

# SOLUTION

LASER CUTTING



## FO MD SERIES



FLYING OPTIC LASER CUTTING MACHINE



 **AMADA**<sup>®</sup>

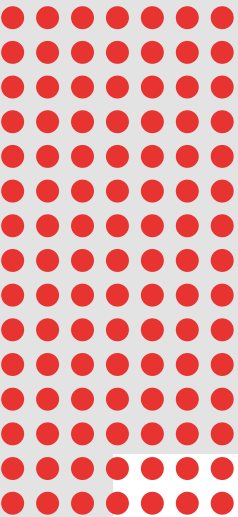
## FLYING OPTIC LASER CUTTING MACHINE

### WIDER PROCESSING RANGE AND SHORTER DELIVERY TIME

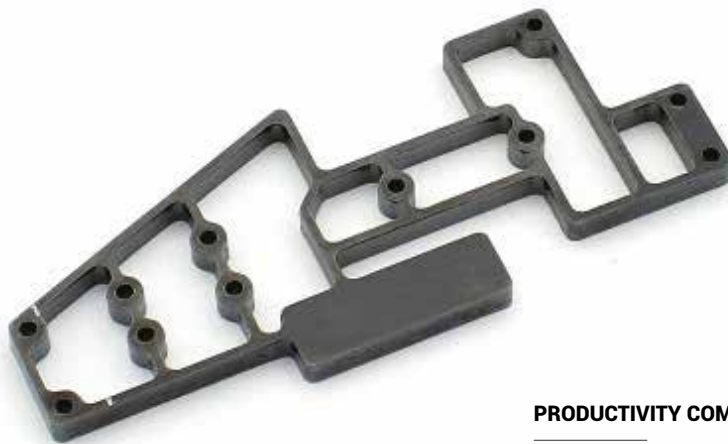
FO-MII NT is a global standard laser cutting machine equipped with the latest technologies to expand your processing range. More than 2200 units of the FO-NT series have been installed around the world, which is proof of the reliability and trust that customers have placed in this market leading machine. This latest version, the FO-MII, builds on the success of the FO-NT machines with enhanced operation and features.



Photograph includes optional equipment



## TYPICAL PROCESSING SAMPLES



Material: Mild steel, 4.5 mm  
Dimension: 102.96 x 41.77 mm

### PRODUCTIVITY COMPARISON

**53% TIME REDUCTION**

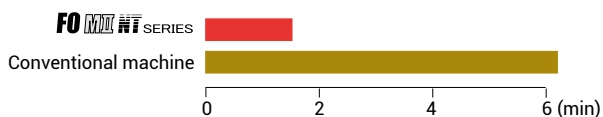


Material: Stainless steel 304.2 mm  
Dimension: 100.0 x 150.0 mm  
Processed by the optional Rotary Index Unit



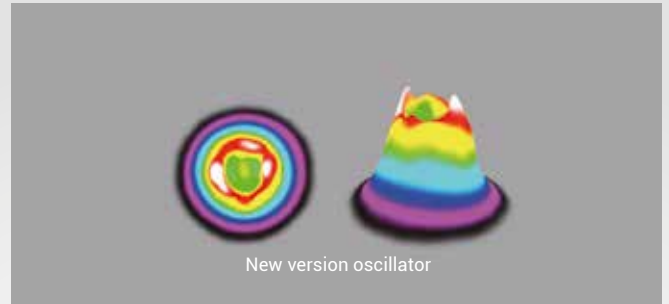
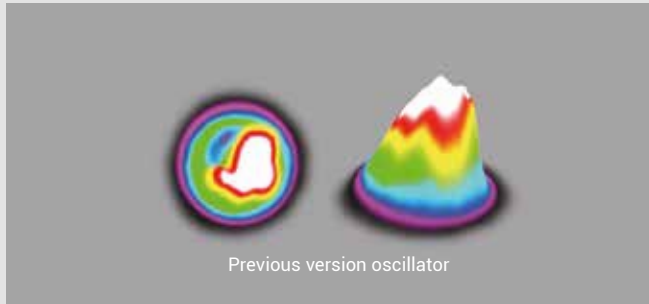
### PRODUCTIVITY COMPARISON

