FAIR FRIEND • ENGINEERING • EXCELLENCE • LEADERSHIP • EXPERTISE • RELIABILITY

FMH SERIES
HORIZONTAL MACHINING CENTER

ISO 9001
ISO 14001

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http://www.feeler.com
No matter whether it is precision parts machining or general mold machining, the new generation FMH Series horizontal machining center from FEELER will provide you with the outstanding performance that you’ve come to expect. The FMH Series is carefully designed and engineered for the utmost accuracy.

EXCELLENT FOR DIVERSIFIED INDUSTRIES:
• Precision (profiled) Parts Machining
• General Mold Machining
• Automotive and Motorcycle Part Machining
• 3C Industries
• Aerospace Part Machining
• Semi-conductor Industry
• FMC & FMS Unmanned Production Lines
Quality Features of FMH-500

**Optimal Machine Structure**
- The major structural parts are manufactured from high-quality cast iron with extremely uniform metallurgy.
- The T-shaped base is an integrated box-type construction, featuring maximum stability.
- The 3 axes travels are fully supported without overhang problem. This results in outstanding loading capacity and extremely stable workpiece movement.

**Hydraulic System**
All hydraulic parts are centralized to facilitate adjustment and maintenance.

**Coolant Through Ball Screw**
- 3 axes feedrate 48M / 60M (Optional)

**Chain Type Magazine**
- The No.50 magazine is driven by cylindrical cam and follower roller, that features low noise rotation and minimum trouble.
- Max. tool weight is 20 kgs. Max. tool length is 500 mm. Max. tool diameter (without adjacent tool) is 220 mm.
- Tool change mechanism employs hydraulic cylinder to drive rack for simplified construction and maximum dependability.
- Tool change time is 8 seconds. (tool to tool)
- The magazine also allows for manual tool unloading.

**Convenient ATC Servicing**
- The ATC mechanism has sufficient space left for convenient repair and maintenance.

**Special Return Flow Tilting Channel**
When tool change is accomplished, the oil dust and chips will flow back to the machine base via the specially designed tilting channel. This may eliminate environmental pollution problem.

**Oil / Fluid Return Flow Sheet Metal**
The oil / fluid return flow sheet metal is provided under the ATC system that guides oil / fluid return flow to a collection tank. This return flow sheet metal ensures a clean interior and meets environmental protection requirement.
The Feeler FMH-630 is designed and engineered with efficiency, stability and heavy duty in mind. It is a machining center excellent for precision mold machining and heavy parts machining.

The brand new design concept of FMH series horizontal machining centers are dedicated to machine both mass production parts and general molds with high accuracy. The outstanding performance of FMH series machines from FEELER brings you the utmost cutting efficiency as well as maximum profitability.
Quality Features of FMH-630

SPECIAL HIGH/LOW LINEAR WAYS CONSTRUCTION
- The T-shaped base is an integrated 3-layer box-type construction combined with rib reinforcement to maximize the rigidity and stability of the machine.
- The housing-type double-wall column is ruggedly constructed to assure high accuracy during heavy-duty machining.
- The base is specially designed with high/low linear ways, which effectively shorten force loading lines while greatly increasing machining stability.

THREE AXES LINEAR WAYS RESISTS HEAVY LOADS
- Three axes are fully equipped with linear guide ways, combined with double rows support at both sides, for increased loading capacity, high rigidity and high accuracy. No further maintenance is required for long term operations.

CHAIN-TYPE MAGAZINE
- The magazine is driven by cylindrical cam and follower roller, featuring minimum noise when performing tool search.
- Choice of 60, 90 or 120 tools for the magazine capacity.

OVERSIZED TAPERED CONES
The B axis movement and Z axis cross movement are equipped with oversized tapered cones for extremely accurate pallet positioning. This assures outstanding machining accuracy.

SWING-TYPE AUTOMATIC PALLET CHANGER (APC)
Designed with one-to-one swing-type automatic pallet change. The APC features rigid construction, high positioning accuracy and fast change.
- Maximum table loading capacity up to 1,200 kg.
- Maximum table diameter Ø950 mm.
- Fastest change time is 10 seconds.
HORIZONTAL MACHINING CENTER
FMH-800

Machine Features:
- T-Shaped base structure deploying linear guideways at Hi-Low step arrangement, 3 axes adopts linear roller guideways.
- Auto Pallet Changer is driven by servo motor, APC speed can be adjusted according to pallet load.
- Auto Tool Changer is driven via cam mechanism, ATC speed can adjusted according to tool weight.
- High power spindle motor with ZF gearbox, delivery high torque during low speed, suitable for heavy duty cutting.
PRECISION RIGID SPINDLE

- Air jet around spindle nose.
- High rigidity large span layout.
- Special treatment for critical parts.
- High accuracy tool draw mechanism.
- Double anti-leak design.
- High precision labyrinth-type locknut.
- High rigidity quill.
- Optimal span from spindle nose to front bearing.

