MITSUBISHI ELECTRIC

Changes for the Better

for a greener tomorrow eco Changes

Mitsubishi CO_2 2-Dimensional Laser Processing Systems HV2-R Series

HV2-R

BREAKTHROUGH INNOVATION

Advanced processing performance and high value added processing

HV2-R Series

Enhanced processing performance and improved productivity

Low operating cost

Flexible on-site processing

Achievement of high value added processing

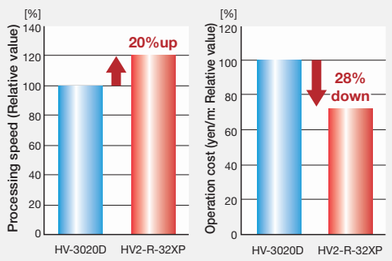
Enhanced processing capability and improved productivity

Selectable new resonator of ML32XP, ML45CF-R.
Significant improvement of processing performance and productivity as well as shorter pierce time by new processing head.

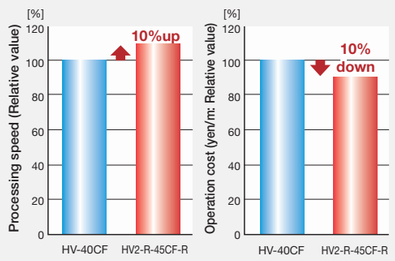
Low operating cost

Reduces the operating cost by up to 28% during nitrogen cutting. (*1)
ECO mode function reduces the cost during standby by up to 99%. (*2)

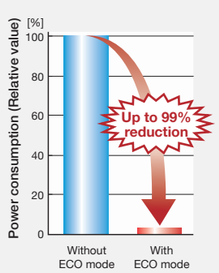
SUS304 t3mm, Assist gas: Nitrogen



SS400 t12mm, Assist gas: Oxygen



ECO mode



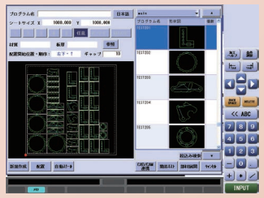
*: 1 Equipped with ML32XP, cutting of SUS t3mm *2: Equipped with ML45CF-R

Flexible on-site processing

Reflects data from on-site onto control unit. Achieves easy nesting, high quality processing of protected sheet metal, offcut cutting by easy operation of NC display.

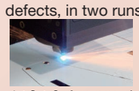
Easy nesting

Allows for rectangular nesting at the laser's NC control to meet urgent needs for additional parts.



Double cut function

Allows high quality processing of poor quality material and protected sheet metal, which often causes cutting defects, in two runs.


1st Cut: Surface removal

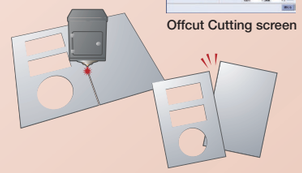

2nd Cut: Main processing


Sample using the double-cut function

Offcut Cutting

Easily cut offcuts into several pieces by using the Offcut Cutting screen.


Offcut Cutting screen



Achievement of high value added processing

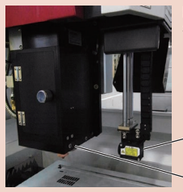
Large diameter NC turn table (*3), high precision positioning function (*3), Brilliantcut (*4) achieve expansion of processable range and high value added processing.

Larger diameter NC turn table (option)

Capable to chuck square pipe of max. 150mm. Pipe support enables processing of long pipes.

High precision positioning function (option)

Positions the hole processed by punch press. Combined processing of laser and punch press is achieved.



