

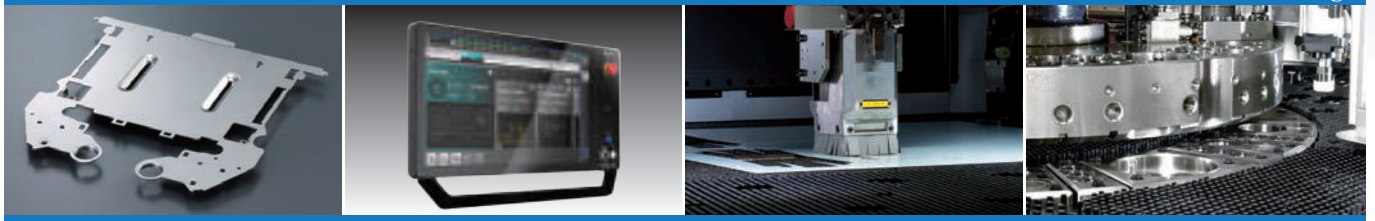
SOLUTION



High speed, next standard combination machine equipped with a fiber laser

EMLAJ SERIES

Blanking



The Engineering AMADA



Equipped with a Fiber Laser Oscillator and New PDC, the EML-AJe High Speed Punch & Fiber Laser Combination Machine

AMADA's best-selling combination machine, EML, is equipped with a fiber laser oscillator that realizes "1/2 the cost" and "twice the productivity" compared to conventional CO₂ lasers! This next standard machine is equipped with many automatic operation functions to meet the needs of work style reform and human resource shortages, and to expand production and profit.

**Taking customer's standard
one step ahead!**

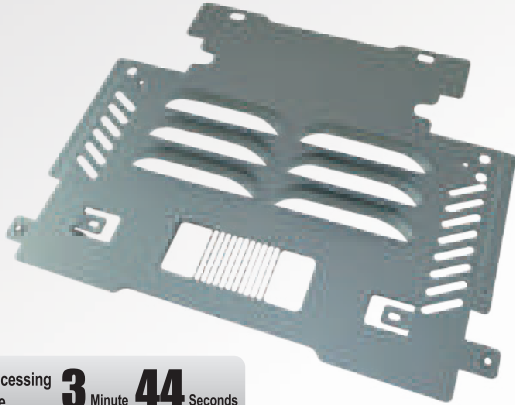


High speed, Next Standard
combination machine with a fiber laser

EMLAJ  **SERIES**

Processing examples with sample workpieces

Material/Thickness: SECC 1.0mm
Size :270.3×209.4 mm



Processing time **3** Minute **44** Seconds
Processing costs **124.3** Yen



Fine processing by fiber laser

Fiber laser oscillator enables fine processing that would otherwise melt down with a CO₂ laser.



High height, high quality P&F forming



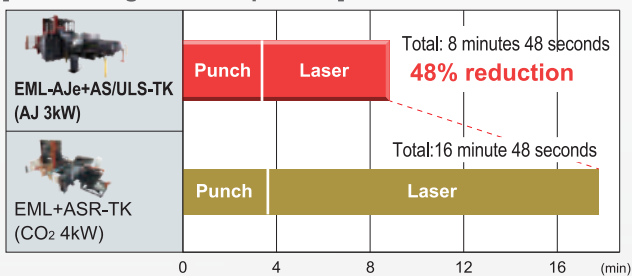
P&F upward burring & MPT tapping

Material/Thickness: SECC 2.3mm
Material size: 1219×2438mm

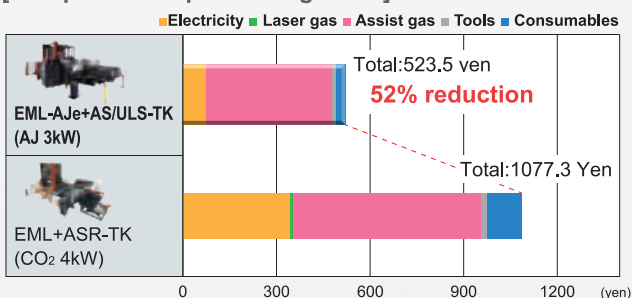
The use of a fiber laser cuts costs by half and doubles productivity compared to a conventional CO₂ machine.



