SOLUTION

AMADA DIGITAL INNOVATION
V-factory

Next Global Standard
High speed punch/fiber laser combination machine

EML AJ
SERIES

The EML AJ series is a high-speed punch/fiber laser combination machine that is now equipped with a new punch and die changer (PDC)

Based on the best-selling “EML” combination machine, AMADA presents the EML-AJ Series with fiber laser technology and a higher punching hit rate.
The automatic punch die changer was upgraded to work with the Tool ID system while the laser is processing.
The EML-AJ provides continuous operation at high speeds with low running cost.

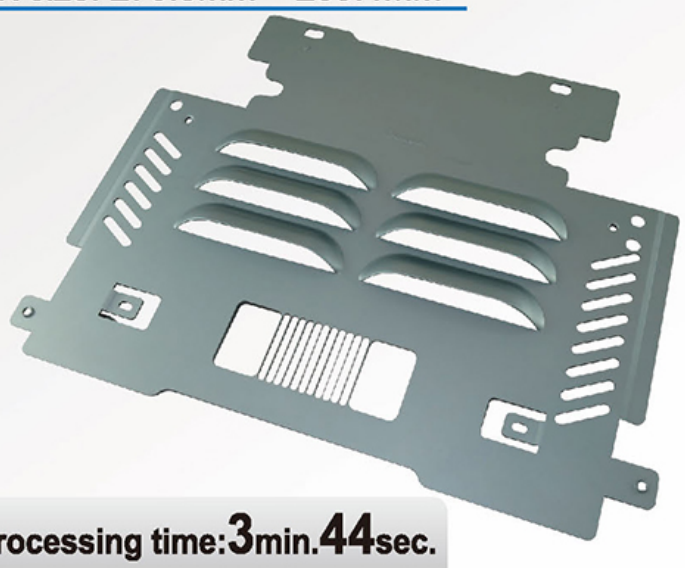
One step ahead of the customers' standard,

Next Global Standard
High speed punch/fiber laser combination machine

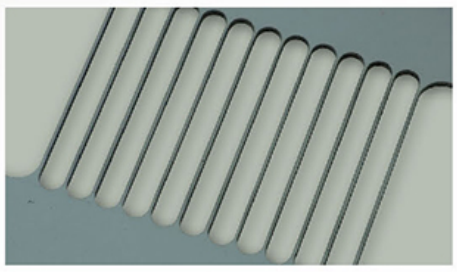
EML AJ SERIES

EML-AJ sample

Material/thickness: SECC 1.0mm
Part size: 270.3mm × 209.4mm

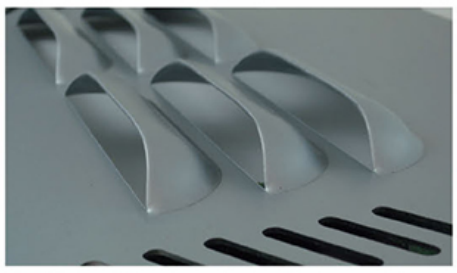


Processing time:3min.44sec.
Running cost: 124.3JPY

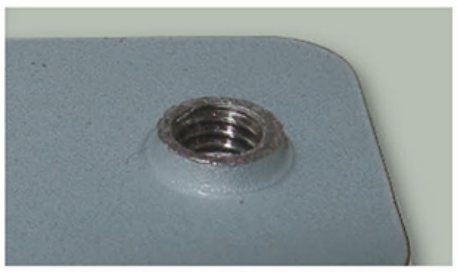


Intricate processing with a fiber laser.

Fiber laser technology admits less heat than a CO_2 laser which allows little to no distortion when processing closely nested parts.



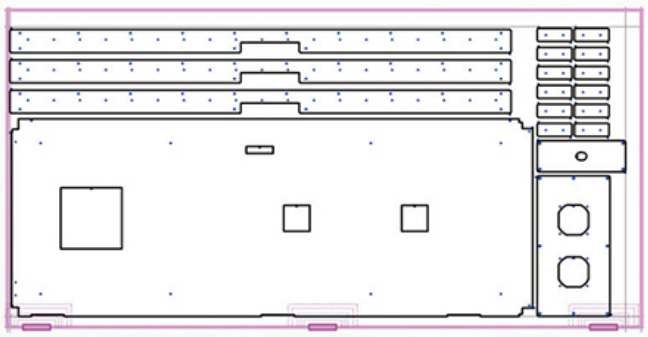
High quality punch and form process.



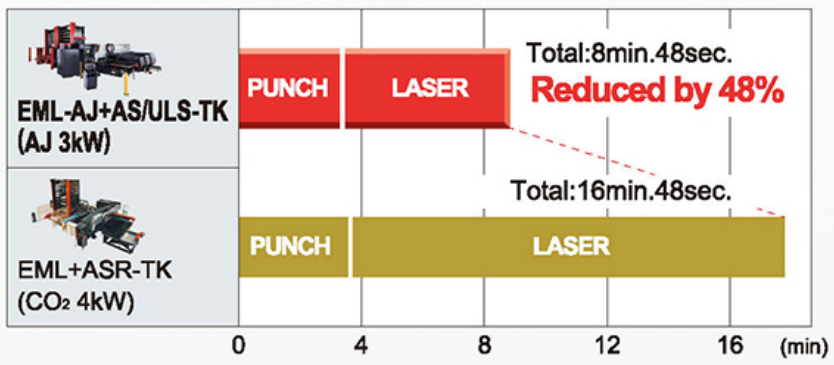
P&F up-forming burring and MPT tapping unit.

