

Laser Machines

FLYING OPTICS

FO
SERIES

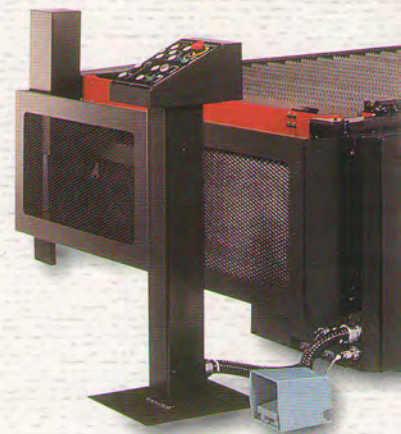


 **AMADA**

From thin material to thick, and from corner to corner.

Ultra high-speed and high accuracy

- Ultra high-speed and high accuracy processing is available.
- Stable processing and cutting from corner to corner.
- The high quality of laser cutting processing covers thin to thick materials.
- Effective control and stability of the optical beam is realized by the high rigidity frame structure.
- Any system according to your plan may be selected.



Laser Machines

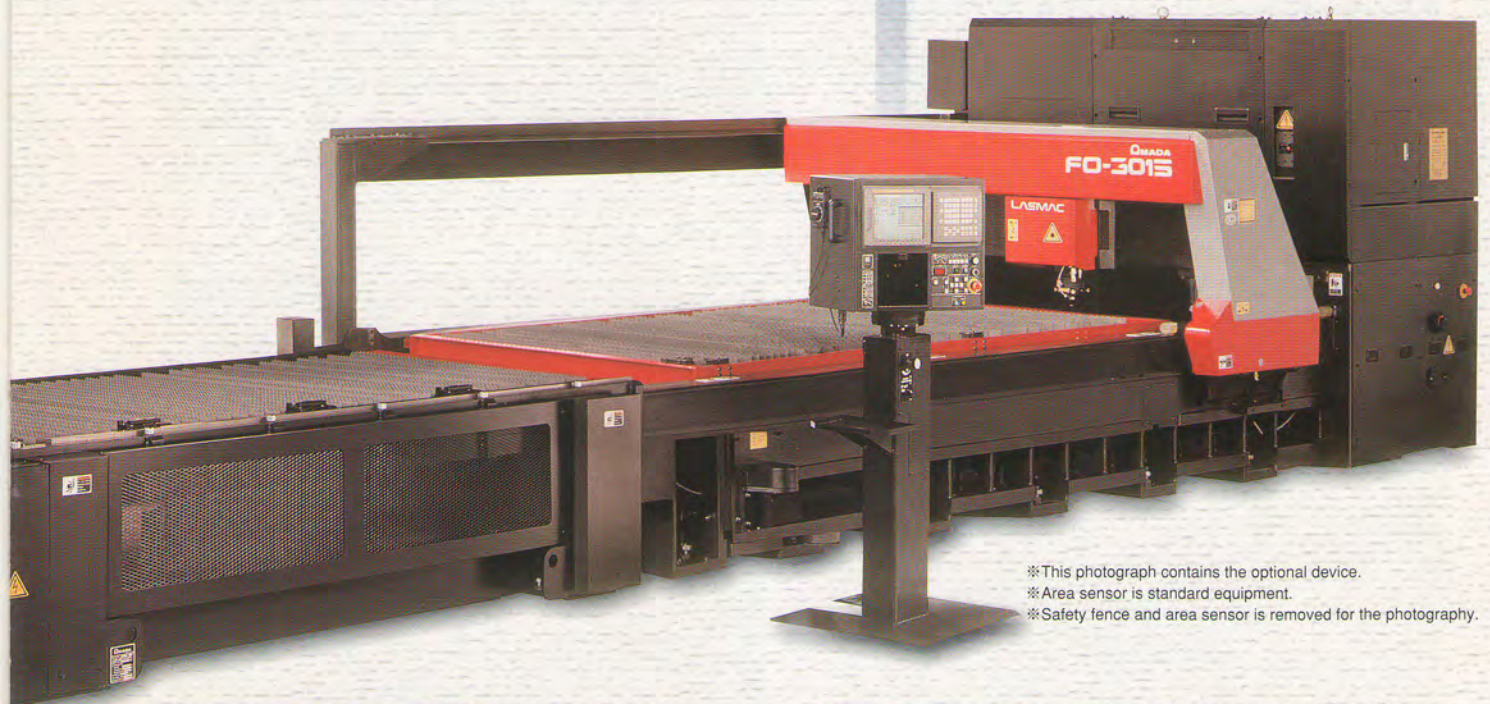
FO SERIES

laser cutting processing.

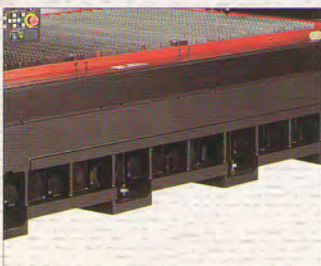
Z-axis 60m/min.

X-axis 80m/min.

Y-axis 80m/min.

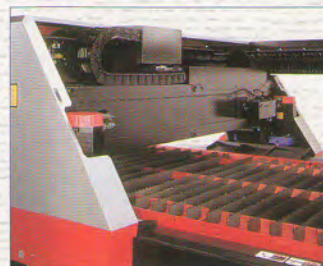


※This photograph contains the optional device.
※Area sensor is standard equipment.
※Safety fence and area sensor is removed for the photography.



