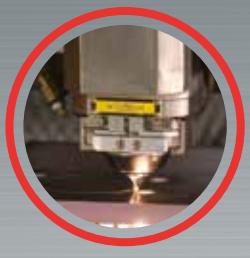
SOLUTION

LASER CUTTING

LC F1 NT SERIES

3 AXES LINEAR DRIVE LASER CUTTING MACHINE



AMADA

LC F1 NT SERIES

3 AXES LINEAR DRIVE LASER CUTTING MACHINE

RELIABLE, HIGH QUALITY LASER PROCESSING WITH AN APPLICATION-ORIENTED APPROACH

HIGH SPEED LINEAR DRIVES PROVIDE HIGH ACCURACY, FULL RANGE CUTTING CAPABILITIES

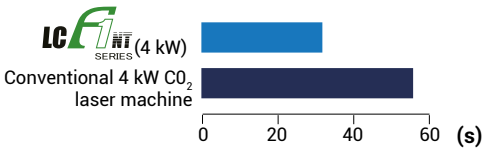
The LC F1 NT series laser cutting machines introduced technology that is still uncommon in the industry. All 3 axis are linear driven, providing high speed, acceleration and productivity. The LC F1 NT covers the full range of processing requirements and has the added benefits of features to eliminate secondary processes, such as AMADA's original WACS (Water Assisted Cutting System) and cut process monitoring. An automatic nozzle changer reduces operator involvement and the fully opening enclosure allows unrivalled access to the cutting bed. All this adds up to a laser that can drive your business forward.

