Processing Machine Specifications

Model name				ML4020RX
Drive system				Flying optic method (3 axes optical transfer)
Control system				3 axes simultaneously (Z-axis height control possible)
Performance specifications	Workpiece dimensions (mm)			(X)4,050 × (Y)2,060
	Built-in pallet weight (kg)			Approx.1,650
	Work support height (mm)			880
	Stroke	X-axis (mm)		4,100
		Y-axis (mm)		2,100
		Z-axis (mm)		150
	Speed	Rapid feedrate	XY-axis (m/min)	Maximum 100
			Z-axis (m/min)	Maximum 65
		Max. processing feedrate (m/min)		50
	Accuracy	Positioning accuracy	XY-axis (mm)	0.05/500
			Z-axis (mm)	0.1/100
		Repeatability		±0.01
	Processing head			Auto-focus preset processing head PH-XS
Applicable oscillator				ML45CF-R, ML60XF
Power requirement (processing machine) (kVA)				8
Weight (kg)	Processing Machine (excluding oscillator)			Approx.12,000
	Pallet changer			Approx.4,000

Oscillator Specifications

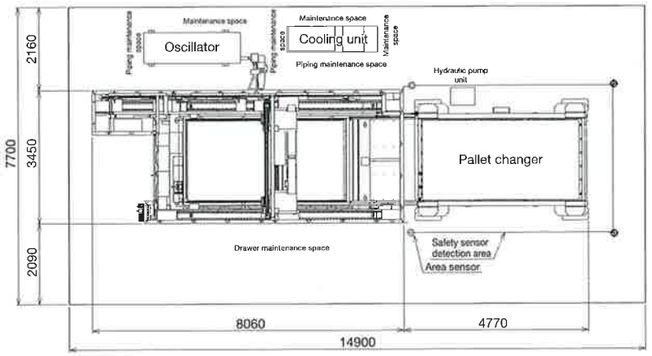
Model name		ML45CF-R	ML60XF
Excitation system		3-axis cross flow SD excitation	
Laser output characteristics	Pulse peak power (W)	5,000	7,000
	Rated output (W)	4,500	6,000
	Beam mode	Lower order (TEM01*Main components)	
	Power stability (%)	±1 or less during power control (relative to rated output)	
	Output power adjustable range (%)	0 to 100	
Laser gas composition		CO2:CO:N2:He = 8:4:60:28	
Laser gas consumption (ℓ/hr)		Approx.3	Approx.3
Power requirement (oscillator) (kVA)		69	90
External dimensions (mm)		2,500 × 800 × 1,810	2,600 × 800 × 1,960
Weight (kg)		Approx.2,200	Approx.2,250
Standard features		Beam shutter, Visible laser, High-speed power sensor	

Cooling unit Specifications

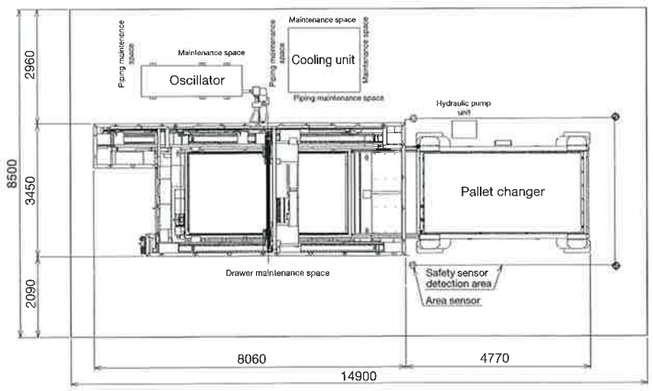
Applicable oscillator		ML45CF-R	ML60XF
Water cooling system	Model name	LCU20WIX	LCU30WIX
	Power requirement (kVA)	25	51
	External dimensions (mm)	2,350 × 735 × 1,720	1,852 × 1,670 × 1,720
	Weight (kg)	Approx.1,000	Approx.1,300
Air cooling system	Model name	LCU20AIX	LCU30AIX
	Power requirement (kVA)	40	64
	External dimensions (mm)	2,980 × 1,010 × 2,027	3,990 × 1,010 × 2,027
	Weight (kg)	Approx.1,100	Approx.1,500

Standard layout

ML4020RX-45CF-R (Water-cooled)



ML4020RX-60XF (Water-cooled)



MITSUBISHI ELECTRIC CORPORATION

HEAD OFFICE: TOKYO BLDG., 2-7-3, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN
NAGOYA WORKS: 1-14, YADA-MINAMI, 5-CHOME, HIGASHI-KU, NAGOYA 461-8670, JAPAN