●The casting frame structure absorbs vibration.

A casting frame structure which absorbs vibration has been adopted. Therefore each of the axis vibrations which occur at the time of high-speed processing are absorbed. High accuracy is realized during high-speed processing.



●Twin direct drives.

Twin direct drives with two synchronized servo motors have been adopted. This provides rapid feed speed of 80m/min on both X,Y axis and has drastically reduced carriage traverse time.

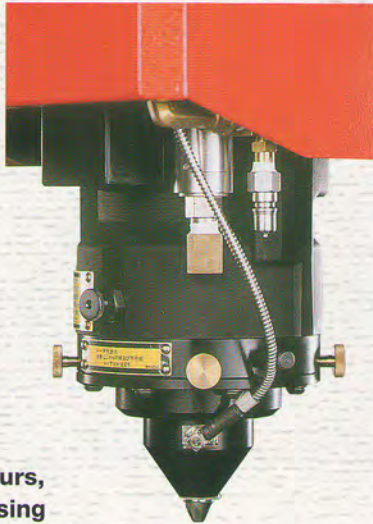
Features

Sheet & plate machining in a steady manner.

Light weight and high rigid cutting head with quick approach speed

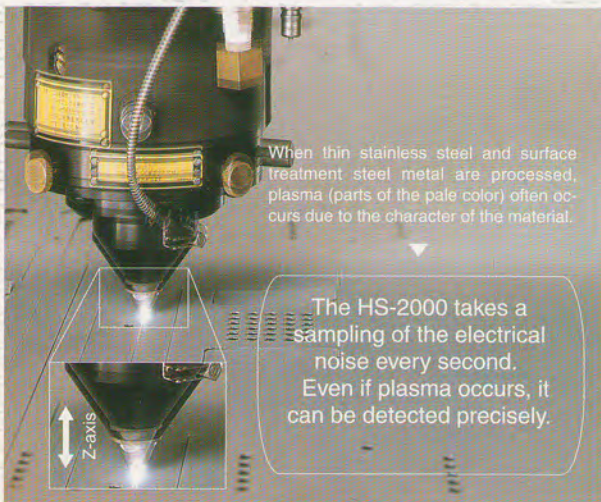
HS-2000 sensor with non-contact and profiling system

The newly designed cutting head structure optimizes the flow of assist gas inside the head, providing a smoother cutting surface finish.



Even if plasma occurs, high-speed processing is maintained.

■ With thin stainless steel and surface treated sheet steel, plasma often occurs. Even under these conditions high-speed processing can be achieved.

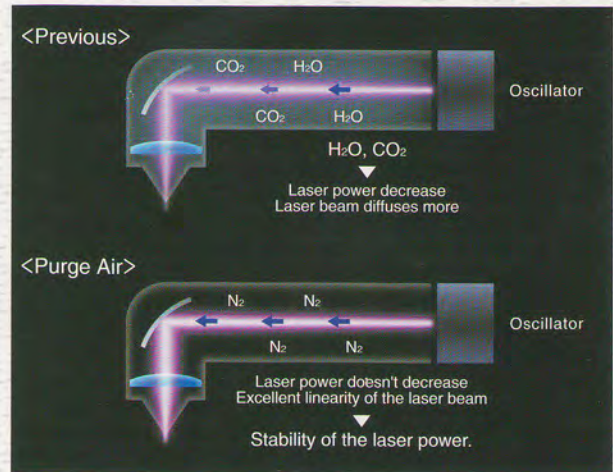


When thin stainless steel and surface treatment steel metal are processed, plasma (parts of the pale color) often occurs due to the character of the material.

The HS-2000 takes a sampling of the electrical noise every second. Even if plasma occurs, it can be detected precisely.

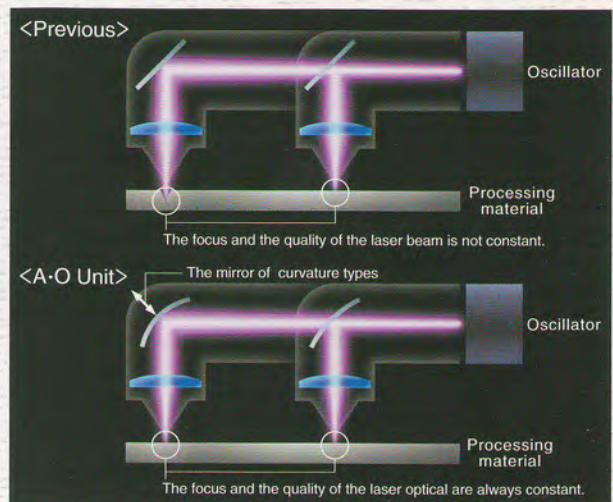
The latest purging technology is built in

This latest technology allows the inside of the optical pipeline from the oscillator to the cutting head to remain clear. Diffusion of the laser beam is reduced, therefore increasing the cutting performance over the entire area. (optional)



Effective laser beam control

The latest optical technology "A-O Unit" was adopted. Even if the beam distance between the oscillator and the processing point changes the quality of the focus remains constant. Stable processing and high accuracy is possible over the entire area. (optional)

