



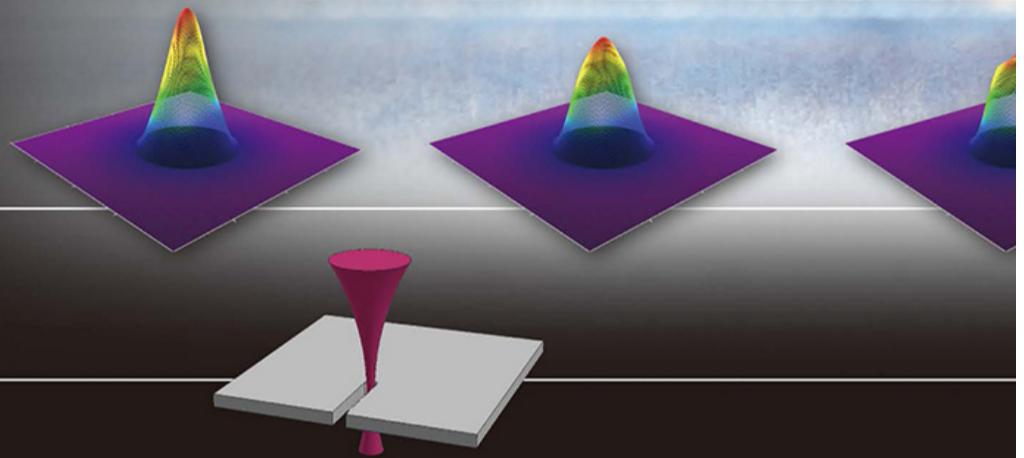
Energy saving / V-mix, V-lot production /
Wide range fiber laser machine

Q ENSIS AJ SERIES



AMADA®

薄
THIN



ENSIS TEC

ENSIS technology uses a variable beam control unit to adjust the

Energy saving / V-mix, V-lot production /
Wide range fiber laser machine

ENSIS AJ SERIES

3kW 6kW 9kW

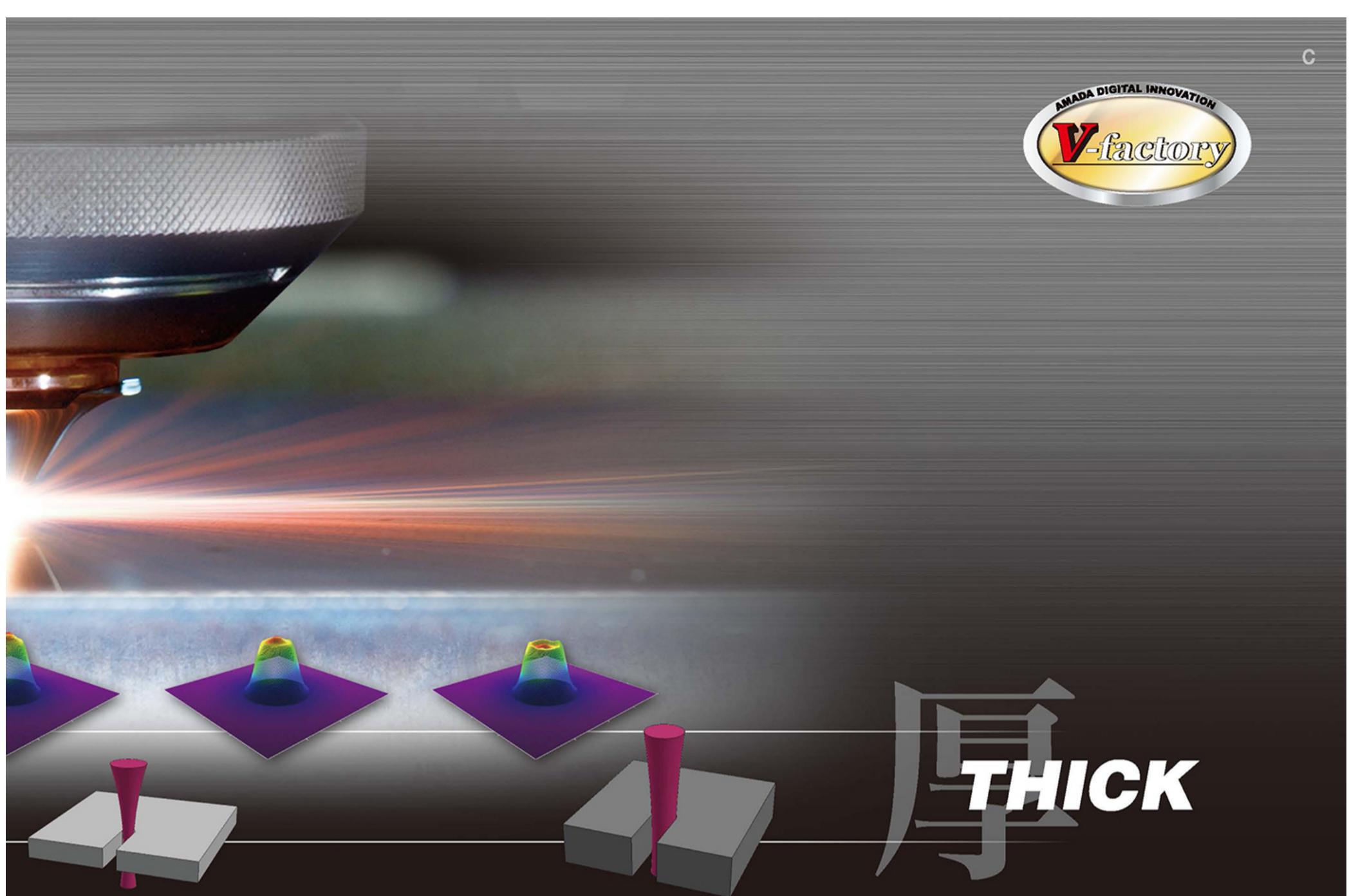
SERIES



ENSIS means "sword" in Latin.

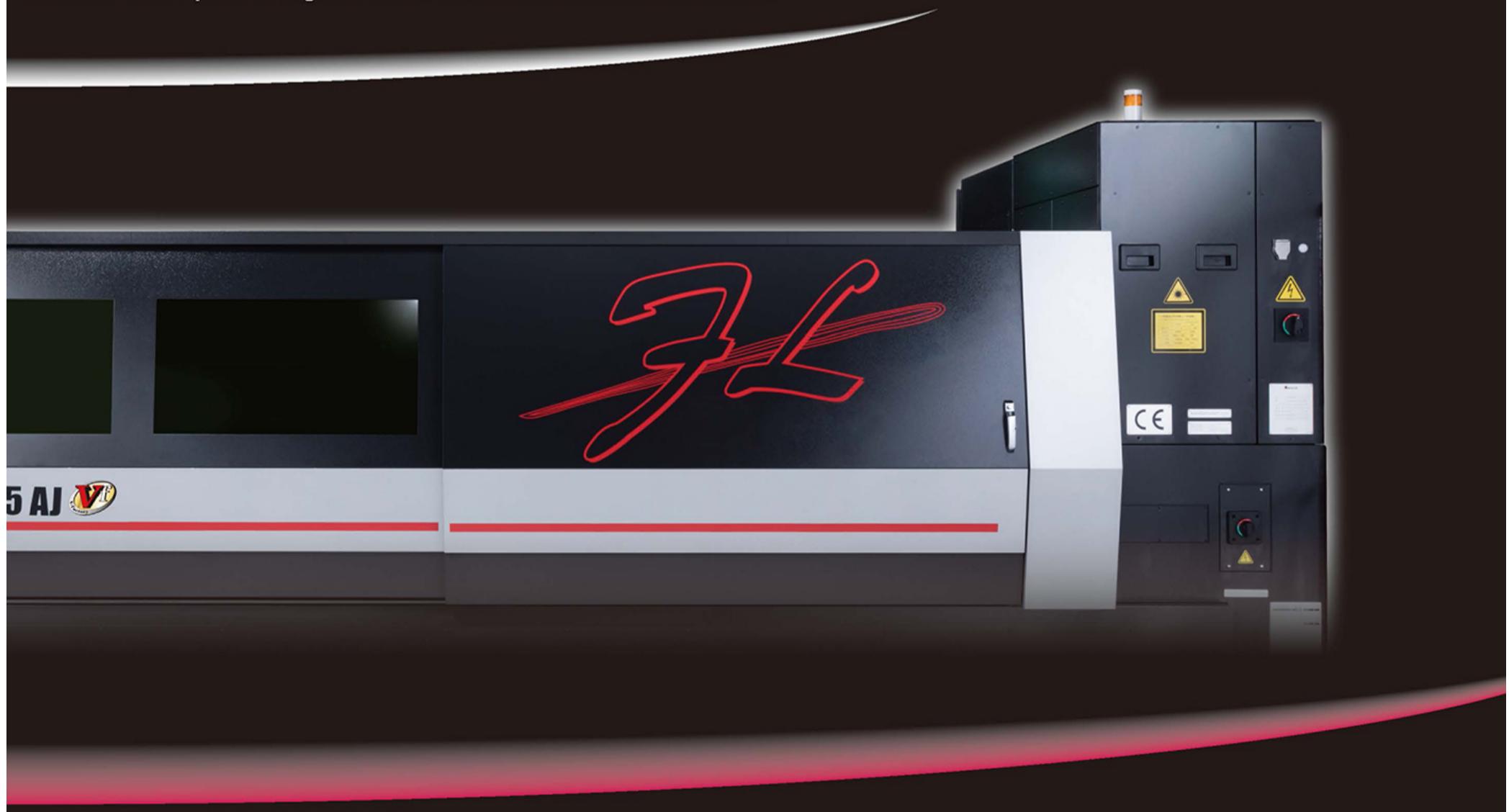


V-factory which is recommended by AMADA is a concept as "customer's benefits creation" that is realized by connecting between Vf machine which correspond to V-factory have "visualization & surveillance" function as standard feature and "Vf" mark is attached.

