

XL-F Series



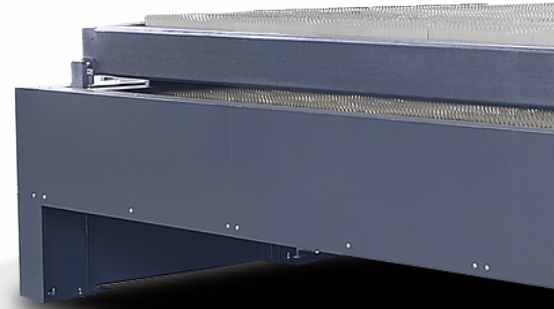
MITSUBISHI XL-F FIBER LASER

The Mitsubishi Advantage

Fusing our world-leading laser processing machines, rich in history and technical prowess, with an advanced fiber laser beam, we've evolved laser processing to an entirely new level of performance. The XL-F Zoom 6030 and 8030 two-dimensional fiber laser processing system comes standard with the new Mitsubishi fiber laser oscillator, Zoom processing head, pallet changer, and a full safety enclosure. For maximum viewing of the work area, a large screen with four camera angles is provided. The machine also features a Multi-chamber dust-collection mechanism.

Smaller footprint

Because fiber laser technology relies on fiber optics to deliver light to the head, as opposed to mirror-directed beams, significant space savings can be realized with fiber laser technology. We know that square footage is at a premium in your facility. The XL-F is built on the same platform as our highly successful XL platform. A truly proven workhorse. All of the benefits of this model have been moved over to this new Zoom Fiber technology all while keeping the floor layout as small as possible.