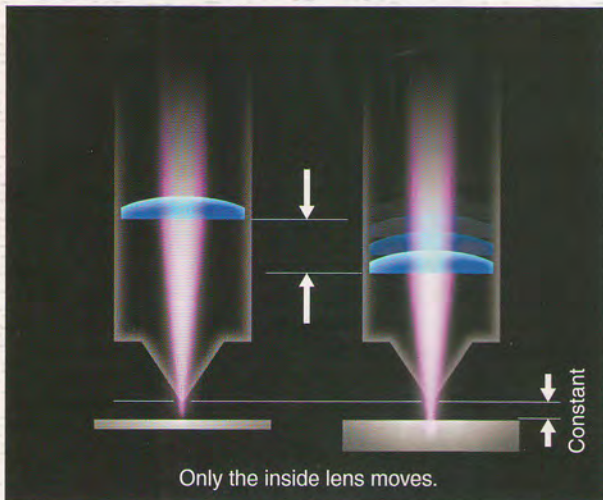


Features

Sheet & plate machining in a steady manner.

NC focusing control system

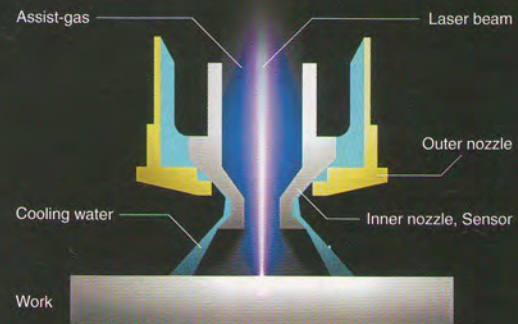
The optical focus position can be set up automatically, even with different types of material, thickness and cutting methods. It has flexibly to cope with various types of material and cutting conditions. (optional)



WACS(Cooling cut device)

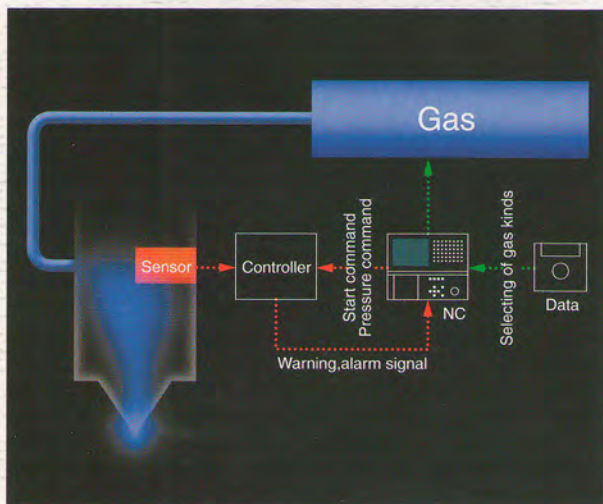
Misty cooling water is sprayed on the surface of the material to reduce the heat effect which contributes to high precision processing of thick material.(optional)

Structural drawing



NC gas pressure control

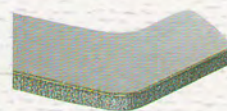
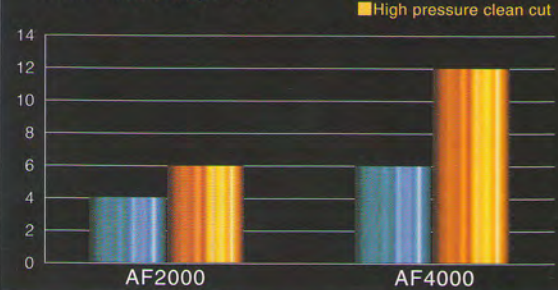
Pressure of the assist gas is controlled automatically, even with different types of material, thickness and cutting methods. The pressure of assist gas is put under closed NC whose cutting condition are filed. (optional)



High pressure assist gas system

Clean cut performance can be improved by using the high pressure assist gas system. Another gas line can be added providing high pressure of 2.5MPa [25kgf/cm²] with the gas circuit line to the machine. (optional)

Clean cut comparison



Standard specifications

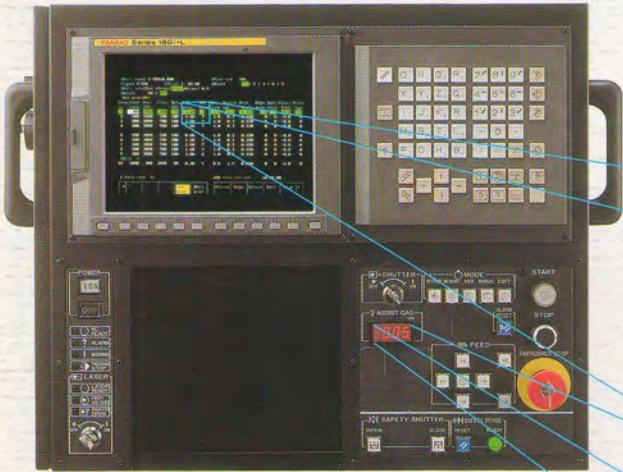


High pressure system

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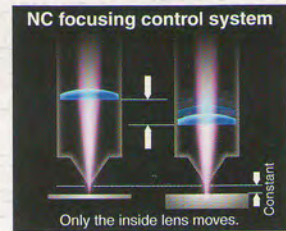
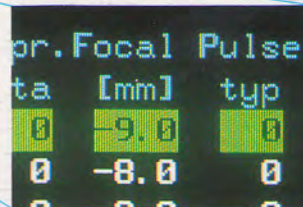
NC unit

Fast, accurate processing achieved.