*3: Optional *4: Equipped with ML45CF-R

Optional Features

Model name		HV2-R		
		ML20XF	ML32XP	ML45CF-R
Processing Machine	f127mm (f5.0") lens	√		
	f254mm (f10.0") lens	–	√	
	Magnetic damage reduction mechanism	√		
	Processing lens monitor	√		Standard
	Fine pierce	√ (*1) (*2) (*3)		
	Oil spray	√ (*1) (*3)		
	Beam optimaization unit	–		Standard
	High pressure Gas NC control	√		Standard
	High pressure Air specification	√ (Including above)		Standard
	X aixs work clamp	√		
	Processing table (work support specification)	√		
	NC turn table	√ (*1)		
	Larger diameter NC turn table	√ (*1)		
	Pipe support for NC turn table	√		
	Pipe support for NC turn table (Disk type)	√		
	Pilot pin	√		
	High precision positioning function	√ (*3)		
	Chip conveyor	√ (*2)		
	Foot switch (for work clamp)	√		
Control systems	Network connection unit	Standard		
	Network down load function	√		
	Barcode reader	√		
	Addition of external I/O	√		
Solution	Cam Magic LA (For LASER CAD/CAM)	√		
	Linked nesting	√		
	Linked DXF conversion	√		
	Linked e-mail notification additional features	√		
	Alarm notification	√		
	Production management support	√		

*1: When NC turn table or larger diameter NC turn table is installed, oil spray function and fine pierce cannot be installed at the same time.
*2: When Fine pierce is installed, Chip conveyor cannot be installed at the same time.
*3: When High precision positioning function is installed, Fine pierce and oil spray function cannot be installed at the same time.

Processing capability

Resonator	Materials	Assist gas	Thickness (mm) 2 4 6 8 10 12 14 16 18 20 22 24 26
ML45CF-R	Mild Steel (SS400)	Oxygen	
	Stainless steel (SUS304)	Nitrogen	
		High pressure Nitrogen	When using f190.5mm (f7.5") lens
			When using f254mm (f10") lens*
	Aluminum alloy (A5052)	Air	
		High-pressure air	
		High pressure Nitrogen	
ML32XP	Mild Steel (SS400)	Oxygen	
	Stainless steel (SUS304)	Nitrogen	
		High pressure Nitrogen*	When using f190.5mm (f7.5") lens
			When using f254mm (f10") lens*
	Aluminum alloy (A5052)	Air	
		High-pressure air*	
		High pressure Nitrogen*	When using f190.5mm (f7.5") lens
			When using f254mm (f10") lens*
ML20XF	Mild Steel (SS400)	Oxygen	
	Stainless steel (SUS304)	Nitrogen	
		High pressure Nitrogen*	
	Aluminum alloy (A5052)	Air	
		High-pressure air*	
		High pressure Nitrogen*	

*The above are processing capabilities based on special conditions. The acceptance criteria are as stated in the specifications.
*The actual performance/quality may vary depending on the surface condition and deviation in the material composition even if materials are of the same specifications.
*Variations in processing performance /quality may occur depending on the party geometry.

*Regarding mild steel (SS400) with a thickness over t19mm, capacities listed in this catalog are based on LS material (steel plate for laser cutting) of Chubu Steel Plate Co.,Ltd.
*Optional

Processing machine specifications

Model name			ML2512HV2-R	ML3015HV2-R
Drive system			Hybrid type (X axis: Table movement, Z axis: beam movement)	
Control system			X-Y-Z simultaneous 3-axes (Z-axis height control is also possible)	
Dimensions and Performance	Target workpiece dimensions (mm)		2440 x 1220	3050 x 1525
	Table pass hegiht (mm)		850	
	Stroke	X, Y, Z axis (mm)	2500 x 1250 x 300	3100 x 1550 x 300
	Speed	Rapid travel speed (m/min)	Maximum 50 (X, Y axis)	
		Processing travel speed (m/min)	Maximum 30	
	Accuracy	Positioning accuracy (mm)	0.01/500 (X, Y axis), 0.01/100 (Z axis)	
		Repeatability (mm)	±0.005 (X, Y axis)	
	Processing head		Auto focus preset head PH-XS	
Applicable resonator			ML20XF, ML32XP, ML45CF-R	
Power requirement (kVA)			6	
Weight (kg) Machine weight (excluding resonator)			Approx. 7600	Approx. 9600

