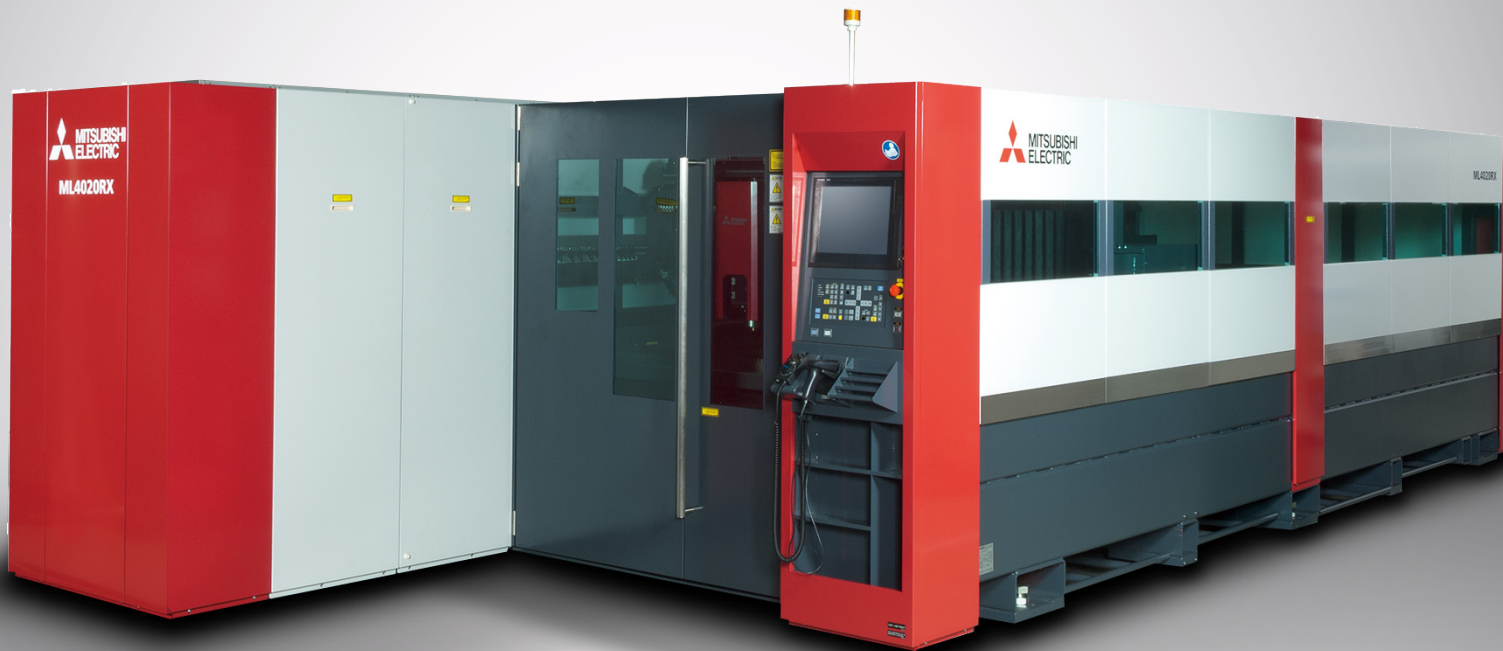


RX Series

The RX Series CO² Laser



It's not where you are, it's where you're going.

Built for Speed and Size

INTRODUCING THE RX SERIES FROM MITSUBISHI LASER

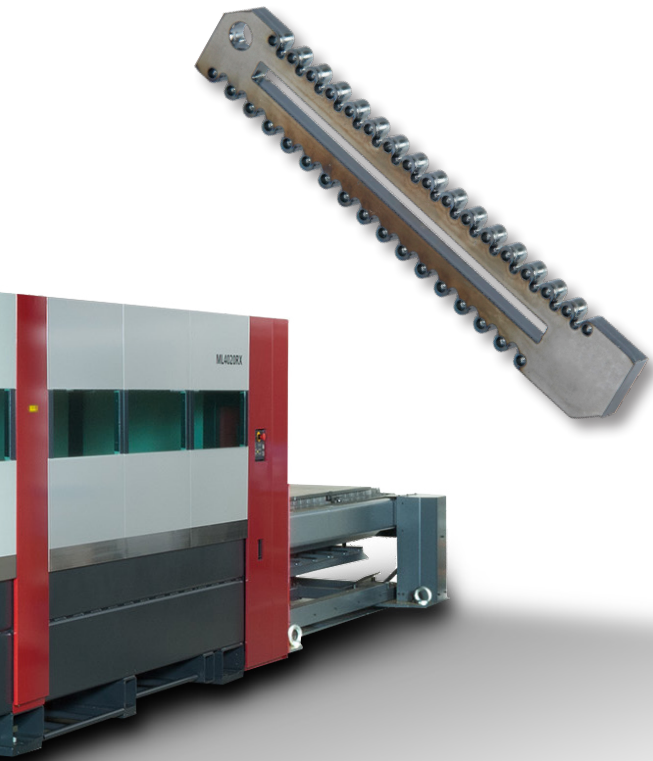
The RX series from Mitsubishi features a 4m by 2m footprint with all of the features and options that are popular in our best selling eX series. We are proud to combine these two models into one new model...THE RX.