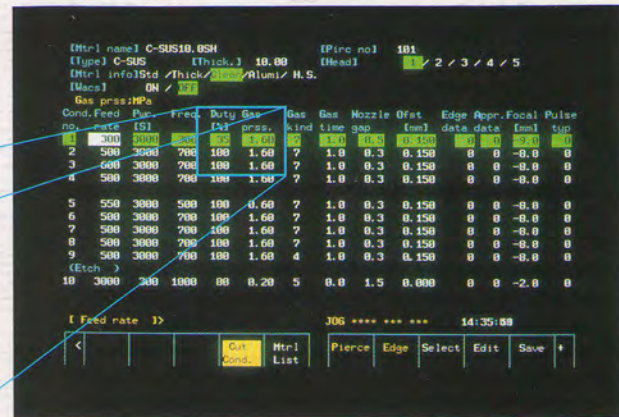
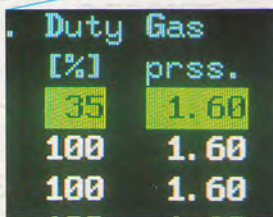
Easy operation

The CNC unit is the latest 32-bit configuration fully equipped with a high-speed and high-accuracy processing function like an advanced preview control. In addition, a single switch enables the laser oscillator to start and power supply to shut off, eliminating troublesome operating steps.

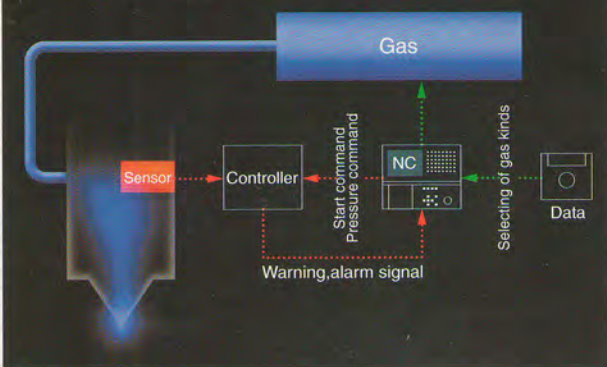


Cutting condition, setting function

Up to 10 kinds of data processing condition settings can be registered for up to 90 types of materials, including piercing and marking off. The operator can readily change the processing conditions as he is monitoring the state of processing. Data on the changed processing conditions may be registered as they are.

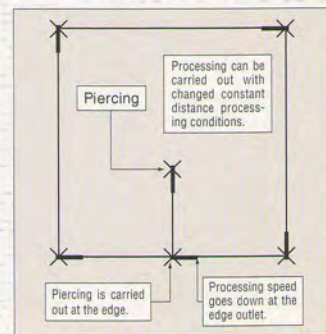


NC gas pressure control



Approach & edge processing function

By NC data setting, it can automatically judge the approach portion and edge portion to control the optimal processing conditions.



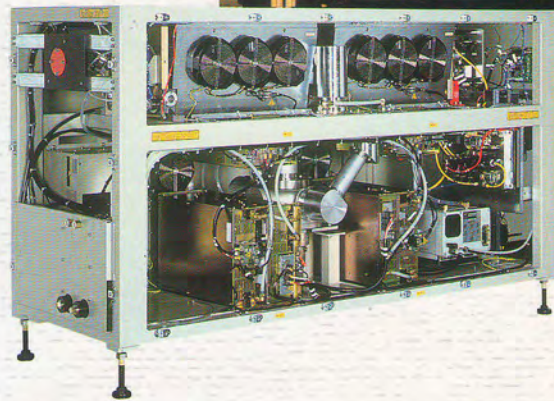
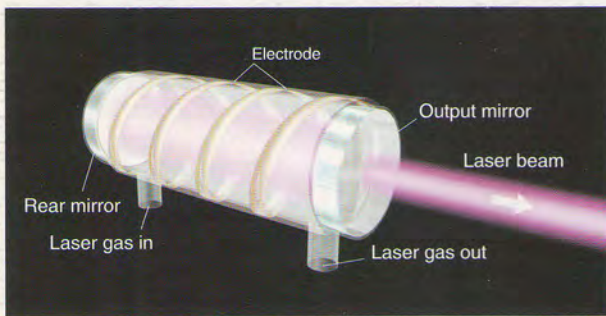
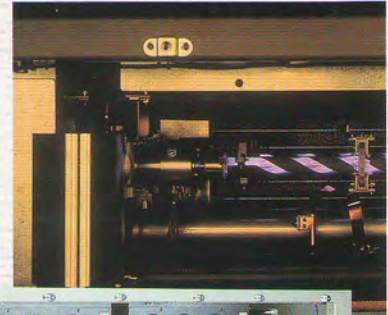
Laser oscillators

You can choose the best model according to the thickness and quality of the work.

