The Toolroom Company

TOOLROOM MILLING

MB-R SERIES Toolroom Bed Mill with Rigid Spindle Head
MB-10R
32”X 17”Y 19”Z
14” x 50” Table Size
8,000 RPM Spindle

MB-14R
40”X 20”Y 20”Z
16” x 54” Table Size
8,000 RPM Spindle
ADVANCED TOOLROOM MILLS
FOR SMALL BATCH MACHINING

MB-16R
60"X 25"Y 24"Z
18" x 70" Table Size
8,000 RPM Spindle

DESIGNED, ENGINEERED & ASSEMBLED IN USA
RIGID HEAD
Features 8,000 RPM CAT-40 spindle, 12 HP spindle motor and optional rigid tapping.

12 OR 20 TOOL AUTOMATIC TOOL CHANGER (ATC)
Optional ATC is easy to set up and allows automated operation of the machine.

STEEL WAY COVERS
High quality telescoping way cover offers excellent protection (optional).

HEAVY DUTY MEEHANITE CASTINGS
Machined twice and stress relieved. All friction surfaces are Turcite coated and slide on top of hardened and ground surfaces for extremely low wear and high accuracy.
WHY WE’RE BUILT BETTER

ABSOLUTE ENCODERS
Remembers your position with the power off. All fixture offsets and tool offsets are maintained so you don’t have to re-indicate parts like on other controls.

FRYER / SIEMENS 828-HS CONTROL
The ultimate toolroom CNC. Easy to use for single piece production but includes features unmatched by any other builder. Regenerative drives save you over 40% on electricity.

PRECISION GROUND C3 GRADE DOUBLE NUT BALLSCREWS
Provides incredible 0.0002” accuracy for your most demanding jobs.

POWDER COATED CHIP PAN
as well as column guards, LED work lamp, and air gun are all included as standard equipment.
MANUAL HANDLES
Manual handles are provided for the table, saddle and head. These feature full digital readout (DRO) of position. No CNC experience is needed to use the manual handles.

ELECTRONIC STOPS
Allows you to set a stop position for any axis. Crank the handles and you can’t move past the stop position.

TAPERS AND CHAMFERS
Set the angle required and by turning one handle both axis move at the desired angle.

FINE/COARSE SWITCH
Allows you to easily switch between fast or slow movement of the handles or joy stick.

4 POSITION JOYSTICK
Simple joystick feed control allows positioning of the axes with a steady feedrate. The feedrate is adjustable with either the course/fine switch or the feedrate override knob.

OTHER MANUAL FEATURES
- Manually run spindle in either RPM or Constant Surface Speed.
- One button tool selection for easy tool changes.
- Teach mode
DO ONE CYCLES
The Do One cycles allow you to quickly drill, bore or tap holes automatically by filling out a simple screen. Once the operation is completed the machines returns to manual mode. Includes pocket cycles, thread milling, drilling, boring, rigid tap, engraving and keyway slots.

POCKETING
You just need to make one quick pocket so why write an entire program? In Manual Mode all machining cycles are available to run by themselves with no program required. You choose your tool, speeds and feeds, pocket size, depth and how you want your tool to enter the material. The cycle does the rest.

THREAD MILLING
What is usually a tricky programming operation becomes a simple fill in one box procedure. The Thread Mill cycle can run by itself in Manual Mode without having to write an entire program. External/internal threads, inch/metric, right hand/left hand threads are all there in the same do-one cycle.
PROGRAMMING

PART PRINT
Programming in ShopMill on the Fryer / Siemens 828-HS control is straightforward with no need for G codes. Enter dimensions directly off the print.

DRILLING CYCLES
Several drill cycles are available, chip breaking, chip removal, center drilling, reaming etc. All canned cycles retain the last numbers entered saving you time and money.

TAPPING CYCLE
This cycle has several tap forms in inch and metric pre-defined. Tough material? Select Chipbreaking or Chip Removal. Rigid tapping, not usually found on bed mills, is also available. Enter the RPM and the control automatically calculates the feed rate.
FROM DRAWING TO FINISHED PART

CONTOUR EDITOR
The Contour Editor lets you create simple or complex tool paths. As you enter dimensions the path is visually generated. Don’t know an end point? The editor will fill-in missing points.

MACHINING THE CONTOUR
Once the contour is created you link to a cycle to machine it. Pocketing, Path Milling or Spigot all let you control how you want to machine the part. This cycle has a finishing operation and can also chamfer the edge of the part.

