CNC SYSTEMS | DRIVE SYSTEMS | LASER SYSTEMS | SERVICE | TRAINING |

FANUC

CNCs and Lasers for the Fabricating Industry

Highest efficiency, reliability and performance

RELIABILITY · INNOVATION · EXPERTISE
FANUC
ULTIMATE CONTROL

FANUC America Corporation
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Performance you can rely on

With over 2.4 million CNCs and 10,000 lasers installed, FANUC is a worldwide leader in punch press and laser cutting technologies for the fabricating industry. FANUC dedicates more than 30% of its employees to R&D to provide you the most reliable, efficient and innovative CNC systems available - ensuring the very lowest Total Cost of Ownership.

The Series 31*i*-P MODEL B CNC for punching, and Series 30*i*-L and 31*i*-L MODEL B CNCs for laser cutting are combined with rugged, energy efficient, high-performance servo drive systems that are specifically designed to deliver the industry's leading reliability and performance in the dusty, high-vibration environment of even the most challenging fabricating shop.

FANUC's high performance, high reliability CO_2 lasers feature the latest radio frequency (RF) excitation technology and are highly integrated with the servo drive system and innovative software in the CNC, communicating over a single high-performance, noise immune fiber optic cable.

With power ratings available from 1,000 to 6,000W, high-fidelity power control and superior high-frequency pulsing, FANUC laser systems deliver the maximum performance for a wide range of applications, from high-speed sheet metal cutting through to plate processing up to 1¼-inches thick.

By selecting a punch press or laser with FANUC technology, your machine will be available for production more often, process more parts and use less energy. When you need us, you will experience world-class technical support, parts availability, factory-trained service and professional training that you would expect from an industry leader.

Unmatched reliability

Downtime on your machine tools is expensive, especially when you add up the cost to repair, the lost production capacity, and the revenue and goodwill lost if customer deliveries are missed. FANUC's continuous improvement culture ensures that our CNCs, servo drives and laser are the most reliable available. Statistically, a CNC or drive system fault occurs only once every 17 years of productive service.

FANUC solid-state RF laser power supplies use the latest MOSFET technology. The externally mounted RF electrodes minimize laser gas contamination and the integral ceramic coating ensures they have a long productive life. Photo catalytic elements and cyclone cleaners further minimize laser gas contamination. Lower gas contamination extends the maintenance time period for internal mirror cleaning and replacement, and lowers laser gas consumption.

With a 25-year replacement part availability and support commitment,* convenient substantial local parts inventories, economical repair, return services and the strongest global support network for CNC systems, you can look forward to decades of trouble-free operation and have the confidence that your machines will be available for production when you need it. FANUC products conform to all the latest international safety standards.

*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.

Maintenance friendly

Comprehensive diagnostic and maintenance tools including periodic maintenance tracking, operation and message histories, servo wave form display, machine interface ladder display and the signal trace function are built into the CNC to keep your machine running and making parts. On a laser machine, the resonator power compensation coefficient, power supply voltage and current, and laser status signals are also displayed on the CNC.

Predictive maintenance algorithms analyze signals throughout the system to provide advanced notice of potential component failures or performance problems that may be avoided with timely intervention. The maintenance interval and actual run-time of CNC, drive and laser components are tracked in the CNC using one of several timely preventative maintenance usage-based signals, providing information to schedule timely maintenance and minimize expensive unscheduled downtime.

CNC and servo drive maintenance components are modularized for quick and easy replacement. The maintenance intervals for laser components have been extended to up to a decade or more, and automatic systems monitor and compensate for variation to provide consistent cutting performance.

High performance and functionality...

The Series 31*i*-P MODEL B is a high-speed punch press control capable of supporting new levels of punching and nibbling rates. The Series 30*i*-L and 31*i*-L MODEL B controls support both laser and laser-punch combination processes. The 31*i*-LB control is ideal for flat material processing and the 30*i*-LB provides 5-axis laser cutting capabilities.

Minimal training and programming

Operational and programming consistency are critical to maximize machine productivity, providing time to learn and adopt CNC enhancements. Operators that already use FANUC controls will be comfortable with the new Series 30*i*/31*i*-L and 31*i*-P MODEL B in no time at all. Upward compatibility is guaranteed and older part programs will run smoothly on the new controls.

Large part program management

FANUC's CNCs provide up to 8MB of high-capacity, nonvolatile internal memory is available to store as many as 4000 large nested part programs.