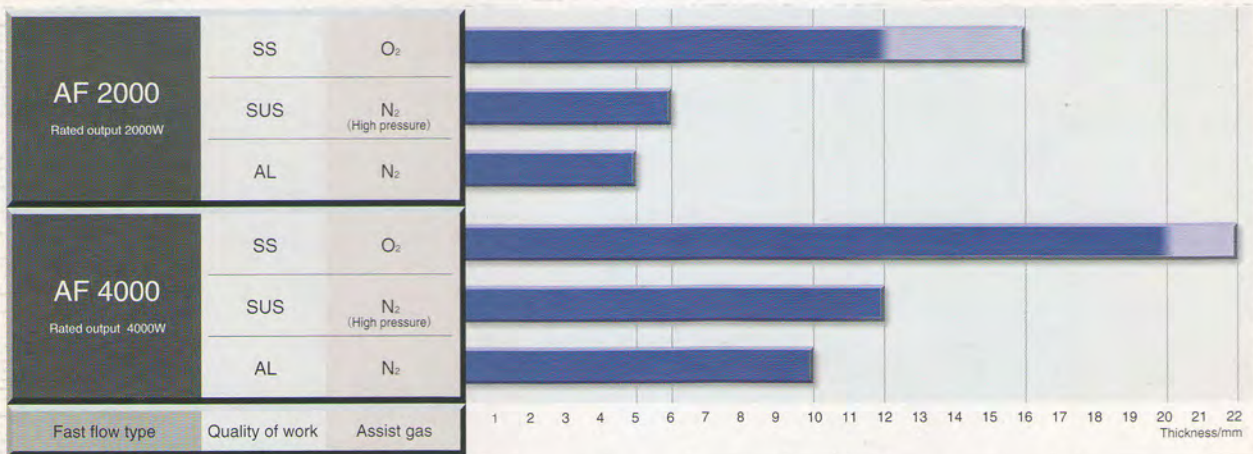
Laser oscillators

Features

- ① Electrodes enjoy a long service life thanks to the RF discharge system.
- ② A lower consumption rate of laser gas (10L/h)
- ③ NC - based check is given to the oscillator for operating condition.
- ④ All-solid-state power supply establishes a higher reliability.



Cutting capacity



※The thickness of material which may be machined varies according to the machine type.

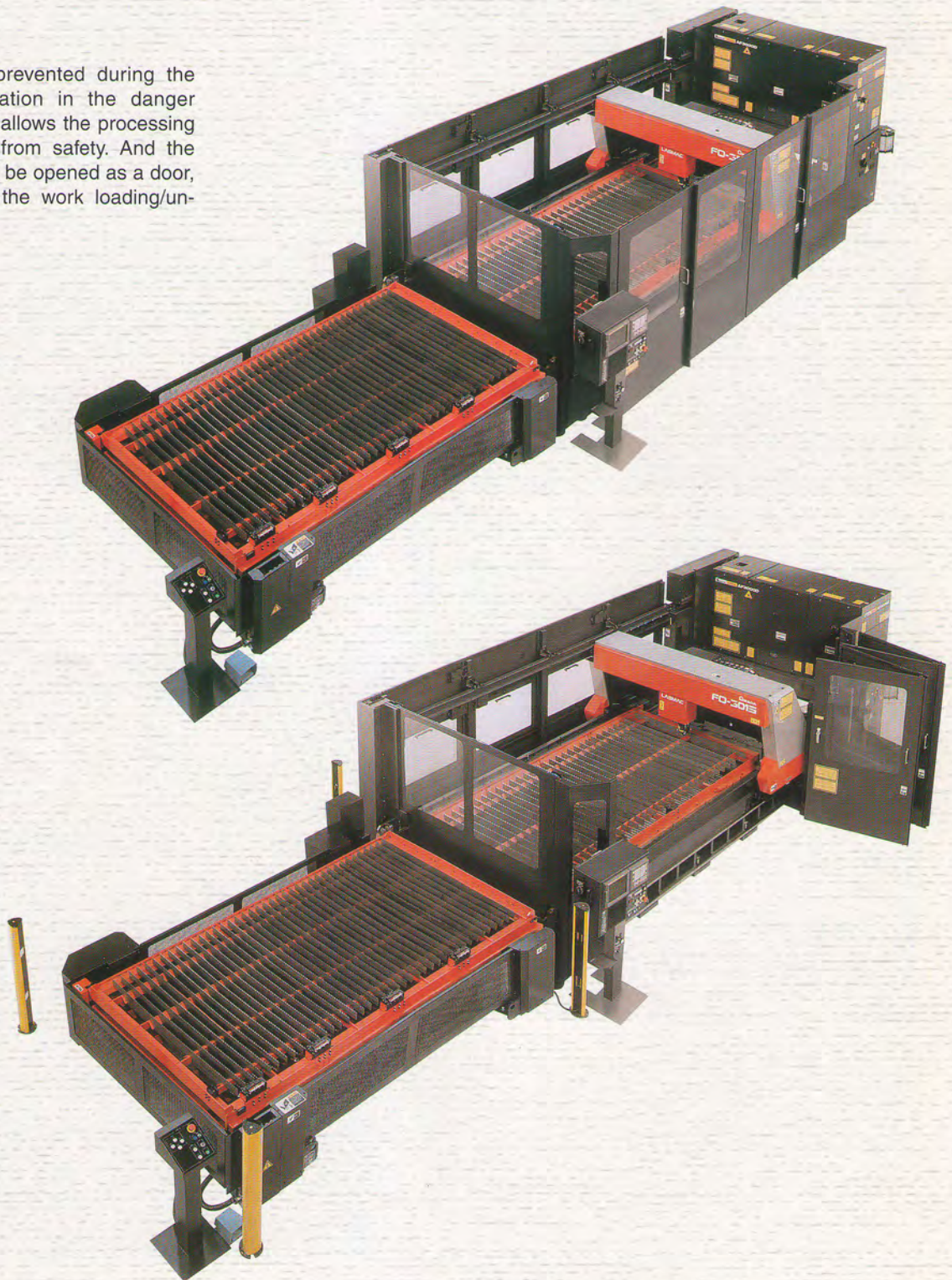
- 1 Even if the nomination and the quality of material are the same, some difference may occur in the cutting quality, machining thickness and edge burning level, due to the ingredients and surface conditions of the material (such as scale ingredients and thickness, surface roughness, oil or paint on the material).
- 2 The degree of difficulty in processing varies according to edging and the complexity of the processing shape.
- 3 In some cases of thick sheet machining, there can be realized many effects result from the above 1 and 2.
- 4 For thick sheet processing, cooling cut can achieve steadier processing.

