FANUC

Series 0*i* and 0*i* Mate-MODEL D

Best value CNC, powerful functionality and extreme reliability

RELIABILITY · INNOVATION · EXPERTISE
FANUC
ULTIMATE CONTROL

FANUC America Corporation
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888-FANUC-US (888-326-8287)

The world's most popular CNC

Series 0*i* and 0*i* Mate

With over 700,000 systems installed, the Series 0/0*i* from FANUC is the world's most popular CNC model. The latest, more powerful Series 0*i*-MODEL D, with nano-resolution performance, will continue to be the first CNC of choice.

FANUC has more than 600 engineers working in research and development to provide you the most reliable, efficient and innovative CNC control systems available, ensuring that you experience the very lowest Total Cost of Ownership. By choosing machines with FANUC CNCs, your machines will be available for production more often, process more parts and use less energy.

FANUC CNC systems have a world-class reputation for performance, precision, reliability and user-friendly operation. Look for the Series 0*i* and 0*i* Mate-MODEL D on a wide range of the world's most popular and productive machine tools.

High functionality

Being number one in innovative CNC technology has made FANUC the world's market leader in the design and manufacture of high-performance, precise, and reliable control systems. The Series 0*i*-MODEL D includes over 200 standard features that are designed to increase the productivity of your operation, and will continue to deliver results over the lifetime of your investment.

Series 0*i*-MODEL D

The Series 0*i*-MODEL D includes the features and functions usually associated with a very high performance CNC system. It supports up to 4 axes simultaneous interpolation and 8 axes in total, and integrates with both α*i* and ß*i* drive technologies. Easy-to-use MANUAL Guide *i* conversational programming is available with a 10.4" color LCD, while Series MANUAL GUIDE 0*i* and TURN MATE *i* interactive part programming are both supported on the 8.4" LCD.

Series 0*i* Mate-MODEL D

The 0*i* Mate-MODEL D can control up to 3 axes simultaneously using ß*i* drives series, and it is the ideal combination for standard machine tools. The integrated 8.4" color LCD screen supports both MANUAL GUIDE 0*i* and TURN MATE *i* interactive part programming.

Productivity advantages

- Compatibility with all previous versions of the Series 0 and 0*i*-MODELS A, B and C
- Minimal training required
- Existing part programs run without modification
- Simple part programming and operation
- Operator friendly graphic display for visual part program verification
- Comprehensive help functions
- Nano precision interpolation for the highest quality surface finish during contouring
- High-Speed Machining for better quality parts, faster
- Cutter Compensation for direct input from part drawings and increased tooling flexibility
- Canned cycles and Custom Macros for simplified part programming
- Skip cycle interface for probe measurements
- Tool Management for maximum machine utilization
- Ethernet connectivity (Series 0*i*-MODEL D only)

Series 0*i*-MODEL D – Powerful and versatile

User friendly environment

Operational and programming consistency are critical to maximize machine productivity, providing time to learn and adopt CNC enhancements. Operators that already have experience with FANUC controls will be comfortable with the Series 0*i* in no time at all, without additional training. Existing part programs will run without modification. Each operator can select their preferred language quickly from any one of the 16 supported by the 0*i*, enhancing their comfort level and effectiveness.

Large part program capacity

High-capacity, nonvolatile internal memory is provided for part program storage. Slots are provided for an additional 2GB of part program storage using economic ATA or Compact Flash memory cards. The Fast Data Server can also be installed in the CNC, providing up to 4 GB of flash memory and an 100-MBit Ethernet/FTP connection.

Part programs stored in external memory cards or in the Fast Data Server can be edited and executed just like internal memory, providing practically unlimited capacity.

High-speed Ethernet

The 100-MBit Ethernet interface allows the CNC to be integrated into a network for high-speed part program transfers and the collection of process related data. It also supports remote troubleshooting from the maintenance department or a machine tool builder anywhere around the world. Because the Ethernet port does not use a public operating system, it is practically “hacker-free” and virus immune.

CNC screens guide the operator to view part programs stored in an ftp server directory and download selected files to the machine. Alternatively, the Program Transfer Tool provides drag-n-drop downloads to the machine from a remote office.

Advanced interpolation modes

In addition to Linear and Circular Interpolation, the Series 0*i* features Polar Coordinate Interpolation for direct input of part features that are specified by angle and length, Helical Interpolation for high-speed, high quality pocketing, and Cylindrical Interpolation for cylindrical groove cutting.

CNC system-wide nanometer precision

The Series 0*i*-MODEL D achieves the highest precision possible, with nanometer resolution standard throughout the CNC system - from internal calculations and stored values, through to the interpolator, on to the drive system, and back through the position feedback devices.

Nano interpolation and fast, high resolution 16-million count-per-revolution feedback devices combine to provide a superior surface finish quality when contouring. This minimizes the need for secondary operations, reducing delivery times and part cost.