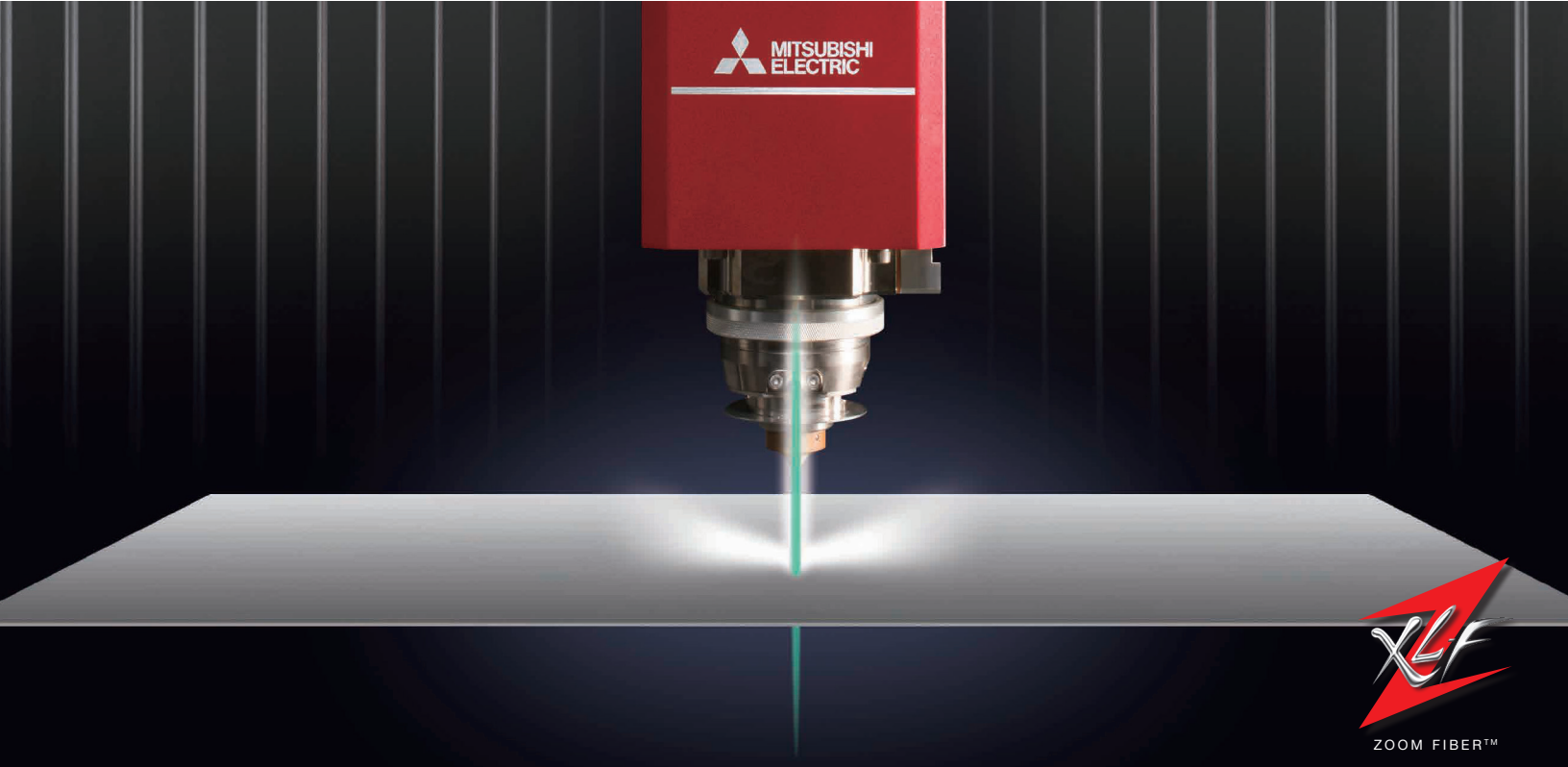


ZOOM FIBER™

Standard Features of the XL-F

- Motion Cut - features the beam on/off time and axial movement simultaneously to eliminate the need for the axes to stop.
- Eco Mode reduces cost during standby by up to 70 percent.
- Power Control System provides power stability of $\pm 1\%$.
- Automatic Focusing allows for easy and consistent focusing.
- Reduction of cutting time by fast command execution.
- Dynamic Power Reserve allows continuous operation.
- ELS (Extended Lifetime Structure) processing by all fiber composition.
- Power / Gas Consumption Tracking
- Remote 360 (Remote Monitoring)

ZOOM PROCESSING HEAD

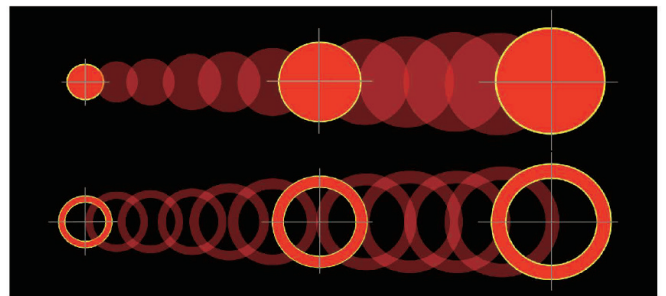


The Mitsubishi Zoom Head Delivers Speed and Flexibility.

Mitsubishi Electric's proprietary optical system offers optimal control of the beam according to the material and plate thickness. The zoom head delivers speed and flexibility by automatically changing the beam size, shape, and focal point for each application. It also processes plates with a wide range of thicknesses. Because it's not necessary to exchange the processing lens according to plate thickness and material, setup time is significantly reduced.

- Operators can switch between sheet material of different thicknesses quickly and without compromising cutting quality.
- Piercing time is reduced by as much as 60 percent, making it possible to pierce a 25-mm-thick mild steel within 0.8 seconds.

Conventional head requires three-step switching



Stepless switching of zoom head mechanism reduces setup time

MITSUBISHI ELECTRIC FIBER LASER OSCILLATORS

The all-new All-Mitsubishi Oscillator delivers the latest in reliability and performance.

- Total service support with all-Mitsubishi made key components.
- Improved processing capability achieved by Mitsubishi-original back reflection beam isolation and beam mode stabilization technology.
- High-speed response control is realized by complete compatibility between the Mitsubishi oscillator and the Mitsubishi CNC.
- High reliability with a standard 5-year parts warranty supported by the preventive maintenance analysis tool. Improved processing stability by enabling the most suitable beam quality for processing.
- Stable processing of different materials available attributable to less variation in beam quality compared to other manufacturers.
- Enabled N2 cutting of pure copper by our originally developed back reflection technology.
- Laser Diodes are set in parallel to improve life of each module and prevent power loss if a diode fails.
- The oscillator is fully integrated with remote diagnostics to allow proactive maintenance.