Slots are provided for ATA or Compact Flash memory cards that can add an additional 2GB of part program storage. Any commercially available USB storage device may also be connected to store and transfer large programs.

A Fast Data Server can also be installed in the CNC providing up to 4GB of Flash memory and a high-speed Ethernet connection. A high-speed, error-immune fiber optic connection between the CNC and an integrated PC front-end allows the hard disk be used for part program storage.

High-speed-Ethernet

The Series 30*i*/31*i*-L and 31*i*-P MODEL B CNCs support multiple standard and add-on Ethernet interfaces. This allows the user to integrate the CNC control systems into a company network for data collection or for high-speed part program transfers. World-wide links can be set up via the Internet. This makes remote diagnosis and maintenance possible – including online training.

Because the integrated Ethernet interface does not use a public operating system, it is practically 'hacker-free" and immune to viruses, providing a safe and worry free connection to business networks.

CNC simulators

FANUC's simulation software package provides an authentic CNC environment on a PC. NCGuide is a safe environment for operators, programmers and maintenance engineers to build hands-on experience with the control without the need to purchase expensive hardware, or to take valuable equipment out of production.

Energy efficient, environmentally friendly

Servo drive power savings

Punch presses and laser cutting machines are constantly accelerating and decelerating when moving from hole to hole. The energy used by the servo drive systems is a primary operational cost of a fabricating machine. FANUC's servo energy efficiency strategies can reduce your energy consumption by as much as 50%.

FANUC uses only the highest efficiency components in the output stage of their servo drives to maximize machine efficiency.

When the axes decelerate, energy is intelligently pumped back into the power line to reduce total energy costs. Using FANUC's powerful high-speed machining technologies, part cycle times can be reduced significantly while maintaining the same part accuracy.

Laser power savings

Electrical energy is one of the primary running costs of a laser. FANUC's new Quick Power Savings and Eco Power Savings modes reduce energy costs by as much as 20%. These laser power saving modes also extend the maintenance and service life of the laser, further reducing your total cost of ownership.

When the laser sits idle for a specified time after completing a part program, it automatically enters Quick Power Saving mode, turning off the RF power supplies to save energy. The laser can restart in a matter of seconds from this mode.

If the laser remains idle for a longer period, it enters Eco Power Saving Mode, shutting down the laser turbo blower to save even more energy. The laser can restart from this mode in less than 30 seconds.

10 unbeatable arguments for FANUC CNCs, drives and lasers:

1. Maximize machine uptime and minimize total cost of ownership with the FANUC's world class reliability, delivering CNC mean-time-between-failure rates in excess of 15 years.
2. Further minimize the total cost of ownership with energy efficient servo drives and intelligent laser power saving modes.
3. Invest with confidence with a 25-year replacement part availability and support commitment.*
4. Increase competitive edge with high-performance state-of-the-art technologies to increase quality, efficiency and reliability, and to reduce cycle times.
5. Minimize training and support costs with continuity of operation and upward compatibility to run existing programs on new CNCs.
6. Reduce delivery times with quick and easy at-the-machine programming.
7. Increase production time with a CNC system that is 'ready-to-go' in less than 30 seconds.
8. Boost efficiency with Ethernet enabled data collection and remote diagnostics.
9. Minimize downtime by separating CNC control and PC technologies.
10. Rely on a world-class partner for all your machine tools.

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Cutting edge laser control

FANUC's high performance CNC communicates with the servo system and laser via a single high-speed fiber optic communications bus providing increased synchronization between axis positioning and beam on/off commands.

Edge machining function

The edge machining function looks ahead in the CNC part program and automatically adjusts laser power and axis feedrate to cut high quality sharp corners, which is often a challenge especially in thick material.

Total power control function

The total power control function automatically adjusts both the laser power level and pulse frequency to reduce thermal load and to provide uniform and clean edge quality in rounded corners, especially valuable in thin materials.

High-frequency laser pulsing

Laser pulse frequencies in excess of 32kHz improve cutting edge quality and decreases dross, more than halving standard cutting edge roughness in thin materials.

Minute laser output

The minute laser output control provides ultra-stable laser output at low power levels providing superior quality laser marking capabilities.

Tracing function

FANUC's tracing function ensures that the distance between the laser cutting nozzle and workpiece surface is kept constant for reliable processing. The CNC is in total control of the z-axis position, which allows for improved safety, higher processing speeds and programmable nozzle clearances.

