

muratec

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**FIBER LASER
LS 3015 GC**

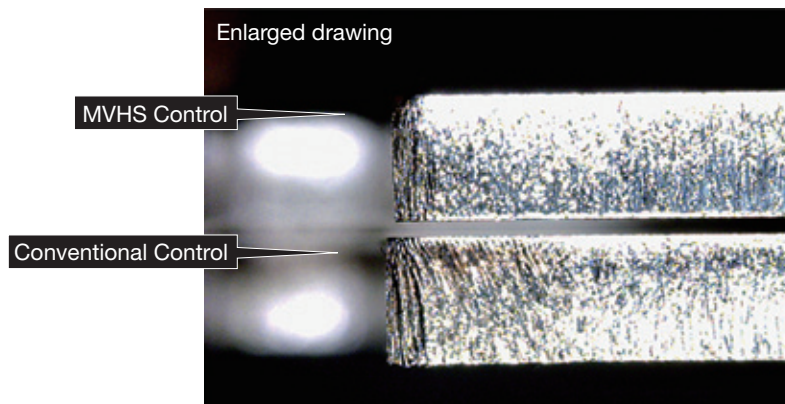


MAINTAINS HIGH QUALITY, ACCURACY, AND PRODUCTIVITY WITH



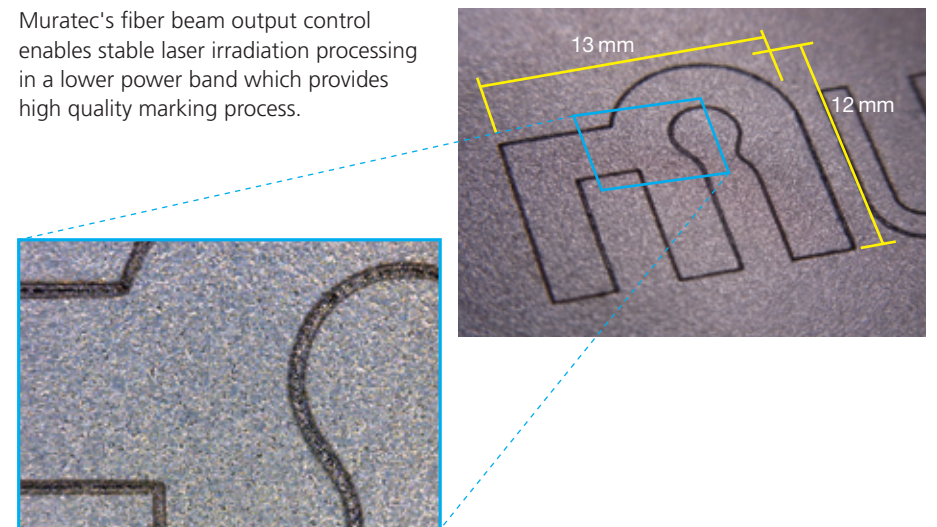
MVHS control (Microcomputer Control by Variety of High Speed Outputs)

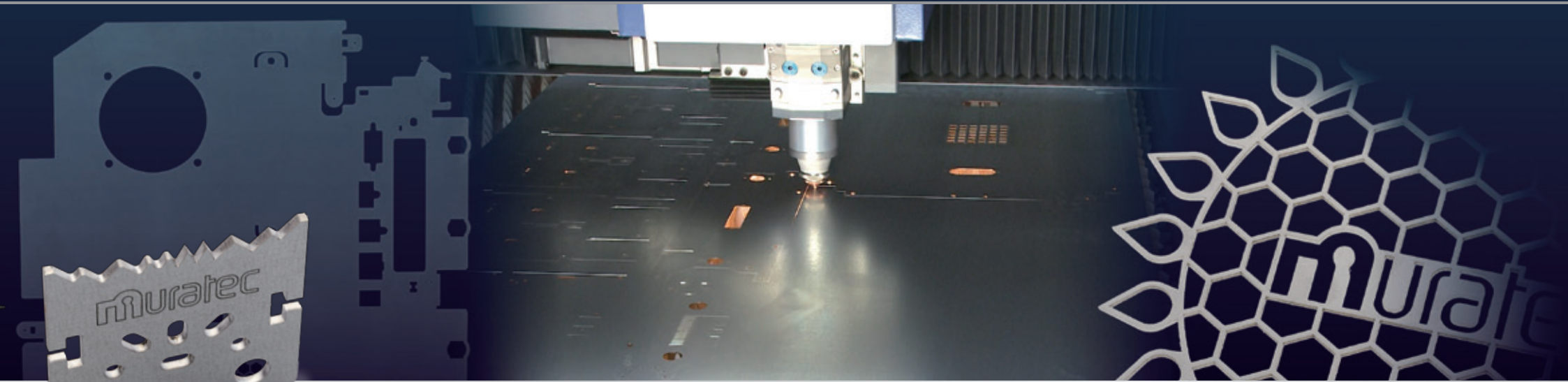
The Muratec designed laser output control system MVHS can adjust within milliseconds acceleration and deceleration commands, which enables smooth pulse output to realize high quality cutting.