Material/thickness: SECC 2.3mm
Size: 1219mm x 2438mm

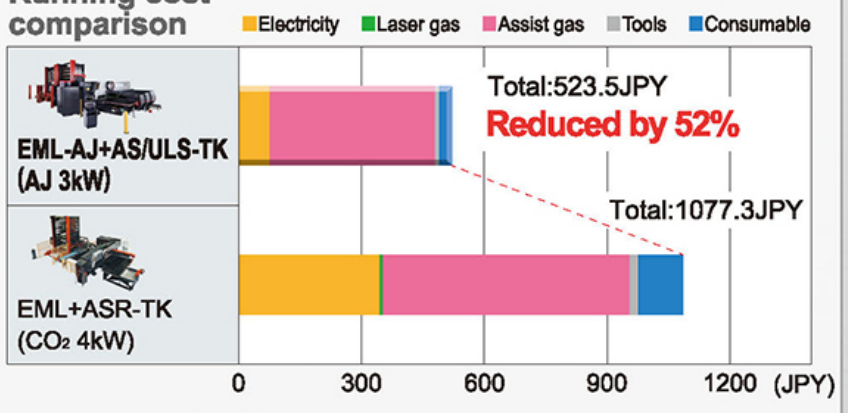
Fiber laser oscillator doubles the productivity and reduces half the cost.



Processing time comparison

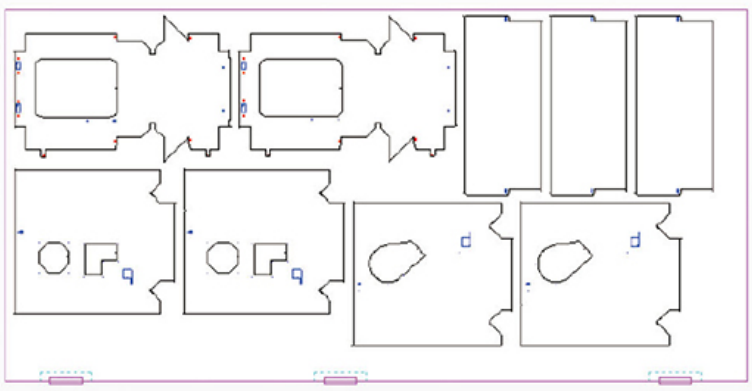


Running cost comparison

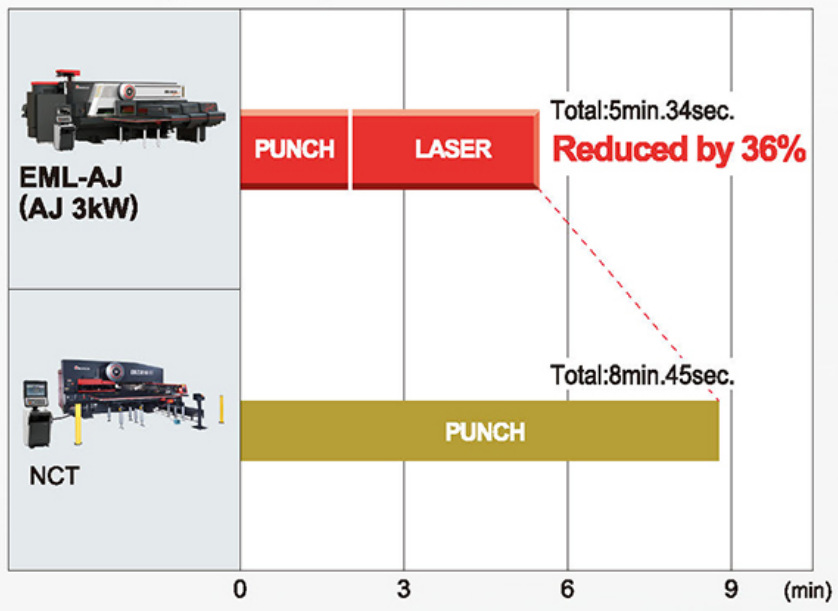


Material/thickness: SECC 1.2mm
Size: 1219mm x 2438mm

Changing from an NCT standalone machine to a combination machine reduces processing time, programming time, tool preparation time, and total lead time by laser cutting complicated shapes.