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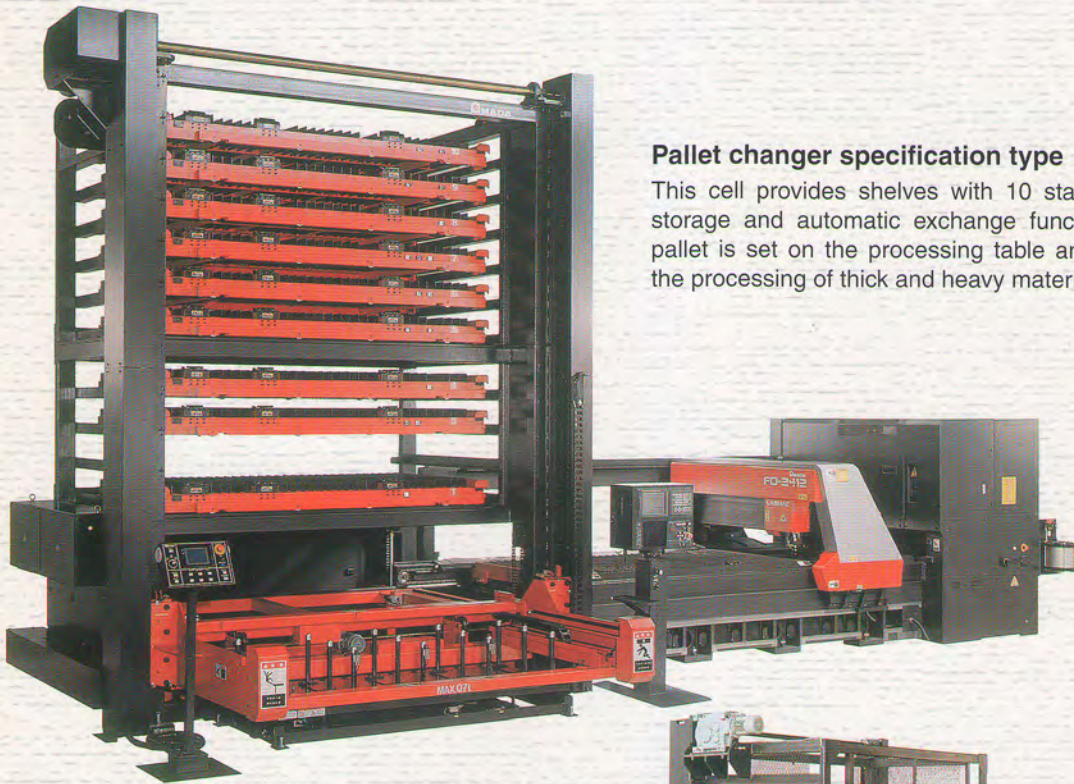
Optional

Safety fence

Admittance is prevented during the automatic operation in the danger area. The fence allows the processing to be watched from safety. And the side surface can be opened as a door, not obstructing the work loading/unloading process.