Reduced cycle times

Having already integrated high-speed CNC and drive system hardware with servo and spindle motors that feature ultra smooth rotation, accurate current detection, and high resolution feedback devices, any further reduction in cycle times requires minimizing machine shock and vibration so that part program feedrates can be optimized.

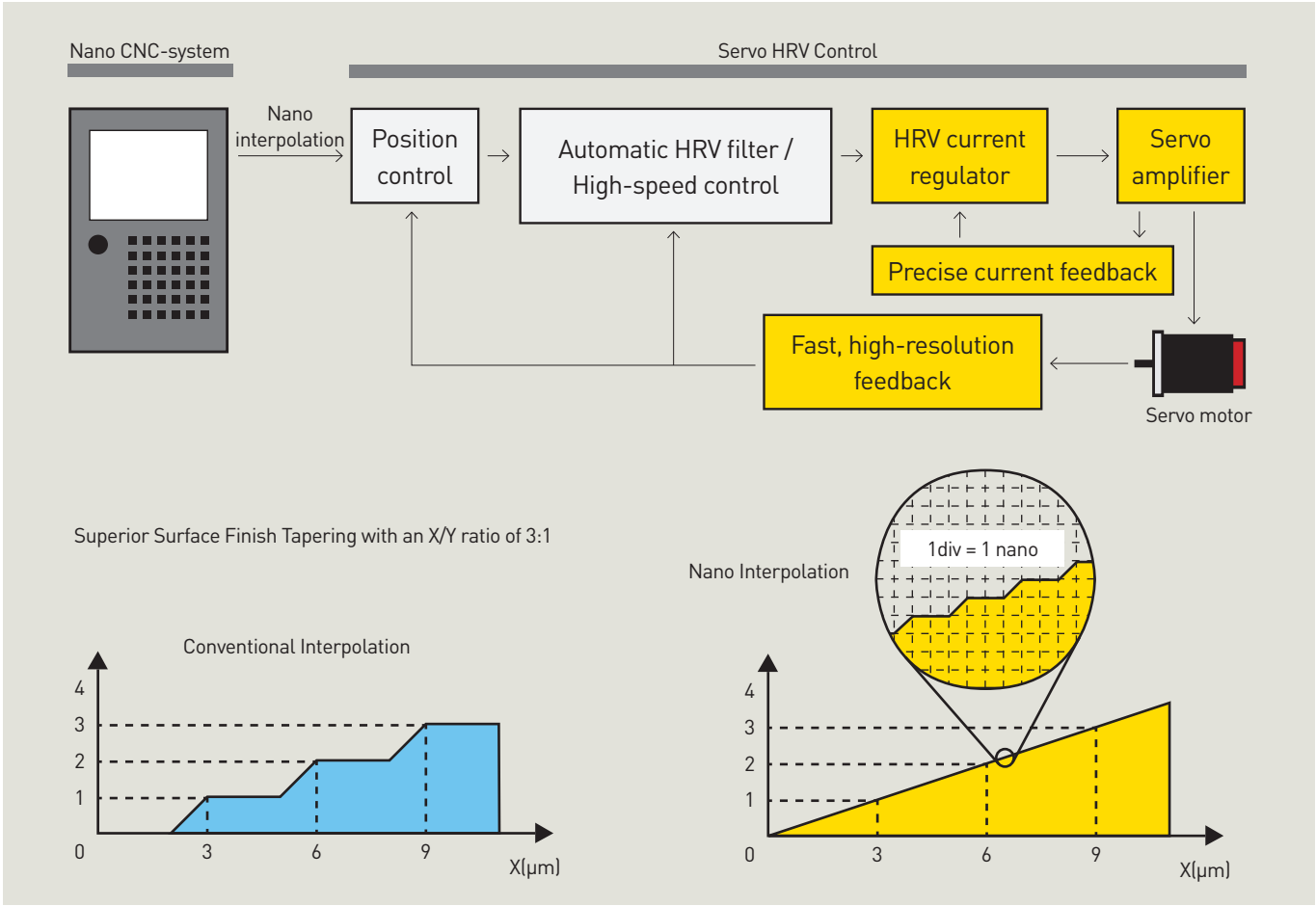
The Series 0*i* features a suite of advanced motion control software functions to reduce cycle times while enhancing part accuracy and extending machine life.

Bell shaped acc/dec minimizes machine shock and reduces the time it takes to accelerate and decelerate and can be applied to rapid, contouring and tapping motions.

AI Contour Control looks ahead in the part program to eliminate the acc/dec and servo delays that limit feedrates when cutting short line segments or contours, and effectively eliminates machining trajectory error in corners and small radii.

Nano smoothing converts CAM-generated line segments into NURBS curves for faster execution and a superior surface finish, and without the need for drastic modifications to the CAM system or existing part programs.

