

SOLUTION

LASER CUTTING

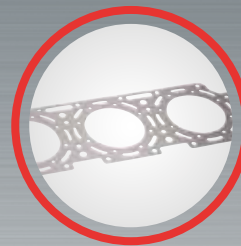


FLC 3015 AJ

Fiber Laser



3 AXES LINEAR DRIVE FIBRE LASER MACHINE



AMADA

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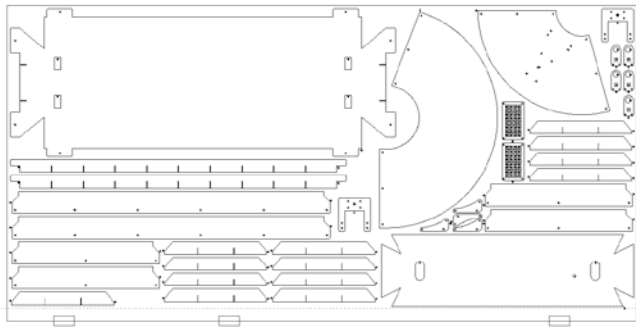
FULLY FEATURED, HIGHLY EFFICIENT

HIGH SPEED, HIGH ACCURACY, ENERGY SAVING

The FLC-3015AJ combines 2 important characteristics for modern laser cutting. All 3 axes are linear driven and the laser source is AMADA's latest in-house developed fibre technology. The combination of these elements and AMADA's proven automation options provide you with a new solution for your manufacturing requirements.



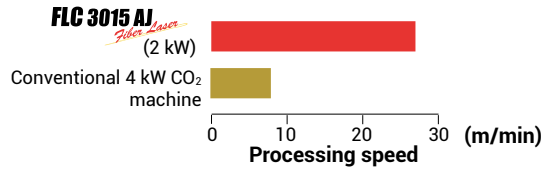
TYPICAL PROCESSING SAMPLES



Material: Aluminium 5052, 1.0 mm
Dimension: 2000 x 1000 mm

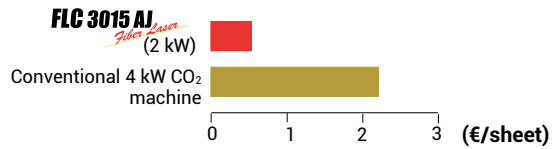
PRODUCTIVITY COMPARISON

42% TIME REDUCTION



RUNNING COST COMPARISON

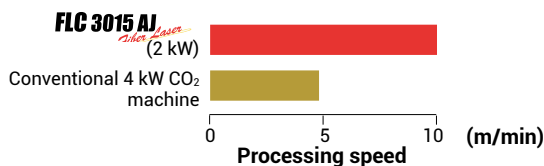
75% COST REDUCTION PER SHEET



Material: Zinc coated steel, 1.6 mm
Dimension: 655.0 x 202.0 mm

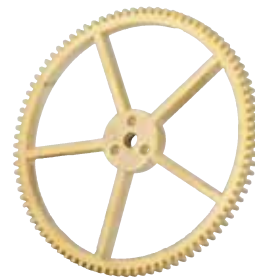
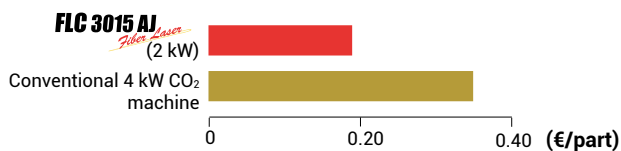
PRODUCTIVITY COMPARISON

