

**Mazak**  
**OPTONICS CORP.**

*LASER TECHNOLOGY*



*Mazak Optonics Corporation's newly expanded North American headquarters in Elgin, IL features a new auditorium, increased capacity for parts and customer service support, and a new research and development center.*





# MAZAK GLOBAL OVERVIEW

## YAMAZAKI MAZAK

Yamazaki Mazak was established in 1919. Today it is one of the world's largest manufacturers of machine tools. Mazak produces systems for the precision manufacturing of metal parts including laser-cutting machines, CNC turning centers, horizontal and vertical machining centers, multi-tasking machining centers, turnkey cells and software solutions to help customers achieve lean, efficient manufacturing operations. Developing unique products that realize unsurpassed productivity and have established 85 Technology and Technical Centers all over the world to provide total solutions and extensive service support.



Yamazaki Mazak Minokamo Plant 1 in Gifu-Prefecture, Japan is the primary manufacturing plant for Mazak laser-cutting machines.

## MAZAK OPTONICS LASER TECHNOLOGY

Mazak Optonics offers a comprehensive range of 2D and 3D laser-cutting machine models. This innovative range of products enables Mazak to better meet fabricators specific laser application needs. As a leader in laser technology, Mazak can significantly improve production efficiency, competitive positioning and profitability. Mazak utilizes innovative engineering and intelligent automation to simplify operations and deliver more consistent machine performance. Mazak Optonics supports the North American installation base from the North American headquarters in Elgin, IL.



Mazak Corporation's Headquarters for the Americas, Manufacturing Plant and Technology Center in Florence, KY.

## TABLE OF CONTENTS

4	MAZAK CUSTOMER SUPPORT
5	INTELLIGENT TECHNOLOGY
6	OPTIPLEX NEO
8	FT-150 FIBER
10	FG-220
12	FG-400 NEO
14	AUTOMATION SOLUTIONS

MAZAK HAS BEEN MANUFACTURING MACHINE TOOLS FOR OVER 100 YEARS AND HAS BEEN BUILDING LASER SOLUTIONS FOR THE NORTH AMERICAN MARKET FOR OVER 30 YEARS. WE ARE COMMITTED TO PROVIDING OUR CUSTOMERS WITH THE HIGHEST QUALITY TECHNOLOGY.

WE INVITE YOU TO  
DISCOVER MORE WITH MAZAK.

# CUSTOMER SUPPORT

## COMPREHENSIVE CUSTOMER SUPPORT

### Post-sale support is what matters most

Mazak's customer service goal is to maximize the performance of customers' laser-cutting machines to help make them successful and lifelong partners.

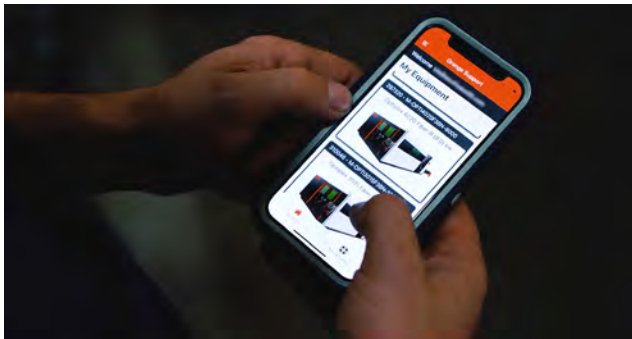
While laser-cutting technology is robust, if the need for laser machine service arises, having immediate customer support is a must.

Partnering with a laser manufacturer that can provide reliable and responsive customer support will help ensure fabricators have successful laser operations for the long run.

## ORANGE SUPPORT MOBILE APP

### The Mazak laser service phone app that enhances customer experience

- ▶ Remote video capabilities offer more efficient service support allowing technicians to physically see the operator's concern without the need to travel on-site.
- ▶ Enhances tracking of support requests, improves customer experience and reduces total time from issue to resolution.
- ▶ Support requests through Orange Support are linked to Call Log System, prioritizing customer cases accordingly.
- ▶ Enables access to machine information through QR code on the machine or through serial number look-up including machine details and warranty information.
- ▶ Access to "How To" maintenance videos.