[Processing time comparison]

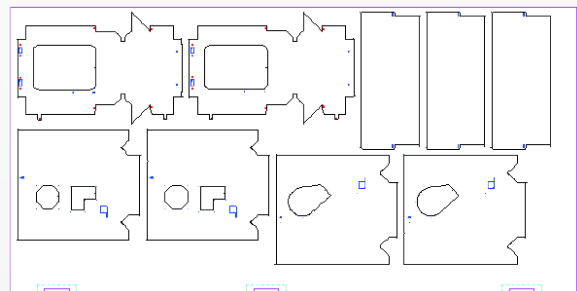


[Comparison of processing costs]

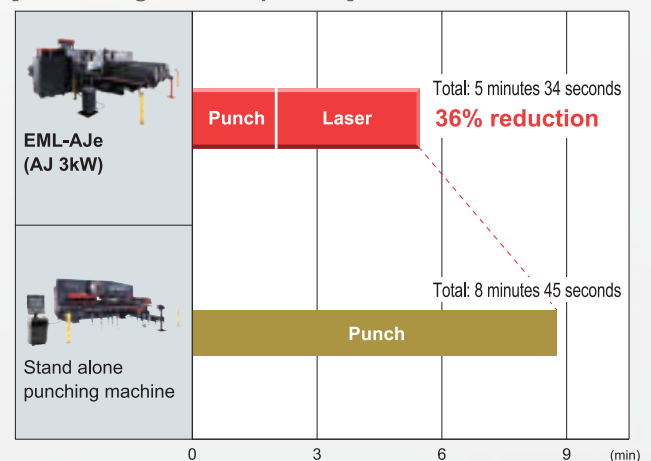


Material/Thickness: SECC 1.2mm
Material size: 1219×2438mm

By replacing a standalone NCT machine with a combination machine, the processing of exterior and complex shapes can be replaced with laser processing, which reduces machining time, programming time, and tooling setup time, shortening the total lead time.



[Processing time comparison]



EML-AJe Series New Technologies

1 High productivity and low running cost

Fiber laser oscillator: AJ-3000

Compared to a CO₂ laser, high speed processing and lower running costs on thin plate is achieved by Clean Cut.

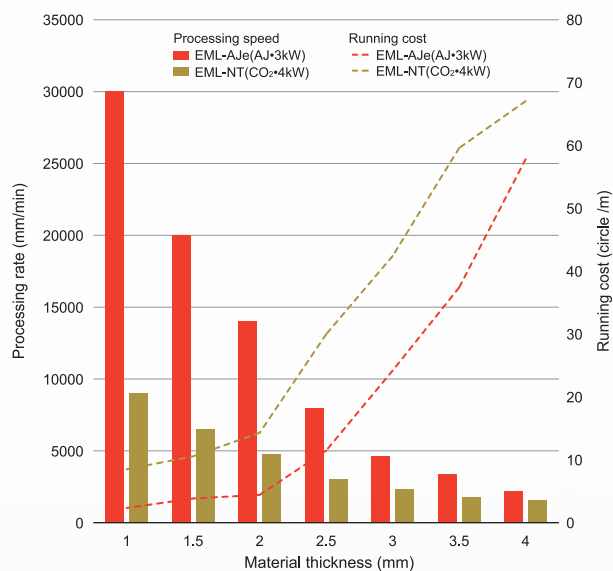
For plate thicknesses of 1.0 to 3.0 mm, the processing speed is 2.5 to 4.0 times faster than that of CO₂.

Running cost is about 1/2 of CO₂ laser.



Fiber laser oscillator

Processing speed/running cost comparison SUS304 Clean cut

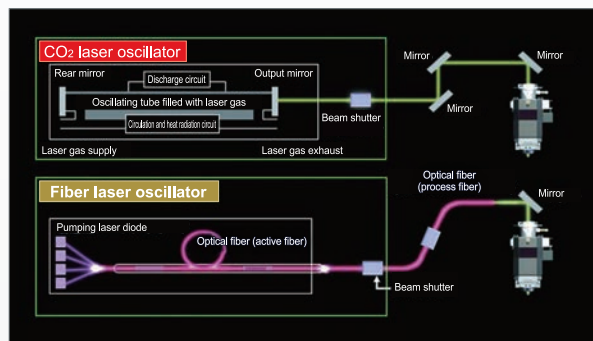


*Running costs are for laser processing per meter only and do not include other consumables.

*Comparison of processing speed is not a comparison of productivity, but a comparison of laser processing speed.