32.5% TIME REDUCTION



RUNNING COST COMPARISON

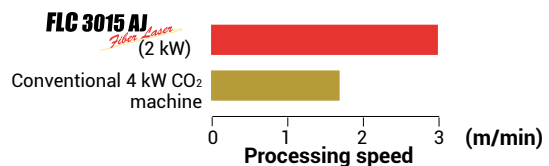
45.7% COST REDUCTION PER PART



Material: Brass, 3.0 mm
Dimension: 48.5 x 48.5 mm

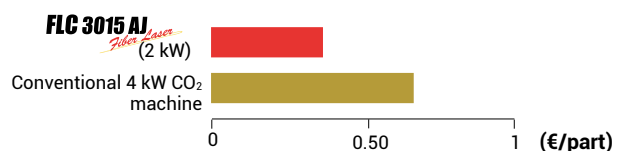
PRODUCTIVITY COMPARISON

25.5% TIME REDUCTION



RUNNING COST COMPARISON

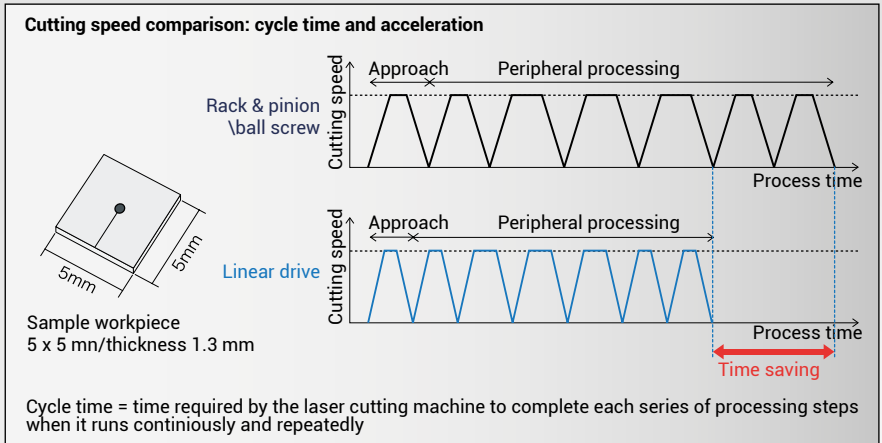
44.8% COST REDUCTION PER PART



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

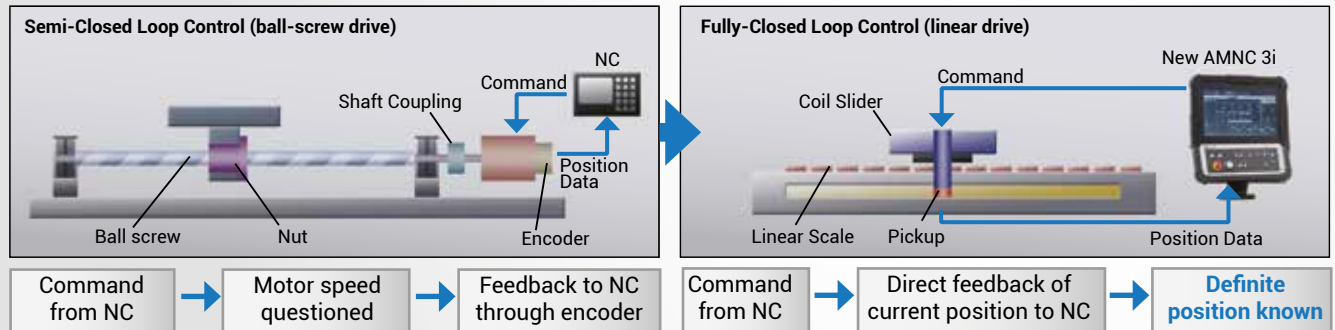
THE COMBINATION OF 3 AXIS LINEAR DRIVES AND LATEST FIBRE LASER GENERATION TECHNOLOGY

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 and fibre technology.

HIGH SPEED CUTTING WITH HIGH ACCURACY

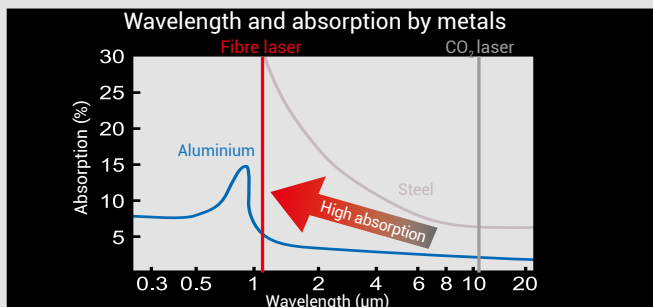


The FLC-3015AJ ensures the highest levels of accuracy due to the direct feedback of the cutting head position. This is only achievable by using linear drives on all 3 axes.



HIGH QUALITY PROCESSING OF HIGHLY REFLECTIVE MATERIALS

PROCESS RANGE EXPANSION



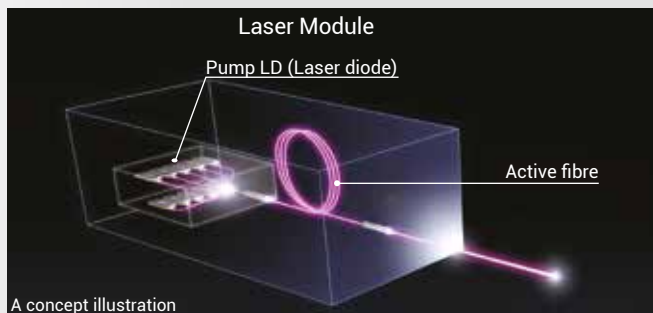
The fibre laser has a shorter wavelength and is 3 to 4 times more easily absorbed than traditional CO₂ lasers.