Laser Marking Process

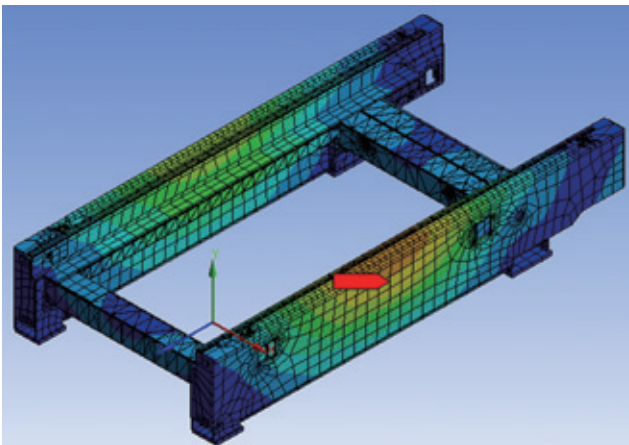
Muratec's fiber beam output control enables stable laser irradiation processing in a lower power band which provides high quality marking process.





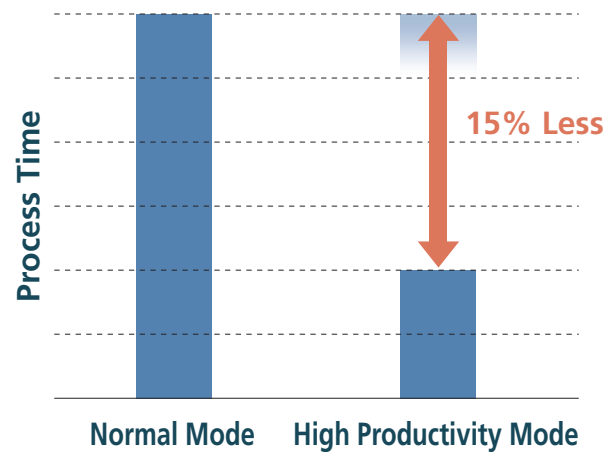
High Rigidity Frame

Rigid frame design for more stability resulting in higher edge quality.



Mode Selection

Options for higher production, standard quality.



*Tested based on our standard sample part (SUS304 1.0 mm)

Small Foot Print

Compact machine design with less space.

