

HVII Series

Product Brochure

Hybrid Laser Processing Systems



HVII

THE MITSUBISHI HVII . . . PERFECTLY PRODUCTIVE

The **HVII** continues the tradition of our legendary hybrid series. A workhorse equipped with state-of-the-art technology, it's also one of the easiest to use. The **HVII** series meets the demand and needs of users, and brings unsurpassed performance at the lowest cost of ownership of any machine in its class.

IMPROVED PROCESSING PERFORMANCE

- Advances in processing technology optimize gas flow and beam quality while allowing for exceptional plate processing performance
- Mitsubishi's pioneering Super HP control redefines a hybrid's ability to produce accurate parts in thin, high-speed cutting applications
- DR control combines real-time power ramping with acceleration or deceleration – dramatically reducing dross adhesion and thermal influences

MELS EYE OPTION

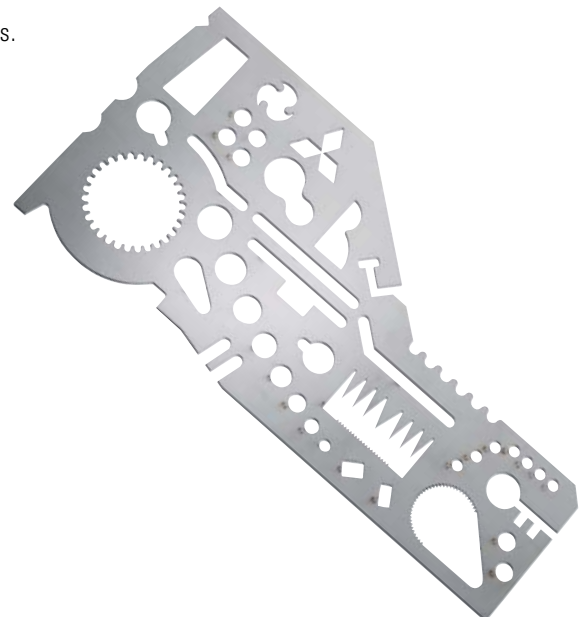
- **Plasma Detection** - detects plasma generated during processing with nitrogen. It senses when too much plasma is present and adjusts speed, enabling continuous processing
- **Pierce detection** - conventional piercing is detected in midrange thickness plates. Compared to previous timer-style piercing control stable piercing is enabled
- **Auto-focus** - with the auto focus preset head, the processing machine automatically finds zero focus.
- **Burn Detection** - is effective while piercing or cutting with oxygen assist gas. When burning is detected, operation will suspend and nozzle cleaning will automatically be implemented to continue processing.

ENHANCED PRODUCTIVITY

- Reduced setup times
- Processing versatility for thin or thick work piece applications
- Reduced de-burring of sheet metal applications
- Intelligent Assist Gas Monitoring, resulting in less scrapped parts
- Automatic Quick-Assist Gas Change function
- Expanded part processing area reduces deadzone from clamping.

COST-EFFECTIVE OPERATION

- Optimal nozzle design reduces running costs
- Long-life part-design for drive system and other components
- Revolutionary "Dual" Cross-Flow resonator (40 CF-R)
- Integrated Maintenance Guide for most maintenance functions





NEW LC30BV MITSUBISHI CONTROL

- New LC30BV Mitsubishi Control simplifies cutting setup and preparation
- A complete database of processing conditions applicable to a wide variety of cutting
- High speed z axis height sensing and latest pierce technology drastically reduce cutting time



- 15" Touch Screen Control
- 1.2GHz, 20GB hard drive
- USB port, Ethernet
- New Interface
- High Speed Graphics
- Help Screens



PROVEN PERFORMANCE

Mitsubishi is the single-source engineering force behind every component of a Mitsubishi Laser System – delivering superior reliability, stability and performance. With more than 1,500 machines located throughout North America, not one Mitsubishi Laser resonator has ever needed to be replaced, eliminating a costly repair encountered with other machines throughout the industry.

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

On the new HVIIIP model, Mitsubishi adds a pallet changer to the HVII machine, increasing operator productivity by optimizing cutting time. The pallet changer provides two processing tables that can be interchanged into the processing area, decreasing downtime between cutting.



