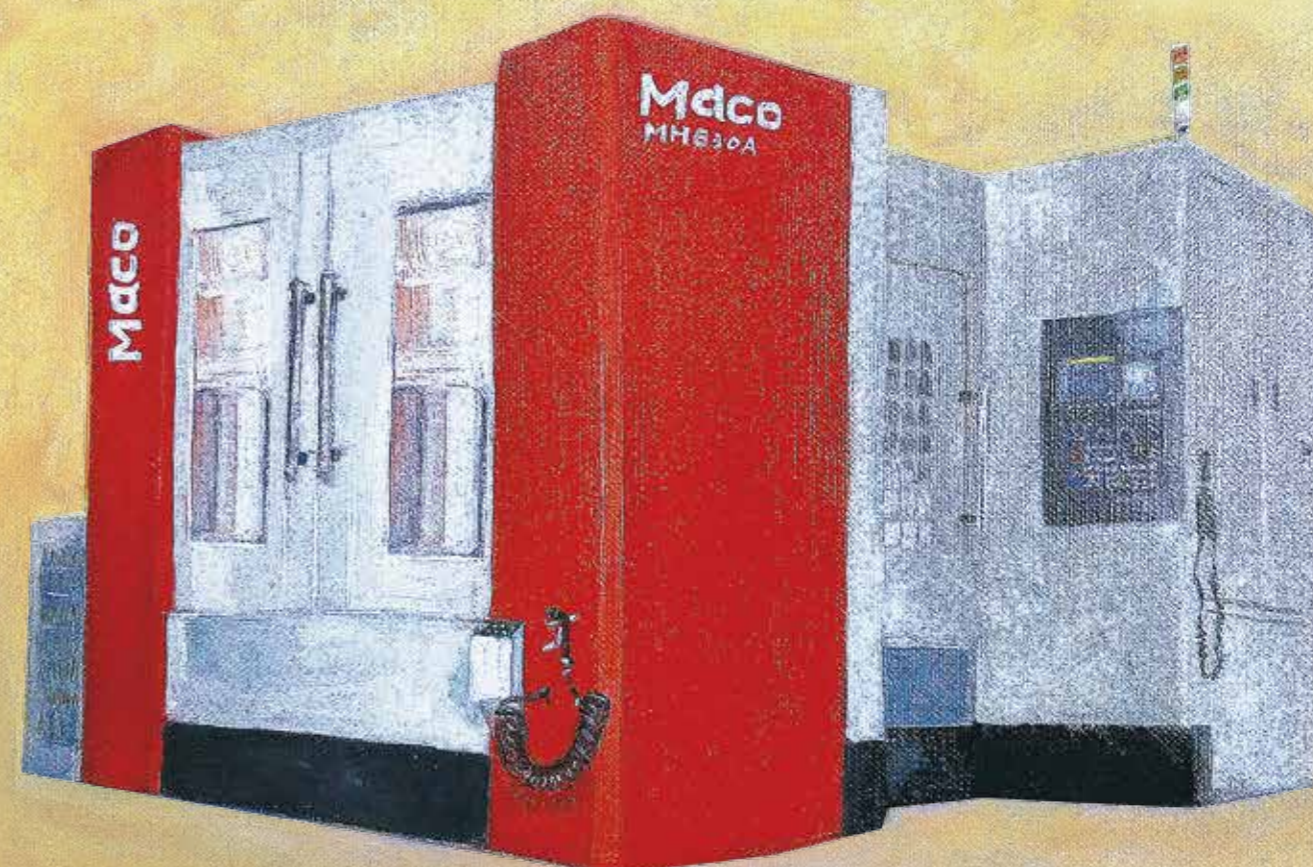


# High Speed Moving Column Horizontal Machining Center

## MH Series



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MASTER AUTOMATIC CO.,LTD.

## MH Series

MH 400A / 500A / 630A / 800A

### High Speed ,Heavy Cutting, High Performance ...

MH Series Moving Column design offer extensive cutting area.

High speed automatic pallet changer reduce non-cutting time of workpiece setup.