This spec sheet does not constitute, nor shall it be deemed to constitute, an offer to sell the products described herein. All products, spec, features and pricing are subject to change without notice.



MITSUBISHI 700 SERIES CONTROL

Take Control Of Your Cutting

Competing manufacturers' PC-based controls can't touch the sophistication of the new Mitsubishi 700 Series CNC controls. Mitsubishi has utilized its vast experience developing the most sophisticated and accurate controls for laser machines and implemented new nanotechnology for finer, faster interpolation with greater power. Our CNC controls includes a windows based 15-inch touch screen, prepared with ethernet for input/output and a USB port for further flexibility.

700 series cnc also features:

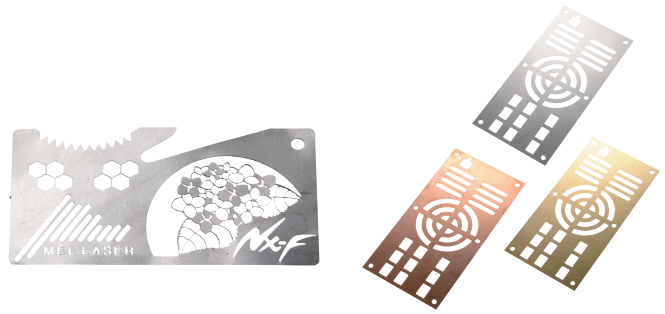
- Dedicated nano-control for highest precision machining
- Newest RISC-CPU and high-performance ASIC
- Improved and accelerated graphics with superior NC design simplify operations
- Network function adaptable for diverse factory environments
- USB Compatible
- Sheet detection
- LAN-Ethernet connectivity
- Decreased graphic time
- Increased cutting condition database
- Improved help diagnostic functions
- Micro-joint function
- 20 GB Hard Drive
- 2 Action Cutting provides automatic setup and easy operator interface
 - Step 1 - use barcode reader and automatically load onto NC from CAD/CAM computer
 - Step 2 - once data loaded, head moves to start positions, automatically measures the tilt, the size and the edge of the workpiece, and starts cutting
- New Reset - Restart Function
- Simple Nesting - rectangular nesting of dissimilar parts at control
- Advanced help and maintenance screens are a great aid for operators
- Sheet cut offs
- Email notification
- Multiple cutting with sheet size detection



Handle Box and Bar Code Reader combine for a more user friendly experience.

MOTION CUT ADVANTAGE

For maximum production on a fiber laser, especially when running components with complex geometries or in smooth curves, Mitsubishi has upped the traditional ante to introduce the Motion Cut (M-Cut) technology.



Strong Control Lineage

Mitsubishi's industry leading laser control expertise has once again been brought into play in designing controls for the XL-F 6030 laser. The Mitsubishi High Speed Control for Lasers (MHC-L) is an original control method that is now being applied to fiber optic laser technology to maximize the fiber laser's number one attribute – speed.

Blazing Speed

New software calculates the timing to control the resonator according to the position of the axis. A high-speed communication unit between the CNC and the control board allows for ultra-fast serial communication thanks to signal delay reduction. The laser power control, exclusive to fiber lasers, provides fast rise times, and the resonator itself is customized to control the beam ON/OFF timing, even at high speeds.

