FRYER MACHINE SYSTEMS

*The Toolroom Company*

# TOOLROOM MILLING




MADE IN USA

## MB-Q SERIES

*Toolroom Bed Mills with Manual Quill*

# FRYER MB-Q SERIES







## MB-10Q

**32”X 17”Y 19”Z**
**14” x 50” Table Size**
**6” Manual Quill**

## MB-14Q

**40”X 20”Y 20”Z**
**16” x 54” Table Size**
**6” Manual Quill**

# ADVANCED TOOLROOM MILLS

## FOR SMALL BATCH MACHINING




# MB-16Q

**60”X 25”Y 24”Z**
**18” x 70” Table Size**
**6” Manual Quill**

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# INSIDE THE MB-Q

## QUILL HEAD

Features 2 speed gear box for high torque at low speed, 10 HP spindle motor, CAT-40 taper spindle and optional rigid tapping.

## HARDENED AND GROUND TABLE

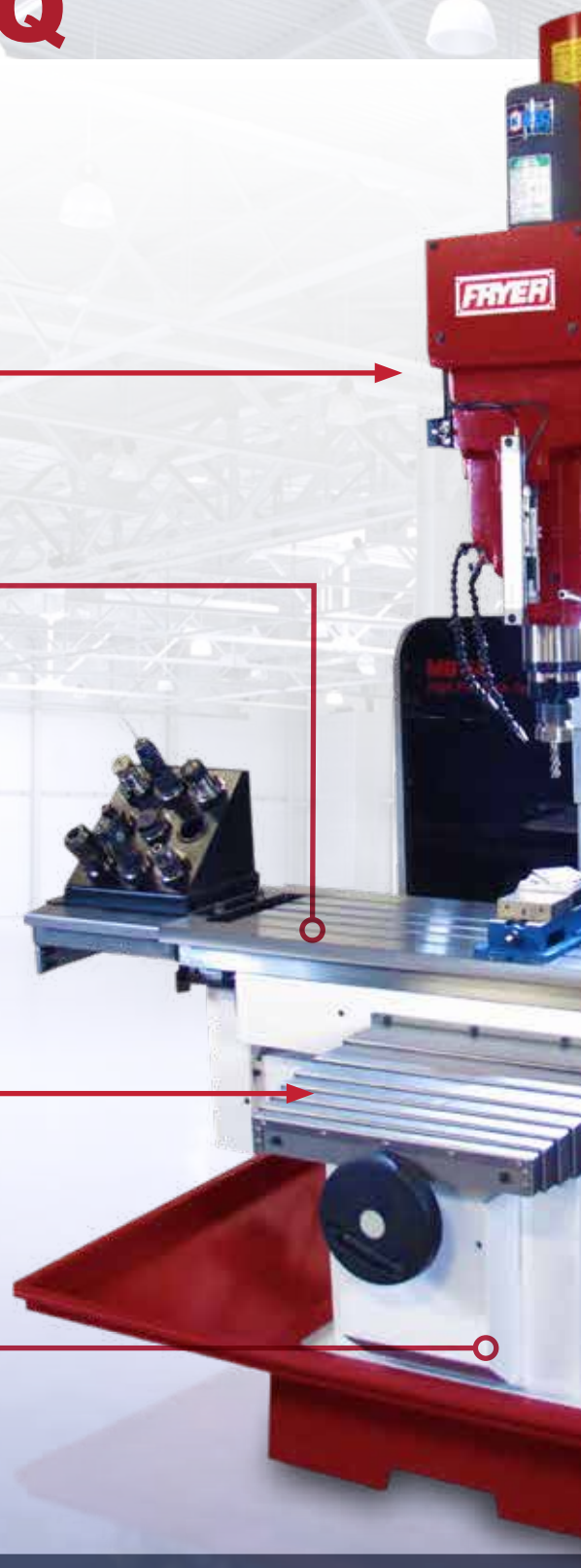
Features extra wide width and precision ground tee slots.

## 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.



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# 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, air gun and manual handles are all included as standard equipment.

# MANUAL OPERATION




## MANUAL HANDLES

Manual handles are provided for both the table and saddle with full digital readout (DRO) of position. The handles feature a lock function to add greater rigidity for heavier cutting. No CNC experience is needed to use the manual handles.



