

# POWERFUL MOTOR SPINDLE



**N14D Standard**



**P16 / 24 Optional**

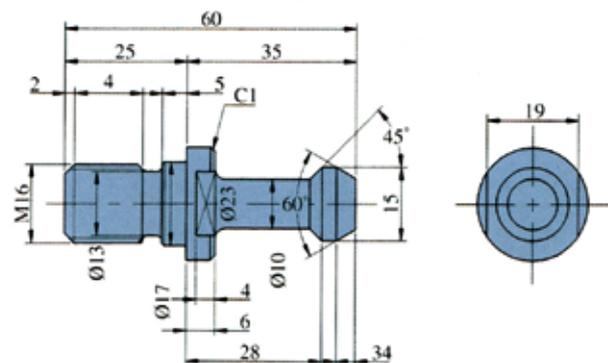
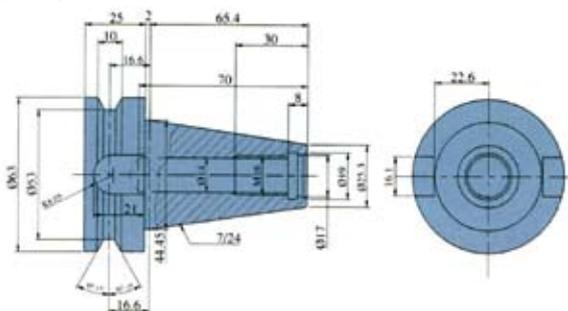


**C18 / C24 Optional**

| Models              | N14       | P18       | P24      | C18       | C24     |
|---------------------|-----------|-----------|----------|-----------|---------|
| Max. speed RPM      | 14000     | 18000     | 24000    | 18000     | 24000   |
| Rated speed RPM     | 4000      | 1000      | 2000     | 2000      | 4500    |
| Spindle taper       | BT#40     | HSK-A63   | HSK-A63  | HSK-A63   | HSK-A63 |
| Housing diameter mm | 210       | 210       | 210      | 180       | 180     |
| Power S1/S6 KW      | 29.3 / 35 | 22 / 26   | 21 / 27  | 21 / 27   | 34 / 43 |
| Torque S1/S6 Nm     | 70 / 160  | 124 / 154 | 85 / 116 | 100 / 130 | 72 / 91 |

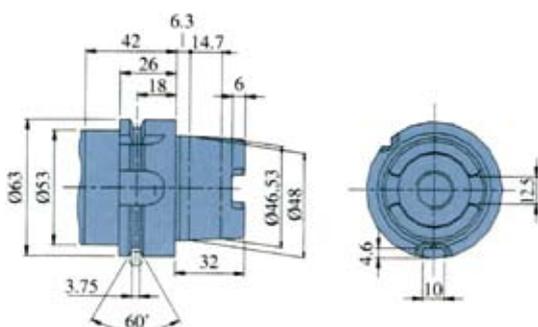
## STANDARD:

BT#40

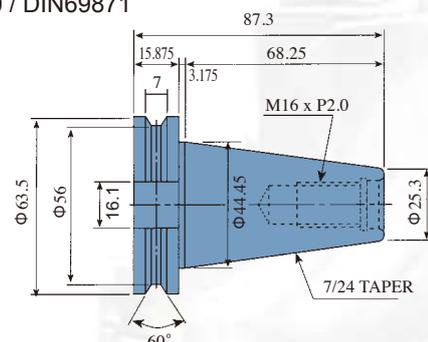


## OPTIONAL:

HSK-A63



CAT-40 / DIN69871



# DIGITAL CNC CONTROL

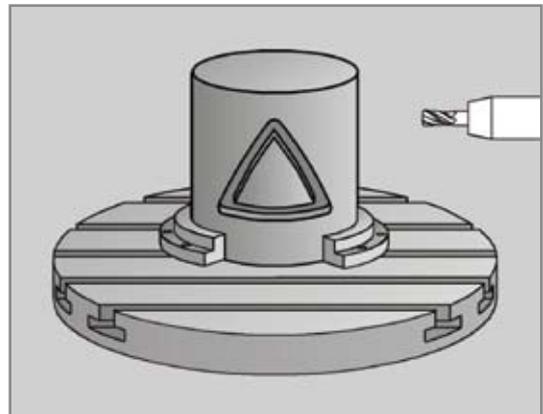


## Heidenhain iTNC-530 / 640 HSCI newest control :

1. MC 7222 1.8GHz more powerful CPU than before
2. 32G SSDR storage media resistance to vibration
3. New HEROS 5 operating interface with PDF viewer
4. TE 730 key board & MB 720 panel & 15" XGA screen