TYPICAL PROCESSING SAMPLES

Material: Aluminium, 1.0 mm
Dimension: 290.01 x 182.08 mm

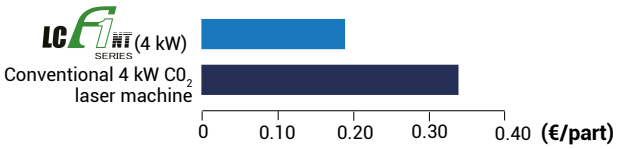
PRODUCTIVITY COMPARISON

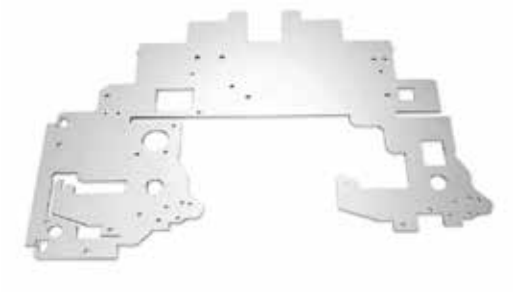
42.8% TIME REDUCTION



RUNNING COST COMPARISON

44.1% COST REDUCTION PER PART



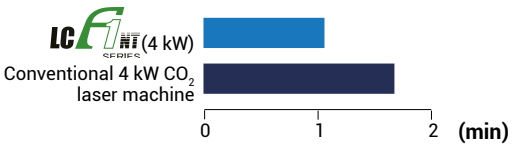


Material:SPC, 1.0 mm
Dimension: 392.0 X 276.0 mm

Material: SPH, 6.0 mm
Dimension:246.0 x 200.0 mm

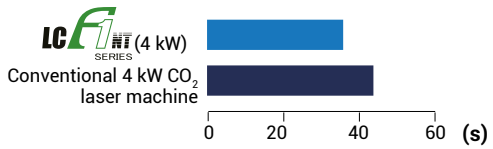
PRODUCTIVITY COMPARISON

36.6% TIME REDUCTION



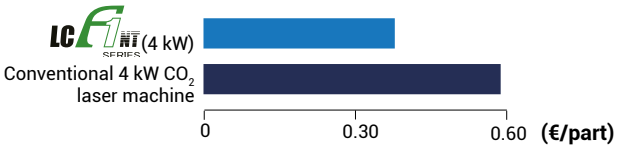
PRODUCTIVITY COMPARISON

18.2% TIME REDUCTION



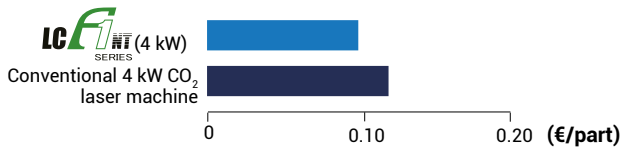
RUNNING COST COMPARISON

35.6% COST REDUCTION PER PART



RUNNING COST COMPARISON

16.6% COST REDUCTION PER PART

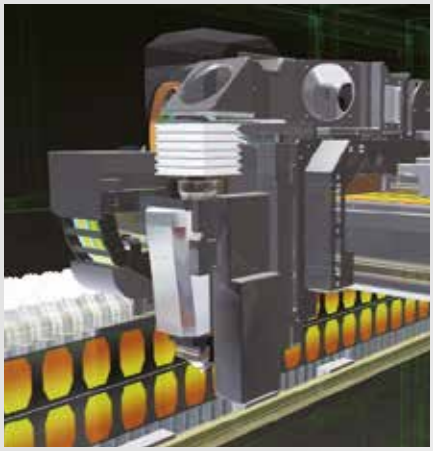


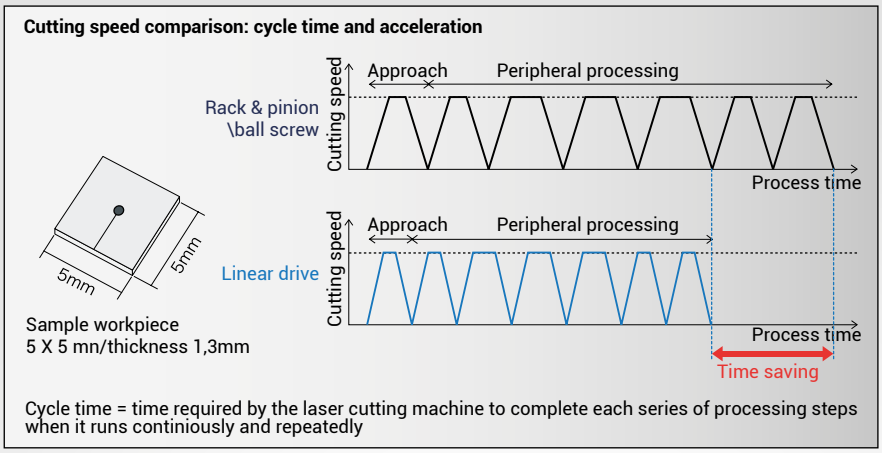
Running costs include assist gases, electricity and consumables. Cost of electricity for compressor added where appropriate when air is used as an assist gas.

LC F1 NT SERIES

HIGH SPEED, HIGH ACCURACY PROCESSING

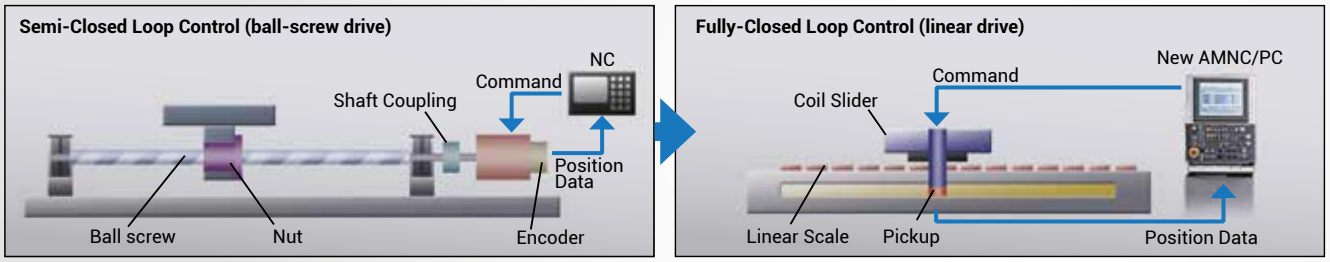
REDUCED PRODUCTION TIMES DUE TO INCREASED ACCELERATION





With 2.5g acceleration, high point-to-point positioning speeds and high cutting rates can be achieved due to the latest version of AMADA's linear drive systems.