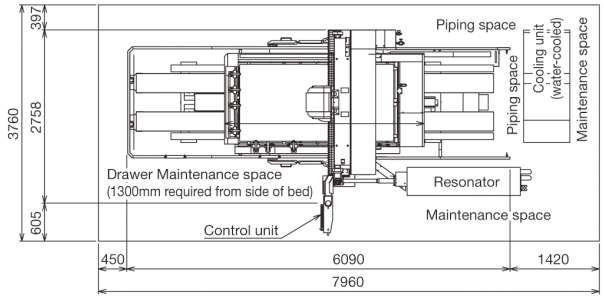
Resonator specifications

Model name		ML20XF	ML32XP	ML45CF-R
Excitation method		3-axis SD excitation cross gas flow		
Laser output characteristics	Pulse peak power (W)	3000	3200	5000
	Rate output (W)	2000	2700	4500
	Beam mode	Lower order (TEM01*main components)		
	Power stability (%)	±1 or less during power control(relative to rated output)		
	Output variation (%)	0 to 100		
Laser gas composition		CO2:CO:N2:He = 8:4:60:28		
Laser gas consumption (ℓ/hr)		Approx. 1		Approx. 3
Power input (resonator main unit) (kVA)		33	41	69
External dimensions (mm)		2040 x 450 x 1620		2500 x 800 x 1811
Weight (resonator main unit) (kg)		Approx. 1200		Approx. 2200

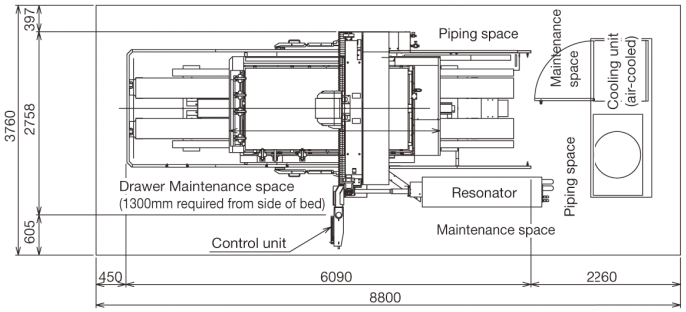
Cooling system specifications

Applicable resonator		ML20XF	ML32XP	ML45CF-R
Water cooling system	Model name	LCU10WIX	–	LCU20WIX
	Power input (cooling unit) (kVA)	18		32
	External dimensions (mm)	1790 x 735 x 1722		2350 x 735 x 1722
	Weight (cooling unit) (kg)	Approx. 800		Approx. 1000
Air cooling system	Model name	LCU10AIX	LCU15AIX	LCU20AIX
	Power input (cooling unit) (kVA)	20	21	40
	External dimensions (mm)	1970 x 1010 x 2027	2390 x 934 x 1772	2980 x 1010 x 2027
	Weight (cooling unit) (kg)	Approx. 800	Approx. 850	Approx. 1100

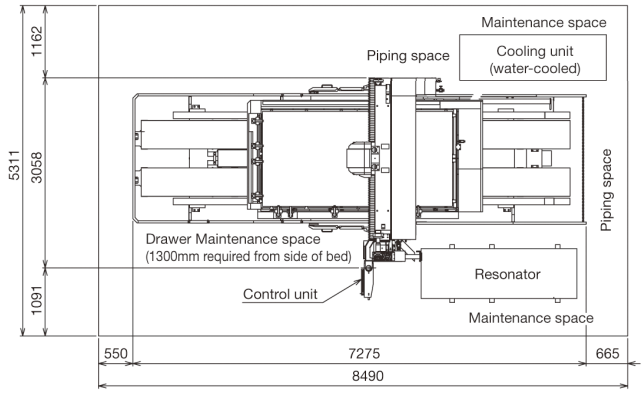
Standard Layout



ML2512HV2-R-20XF (water-cooled) (Maximum height: 2350mm)



ML2512HV2-R-32XP (air-cooled) (Maximum height: 2350mm)



ML3015HV2-R-45CF-R (water-cooled) (Maximum height: 2350mm)

⚠ Safety Warning

To ensure proper use of the products listed in this catalog.
please be sure to read the instruction manual prior to use.

MITSUBISHI ELECTRIC CORPORATION

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* Not all models are supported for all countries and regions.
* Machine specifications differ according to the country and region, so please check with your dealer.
* Processing data provided in this brochure is for reference only.

Mitsubishi Electric Corporation Nagoya Works is a factory certified for ISO14001 (standards for environmental management systems) and ISO9001(standards for quality assurance management systems)

EC97J1113 051

ISO 9001 BUREAU VERITAS Certification

L(NA)-13080ENG 1309 Printed in Japan (MEE)

Revised publication, effective Sep. 2013.
Specifications are subject to change without notice.