Reduction in maintenance costs

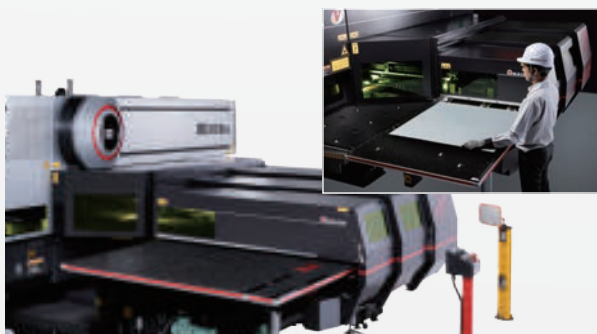
Compared to CO₂ oscillators, the simple structure reduces the number of parts to be replaced periodically, thereby reducing maintenance costs.



Compatibility between safety and workability

Table cabin and shutter completely shut out leaks of laser beam

Compatible with space saving and operator safety.



Processing of highly reflective materials

Highly reflective materials (aluminum, copper and brass) which were difficult to process with CO₂ lasers can also be processed.

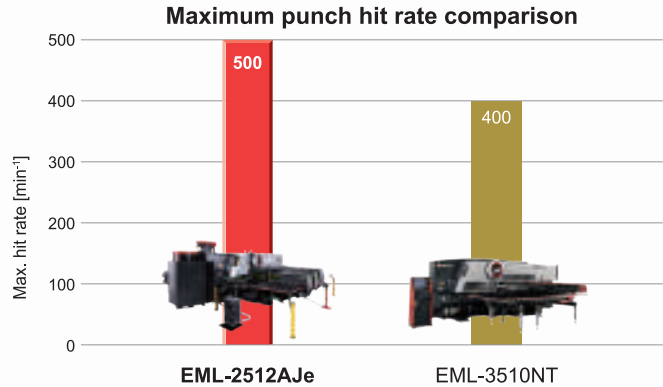


2 High speed, high quality punching process

Realization of even faster punch processing

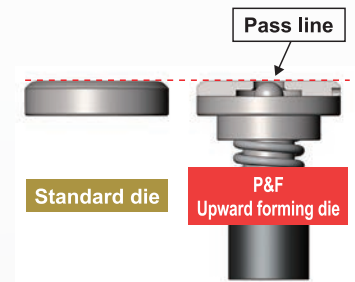
New AC servo direct twin drive function improves the maximum punch hit rate from 400 min⁻¹ (conventional EML-NT (CO₂)) to 500 min⁻¹ (1.25 times higher).

*1/2", For 1•1/4"
*25.4mm pitching



P&F (option) for upward forming and reducing scratches

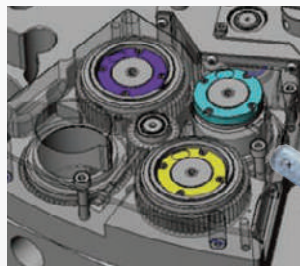
By holding down the plate with a punch and raising only the chip of the forming die, high quality forming process without distortion is realized. The upward forming die has the same pass line as the standard die, reducing back scratches and buckling.



MPT tapping unit

Tap unit is mounted in the turret.
The punching and tapping ranges are common, reducing programming and processing time.
The automatic tool changer PDC (optional) makes it possible to use 7 different types of taps in a single scheduled operation by changing tools during processing.

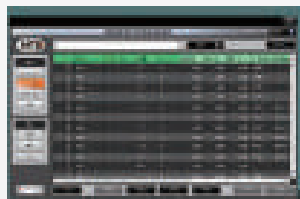
*Supports M2.5~M8 taps.
*Cutting and rolling taps can be supported



ID tooling system

Digitally manages tools one-by-one using ID engraved on the tooling.
Stable punching quality is achieved by informing the optimal maintenance time for each tools and polishing it before burrs are generated.

When combined with the PDC (optional) automatic tool changer, the ID is read after the tool is set to realize zero tool setting errors.



3 Solutions to prevent machine stoppage (options)

Automatic tool changer PDC

Automatic tool changes during laser processing

Automatic tool changer will change the tooling used in the next program during material loading/unloading or laser processing, thereby reducing machine downtime and maximizing actual utilization rate.