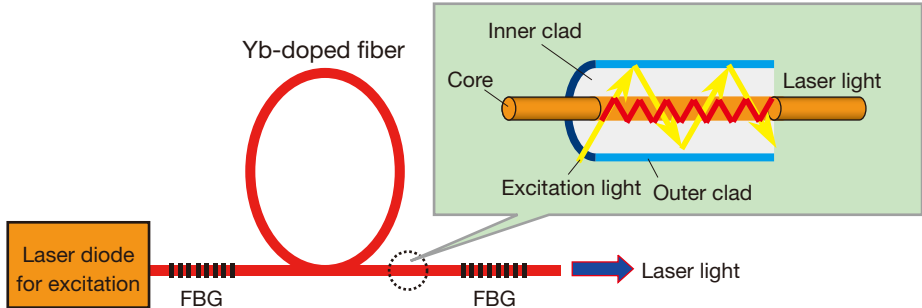


Principles and Characteristics of Fiber Laser

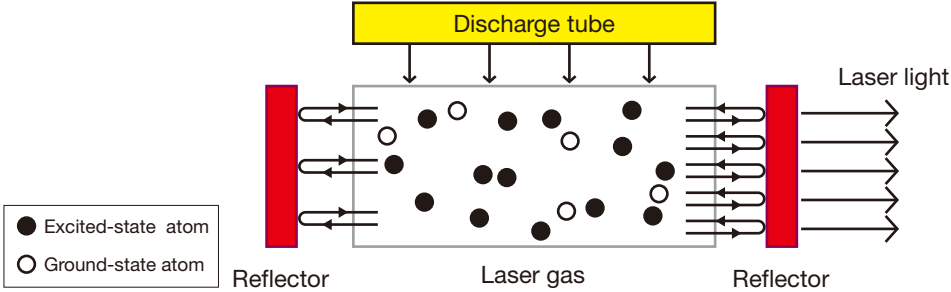
Laser Medium and Excitation Method

Fiber lasers are created using active optical fibers and semiconductor diodes. The laser beam is emitted by way of an armored, flexible, fiber optic cable. Amplification is achieved without the use of reflective mirrors and lenses. Therefore, optical misalignment due to thermal or mechanical influence is virtually eliminated.

Fiber Laser Beam Generation Method



CO₂ Laser Beam Generation Method

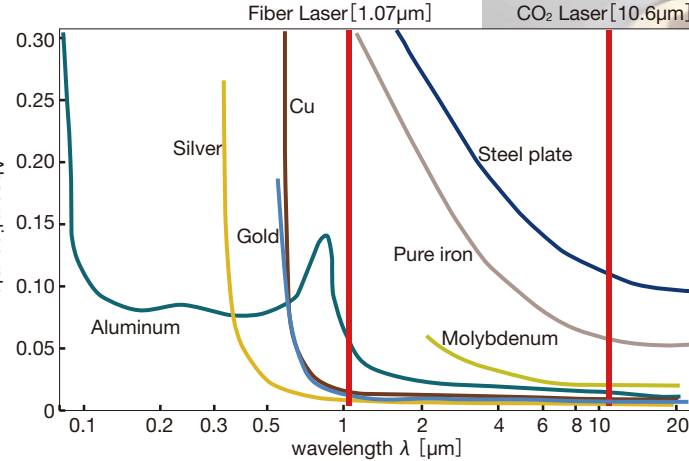
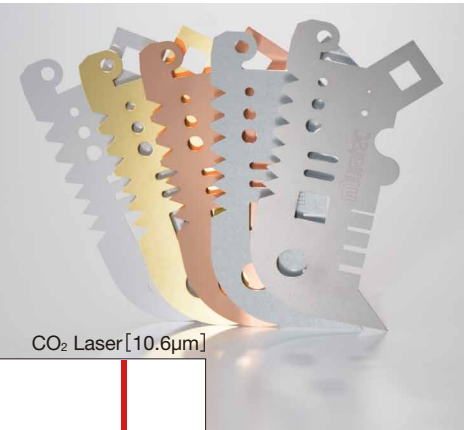


Fiber Laser Resonator by IPG Photonics

IPG is the world leader in the production of fiber laser resonators and amplifiers. By incorporating manufacturing processes that surpass the Bellcor standards for electrical components IPG products offer the the highest quality and reliability.

Material Absorption Properties of Fiber Laser

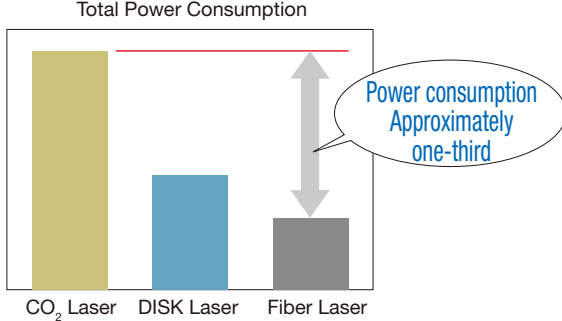
The fiber lasers short wavelength beam enhances the ability to process highly reflective materials such as Copper and Aluminum.