Tough Geometries

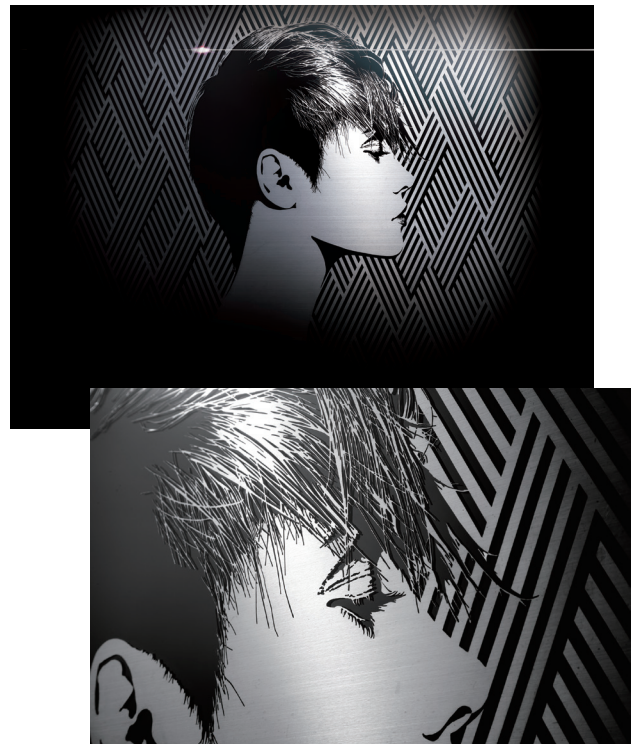
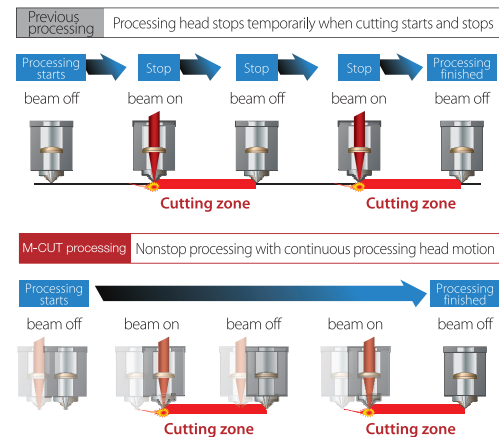
Traditional technologies worked fine for square or rectangular cutting in fiber lasers, as they relied on the axes perpendicular travel coincides with the 90 degree right angles of these types of shapes. But when faced with complex geometries or smooth curves, traditional controls slowed down the process due to axial stoppage at start point. These MHC-L M-Cut controls the ON/OFF timing to eliminate the need for axes to stop. This increased speed in difficult geometries increases process speed, and ultimately, the bottom line.

It All Adds Up

Power isn't the sole determinant of process time. The M-Cut time-saving controls allow an operator to cut multiple shapes without the axes having to stop, providing industry-leading speed with less power input, and greater cost efficiency per part.

M-CUT® function

High-speed communication between oscillator and control unit controls turning the beam on/off without stopping the axis, thereby reducing processing time.



AUTOMATION

Abandon One-Step-At-A-Time Processes with Automated Solutions from Mitsubishi

Automation changes everything. Mitsubishi Laser has more automated installations than any other manufacturer. From modular cells to fully automated storage and inventory systems, our automation systems allow you to run back-to-back jobs with virtually no supervision. The right automated system can drive incredible profits, and no one knows laser automation like Mitsubishi. Even our XL Series lasers can benefit from the fastest automation in the industry. With systems that move the largest plates quickly and easily, Mitsubishi can help keep your lasers running!

Big Plates. Big Benefit.

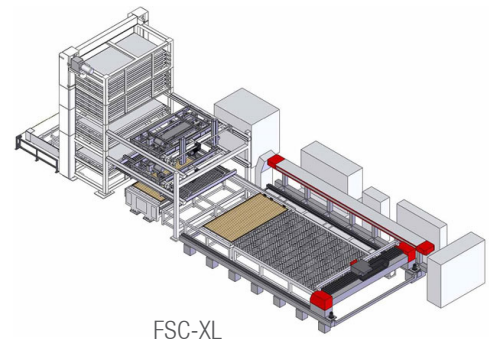
From load/unload systems to full pallet towers, Mitsubishi Automation dramatically improves production efficiency and enables extended periods of unattended operation. With options like conveyors and tower storage of finished sheets, our systems can be adapted to your needs, environment, and floor space.

XL Automation System Variations

While many manufacturers offer automation for only their standard size machines, we at Mitsubishi understand that the world is not a “one size fits all” kind of place. Our customers who require the size and capability of a large format machine can still benefit from significant increases in productivity, safer material handling, and even lights out operation. If bigger is better, we’ve got you covered at MC Machinery.