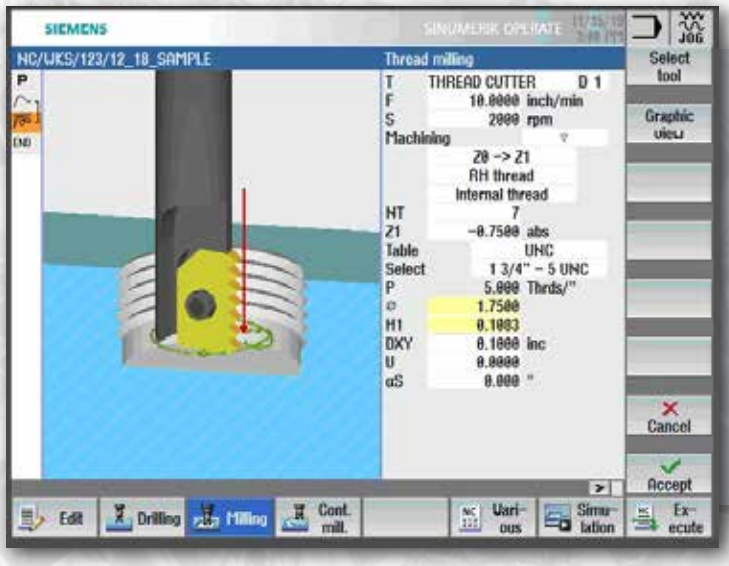

## MANUAL QUILL

The manual quill features a precision honed bore for silk like operation. Lock lever and thumbscrew stop are also included. An optional glass scale sends position feedback to the DRO. Additionally this option can be used to set tool length offsets quickly.

# NO CNC EXPERIENCE NEEDED

## 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.

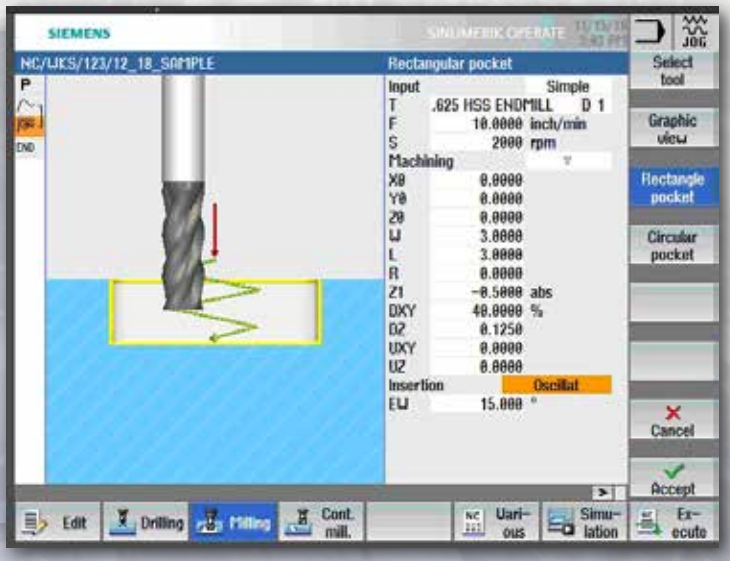



## THREAD MILLING

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.