The wavelength of fiber laser is 1/10th that of CO₂ lasers. This difference greatly improves the absorption rate when processing reflective materials.

Low Power Consumption

The fiber laser resonator has a lower power consumption and a superior light conversion efficiency when compared to conventional CO₂ lasers. This efficiency allows for the use of a smaller chiller which in turn reduces the power consumption by approximately one third when compared to CO₂ lasers.



Power consumption Approximately one-third

Cutting Quality by Muratec's Hardware & Software.

In order to respond to the quality demanded by global customers, Muratec's original technology combined by hardware & software achieves stable and reproducible manufacturing of high quality parts.



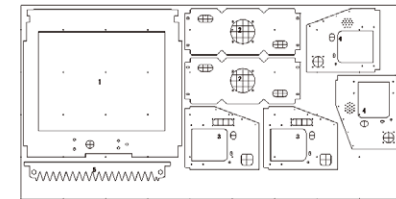
Master Fiber Laser

Automatic programming system **CAMPATH G4 Advanced**

CAMPATH G4 Advanced generates process data to achieve stable & high quality cutting thanks to the help of CAD & CAM functions that reduces an operator's intervention. Furthermore, we have standardized the Schedule transfer function using the machine's network connection resulting in higher levels of productivity.

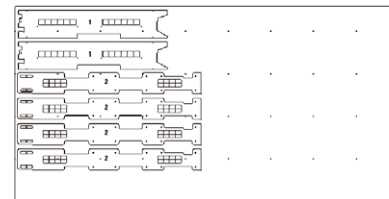
Common Line Cutting by Batch Process

Common line cutting on the perimeter of two parts achieves multiple benefits during parts production. It produces a higher material yield resulting in decreased material costs and improves overall production time.

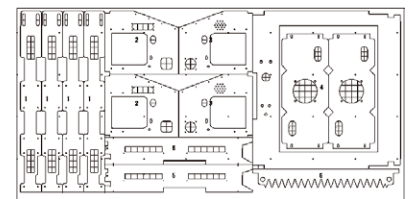


Yield 70%

Two material sheets processing is consolidated into one sheet processing.

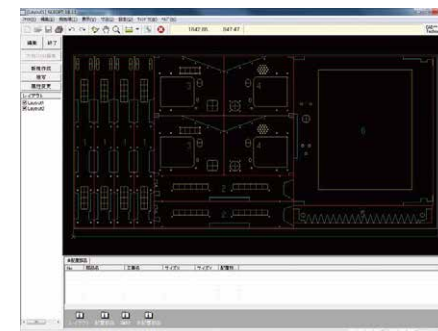


Yield 27%



Yield 90%

Programming for Common line cutting was done by manual adjustment. Campath can automatically recognize this condition during a batch process and improve the efficiency of the programmer and resulting production.



Reducing total processing time for generating programs.