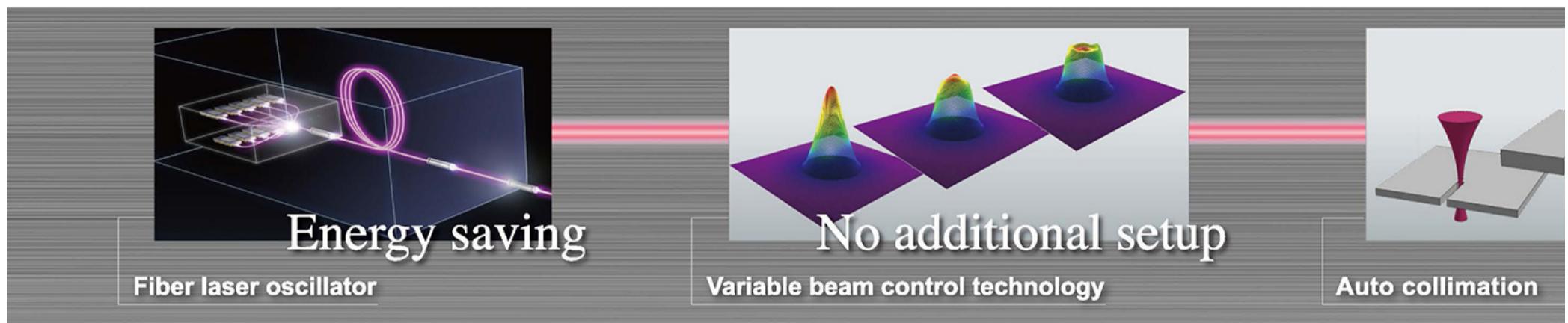


HN OLOGY

beam mode for processing thin-to-thick materials with one machine.



customers and AMADA.

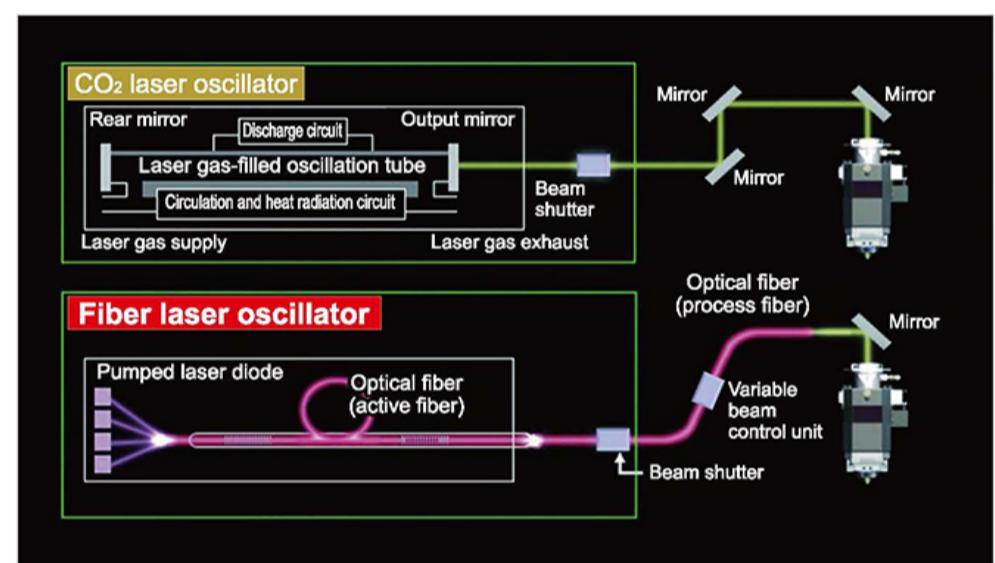
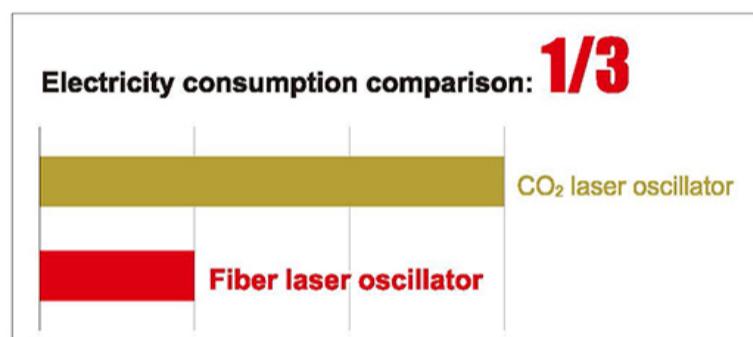


One machine can process thin-to-thick materials

The ENSIS uses variable beam control technology to create a beam shape best suited to material and thickness. This blank machine is suitable for those who want to process a variety of thicknesses and materials.

Energy-saving capacity by fiber laser machine

Fiber laser oscillator energy efficiency is about 3 times higher than CO₂. Power consumption can be reduced significantly. Since oscillator structure is simple, maintenance cost becomes minimized and low running cost operation is possible.



Oscillator structure schematic drawing

Processing example

Thin sheet processing comparison

Conventional CO₂ laser (4kW) vs ENSIS-AJ (3kW)

●Material: Mild steel ●Thickness: 1.2mm ●Size: 3048×1524mm

	Conventional CO ₂ laser (4kW)	ENSIS-AJ (3kW)
Processing speed	F7000	F34000
Processing cost	4998 JPY	3199 JPY

Processing time comparison

Reduction by 45.1%

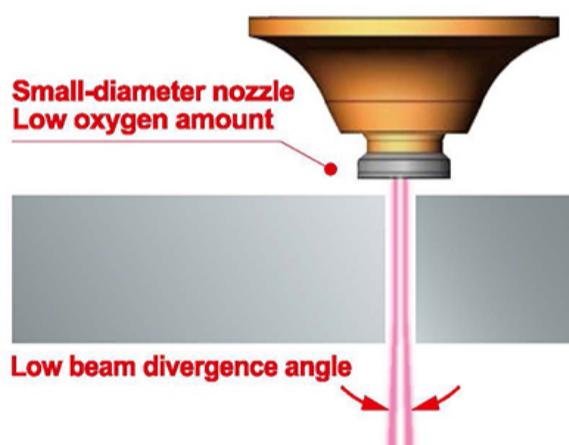
	Conventional CO ₂ laser (4kW)	ENSIS-AJ (3kW)
Processing time	1 hour 26 min 4 sec	47 min 16 sec



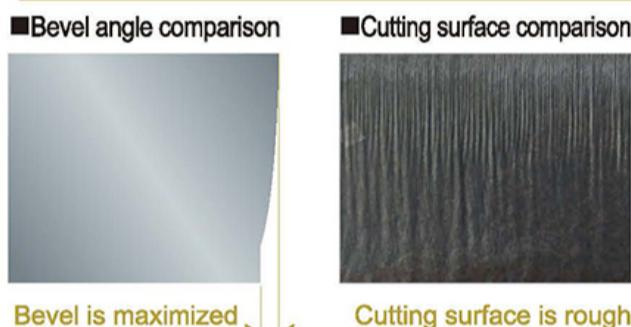
Thick sheet processing capacity goes up with dynamic beam control

Auto collimation system is equipped in 6kW/9kW. By assembling with beam variable changing technology, dynamic beam control is realized and thick steel processing issues such as cutting speed is low, piercing time is long and lower side of product is gouged are solved all at once.

■ Beam divergence CG

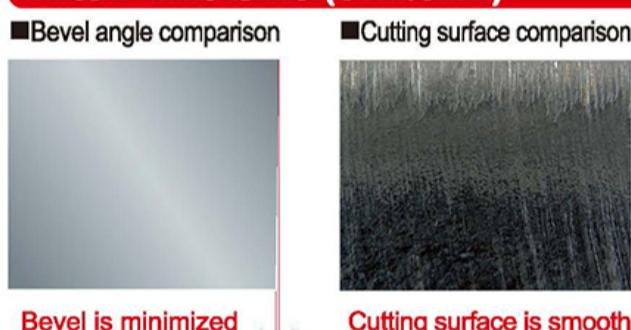


Before Conventional fiber laser



Excessive combustion by oxygen and big beam divergence in lower side is occurred. Cutting surface and cutting edge quality have issues by excessive combustion.

