FRYER
MACHINE SYSTEMS

Precision Built Solutions

Fryer / Fanuc 31i B5 Plus

CNC Control for 5-Axis and Advanced Machining

FRYER

The Fryer / Fanuc 31i B5 Plus is the world's leading 5 axis CNC and provides ultra-advanced features in an industry standard user interface. 5 axis features such as 3D tool nose compensation, tool center point compensation and inverse time feature. Fine surface machining cycle for advance high speed machining. Fast set-up cycles, one button hot keys and industry standard cycles speed the set-up process. Shop floor programming using Fanuc's Manual Guide software, G code programming, large program storage and high speed ethernet connectivity speed the programming process. 3D solid model graphic verification, handwheel run and easy interrupt.

5-Axis Advanced Machining

- 3D tool nose compensation
- Tool center point compensation
- Inverse time feature
- Fine surface machining cycle

Ease of Use

- One touch keys control many functions
- Standard G code programming
- Manual mode for easy set up
- Animated graphics
- Handwheel run mode
- One button tool changes
- 3D Shopfloor simulation
- Selectable level lockout key

Powerful Features

- Advanced 5-Axis Operation
- Mid-program restart
- Multiple Clamping
- High speed machining
- Collision avoidance
- Adaptive feed
- Mixed Technology – Milling, turning, grinding…
- In-process measuring
- Connected shop floor
- Up to 30 axis control

MADE IN USA

1. LCD Screen

10.5” screen features a high-resolution, digital color monitor (larger sizes available).

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.

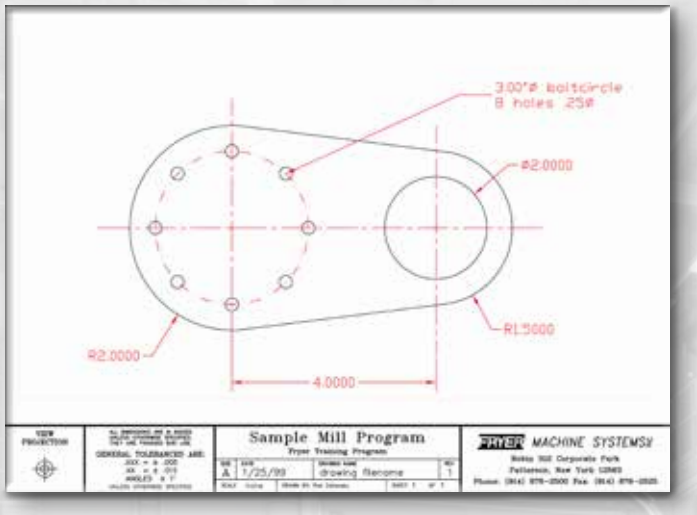
7. Edit Lockout Key

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

PROGRAMMING

PART PRINT

Programming in ShopMill on the Fryer / Fanuc 31i B5 Plus control is straight forward with no need for G codes. Enter dimensions directly off the print.

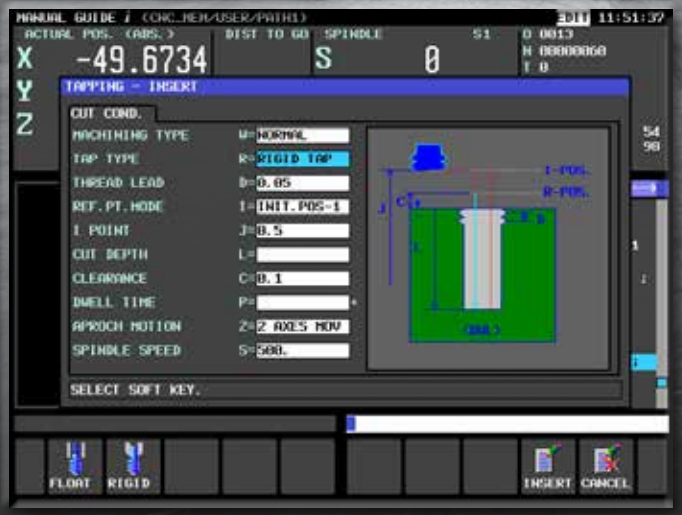


DRILLING CYCLES

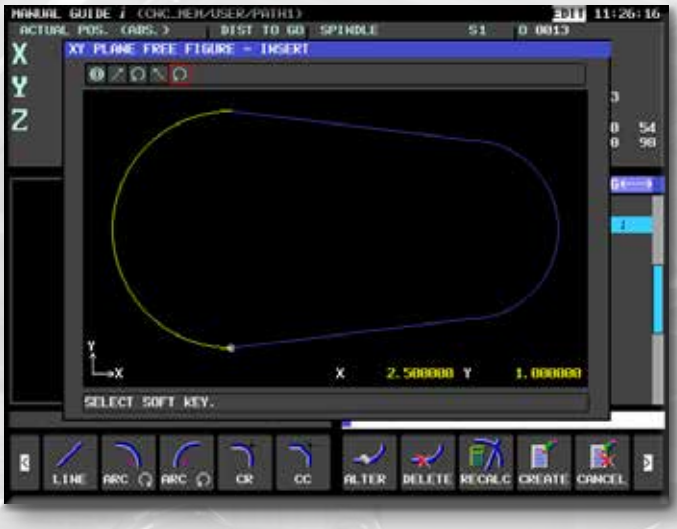
Several drill cycles are available, chip breaking, chip removal, center drilling, reaming etc. All canned cycles retain the last numbers entered saving you time and money.

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 31i B5 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 (larger sizes available)
- High-speed CPU control up to 30 axis
- Standard memory 2MB expandable to 10GB
- 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

Specifications subject to change without notice.