CUSTOMIZE TO FIT YOUR NEEDS WITH THESE OPTIONS



Static-type Automatic Focus Preset Processing Head:

NC-commands exercise automatic control over focal position, eliminating the need to manually adjust the processing lens upon changes in the material being processed.



Enhanced processing capability for the 40CF-R resonator:

Adapting the f254mm (f10.0") focal length lens has improved stainless steel non-oxidized cutting capability, quality and stability. This option increases the stability of processing thick materials.



Chip Conveyor:

Carries chips falling from processing table outside of the processing machine, improving chip disposal efficiency during continuous operation.



NC Turntable:

Add another axis, the 4 jaw chuck allows for round or square pipe processing.



Contact Height Sensor:

Simple contact type height sensor enables the processing of non-metal materials such as plastics and woods.

RESONATORS

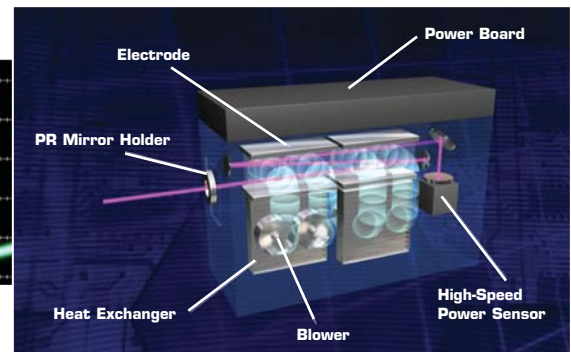
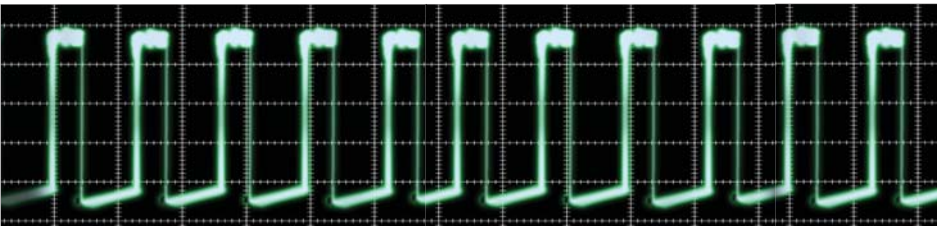
Lowest cost of ownership

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
2KW Consumes only 1 Liter of Laser gas per hour.
- 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”

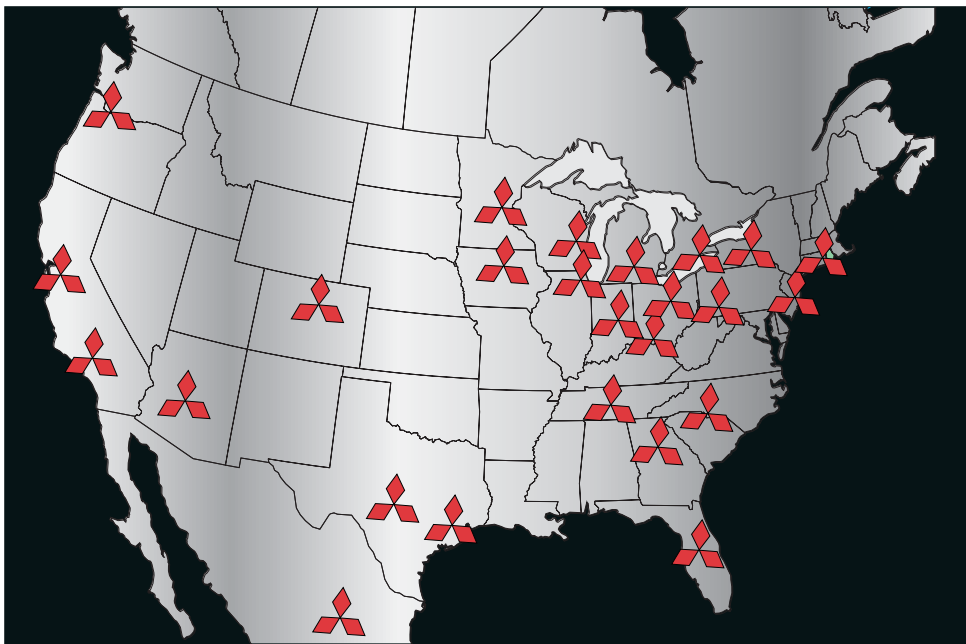
Output power alone does not define cutting performance or cut edge quality. It takes superior “cutting power” to achieve high-performance results. Cutting power is optimized by creating the perfect blend of output power, beam quality, beam stability and power control. The results are visible through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