## 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.

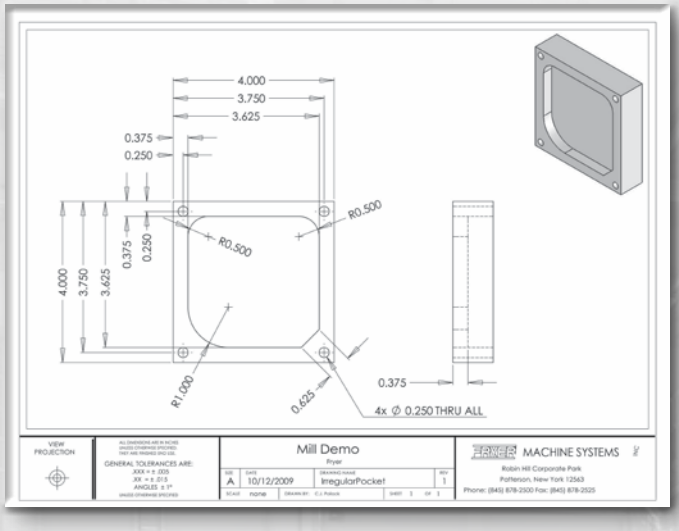


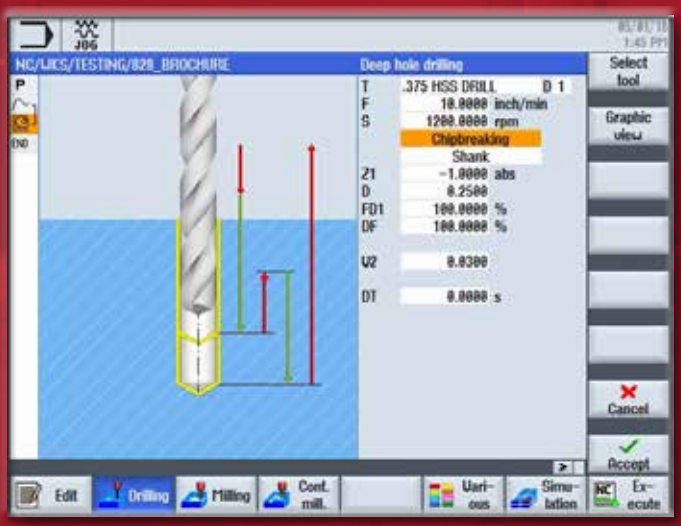

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# PROGRAMMING

## PART PRINT

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



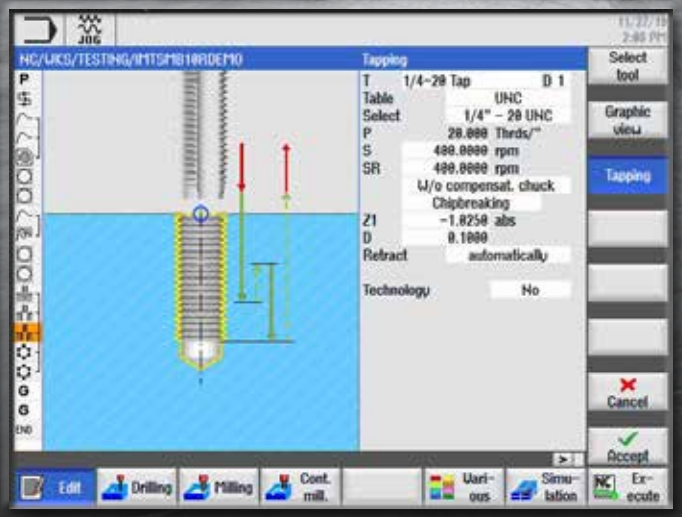




## DRILLING CYCLES

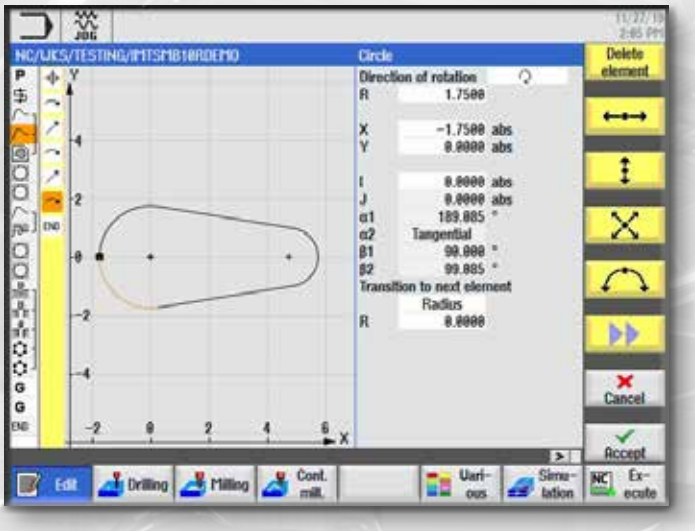
Several drill cycles are available, chip breaking, chip removal, center drilling, reaming etc. All canned cycles retain the last numbers entered saving you time and money.