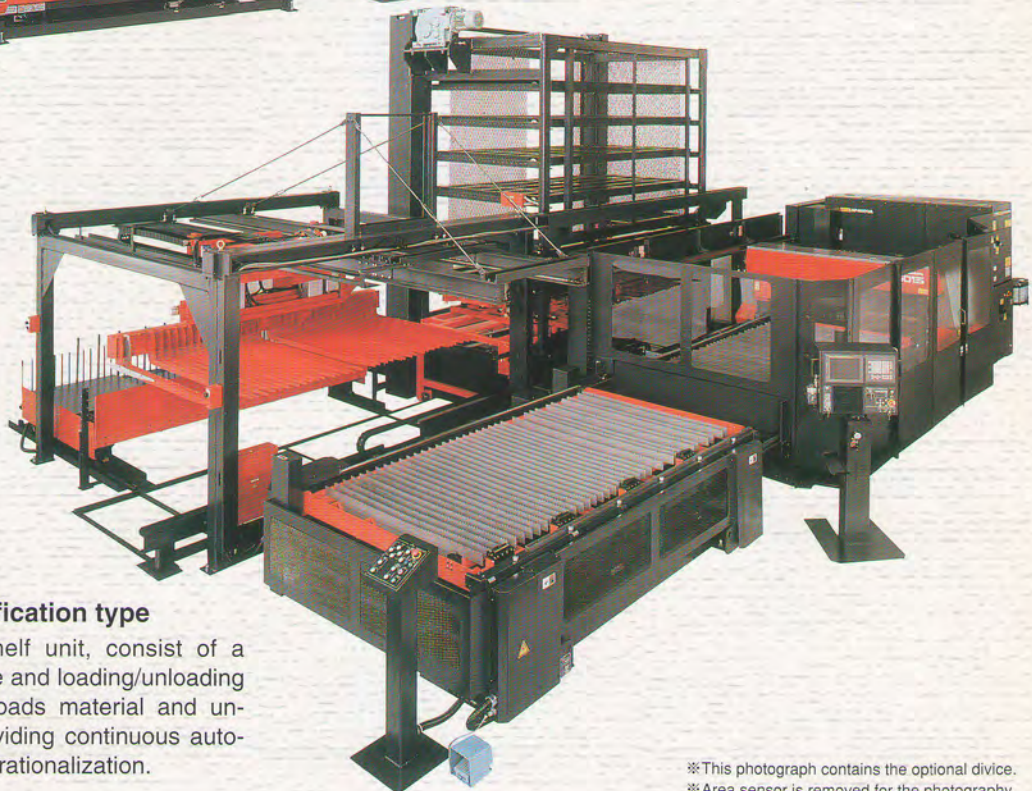


Optional



Pallet changer specification type

This cell provides shelves with 10 stage pallet storage and automatic exchange function. The pallet is set on the processing table and allows the processing of thick and heavy material.



Space Changer specification type

The material storage shelf unit, consist of a stacking device, lifter table and loading/unloading device. It automatically loads material and unloading work pieces. Providing continuous automatic operation and work rationalization.

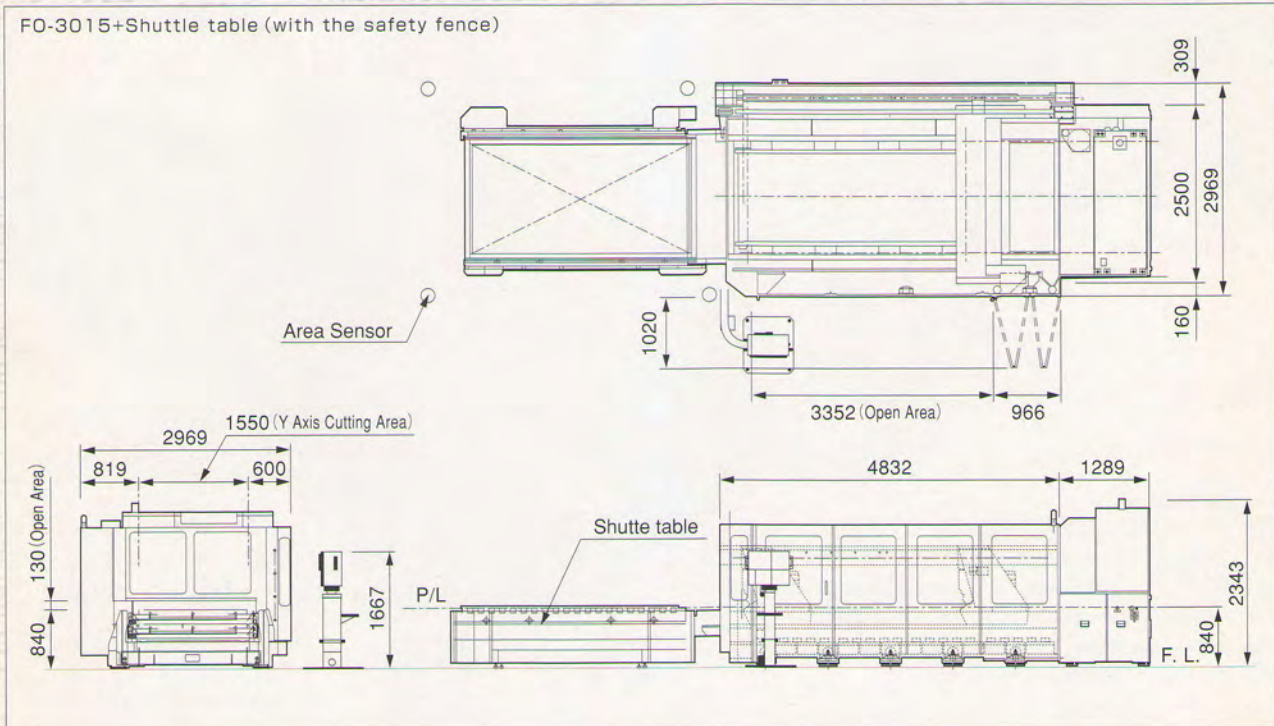
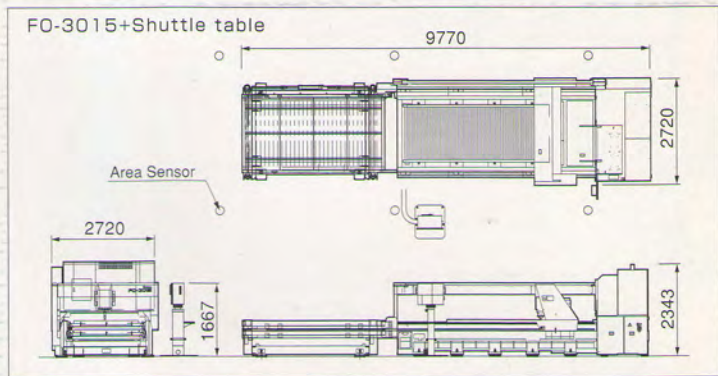
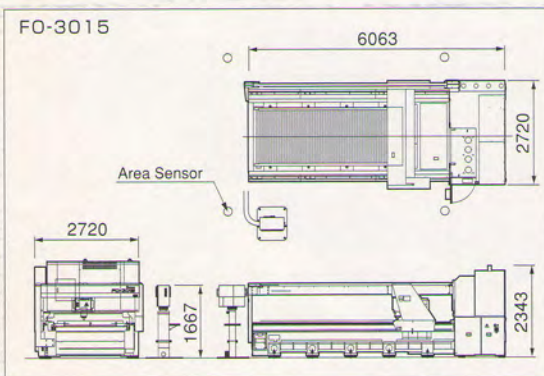
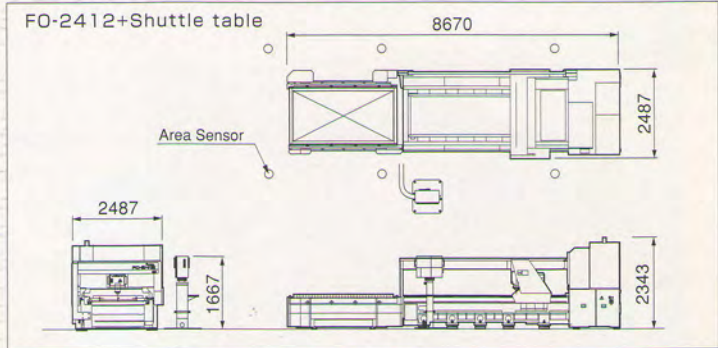
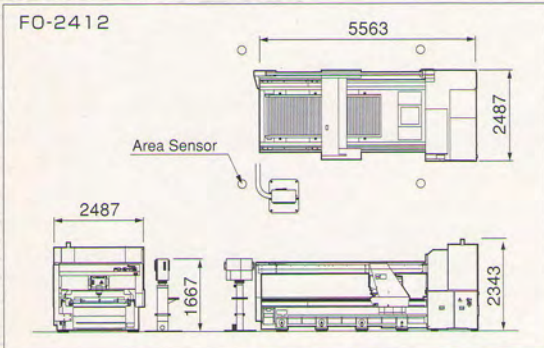
※This photograph contains the optional device.
※Area sensor is removed for the photography.