A stylized, metallic-looking 'RX' logo with a 3D effect and a shadow.

CONTINUOUS IMPROVEMENT

At its core all Mitsubishi companies are working towards continuous improvement. It's our corporate mission and it is put to the test by our people, our services, and especially our product. Mitsubishi design and manufactures every critical component that goes into every Mitsubishi Laser System.

Every individual component is performance-matched to excel in the most demanding environments. Advanced CAE models were employed to develop the stable and accurate high-speed RX system design. Solid dianite machine casting ensures high rigidity, strength, and system stability while oversized precision linear guides on both X and Y axes result in longer life. The RX also features Helical Rack and Pinion on the X and Y axes resulting in faster movement and a more quiet operation.



UNIQUE FEATURES OF THE RX

- Gas change time is improved by 60% over previous model, approximately 10 minutes from start-up time
- Helical Rack and Pinion reduce noise, and allow for an increase in acceleration in X and Y axes and provide increased accuracy and longer life time
- Optional Magnetic Head is available on the 45CF-R and 60XF models, allowing for quicker recovery after collision
- Built in Jet Pierce provides the ability to aggressively pierce mild steel
- New Mitsubishi Control with Faster graphical interface, USB compatibility and expanded programming options
- ECO MODE available for increased energy savings
- PH-XS Head has new lens cartridge design which allows for more constant centering and the focus lens will achieve better performance due to this design change—the PH-XS Head allows for a 10" focal length option
- Improved Diamond Path Technology for constant beam control and exceptional cutting performance
- New High Peak Piercing greatly reduces pierce time in thick plate mild steel. This standard feature (60XF) results in higher productivity

Mitsubishi 700 Series Control

TAKE CONTROL OF YOUR CUTTING

Competing manufacturers' PC-based controls can't touch the sophistication of the 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 include a 15-inch touch screen, 64-bit Windows XP, 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
- 30 GB Hard Drive
- Optional: 2 Action Cutting provides automatic setup and easy operator interface
 - Step 1 - use optional barcode reader and automatically load onto NC from CAD/CAM computer
 - Step 2 - once data is loaded, head moves to start position, 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
- ECO Mode is available and can reduce your running cost by 99% while in standby
- ECO Cut is available and can reduce your nitrogen assist gas usage by 30%
- M-Cut shortens processing time in thin materials by turning the beam on/off while in motion



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

IMPROVED CUTTING CONDITION DATA

Cutting condition library memory has increased.

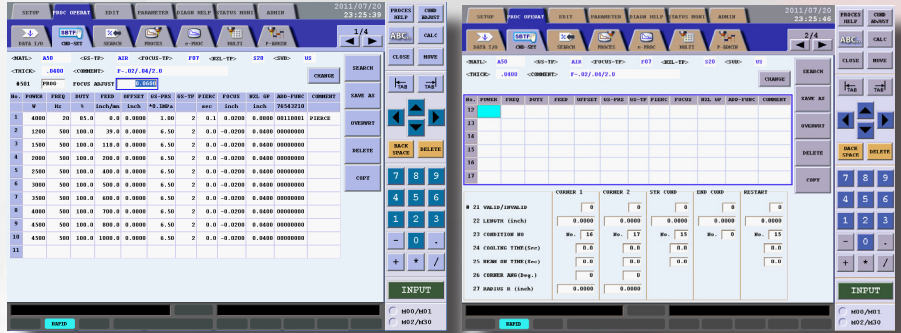
The controller will now hold 1000 libraries of 17 conditions.

The libraries have become more intelligent.