**70% TIME REDUCTION**

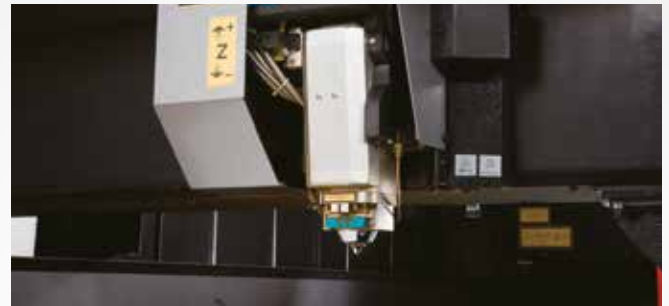
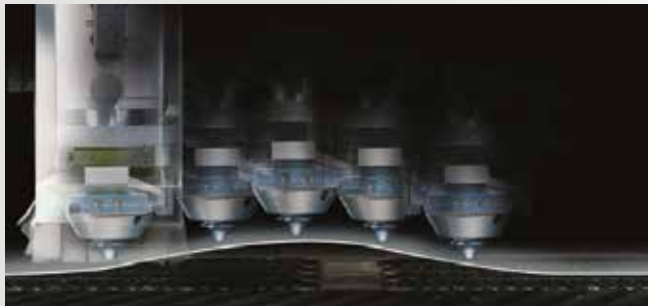


## HIGH QUALITY, HIGH SPEED PROCESSING

EQUIPPED WITH THE LATEST OSCILLATOR AND A HIGH SPEED Z-AXIS TRACKING SENSOR



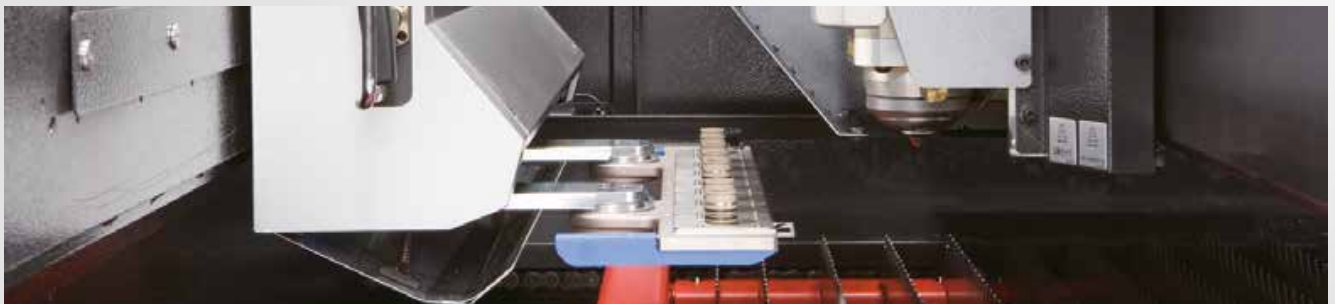
The high performance oscillator provides a more uniform, consistent laser beam to improve cutting quality.



The HS capacitance sensor is constructed to reduce the effect of plasma and adopts a high frequency (MHz) band that is less susceptible to effect of noise, which maintains the gap between the material and laser head during high speed processing for stable cutting.

## SETUP TIME REDUCTION AND CONTINUOUS PROCESSING

**AUTOMATIC NOZZLE CHANGER** (Option on FO-MII 3015 NT / FO-MII 4222 NT. Standard on FO-MII RI 3015).



The optional nozzle changer can automatically change to the required nozzle for specific cutting operations. Eight different nozzle stations allow continuous processing of thin to thick sheets without interruption.

# CONTINUOUS STABLE PROCESSING OF THICKER MATERIALS

## OIL SHOT, WACS AND PROCESS MONITORING SYSTEMS



Before piercing a thicker sheet, oil is sprayed on the material to prevent spatter buildup, improve pierce quality, and achieve stable processing.



AMADA's original Water-Assisted Cutting System (WACS) uses a fine spray mist when cutting thick material to suppress material overheating, thereby reducing cutting defects and enabling thinner web widths during part nesting. The ultimate benefit is improved material utilisation and stable processing.



The cutting process is constantly monitored for factors that cause processing defects, such as piercing or plasma, in order to support continued reliable processing.

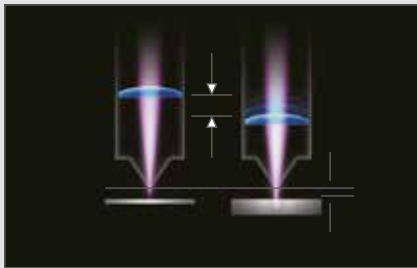
# CUTTING OF FLAT SHEET AS WELL AS TUBE, ANGLE AND SECTION

## ROTARY INDEX UNIT (optional on 3015 version)



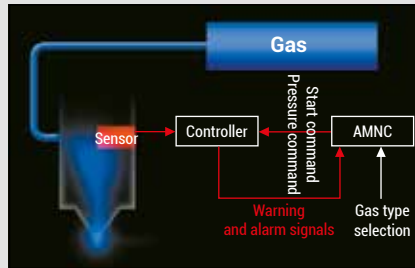
The optional Rotary Index unit can handle rounds, squares, rectangles, channels and angles. The Rotary Index unit substantially reduces the time to switch between flat sheet cutting and tube, angle or section cutting. The Rotary Index unit enables the setup of tubes, angles and sections outside the machine, freeing up the 2 standard cutting pallets for sheet material cutting. The setup time is sharply reduced as a result.

