

VZ Series

Product Brochure

High-Performance, 3-Dimensional
Laser Processing Systems



VZ-10

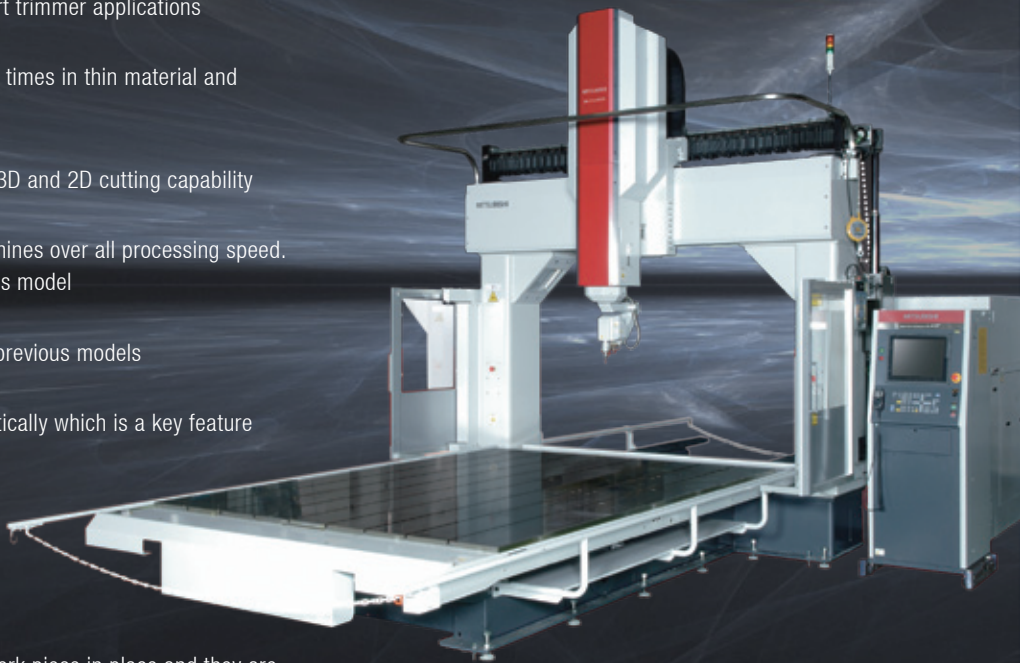
HIGH-PERFORMANCE TOOLS FOR MAXIMUM PRODUCTIVITY

Mitsubishi's VZ Series, 3-dimensional laser cutting systems offer the ultimate in accuracy and flexibility for users across a wide range of complex laser applications. The unique flexibility of these 5- and 6-axis systems, combined with expanded teaching functions and Mitsubishi's superior resonator technology, make them extremely powerful tools. They significantly decrease the time and manpower required to produce complex parts, and provide the greatest degree of accuracy and cost efficiency.



VZ 10 Zero Offset Head Features

- Exceptional performance in preformed part trimmer applications
- 5.0" focal lens provides faster processing times in thin material and reduces the heat affect zone
- Experience greater cutting flexibility with 3D and 2D cutting capability
- Faster axial movement increases the machines over all processing speed. The W/U axis is twice as fast than previous model
- The Z-axis movement is 30% faster than previous models
- H-axis head adapts to part height automatically which is a key feature when processing formed parts
- Independent height control Standard
- Damage Reduction Head Standard
- Work Clamps and Support Pins hold 2D work piece in place and they are easy to install and remove
- Dross Reduction Control combines real-time power ramping with acceleration or deceleration to greatly reduce thermal influence and dross adhesion. The result is a part with little need for post processing deburring.