Nozzle diameter and lens focal length parameters are now data fields in the condition pages.

This allows for new functions like Automatic Height Sensor calibration.

Automatic Height Sensor calibration calibrates the height sensor whenever the nozzle is changed. This function will give more consistent processing capability.



MAINTENANCE GUIDE

Our new maintenance screens provide step by step instructions for most resonator maintenance functions.

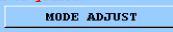
All of these steps are built into the control for ease of use and convenience for your operator.



Safety is our main concern at Mitsubishi, our machine is built to allow our users to perform their own maintenance on certain components of the machine.

This is why we have incorporated special JIGS to make it easier and safer for our customers to keep their machines up and running at peak efficiency.



1. Implement the mode adjustment at the outlet of the CO2 laser unit.
 1-1. Turn OFF the "LASER READY" key.
 1-2. Remove the beam passage duct.
 1-3. Set the acrylic plate of about 15mm thickness to the acrylic plate holder.
 1-4. Connect the coupler of the acrylic plate holder to the column.
 1-5. Switch the purge gas change valve to the "measurement box" side.
 1-6. Correct the gas which has come out of the flexible hose at the center which burns the mode.
 1-7. Set the acrylic plate holder to the measurement box.
 1-8. Close the door of the measurement box.

1-9. Turn ON the "LASER READY" key.
 1-10. Press the following button.
***) Turn to yellow.**

 1-11. Press the "START" switch.
***) The beam will irradiate for about 1.5 seconds.**
 1-12. After the program is completed, turn OFF the "LASER READY" key.
 1-13. Check the pattern on the acrylic.
 When the adjustment of the mode is necessary, adjust the micrometer of the PR and TR side.
 Refer to "CO2 laser unit manual" for the adjustment method.
 After adjustment, displace the acrylic plate.
 And implement from the above "1-9" to "1-13".
 If the adjustment of the mode is not needed, then to "1-11".

1-14. Turn OFF the "LASER READY" key.
 1-15. Clean the CO2 laser unit M2 mirror.
 After the cleaning, correct the visible beam to the position before the cleaning is done.
 1-16. When the CO2 laser unit power calibration is done, implement following work. If not, proceed to "1-17".
 Switch the purge gas change valve to the "close" side.
 Remove the column from the coupler of the acrylic plate holder.
 Remove the acrylic plate holder from measurement box.
 Touch following "TO POWER CALIB" button.
 1-17. When the power calibration is not done, implement following work.
 Switch the purge gas change valve to the "close" side.
 Remove the column from the coupler of the acrylic plate holder.
 Remove the acrylic plate holder from measurement box.
 Switch the purge gas change valve to the "at processing" side.
 Install the beam passage duct.
 Close the door of the measurement box.
 It's end by the above work.
***) When you continuously burn the mode, wait for about 2 minutes to burn the mode.**



Resonators

Lowest cost of ownership

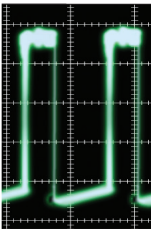
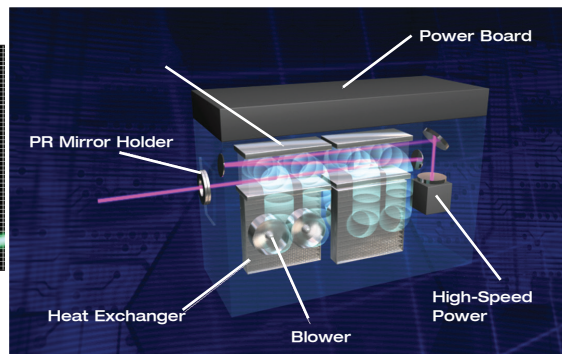
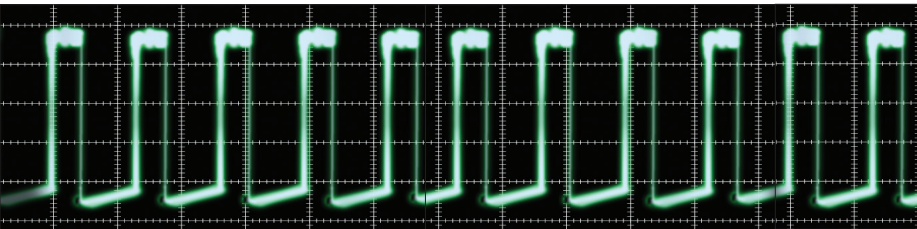
Mitsubishi resonators are so reliable and efficient that they've never needed to be replaced – eliminating a potentially expensive repair. The innovative Cross-Flow design consumes up to 90% less gas than traditional fast-flow systems, giving our resonators the lowest cost of ownership on the market.