Inspecting and optimizing machine accuracy by calibrating rotary axes with kinematics

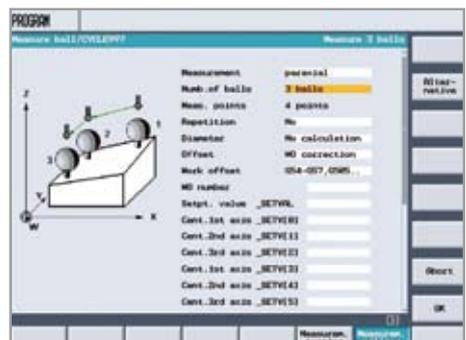
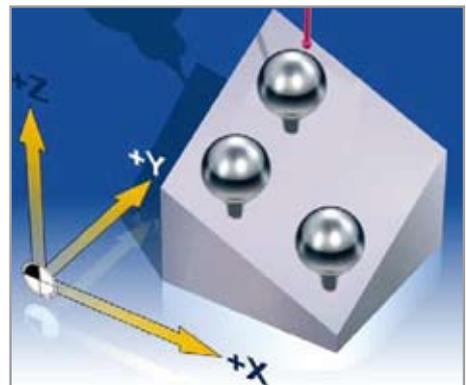


Cylindrical surface interpolation



## Siemens 840Di Solution Line newest control :

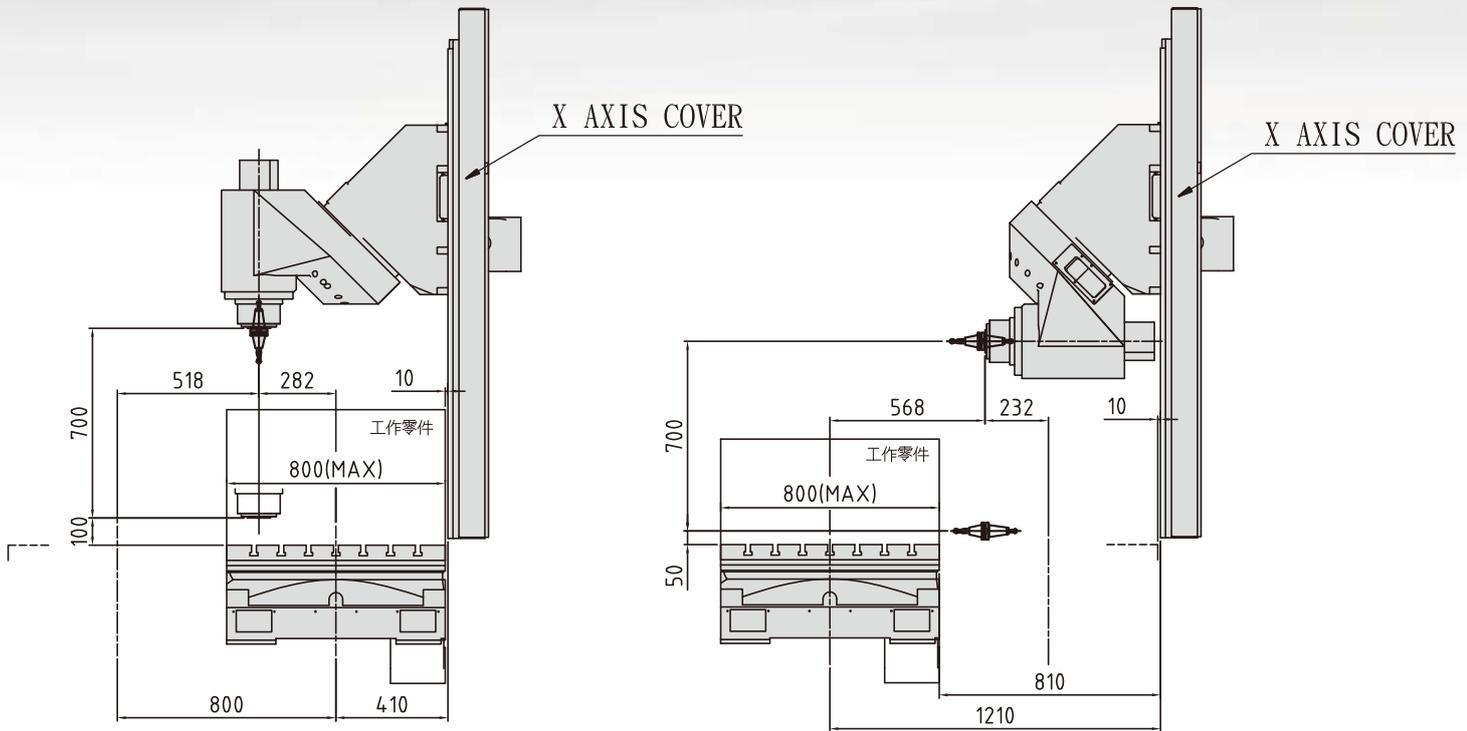
1. NCU 730.2 with PLC 317 - 2DP + 40GB HD
2. PCU 50.3 1.5Ghz , 512Mb, WinXP/Pro interface
3. Shopmill + 3D simulation 1 & HMI Advanced
4. MCP483C panel + OP 015A 15" TFT screen