* 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)

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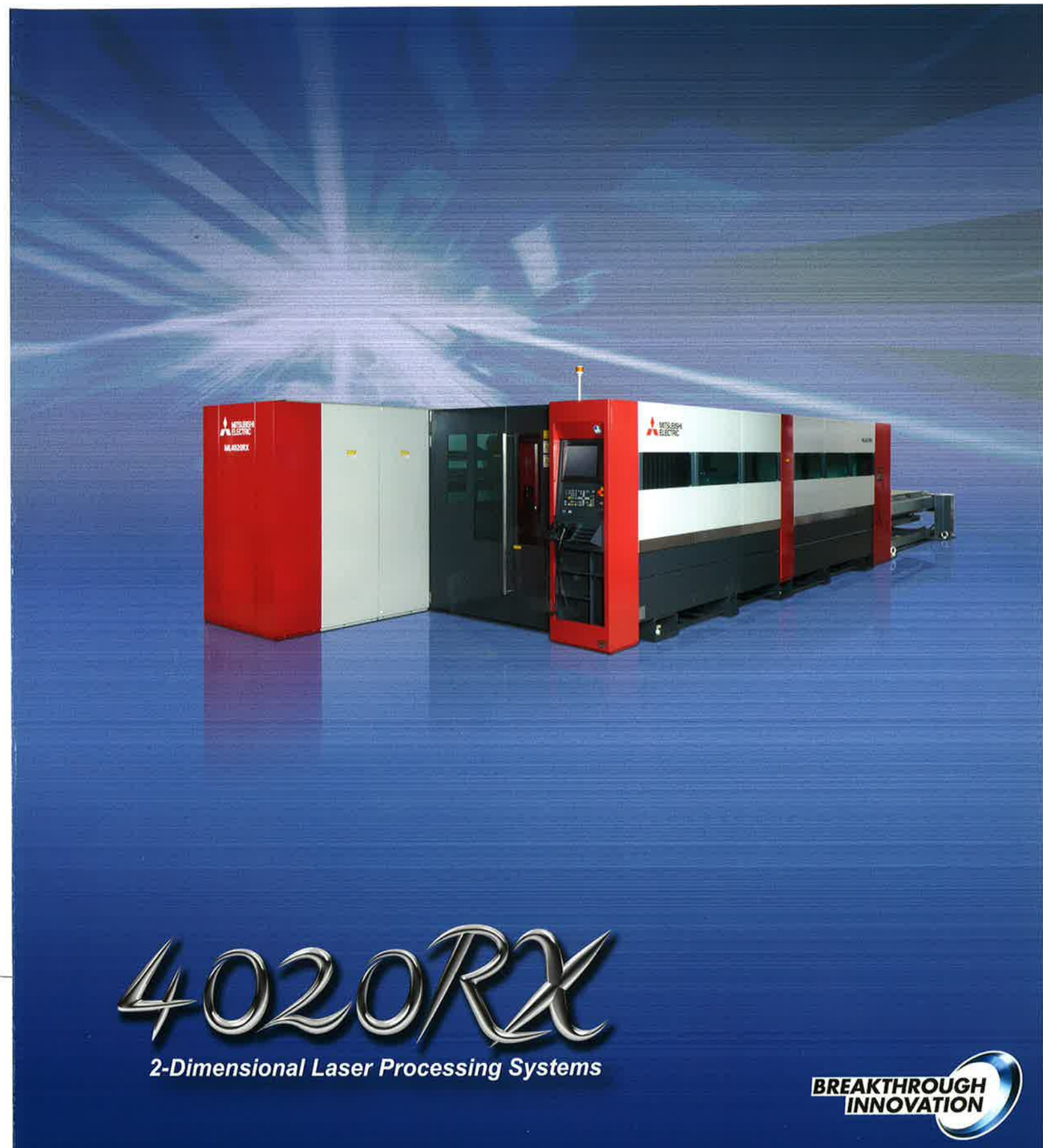
Specifications are subject to change without notice.

MITSUBISHI ELECTRIC
Changes for the Better

for a greener tomorrow

CO_2 2-Dimensional Laser Processing Systems
ML4020RX Series



New series corresponding to 4m x 2m worksize!!

4020RX

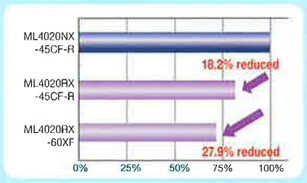
Reliable
Refined
Revolution

Improved productivity

- Shorter piercing time by new blow pierce
- Improved processing stability by FAB control
- Short processing time of thin plate by F-CUT

High peak pierce

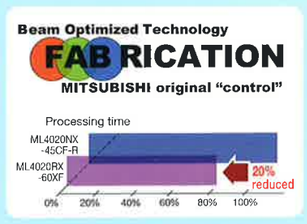
In mild steel up to t25mm, controlling the oxidation reaction and optimizing beam quality realize small diameter piercing in a short time.