## 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

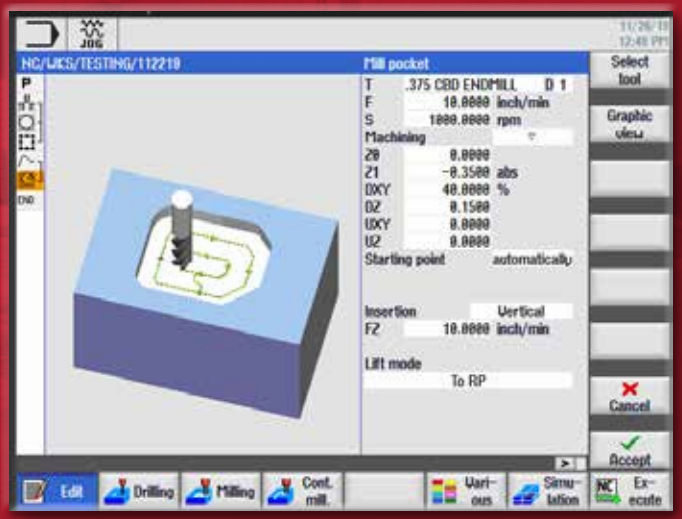



## CONTOUR EDITOR

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.

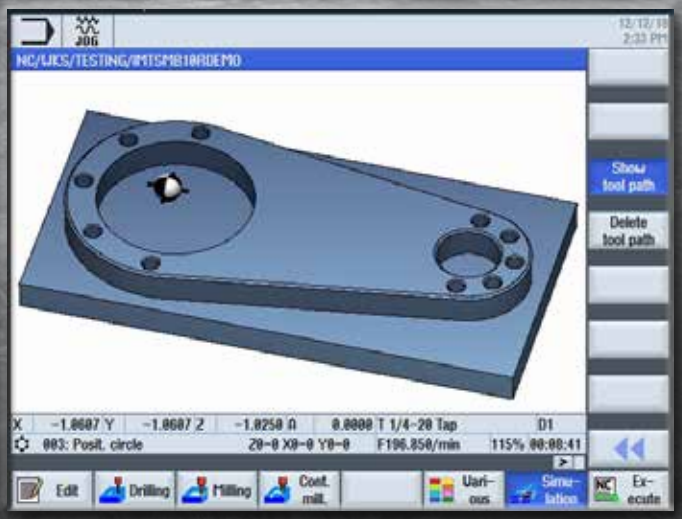
## MACHINING THE CONTOUR

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.




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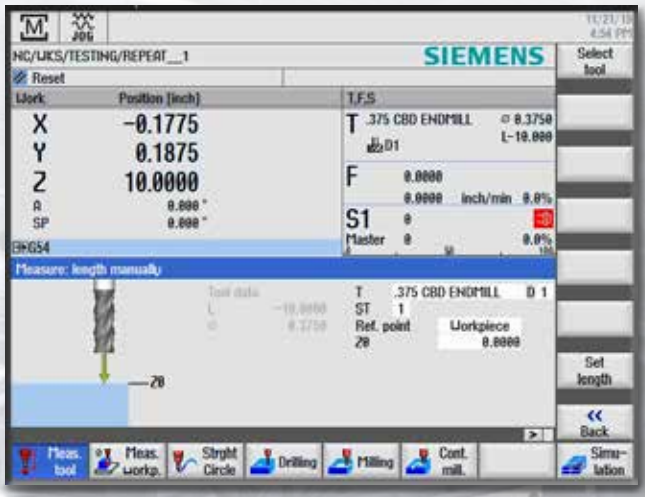
# SETUP AND OPERATION

## TOOL TABLE




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.

## SET TOOL LENGTH



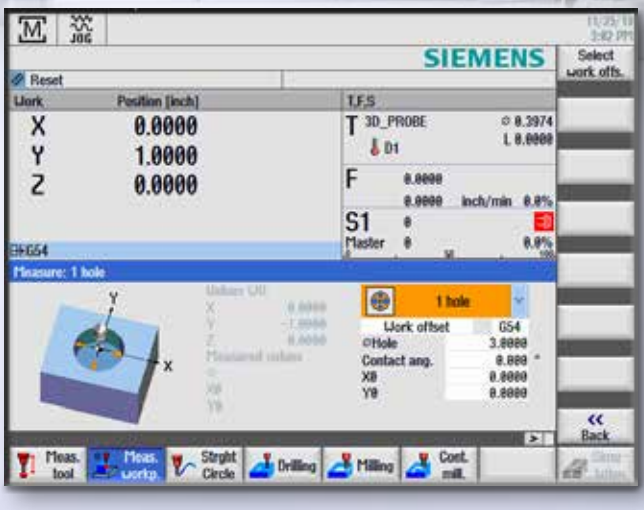

Touch off the tool on the part or use the available quill scale to get a real feel of the tool on the part. This process can also be done automatically with available tool probes.