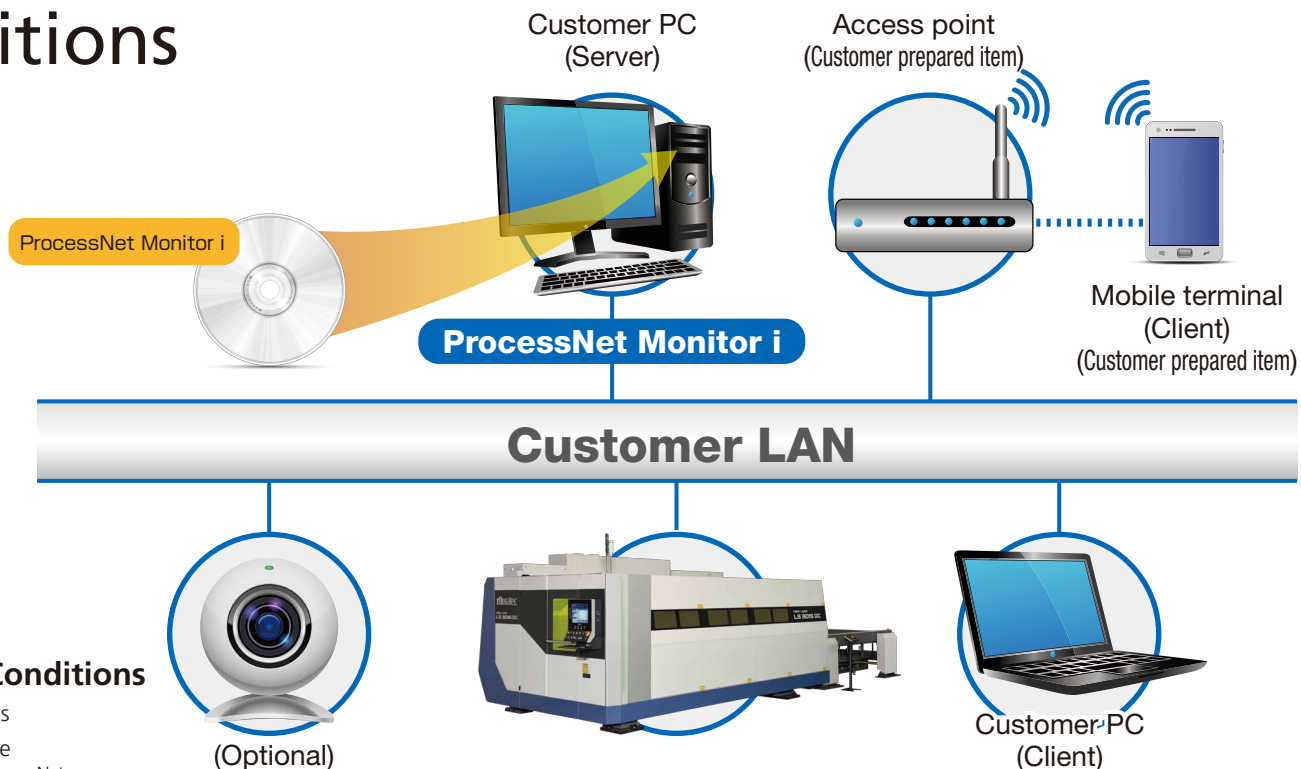
Manual Process : 6m 40s

Batch Process : 2m 20s

Obtain Operating Conditions

ProcessNet Monitor i

The software system monitors the equipment state and the power consumption. The information can be obtained remotely from a PC connected to the systems network. The software provides data that can be used to improve productivity as well as cost analysis.



Display of Current Machine Conditions

The system software will display the machines current state of processing including flow rate and power consumption. Additionally video can be used to monitor the laser operation in real-time. (Optional camera installation required)

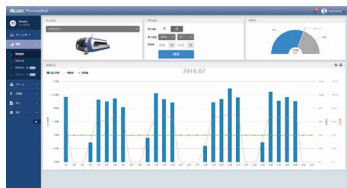


Note:

- 1) In case of a remote connection from the outside of the company, it is necessary for customers to set VPN environment.
- 2) Purchase and configuration of illustrated hardware and LAN equipment, such as PC's, Access point, mobile terminals and cameras are the responsibility of the customer.
- 3) As for the purchase, installation and setting of equipment that you will be required to perform, please consult with the division in charge of management of your information or an outside professional company.

Display of the Operating History

The system stores the laser processing information from the previous four weeks of production. The volume of work and the load conditions can be obtained for production comparisons.



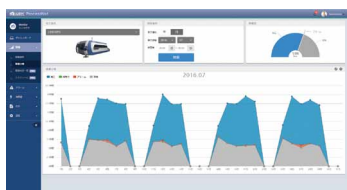
Alarm Results

Past operational alarms of the laser are displayed in the system by rank. The content of an alarm that was most frequently generated can be obtained and used as a preventive measure to improve the operating procedures.



Display and Classification of Production

Processing time, setup time, and down time by alarms can be displayed. Factors that can provide improvement in operating rates can be easily accessed and confirmed.



