FRYER
MACHINE SYSTEMS

Precision Built Solutions

Fryer / Fanuc 0i Plus

CNC Control for Milling and Turning

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The Fryer / Fanuc 0i Plus CNC provides world class technology and ultra-advanced features in an intuitive user interface. Milling in vertical or horizontal and turning all use the same platform with up to 4+1 axis capability. Fast set-up cycles, one button hot keys and built in probe cycles speed the set-up process. Shop floor programming, G code programming, large program storage and Ethernet connectivity speed the programming process. 3D solid model graphic verification, handwheel run and easy interrupt speed the first article process.

Ease of Use

- One touch keys control many functions
- Shop floor conversational programming
- Manual Mode with Do-One cycles
- Animated cycles with graphics and help
- Handwheel run
- One button tool changes
- Advanced Intuitive tool and part probing cycles
- 3D Shopfloor simulation with cycle time display
- Selectable level lockout key

Powerful Features

- Mid-program restart
- Multiple Clamping
- High speed machining
- Collision avoidance
- Adaptive feed
- Compatible with tool presetters to import tool data automatically
- In-process measuring
- DXF Import
- Mindsphere

MADE IN USA

1. LCD Screen
10.5” screen features a high-resolution, digital color monitor.

2. USB Port
High-speed USB port for file transfer via standard flash drive.

3. Mode Select
Provides easy navigation for set up, programming and operation.

4. Set-up Hot Keys
Buttons such as Next Tool/Previous Tool simplify set-up and operation of the machine.

5. Soft Keys
Each screen has individualized soft keys that are activated by the buttons located adjacent to them.

6. Function Keys
Feed rate and spindle speed override dials, axis jog keys and keys for spindle direction and coolant.

7. Edit Lockout Key
Edit Lockout Keys allow controlled access of editing programs and machine operations.

MANUAL OPERATION

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.

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.

FINE/COARSE SWITCH

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

NO CNC EXPERIENCE NEEDED

REMOTE ELECTRONIC HANDWHEEL

Machine movement is manually controlled by the available remote handwheel or by the axis pushbuttons. Resolution of .010”, .001” or .0001” movement per click or keystroke is set through the selector switch or on the control. Includes remote cycle start and feed hold buttons.

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)

OTHER MANUAL FEATURES

- Axis position is displayed on control as a Digital Readout
- Manually run spindle in either RPM or Constant Surface Speed
- One button tool selection for easy tool changes.
- Teach mode

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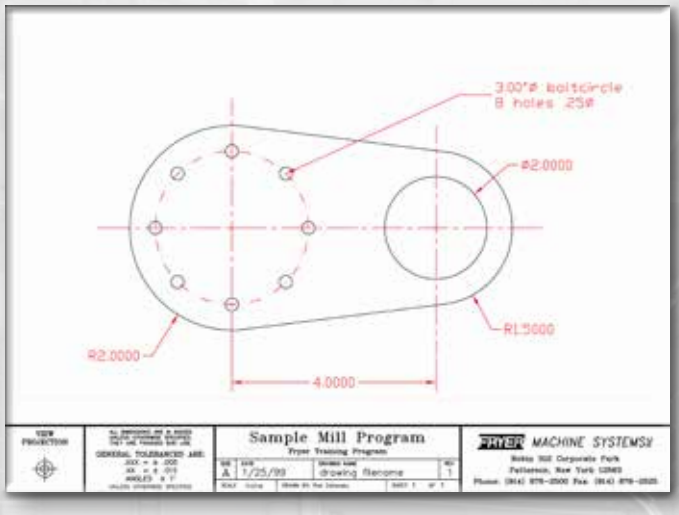
PROGRAMMING

PART PRINT

Programming in ShopMill on the Fryer / Fanuc 0i Plus control is straight forward with no need for G codes. Enter dimensions directly off the print.