## AUTOMATIC PART PROBE

Affordable Fryer wired part probe works on holes, pockets, angled parts etc. to quickly set work offsets




## PART PROBING/ MEASURING CYCLES

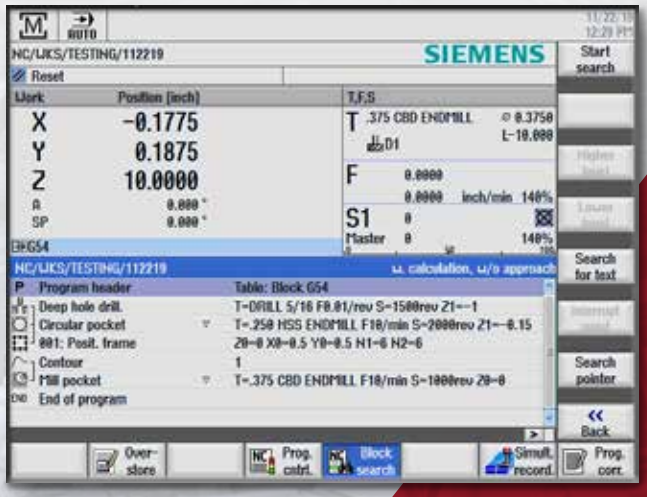



Several standard cycles are available to find centers of holes, part edges, and bosses. Cycles can also be used to measure finished parts and display the reading.

# FASTER, SIMPLER & MORE PRODUCTIVE

## 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.

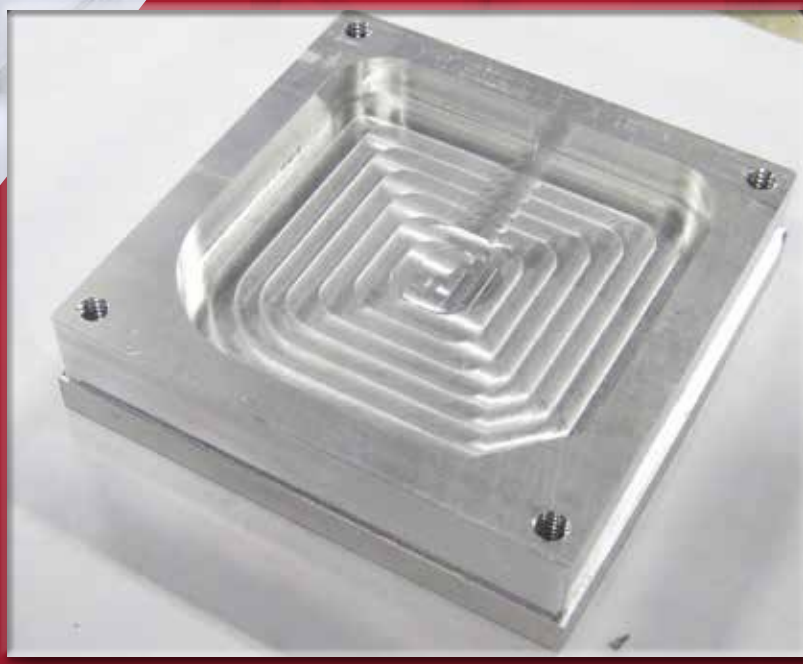



## HANDWHEEL RUN

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 though the program. Designed to make proving-out programs easier with safety and confidence. (optional)