After ENSIS-AJ (6kW/9kW)



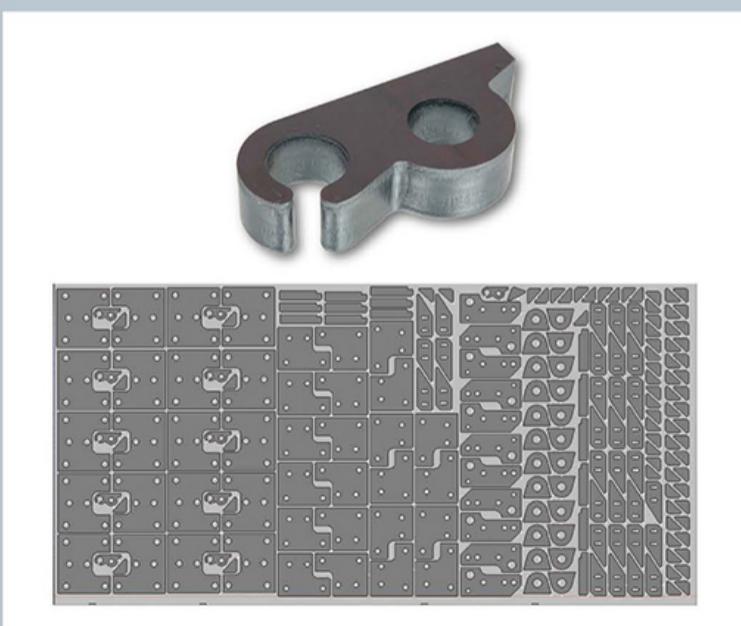
Auto collimation system can control beam shape and minimizes the beam divergence. Cutting by small diameter nozzle minimizes combustion at lower side by oxygen and bevel amount is reduced by maximum 90%. Cutting surface is improved significantly and high quality processing is realized.

Processing example

Thick sheet processing comparison

Conventional CO₂ laser (6kW) vs ENSIS-AJ (6kW/9kW)

●Material: Mild steel ●Thickness: 25.0mm ●Size: 3048×1524mm

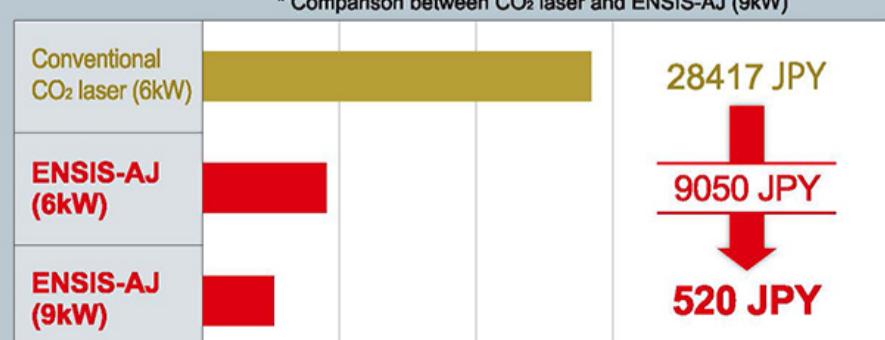


	Conventional CO ₂ laser (6kW)	ENSIS-AJ (6kW)	ENSIS-AJ (9kW)
Processing speed	F650	F600	F1100
Piercing time	18 sec	5 sec	1 sec
Processing time	8 hour 38 min 12 sec	6 hour 49 min 27 sec	3 hour 33 min 35 sec

Processing time comparison

Reduction by **81.7%**

* Comparison between CO₂ laser and ENSIS-AJ (9kW)



Latest processing technology on ENSIS series

New processing technology "Clean Fast Cut" and "Easy Fast Cut":

Middle thickness range is possible low running cost operation and wonderful high speed processing by utilizing new type nozzle and high power oscillator.

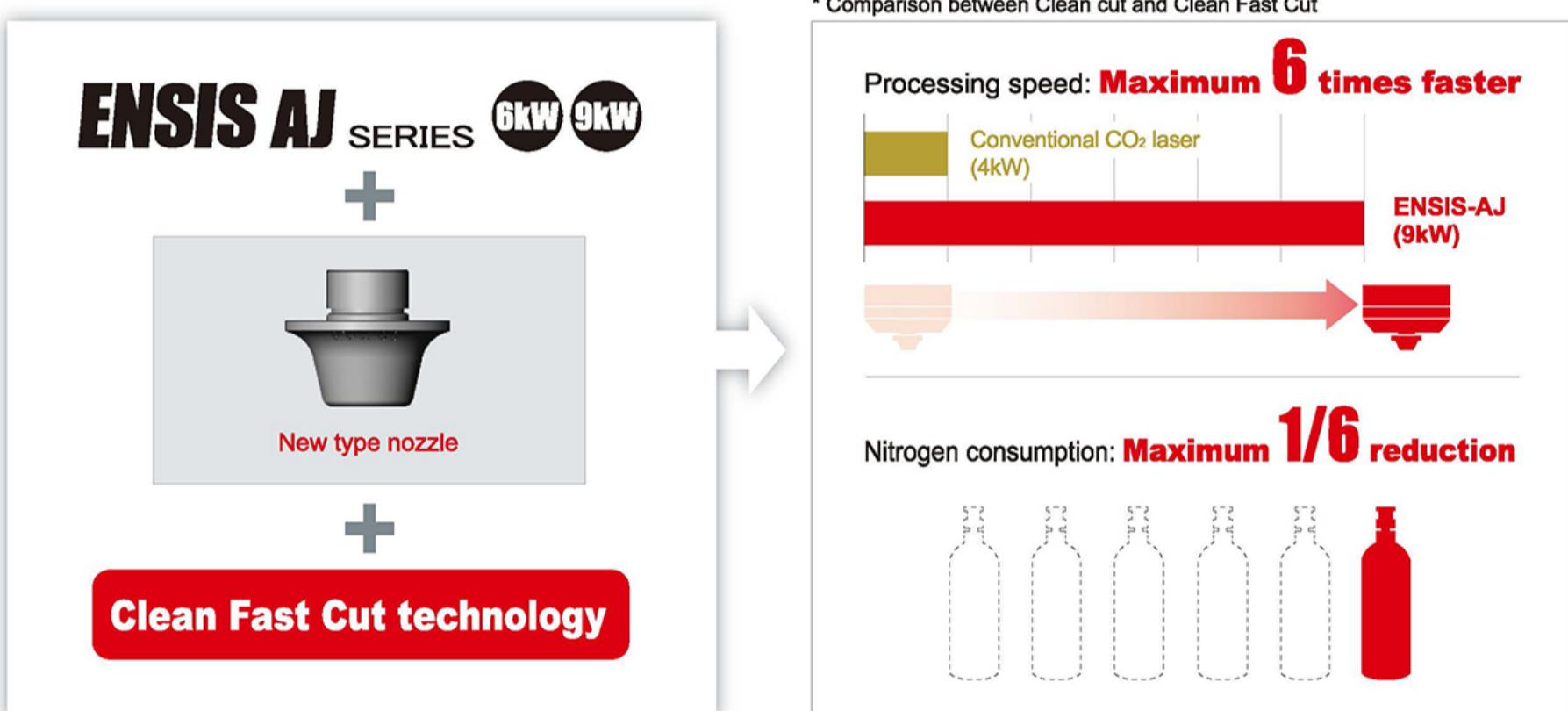
Clean Fast Cut technology

6kW 9kW

For customers who need laser processing without oxide film in the middle thickness range

Processing can be maximum 6 times faster compared to conventional machine while reducing nitrogen consumption.

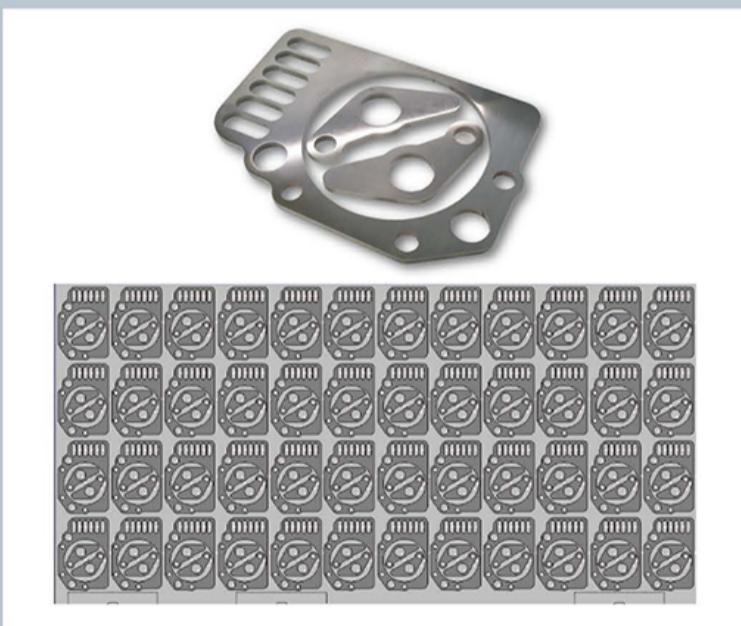
Both low cost and high speed processing are realized.