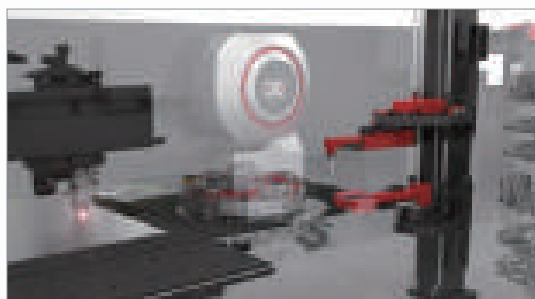
Continuous operation

Combination of material feeder and take-out loader enables continuous operation.

Number of tools installed

Mounted with 220 punches and 440 dies, the machine is capable of variable-type, variable-volume production.

| PDC | tool size | Number of bars |
|-----------|-----------|----------------|
| Upper row | 1/2" | 120 |
| | 1 1/4" | 60 |
| Lower row | 1 1/4" | 20 |
| | 2" | 12 |
| | 3 1/2" | Total :8 |
| | 4 1/2" | |
| Total | | 220 |



Automatic tool change during material loading and laser processing

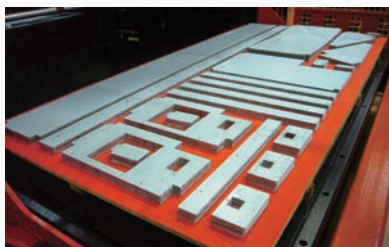
TK automated solution

The automatic feeder and automatic product accumulation arm (TK) free the operator from material feeding, disassembly, and sorting operations.

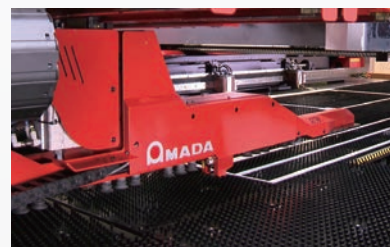
Independently driven left and right arms enable joint-less removal of small, large, and long parts.



Accumulation after laser processing



Accumulation and sorting by product



Automatic skeleton accumulation

Nozzle changer

Up to 4 types of nozzles can be automatically exchanged according to processing conditions for each plate thickness and material. Automatic replacement is possible when the same nozzle is installed and the cutting time exceeds a certain level.



Laser slug automatic removal

Laser slug is automatically transferred to the outside of the machine.

Continuous operation is possible without stopping the machine for scrap removal.



Cutting plate automatic cleaning

Automatic cleaning of dross adhering to the cutting plate.

Reduces operator man-hours for cleaning and reduces scratches on the bottom surface.



4 Laser stable processing support features

Automation of laser processing operations reduces operator variability and waiting time. It supports stable processing with zero downtime and contributes to increased productivity.

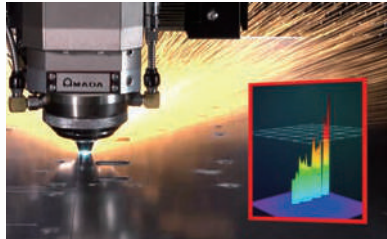
i-Optics Sensor (Standard feature)

Automatic protection glass inspection



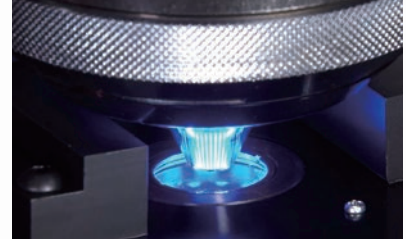
i-Process Monitoring (Standard feature)

Cut/piercing failure monitoring



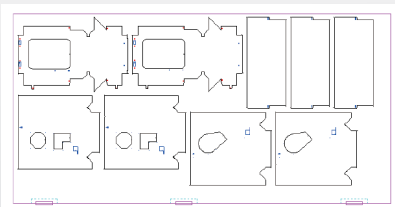
i-Nozzle Checker (Option feature)

Nozzle status inspection and automatic centering.

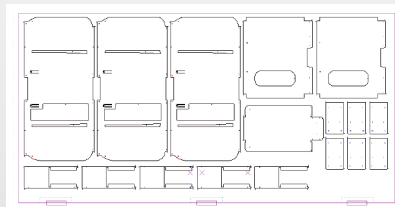


Product Examples Comparison of 3 sheets (40 products) of different thickness and materials processed by scheduling Synergistic effect of machine non-stop solution + high speed processing by fiber laser dramatically improves productivity. Significantly shortens total lead time. Products can be supplied to the next process immediately after processing.