Auto-following HRV3 servo and spindle drive filters dynamically suppresses mechanical resonance even when the frequency changes.



Simple part programming and operation – fast machining

Operation and programming software is tailored to the appropriate application. The following user-friendly solutions are available:

- MANUAL GUIDE *i*
- MANUAL GUIDE 0*i*
- TURN MATE *i*
- Powerful G-code editor

These innovative, user-friendly environments fully optimize the manufacturing cycle from part program generation through to production.

MANUAL GUIDE *i*

MANUAL GUIDE *i* conversational programming is available for the Series 0*i* controls with a 10.4" LCD display. It provides fast and efficient programming for milling, turning and mill-turn centers. The screens and menus are intuitive and the 3D verification graphics are clear, providing a comfortable part programming environment – even for complex parts.

A part program can be generated in a few simple steps. Graphical, user-friendly symbols and pop-up menus overlay a single main screen, which includes all the essential machine information to create and execute a part program. This ensures that the operator is always in control.

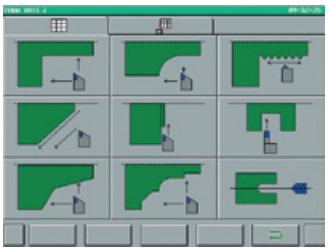
MANUAL GUIDE *i* can also be used in the office using the NCGuide simulation package and part programs may be moved freely between the PC and a wide range of machines.

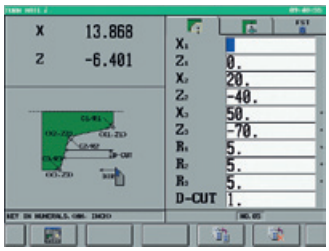
TURN MATE *i*

TURN MATE *i* software can be installed on 0*i*-TD and 0*i* Mate-TD CNC controls (8.4" color LCD) and all types of turning cycles are supported, such as roughing, finishing, threading, grooving and drilling.

The operator does not need G-code programming experience. Parts can be machined manually using the jog buttons or electronic handwheels, or an automatic sequence of steps may be generated using simple conversational screens. A machining rectangle may be specified for manual machining for increased safety.

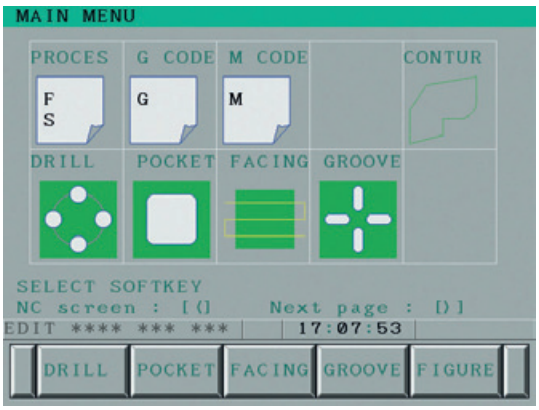
All the relevant machining information, such as axis positions, spindle rpm, feedrate, tool number and machine status, is displayed clearly to the operator using simple graphics on each screen.





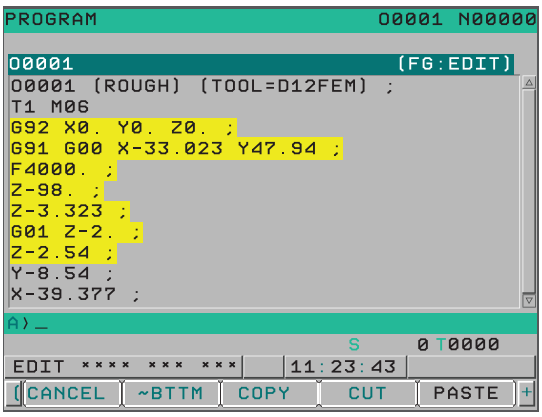
MANUAL GUIDE 0*i*

MANUAL GUIDE 0*i* is a programming tool that provides operator assistance to generate part programs for straightforward milling and turning applications. Guidance prompts for conventional G-code commands and machining cycles to help build the part program, which may include contoured shapes, pocketing and drilling cycles as required.



Powerful G-code editor

Program and operational compatibility is a cornerstone of FANUC's commitment to interoperability, but enhancements such as cut and paste similar to PC-based editors, and background editing satisfies the needs of a new generation of operators.



Extreme reliability - maintenance friendly

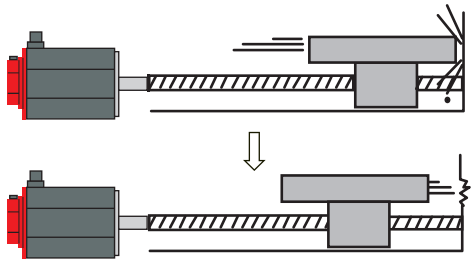
Unmatched reliability

Downtime on your CNC machine is very expensive, especially when you add up the cost of repairs, the lost production capacity, and the potential revenue and goodwill lost if you miss customers' deliveries. FANUC's continuous improvement culture ensures that our CNC systems are the most reliable available. Statistically, a hardware fault occurs only once for every 32 years of productive service.