XF Series Features

- 22% smaller
- Less Blowers
- 3 liters of laser gas
- 10 min gas change

MITSUBISHI'S EXCLUSIVE X-FLOW R AND XF SERIES RESONATORS

- Revolutionary "Dual" Cross-Flow design maximizes beam quality and stability
- DiamondClean™ Technology provides ultra-clean resonator materials that yield higher performance and greater stability
- Lower gas costs – consumes up to 90% less gas than traditional fast-flow systems
- Extended maintenance intervals by new optic technology
- Improved power supply provides high efficiency, stability, reliability, and lower maintenance
- Fast startup
- Designed and manufactured exclusively by Mitsubishi
- 4.5 and 6.0kW resonators available
- Enhanced rectangular wave pulse
- No chemical additives for chiller



MITSUBISHI'S SUPERIOR "CUTTING POWER"

Output power alone does not define cutting performance or cut edge quality. It takes superior "cutting power" to achieve high-performance results. Cutting power is optimized by creating the perfect blend of output power, beam quality, beam stability, and power control. The results are visible through superior edge quality, lower thermal effects, precision cutting ability, and greater overall processing control.

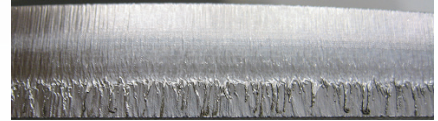
BRILLIANT NEW TECHNOLOGY

Mitsubishi's new state-of-the-art BrilliantCUT technology can produce a cutting surface near-machined finish – eliminating secondary operations and decreasing production times. The eX Series reaps the benefits of this innovative, optimal machine tool beam path design. The new CF-R resonator has increased beam characteristics and a new control method for the high-peak rectangular-pulse platform, providing optimal processing conditions for the resonator. It also features new nozzle technology for improved cutting surface quality.

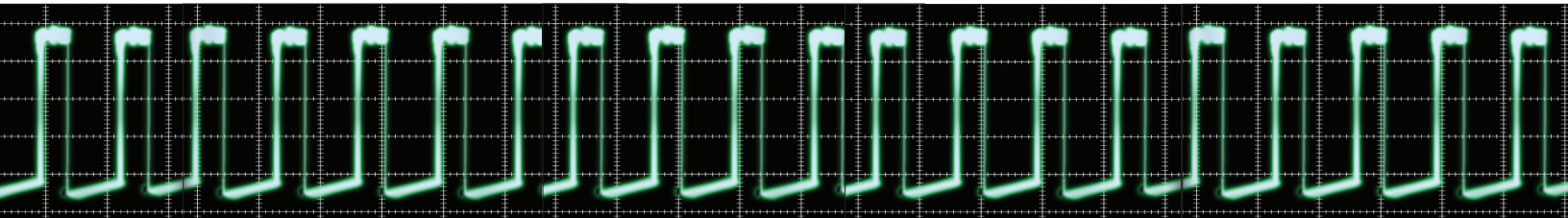
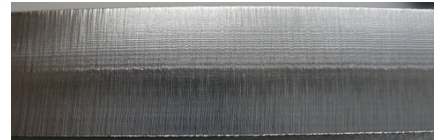
BrilliantCUT is ideal for stainless steel applications 3/8" (9.5 mm) and up. With an increased focus margin, processing stability is increased for a more consistent cut. BrilliantCUT also provides better part straightness by controlling the Kerf on the bottom of the part. The ability to control the heat affected zone of the material (bottom of part) eliminates the need for secondary processes. Simply brilliant.

*Data to the right is for reference. Surface discoloration may differ depending on material, thickness, processing condition or state of the processing machine.