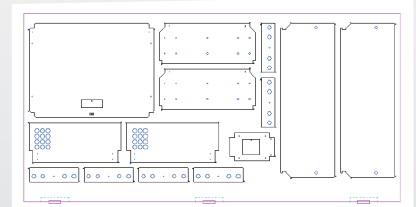
①SECC 1.2mm



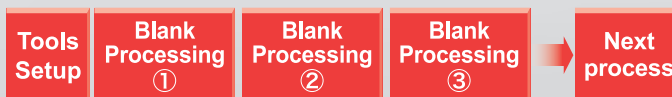
②SUS 3.0mm



③SECC 2.3mm



EML-AJe-PDC + AS/ULS-NTK TOTAL:24 minute 44 seconds



Automatic tool change during processing + laser cutting



After processing "joint-less" blanks, the products are immediately sent to the next process.

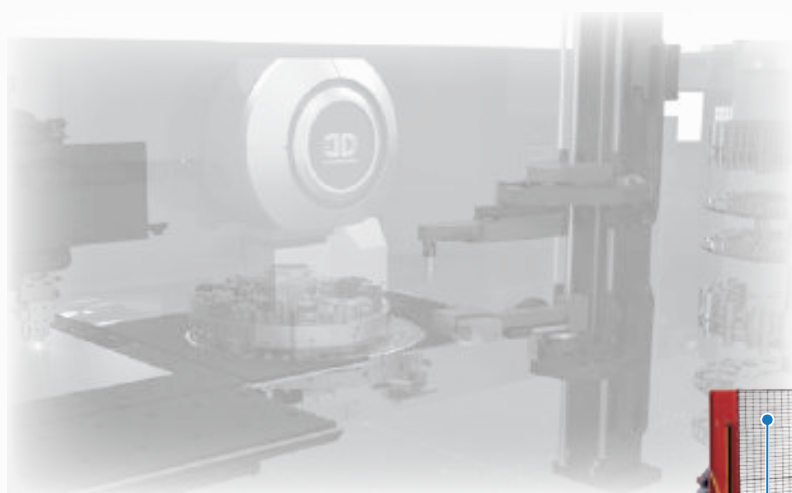


EML-NT

TOTAL:42 minute 24 seconds



EML-AJe Series New Technologies



Space-saving automation model ASR-NTK



EML-AJPe

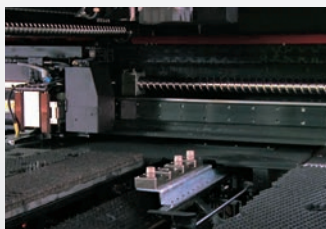
Automation solutions that prevent machine stoppages



Automatic tool changer PDC



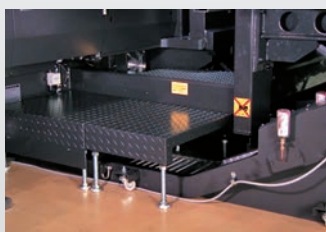
TK automated solution



Nozzle changer



Automatic product sorting arm



Laser slug automatic removal



Cutting plate automatic cleaning

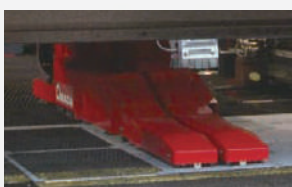
Easy operation



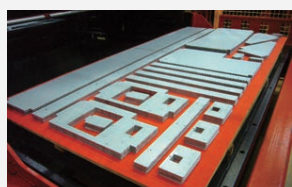
AMNC 4ie

TK automated solution

The automatic feeder and automatic product accumulation arm (TK) free the operator from material feeding, disassembly, and sorting operations. Independently driven left and right arms allow joint-less removal of small, large, and even long parts.



Accumulation after laser cutting



Accumulation and sorting by product



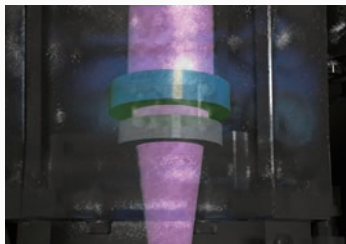
Automatic skeleton accumulation

Automation Solution Lineup

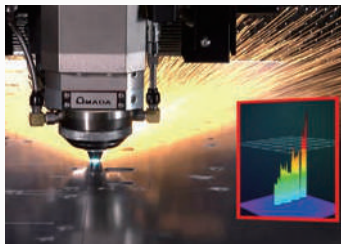
2 tower specifications (material and product tower)

The two tower specification of material, product and skeleton tower enables continuous operation of multiple materials and products.