HIGH ACCURACY MAINTAINED DURING HIGH SPEED PROCESSING

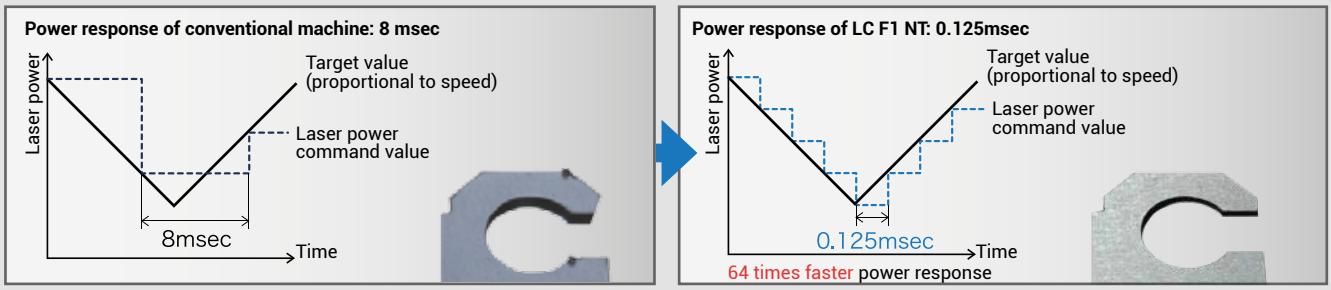


Command from NC	→	Motor speed questioned	→	Feedback to NC through encoder	
Command from NC	→	Direct feedback of current position to NC	→	**Definite position known**	

The LC F1 ensures the highest levels of accuracy due to the direct feedback of the cutting head position. This is only achievable by using linear drives on all 3 axes.

HIGH QUALITY, SHARP-EDGE PROCESSING

PREVENTION OF CORNER AND EDGE MELTING

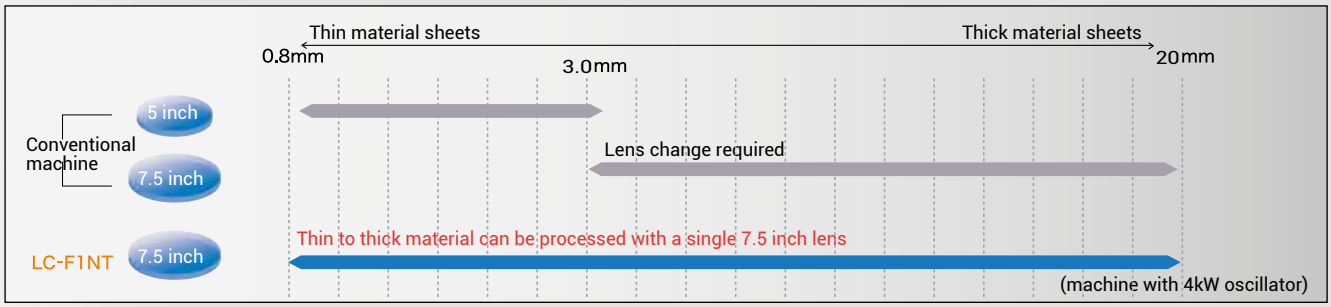


High quality cutting surface

The melting of corners and edges is prevented by the high speed NC control and dramatically improved power response of the oscillator. The laser power can be finely tuned due to the 0.125 msec oscillator response.

TWIN ADAPTIVE OPTICS

OPTIMUM BEAM CONTROL



Thin to thick material can be processed with a single 7.5 inch lens

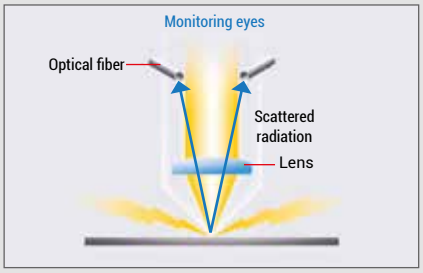
Two A/O mirrors control the beam to the optimum size for processing. A single 7.5 inch lens can handle thin to thick material, thus eliminating lens changes.