Servo driven beam length compensation

FANUC's patented servo driven "trombone" mirror control ensures that the laser beam length is kept constant from the resonator to the cutting head for more reliable processing, even on a large moving-beam laser machine.

Exceptional service and support

FANUC's factory-trained engineers are strategically located close to our customers for a quicker response to all of your CNC and laser service needs. Our close relationship with your machine tool builder ensures that you get the highest quality of total machine support. Responsive over the phone support by field-experienced engineers is available free during normal business hours.

Preventative maintenance

Each generation of FANUC laser systems significantly simplifies and extends the periods between preventative maintenance. FANUC can assist you with all your preventative maintenance tasks, including laser mirror cleaning, discharge tube inspection and replacement and vacuum pump and turbo blower oil changes, ensuring the oscillator maintains the same performance and reliability year after year.

Turbo blower overall

The laser turbo blower is a precision machine rotating at speeds up to 60,000 revolutions per minute. Taking care of preventive maintenance will ensure trouble-free operation for up to 24,000 hours for the latest model lasers. FANUC can rebuild your turbo blower according to the laser's maintenance schedule and avoid the cost of an expensive replacement and prolonged downtime.

Renewal service contracts

After the initial warranty period, FANUC and your machine tool builder can provide a service contract for the CNC, servo drives, motors and laser to cover unexpected failures.

FANUC Laser C series - a legacy of excellence

Model	C1000*i*-C	C2000*i*-C	C4000*i*-C	C5000*i*-C	C6000*i*-C
Principle	Fast Axial Gas Flow, RF-Excitation, Solid State Power Supply Units				
Rated Power	1000 Watt	2000 Watt	4000 Watt	5000 Watt	6000 Watt
Maximum Pulse Peak Power	1000 Watt	2700 Watt	5000 Watt	5000 Watt	7000 Watt
Pulse Frequency	5 to 32,767 Hz				
Pulse Duty	0 to 100%				

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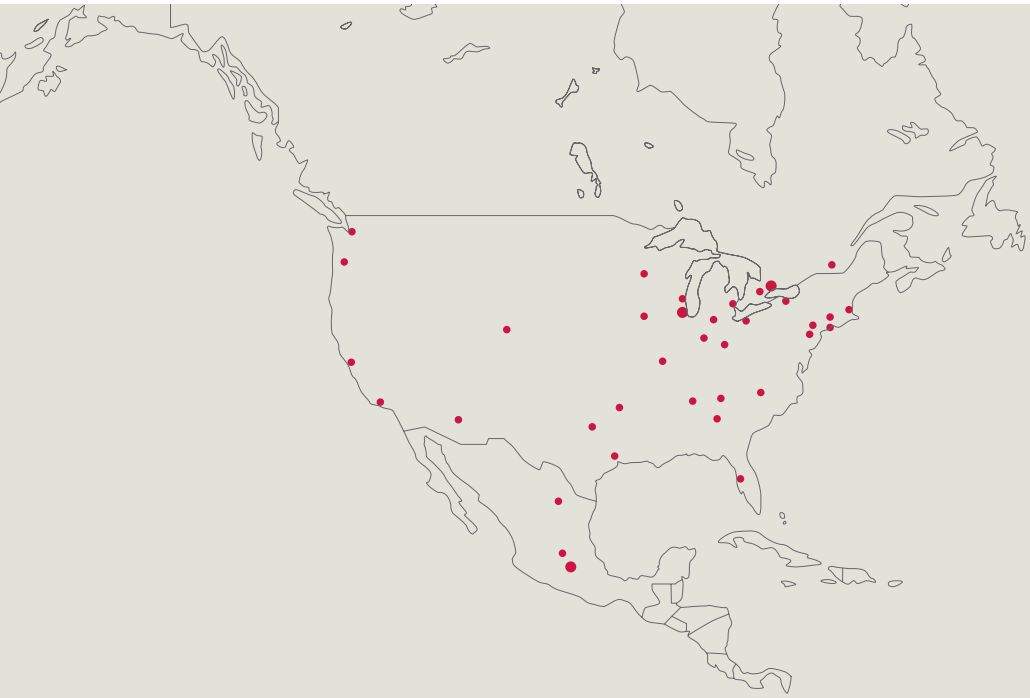

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