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Dimensions

■ Dimensions

Unit : mm



Specifications

Machine Specifications

Type	FO-2412		FO-3015	
Axial travel	X, Y- axis : optic transfer			
Axial control	X, Y, Z - axis control (3axes same time control)			
Max. processing size.	m m		2520 × 1270 × 200	
Axis movement	X axis	m m	2870	
	Y axis	m m	1270	
	Z axis	m m	200	
Cutting feed speed	X axis	m/min	0~20	
	Y axis	m/min	0~20	
Max. feed speed	X axis	m/min	80	
	Y axis	m/min	80	
	Z axis	m/min	60	
Mass of sheet	kg		580	
Least input increment	mm		0.001	
Assist gas control	Automatic change			
Pass line	mm		840	
Mass of machine (with oscillator) ton			10	
Power requirement 3phase AC200/220V (50Hz/60Hz)	AF2000	kVA	53 (without chiller) 75 (with chiller)	
	C4000A	kVA	75 (without chiller) 111 (with chiller)	
Standard Accessory	Area Sensor			

Oscillator Specifications

Type	AF2000		AF4000		
Oscillator type	High-speed axial carbon dioxide gas laser using high-frequency discharge excitation				
Laser output	Rated output	W	2000		
	Output stability	%	± 1% (for 8-hour rated output under output feedback control)		
	Pulse	Peak output	W	2700 (for 500Hz of less and a duty cycle of 50% or less)	
		Frequency	Hz	5 to 2000Hz	
Output beam	Duty	%	0 to 100%		
	Wave length	μm	10.6		
	Mode		Low-order mode		
	Diameter at exit	mm	Approximately 27mm		
Polarized light	Divergence angle	mrad	2mrad		
			Circular polarization		
Laser gas	Pre-mixed gas	%	CO ₂ :He:N ₂ =5:40:55 (volume ratio with N ₂ balance) with a composition ratio accuracy of ±5%		
	Consumption rate	L/h	10		
Cooling water	L/min		75		
			160		

※ These specifications and machinery and equipment appearance are subject to change without notice for reason of improvement.

⚠ Before using this machine, please read the laser operator's manual carefully and follow all applicable instructions.

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