The Orange Support app offers Mazak laser customers access to remote video capabilities, support requests, how-to videos, and more.

## TECHNICAL SUPPORT CALL CENTER

### Assistance is just a phone call or email away

- ▶ Live operator answers call center requests.
- ▶ New digital technology enables prioritization.
- ▶ Phone support engineers often assist customers to resolve issues without dispatching a technician.

## LOCALIZED SERVICE SUPPORT

### Accessible highly skilled service engineers

- ▶ Mazak continues to increase and strategically place engineers near customers and major airports.
- ▶ Service engineers have multiple years of Mazak laser experience translating to more efficient service.

## RAPID RESPONDER

### Prepared to help at a moment's notice

- ▶ An unscheduled technician is available for dispatch when situations occur after scheduling.
- ▶ Until dispatched, this engineer provides additional support to the technical support call center.

## PARTS SUPPORT

### Readily available parts locally and abroad

- ▶ \$9+ million of spare parts inventory in the newly expanded 10,000 sq. ft. parts department at Elgin, IL headquarters.
- ▶ Access to international inventory from World Parts Center.
- ▶ Guaranteed lifetime parts support on every Mazak laser.



People make the difference. That's why Mazak is committed to building a team of experts to better support customers in every way possible.

# INTELLIGENT TECHNOLOGY

*Mazak exclusive engineered Multi-Control Torch plus integrated Intelligent Functions offer innovation, performance, and automation. This combination offers reliable, high performance laser-cutting*



## INTELLIGENT FUNCTIONS IMPROVE EASE OF OPERATION AND MACHINE EFFICIENCY

### Intelligent Setup Functions

Functions that are automatically performed to improve ease of operation and reduce setup time.

	<b>Auto Nozzle Changing</b>
	<b>Auto Focus Positioning</b>
	<b>Focus Detection</b>
	<b>Beam Diameter Control</b>
	<b>Auto Profiler Calibration</b>
	<b>Auto Nozzle Cleaning</b>

### Intelligent Monitoring Functions

Sensors in the torch monitor piercing and cutting operations to increase throughput and enhance part quality.

	<b>Pierce Detection</b>
	<b>Plasma Detection</b>
	<b>Burn Detection</b>
	<b>Protection Window Sensing</b>

### Intelligent Cutting Functions

Cutting tactics that improve quality and processing efficiency.

	<b>Flash Cut</b>
	<b>Fine Power Ramping</b>

Auto Nozzle Changing reduces operator errors, improves consistency of operation and lowers operator dependency.



Auto Focus Calibration eliminates the need to have the operator measure, adjust, and set the focal distance by automating the process.



Pierce Detection senses when the pierce breaks through the material compared to a programmed pierce that would include added time to account for variations in the process.



Flash Cut strategies synchronize turning the laser ON / OFF with axis movement to increase throughput.



A close-up, high-speed photograph of a Mazak laser cutting machine. The machine's head, featuring the Mazak logo, is positioned above a workpiece. A bright, intense laser beam is focused on the workpiece, creating a large, radiant spray of molten metal sparks that fan out in all directions. The sparks are a bright orange-yellow color, contrasting sharply with the dark background of the machine and the workpiece. The workpiece itself is a dark, metallic plate with several circular holes already cut into it. The overall scene conveys a sense of precision, power, and industrial automation.

Mazak

*OPTIPLEX 3015 NEO series is the next generation of laser-cutting machines that offer high power and maximum control.*

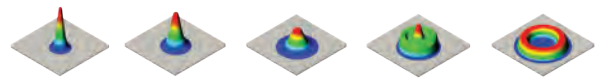


# OPTIPLEX NEO

Watch the OPTIPLEX NEO  
Demo Video



OPTIPLEX 3015 NEO with MAZATROL SmoothLx is designed for high performance throughput.