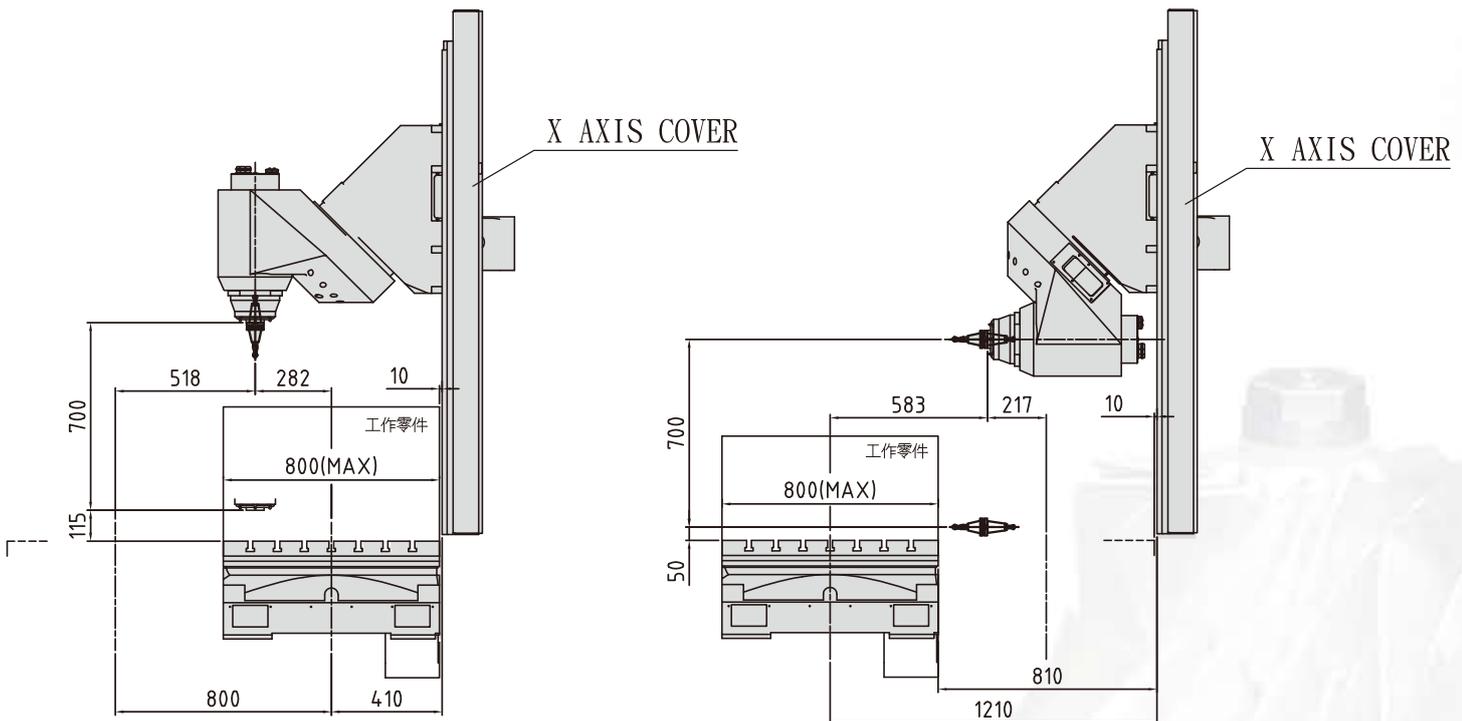
MEASURING 3 SPHERE

# WORKING ENVELOPE

## 1. With standard spindle N140D



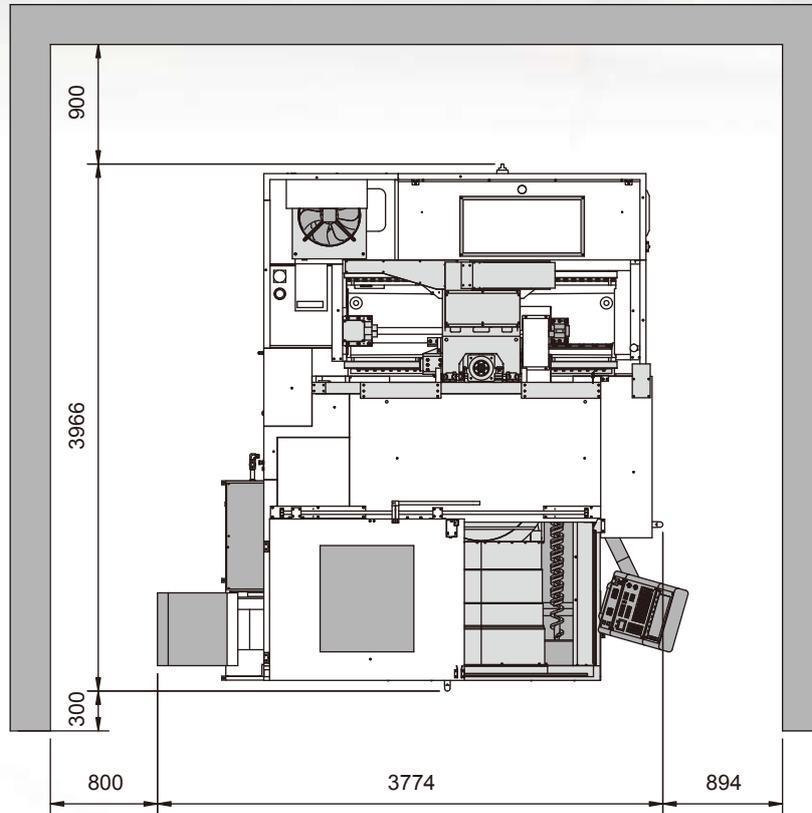