And the precision tapered orientation ensure the stability of pallet changer.

Completed pallet size from 400 - 800 mm with high loading which can achieve 2000kgs. to satisfy various machining requirement.

Gear Type spindle own powerful heavy cutting performance.

This series keep minimum floor space in your factory area, and meanwhile have more working places.

### High Speed, Better Cost-Effective!



### High Speed Spindle

MH 400A Direct Drive Spindle 10,000 rpm (STD)

MH 500A / 630A / 800A Gear Type 6,000 rpm (STD)

### Automatic Tool Changer

Above model 500A, adopting BT-50 tool shank and 40 tools capacity as standard, the maximum tool length can achieve 500mm. The magazine install at the side that keep less interference region, and the short tool arm disgned can change the tool more rapid.

**OPT** 60 / 120 / 240 tools

X axis : 650 ~ 1,200 mm  
Y axis : 500 ~ 1,000 mm  
Z axis : 500 ~ 1,000 mm

### Automatic Pallet Changer

High Accuracy, High Loading Capacity  
Pallet indexation angle is 0.001°, hydraulic drive exchanger system which own high stability, also including air tight detection device with optimal chip removing, increase working efficiency.

**OPT** T-Slot Pallet

### Spindle

500A-800A standard Gear Type 6,000 rpm spindle.  
400A standard Direct Drive 10,000 rpm spindle.  
Spindle torque power max.770 Nm enhance heavy cutting and machining performance.

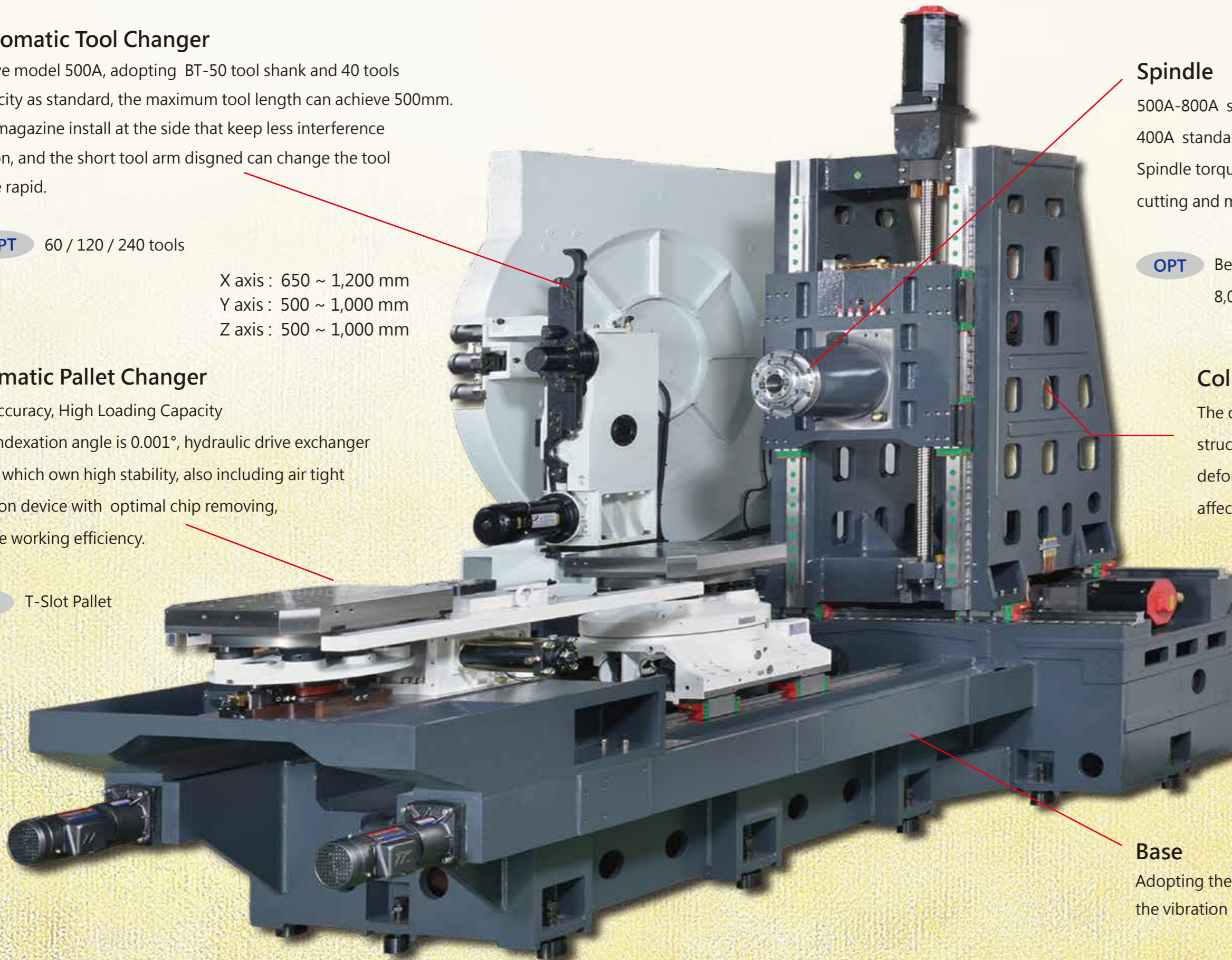
**OPT** Belt Type / Direct Type / Built-in Type  
8,000~20,000 rpm