Remote Start Box (Option)



Work Clamps and Support Pins



Damage Reduction Designed Head



RESONATORS

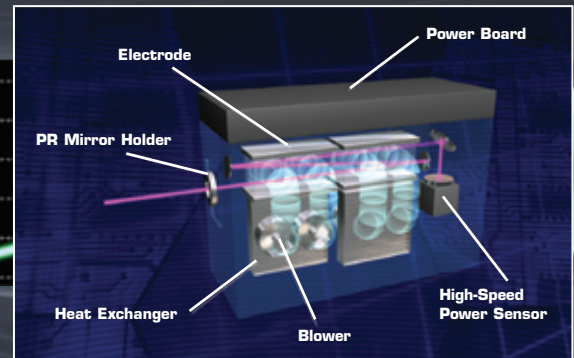
Lowest cost of ownership

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.

MITSUBISHI'S EXCLUSIVE X-FLOW R SERIES RESONATOR

- 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 equal less maintenance
- Improved power supply provides high efficiency, stability, reliability and lower maintenance
- Fast startup – ready to cut at full power only 45 seconds after power on
- Designed and manufactured exclusively by Mitsubishi
- 2.0, 3.0 or 4.0kW resonators available
- Enhanced rectangular wave pulse



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.



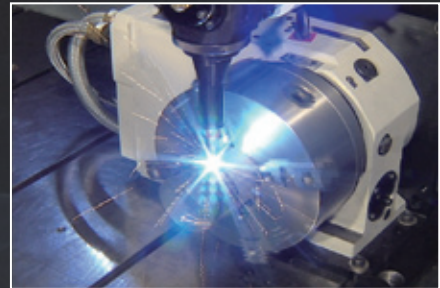
VZ-20

HIGH-PERFORMANCE TOOLS FOR MAXIMUM PRODUCTIVITY

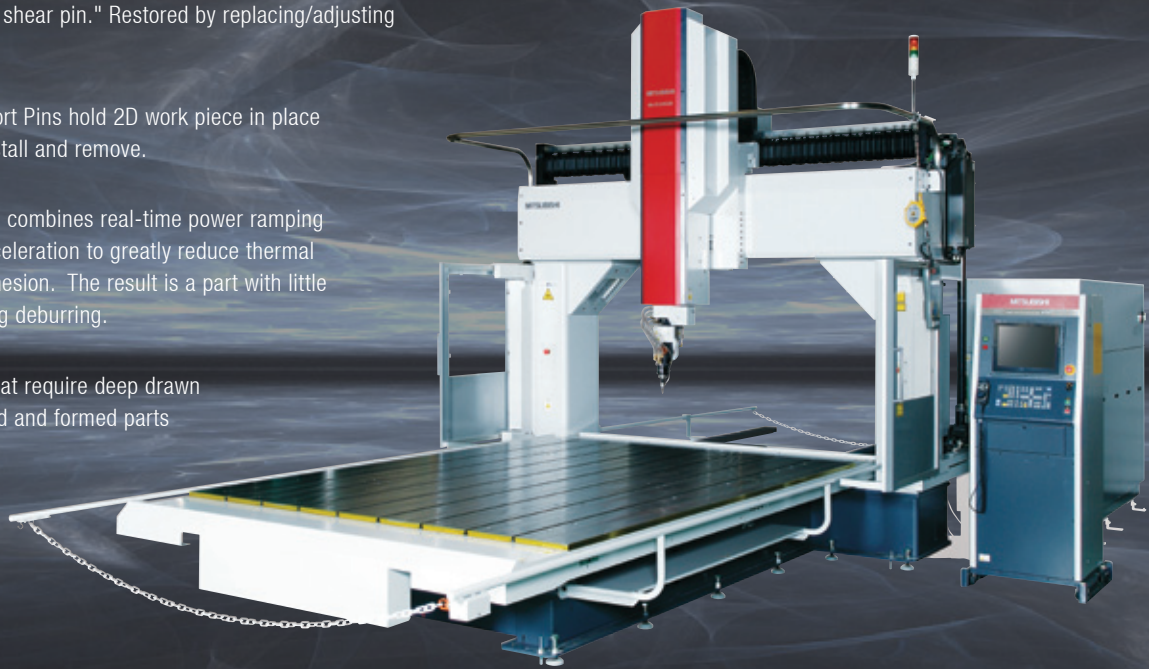
Mitsubishi's VZ Series, 3-dimensional laser cutting systems offer the ultimate in accuracy and flexibility for users across a wide range of complex laser applications. The unique flexibility of these 5- and 6-axis systems, combined with expanded teaching functions and Mitsubishi's superior resonator technology, make them extremely powerful tools. They significantly decrease the time and manpower required to produce complex parts, and provide the greatest degree of accuracy and cost efficiency.