Full access cutting bed

The LC F1 NT laser offers unrivalled access to the cutting area, allowing optimum productivity and adaptablilty.

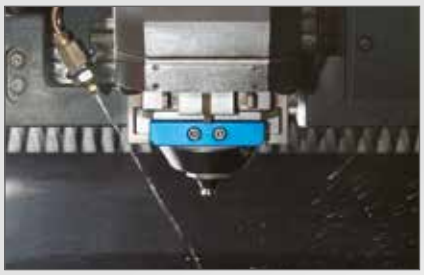
LC F1 NT SERIES

FUNCTIONS AND OPTIONAL EQUIPMENT



Process Monitoring System

Factors that may cause processing defects, such as through piercing, gouging and plasma, are constantly monitored. The process monitoring function ensures continuous and stable processing.



Oil Shot

Before piercing medium thickness sheets, oil is sprayed on the material to prevent spatter build-up, improve processing quality and achieve stable processing.

WACS

While cutting thick material, water is sprayed on the material to reduce the thermal effect of cutting, prevent cutting defects, and improve the material yield.

Nozzle changer

The most suitable nozzle is automatically chosen based on the material type and cutting data required. The nozzle changer can carry eight different types of nozzles to cover the entire material range.

Nozzle cleaner

Automatically removes objects adhering to the tip of the nozzle to prevent processing defects due to spatter, dust, and other debris.

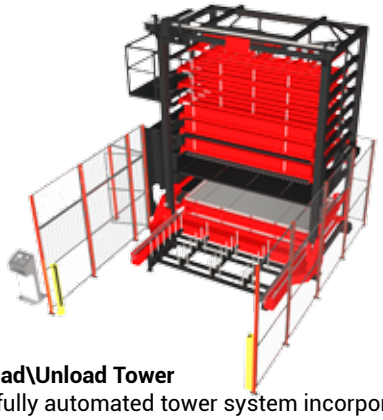
X-Direction Conveyor

Small parts and scrap are quickly and easily transferred to the end of the machine during processing using this conveyor system which starts automatically when the cutting cycle begins.

AUTOMATION OPTIONS

The machine is supplied with a 2 pallet shuttle table as standard

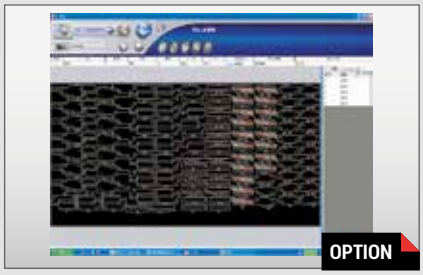
Single Pallet Load\Unload System
A simple, fully automated system incorporating a single material pack and front unload table to allow continuous scheduled processing. Material is automatically loaded into the cutting beds and finished parts unloaded with a fork style manipulator.



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.

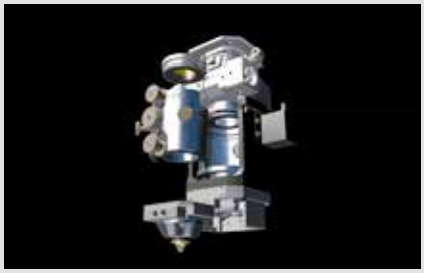
OVS IV

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.



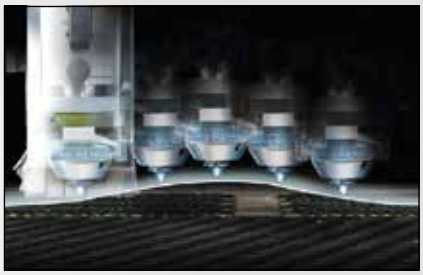
CAD CAM

This fully automatic CAM system nests all the user defined parts and quantities, applies punch tooling/laser profiles, defines the processing sequence and generates the NC program. Increase productivity for your punch, laser or combination machines.