Conventional Cut Surface

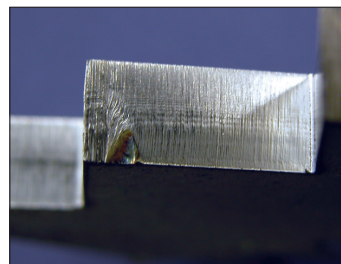


Brilliant Cut Surface

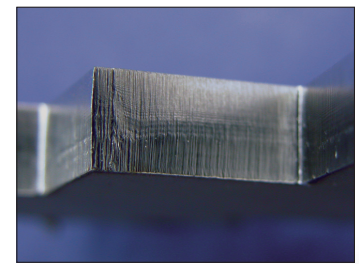


PLASMA GUARD CONTROL

Conventional lasers exhibit a crude transition as speed increases from starting point to corner. Plasma Guard (PG) Control restricts the generation of plasma in mid-thick stainless steel, allowing for a much smoother acceleration. Increased corner speeds maintain superior cutting quality and stability for maximum precision production.

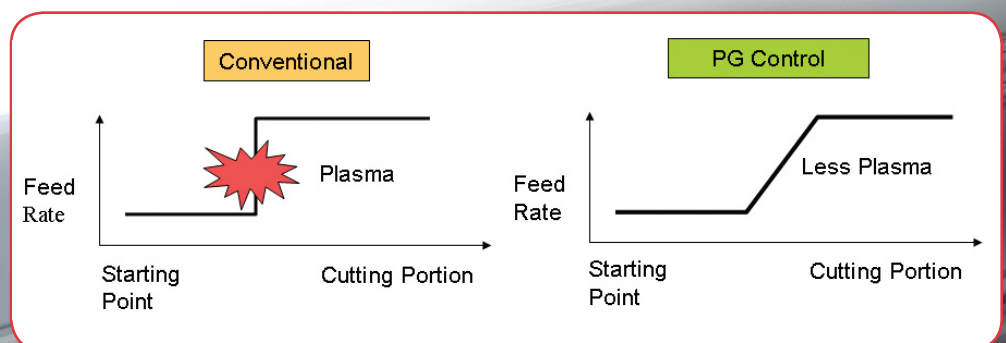


Plasma Guard Control off



Plasma Guard Control on

- PG Control smoothly steps up acceleration on the pierce line and corner sections.
- PG Control restricts the generation of plasma in Stainless Steel Plate which improves cutting quality, cutting stability, and ease of use.



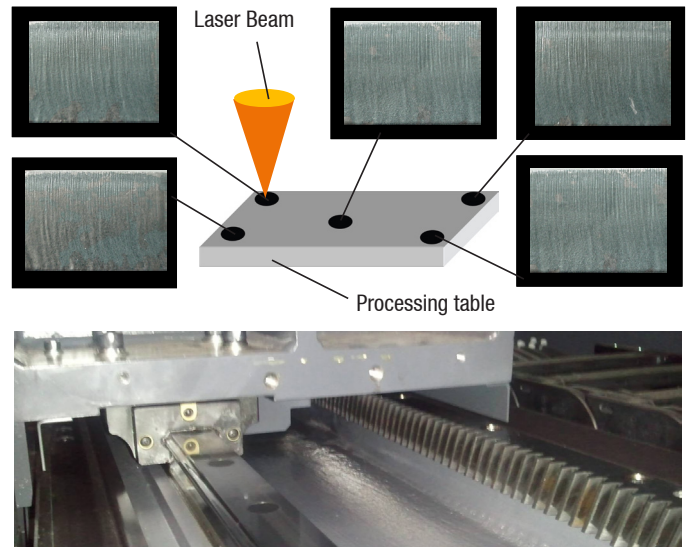
Head & Motion System

MITSUBISHI'S PATENTED DIAMOND PATH TECHNOLOGY

- Maintains a constant beam quality by fixing the system's beam path length regardless of processing head location
- Achieves superior cut edge quality and processing consistency over the entire work area
- Provides a stable cutting beam at high speeds across all processing areas at speeds of up to 1,970 in/min (50 m/min)
- Ensures consistent corner-to-corner cutting on any application

Diamond Path Advanced Beam Delivery System

Highly stable processing at every point in the processing area



Mitsubishi PH-XS Head



The PH-XS Series Head

- The standard in processing head technology manufactured by and for MITSUBISHI LASER
- Accommodates 5.0", 7.5", and 10" focal lengths
- Cartridge recognition—the zero focus position is memorized—No need to focus between cartridge changes
- Faster lens movement speed
- Long focus stroke
- Centering is supplied on the cartridge instead of the head, allowing for easier nozzle centering
- Optional nozzle changer automates the nozzle change process for up to five nozzles simultaneously
- ME functions are available
- Auto focus preset head (standard)
- The focus adjustment uses a motorized lens system—when the cutting condition is searched, the lens is moved to focus position automatically
- Quick-change lens cartridge
- Built in Jet Pierce provides the ability to aggressively pierce mild steel
- Antiplasma Height Control ignores plasma generated while processing thin materials at high-speed—a constant gap is maintained
- High Peak Pierce available