With the commitment of 25-year replacement part availability and support,* convenient local parts inventories and economical repair and return services, you can look forward to decades of trouble-free operation with the confidence that your machines will be available for production when you need it.

Crash protection

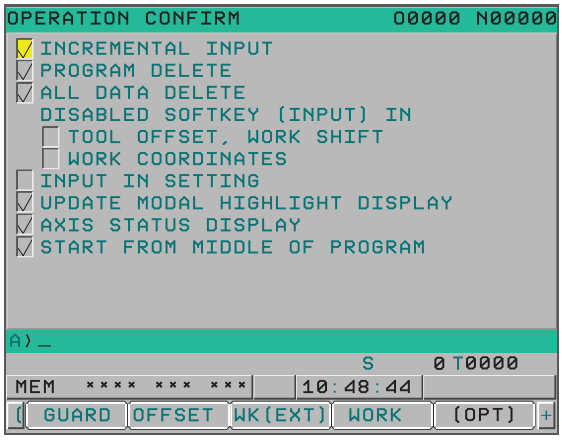
Unexpected torque disturbance control allows torque limits to be set so that the axis will stop or retract when a collision is detected, reducing damage to the machine.

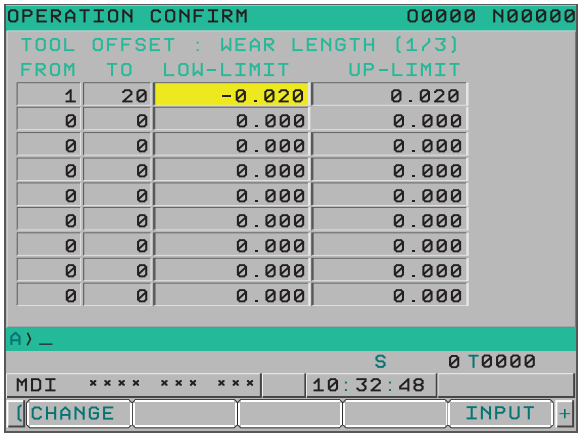


*When a FANUC CNC system is out of production, we strive to have replacement parts for 25 years. Replacement parts are available for purchase or through extended service contracts. If and when parts are no longer available due to discontinued component manufacturing, we offer repair and reuse. We strive to engineer replacement parts with the same functionality, form and fit. We offer on-site FANUC factory-trained service and support on FANUC CNCs for the lifetime of your machine.

Prevention of operational errors

Unintentional mistakes can be reduced by requiring operators to confirm things such as deleting part programs and starting programs in the middle. Limits can be placed on the tool and workpiece offset values entered to prevent machine crashes due to simple data entry errors.





Maintenance friendly

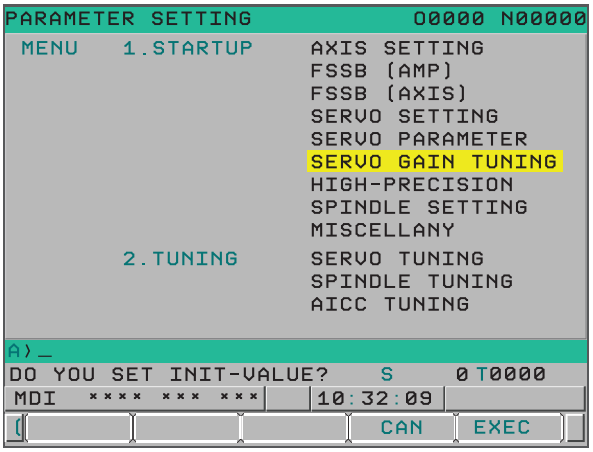
Batteries and fans are modularized for quick and easy replacement without tools. A comprehensive package of maintenance tools is integrated into the CNC to help keep your machine running and making parts. A snapshot of any CNC screen can be captured to a memory card to be used in troubleshooting. Experts are always available to provide you free over-the-phone technical support and local on-site service whenever you need it.