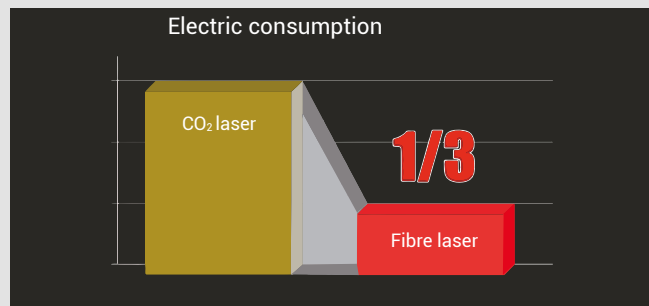
This enables high-quality processing of highly-reflective, difficult to process materials such as aluminium, brass, copper and titanium.

ENERGY AND MAINTENANCE COST REDUCTIONS

ENERGY CONSERVATION AND COST REDUCTION



The construction of the fibre laser oscillator and optical transport of the laser beam is less complex than a CO₂ system. This drastically reduces the maintenance requirements of the oscillator and optical parts.



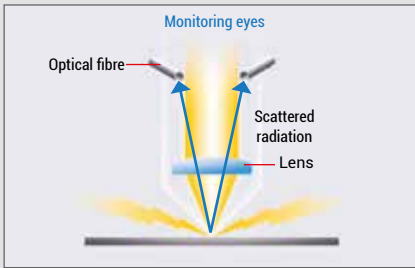
AMADA's fibre laser has a higher energy conversion and 3 times higher energy efficiency than a CO₂ laser. Power consumption of the oscillator is also substantially reduced. There is no need for warm-up operations or laser gas, providing a running cost saving of at least 70%.

AMADA DEVELOPED FIBRE LASER OSCILLATOR

AMADA is the world's first laser manufacturer to develop its own fibre laser oscillator. In a CO₂ laser oscillator, laser light is pumped with laser-gas, emitted via the output mirror and delivered by reflector mirrors to the cutting head. The fibre laser oscillator has no need for this. The monolithic structure allows the laser power produced by the single laser diode bank to be transmitted via a single fiber optic cable for direct delivery to the cutting head. There is no combiner unit in AMADA's 2kW fibre laser oscillator, meaning a higher quality beam is generated.



FUNCTIONS AND OPTIONAL EQUIPMENT



Process Monitoring System

The laser cutting process is constantly monitored for piercing, gouging, plasma, and other cutting defects to ensure constant and stable cutting.



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.

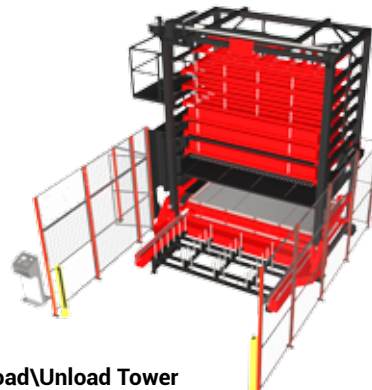
AUTOMATION OPTIONS

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.

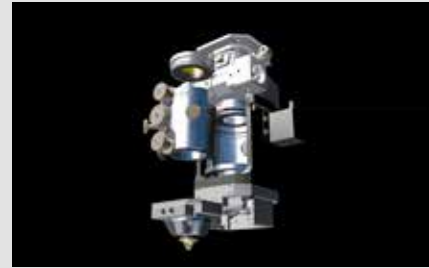


Cutting Lenses

The FLC-3015AJ is supplied with 3 cutting lenses as standard, to ensure no compromise on speed or quality.

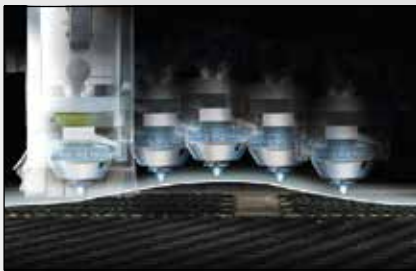
- 150 mm lens assembly*
- 190 mm lens assembly*
- 220 mm lens assembly*

* including lens holder



'One Touch' Lens and Nozzle Exchange

To allow faster machine setup, the cutting head on the FLC-3015 AJ is equipped with simple, quick change lens and nozzle cartridges.



HS Capacitance Head

In order to ensure reliable processing, the FLC-3015 AJ 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 8 mm thick (with 2 kW power) compared to traditional oxygen cutting.