### Column

The column adopts symmetrical double-wall structure design, which can avoid the thermal deformation caused by temperature rise and affect the cutting precision.

### Base

Adopting the high rigidity rib base design not only prevent the vibration but upgrade the cutting stability.



Model : MH-500A Gear Type Spindle 6,000 rpm , other model please refer specification.

● Specification

OPT.=Option

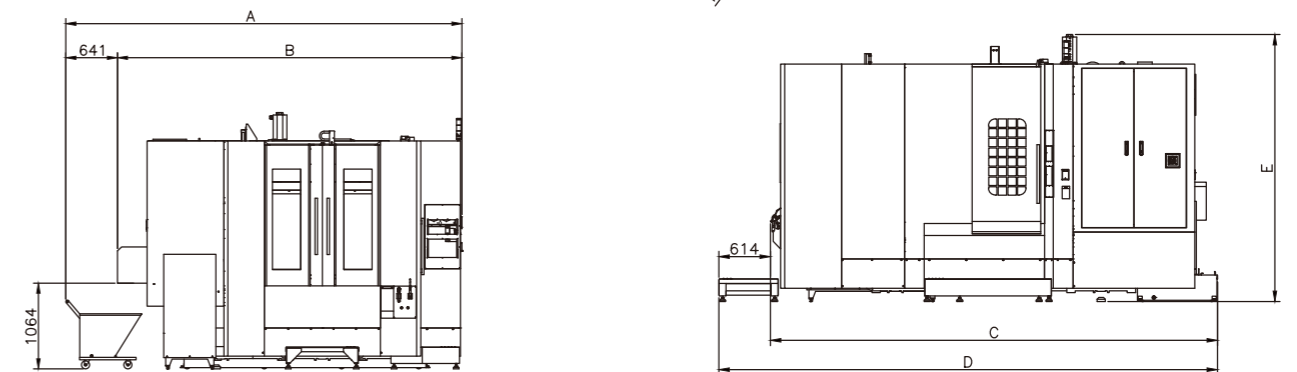
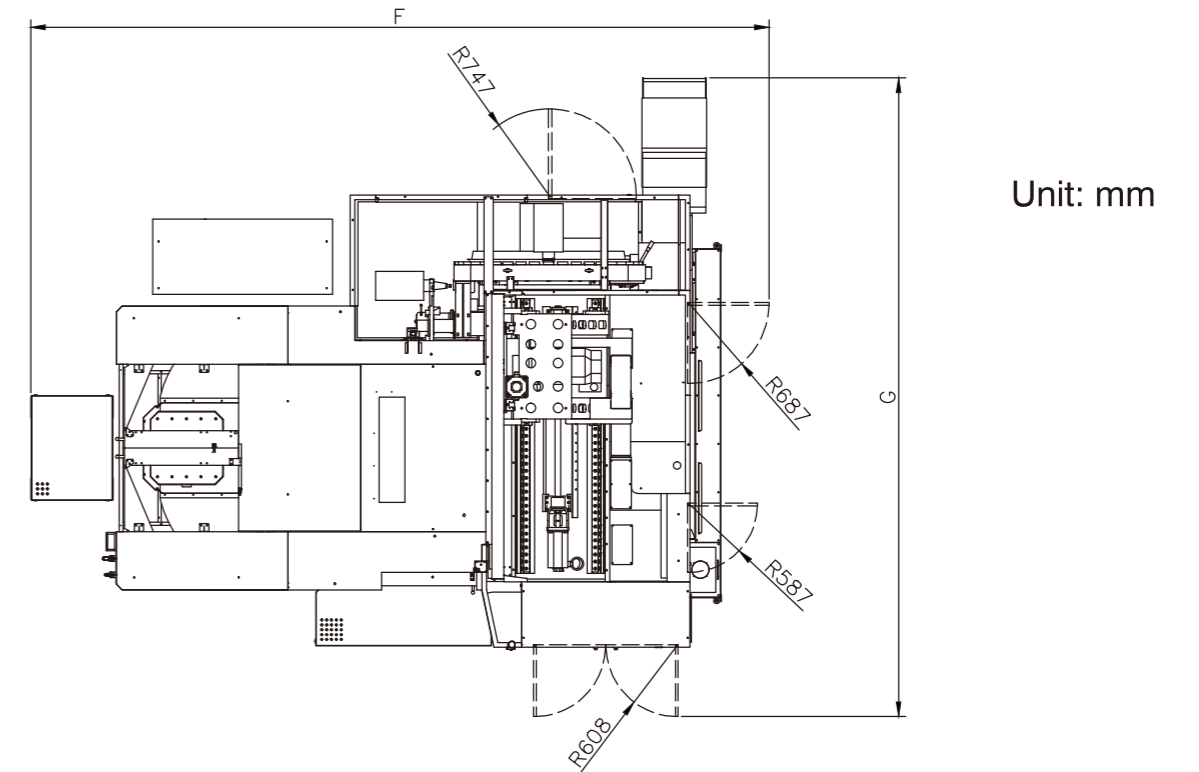
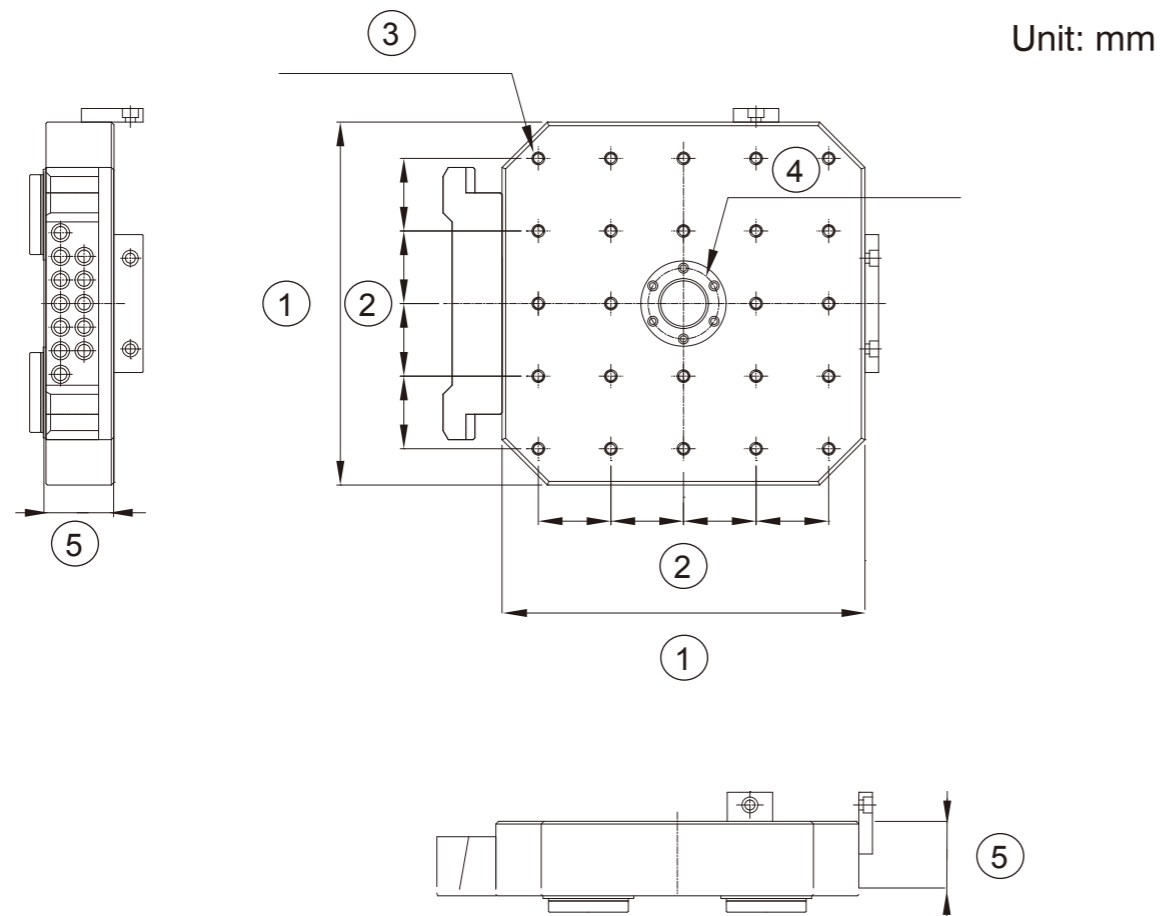
| Model                |  | MH-400A                        | MH-500A                     |
|----------------------|--|--------------------------------|-----------------------------|
| Controller           |  | Fanuc 0iMF                     |                             |
| Travel               | X/Y/Z axis travel                          | 650 / 500 / 500 mm             | 800 / 700 / 700 mm          |
|                      | Spindle center to table face               | 100 ~ 600 mm                   | 100 ~ 800 mm                |
|                      | Spindle nose to table center               | 100 mm                         | 120 mm                      |
| B axis Table         | Table size                                 | 400 x 400 mm                   | 500 x 500 mm                |
|                      | Number of table                            | 2                              | 2                           |
|                      | Table loading capacity                     | 400 kgs                        | 500 kgs                     |