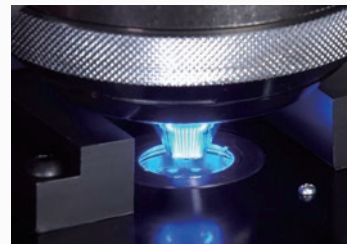
●Laser Stable Processing Solution



i-Optics Sensor
Automatic protective glass inspection

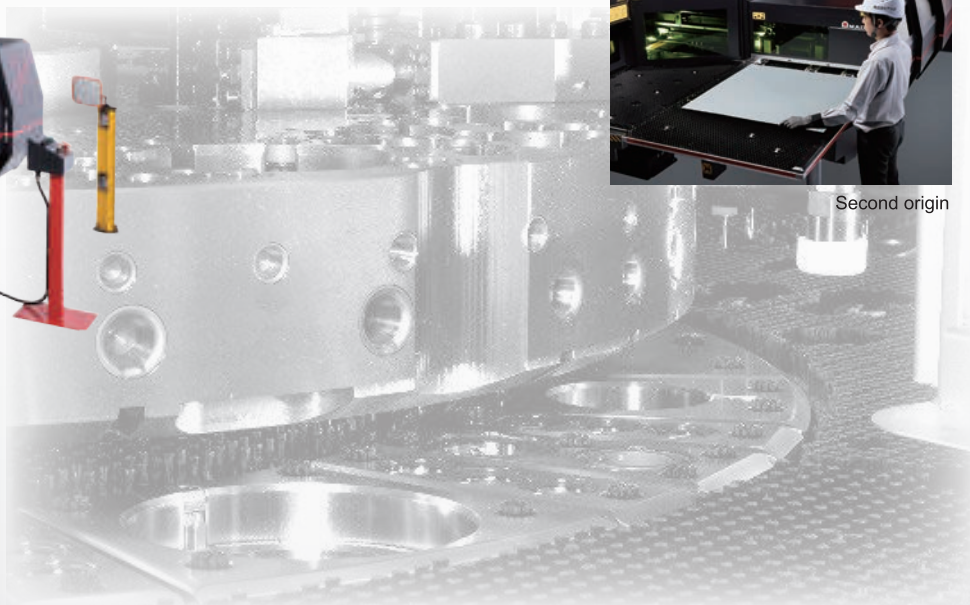


i-Process Monitoring
Cut/piercing failure monitoring

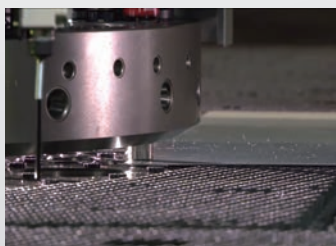


i-Nozzle Checker
Nozzle status inspection and automatic laser beam centering

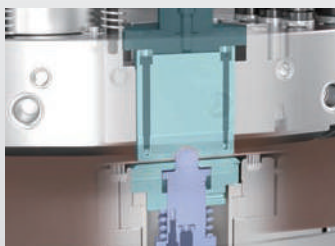
●Solution for manual operation



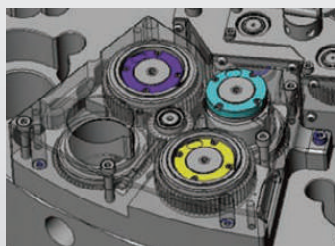
●High speed, high quality punch processing



High speed punching



P&F mechanism



MPT tapping unit



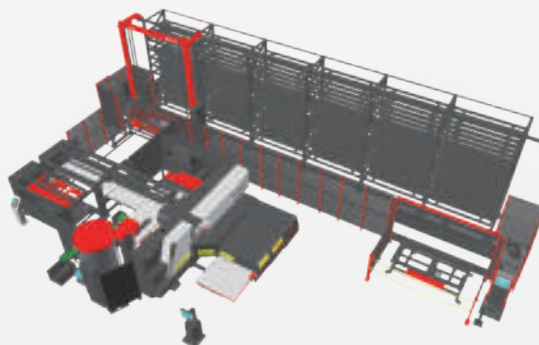
ID tools

up



■Automatic warehouse connection specification

Continuous operation is realized by connecting automatic warehouses. Efficient layout is possible according to the installation space and height of the customer.