Processing example

Conventional CO₂ laser (4kW) vs ENSIS-AJ (9kW)

●Material: Stainless steel ●Thickness: 6.0mm ●Size: 2000×1000mm



	Conventional CO ₂ laser (4kW)	ENSIS-AJ (9kW)
Processing speed	F1800	F11000

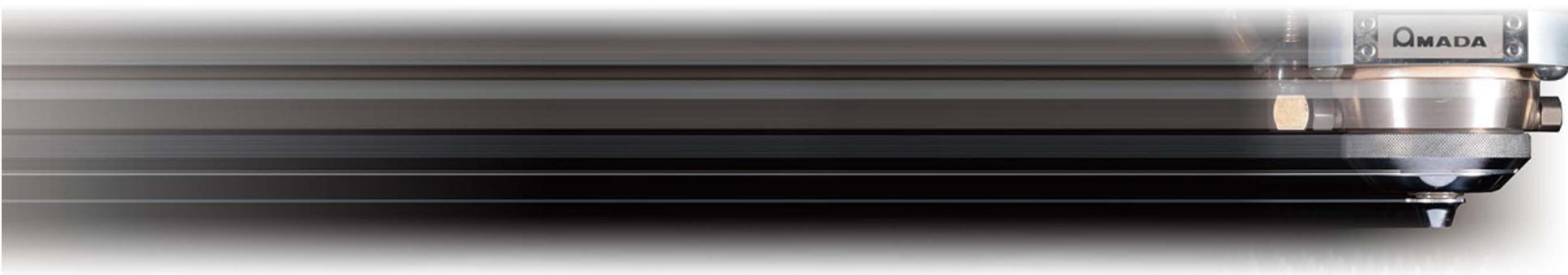
Processing time comparison

Conventional CO ₂ laser (4kW)		1 hour 43 min 40 sec
ENSIS-AJ (9kW)		23 min 46 sec

Processing cost comparison

Cost reduction by 71% per sheet	
Conventional CO ₂ laser (4kW)	10249 JPY
ENSIS-AJ (9kW)	2972 JPY

Electricity cost Laser gas cost Assist gas cost (nitrogen) Consumables



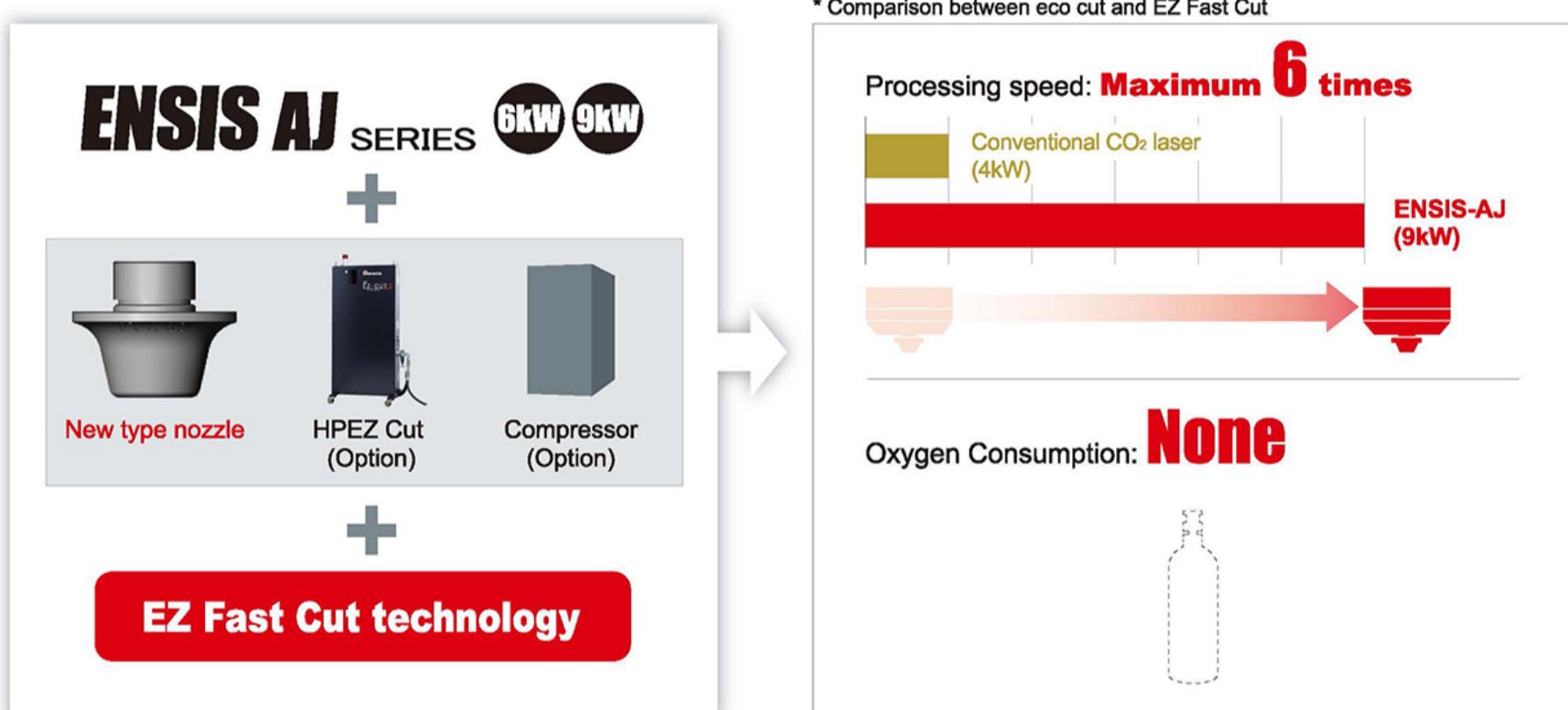
6kW 9kW

EZ Fast Cut technology

For customers who need cost reduction first in the middle thickness range

Assist gas cost is not required by utilizing compressed air through HPEZ device.

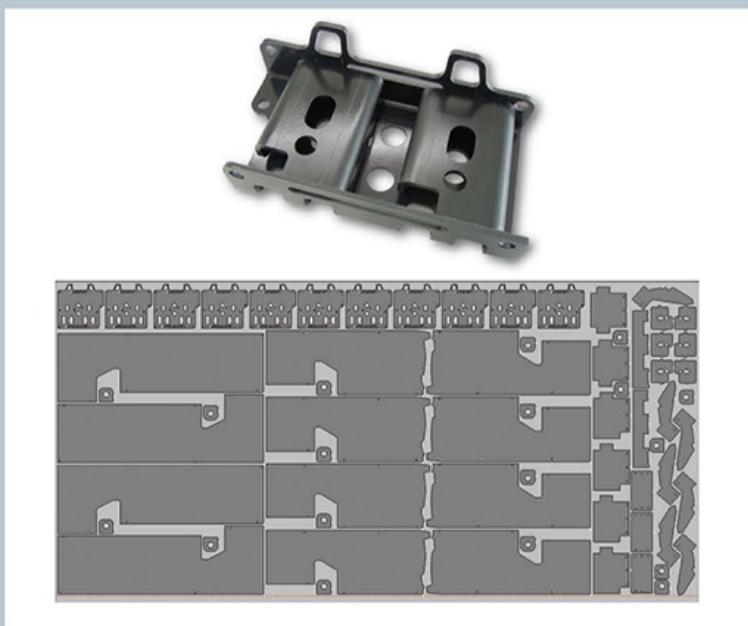
Cost can be reduced more than eco cut and high speed processing is realized maximum 6 times faster than conventional machine.



Processing example

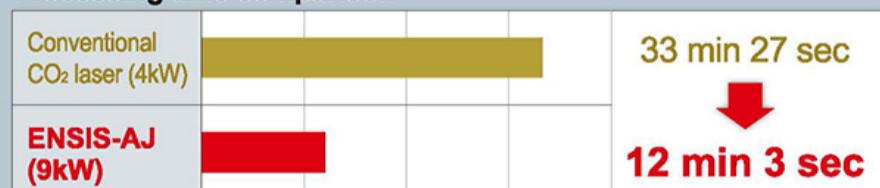
Conventional CO₂ laser (4kW) vs ENSIS-AJ (9kW)

●Material: Mild steel ●Thickness: 4.5mm ●Size: 3048×1524mm

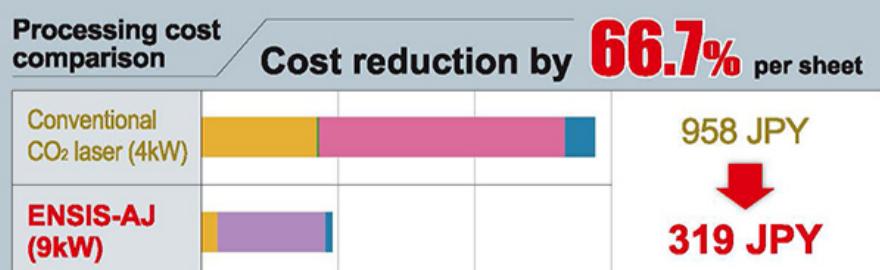


	Conventional CO ₂ laser (4kW)	ENSIS-AJ (9kW)
Processing speed	F3700	F16000

Processing time comparison



Processing cost comparison



2 ways machine which can process flat sheet and

ENSIS 3015 RI 3kW



All round machine of ENSIS series

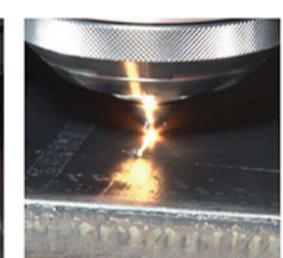
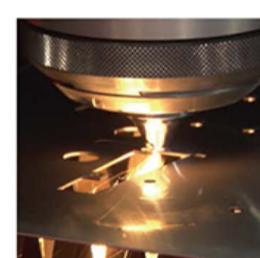


Flat sheet processing



Tube/structural steel processing

ENSIS series is equipped with a rotary index that can process highly accurate tube and structural steel. Both flat sheet of thin to thick and tube/structural steel can be processed by 2-way machine.