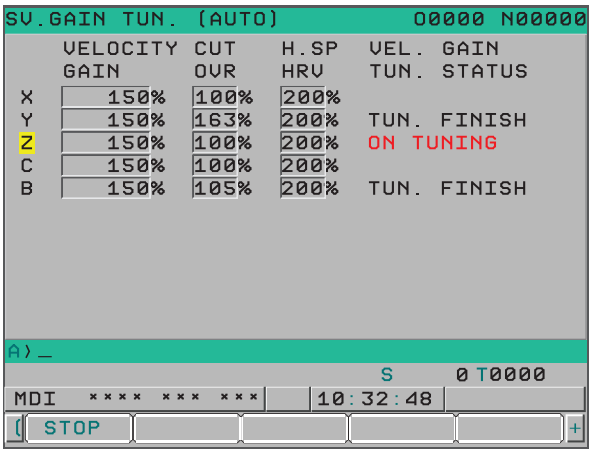
Built-in backup

The CNC guarantees minimum downtime due to lost machine tool builder and user files because important data can be backed up regularly into flash memory. Time can be saved when experimenting and troubleshooting, by saving a snapshot of all the existing user files and settings before modifications are made.

Automatic servo and spindle tuning

Recommended servo and spindle servo tuning parameters can be determined quickly and automatically by simply pressing a softkey on a screen built into the CNC, eliminating the need for costly specialized resources. If higher precision is required, optimum velocity gain for each servo axis can be adjusted automatically using the more advanced Parameter Tuning of Velocity Gain tool. Parameters for optimum spindle orientation and high-speed tapping performance are also established effortlessly.





Higher performance – greater profit

FANUC CNC controls offer the following benefits:

- Minimum TCO (Total Cost of Ownership)*
- Higher productivity
- State-of-the-art features for a competitive edge

* Total investment costs incurred throughout the life cycle of the unit

10 unbeatable arguments for CNC controls from FANUC:

1. Maximize machine uptime and minimize TCO with FANUC's world class reliability, delivering MTBF rates in excess of 32 years.
2. Secure investment with a 25-year replacement part availability and support commitment.*
3. Increase competitive edge with state-of-the-art technologies to increase quality, efficiency, reliability and to reduce cycle times.
4. Minimize training and support costs with continuity of operation and upward compatibility to run existing programs on new CNC controls.
5. Reduce delivery times with quick and easy at-the-machine programming.
6. Increase daily production time with a CNC system that is 'ready-to-go' in less than 30 seconds.
7. Boost efficiency with Ethernet enabled data and remote diagnostics.
8. Minimize downtime by separating CNC control and PC technologies.
9. Rely on a world class partner for simple through complex machine tools.
10. Simplify integration with FANUC robots using the standard interface.

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NCGuide – Effective training environment

NCGuide is an authentic simulation of a FANUC CNC that runs on a PC, providing a realistic operation and part programming environment at a fraction of the cost of using a production machine tool. This translates into lower training costs, as comprehension and retention is enhanced as students perform repetitive hands-on exercises in an ergonomically friendly environment - away from the noise of the factory floor. Operators, programmers, and maintenance engineers can all practice common procedures and develop optimized processes without risks to people, tooling or machines.

Operational training

NCGuide is ideal for operational training. All standard CNC operational screens can be selected and all standard procedures can be practiced. Custom screens provided by the machine tool builder are supported.

You can create and edit part programs, search for words and safe start blocks, upload and download part programs, and test for syntax and tool path geometry errors. Workpiece, tool geometry and tool wear offsets can all be edited and their effects visualized to enhance understanding. Users can expand their knowledge by learning the features available with newer controls - even before they are installed.

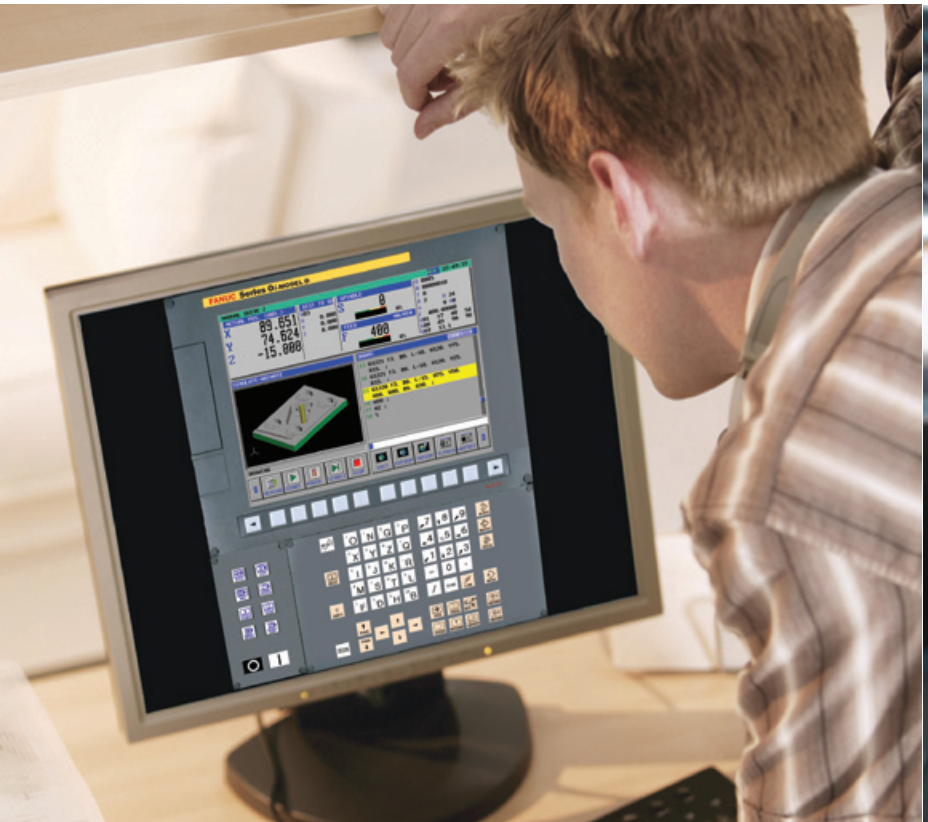
For the most realistic and effective learning environment, each user can quickly setup a configuration to emulate a particular machine's CNC.