Energy Use Results

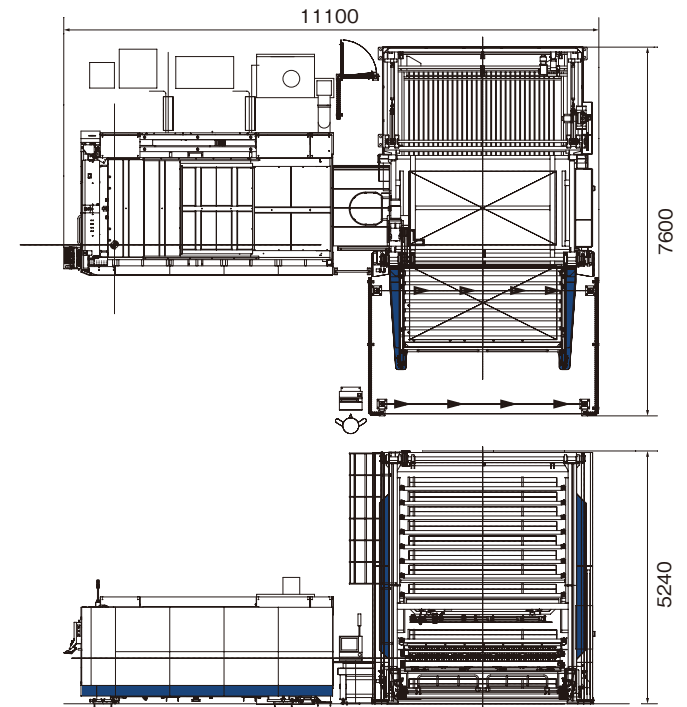
The power and gas consumption as well as flow rate for the previous four weeks are displayed. Energy consumption from the laser can be obtained for accurate cost accounting.



Automated response pursuing work efficiency, Safety and stability.

Laser Stocker System Model FS3015TL

The systems integrated by Muratec automation know-how achieves stable operation. The system helps long time laser operation as well as handles manual operation for urgent work.



Features

- 43% reduction of footprint (Compared to our conventional system)
- Higher productivity – Less pallet exchange time, Reduction of product loading time (Maximum 40% reduction compared to our conventional system)
- Loading designed for less scratch – Belt linkage loading method achieves less scratch on the backside of materials
- Sheet transfer for maximum 5' x 10' size with 16 mm thickness (During processing pallet)



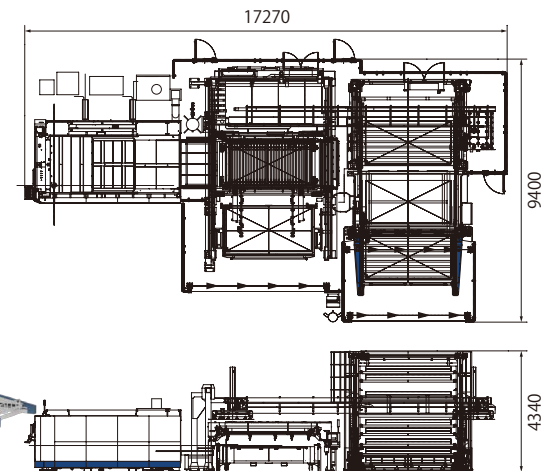
Loading Laser Pallets on the shelf



Manual Operation

Laser Stocker System with Sorting Loader Model FG3015TL

This innovative automation achieves jointless parts production in a laser system. It eliminates the operator's requirement of breaking out and sorting parts. It improves part quality reducing scratching and other damage.