Processing time comparison



EML-AJ Solution Package

Automated solution packages that maximize the EML-AJ's capability

16 hr model

Standard model for various materials

EML-AJ + AS/ULS-NTK

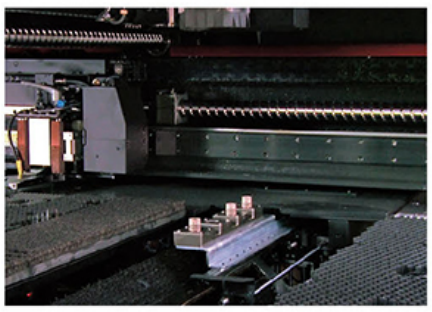
Material storage/product storage can be stacked with different types of materials.
Automated overnight operation can be achieved with one setup.

EML-AJ-PDC

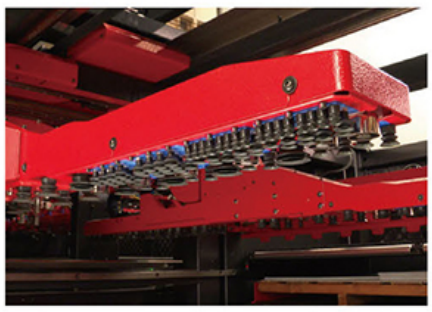
●Solutions for continuous operation

Automatic punch die changer (PDC)

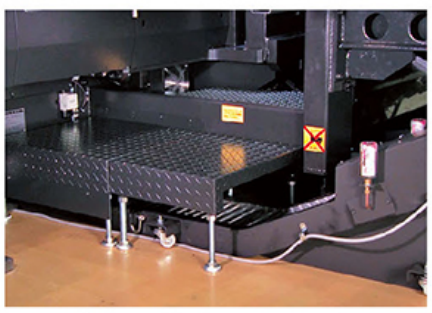
TK automated solution



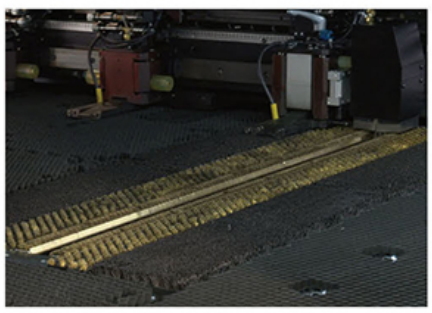
Nozzle changer



Automated product stacking arm



Automatic laser scrap removal system



Automatic cutting plate cleaning system

●Easy operation

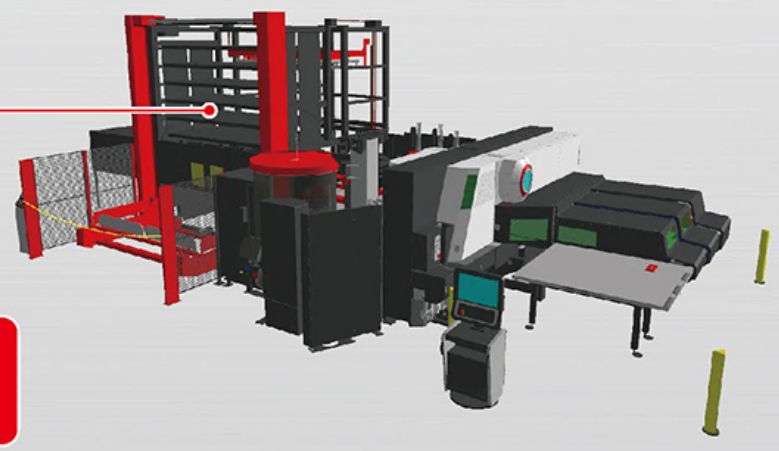
AMNC 3i

12 hr model

Space-saving automation model

EML-AJ + ASR-NTK

Material, product, and skeleton are all stacked on one storage.
Overnight operation can be achieved with one setup.



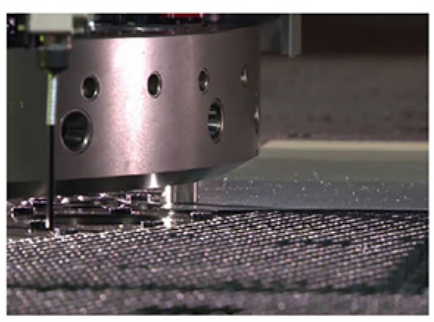
Cycle loader (single tower) ASR-NTK

Cycle loader
(twin towers)
AS/ULS-NTK

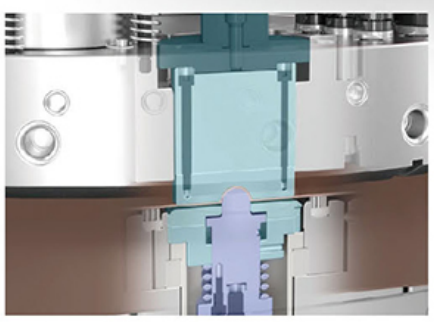
●High productivity/low running cost

Fiber laser oscillator: AJ-3000

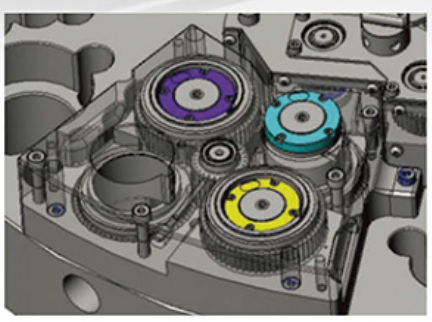
●High speed/high quality punch process



High-speed punching



P&F (Punch & Form)