**FINISHED PART**



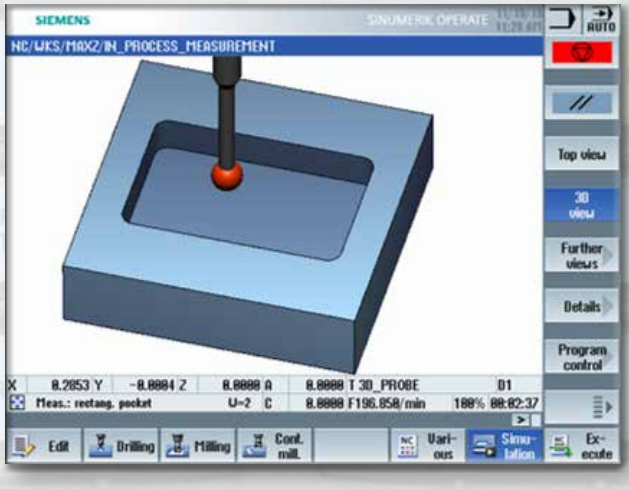
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# CONTROL OPTIONS



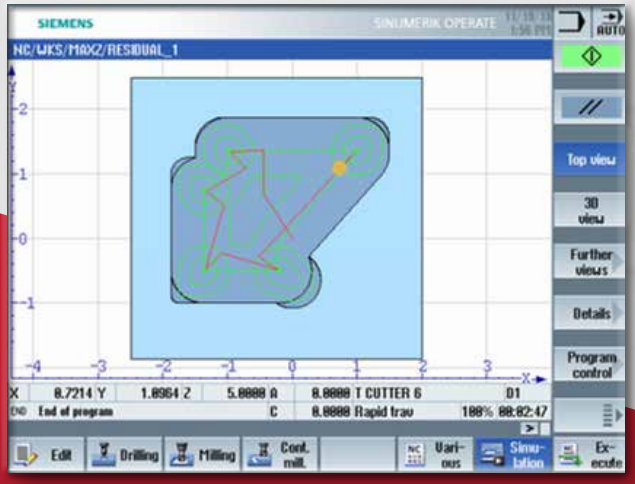
## SWIVEL FUNCTION

This innovative function allows the operator to enter the angle of the head into the control. X and Z axes are then automatically slaved to allow milling and drilling. Addition of the single or 3 remote handwheel option provides for manual movement.



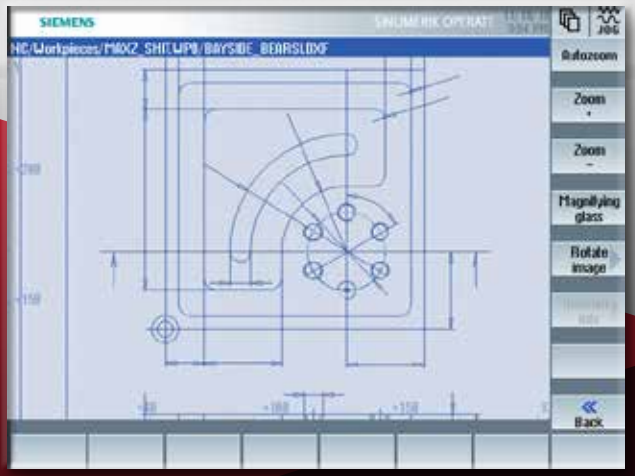

## IN-PROCESS PROBE MEASUREMENT CYCLES

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.

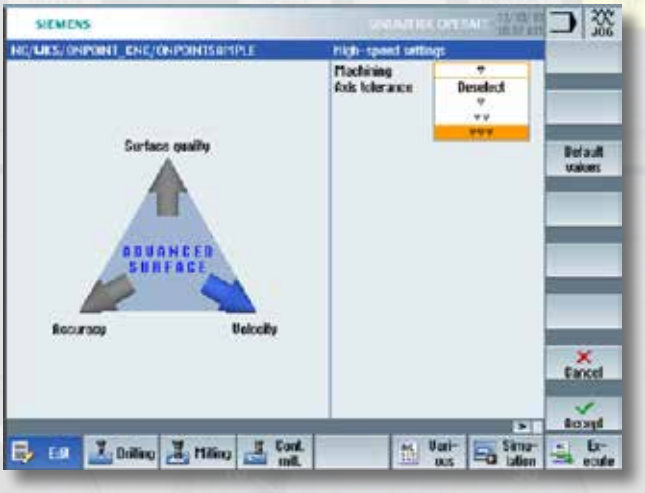



## DXF FILE IMPORT FEATURE

Allows you to import DXF files and quickly convert to a conversational program. Automatically create points for drilling operations or contours for milling.

