# MC-TR SERIES OPTIONS

<table>
<thead>
<tr>
<th>Option Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPT-0320</td>
<td>RIGID TAPPING</td>
</tr>
<tr>
<td>OPT-2112</td>
<td>SPRAY MIST COOLANT SYSTEM</td>
</tr>
<tr>
<td>OPT-2114</td>
<td>AIR BLAST SYSTEM Programmable air nozzle for plastic, graphite and other dry materials</td>
</tr>
<tr>
<td>OPT-2111</td>
<td>CHIP AUGER SYSTEM MC TOOLROOM SERIES</td>
</tr>
</tbody>
</table>

## 40 TAPER SPINDLE OPTIONS

<table>
<thead>
<tr>
<th>Option Code</th>
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<tbody>
<tr>
<td>OPT-2200</td>
<td>12,000 RPM 40 TAPER SPINDLE (includes refrigeration unit and air purge seal)</td>
</tr>
<tr>
<td>OPT-4205</td>
<td>HIGH TORQUE 20 HP SPINDLE MOTOR UPGRADE (MB) Powerful 20 HP spindle motor develops 120 ft/lbs of torque at only 350 RPM. Requires 480 VAC power or special transformer listed below</td>
</tr>
<tr>
<td>OPT-9209</td>
<td>BT-40 SPINDLE (for Japanese style BT-40 tooling)</td>
</tr>
</tbody>
</table>

## ROTARY TABLE CONTROLLERS

<table>
<thead>
<tr>
<th>Option Code</th>
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<tbody>
<tr>
<td>OPT-4306</td>
<td>4TH AXIS DRIVE AND WIRING for 6&quot; to 10&quot; Rotary Tables Add this option to any Fryer machine in order to control the 4th axis rotary tables as a full contouring 4th axis. Includes drive, wiring and 4th axis software.</td>
</tr>
<tr>
<td>OPT-4305</td>
<td>4TH AXIS DRIVE AND WIRING for 12&quot; to 32&quot; Rotary Tables Add this option to any Fryer machine in order to control the 4th axis rotary tables as a full contouring 4th axis. Includes drive, wiring and 4th axis software.</td>
</tr>
</tbody>
</table>

## 5TH AXIS TRUNNION ROTARY TABLE Available in a different sizes and capacities. Contact factory for more info.

## 4th AXIS ROTARY TABLES

*Fryer made rotary tables feature exceptional quality and accuracy. Dual worm gear drive, high torque disc brake, AC brushless motor, coolant tight motor housing, quick disconnect cable set, table clamp set and ground locating keys.*

(Requires 4th axis drive wiring)

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<tr>
<td>OPT-1002</td>
<td>6&quot; 4TH AXIS ROTARY TABLE</td>
</tr>
<tr>
<td>OPT-1003</td>
<td>6&quot; TAILSTOCK</td>
</tr>
<tr>
<td>OPT-1004</td>
<td>6&quot; ROTARY TABLE CHUCK</td>
</tr>
<tr>
<td>OPT-4310</td>
<td>8&quot; 4TH AXIS ROTARY TABLE</td>
</tr>
<tr>
<td>OPT-4311</td>
<td>8&quot; TAILSTOCK</td>
</tr>
</tbody>
</table>
8" HEAVY DUTY TAILSTOCK  Tailstock includes a cast iron body, keyed table and features a faceplate to hold a 3 jaw chuck or a center. Also includes high torque pneumatic disc brake.

8" ROTARY TABLE CHUCK

10" 4TH AXIS ROTARY TABLE

10" TAILSTOCK

10" HEAVY DUTY TAILSTOCK  Tailstock includes a cast iron body, keyed table and features a faceplate to hold a 3 jaw chuck or a center. Also includes high torque pneumatic disc brake.

10" ROTARY TABLE CHUCK

12" 4TH AXIS ROTARY TABLE

12" TAILSTOCK

12" HEAVY DUTY TAILSTOCK  Tailstock includes a cast iron body, keyed table and features a faceplate to hold a 3 jaw chuck or a center. Also includes high torque pneumatic disc brake.

12" ROTARY TABLE CHUCK

GLASS SCALES

HEIDENHAIN GLASS SCALE FEEDBACK 0.000050" RESOLUTION - X & Y AXIS (MODELS UP TO 40" X TRAVEL)  This is a super accurate system using dual feedback. The standard encoders provide a stable servo loop while the ultra precision scales provide final position accuracy.

HEIDENHAIN GLASS SCALE FEEDBACK 0.000050" RESOLUTION - X & Y AXIS (MODELS UP TO 60" X TRAVEL)  This is a super accurate system using dual feedback. The standard encoders provide a stable servo loop while the ultra precision scales provide final position accuracy.