Processing function as same as ENSIS-AJ

Processing samples



Combination of flat sheet and tube

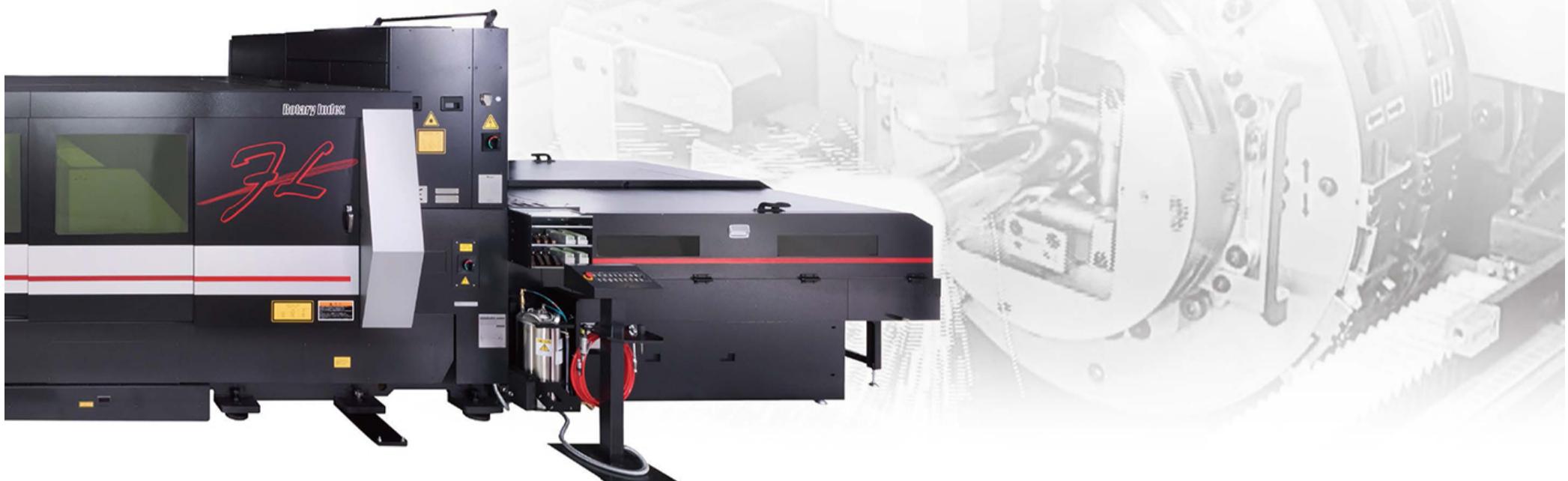


Highly accurate mortise processing

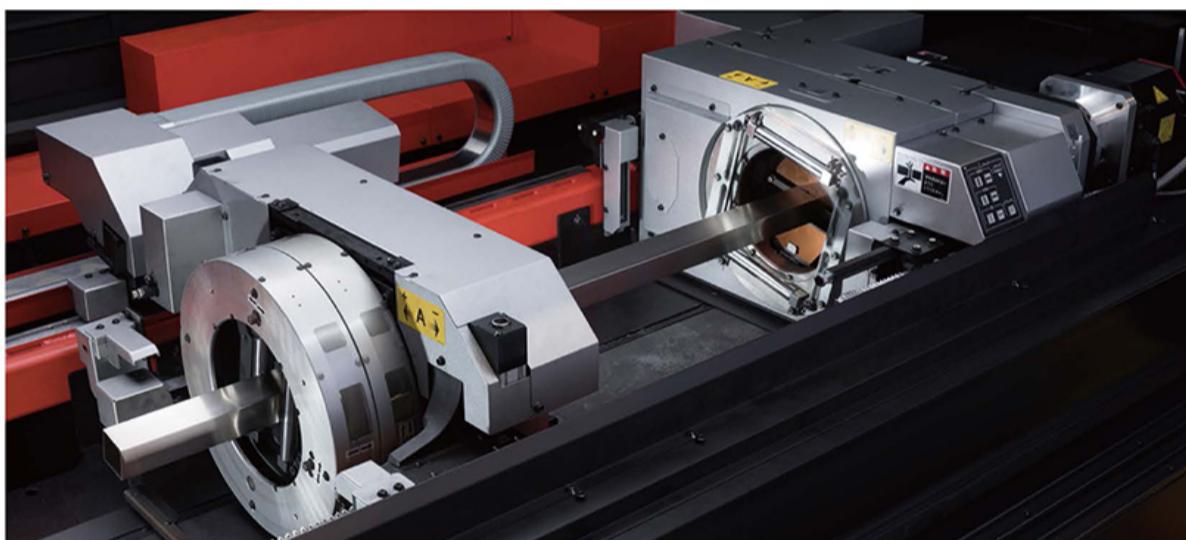


High-quality pipe processing

tube/structural steel in one



Setup operation becomes simplification and improving the operation rate



Flat sheet processing and tube/structural steel can be switched easily on NC screen. The tip of the chuck can be exchanged by one-touch without special tools. Operation rate is improved by simplification of setup operation.

High quality and high accuracy tube and structural steel processing is realized



From know-how of tube/ structural steel cultivated by CO₂ laser, synchronized drive of main chuck and support chuck, 4-axis simultaneous drive and touch sensor function are equipped. High-quality and high-accuracy tube/structural steel processing are realized.

ENSIS-AJ Solution Packages

Automation solution maximizes ENSIS-AJ capacity.

8 Standard model

8 -hour model

ENSIS-AJ + ASFH

Long time continuous operation for mid-thickness with utilizing packaged material

- Continuous operation from material supply to product stacking : Maximum thickness 12mm
- Product pallets 2, material pallets 2, processing pallets 2 (standard)

● Solution without stopping the machine

■ Automation of setup operation

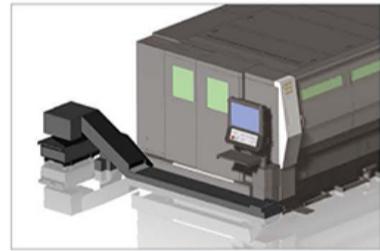


One lens operation



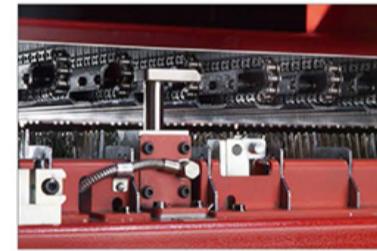
Nozzle changer
* 16 stations (Option)

■ Automation of scrap processing



Y direction conveyor (Option)

■ Automation of product stacking



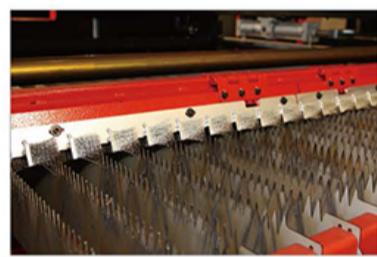
Chain type fork unit



Fiber laser machine
ENSIS-AJ

● Easy operation

■ Maintenance support



Cleaning brush



AMNC 3i

4 Compact model

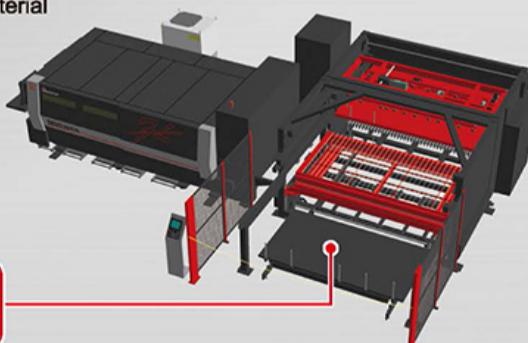
4 -hour model

ENSIS-AJ + MPL(C)

Continuous operation for mid thickness with utilizing packaged material

- Automatic operation from material supply to product stacking: Maximum thickness 12mm
- Manual feeding operation utilizing shuttle function
- Product pallet 1, material pallets 2, processing pallets 2

Manipulator
MPL(C)



8 Thick sheet model

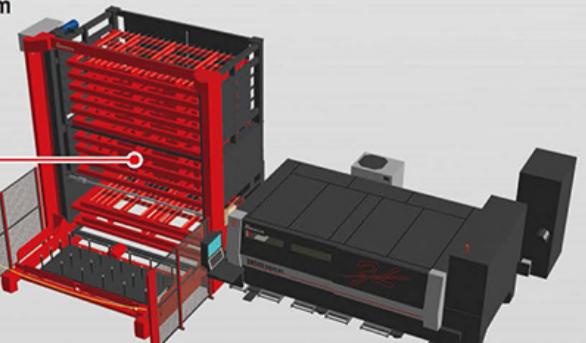
8 -hour model

ENSIS-AJ + AS

Long time continuous operation for thick sheet processing

- Maximum thickness: 25mm
- Processing pallet: 10 steps (standard)

Pallet changer
AS



*Connection direction of all model equipment (right/ left) can be selected.