Part programming training

NCGuide supports both conventional G-code part programming with tool path simulation, and the easy-to-use, yet powerful Manual Guide *i* conversational part programming with 3D tool path and part geometry visualization.

You can create and edit machining center, lathe and compound machining part programs, generate cycle time estimates and create and test Custom Macro subroutines. You can use tool path simulation to visually verify a part program, to see the effect of workpiece and tool offsets and to observe the effects of canned cycles and advanced interpolation modes.

Manual Guide *i* conversational part programs can be developed on the simulator and then converted to conventional G-code to run on any FANUC CNC.



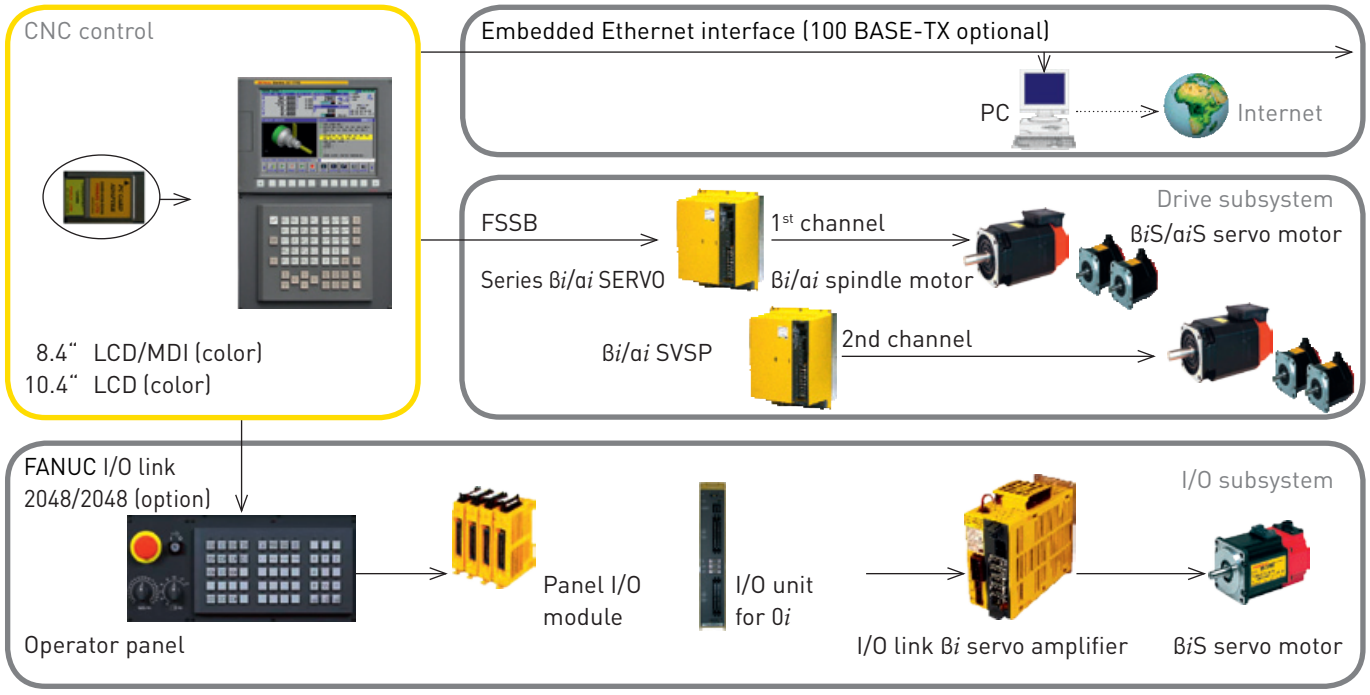
Control, drives and software– a perfect combination

A great CNC system is the perfect combination between control, drives, I/O and connectivity. That's what FANUC gives you for optimum machine tool performance.