HEIDENHAIN GLASS SCALE FEEDBACK 0.000050" RESOLUTION – Z AXIS (MODELS WITH UP TO 30" Z TRAVEL)

CONTROL OPTIONS - SIEMENS 828

3 HANDWHEEL OPERATOR CONSOLE  Base mounted operator console has 3 handwheels for full manual operation. This unique package makes set-up easier by allowing you to manually run the machine using three electronic handwheels. The handwheels are mounted in a comfortable position and include a joy stick and a coarse/fine speed control switch. The package also includes chamfer mode and electronic stops that allow you to move to a position but not exceed it.

REMOTE ELECTRONIC HANDWHEEL  Handy jog handwheel is located in a portable box. Features axis selector switch and a resolution selector for coarse or fine movement. Remote stop start is also included.

HANDWHEEL RUN FUNCTION  This feature allows you to control your program execution with the electronic handwheel. Turning the handwheel causes the program to run, with you controlling the feedrate. You can move forwards and even backwards with this handy feature. Designed to make proving-out programs easier with safety and confidence.

AUTOMATIC TEACH MODE  Allows you to create parts by manually turning the handles and the CNC will remember these moves as an automatic program. (Requires 3 handwheel or remote handwheel option).

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.

IN-PROCESS PART 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.
**HIGH SPEED NETWORK INTERFACE**  
High speed Ethernet port is the ideal way to connect your machine to your LAN (local area network). Features 10/100 MB/s bandwidth for fast uploads and downloads of part programs. Also features a spooling option that allows you to run part programs larger than the memory of the machine. Available in a wireless package for $200.00 extra.

**SPARE “M” FUNCTION** (use to connect remote devices like indexers, shuttles, clamps, etc.)

**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 program verification. Single package for lathe and mill.

**EXPANDED MEMORY 100 MB**  
Standard memory of 6 MB is increased to 100 MB for handling larger CAM programs.

**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.

**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.

**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 TOUCH 2200 CNC CONTROL UPGRADE**  
The 2200 CNC is based on the powerful Siemens 840D platform. This control features a 15” touch screen display, 5 axis expandable and advanced operator functions. Includes Handwheel run and Run verify features as well as probe cycles.

**CONTROL OPTIONS - FANUC 0i MF**

**FANUC 0i MF CNC**

**HIGH SPEED ETHERNET NETWORK PORT (100 MB/SEC)**

**USB PORT FOR MEMORY STICK DEVICES**

**REMOTE ELECTRONIC HANDWHEEL WITH AXIS AND RESOLUTION SELECT**

**430 - 500 VAC 3 PHASE POWER**  
The Fanuc control is 220 VAC and therefore requires a special transformer to operate at the higher voltage.

**PROBES**

**FRYER AUTOMATIC TOOL AND PART PROBE PACKAGE**  
This package includes table mounted tool probe to auto set the tool length offset and a wired part probe to auto set pocket centers, bosses, and find edges. The simple graphical interface included gives the operator the fastest set-up possible.

**MARPOSS WIRELESS TOOL AND WIRELESS PART PROBE PACKAGE**  
Package includes a wireless (IR) table mounted tool probe that automatically measures and sets your tool length and diameter offsets. Also included is an easy to use wireless part probe that works with the ATC and allows you to quickly find edges, hole centers, bosses and many more shapes. Simple graphical menus make operations fast.

**RENASIW WIRELESS TOOL AND PART PROBE PACKAGE**  
Special package includes a wireless table mounted tool probe that automatically measures and sets your tool length and diameter offsets. Also included is an easy to use wireless part probe that works with the ATC and allows you to quickly find edges, hole centers, bosses and many more shapes. Simple graphical menus make operations fast.

**TOOLING & WORKHOLDING**
SANDVIK #40 V-FLANGE TOOLING PACKAGE  Standard tooling package includes: (6) collet chucks with the following collet sizes; (1) 1/4"; (2) 3/8"; (2) 1/2"; (1) 5/8"; (1) 3/4"; (1) 1". Solid end mill holders as follows: (2) 3/8"; (2) 1/2"; (1) 5/8"; (1) 3/4"; (1) 1", (1) 1/2" keyless drill chuck with holder, collet chuck wrench & set-up fixture, (14) retention knobs.

PACKAGE OF 12 CAT-40 OR BT-40 RETENTION KNOBS (specify at time of order)

6" HIGH PRECISION VISE - KURT BRAND - MADE IN USA

FACTORY SERVICES

FACTORY SET-UP & TRAINING AT YOUR FACILITY (3 Days Contiguous US. Includes travel expenses)

TRAINING ONLY -- 1 DAY (Expenses and travel time additional)

ELECTRICAL

SPECIAL TRANSFORMER FOR HIGH TORQUE 20 HP SPINDLE MOTOR UPGRADE This item is only needed for shops that only have 220 VAC power.

CHANGE TO 480 VAC 3 PHASE POWER

CHANGE TO 220 VAC SINGLE PHASE - 2200 (Uses digital phase converter)