Take-out loader for laser

TK 3015L

(Possible to adapt for all solution packages.)

Component separation and sorting are automated.

- Burden of separation and sorting are reduced.
- Lead time reduction by each component stacking
- Maximum picking up capacity: 150kg
- Maximum picking up dimension: 2500mm×1250mm
- Maximum thickness: 12mm

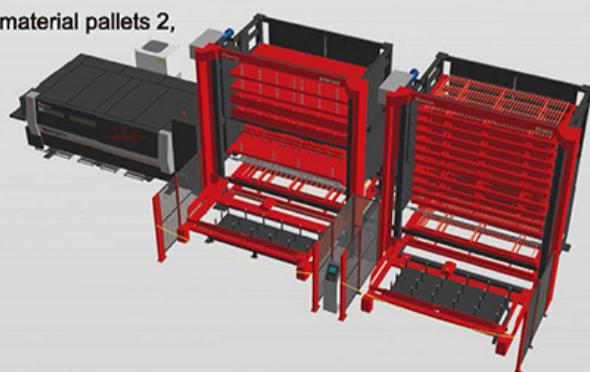


16 -hour model

ENSIS-AJ+AS-TFS

Various kinds of material production can be supported from thin to thick

- ASFH (Product pallets 2, material pallets 2, processing pallets 2)
- +AS (Processing pallet 10 steps)
- 2 storages constitution



24 -hour model

ENSIS-AJ+MPL(C)+MARS

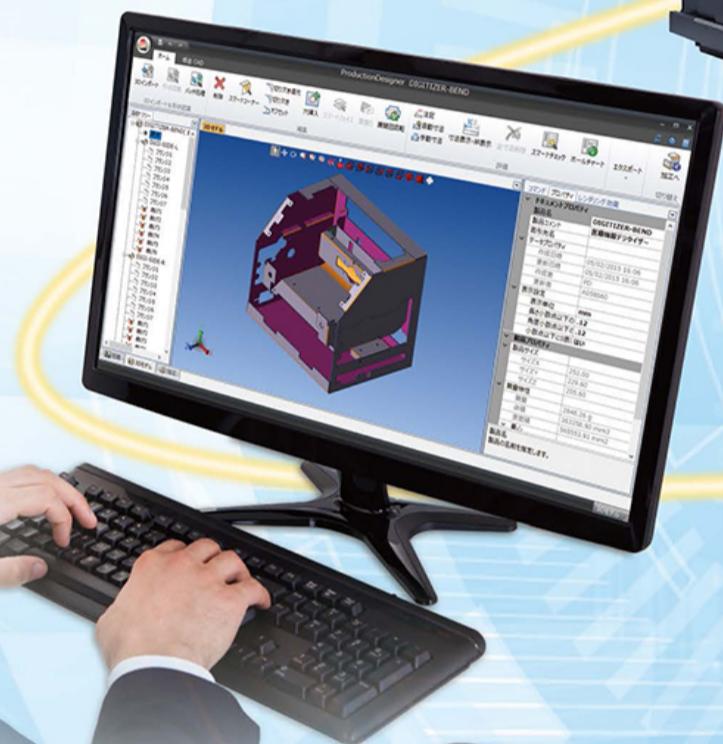
V-mix, V-lot production/Wide range material is supported

- Automatic operation from material supply to product stacking: Maximum thickness 12 mm
- Number of steps and lines of shelf can be customized.
- Several blanking machine can be connected to MARS.



*Safety guard person is required while continuous operation.

Software



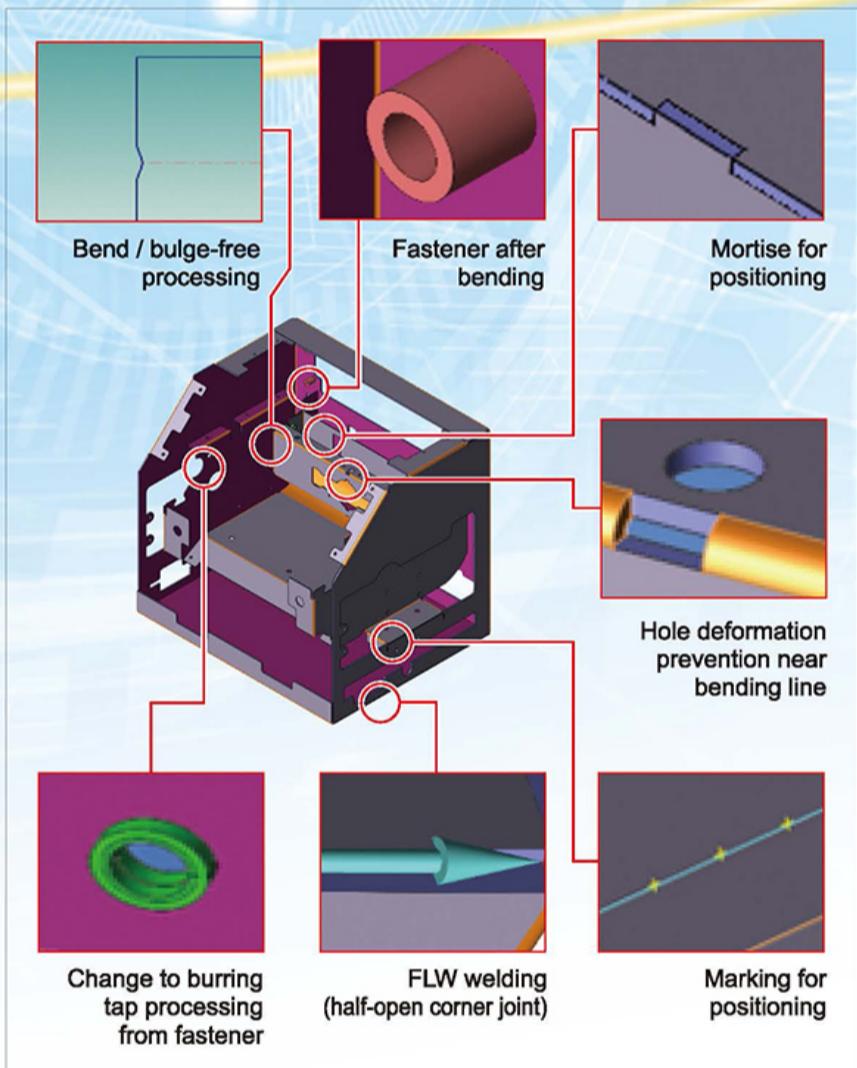
ENSIS AJ SERIES

CAM system for flat sheet

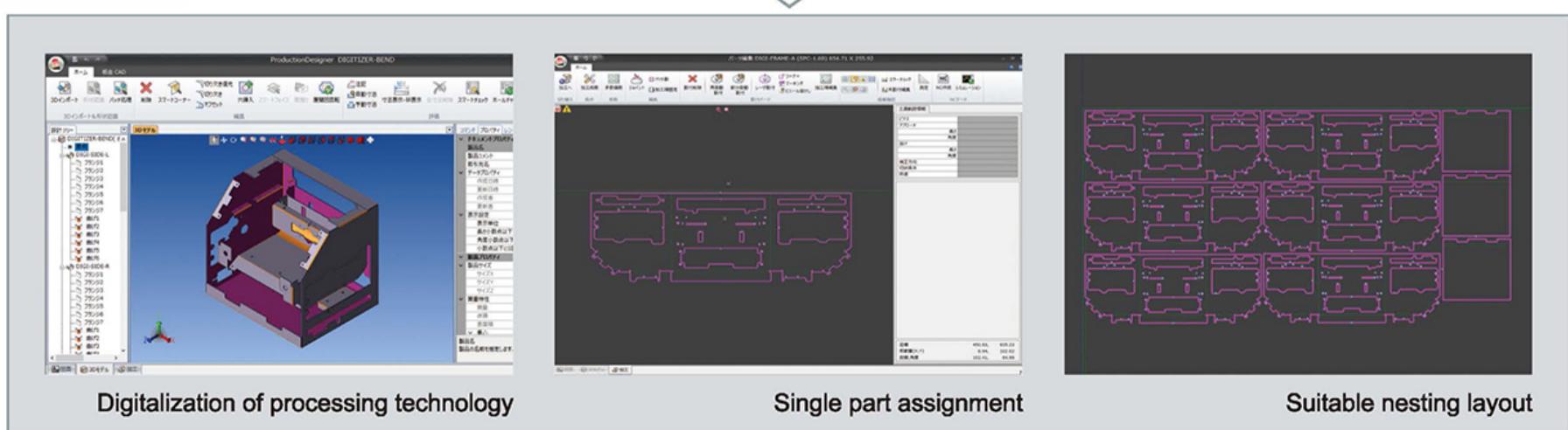
VPSS 3i BLANK



VPSS 3i BLANK easily digitizes the flat sheet processing technology of the ENSIS series and supports the creation of efficient manufacturing programs.