MPT tap station

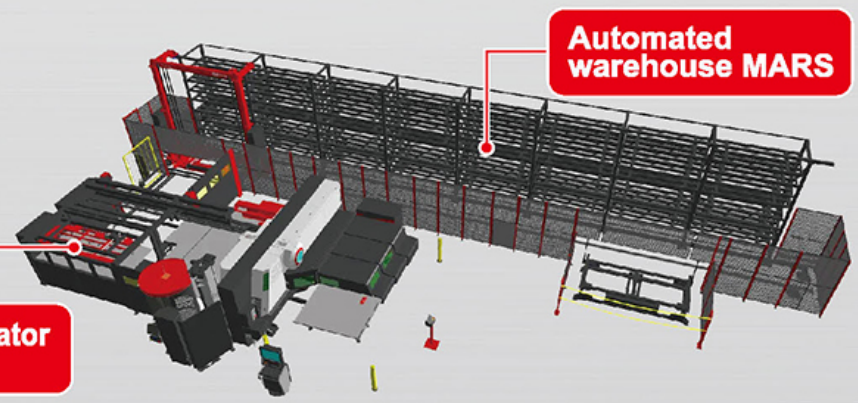
Tool ID System

24 hr model

Long-hour/multi-material expanded model

EML-AJ + RMP-NTK + MARS

**Customized pallets and storage units are available.
Connect multiple blanking machines to a bending system.**



*PDC (Punch die changer) is optional for each model.

EML-AJ Series new technology

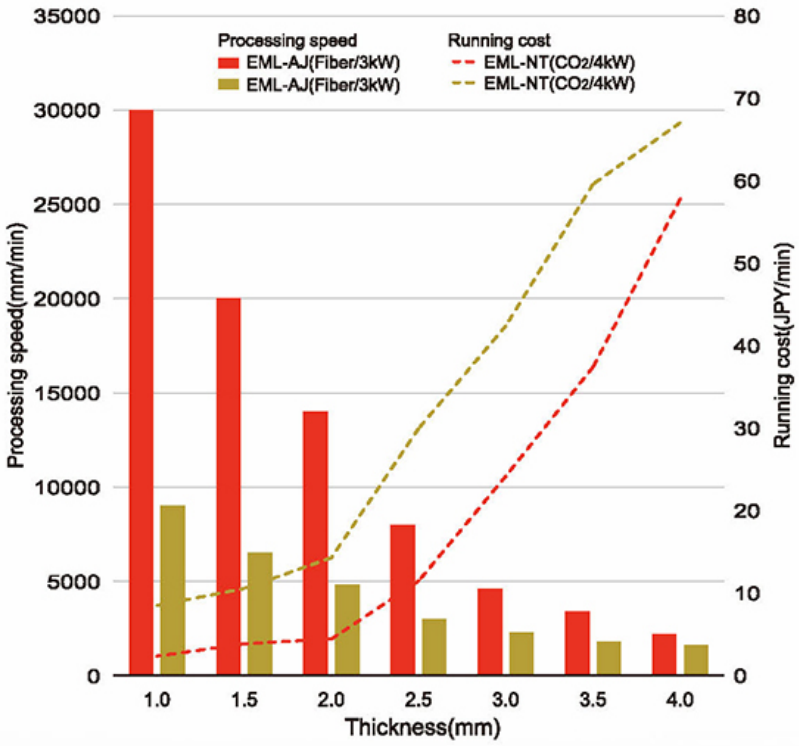
1 High productivity/low running cost

Fiber laser oscillator: AJ-3000

Compared to a CO_2 oscillator, processing with a fiber laser achieves drastic cost reduction high productivity of clean-cut on thin material.

Fiber laser processing speed is 2.5~4.0 times faster than a CO_2 laser while running cost is reduced by almost 1/2 when processing thicknesses of 1.0mm~3.0mm.

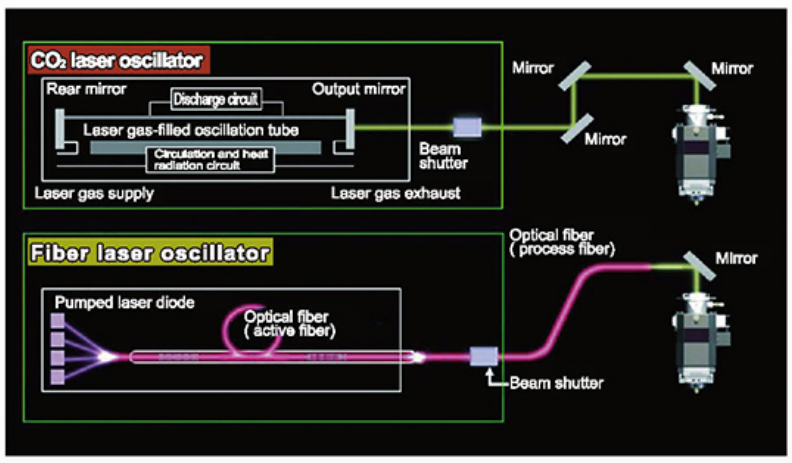
Processing speed/running cost comparison in SUS304 Clean cut



*The running cost comparison only reflects laser processing per meter and does not include other features.
*Processing speed comparison does not reflect productivity.