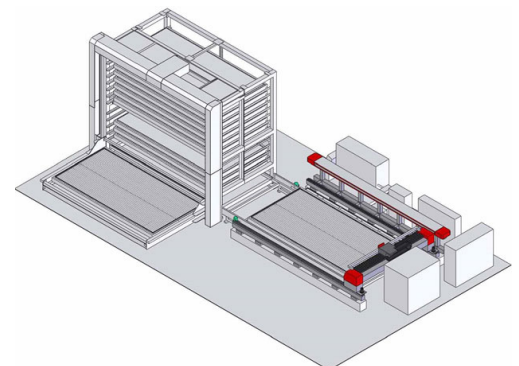
FSC-XL

- Add lights-out capacity to an XL economically
- Full load/unload cycle time approximately 100 seconds
- Finished parts storage in tower
- 6,000 lb per shelf capacity 5'x10' sheet size
- Vacuum load system with thickness detection and sheet separator features
- Heavy duty clamshell fork unload system with built in sheet raking
- Heavy-duty up to 1” full size sheet load/unload capacity



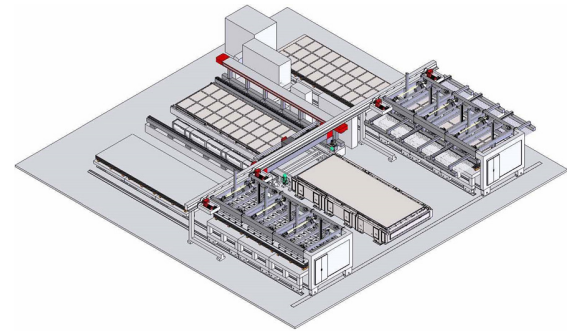
Pallet Tower-XL

- Exchanges the entire laser pallet, not just material
- No special programming considerations to achieve lights-out operation
- Full 10'x20' pallet change in only 240 seconds
- Finished parts storage in tower
- 8000 lb material capacity per shelf (10'x20'x1.0")
- Models from 6 to 16 shelves for a weight capacity of over 49 Tons



LF-4

- Add efficient load/unload to a large format machine
- Full material exchange cycle in only 120 seconds
- Extreme-duty 6,600 lb capacity (8'x20'x1.0") plate handling system (XL 6025)
- Vacuum load and extreme-duty clamshell fork unload system
- Open top frame style allows material staging with crane
- Compatible with XL-6725 and XL-6030 models



LF-4

ASTES4

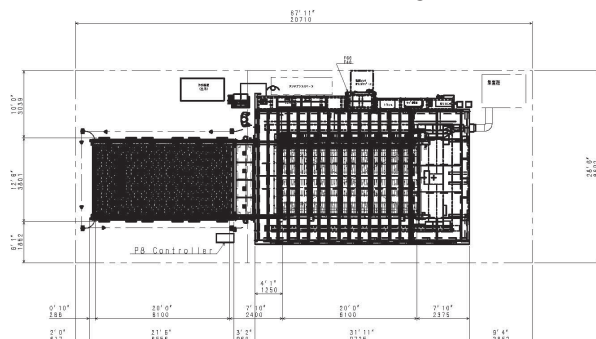
Introducing the first fully integrated system for the cutting, sorting, and storage of sheet metal

Mitsubishi Electric and ASTES4 - LASORTING - now bring you a single integrated multifunctional system capable of controlling the entire production process from loading, cutting, sorting, and unloading through to the storage of the finished parts.

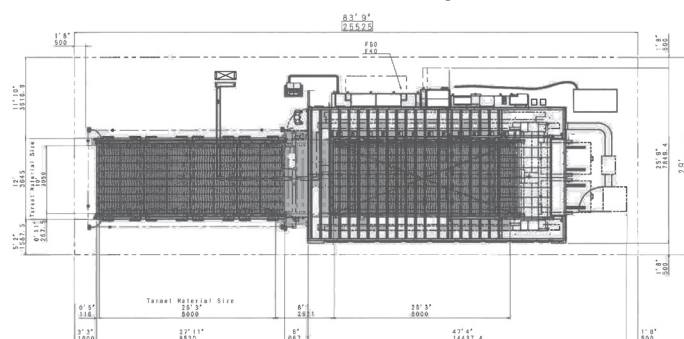
- Improves flow of production and information in the factory
- Reduces materials/products, search/transfer time
- Space saving and easier inventory control
- Efficient production process
- Reduces damaged material
- Stores partial remnant sheets

SPECIFICATIONS

ML 6030 XL-F Layout



ML 8030 XL-F Layout



*All machines in this brochure may be pictured with optional equipment.