# FUNCTIONS AND OPTIONAL EQUIPMENT



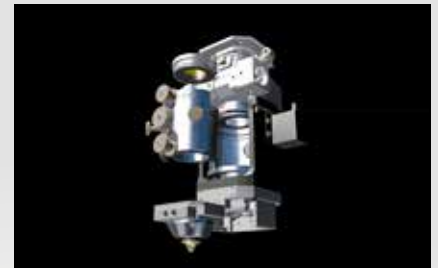
## Motorised Auto Focus Control System

The optimum focal point is automatically set from the cutting database to suit each material. A constant focus is maintained, ensuring optimum laser beam quality and reduced assist gas costs.



## High Pressure NC Gas Control System

The assist gas pressure is automatically controlled for the entire range of materials and thicknesses being processed.



## 'One Touch' Lens and Nozzle Exchange

To allow faster machine setup, the cutting head on the FO-MII NT is equipped with simple, quick change lens and nozzle cartridges.



## Cast Iron Frame

The cast iron frame absorbs the vibration generated during high speed cutting, thus ensuring high accuracy, even at the fastest axis speeds.



## Cutting Lenses

The FO-MII NT is supplied with 2 cutting lenses as standard. The 5 inch lens is used for thin sheet cutting, while the 7.5 inch lens is used for thicker materials. The 7.5 inch lens can be used to cut the entire material range if required.



## OVS IV

The OVS IV system measures the pitch of two reference holes and automatically compensates for any origin deviation when transferring a sheet of parts from the punch machine. The pitch and circularity of the cut holes are also measured. When the measured values fall outside the specified limits, an alarm is activated.

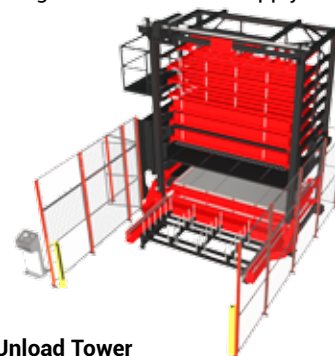
## AUTOMATION OPTIONS

The machine is supplied with a 2 pallet shuttle table for flat sheet processing. Some restrictions apply to tube cutting when automation is added to the Rotary Index machine.



### Single Pallet Load/Unload System

A simple, fully automated system incorporating a single material pack and front unload table to allow continuous scheduled processing. Material is automatically loaded into the cutting beds and finished parts unloaded with a fork style manipulator.



### Load/Unload Tower

A fully automated tower system incorporating multiple raw material and finished parts pallets to allow continuous scheduled processing. Parts and material can be loaded/unloaded without interrupting the laser cutting cycle.



### Dr. ABE Tube

This fully automatic CAM creates pipe cutting data and is capable of automatic pipe nesting.



### AMNC 3i NC

The FO-MII NT is equipped with the AMNC 3i NC and a new touch screen interface providing comfortable operation and impressive ergonomics. It enables simple, intuitive ease of use and fits perfectly into the VPSS 3i digital suite concept.



### Dust Collector

Efficiently collects any dust and particles generated during the cutting process to ensure a clean working environment.



### ECO Cut

Utilising smaller nozzle sizes and reduced assist gas consumption, ECO Cut achieves higher speed processing of mild steel up to 12 mm thick (with 4 kW power) compared to traditional oxygen cutting.



### Bar Code Reader

The FO-MII NT is equipped with a bar code reader to allow reliable recall of programming data on the shop floor. By scanning the setup sheet from the CAM system, the operator ensures the correct, latest version of the program is loaded into the machine control.