Specifications

Material Thickness Capacities

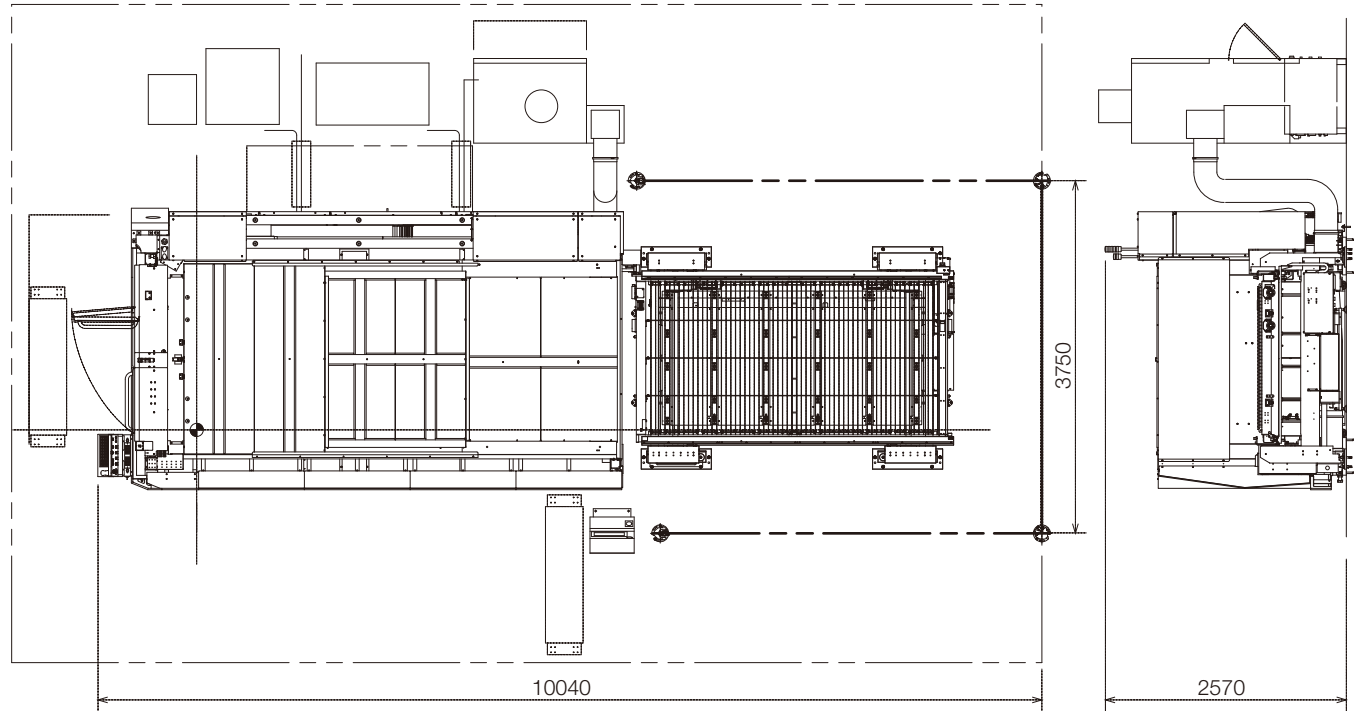
Material	Assist gas	Thickness (mm)						
		4	8	12	16	20	24	25
Mild steel	Oxygen	2.5 kW						
		4.0 kW						
		6.0 kW						
Stainless	Nitrogen							
Aluminum	Nitrogen							
Brass	Nitrogen							
Copper	Oxygen							

Maximum cutting area (X x Y x Z)	3,070 mm x 1,550 mm x 100 mm [120.8" x 61.0" x 3.9"]	
Fast traverse speed	170 m/min (XY simultaneous) [6693"/min]	
Positioning accuracy	+/-0.03 mm [+/-0.0011"]	
Repeat accuracy	+/-0.03 mm [+/-0.0011"]	
Oscillation method	LD excitation of fiber laser	
Rated output	2.5kW / 4.0kW / 6.0kW	
Laser wavelength	1.07 μm	
Installation area (L x W x H)	10040 mm x 3750 mm x 2570 mm ⁽¹⁾ [32'11" x 12'4" x 8'5"]	
Air supply	Flow rate	260 NL/min
	Pressure	0.5 MPa [71 PSI]
Power supply	16 kVA (Body for 2.5 kW type) ⁽²⁾ [200 V ~ 460 V]	
Machine weight	Approximately 10 tons ⁽³⁾	

*1: Except peripheral equipment and maintenance area space

*2: Except chiller unit

*3: Except weight of peripheral equipment and pallet changer



FIBER LASER LS 3015 GC

• **Safety Specification** Machines built with CE-safety conformity are available as option.

* The machines shown in the catalogue include some optional items and may vary in appearance from the actual machines.

* Specifications and designs are subject to change without prior notice.

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