Processing Machine Specifications

LASER MACHINE	ML 6030 XL-F	ML 8030 XL-F
Machine Structure	Welded Frame with Precision Helical Rack & Pinion, Direct Drives	
Travel Drive Method	X,Y, Z simultaneous 3-axes	
Control Method	X,Y, and Z simultaneous 3 axis control	
X – Axis Stroke	255.9" (6500 mm)	318.9" (8100 mm)
Y – Axis Stroke	126" (3200 mm)	
Z – Axis Stroke	5.9" (150 mm)	
Maximum Work Piece Size	120.0" x 240.0" (3050 x 6100 mm)	120.0" x 315.0" (3050 x 8000 mm)
Maximum Processing Feed Rate	1970 in/min (50 m/min)	
Maximum Work Piece Weight	8050 lbs. (3651 kg)	9780 lbs. (4436 kg)
Table Pass Height	34.6" (879 mm)	
Rapid Travel Speed	3346 (85 m/min)	3940 (100 m/min)
Minimum Command Input	0.0001" (0.001 mm)	
Drive Motor Type	Intelligent AC Servo	
Positioning Accuracy	0.0019"/20" (0.05/500 mm)	
Repeatability	±0.00039" (0.0099 mm)	
Machine Unit Dimensions	813.4" x 112.9" x 342.1" (20,660 x 2,870 x 8,690 mm)	962.9" x 112.9" x 342.1" (24,460 x 2,870 x 8,690 mm)
Total System Weight	48432 lbs. (21968 kg)	75000 lbs. (34020 kg)
Pallet Change Time	Approximately 60 seconds	
Pallet Changer Drive Mechanism	Chain	

CNC CONTROLLER		MITSUBISHI - M700 SERIES
Type		Self-Contained Simple Dust Proof Design (Mounted on Processing Machine)
CPU		64 Bit Windows
Display Unit		15" TFT Color LCD Touch Screen
Hard Disc Drive Capacity		20.0 GB (CFast)
Program Memory Capacity		2MB SRAM
Number of registerable programs:		400
Laser Control	Power Control	Output Power, Frequency, Duty
	Operation Control	Beam On/Off, etc.
Processing Machine Control	Drive Method	X, Y, Z (Simultaneous Control)
	Position Detection	Encoder
	Min. Command Unit	0.001mm / 0.0001"
	Program Input Method	USB / Ethernet LAN
	Operation Method	Memory Operation HD Direct Operation