Reduce maintenance cost

Fiber laser technology lowers maintenance costs because the simple structure has less parts than a CO_2 laser.



Outstanding safety and workability

The laser cutting area is enclosed by a shutter and table cabin to ensure operator safety.

Process highly reflective materials

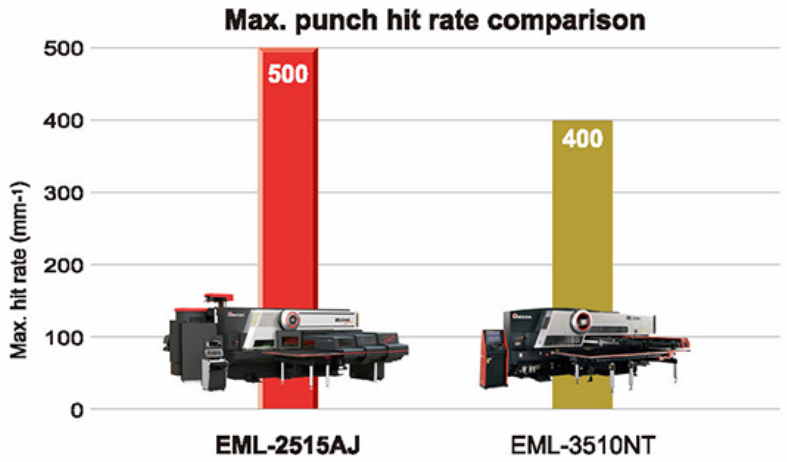
Process reflective materials difficult for CO_2 lasers such as aluminium, copper, and brass.

2 High speed/high-quality punch process

Achieves higher speed punching

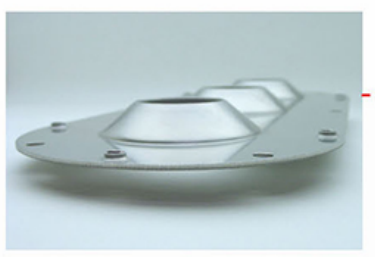
New functions on the AC servo direct twin drive provide higher hit rates. Capable of 500 hpm (25.4mm pitch) 1.3 times faster than the EML-NT.

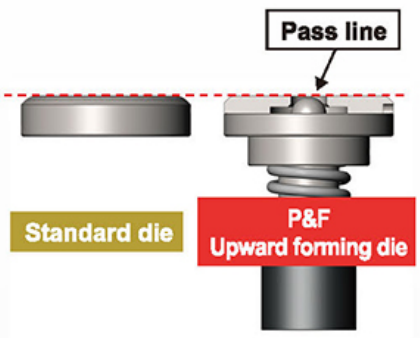
*Station size 1/2", 1-1/4"



P&F (option); High height up-forming prevents material scratching

The forming cylinder moves up and down the forming tip of the die, produces high quality formed parts without distortion.
Since the P&F dies can be used at the same pass line as other dies, there are no concerns about bottom surface scratches and coil breaks.

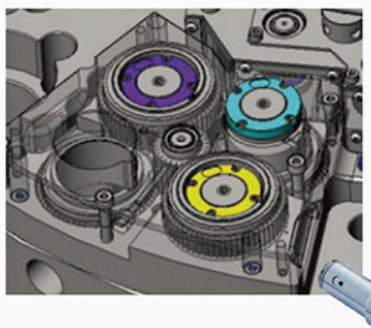




MPT tapping station

Utilize the process range capabilities of punching and tapping to reduce programming and processing time.
The automatic punch die changer PDC (option) allows punch tools to be changed during processing. Up to 7 kinds of tapping tools can be applied in one operation.

*M2.5~M8 taps correspond to cutting and rolling.



Tool ID System

Digitally manage tools with ID.
Setup errors and tool maintenance are monitored to ensure high quality punching.

Automatic punch die changer PDC (option) scans the tool ID when installed to prevent errors when setting up tools.

3 Solutions for continuous operation

Automatic tool changing device (PDC)

■**Tool changing during laser processing**

Tools are exchanged automatically while laser cutting or loading/unloading material to reduce machine downtime and maximize the utilization rate.