|                      | Table Screw                                | 24-M12x1.75P mm<br>OPT: T Slot | 24-M16x2P mm<br>OPT: T Slot |
|                      | Table indexing angle                       | 0.001°                         | 0.001°                      |
|                      | Servo motor                                | 2.7 kw                         | 2.7 kw                      |
|                      | Height from table surface to ground        | 1,050 mm                       | 1,090 mm                    |
|                      | Max. rotation diameter of work piece       | 630 mm                         | 750 mm                      |
|                      | Max. work piece height                     | 500 mm                         | 700 mm                      |
|                      | Spindle                                    | Spindle speed                  | 10,000rpm                   |
| Spindle transmission |  | Direct Drive                   | Gear Type                   |
| Spindle motor        |  | 11/15 kw                       | 22/26 kw                    |
| Feed rate            | Rapid traverse (X/Y/Z axis)                | 50 / 50 / 50 M/min             | 36 / 36 / 36 M/min          |
|                      | Cutting feed rate (X/Y/Z axis)             | 1-10,000 mm/min                | 1-10,000 mm/min             |
| Accuracy             | Positioning accuracy (X/Y/Z axis)          | ±0.004 mm                      | ±0.004 mm                   |
|                      | Repeatability accuracy (X/Y/Z axis)        | ±0.003 mm                      | ±0.003 mm                   |
| ATC                  | Tool Shank                                 | BT-40                          | BT-50 / OPT: BT-40          |
|                      | Tool magazine capacity                     | 40T / OPT: 60T                 | 40T / OPT: 60T              |
|                      | Tool selection                             | Random                         | Random                      |
|                      | Max. tool length                           | 350 mm                         | 500 mm                      |
|                      | Max. tool weight                           | 8 kg                           | 25 kg                       |
|                      | Max. tool diameter (without adjacent tool) | 76 / 150 mm                    | 110 / 220 mm                |
|                      | ATC changing time                          | 2.5 / 2.1 sec                  | 3.5 / 2.9 sec               |
| Power Supply         | Power requirement                          | 35 KVA                         | 45 KVA                      |
|                      | Air pressure                               | 6 kg/cm <sup>2</sup>           | 6 kg/cm <sup>2</sup>        |
| Miscellaneous        | Machine weight                             | 11,200 kg                      | 13,800 kg                   |
|                      | Machine size ( L x W)                      | 3,900 x 3660 mm                | 4,850 x 4,070 mm            |
|                      | Machine height                             | 2,870 mm                       | 3,070 mm                    |