VZ-20 Machine Features

- The Z-axis is 30% faster than the previous model
- New H-axis head option adapts to part height automatically which is a key feature when processing formed parts.
- Damage Reduction Designed Head – Double protection with spring mechanism and shear pin. The spring mechanism reduces an impact with spring-back action. Shape can be restored by hand. Impact is absorbed by "sacrificial shear pin." Restored by replacing/adjusting parts.
- Work Clamps and Support Pins hold 2D work piece in place and they are easy to install and remove.
- Dross Reduction Control combines real-time power ramping with acceleration or deceleration to greatly reduce thermal influence and dross adhesion. The result is a part with little need for post processing deburring.
- Great for applications that require deep drawn workpieces like stamped and formed parts
- 7.5" Focal lens
- Welding head option
- Pivot axis has an option of +/- 135 degrees
- Independent height control



Full 6-axis Rotary option is available



VZ20 Cutting Head

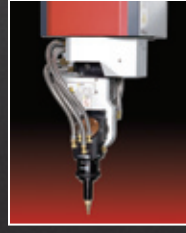


Shield Gas Flow Control



VZ20 Standard Capacitive Head features

- NC Height Control ensures optimum cut quality
- Easy Focus manipulation with hand control dial
- 7.5" focal length lens provides thicker cutting capability and high pressure assist
- Damage Reduction mechanism for easy recovery
- Easy nozzle centering allows for faster setup time and faster cutting



VZ20 Non-Capacitive Head (Standard)

- Slim design for reduced interference to work piece
- Easy Focus manipulation with hand control dial
- 7.5" focal length lens provides thicker cutting capability and high pressure assist
- Easy nozzle centering allows for faster setup time and faster cutting
- Shear pin design for damage reduction during collision



VZ20 Thick Plate Head (Option)

- 2D cutting capability of 0.75" mild steel provides greater application range
- Easy Focus manipulation with hand control dial
- 7.5" focal length lens provides thicker cutting capability and high pressure assist
- Easy nozzle centering allows for faster setup time and faster cutting
- Easy and fast head change



VZ20 Welding Head (Option)

- Slim design for reduced interference to work piece
- 9.2" focal length parabolic mirror
- Window mirror mounted away from welding position
- Shear pin design for damage reduction during collision
- Nozzle centering mechanism
- Easy and fast head exchange



VZ20 H-Axis Capacitive Head (Option)

- Same features as the Standard Capacitive Head
- New H-axis head option adapts to part height automatically which is a key feature when processing formed parts.



New World Class LC30T Mitsubishi Control

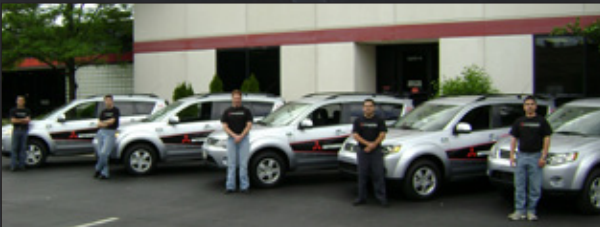
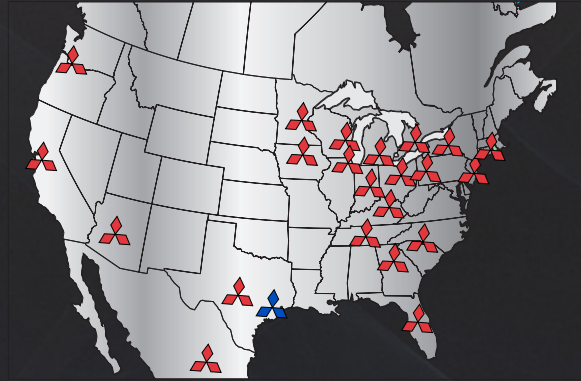
A major key to the enhanced performance of the VZ series is the new LC30T control system. Equipped with a 20 GB hard drive and Windows based high-speed NC. Our advanced PC-based teach pendant using Windows CE, the LC30T gives the user a powerful and easy-to-use interface. The result is maximum speed and flexibility during programming, job setup, or parts cutting.