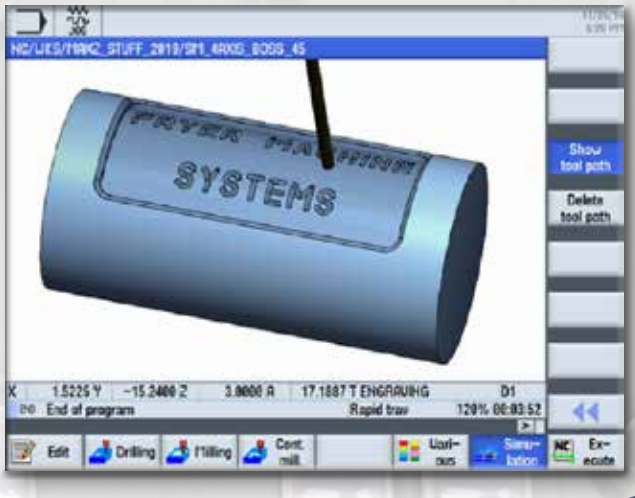
## 3D HIGH SPEED MACHINING

Perfect for mold makers and prototype shops using long CAD/CAM produced G code programs. 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.

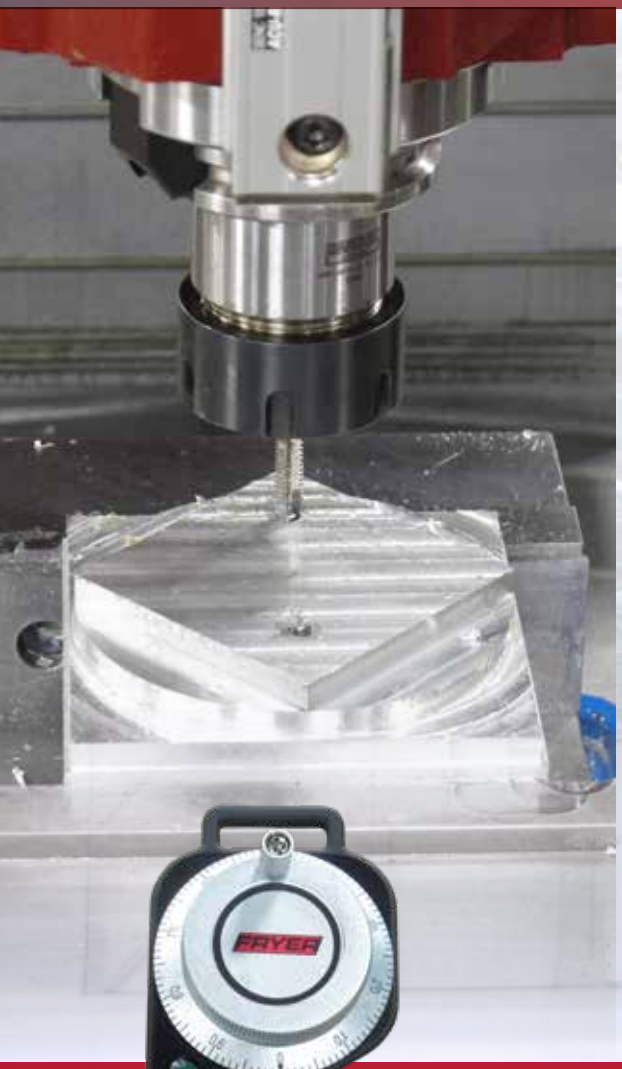





## SIEMENS OFFLINE PROGRAMMING SOFTWARE

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



## RIGID TAPPING

Rigid tapping feature allows precision tapping without the need for a tapping head or special compression holder. Also features a peck tapping cycle that clears the hole and allows coolant in.