SIMULATION MODE
Before making any chips the full featured simulation mode lets you see the part in 3D to check if everything is correct compared to the print. Part can be rotated, zoomed and cut to see into different areas of the part. Hole in the wrong place? Fix it before you actually machine it. Simulation even shows cycle time.
AUTOMATIC PART PROBE
Affordable Fryer wired part probe works on holes, pockets, angled parts etc. to quickly set work offsets.

Graphic display shows the type and name of the tool. You can also control spindle direction and coolant. Tool life monitoring is also standard for time in cut or part count.

AUTOMATIC TOOL PROBE
Tool probe automatically sets your tool length offsets. Includes predefined table locator with magnetic mount for fast use.

PART PROBING/MEASURING CYCLES
Several standard cycles are available to find centers of holes, part edges, and bosses. Cycles can also be used to measure finished parts and display the reading.
RUN PROGRAM
After the program is proved out in simulation you are ready to run. The Auto screen Block Search function lets you start anywhere in the program. Part counters and run times are also included.

HANDWHEEL RUN
This feature allows you to control your program execution with the optional electronic handwheel. Turning the handwheel causes the program to run with you in charge of the axis feed. Turn it slow or speed things up by cranking faster. When you stop turning the axes stop moving, turn the handle the opposite direction and the axes move backwards through the program. Designed to make proving-out programs easier with safety and confidence. (optional)
CONTROL OPTIONS

IN-PROCESS PROBE MEASUREMENT CYCLES
This feature allows you to measure part features during program execution. Can also be used in MDI mode after cutting the part to then measure certain features and display the measurement.

RESIDUAL MATERIAL DETECTION
This software option allows re-machining of pocket milling contours with a tool smaller than the original tool. The control will remember where material has already been machined and will cut only the residual material.

DXF FILE IMPORT FEATURE
Allows you to import DXF files and quickly convert to a conversational program. Automatically create points for drilling operations or contours for milling.
3D HIGH SPEED MACHINING
Features high speed 1.5ms block processing and 500 block look-ahead. Advance Surface features jerk control and nano smoothing with a compressor mode which determines optimal velocity for programs containing circular and linear blocks. High speed roughing parameters and lower speed finishing parameters provide incredible surface finish at lowest possible cutting time.

4TH AXIS SURFACE CYCLES
 Allows programming of XYZ coordinates and cycles like pockets and engraving. These are then automatically projected onto a cylindrical surface. For use with 4th axis rotary tables.

SIEMENS OFFLINE PROGRAMMING SOFTWARE
Easy-to-use software package that installs on a standard desktop PC and duplicates the control functions. Allows full programming and part verification. Single package for lathe and mill.
MACHINE OPTIONS

TOOL CHANGER
Versatile automatic tool changer is available in 12 or 20 tool capacity. Use it manually with the next tool/previous tool button or automatically in a program. You can also skip the ATC and load tools manually.

TOOL PROBE
Tool probe automatically sets your tool length offsets. Includes predefined table locator with magnetic mount for fast use.

REMOTE ELECTRONIC HANDWHEEL
Handy jog handwheel is located in a portable box for use anywhere on the machine. Features axis selection switch and a resolution selector for coarse or fine movements.

PART PROBE
Part probe automatically sets pocket centers, bosses, edges and skew angles. Simple graphic menus makes operations fast.
4TH AXIS ROTARY TABLE
Fryer offers 4 models from 6” to 12” tables. Designed for full 4 axis simultaneous contouring with high precision gearing, disk brake and quick disconnect cables.

TABLE MOUNTED SPLASH GUARD
Table guard features 2 sliding doors with a safety switch that meets most safety requirements. Keeps chips and coolant inside for mess free machining.

FULL MACHINE GUARDING ALSO AVAILABLE
Full machine guard allows high coolant flow and heavy chip removal with no floor mess. Included door safety switch.

3 HANDWHEEL CONSOLE
Base mounted operator console includes 3 handwheels for manual movement of X,Y and Z axis. Also included is a joy stick for feed control of X and Y axis and a course / fine switch.
## MB-R SERIES SPECIFICATIONS