## OPTIPLEX NEO 3015

**The laser-cutting machine that offers high power with maximum control**

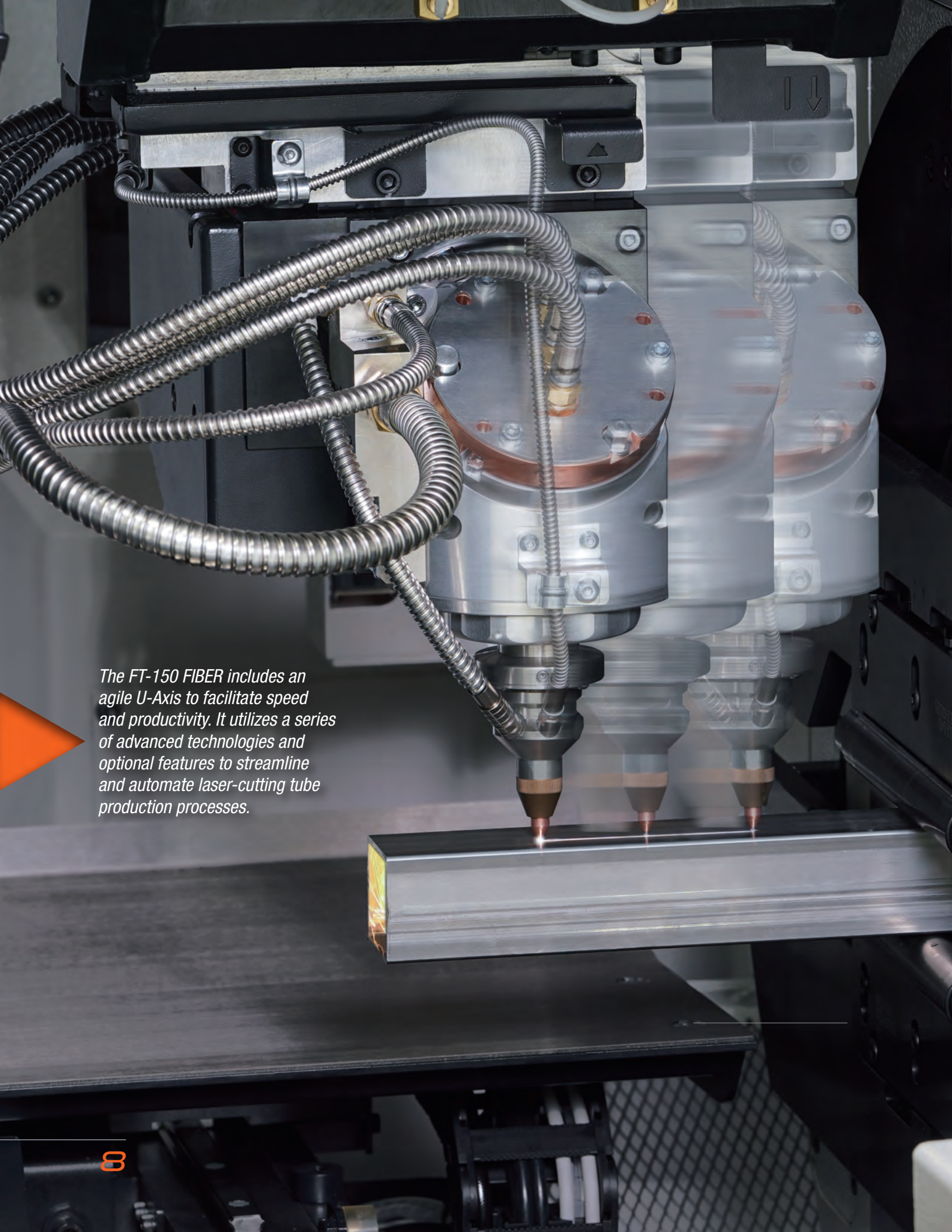
The OPTIPLEX NEO is a 2D flying optics laser-cutting system that provides complete control and high efficiency to deliver high performance for all fabrication job shops and production environments. Available from 4.0kW to 15.0kW.