## 2. With optional spindle C18 / C24



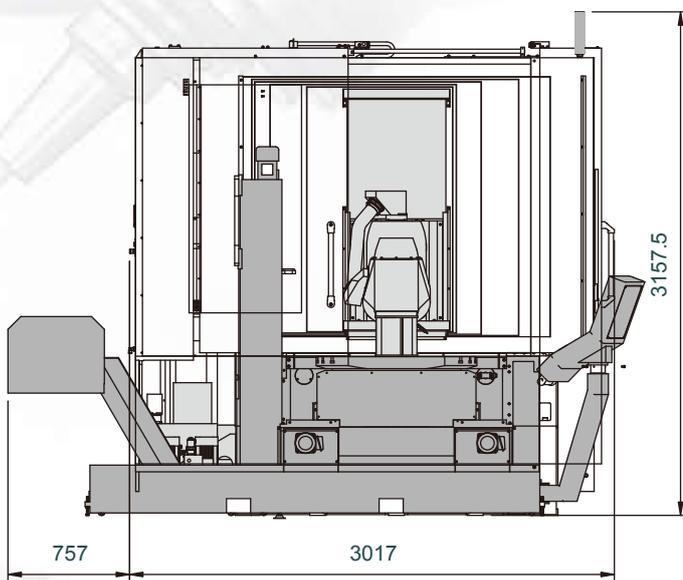
Note : above dimension will be different if spindle is different.