- Design and specification are subject to change without prior notice.
- Option tool shank selection: HSK / SK / CAT / BBT/ DIN/ ISO...and so on.
- Other equipments please refer "Standard Option Accessories".

| Model                |  | MH-630A                     | MH-800A                     |
|----------------------|--|-----------------------------|-----------------------------|
| Controller           |  | Fanuc 0iMF                  |                             |
| Travel               | X/Y/Z axis travel                          | 1000 / 800 / 800 mm         | 1200 / 1000 / 1000 mm       |
|                      | Spindle center to table face               | 150 ~ 950 mm                | 150 ~ 1150 mm               |
|                      | Spindle nose to table center               | 150 mm                      | 150 mm                      |
| B axis Table         | Table size                                 | 630 x 630 mm                | 800 x 800 mm                |
|                      | Number of table                            | 2                           | 2                           |
|                      | Table loading capacity                     | 1200 kgs                    | 2000 kgs                    |
|                      | Table Screw                                | 24-M16x2P mm<br>OPT: T Slot | 24-M16x2P mm<br>OPT: T Slot |
|                      | Table indexing angle                       | 0.001°                      | 0.001°                      |
|                      | Servo motor                                | 4.5kw                       | 4.5kw                       |
|                      | Height from table surface to ground        | 1,160 mm                    | 1,210 mm                    |
|                      | Max. rotation diameter of work piece       | 950 mm                      | 1,100 mm                    |
|                      | Max. work piece height                     | 800 mm                      | 1,000 mm                    |
|                      | Spindle                                    | Spindle speed               | 6,000 rpm                   |
| Spindle transmission |  | Gear Type                   | Gear Type                   |
| Spindle motor        |  | 22/26 kw                    | 22/26 kw                    |
| Feed rate            | Rapid traverse (X/Y/Z axis)                | 36 / 36 / 36 M/min          | 36 / 36 / 36 M/min          |
|                      | Cutting feed rate (X/Y/Z axis)             | 1-10,000 mm/min             | 1-10,000 mm/min             |
| Accuracy             | Rapid traverse (X/Y/Z axis)                | ±0.004 mm                   | ±0.004 mm                   |
|                      | Cutting feed rate (X/Y/Z axis)             | ±0.003 mm                   | ±0.003 mm                   |
| ATC                  | Tool Shank                                 | BT-50                       | BT-50                       |
|                      | Tool magazine capacity                     | 40T / OPT: 60T              | 40T / OPT: 60T              |
|                      | Tool selection                             | Random                      | Random                      |
|                      | Max. tool length                           | 500 mm                      | 500 mm                      |
|                      | Max. tool weight                           | 25 kg                       | 25 kg                       |
|                      | Max. tool diameter (without adjacent tool) | 110 / 220 mm                | 110 / 220 mm                |
|                      | ATC changing time                          | 3.5 / 2.9 sec               | 3.5 / 2.9 sec               |
| Power Supply         | Power requirement                          | 55 KVA                      | 55 KVA                      |
|                      | Air pressure                               | 6 kg/cm <sup>2</sup>        | 6 kg/cm <sup>2</sup>        |
| Miscellaneous        | Machine weight                             | 15,300 kg                   | 17,800 kg                   |
|                      | Machine size ( L x W)                      | 5,290 x 4280 mm             | 5,880 x 4,580 mm            |
|                      | Machine height                             | 3,180 mm                    | 3,390 mm                    |