- The latest M700 Series Mitsubishi control
- Full 6-axis Rotary option is available
- 15" touch screen increases the users ability for easy programming
- Ergonomically designed
- Reduce Setup time
- 20.0 GB Hard Drive
- USB Capable
- Dross Reduction Control
- HP Control – High Precision
- Plasma Guard Control
- Slope Control
- Automatic Speed Setting
- Fast graphics display
- 2D Micro Joint Function

The Industry's Most Responsive Service And Support

With more than 100 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.

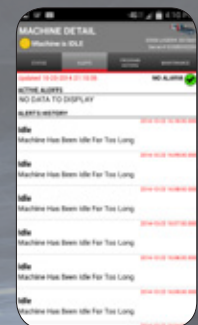
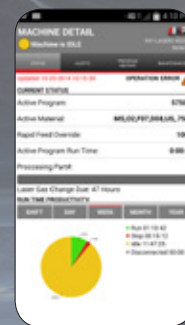
From installation and on-site training to support and service throughout the life of your system, our national service network is just a phone call away. No other company has a greater depth of experience and resources than Mitsubishi and MC Machinery Systems. Access 24/7 support with our interactive website, a detailed interactive parts catalog, printable machine manuals and software.



At MC Machinery Systems our number 1 goal is customer satisfaction. We have invested greatly in our infrastructure to better serve our customer base with a state of the art call center, regional service and support and millions of dollars of parts inventory. Now we are excited to introduce the next generation of service tools from MC Machinery systems, Inc. MC Remote 360. This is a robust production monitoring and support solution geared to provide transparency to your laser cutting process. MC Remote 360 provides real-time data to help increase productivity, improve efficiency, and reduce down time for your MC Remote 360 enabled machine.

MC Remote 360 provides

- End User machine monitoring through web enabled device
- MMS Remote Diagnostics & Fault Monitoring Service
- MMS Remote Support Service



Your MC Remote 360 machine can be monitored from many different devices

- Java based PC dashboard
- Mobile Android devices (V2.3+)
- Mobile Apple devices (iOS V4+)
- Apple Tablets (iOS V4+)
- Android tablets (V2.3+)

As long as a live internet connection is accessible, the machines can be monitored from virtually anywhere.