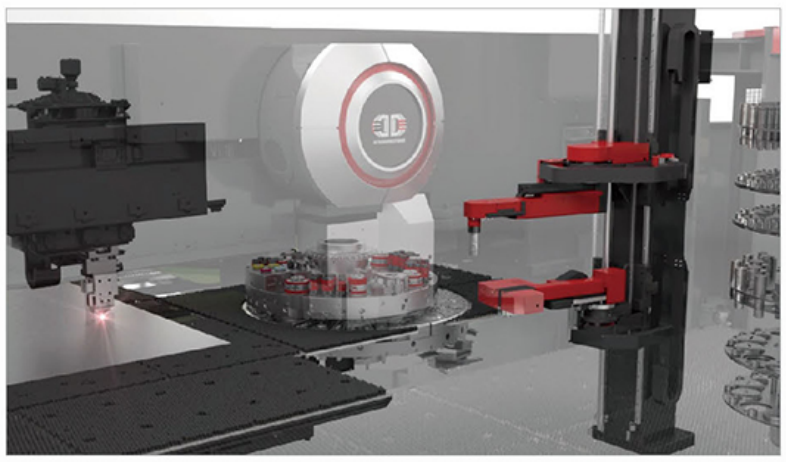
■**Long-hour continuous operation**

Continuous operation is achieved with the automatic material loading/unloading device and TK system.

■**Number of tools**

Punch220/Die440 corresponds to the production type.

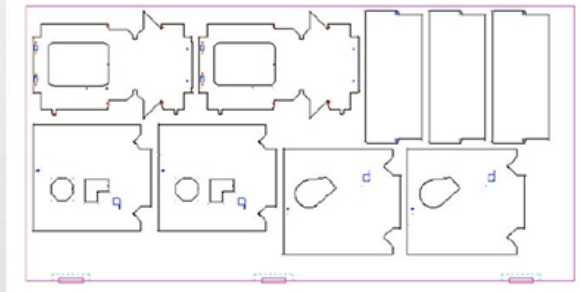
PDC	Tool size	No. of tools
Upper stations	½″	120
	1¼″	60
Lower stations	1¼″	20
	2″	12
	3½″	Total:8
	4½″	
Total		220



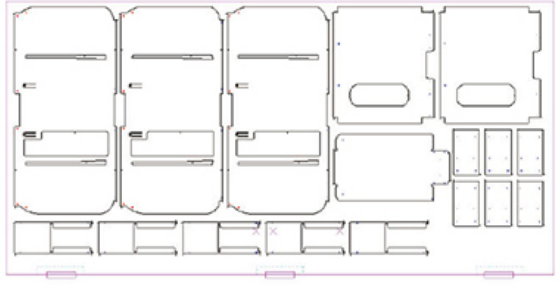
Tools are exchanged automatically while laser cutting or loading/unloading material.

Sample Processing time comparison of different materials (3sheets/40 products) in schedule operation.

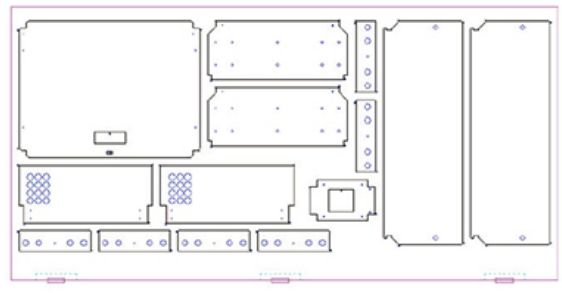
①SECC 1.2mm



②SUS 3.0mm



③SECC 2.3mm



EML-AJ-PDC + AS/ULS-NTK

Total: 24min.44sec.

Tooling setup	Blank processing① Tool change during laser processing.	Blank processing② Tool change during laser processing.	Blank processing③

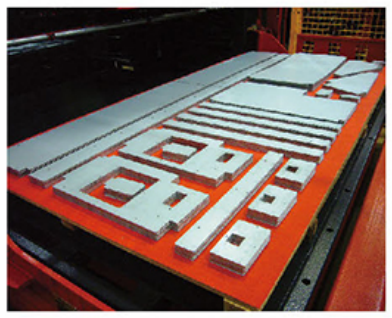
EML-NT

Tooling setup	Blank processing①	Tooling setup	Blank processing②

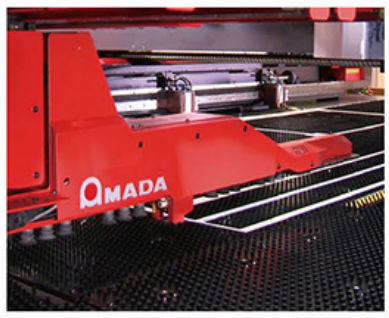
TK automated solution

Utilize the take out (TK) loader system to load/unload materials and to stack products automatically.
Both the left and right arm can move independently to remove products of different sizes.

Remove products after laser cutting



Stacking by product



Stacking skeleton

Automatic Nozzle Changer

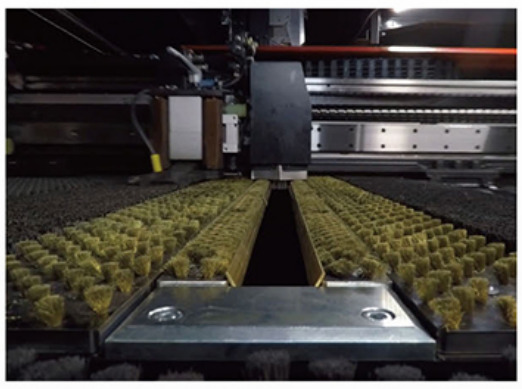
Up to 4 types of nozzles can be changed automatically to match the process conditions of the material.