'One Touch' Lens and Nozzle Exchange

To allow faster machine setup, the cutting head on the LC F1 NT is equipped with simple, quick change lens and nozzle cartridges.



HS Capacitance Head

In order to ensure reliable processing, the LC F1 NT is equipped with AMADA's latest HS capacitance sensing head. This smoothly and quickly follows the sheet profile to maintain a consistent cut even when the sheet is not 100% flat.

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.

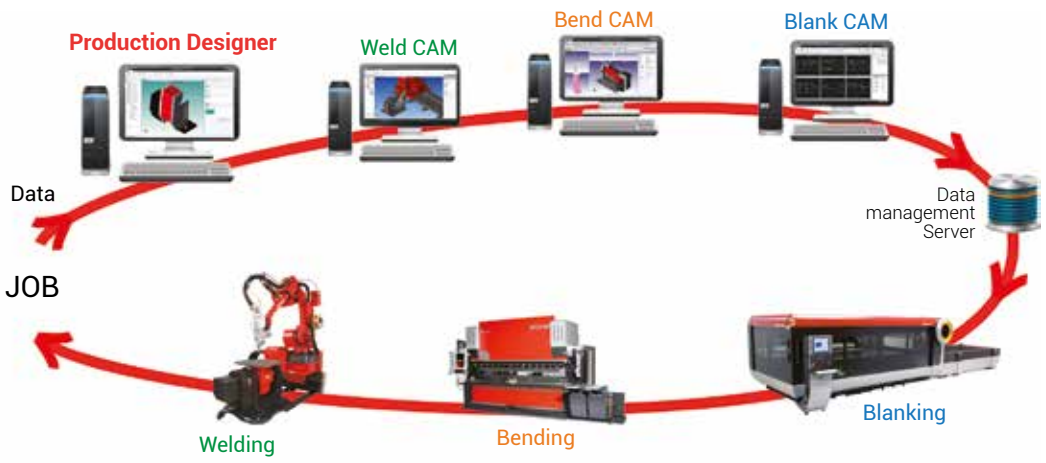
Electronic Hand Wheel

The standard electronic hand wheel device allows quick, easy, incremental manual positioning of the laser cutting head. All axes of the machine can be positioned with an accuracy of 0.001mm if required.

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.



DIMENSIONS

Unit : mm

LC-3015 F1 NT+ shuttle table (LST)
(L) 9845 x (W) 2910 x (H) 2010

LC-4020 F1 NT+ shuttle table (LST)
(L) 11580 x (W) 3410 x (H) 2010

MACHINE SPECIFICATIONS

			LC-3015 F1 NT	LC-4020 F1 NT
Numerical control			AMNC/PC	
Controlled axes			X, Y, Z axes (three axes controlled simultaneously) + B axis	
Axis travel distance	X x Y x Z	mm	3270 × 1550 × 100	4270 × 2050 × 100
Maximum processing dimensions	X x Y	mm	3070 x 1550	4070 x 2050
Maximum simultaneous feed rate	X / Y	m/min	170	
Positioning accuracy		mm	±0.01	
Maximum material mass		kg	920	1570
Processing surface height		mm	940	
Machine mass (main unit only)		kg	10100	15000
Oscillator			AF 2000i-C-LU 2.5 / AF 4000i-C / AF 6000i-C	AF 4000i-C / AF 6000i-C

OSCILLATOR SPECIFICATIONS

			AF 2000i-C-LU 2.5	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 Stainless steel Aluminium	mm	15 8 6	20 12 10	25 20 12

SHUTTLE TABLE SPECIFICATIONS

LST		LC-3015 F1 NT	LC-4020 F1 NT
Maximum material dimensions X x Y	mm	3050 X 1525	4050 X 2025
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 LC3015F1NT. Use this registered model names when you contact the authorities for applying for installation, exporting, or financing.
The hyphenated spellings like LC-3015 F1 NT are used in some portions of the catalogue for sake of readability. This also applies to other machines.

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

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