# MACHINE DIMENSION

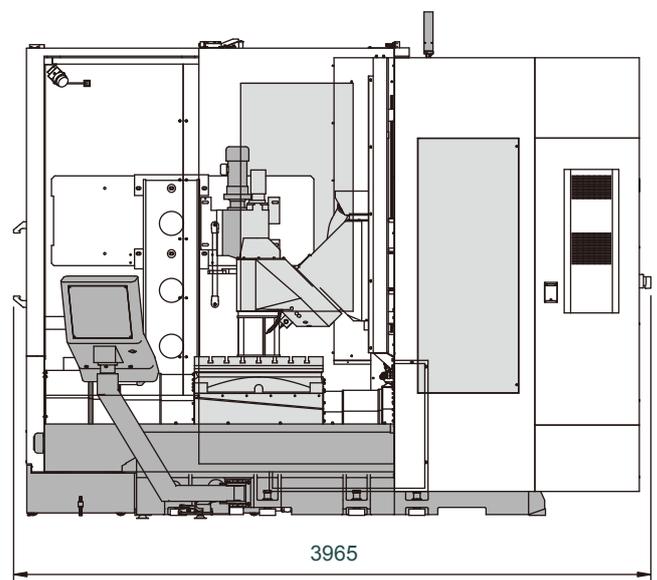
## 1. TOP VIEW



## 2. FRONT VIEW

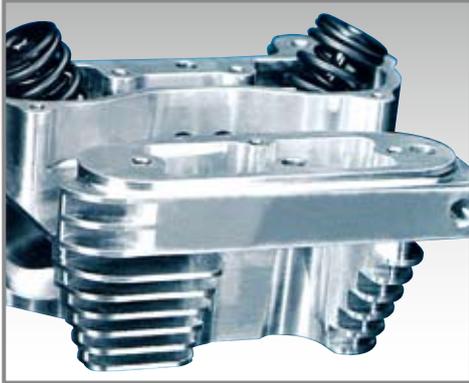


## 3. SIDE VIEW

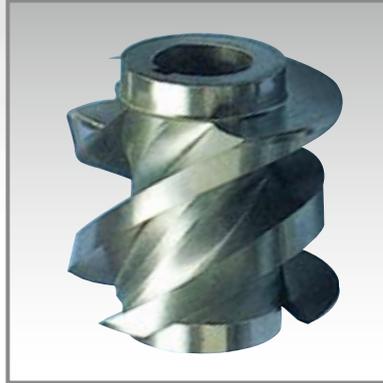


# APPLICATIONS-MILLING

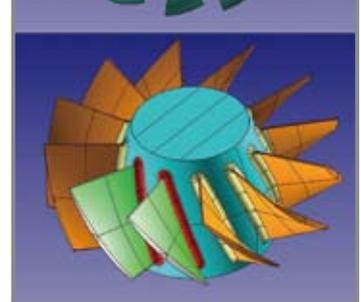
► The milling center can be used not only the typical various turbo impeller industries but also servicing aerospace aviation, automotive, medical and mould industries etc.