SPINDLE SPEED/OUTPUT DIAGRAM

Power / Torque characteristics at 6,000 rpm

Power / Torque characteristics at 3,000 rpm

FANUC motor size 2/3 (STD for FANU-806)

[Graphs and diagrams showing power and torque characteristics at different speeds and loads.]
THREE AXES TRAVEL RANGE

<table>
<thead>
<tr>
<th></th>
<th>FMH-400</th>
<th>FMH-500#40</th>
<th>FMH-500#50</th>
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<td>24-M16 x 2.0P</td>
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Unit: mm

MACHINE DIMENSIONS

Horizontal Machining Center
## MACHINE SPECIFICATIONS

<table>
<thead>
<tr>
<th>TRAVEL</th>
<th>MODEL</th>
<th>FMH-400</th>
<th>FMH-500</th>
<th>FMH-630</th>
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<tr>
<td></td>
<td>No.40</td>
<td>No.50 (DDS)</td>
<td>No.50</td>
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<tr>
<td>X Axis Travel</td>
<td>610 mm</td>
<td>762 mm</td>
<td>730 mm</td>
<td>730 mm</td>
<td>1,000 mm</td>
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<tr>
<td>Y Axis Travel</td>
<td>560 mm</td>
<td>710 mm</td>
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<td>850 mm</td>
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<tr>
<td>Z Axis Travel</td>
<td>560 mm</td>
<td>710 mm</td>
<td>710 mm</td>
<td></td>
<td>850 mm</td>
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<tr>
<td>Spindle Center to Table Surface</td>
<td>50 mm to 610 mm</td>
<td>50 mm to 760 mm</td>
<td>50 mm to 900 mm</td>
<td>100 to 1,120 mm</td>
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<tr>
<td>Spindle Nose to Table Center</td>
<td>130 mm to 690 mm</td>
<td>150 to 810 mm</td>
<td>200 to 910 mm</td>
<td>200 to 1,050 mm</td>
<td>150 to 1,250 mm</td>
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<tr>
<td>Table Surface to Tool</td>
<td>1,140 mm</td>
<td>1,200 mm</td>
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<td></td>
<td>1,300 mm</td>
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### TABLE

<table>
<thead>
<tr>
<th>Dimension</th>
<th>FMH-400</th>
<th>FMH-500</th>
<th>FMH-630</th>
<th>FMH-800</th>
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<tbody>
<tr>
<td>Table Dimensions (mm x mm)</td>
<td>400 x 400</td>
<td>500 x 500</td>
<td>630 x 630</td>
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<tr>
<td>Max. Loading Weight (kg)</td>
<td>400</td>
<td>1,500 kg</td>
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<td>Screw Specifications</td>
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<td>M16 x P2</td>
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<td>Min. Indexing Degree (°)</td>
<td>1° (opt: 0.001°)</td>
<td>1° (opt: 0.001°)</td>
<td>1° (opt: 0.001°)</td>
<td>1° (opt: 0.001°/5°)</td>
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</table>

### SPINDLE

- **Spindle Speed (rpm)**: 8,000 / 10,000 rpm (opt)
- **Spindle Nose Taper**: 7/24 Taper No.40
- **Dia. of Spindle**: Ø85 mm
- **Spindle Motor**: Built in 7.5/11 kW

### FEEDRATE

- **X Axis Rapid Traverse**: 30 (60) m/min
- **Y Axis Rapid Traverse**: 30 (60) m/min
- **Z Axis Rapid Traverse**: 30 (60) m/min
- **Cutting Feedrate**: 20 m/min

### AUTOMATIC TOOL CHANGER

- **No. of Tools**: 40 / 60/120 (opt)
- **Pull Stud (degree)**: P40T-1
- **Max. Tool Weight**: 8 kg
- **Max. Tool Length**: 300 mm
- **Max. Tool Diameter**: Ø85 mm
- **Tool Changing Time (tool to tool)**: 2 sec (60 Hz)
- **Number of Pallets**: 2
- **Method of Pallet Change**: ROTARY
- **Pallet Changing Time**: 8 sec (60 Hz)
- **Floor Space**: 2,610 mm x 4,750 mm
- **Machine Weight (net)**: 8,500 kg
- **Max. Machine Height**: 2,730 mm
- **Power Capacity**: 40 KVA
- **Air Source**: 6–8 bar (85 psi)

### STANDARD ACCESSORIES

- Belt type 6,000 rpm spindle #50 with gear box (FMH800)
- Built-in type 8,000 rpm spindle #40
- Tool magazine 40 tools arm type ATC
- Rotary type automatic pallet changer
- Chip conveyer with bucket
- 1° indexing table
- 3-color signal light
- Spindle oil cooler
- Heat exchanger
- Working lamp
- Top flushing

### OPTIONAL ACCESSORIES

- Belt type 6,000 rpm spindle #50 (FMH500,630)
- Coolant through spindle with filter system 20/50 bar
- 0.001 degree rotary table with linear scale
- 60, 80, 90, 120 tools chain type ATC (Hydraulic Motor)
- Direct drive spindle
- B-axis 0.001 degree rotary table
- Air condition for electric cabinet
- Spindle speed 10,000 rpm / BT-40
- Spindle speed 12,000 rpm / BT-40
- Spindle speed 8,000 rpm / BT-50
- Auto tool length measurement and breakage detection
- Touch probe workpiece measurement
- Auto power off
- T-slot pallet
- 3 axes linear scales
- Transformer
- CE modification
- Hollow ball screw coolant 3 axes
- Hydraulic interface for fixture oil skimmer

* Specifications are subject to change without prior notice.
* Heavy Tool definition = Over 15kg Tool.