[Processing shape]
Material/Thickness: SS400 t16mm
Assist gas: Oxygen
Processing time on 4020RX as compared to previous model which is taken as 100%.

FAB control

Mitsubishi's original "FAB control" reinforces processing stability.

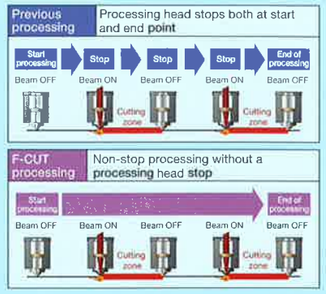


Material: Mild steel t16mm Processing time on 4020RX as compared to previous model which is taken as 100%.

*Processing time when used with high peak pierce

F-Cut

High-speed communication of oscillator and control unit controls the beam ON/OFF without axis stop and reduces the processing time.

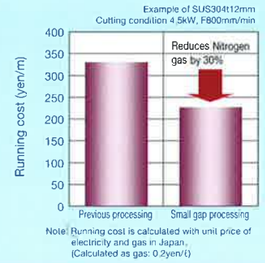


Low operating cost

- Small gap processing reduces the assist gas consumption
- ECO mode function reduces the cost during standby
- New clean technology increases the resistance of optical parts

Low assist gas cost

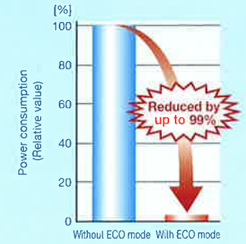
Small gap processing (Nitrogen cutting) reduces the operating cost by approx.30%.



Note: Running cost is calculated with unit price of electricity and gas in Japan.
(Calculated as gas: 0.2yen/ℓ)

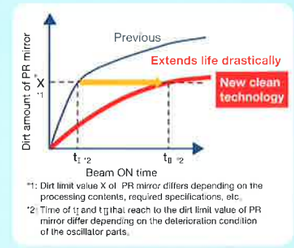
Low power consumption

ECO mode function reduces the power consumption during standby by up to 99%.



New clean technology

Enhanced clean technology extends the life of the PR mirror drastically.



*1: Dirt limit value X of PR mirror differs depending on the processing contents, required specifications, etc.
*2: Time of t_I and t_{II} that reach to the dirt limit value of PR mirror differ depending on the deterioration condition of the oscillator parts.

Flexible on-site processing

- Easy nesting allows quick on-site response
- Double-cut function allows high quality processing of protected sheet metal
- Offcut Cutting function easily cut offcuts. High material yield rate is achieved

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 cutting of poor quality material and protected sheet metal, which often causes cutting defects, in tow runs.

1st cut: Surface removal
2nd cut: Main processing

Sample using the double-cut feature

Offcut Cutting

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

Offcut Cutting screen

Optional Features

Options		ML4020RX ML45CF-R	ML4020RX ML60XF
Processing machine	f127mm (f5.0") lens	√	Standard
	f254mm (f10.0") lens	√	Standard
	Oil spray	√	√
	High Peak Pierce (Oil spray + side nozzle)	√	√
	Fine pierce	√	√
	Magnetic damage reduction mechanism	√	√
	Automation pack (Magnetic damage reduction mechanism + nozzle changer)	√	√
	Y axis work clamp	√	√
	Work lifter	√	√
	Barcode reader	√	√
Control unit	Network download	√	√
Solutions	LA series (CAD/CAM exclusively for lasers)	√	√
	Linked nesting	√	√
	Linked DXF conversion	√	√
	Linked e-mail notification extended function	√	√
	RemoteMagic (Alarm notification)	√	√
	BANKIN Navigator (Production management support)	√	√

Processing capability

Oscillator	Material	Assist gas	Thickness (mm) 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30
ML45CF-R	Mild steel (SS400)	Oxygen	
	Stainless steel (SUS304)	Nitrogen	*When using f254mm (f10") lens
	Aluminum alloy (A5052)	Air	
		Nitrogen	*When using f254mm (f10") lens
ML60XF	Mild steel (SS400)	Nitrogen	
	Stainless steel (SUS304)	Nitrogen	*When using f254mm (f10") lens
	Aluminum alloy (A5052)	Air	
		Nitrogen	*When using f254mm (f10") lens

*Optional

*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 part 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.