Visualized digital data of processing technology (SEM)



Energy saving / V-mix, V-lot production / Wide range fiber laser machine

ENSIS AJ SERIES

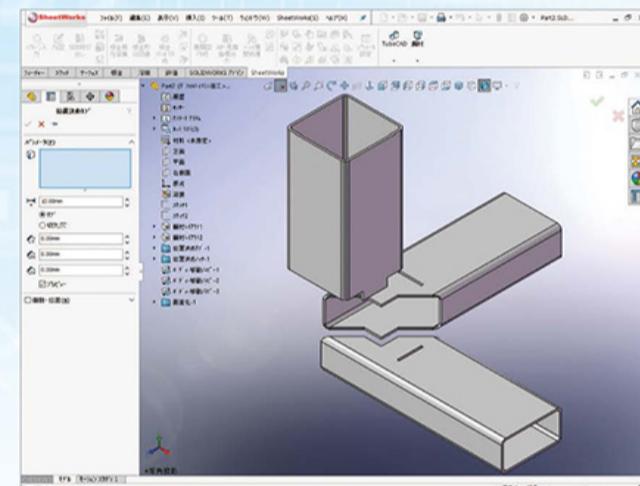


ENSIS 3015 RI

3D solid CAD system

SheetWorks

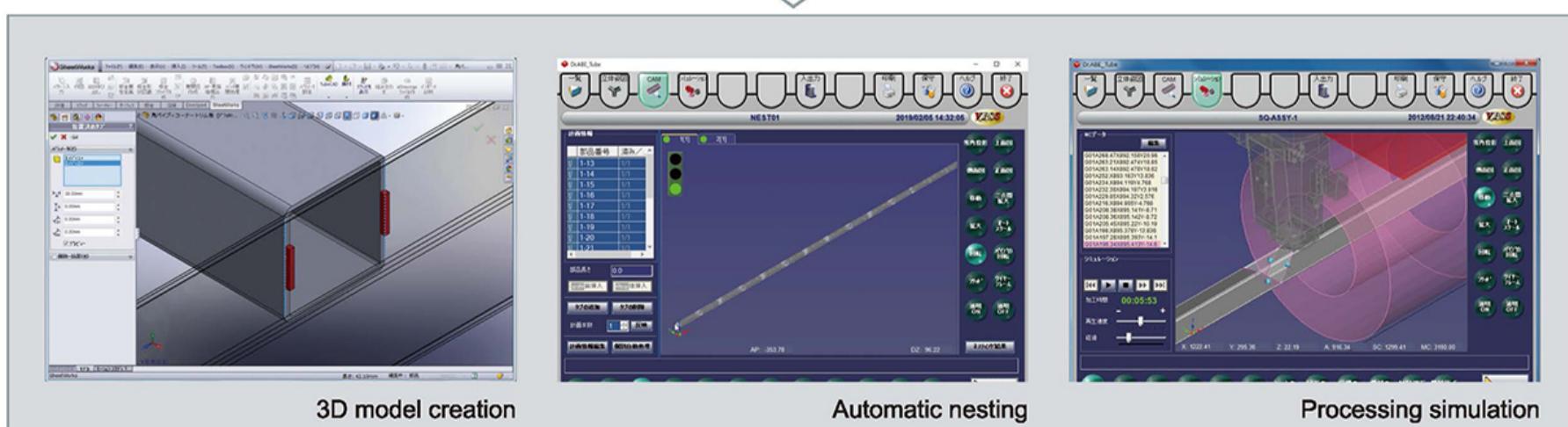
SheetWorks can create 3D model for tube/structural steel of ENSIS-RI. Various commands are prepared, for example: tab or notch can be input with easy operation.



CAM system for tube/structural steel

Dr.ABE_Tube

Dr.ABE_Tube can create laser assignment for tube/structural steel processing of ENSIS-RI. Equipped with high-yield automatic nesting and 3D simulation functions to reduce the total lead time for complex pipe processing.



3D model creation

Automatic nesting

Processing simulation

Visualization, Surveillance, Evolution V-factory supporting

In the ENSIS series, the machine status/maintenance condition is "visualized" by connecting to AMADA's IoT V-factory. Manufacturing management and machine operation by data can be performed easily. Moreover, the stable machine operation can be supported by IoT Support. AMADA supports you with manufacturing with "Visualization, Surveillance, Evolution" as a concept.



My V-factory

The machine status/maintenance condition is visualized.



Cloud

AMNC 3i

AMNC 3i is a high-performance NC device that can be operated like a tablet. In addition, this supports you as interface of V-factory.



ENSIS-AJ SERIES, ENSIS-RI

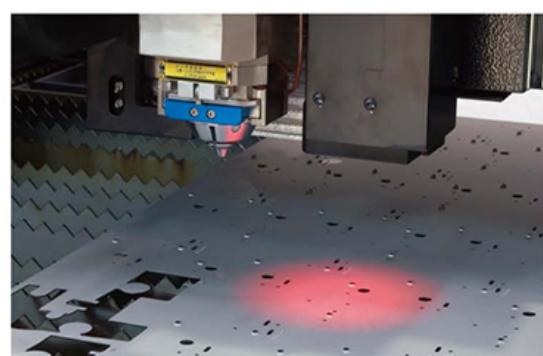
Other function introduction All option

OVSIV

ENSIS-AJ

Function of combined processing with punching machine; CCD camera measures the pitch of two reference holes of punching machine and automatically compensates for any origin deviation.

* This function cannot be selected in ENSIS-RI.



V-monitor

ENSIS-AJ
ENSIS-RI

Video camera system installed inside of machine; The machine operation can be monitored by smartphone or PC in real time. Recorded video can be checked at NC screen if the machine is stopped by alarm.



3 colors signal light

ENSIS-AJ
ENSIS-RI

Machine operating condition can be confirmed by light or buzzer.



machine



IoT Support Front

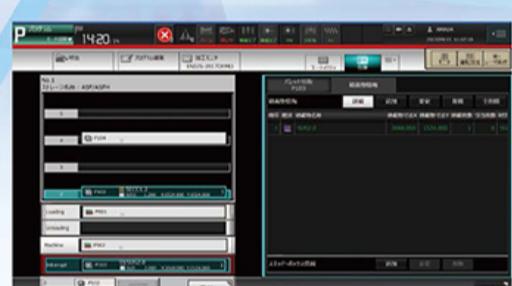
The machine operation is supported by connecting the machine and Amada.



Easy sheet nesting edit after program calling



Easy processing condition edit by touching figure on screen



Automation system operation/
material inventory management



Operation result/processing history display
■ Operating ■ stand-by ■ planning ■ alarm

Nozzle changer

ENSIS-AJ
ENSIS-RI

Required nozzle can be exchanged automatically as cutting condition.

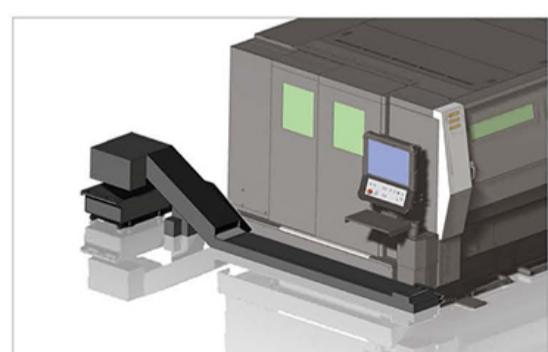
Continuous operation is possible of thin to thick.
(Standard 8 stations, OP 16 stations)



Y direction conveyor

ENSIS-AJ
(Only in 6kW, 9kW)

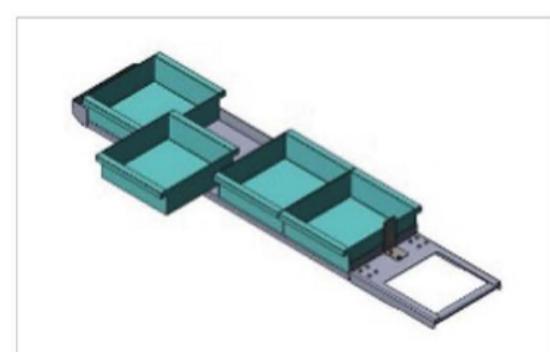
Scrap and small parts can be carried out to machine rear or front side.



Large capacity scrap tray

ENSIS-AJ
(Only in 6kW, 9kW)

The volume of small parts is 1.8 times bigger than standard model and separation from scrap makes clean-up easy.