**1.** CYLINDER



**2.** SHAFT



**3.** GEAR CUTTING



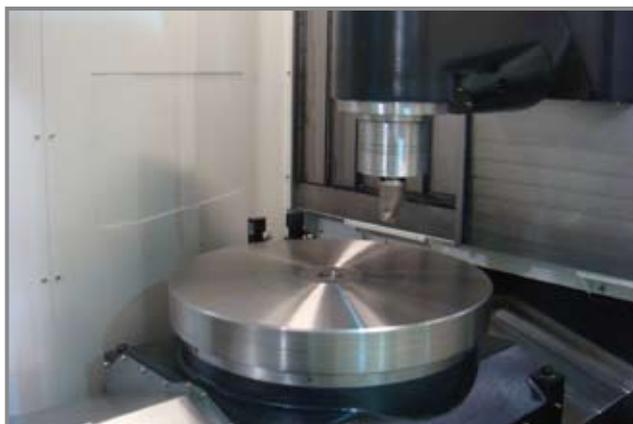
**5.** TURBO IMPELLERS



**4.** MOULD

**6.** BLISK

## APPLICATIONS-MILLING & TURNING :



# MACHINE SPECIFICATIONS

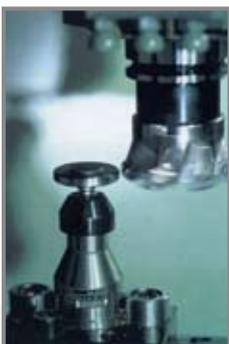
( ) OPTION

| Item                       | Model Description                  | UMC-1000<br>Milling center                  | UMTC-1000<br>Mill-turn center |
|----------------------------|------------------------------------|---------------------------------------------|-------------------------------|
| Travel                     | Linear axis X / Y / Z              | 1000 / 800 / 700                            | 1000 / 800 / 610              |
|                            | Swivel head B axis                 | 0° ~ 180°                                   |                               |
|                            | Rotary table C axis                | 0.001 degree x 360,000                      |                               |
| Swivel head<br>( B axis )  | Maximum spindle speed              | 14000 (18000,24000) RPM                     | 12000 RPM                     |
|                            | Spindle power & torque             | 29.3 & 35KW, 70 & 160Nm ( S1&S6) see page 9 |                               |
|                            | Spindle taper                      | BT (CAT/SK)40, (HSK-A63)                    | KM 63                         |
|                            | Front bearings diameter            | 70mm                                        |                               |
|                            | Vertical spindle nose to table     | 100mm ~ 800mm,                              | 29mm ~ 729mm,                 |
|                            | Hor.spindle center to table top    | 50mm ~ 750mm                                | 9mm ~ 709mm                   |
|                            | Hor.spindle nose to table center   | -230mm ~ 570mm                              | -262mm ~ 538mm                |
| Rotary table<br>( C axis ) | Table dimension                    | 800mm x 1000mm                              | φ800mm                        |
|                            | Maximum loading                    | 1500kg                                      | 1000kg                        |
|                            | Indexing increment                 | 0.001 degree                                |                               |
|                            | T slots ( size x No.x pitch )      | 18mm x 7 x 100mm                            | 18mm x 7 x 120mm              |
|                            | Table top to floor                 | 1000mm                                      | 1036mm                        |
| Feed rate                  | Rapid linear axis X/Y/Z            | 24M / 24M / 24M                             |                               |
|                            | rotary axis B/C                    | 10 (60) RPM                                 | 500 RPM                       |
|                            | Cutting feed                       | 20 m/min                                    |                               |
| Transmission               | Linear axis XYZ                    | φ50mm C3 ball screw                         |                               |
|                            | Swivel head B axis                 | Torque motor                                |                               |
|                            | Rotary table C axis                | Worm wheel (Torque motor)                   | Torque motor                  |
| Axis Accuracy<br>(VDI3441) | Positioning linear axis XYZ / BC   | 12 microns / 10 "                           |                               |
|                            | Repeatability linear axis XYZ / BC | 8 microns / 5 "                             |                               |
| ATC                        | Tools number                       | 40 (52, 80) stations                        |                               |
|                            | Max.tool dia./length/weight        | 120 mm / 300mm / 7kg                        |                               |
|                            | Tools exchanging                   | vertical position                           |                               |
| Weight                     | Net ( before packing )             | 15 ton                                      | 16 ton                        |

## STANDARD FEATURES & ACCESSORIES

1. FULL SPLASH GUARD WITH TOP ROOF
2. PROGRAMMABLE COOLANT SYSTEM
3. AUTOMATIC LUBRICATION SYSTEM
4. SPINDLE AIR BLAST SYSTEM
5. WORK ALARM, INDICATON LAMPS
6. SPINDLE WATER COOLER
7. LEVELLING BOLTS & PADS
8. RS-232 TERMINAL INTERFACE PORT
9. MACHINE & CONTROL MANUALS
10. TOOLBOX WITH SPANNERS & WRENCHES
11. CHAIN TYPE CHIP CONVEYORS + 2 SCRCW CHIP AUGERS
12. 3 AXIS LINEAR SCALES + 2 AXIS ROTARY ENCODERS

## OPTIONAL ACCESSORIES :



TOOL PROBE



TOOL LASER MEASUREMENT



WORK PLECE PROBE



COOLANT THUR SPINDLE



# EUMACH FAMILIES



◦ **VMC-2150**  
Vertical machine center  
400MM ~ 3200MM X axis travel



◦ **TVMC-2000 / 3000**  
Moving column machine center  
2320MM & 3320MM X axis travel



◦ **LBM-1500**  
High speed bridge type machine center  
1100MM ~ 2200MM X axis travel



◦ **MH-500**  
Horizontal machine center  
720MM x 650MM x 650MM travel



◦ **EBM-2150**  
5 Face machine center  
1400MM ~ 3200MM X axis travel



◦ **MB-1500**  
Moving column horizontal machine center  
1100MM ~ 2200MM X axis travel



◦ **DVM-4025**  
5 Face & double column machine center



◦ **FBE-1500**  
Universal milling machine  
1500MM ~ 4000MM X axis travel



◦ **FBM-10040**  
Floor type milling center  
4M~20M X axis travel

**Eumach Co.,LTD.**

★ Specifications subject to change without notice.  
Catalogue No.A4010306

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