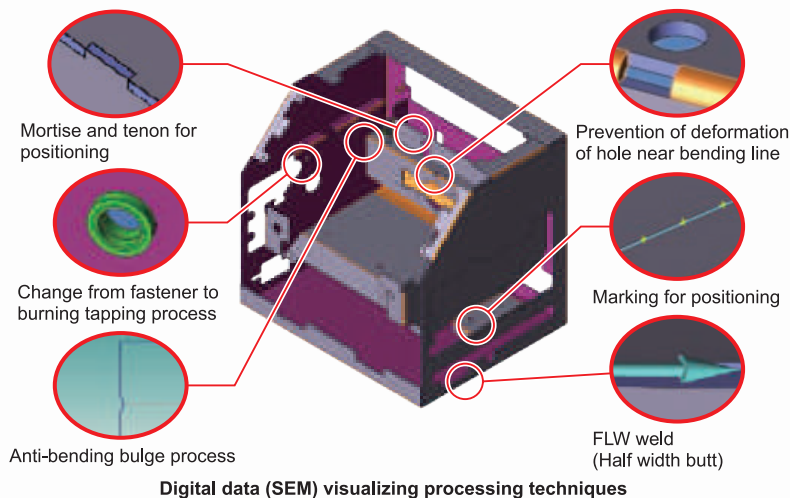
The concept that offers customers solutions by conn

Software

Advanced sheet metal engineering system

VPSS 4ie

The evolved sheet metal engineering system, VPSS 4ie, is more intelligent and automated than ever before, digitizing the processing know-how of all processes and bringing revolutionary benefits by connecting machines, software, and people in the factory with information.



CAM (VPSS 4ie PREMIUM/BLANK for blanking)

Blank CAM software for sheet metal that fully utilizes the performance of our blank cutting machines. It performs cutting, automatic allocation, and processing verification for each part and assembly. It reduces data preparation time and maximizes productivity and utilization of our blank machines.



*VPSS 4ie PREMIUM can create efficient programs including bending simulation by CAM for bending.

Link machines with customers **AMNC 4ie**

The new AMNC 4ie NC system is developed based on the concept of the "4 e's" to address the key issues in sustainability, namely "human issues" and "environmental issues." In addition to controlling machines and peripheral devices, the AMNC 4ie has enhanced interface functions to connect customers and machines.



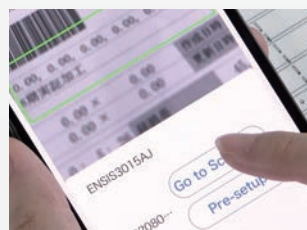
| | |
|--|---|
| Easy operation for anyone to use Easy | Efficiency in remote operation from anywhere Efficiency |
| Environmental sustainability in production Environmental | Evolution together with our customers Evolution |



Facial recognition
Language and screen display can be switched. (setting is required in advance)



Startup inspection guidance
Navigation video that allows anyone to perform startup inspections according to the procedures. Management and sharing of inspection history.



Mobile HMI
Notification of remote start/end prediction/completion using mobile HMI.



CO2 emission reporting function
CO2 emissions are measured for each component, and reports can be created and filed.

ecting to Amada

V-factory

Amada's recommended V-factory is based on the concept of "creating profits for customers". V-factory will co-create factory reforms with customers by providing visualization, taking advantage of IoT technology and maximizing machine utilization.

V-factory Connecting Box

Used to connect machines to the cloud and start V-factory.

V-monitor *

Automatically records the state of the machine during automatic operation.



- Visualization of machine operation, production, and consumption
- Visualization of machine maintenance and utilization status

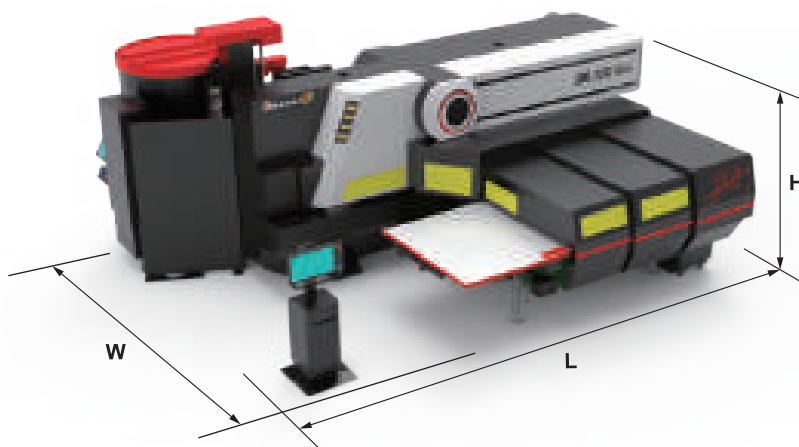
- Constant monitoring of operating conditions, sensors, power consumption, etc.