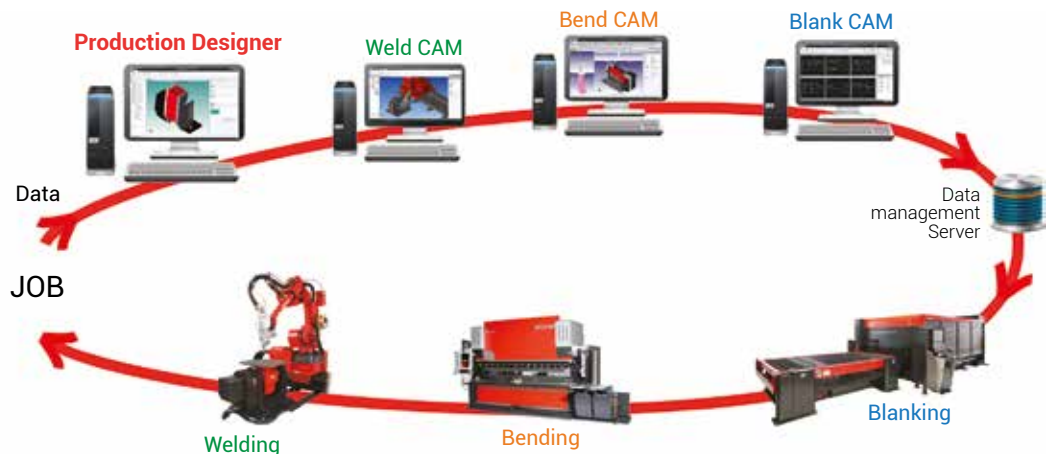
### Side access

The sliding side access doors of the FO-MII NT offers a high degree of access to the cutting area, allowing optimum productivity and adaptability.

## THE SHEET METAL DIGITAL FACTORY

AMADA proposes digital manufacturing using VPSS (Virtual Prototype Simulation System).

All data is created in the office and utilised in the workshop via a network.



Unit : mm

## DIMENSIONS

### FO-MII 3015 NT + shuttle table

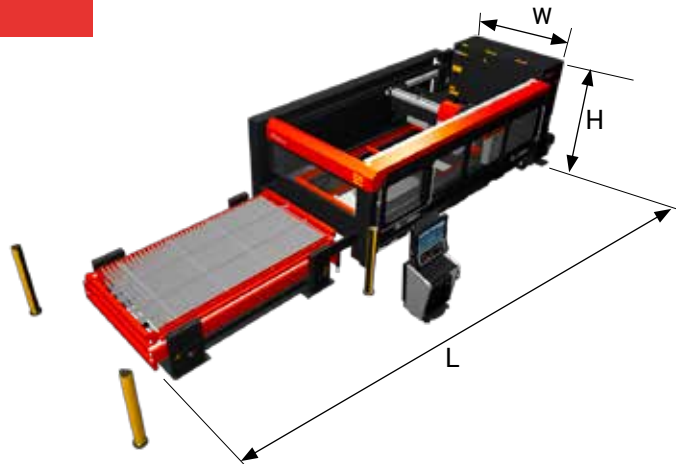
2 kW  
(L) 9903 x (W) 2778 x (H) 2116

4 kW  
(L) 9903 x (W) 2778 x (H) 2216

### FO-MII 4222 NT + shuttle table

4 kW  
(L) 12331 x (W) 3736 x (H) 2436

6 kW  
(L) 12331 x (W) 3736 x (H) 2579



## MACHINE SPECIFICATIONS

			FO-MII 3015 NT	FO-MII 4222 NT
Numerical Control			AMNC 3i	
Controlled axis			X, Y and Z (controlled simultaneously) + B axis	
Axis travel distance	X x Y x Z	mm	3420 x 1550 x 200	4200 x 2200 x 200
Maximum processing dimensions	X x Y x Z	mm	3070 x 1550 x 200	4200 x 2200 x 200
Maximum simultaneous feed rate	X/Y	m/min	114	
Repeatable positioning accuracy		mm	±0.01	
Maximum material mass		kg	920	2030
Processing surface height		mm	840	940
Machine mass (machine only)		kg	10500	14400
Oscillator			AF 2000i-C (LU2.5) / AF 4000i-C	AF 4000i-C / AF 6000i-C

## OSCILLATOR SPECIFICATIONS


			AF 2000i-C (LU2.5)	AF 4000i-C	AF 6000i-C
Beam generation			High-frequency discharge excited, high speed axial-flow type		
Maximum power	W		2500	4000	6000
Wavelength	µm		10.6		
Maximum processing thickness*	Mild steel	mm	15	22	28
	Stainless steel	mm	8	12	22
	Aluminium	mm	6	10	16


\* Maximum value depends on material quality and environmental conditions

## SHUTTLE TABLE SPECIFICATIONS

LST		FO-MII 3015 NT	FO-MII 4222 NT
Max. material dimensions X x Y	mm	3070 X 1550	4200 x 2200
Number of pallets		2	

Specifications, appearance, and equipment are subject to change without notice by reason of improvement.

 For your safe use  
Be sure to read the user manual carefully before use.  
When using this product, appropriate personal protection equipment must be used.

 Laser class 1 when operated in accordance with CE Regulations

The official model name of the machines and units described in this catalogue are non-hyphenated like FOMII. Use this registered model names when you contact the authorities for applying for installation, exporting, or financing.

Hazard prevention measures are removed in the photos used in this catalogue.

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