- The high power OPTIPLEX NEO is equipped with beam shape and beam diameter control that is automatically adjusted to optimally cut various materials.

- Equipped with large front and side access doors for ease of operation, making loading material and unloading finished parts easier.
- OPTIPLEX NEO is equipped with a nozzle changer, nozzle centering camera, and other intelligent functions. Camera assisted part nesting is optional.
- The MAZATROL SmoothLx control features a large 21.5" screen and touch panel that rotates, giving operators flexibility to work at the front or side of the machine. Dual monitors allow multiple applications to run simultaneously.

Model		OPTIPLEX 3015 NEO			
Table Size		3015 x 1525 mm			
Machine Unit Weight		24,200 lbs. (15.0kW)			
Watts		4.0kW	7.0kW	10.0kW	15.0kW
Thickness*	Mild Steel (O2)	1.000"	1.000"	1.000"	1.250"
	Mild Steel (N2)	0.250"	0.375"	0.500"	0.625"
	Mild Steel (HP Air)	0.135"	0.375"	0.375"	0.500"
	Stainless Steel (N2)	0.625"	1.000"	1.250"	2.000"
	Stainless Steel (HP Air)	0.380"	0.630"	1.250"	1.750"
	Aluminum (N2)	0.630"	0.750"	1.250"	2.000"
	Aluminum (HP Air)	0.630"	0.750"	1.250"	1.750"
Positioning System		Encoder, Semi-closed Loop			
Positioning Accuracy X-Y		+0.002"/19.69"			
Repeatability		+/-0.0012"			
CNC		MAZATROL SmoothLx			

\*Actual cutting performance is based on various parameters including the specific type and quality of material, assist gas and cutting speed.



*The FT-150 FIBER includes an agile U-Axis to facilitate speed and productivity. It utilizes a series of advanced technologies and optional features to streamline and automate laser-cutting tube production processes.*



# FT-150 FIBER

Watch the FT-150  
Demo Video



## FT-150 FIBER

### Production tube-cutting technology

The FT-150 FIBER is designed for high-speed cutting and reduced non-cutting process cycle times. The result is superior productivity with high throughput.

- ▶ FT-150 FIBER delivers high-speed and high-productivity for small to medium diameter tube production.
- ▶ Proprietary U-Axis enables impressive cutting speeds and superior part accuracy through a wide range of applications.
- ▶ This fiber tube laser utilizes a 2.5D cutting head with focus detection. The programmable angle of the B-Axis enables bevel cutting of the material thickness and improves welding, multi-tube assembly, fit and finish.
- ▶ Equipped with a standard 6.5 meter bundle loader.
- ▶ Optional extrusion tapping is a value added process that utilizes a rotary spindle and eight tool positions. Any tool position can be deployed for direct tapping or combined with extrusion, providing proper thread depth.
- ▶ Optional spatter guard protects the internal tube surfaces from cutting debris and reduces secondary operations.
- ▶ Optional weld seam detection camera orients the workpiece for proper geometry orientation.

Model	FT-150 FIBER
Standard diameter	6" round/ 4.92" square
Material Weight (8M feed)	396 lbs.
Material Length	6.5M - 255" (8M - 315" optional)
Machine Unit Weight	54,800 lbs.
Watts	3.0kW
Thickness*	Mild Steel 0.250"
	Stainless Steel 0.250"
	Aluminum 0.250"
Positioning System	Rack and pinion
Positioning Accuracy	Y/Z +0.0004"/19.7" X/U +0.0020"/19.7"
CNC	Mazak FX

\*Actual cutting performance is based on various parameters including the specific type and quality of material, assist gas and cutting speed.



*FG-220 series tube-cutting machines deliver a wide range of benefits for fabricators. Multi-axis capabilities enable users to cut a much wider range of structural material not possible on 2D configurations.*



Watch the FG-220  
Demo Video



The optional chain conveyor loading/unloading system shown on the FG-220 provides more loading capacity compared to V style conveyor.