## 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.





## 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.




## 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.



## 3 HANDWHEEL CONSOLE

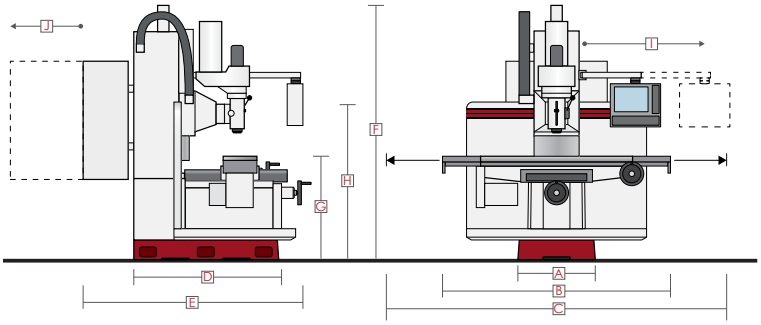
Base mounted operator console includes 3 handwheels for manual movement of X,Y and Z axis. Also included is a joy stick for feed control of X and Y axis and a course / fine switch.

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| | MB-Q SERIES SPECIFICATIONS | MB-10Q | MB-14Q | MB-16Q |
|---|---|---|---|---|
| MACHINE CAPACITY | X Travel | 32” | 40” | 60” |
| | Y Travel | 17” | 20” | 25” |
| | Z Travel | 19” | 20” | 24” |
| | Table Load (Evenly Distributed) | 2,000 lbs. | 2,450 lbs. | 2,950 lbs. |
| | Ballscrew Size | 1.26” | 1.26” | 1.57” |
| | Table Size | 14” x 50” | 16” x 54” | 18” x 70” |
| | T-Slots (No./Width) | 3 / 0.630” | 3 / 0.630” | 5 / 0.630” |
| | Table Top to Floor | 31” | 33” | 36” |
| SPINDLE | Motor (Peak) | 10 HP | 10 HP | 10 HP |
| | Max Spindle Torque | 40 ft/lbs High Gear - 238 ft/lbs Low Gear | | |
| | Spindle Speed (RPM) | Low 10-500 High 100-4,500 | | |
| | Speed Ranges | 2 Speed Gear Box | | |
| | Tool Type/Taper | CAT 40 (NST 40 or BT 40 Optional) | | |
| | Quill Diameter | 4.125” | 4.125” | 4.330” |
| | Quill Travel | 6” | 6” | 6” |
| | Spindle Nose to Table (Max - Min) | 25.5” - 6.5” | 26” - 6” | 30” - 6” |
| | Spindle Center to Column | 17.5” | 20” | 25” |
| | Head Swivel | +/- 90º | +/- 90º | +/- 90º |
| PERFORMANCE | Positioning Accuracy | +/- 0.0002” | | |
| | Positioning Repeatability | +/- 0.0001” | | |
| | Rapid Traverse | 400 IPM | | |
| | Cutting Feed Rate | 0.001 - 300 IPM | | |
| | Axis Thrust (Peak) | 4,400 lbs. | | |
| GENERAL INFO | Air Pressure Requirements | 85 PSI; 3 CFM | | |
| | Coolant Capacity | 12 Gallons | | |
| | Coolant Flow | 3 Gal/Min | | |
| | Power Requirements | 35 AMP; 208-250 VAC 3 PHASE (380-500 optional) | | |
| | Shipping Dimensions* (WxDxH) | 50” x 76” x 76” | 54” x 80” x 78” | 72” x 92” x 89” |
| | Operating Dimensions (WxDxH) | 103” x 80” x 94” | 113” x 80” x 106” | 174” x 92” x 113” |
| | Machine Weight | 5,000 lbs. | 6,000 lbs. | 8,800 lbs. |




| | MB-10Q | MB-14Q | MB-16Q |
|---|---|---|---|
| Floor Width (A) | 26" | 26" | 33" |
| Overall Width (B) | 72" | 82" | 111" |
| X-Axis Movement (C) | 103" | 113" | 174" |
| Floor Depth (D) | 56.5" | 56.5" | 66" |
| Overall Depth (E) | 80" | 80" | 92" |
| Maximum Height (F) | 94" | 106" | 113" |
| Floor to Table Height (G) | 31" | 33" | 36" |
| Floor to Console Height (H) | 62" | 62" | 62" |
| Console Swing Radius (I) | 60" | 60" | 72" |
| Electrical Cabinet Swing (J) | 37" | 37" | 37" |
| Approx. Machine Weight | 5,000 lbs. | 6,000 lbs. | 8,800 lbs. |

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

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Specifications subject to change without prior notice.