THE INDUSTRY'S MOST RESPONSIVE SERVICE AND SUPPORT

When you choose a Press Brake from MC Machinery Systems, Inc., you get industry-leading technology for peak bending performance - but that's just the beginning.

Long before your purchase, you'll know the difference the Mitsubishi Experience can make. Our field service managers and applications engineers have technical expertise and industry-specific knowledge, combined with MC Machinery's wide array of machine tools and modular automation options. This potent combination gives the flexibility to deliver a custom system designed to make your business its most efficient and competitive.

From installation and on-site training to support and service to keep you running at peak performance throughout the life of your system, our national service network is just a phone call away. No other company has greater depth of experience and resources than Mitsubishi and MC Machinery Systems Inc.



FABRICATION PRODUCT LINE

PRESS BRAKE



Diamond Ultra Series



Diamond Elite Series



Diamond Smart Series



BE Series



BH Series



LASER



LVPlus Series



VZ Series



NX Series



HV Series



Automation: MCSIII



WATERJET



DX 44s



DX 510



DX 612



Item		Specifications	
Model name		2512HVII	3015HVII
Movement method		Hybrid type (X axis = table movement; Y axis = beam movement)	
Control method		X-Y-Z simultaneous 3-axis control (Z axis height control also possible)	
Target workpiece dimensions ¹ (mm)		96.06 x 48.03 (2440 x 1220 mm)	120.05 x 60.04 (3050 x 1525 mm)
Work Table Height (mm)		33.5" (850 mm)	
Stroke	X axis ² (mm)	98.42 (2500 mm)	122.04 (3100 mm)
	Y axis (mm)	49.2 (1250 mm)	61.02 (1550 mm)
	Z axis (mm)	11.8 (300 mm)	
Speed	Rapid feed rate (in./min) X,Y	Maximum 1968 (100%, arbitrary, 10% 3-step setup) (Arbitrary: Setting from 0-100% possible)	
	Rapid Seed Z axis (m/min)	2560 (65m/min)	
	Processing feed rate (in./min)	1181 (30m/min)	
Accuracy	Positioning accuracy ³ (mm)	0.00039/20 (X, Y axis), .0039/4 (Z axis)	
	Repeatability accuracy ³ (mm)	±0.00019 (X, Y axes)	
Drive Motor Type		AC Servo	
Max workpiece weight with 40 CF-R (lb)		1320 (600 kg)	2050lb 930kg (with 40CF-R)
Machine unit Dimensions (W x H x D)		246.3 x 87.7 x 108.6 (6255 x 2230 x 2758 mm)	323.0 x 87.7 x 120.8 (8200 x 2230 x 3058 mm)
Applicable resonator		20CF3 • 30CF-R • 40CF-R	
Machine System Weight (1lb)		19400 (20CF3) 21605 (40CF-R)	23810 (20CF3) 26018 (40CF-R)

*1: Target workpiece dimensions indicate work lifter capacity. Processing ability will vary by the resonator selected.

*2: Processing sphere is the stroke figure without parentheses. "(+5.90)" is possible only for work conveyance and maintenance use.

*3: Accuracy values indicate processing machine mechanical accuracy, and differ from cut workpiece accuracy (processing accuracy). Processing accuracy will vary by materials, plate thickness, processing speed and other factors.

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 simultaneous control
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
		Rated output power (W)	2000	3000
	Control method			
	Power feedback			
	Less than ±1% of rated power			
Laser characteristics	Power stability			
	Low-order (main component TEM ₀₀)			
	Beam mode	Low-order (main component TEM ₀₀)		
Laser gas	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		
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		24 KVA 3Ø 208 VAC ±10% 60Hz 65 Full Load Amps		42 KVA 3Ø 208 VAC ±10% 60Hz 129 Full Load Amps



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