Automatic laser scrap removal

Continuous operation is now possible with the laser scrap removal system.

Automatic cutting plate cleaning

Automatically remove the dross attached to the cutting plate to minimize scratches.



Productivity is dramatically enhanced by combining a high speed fiber laser with solution for continuous operation.
Significantly reduce total lead time.
Seamless material handling between processes.

Direct to the next process after the "joint-less" blanking parts.

Next process

Total: 42min.24sec.

Tooling setup → Blank processing③ → Sorting/finishing → Next process

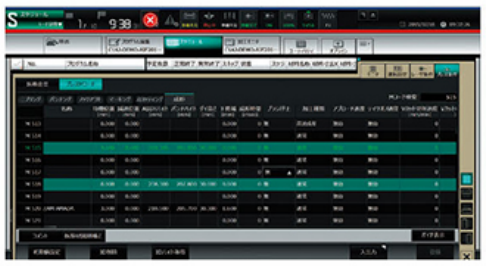
4 Easy operation

AMNC 3i

The AMNC 3i, the latest AMNC controller, is easy to operate with a large touch screen that displays all the required information. With smooth operation and reduced setup times, this control ensures quality and productivity.

- Intelligent
- Interactive
- Integrated

Change the process condition by touching the part graphic on the screen and edit the operation such as work chute.



Prevents forming mistakes when using ID tooling.

- **Other functions**
  - Real-time processing image
  - Restart function of program with TK operation.

Peripheral devices control/ Material inventory management

Operating Standby
Planning Alarm

Screen displays operation results

- Customize the screen to match operators level

Fiber laser
Premium support

The machine with highly trusted su

Three Operation support

Running cost reduction and standardization

Oscillator 5 Year warranty

Machine utilization through IoT support

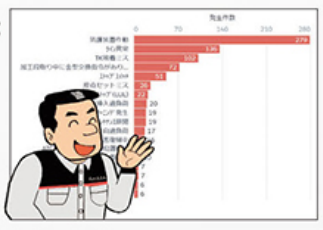
[Obstacle-avoiding support]

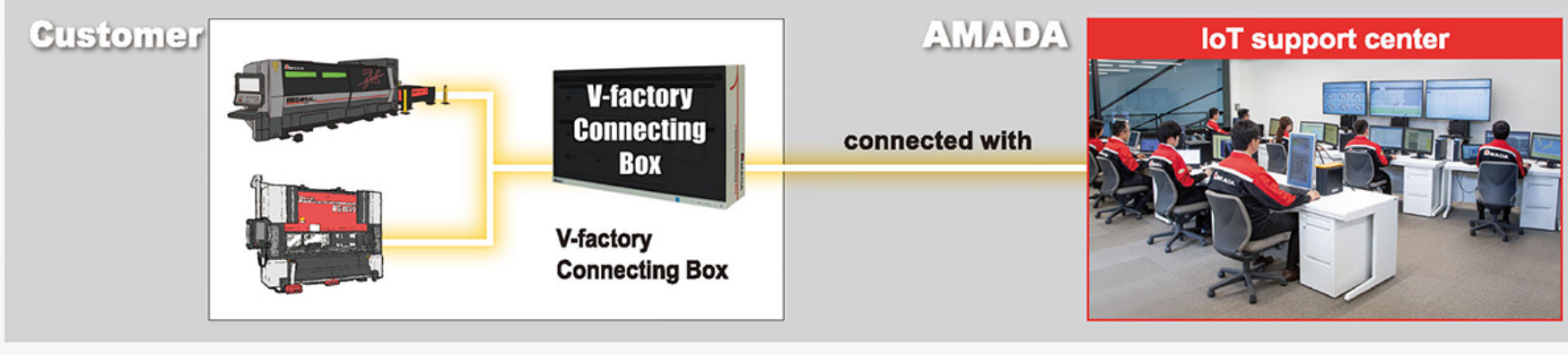
Pre-maintenance proposal through our WEB page.

[Early recovery support]

Remote diagnosis

[Operation improvement support]





V-monitor (option)

❶ AMNC connection

Recording function allows process details to be checked through AMNC 3i monitor.

❷ Just-in-time service

Just-in-time service checks the recorded video from the alarm history to provide a prompt response.

❸ Tablet/smartphone connection

Monitor the machines operating conditions remotely.

pport

The fiber laser premium support for AMADA's fiber laser machines.
It includes a five-year warranty for oscillator repair, in addition to the conventional machine maintenance service. Our customers can now enjoy AMADA's IoT support for machines without worries.

*Fiber laser premium support requires alternative contract.