SMARTFLEX

AUTOMATION THAT KEEPS UP

ABANDON ONE-STEP-AT-A-TIME PROCESSES WITH AUTOMATED SOLUTIONS FROM MITSUBISHI

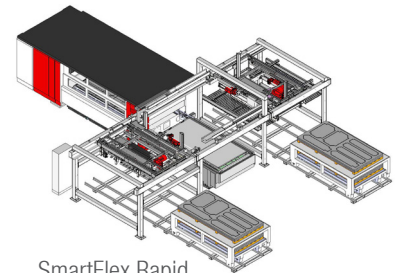
As the industrial laser industry evolves, shops of all sizes are requiring more speed and agility to get the job done. Mitsubishi's SmartFlex Automation Line is designed and engineered to increase productivity and reliability—because to stay on top, your automation needs to keep up. And with Mitsubishi, it will.

VERSATILE AND EXPANDABLE AUTOMATION

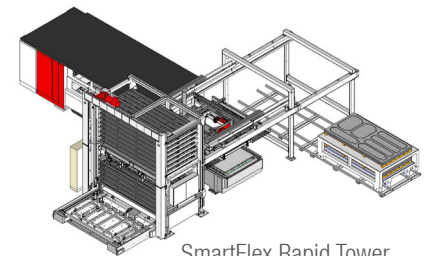
Virtually all SmartFlex Automation Systems are versatile and expandable. Mitsubishi offers several high-production options that can transform and adapt the SR-F System for maximum versatility and throughput. Current Mitsubishi users can add an SR-F to an existing automated system. That's the expandability of Mitsubishi.

SMARTFLEX RAPID

- 52-second load and unload cycle time
- Aerial positioning
- 22 gauge to 1.0" load/unload capacity
- Pair with High Capacity (11,000 lbs.) Carts or Tower (6,600 lbs. per shelf)
- Intelligent, High Speed, Independently Operating Load and Unload Units



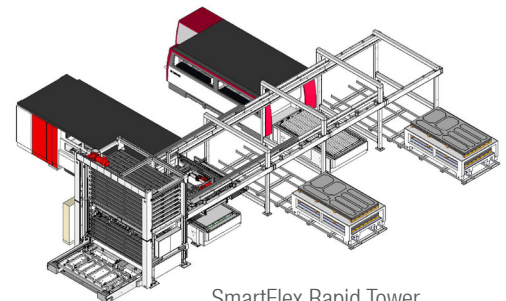
SmartFlex Rapid



SmartFlex Rapid Tower

SMARTFLEX RAPID TOWER

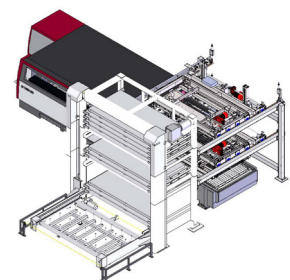
- Up to 22 shelves (more than 145,000 lbs. weight capacity for raw material)
- Increase storage capability with the addition of a second or third tower
- Configure an auxiliary load station for quick change-over of material types on multiple laser systems with no additional time
- Standard shelf spacing is 3.5" for use without skids or available at 7.5" for skid compatibility
- Offload to carts, SmartFlow conveyor, or a dedicated finished-goods tower



SmartFlex Rapid Tower
w/ 2 Lasers

SMARTFLEX COMPACT WAREHOUSE

- 75-second load and unload cycle time
- Flexible, expandable automation in a compact footprint
- Space-saving options
- Equipped for any shop, ideal for short-run jobs
- Modular and expandable system that grows with your shop
- Vacuum load systems with thickness detection and sheet-separator features