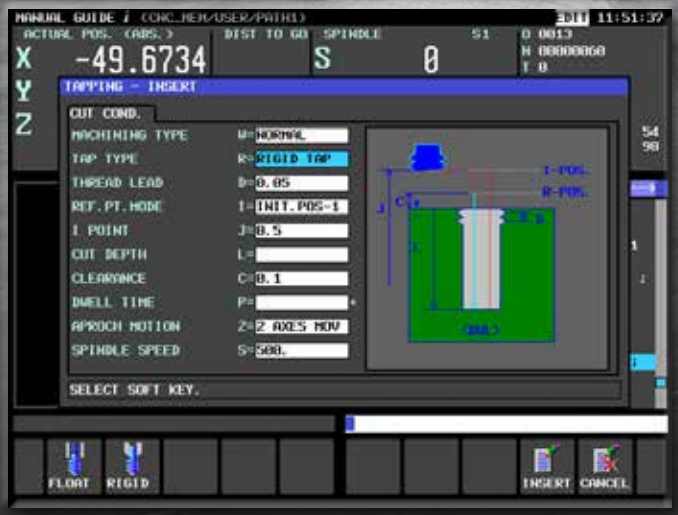


DRILLING CYCLES

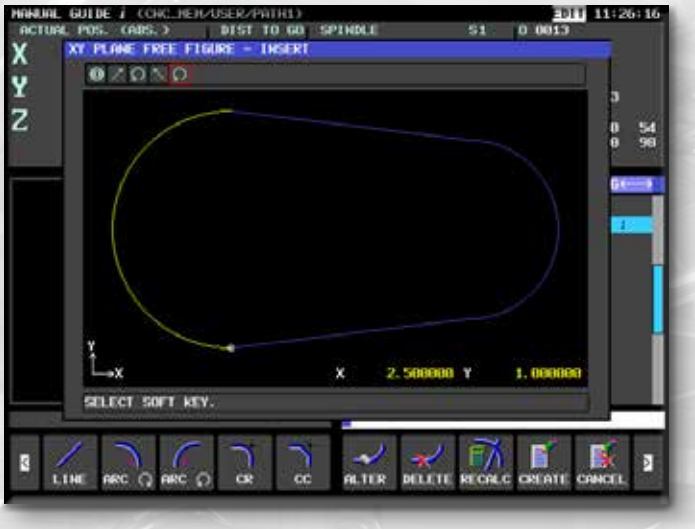
Several drill cycles are available, chip breaking, chip removal, center drilling, reaming etc. All canned cycles retain the last numbers entered saving you time and money.

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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FRYER / FANUC 0i PLUS FEATURES AND TECHNICAL DATA

PROGRAMMING MODES

Graphical Conversational Programming:

- Simple fill-in-the-blank menus
- No G-Code knowledge needed
- Graphical help screens ease learning curve
- Simple adding, deleting or modifying of work steps
- Simultaneous verify draws each step as you program
- Multi-lingual menus standard

G-Code Programming:

- Large standard memory for lengthy programs
- Includes search, replace, cut, copy & paste functions

Contour Programming:

- Automatic calculation of partially defined geometry
- True-to-scale representation of contours with up to 255 contour elements

MACHINING CYCLES

Milling:

- Machining of contour pockets with up to 8 islands
- Machining of contour bosses with up to 8 islands
- Face milling cycle with safe zones
- Rectangular & circular pockets with different insertion methods
- Rectangular & circular bosses
- Linear & circular grooves
- Rigid tapping
- Thread milling and engraving cycle

Turning:

- Single point OD and ID threading
- Pipe and API OD and ID threading
- One button thread repair
- Multiple grooving cycles
- Basic stock removal cycles
- Plunge and face turning
- Live tooling and C axis

Drilling:

- Centering, reaming, boring
- Boring with chip break or pecking function
- Rigid tapping with chip break or pecking function

High-Speed Machining:

- Mold making cycle for the selection of the machining type & contour tolerance

Position Pattern:

- Position patterns such as a line, circle or grid
- Deselection of individual position in position patterns

Cylindrical Surface Machining:

- Drilling & milling operations on cylindrical surfaces
- Features conversational milling & drilling cycles on a live tool lathe

Swivel:

- Drilling & milling synchronized on swivel head machines
- Flexible input of swivel angel makes changing from vertical to horizontal or any angle in-between easy

GRAPHIC VERIFY

- 3D solid model view
- Special 3-side view with 3D elevation
- Verify both conversational & G-Code programs

TOOL MANAGEMENT

- Tool table graphically shows tool type & geometry
- Workpiece count & tool-life monitoring with sister tools
- Tool radius compensations with approach & retract strategies
- 3D tool radius compensation
- Look-ahead detection of contour violations
- Tool management with extensive functionality such as empty location search & place positioning, tool loading/unloading, tool life & workpiece count
- Connection to RFID tool identification system - MOBY E

SET-UP FUNCTIONS

- Graphic menu for setting tool lengths & diameters, milling & turning
- Simple menu for automatic tool setting with optional tool probe
- Menu driven part probe cycles

AUTOMATIC FUNCTIONS

- Block search to an interrupted point in a program
- Block search to a specific point in a drilling pattern with all modal data automatically activated

HIGH-SPEED MACHINING

- Velocity feed-forward reduces following error to near zero
- Jerk limitation for creating smooth ACC/DEC profiles
- Fast data server features 2GB memory and ethernet link for unlimited file size

HARDWARE SPECIFICATIONS

- 10.5” color monitor
- High-speed CPU control up to 4+1 axes
- Standard memory 6MB expandable to 100MB
- Profibus I/O expandable to 4,096 digital inputs/outputs
- Compact digital drive system
- Absolute encoders – no homing needed
- Regenerative drive system saves 40% electrical consumption
- USB port for standard memory stick
- High-speed Ethernet port