## FG-220 Solid state tube-cutting technology

The FG-220 utilizes solid state laser technology and a rugged four-chuck construction to offer high precision and game changing flexibility to a wide range of applications.

- ▶ Multi-axis capabilities enable fabricators to cut a much wider range of structural material not possible on 2D configurations.
- ▶ Featuring a high precision 6-axis laser that cuts round, square, rectangular, triangular, I and H beams, C-channel, angle iron and other user-defined shapes.
- ▶ Cut at any desired angle for weld prep, plus achieve the highest accuracy for easy fit-up assemblies.
- ▶ Optional productivity enhancements include tapping unit, touch probe, and seam detection.

Model	FG-220
Standard diameter	0.79" to 8.60" round 0.79" to 6.00" square
Material Weight (8M feed)	794 lbs.
Material Length	6M - 246", 8M - 321", 12M - 486"
Machine Unit Weight	73,194 lbs 8M-8M 4.0 kW
Watts	4.0kW
Thickness*	Mild Steel 0.750"
	Stainless Steel 0.500"
	Aluminum 0.500"
Positioning System	Rack and pinion, ball screw
Positioning Accuracy	Y/Z +0.0004"/19.7" X/U/V +0.0020"/19.7"
CNC	Mazak FX

\*Actual cutting performance is based on various parameters including the specific type and quality of material, assist gas and cutting speed.

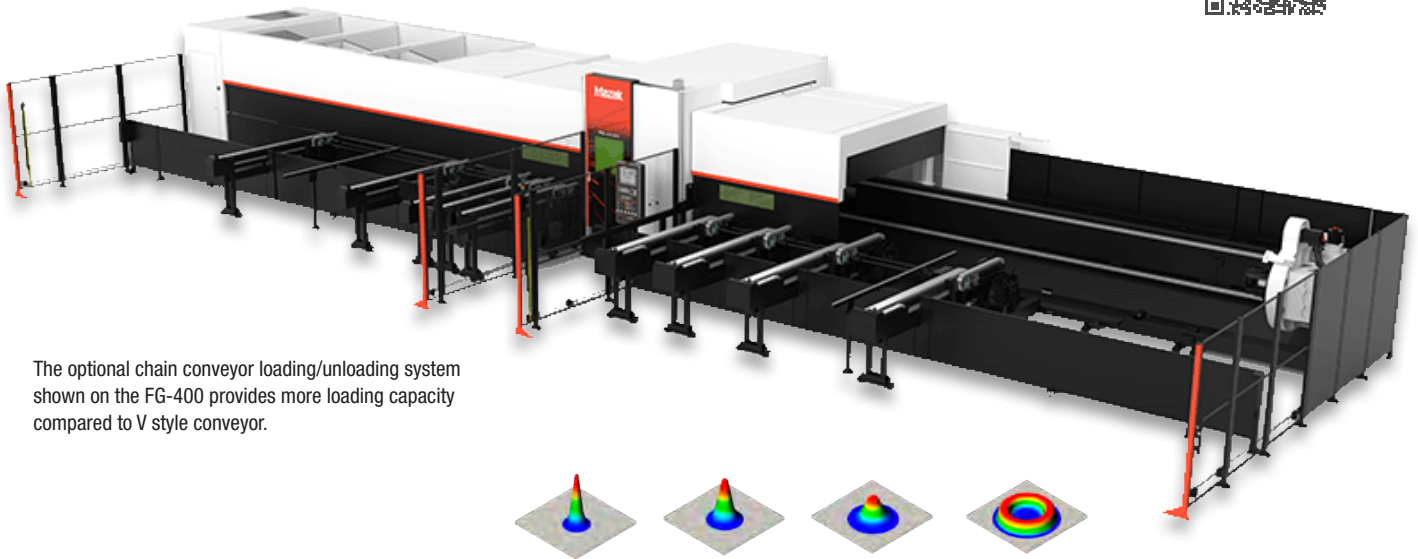


*FG-400 NEO tube-cutting machines offer multi-axis capabilities and beam shaping that enable users to cut a much wider range of structural material not possible on 2D configurations.*



# FG-400 NEO

Watch the FG-400 NEO  
Demo Video



The optional chain conveyor loading/unloading system shown on the FG-400 provides more loading capacity compared to V style conveyor.