SmartFlex Compact Warehouse



Financing Solutions

MAC FUNDING CORPORATION

a subsidiary of  Mitsubishi Corporation

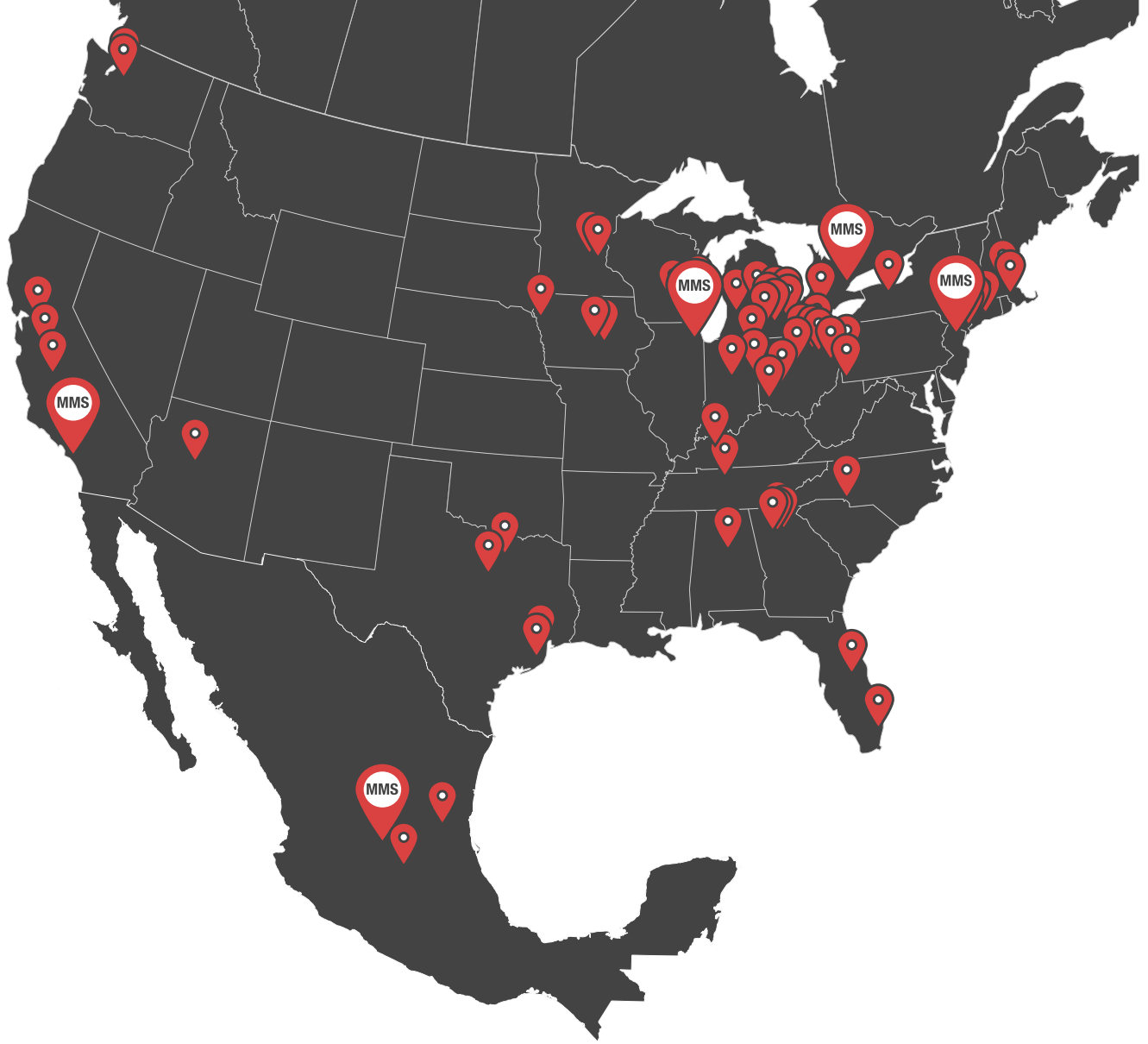
Simple, Fast & Easy

Being a fellow Mitsubishi Corporation company, MAC Funding is an integral part of MC Machinery Systems. We work closely with MC Machinery to ensure every transaction is fast and simple, saving you time, effort, and most importantly money.

Fast Track

For loans up to \$350,000, a signed loan application is all we need! The easy, one page application allows you to be approved within 24 hours. We also offer pre-approvals, allowing you to have your financing in place before you even decide on a machine!

630-860-4218 • info@macfunding.com



 **OVER 60 SERVICE LOCATIONS IN NORTH AMERICA**

THE INDUSTRY'S MOST RESPONSIVE SERVICE AND SUPPORT

With more than 200 employees, our regionalized Service Network is the most advanced and responsive team in the industry. We're here for you with phone support, operation training, on-site service, parts inventory, and a robust, interactive website. With 20 locations throughout North America, and more scheduled to open, we can respond promptly to your service needs. For the best on-site customer service capabilities, we have more than 25 vans 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. No other company has a greater depth of experience and resources than Mitsubishi and MC Machinery Systems. Access 24/7 support with our interactive website, a detailed interactive parts catalog, printable machine manuals, and software.