FABRICATION PRODUCT LINE



RX Series



eX Series



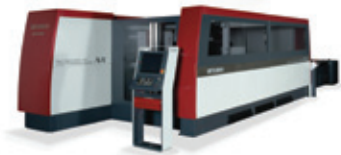
eXS Series



Elite XL Series



NX-F



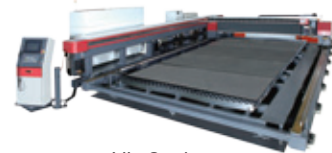
NX Series



Smart XL Series



VZ Series



XL Series



Diamond BB Series



HV Series



Tanaka LMZv



Diamond BH Series



Automation: MSCIII



Tanaka LMRv



Processing Machine Specifications

Model Name		1515VZ10	3122VZ10	1515VZ20	3122VZ20	
Motion drive system design		Precision Ball Screw (X, Y)				
Travel drive method		X, Y, Z, W, U Simultaneous 5 axis		X, Y, Z, A, C, Simultaneous 5 axis		
Max. workpiece size	(inch)	59.8 x 59.8 x 33.4	122.0 x 86.6 x 33.4	36.2 x 36.2 x 21.6	98.4 x 62.9 x 21.6	
	(mm)	1520 x 1520 x 850	3100 x 2200 x 850	920 x 920 x 550	2500 x 1600 x 550	
Work table height		25.6 (650mm)				
Stroke	X-axis stroke	59.8 (1520mm)	122 (3100mm)	59.8 (1520mm)	122 (3100mm)	
	Y-axis stroke	59.8 (1520mm)	86.6 (2200mm)	59.8 (1520mm)	86.6 (2200mm)	
	Z-axis stroke	33.4 (850mm)	33.4 (850mm)	33.4 (850mm)	33.4 (850mm)	
	W-axis stroke	(+/-) 360		NA		
	U-axis stroke	(+/-) 180		NA		
	H-axis (height sensing) stroke	(+/-) 0.39 (+/-) 10mm		(+/-) 0.39 (+/-) 10mm (optional)		
	A-axis stroke	NA		(+/-) 90 (+/-) 135 optional)		
	C-axis stroke	NA		(+/-) 360		
Speed	Rapid travel speed (X, Y)	1772 (2D Program) 45 m/min	1378 (2D Program) 35 m/min	1772 (2D Program) 45 m/min	1378 (2D Program) 35 m/min	
	Rapid travel speed (Z)	1378 (2D Program) 35 m/min				
	Rapid travel speed (W,U or A,C)	360 (3 step setting: 2D program)				
	Max. processing feedrate	1378 (35 m/min)				
	Max. processing feedrate (W,U or A,C)	360				
Precision	Repeatability	(+/-) 0.00059 (X, Y, Z) (+/-) 0.015mm				
Drive motor type		AC Servo				
Max. workpiece weight		1543 (700kg)	4400 (1000 kg)	1543 (700/kg)	4400 (2000 kg)	
Machine unit dimensions (W x H x D)		(inch)	107.6 x 161.4 x 191.7	134.3 x 161.4 x 307.3	107.6 x 151.5 x 191.7	134.3 x 151.5 x 307.3
		(mm)	2732 x 4100 x 4870	3412 x 4100 x 7805	2732 x 3850 x 4870	3412 x 3850 x 7805
Machine system weight		15875 (7200 kg)	20250 (9200 kg)	18080 (8200 kg)	22500 (10,200 kg)	
Applicable resonator		20CF3 or 30CF-R		20CF3 or 40CF-R		

Control System Specifications

Type	Self-contained
CPU	64-bit
Display screen	15" TFT color LCD touch screen
Hard disk	20.0GB
Generator output control	Output Power, Frequency, Duty
Generator operation control	Beam ON/OFF, laser gas change, etc.
Drive system	X, Y, Z, W, U simultaneous control (VZ10) X, Y, Z, A, C simultaneous control (VZ20)
Position detection system	Encoder
Min. command input	.001mm / .0001"
Program input system	USB, Computer link, Ethernet LAN

CO₂ Laser Specifications

Model		20CF3	30CF-R	40CF-R		
Excitation method		3-axis cross flow, silent-discharge				
Performance	Laser power	Maximum output power (W)	2000	3000	4000	
		Rated output power (W)	2000	3000	4000	
	Control method		Power feedback			
	Power stability		Less than ±1% of rated power			
	Beam characteristics		Low-order (main component TEM ₀₁)			
Laser gas	Beam mode	Beam outer diameter (inch)	0.83	1.02		
		Beam divergence (mrad)	Approx. 2.5 or less (total angle)		Approx. 3.5 or less (total angle)	
		Laser gas composition	CO ₂ :CO:N:He			8:4:60:28
Laser gas consumption rate (liter/Hr)		1	3			
Gas sealing time (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)		80.3" x 63.7" x 19.9"		98.4 x 71.3 x 31.5		
		(mm)		2040 x 1620 x 450		2500 x 1810 x 800
Resonator unit weight (lb)		2650 (1200 kg)		4850 (2200 kg)		
Chiller power requirements		20 KVA 3Ø 208 VAC ±10% 60Hz 54 Full Load Amps		42 KVA 3Ø 208 VAC ±10% 60Hz 118 Full Load Amps		



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