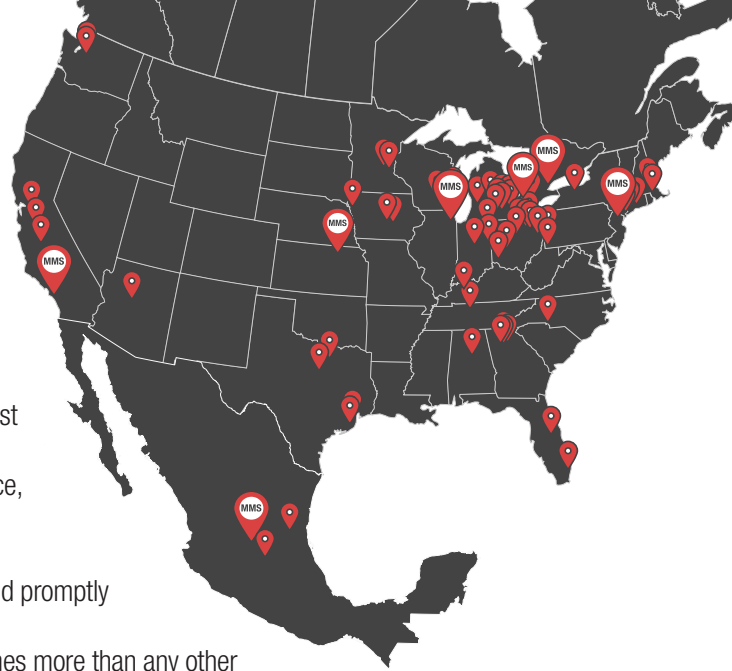
OSCILLATOR	ME 4000	ME 6000	ME 8000	ME 10000
Excitation Method	Ytterbium Doped Fiber			
Control Method	Power Feedback			
Wave Length	1.07 Micron			
Freequency Range	100-3000 Hz			
Duty Range	5-100%			
Output Power Range	5-100%			
Rated Output Power (CW)	4000 watts	6000 watts	8000 watts	10000 watts
Electrical Requirements: Motion System, Control, Oscillator	208 VAC +/- 10%-5%, 3 Phase, 60Hz 48 KVA (Total Machine Usage) 135 (Full Load Amps)	208 VAC +/- 10%-5%, 3 Phase, 60Hz 55KVA (Total Machine Usage) 155 (Full Load Amps)	208 VAC +/- 10%-5%, 3 Phase, 60Hz 64KVA (Total Machine Usage) 178 (Full Load Amps)	208 VAC +/- 10%-5%, 3 Phase, 60Hz 75 KVA (Total Machine Usage) 200 (Full Load Amps)
Electrical Requirements: Chiller Unit	208 VAC +/- 10%-5%, 3 Phase, 60Hz 22 KVA 69 (Full Load Amps)	208 VAC +/- 10%-5%, 3 Phase, 60Hz 24KVA 72 (Full Load Amps)	208 VAC +/- 10%-5%, 3 Phase, 60Hz 24KVA 72 (Full Load Amps)	208 VAC +/- 10%-5%, 3 Phase, 60Hz 24KVA 72 (Full Load Amps)

PREMIER TRAINING, SERVICE AND SUPPORT

Regionalized Service Network

With our industry-leading regionalized service network, we have the most experienced, knowledgeable and responsive employees in the industry. We're here for you with phone support, operation training, on-site service, parts inventory and a robust, interactive website.

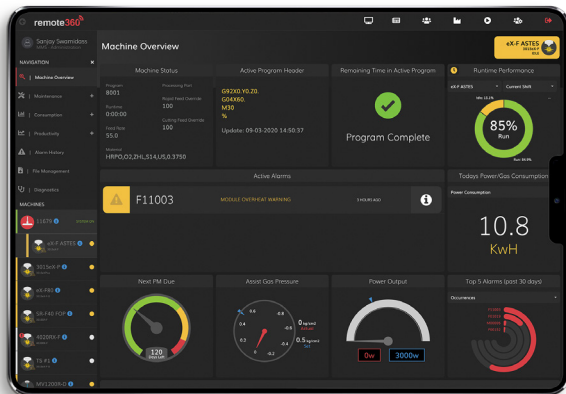
- With regionalized locations throughout North America, we can respond promptly to your service needs.
- We have the largest fleet of service vehicles in the field—three times more than any other company in the industry.
- From installation and on-site training to support and service throughout the life of your system, our national service network is just a phone call away.
- You'll have access to 24/7 support, a detailed interactive parts catalog, printable machine manuals and software.



Application Support

The value of our support stretches well beyond service, parts and training. Our experienced and creative team members put their knowledge and problem-solving skills to work for you—offering application and engineering support that includes creating specialized shop-floor setups that work harder and get better results. Whether developing integrated manufacturing cells from the ground up or adding specific solutions to complement existing operations, our pre-sales, sales, installation and application support staff can help you eliminate bottlenecks, improve accuracy and drive throughput.

remote360[™]



remote360[™] Machine Monitoring

The GX-F ADVANCED Series has a two-year machine tool warranty for parts and labor and a five-year oscillator parts warranty. Also included is two years of the remote360 machine monitoring software system.

remote360 is a robust production monitoring and support solution offering real-time data to help increase productivity, improve efficiency and reduce downtime. It provides:

- Email and mobile notifications of stoppages, completions and maintenance warnings
- Dashboard display of runtime performance by shift, day, week and month
- Proactive support with real-time monitoring and remotely connected service technicians



Remote
Diagnostics



Predictive
Maintenance



Two Years of
remote360 Support



Consumption
Monitoring



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