■ Dimensions

Unit :mm

- EML-2512AJe-PDC
(L : 6958 × W : 6173 × H : 2915)
- EML-2515AJe-PDC
(L : 7218 × W : 6927 × H : 3010)
- EML-2512AJe
(L : 5830 × W : 6173 × H : 2355)
- EML-2515AJe
(L : 5635 × W : 6927 × H : 2525)

*Dimensions above, includes oscillator



■ Machine specifications

| Model | | EML-2512AJe-PDC | EML-2515AJe-PDC | EML-2512AJe | EML-2515AJe |
|--|---------------------------|---|----------------------------------|----------------|----------------------------------|
| Model name (Note the points listed below) | | EMLZ12AJPE | EMLZ15AJPE | EMLZ12AJE | EMLZ15AJE |
| Punch | Press capability | kN 300 | | | |
| | Drive system | AC servo direct twin drive | | | |
| | Turret | Z turret | | | |
| Axis travel method | Punch | X/Y axis material travel | | | |
| | Laser cutting | X material Y laser beam | | | |
| Processing range | Punching X × YP | mm 2550 × 1270 | 3050 × 1525 | 2550 × 1270 | 3050 × 1525 |
| | Laser cutting X × YL | mm 2550 × 1270 | 3050 × 1525 (with repositioning) | 2550 × 1270 | 3050 × 1525 (with repositioning) |
| | Combined processing X × Y | mm 2550 × 1270 | 3050 × 1525 (with repositioning) | 2550 × 1270 | 3050 × 1525 (with repositioning) |
| Rapid feed rate X / YP / YL / Z | m/min | 100 / 80 / 100 / 80 | | | |
| Processing accuracy | mm | ±0.07 (according to AMADA's punching pattern) | | | |
| 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) |
| Workchute size X × Y | mm | 400 × 1270 | 400 × 1525 | 400 × 1270 | 400 × 1525 |
| PDC Number of tools | | 220 stations | | | — |
| Maximum hit rate (X-axis) | min ⁻¹ | 500 (25.4mm pitch /5mm stroke length) | | | |
| Maximum hit rate (Y-axis) | min ⁻¹ | 340 (25.4mm pitch /5mm stroke length) | | | |
| Machine mass | kg | 27500 | 29000 | 24000 | 25500 |
| Power requirement (machine + dust collector) | kVA | 44 | | 36 | |

■ Oscillator specifications

| Model | AJ-3000 |
|---------------------------------------|--------------------------------------|
| Oscillation method | LD-pumped fiber laser Fiber laser |
| Output beam wavelength | μm 1.08 |
| Rated laser power | W 3000 |
| Maximum pulse peak power | W 3000 |
| Mass | kg About 400 |
| Power requirements | kVA 10.1 |
| Compatible chiller power requirements | 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 | A(1¼)" | 2(2) |
| Total | | 53 |

*Numbers in parenthesis indicate the station numbers where shaped tools can be installed

■ PDC Layout

| PDC | Tool size | Number of tools |
|-----------|-----------|-----------------|
| Upper row | ½" | 120(120) |
| | 1¼" | 60(60) |
| Lower row | 1¼" | 20(20) |
| | 2" | 12(12) |
| | 3½" | Total 8(8) |
| | 4½" | |
| Total | | 220 |

⚠ For your safe use
Be sure to read the "Instruction Manual" carefully before use.

•When using product, appropriate personnel protection equipment must be used.

*Specifications, appearance and equipment are subject to change without notice.

*For applications related to the administration of machines and equipment (installation notification, export, financing, etc.) described in this catalog, please use the model name/ The hyphenated spellings like EML-2512AJe-PDC, EML-2515AJe-PDC, EML-2512AJe, EML-2515AJe are used in some portions of this catalog for sake of readability. This also applies to other machines.

*The specifications described in this catalog are for 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: Exposure to the eyes or skin of beams or scattered light is dangerous! Do not look or touch.
- Class 3R visible lasers: Avoid direct eye exposure.

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Inquiries



E154-HQ01en

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