● Pallet Dimension

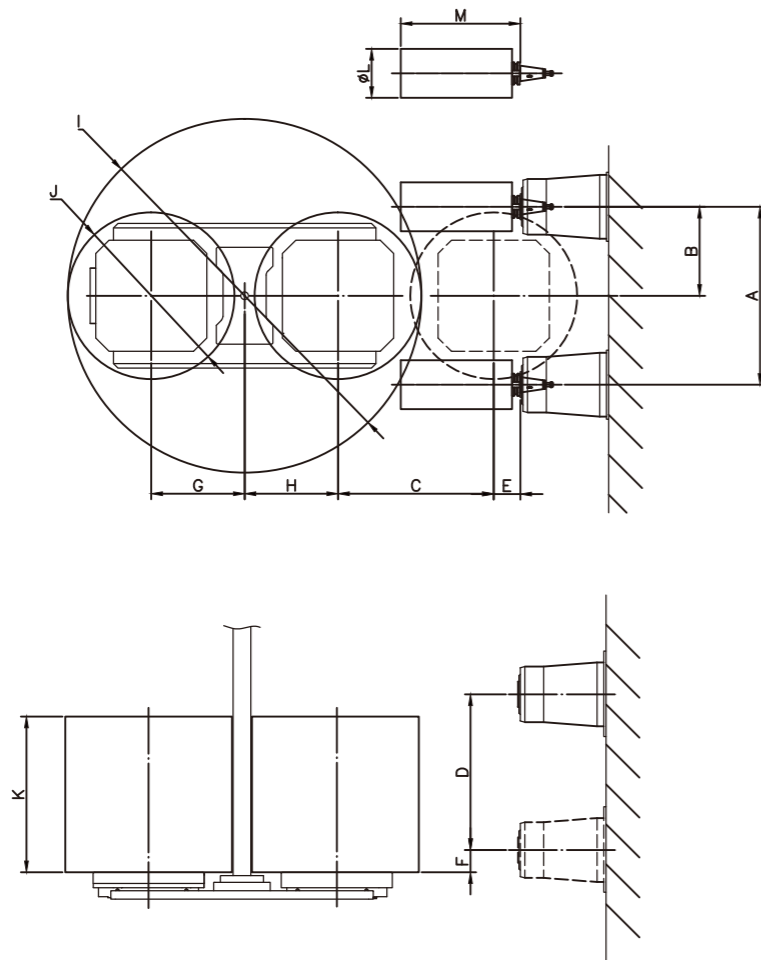
● Floor Space Diagram



| Model Item | MH-400A     | MH-500A    | MH-630A    | MH-800A    |
|------------|-------------|------------|------------|------------|
| 1.         | 400 x 400   | 500 x 500  | 630 x 630  | 800 x 800  |
| 2.         | 80          | 100        | 125        | 160        |
| 3.         | M12 x P1.75 | M16 x P2.0 | M16 x P2.0 | M16 x P2.0 |
| 4.         | ∅55H7       | ∅55H7      | ∅55H7      | ∅55H7      |
| 5.         | 50          | 76         | 75         | 97         |

| Model Item | MH-400A | MH-500A | MH-630A | MH-800A |
|------------|---------|---------|---------|---------|
| A          | 4,301   | 4,711   | 4,921   | 5,221   |
| B          | 3,660   | 4,070   | 4,280   | 4,580   |
| C          | 3,900   | 4,850   | 5,290   | 5,880   |
| D          | 4,514   | 5,280   | 5,904   | 6,494   |
| E          | 2,870   | 3,070   | 3,180   | 3,390   |
| F          | 4,928   | 5,620   | 6,318   | 6,908   |
| G          | 4,909   | 5,280   | 5,530   | 5,829   |