System Specifications

Model Name		4020RX		
Machine structure		Precision Helical Rack & Pinion (X, Y) – Z Precision Ball Screw		
Travel drive method		X-Y-Z Simultaneous 3 axes		
Performance	Max. workpiece size (in)	159.44" x 81.10 (4050 x 2070mm)		
	Processing access	Manual Door		
	Pallet changer	Provided		
	Table pass height (in)	34.6 (880 mm)		
	Stroke	X-axis stroke (in)	161.41 (4,100 mm)	
		Y-axis stroke (in)	82.67 (2,100 mm)	
		Z-axis stroke (in)	5.9 (150 mm)	
	Speed	Rapid travel (X, Y) (in/min)	3940 single axis (100m/min), 5550 (141 m/min) simultaneous	
		Max. processing feedrate (in/min)	1970 (50 m/min)	
	Precision	Positioning precision (in)	0.0019/20 (0.05/ 500 mm) (X-, Y-axis), 0.0039/4 (0.01/ 100 mm) (Z-axis)	
Repeatability (in)		(+/-)0.00039/ (+/-) -0.01 mm (X-, Y- axis)		
Drive motor type		Intelligent AC Servo		
Maximum Workpiece weight (lb)		3660 (1660kg)		
Machine unit dimensions (W x H x D) (in)		530.3(W) x 96.8(H) x 217.4(D) 12575mm (W) x 2458mm(H) x 12575mm(D)		
Machine system weight (lb)		42,330 (19,200 kg)		
Installation dimensions (W x D) (in)		573.3 x 367.4 (14,560 x 9,330mm)		
Floor space requirement (sq ft)		1,462 (136 m ²)		
Electrical requirements		208 VAC ± 5%, 3 Phase, 60HZ (60XF) 77 KVA (45CFR) 220 Full Load AMPS	208 VAC ± 5%, 3 Phase, 60HZ (60XF) 98 KVA (60CFR) 278 Full Load AMPS	

Control System Specifications

Control Type	Mitsubishi M700 Series
CPU / OS	64-bit RISC / Windows XP
Display	15" Color TFT LCD with Touch Screen
Hard drive	20.0GB
Generator output control	Output Power, Frequency, Duty
Generator operation control	Beam ON/OFF, Laser Gas Change, etc.
Drive method	X, Y, Z (Simultaneous Control)
Position detection system	Optical Rotary Encoder
Min. command input	0.001 mm / 0.0001 in
Program input system	USB, Computer Link, Ethernet LAN

CO₂ Laser Specifications

Model		45CF-R	60XF	
Excitation method		3-axis Cross-Flow, Silent-Discharge		
Performance	Laser power	Rated output power (W)	4500 6000	
		Control method	Power feedback	
		Power stability	Less than ±1% of rated power	
		Beam mode	Low-order (main component TEM ₀₁ [*])	
	Beam characteristics	Beam outer diameter (in)	1.02 (26 mm)	
		Beam divergence (mrad)	Approx. 3.5 or less (total angle)	
	CO ₂ /CO ₂ /N ₂ /He		8:4:60:28	
	Laser gas consumption rate (l/Hr)		3	
	Gas sealing time (during rated continuous oscillation) (Hr)		24 (during rated continuous oscillation)	
	Wave length (µm)		10.6	
Frequency Setting Range (Hz)		10~3000		
Duty Range (%)		0~100 adjustable		
Output Power Adjustable Range (%)		0~100 of rating		
Resonator unit dimensions (W x H x D) (in)		100 x 71.3 x 31.5	102.4 x 77.2 x 31.5	
Resonator unit weight (lb)		4,850 (2,200 kg)	4,960 (2,250 kg)	
Chiller power requirements		46 KVA 3Ø 208 VAC ±10% 60Hz 129 Full Load AMPS	54 KVA 3Ø 208 VAC ±10% 60Hz 155 Full Load AMPS	



This product complies with CFR 1040. 10.
Data provided in this brochure is for reference only.

MC MACHINERY SYSTEMS, INC.

85 Northwest Point Blvd. Elk Grove Village, IL 60007 | Tel: 630-616-5920, Fax: 630-616-4068 | www.mcmachinery.com