<table>
<thead>
<tr>
<th></th>
<th>MB-10R</th>
<th>MB-14R</th>
<th>MB-16R</th>
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</thead>
<tbody>
<tr>
<td><strong>MACHINE CAPACITY</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>X Travel</td>
<td>32&quot;</td>
<td>40&quot;</td>
<td>60&quot;</td>
</tr>
<tr>
<td>Y Travel</td>
<td>17&quot;</td>
<td>20&quot;</td>
<td>25&quot;</td>
</tr>
<tr>
<td>Z Travel</td>
<td>19&quot;</td>
<td>20&quot;</td>
<td>24&quot;</td>
</tr>
<tr>
<td>Table Load (Evenly Distributed)</td>
<td>2,000 lbs.</td>
<td>2,450 lbs.</td>
<td>2,950 lbs.</td>
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<tr>
<td>Ballscrew Size</td>
<td>1.26&quot;</td>
<td>1.26&quot;</td>
<td>1.57&quot;</td>
</tr>
<tr>
<td>Table Size</td>
<td>14&quot; x 50&quot;</td>
<td>16&quot; x 54&quot;</td>
<td>18&quot; x 70&quot;</td>
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<tr>
<td>T-Slots (No./Width)</td>
<td>3 / 0.630&quot;</td>
<td>3 / 0.630&quot;</td>
<td>5 / 0.630&quot;</td>
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<tr>
<td>Table Top to Floor</td>
<td>31&quot;</td>
<td>33&quot;</td>
<td>36&quot;</td>
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<tr>
<td><strong>MOTOR</strong></td>
<td></td>
<td></td>
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<tr>
<td>Motor (Peak)</td>
<td>12 HP</td>
<td>12 HP</td>
<td>12 HP</td>
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<tr>
<td><strong>SPINDLE</strong></td>
<td></td>
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<tr>
<td>Max Spindle Torque</td>
<td>40 ft/lbs</td>
<td></td>
<td></td>
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<tr>
<td>Spindle Speeds (RPM)</td>
<td>60 - 8,000 RPM</td>
<td></td>
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<tr>
<td>Tool Type/Taper</td>
<td>CAT 40 (BT-40 Optional)</td>
<td></td>
<td></td>
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<tr>
<td>Spindle Nose to Table (Max - Min)</td>
<td>25.75&quot; - 6.75&quot;</td>
<td>25&quot; - 5&quot;</td>
<td>28&quot; - 4&quot;</td>
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<tr>
<td>Spindle Center to Column</td>
<td>17.5&quot;</td>
<td>20&quot;</td>
<td>25&quot;</td>
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<tr>
<td><strong>ATC</strong></td>
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<tr>
<td>Tool Storage Capacity</td>
<td>12 (20 optional)</td>
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<tr>
<td>Tool Change Time</td>
<td>7 Seconds</td>
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<tr>
<td>Tool Selection</td>
<td>Bi-Directional</td>
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<tr>
<td>Max. Adjacent Tool Diameter</td>
<td>5.5&quot;</td>
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<tr>
<td>Max. Tool Weight</td>
<td>15.4 LBS</td>
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<tr>
<td>Max. Tool Length</td>
<td>11.8&quot;</td>
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<tr>
<td><strong>PERFORMANCE</strong></td>
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<tr>
<td>Positioning Accuracy</td>
<td>+/- 0.0002&quot;</td>
<td></td>
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<tr>
<td>Positioning Repeatability</td>
<td>+/- 0.0001&quot;</td>
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<tr>
<td>Rapid Traverse</td>
<td>400 IPM</td>
<td></td>
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<tr>
<td>Cutting Feed Rate</td>
<td>0.001 - 300 IPM</td>
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<tr>
<td>Axis Thrust (Peak)</td>
<td>4,400 lbs.</td>
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<td><strong>GENERAL INFO</strong></td>
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<tr>
<td>Air Pressure Requirements</td>
<td>85 PSI; 3 CFM</td>
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<tr>
<td>Coolant Capacity</td>
<td>12 Gallons</td>
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<td></td>
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<tr>
<td>Coolant Flow</td>
<td>3 Gal/Min</td>
<td></td>
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<tr>
<td>Power Requirements</td>
<td>40 AMP 208-250 VAC 3 Phase (380-500 VAC)</td>
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<tr>
<td>Shipping Dimensions* (WxDxH)</td>
<td>50&quot; x 76&quot; x 76&quot;</td>
<td>54&quot; x 80&quot; x 78&quot;</td>
<td>72&quot; x 92&quot; x 89&quot;</td>
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<tr>
<td>Operating Dimensions (WxDxH)</td>
<td>103&quot; x 80&quot; x 94&quot;</td>
<td>113&quot; x 80&quot; x 106&quot;</td>
<td>174&quot; x 92&quot; x 113&quot;</td>
</tr>
<tr>
<td>Machine Weight</td>
<td>5,000 lbs.</td>
<td>7,000 lbs.</td>
<td>10,000 lbs.</td>
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</tbody>
</table>

* Requires some disassembly to meet these minimum dimensions. Contact factory for more information.