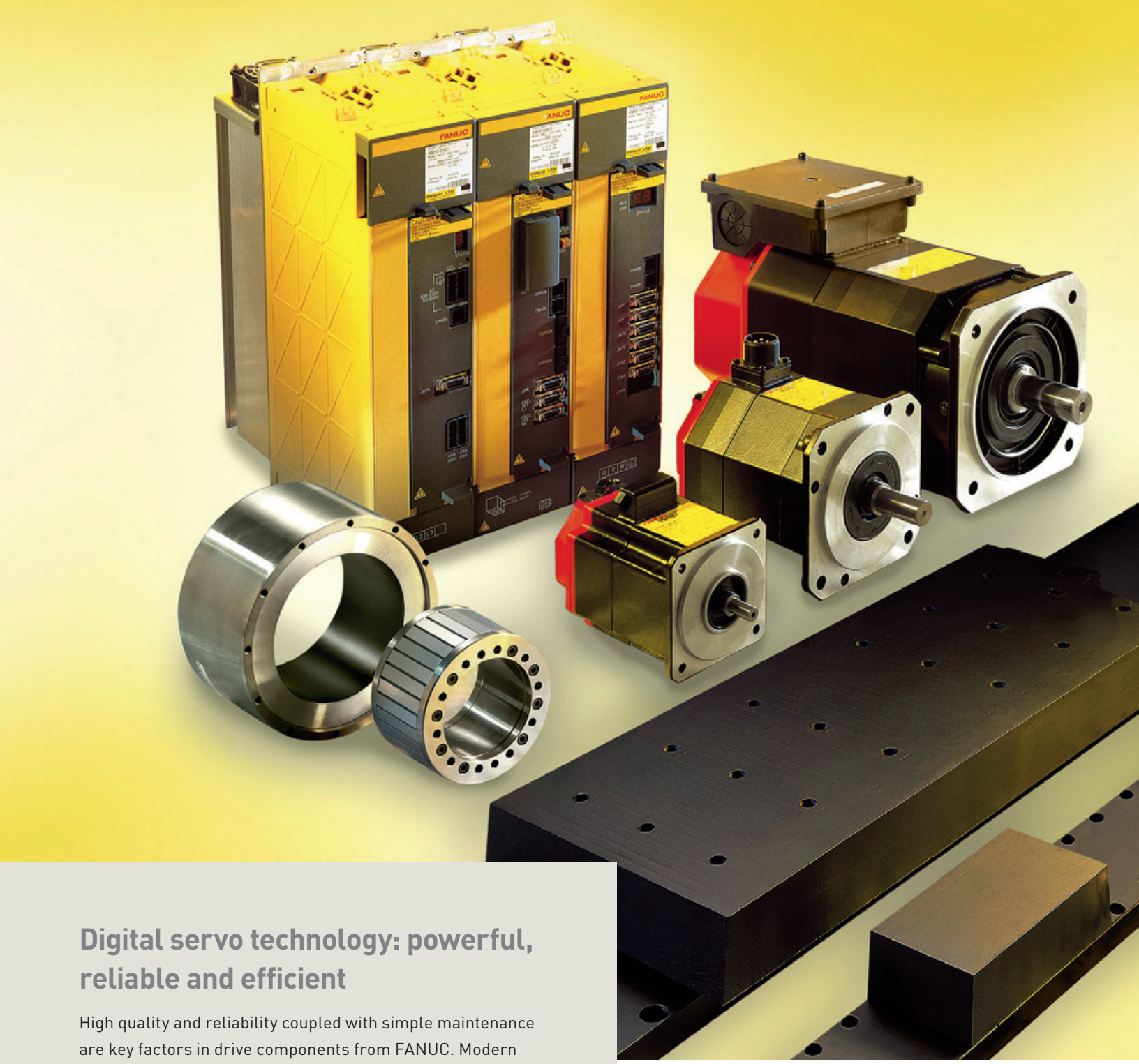
The Series 0*i* Mate is complimented by ß*i* amplifiers and motors while the Series 0*i* can also be matched with α*i* series components for ultimate performance.

The Series 0*i* or 0*i* Mate-MODEL D display screen may be customized to suit the unique requirements of a machine using the C-language C-Executer capability or alternatively, FANUC Picture is a program that simplifies the construction of custom screens with icon-driven graphic elements.

With Dual Check Safety, the Series 0*i*-MODEL D has all the safety functions integrated into the CNC that comply with European safety standards.



Example configuration



Digital servo technology: powerful, reliable and efficient

High quality and reliability coupled with simple maintenance are key factors in drive components from FANUC. Modern bus-systems and connector technology simplifies interconnections and maximizes operational reliability.

High-efficiency drive systems pump energy back into the power line when the machine is decelerating, and when combined with cycle time reductions, they reduce electrical power consumption by up to 50% or more, a significant factor in machine operating costs.