● Workpiece Interference Diagram



Unit: mm

| Model Item | MH-400A | MH-500A | MH-630A | MH-800A |
|------------|---------|---------|---------|---------|
| A          | 650     | 800     | 1,000   | 1,200   |
| B          | 325     | 400     | 500     | 600     |
| C          | 500     | 700     | 800     | 1,000   |
| D          | 500     | 700     | 800     | 1,000   |
| E          | 100     | 120     | 150     | 150     |
| F          | 100     | 100     | 150     | 150     |
| G          | 400     | 420     | 670     | 800     |
| H          | 400     | 420     | 670     | 800     |
| I          | 1,430   | 1,590   | 2,290   | 2,700   |
| J          | 630     | 750     | 950     | 1,100   |
| K          | 500     | 700     | 800     | 1,000   |
| L          | 150     | 220     | 220     | 220     |
| M          | 350     | 500     | 500     | 500     |

● Standard Option Accessories

●=STD. ○=OPT. × = Not Available

| Model                           | MH-400A                                  | MH-500A | MH-630A | MH-800A |
|---------------------------------|--|---------|---------|---------|
| Controller                      | FANUC31iMB                               | ○       | ○       | ○       |
|                                 | MITSUBISHI                               | ○       | ○       | ○       |
|                                 | HEIDENHAIN                               | ○       | ○       | ○       |
|                                 | SIEMENS                                  | ○       | ○       | ○       |
| Spindle                         | 6,000 rpm Gear Type                      | ×       | ●       | ●       |
|                                 | 8,000 rpm Gear Type                      | ×       | ○       | ○       |
|                                 | 10,000 rpm ZF Gear Box                   | ○       | ×       | ×       |
|                                 | 10,000 rpm Direct Drive                  | ●       | ○       | ○       |
|                                 | 10,000 rpm Belt Drive                    | ×       | ○       | ○       |
|                                 | 12,000 rpm Direct Drive                  | ○       | ×       | ×       |
|                                 | 15,000 rpm Direct Drive                  | ○       | ×       | ×       |
|                                 | 20,000 rpm Built-in                      | ○       | ×       | ×       |
| ATC                             | 60 Tools                                 | ○       | ○       | ○       |
|                                 | 120 Tools                                | ○       | ○       | ○       |
|                                 | 240 Tools                                | ○       | ○       | ○       |
| Eqpt.                           | XYZ Axes Ballscrew Hollow Cooling System | ○       | ○       | ○       |
|                                 | XYZ Axes Linear Scale                    | ○       | ○       | ○       |
|                                 | B-axis Encoder                           | ○       | ○       | ○       |
|                                 | Table T-slot                             | ○       | ○       | ○       |
|                                 | Coolant Jet around Spindle               | ●       | ●       | ●       |
|                                 | Coolant Through Spindle 20 Bar           | ○       | ○       | ○       |
|                                 | 30 Bar                                   | ○       | ○       | ○       |
|                                 | Spindle Oil Coolant System               | ●       | ●       | ●       |
|                                 | Air Conditioner for Electrical Cabinet   | ○       | ○       | ○       |
|                                 | Heat Exchanger for Electrical Cabinet    | ●       | ●       | ●       |
|                                 | Coolant System                           | ●       | ●       | ●       |
|                                 | Disk Type Oil Skimmer                    | ●       | ●       | ●       |
|                                 | Top / Bed Flushing                       | ●       | ●       | ●       |
|                                 | Rigid Tapping                            | ●       | ●       | ●       |
|                                 | Automatic Tool Length Measurement        | ○       | ○       | ○       |
|                                 | Automatic Workpiece Measurement          | ○       | ○       | ○       |
|                                 | M30 Automatic Power off                  | ●       | ●       | ●       |
|                                 | Chain Type Chip Conveyor & Cart          | ●       | ●       | ●       |
|                                 | Transformer                              | ○       | ○       | ○       |
|                                 | Working light                            | ●       | ●       | ●       |
| Front / Side Door Safety Switch | ○  | ○       | ○       |         |
| CE mark                         | ○  | ○       | ○       |         |

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