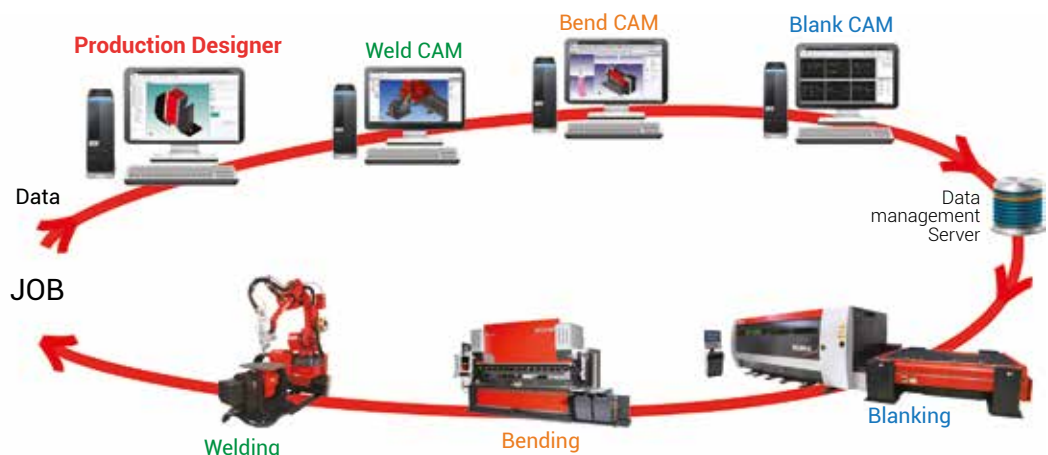
Top Dust Collector

As well as the more usual extraction under the cutting bed, there are also 2 extra sections in the roof of the machine to ensure complete dust and fume extraction.

THE SHEET METAL DIGITAL FACTORY

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

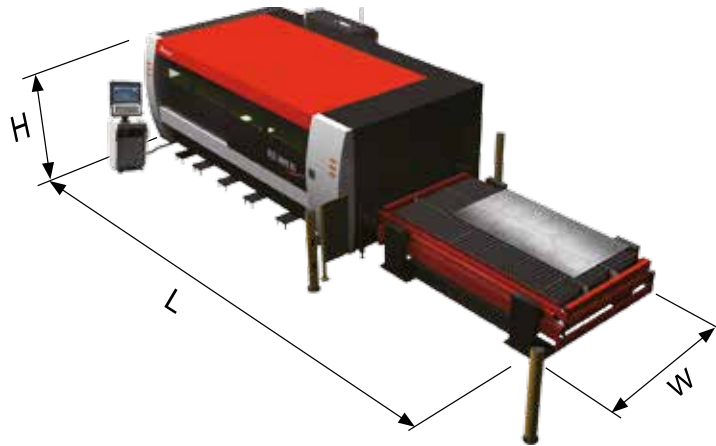
All data is created in the office and utilised in the workshop via a network.



Unit : mm

DIMENSIONS

FLC-3015 AJ + shuttle table (LST)
(L) 10028 x (W) 2900 x (H) 2000



MACHINE SPECIFICATIONS

| FLC-3015 AJ | | | |
|--------------------------------|-----------|-------|------------------------------------------------------------------------|
| Numerical control | | | AMNC 3i |
| Controlled axes | | | X, Y, Z axes (three axes controlled simultaneously) + B axis + CF axis |
| Axis travel distance | X x Y x Z | mm | 3270 x 1550 x 100 |
| Maximum processing dimensions | X x Y | mm | 3070 x 1550 |
| Maximum simultaneous feed rate | X / Y | m/min | 170 |
| Positioning accuracy | | mm | ± 0.05 |
| Maximum material mass | | kg | 920 |
| Processing surface height | | mm | 940 |
| Machine mass (main unit only) | | kg | 11200 |

OSCILLATOR SPECIFICATIONS

| AJ-2000 | | | |
|------------------------------|-----------------|--------------------------------|----|
| Beam Generation | | Laser diode-pumped fibre laser | |
| Maximum power | W | 2000 | |
| Wavelength | µm | 1.08 | |
| Maximum processing thickness | Mild Steel | mm | 16 |
| | Stainless steel | | 10 |
| | Aluminium | | 8 |
| | Copper | | 4 |
| | Brass | | 5 |
| | Titanium | | 5 |

SHUTTLE TABLE SPECIFICATIONS

| LST-3015 | | |
|-----------------------------|----|---------------------|
| Maximum material dimensions | mm | (X) 3070 x (Y) 1550 |
| 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 FLC3015AJ. Use this registered model names when you contact the authorities for applying for installation, exporting, or financing.
The hyphenated spellings like FLC-3015 AJ 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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