Small motor outlines and minimum footprint amplifier designs reduce the floor space required for the machine tool and electrical cabinets.

Technical data

Function			0*i* - MD	
			Package A	Package B
Controlled paths			1	1
Max. machine controlled axes (feed axes and spindles)			8	8
Simultaneously controlled axes			4	4
Max. spindle axes			2	2
Connectable servo motor			α*i*, β*i*	α*i*, β*i*
Display units	8.4" color LCD		•	•
	10.4" color LCD (without touch panel)		•	•
	10.4" color LCD (with touch panel)		•	•
	Standalone PANEL *i* (PC)		•	•
NANO interpolation			•	•
Capacity of programs		320K (800m)	–	•
		512K (1,280m)	•	–
		1M (2,560m)	–	–
		2M (5,120m)	☆	–
PMC system	PMC/L function	5,000 steps	–	•
		8,000 steps	–	☆
	PMC function	24,000 steps	•	–
		32,000 steps	☆	–
I/O Link	1 channel DI/DO	256 / 256	–	–
		1,024 / 1,024	•	•
	2 channel DI/DO	2,048 / 2,048	☆	–
PMC Function Blocks			☆	☆
Embedded Ethernet			•	•
Memory Card Editing / Operation			☆	☆
Data Server Editing / Operation			☆	☆
MANUAL GUIDE *i*			☆	☆
MANUAL GUIDE 0*i*			☆	☆
TURN MATE *i*			–	–
AI contour control II			☆	–
Nano Smoothing			☆	–
Jerk Control			☆	–
Spindle control with servo motor			☆	☆
Protection of data at 8 levels			☆	☆
Dynamic display language switching			•	•
C language executor / FANUC PICTURE			☆	☆
NCGuide / NCGuidePro			☆	☆
Program Transfer Tool			☆	☆
CNC Setting Tool			☆	☆
Tool Management Function			☆	☆

• Basic function ☆ Optional function – Not available

0*i* Mate - MD	0*i* - TD		0*i* Mate - TD
Package C	Package A	Package B	Package C
1	2	1	1
5	11 (max. 8 in one path)	8	5
3	4 (each path)	4	3
1	2 • / 3-4 ☆ (max. 3 in one path)	2 •/ 3 ☆	1 • / 2 ☆
ß*i*	α*i*, ß*i*	α*i*, ß*i*	ß*i*
•	•	•	•
–	•	•	–
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☆	☆	☆	☆
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☆	☆(1st path only)	☆	☆
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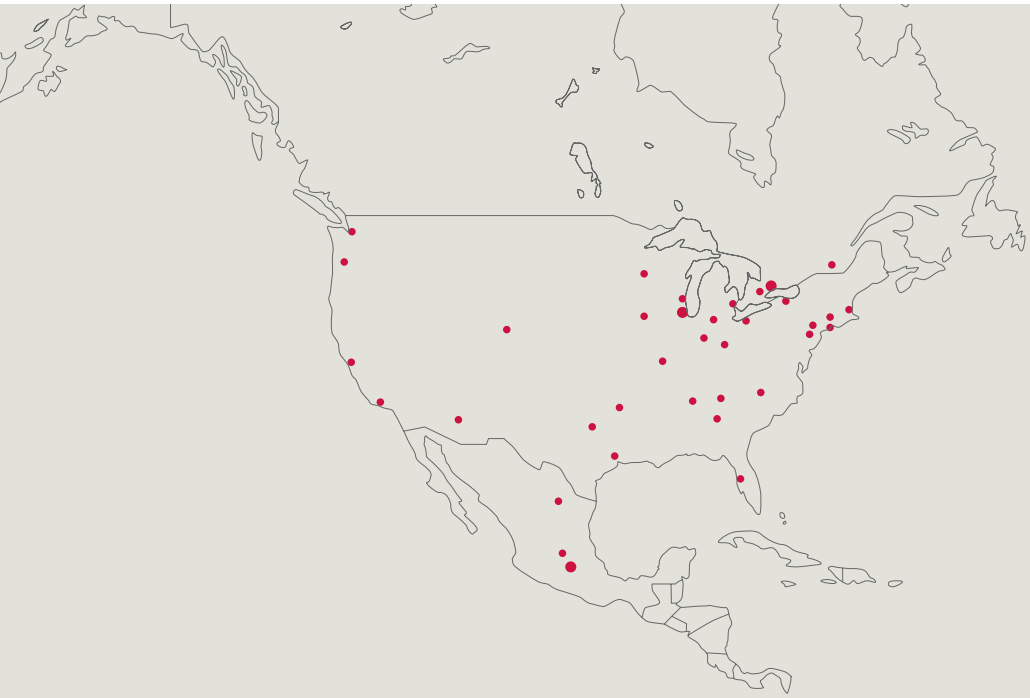

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