## FG-400 NEO

### Solid state tube-cutting technology with beam control

The FG-400 NEO utilizes solid state laser technology and a rugged four-chuck work support system that extends the machine's capability while preventing material distortion. The machine's construction enables high-accuracy cutting of heavier equipment while providing flexibility to a wide range of applications.

- ▶ Multi-axis capabilities enable fabricators to cut a much wider range of structural material not possible on 2D configurations.
- ▶ Featuring a high precision 6-axis laser that cuts round, square, rectangular, triangular, I and H beams, C-channel, angle iron and other user-defined shapes.
- ▶ Cut at any desired angle for weld prep, plus achieve the highest accuracy for easy fit-up assemblies.
- ▶ Proprietary beam shape and diameter technology that allows more control during the cutting process on various materials, features and thicknesses.
- ▶ Optional productivity enhancements include tapping unit, touch probe, seam detection, customized chain conveyor system, flat bar handling unit with automatic workpiece measurement function.

Model	FG-400
Standard diameter	0.79" to 16.00" round 0.79" to 12.00" square
Material Weight (8M feed)	1763 lbs.
Material Length	6M - 236", 8M - 314", 12M - 480", 15M - 590"
Machine Unit Weight	84,878 lbs 8M-8M 4.0 kW
Watts	4.0kW
Thickness*	<i>Mild Steel</i> 0.750" <i>Stainless Steel</i> 0.500" <i>Aluminum</i> 0.500"
Positioning System	Rack and pinion, ball screw
Positioning Accuracy	X/X2/X3-axis: $\pm 0.05/500$ mm ( $\pm 0.0020/19.69$ in) Y/Z-axis: $\pm 0.01/500$ mm ( $\pm 0.0004/19.69$ in)
CNC	Mazak FX

\*Actual cutting performance is based on various parameters including the specific type and quality of material, assist gas and cutting speed.



*Mazak Optonics patented the first laser EMS in 1991. Today's approach to automation is not a one-size-fits-all solution. Mazak utilizes a modular or building block approach that enables future growth.*



View Automation  
Option Videos



## MATERIAL AUTOMATION SYSTEMS WILL EXTEND THE THROUGHPUT CAPACITY OF LASER-CUTTING MACHINES

Automation systems provide the ability to flex capacity through lights-out operation, without the burden of adding manpower.

Mazak was the first manufacturer to introduce laser-cutting machines into a Flexible Manufacturing System (FMS). Today Mazak offers the following range of automation solutions:

- M-SERIES
- K-SERIES
- L-SERIES
- C-SERIES
- LASER FLEX
- QUICK CELL
- EXTENSIBLE MANUFACTURING CELL
- AUTOMATED STORAGE/RETRIEVAL



Mazak automation can be designed to incorporate part sorting systems to separate parts and automatically load them onto pallets in production environments.

### EXAMPLES OF MAZAK AUTOMATION SOLUTIONS



MCS 3015 ONE LASER (LUL)



MST 3015 ONE LASER + ONE TOWER



LCS 3015 ONE LASER (LUL)



MDT 3015 TWO LASERS + TWO TOWERS + UL CART

# Mazak

## OPTONICS CORP.

[www.mazakoptonics.com](http://www.mazakoptonics.com)

2725 Galvin Court, Elgin, Illinois 60124 | 847.252.4500



- Specifications are subject to change without notice.
- This product is subject to all applicable export control laws and regulations.
- The accuracy data and other data presented in this catalog were obtained under specific conditions. They may not be duplicated under different conditions. (room temperature, workpiece materials, tool material, cutting conditions, etc.)
- Unauthorized copying of this catalog is prohibited.