Duration/content

Service items	1 year	2 year	3 year	4 year	5 year
IoT support	IoT support				
Machine body parts	Manufacurer guarantee (features excluded)	Discount 20%			
Oscillator parts		Oscillator 5 year repair and warranty (consumables excluded)			
Technical materials and the expenses incurred by the company are free within business hours.		Maintenance service			
Regular inspection					

We offer separate support plans after the 6th year.

■Main oscillator parts

- Engine (including internal board, sensors)
- Beam coupler (including mode variable unit)
- Control board, power supply, etc.

*For details, please contact your service engineer.

■Main oscillator parts

- Battery • Filter • Fan• Consumable parts (e.g. Packing, O-ring,)
- Cables connected from the oscillator to the machine
- Process fiber

■Failure not covered

- ·Damage caused by natural disasters and external factors like handling
- ·Damage from power supply or insufficient control of cooling water
- Failure caused by not meeting installation specifications

Target machine

■Fiber laser machine • ENSIS-AJ series • FLC-AJ series • LCG-AJ series • FOL-AJ series

■Punch/laser combination machine • ACIES-AJ series • EML-AJ series • LC-C1AJ series

*This content is current as of October 2018 and is subject to change without notice.

■Dimensions

Unit : mm

■EML-2512AJ-PDC
(L : 6648 × W : 6077 × H : 2915)

■EML-2515AJ-PDC
(L : 6808 × W : 6927 × H : 3010)

■EML-2512AJ
(L : 5520 × W : 6077 × H : 2355)

■EML-2515AJ
(L : 5689 × W : 6927 × H : 2525)

■Machine specifications

Model			EML-2512AJ-PDC	EML-2515AJ-PDC	EML-2512AJ	EML-2515AJ
Model names (Note the points listed below.)			EMLZ12AJP	EMLZ15AJP	EMLZ12AJ	EMLZ15AJ
Punch	Press capability	kN	300			
	Drive system		AC servo, direct twin drive			
	Turret		Z turret			
Axis travel method	Punch		X × Y material			
	Laser		X material /Y laser beam			
Processing dimension	Punch X × YP	mm	2550 × 1270	3050 × 1525	2550 × 1270	3050 × 1525
	Laser X × YL	mm	2550 × 1270	3050 × 1525(with repositioning)	2550 × 1270	3050 × 1525(with repositioning)
	Combination X × Y	mm	2550 × 1270	3050 × 1525(with repositioning)	2550 × 1270	3050 × 1525(with repositioning)
Rapi traverse X / YP / YL / Z		m/min	100 / 80 / 100 / 80			
Accuracy		mm	±0.07			
Maximum material mass		kg	75(F1),150(F4)	75(F1),150(F4), 220(FA+F4)	75(F1),150(F4)	75(F1),150(F4), 220(FA+F4)
Work chute X × Y		mm	400 × 1270	400 × 1525	400 × 1270	400 × 1525
PDC Number of tools			220		—	
Punch stroke (X axis)		min^{-1}	500(25.4mm pitch/5mm stroke)			
Punch stroke (Y axis)		min^{-1}	340(25.4mm pitch/5mm stroke)			
Machine mass		kg	27500	29000	24000	25500
Power requirement (machine+dust collector)		kVA	44		36	

■Oscillator specifications

Model		AJ-3000
Oscillation method		Laser diode pumped fiber
Wavelength	μm	1.08
Rated power	W	3000
Pulse peak power	W	3000
Mass	kg	Appx.400
Power receiving capacity	kVA	10.4
Chiller power requirement	kVA	9

■Turret layout

Tool size		Z turret 53ST2AI-4MPT
A	½″	30(30)
B	1¼″	10(10)
C	2″	3(3)
D	3½″	2(2)
E	4½″	2(2)
B(TAP)	1¼″	4(4)
G	AI(1¼″)	2(2)
Total		53

*The numerals in parentheses indicate the number ofstations which can accept shaped tools.

■PDC layout

PDC	Tool size	Number of tools
Upper section	½″	120(120)
	1¼″	60(60)
Lower section	1¼″	20(20)
	2″	12(12)
	3½″	Total8(8)
	4½″	
Total		220

For Safe Use
Be sure to read the operator's manual carefully before use.

●Use of this product requires saftey precautions to suit your work.

*Specifications, appearance, and equipment are subject to change without notice.
*Use these registered model names when you contact the authorities for applying for installation, exporting, or financing.
The hyphenated spellings like AJ-3000, are used in some portions of this catalogue for sake of readability. This also applies to other machines.
*The specifications described in this catalogue are for the Japanese domestic market.

This laser product uses a Class 4 invisible laser for processing and a Class 3R visible laser for positioning.

●Class 4 invisible laser : Avoid eye or skin exposure to direct or scattered radiation.
Never look into the radiation or touch it.

●Class 3R visible laser : Avoid direct eye exposure.

AMADA CO., LTD.
www.amada.com

inquiry

ECO PRODUCTS

Those which are highly improved inproductivity and energy saving arestated ECO PRODUCTS by Amada.

E094-HQ02en
Jul. 2021