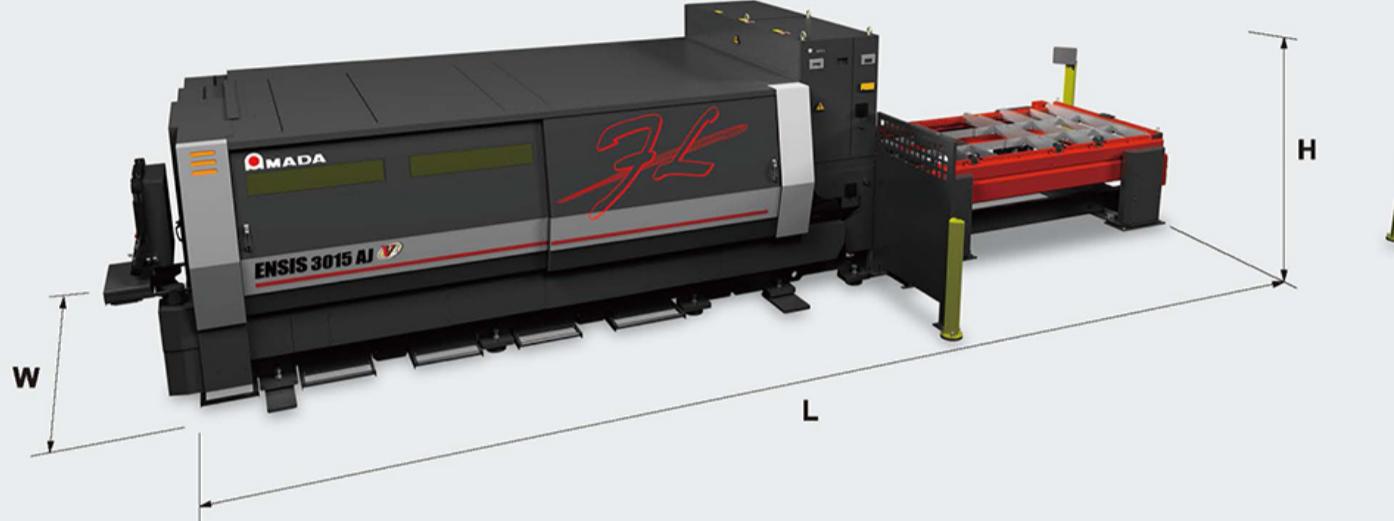


ENSIS-AJ 3kW 6kW 9kW

■Dimensions

Unit : mm

ENSIS-3015AJ (ENSIS-6000) + shuttle table (L: 10136 × W: 2860 × H: 2432)
ENSIS-4020AJ (ENSIS-6000) + shuttle table (L: 12111 × W: 3360 × H: 2432)



■Machine specification

Model	ENSIS-3015AJ	ENSIS-4020AJ
Registered model name (Please refer to lower attention item)	EN3015AJ	EN4020AJ
Axis moving range X × Y × Z mm	3070 × 1550 × 100	4070 × 2050 × 100
Maximum processing dimension X × Y mm	3070 × 1550	4070 × 2050
Maximum work weight kg	920	1570
NC device	AMNC 3i	
Control axes	X, Y, Z axis (3 axes controlled simultaneously) + B axis + CF axis*	
Oscillator	AMADA ENSIS-3000 / ENSIS-6000 / ENSIS-9000	
Chiller	RKE5502B-VA-UP2 / RKE7502B-VA-UP2 / RKE11002B-VA-UP2	
Dust collector	PXN-6XA* / JXN-6XA (Self-standing / Pail can type)	
Axis travel method	X, Y axis: rack and pinion drive	
Rapid traverse X × Y Composite m/min	170	
Processing feed rate X × Y m/min	0~120 (Maximum command speed)	
Least input increment mm	0.001	

* Only ENSIS-3000

■Oscillater specification

Oscillation type	ENSIS-3000	ENSIS-6000	ENSIS-9000
Oscillation method		LD excitation fiber laser	
Rated output W	3000	6000	9000
Stability %		±2.0 or lower	
Pulse peak output W	3150	6300	9450
Pulse frequency Hz		1~10000	
Duty %		0~100	
Wave length nm		1080±4	

● Please contact to AMADA about other options or combination.

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

- In order to operate this machine there must be a dedicated safety barrier.
- This system requires a dedicated shield material against wave length 1.07μm.
- Use of this product requires hazard prevention measures to suit your work.

Please confirm safety guide in product introduction of AMADA HP (www.amada.co.jp) for detail.

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 nor touch it.
- Class 3R visible laser : Avoid direct eye exposure.

* Use these registered model names when you contact the authorities for applying for installation, exporting, or financing.
The hyphenated spellings like ENSIS-3015AJ, are used in some portions of this catalog for sake of readability. This also applies to other machines.

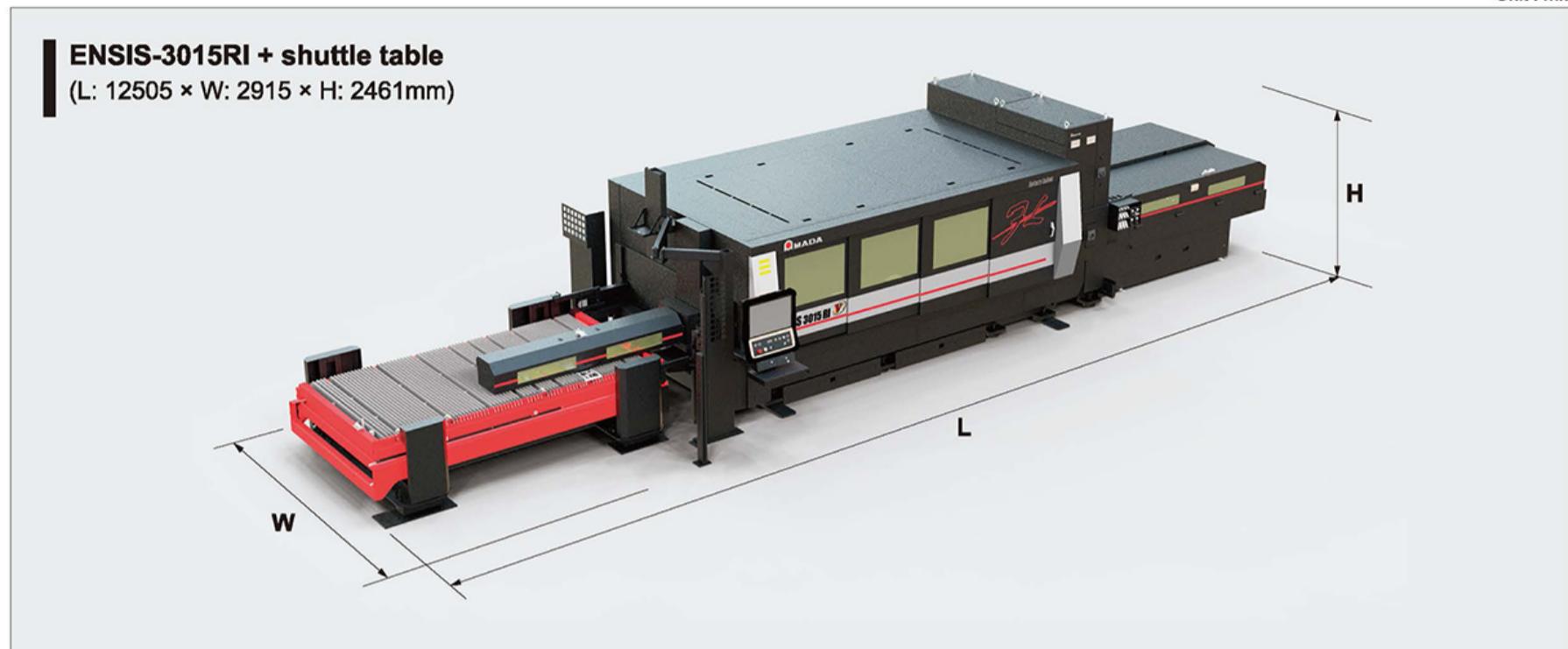
* Specifications, appearance and equipment are subject to change without notice by reason of improvement.

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ENSIS-RI **3kW**

■Dimensions

Unit : mm



■Machine specification

Model	ENSIS-3015RI
Registered model name (Please refer to lower attention item)	EN3015RI
Axis moving range X × Y × Z mm	3070 × 1550 × 200
Maximum processing dimension X × Y mm	3070 × 1550
Maximum work weight kg	920
NC device	AMNC 3i
Control axes	X, Y, Z axis (4 axes controlled simultaneously) + B axis + CF axis + A axis
Oscillator	AMADA ENSIS-3000
Chiller	RKE5502B-VA-UP2
Dust collector	PXN-6XA (Self-standing / Pail can type)
Axis travel method	X, Y axis : rack and pinion drive
Rapid traverse X × Y Composite m/min	170
Processing feed rate X × Y m/min	0~120 (Maximum command speed)
Least input increment mm	0.001

■Tube specification

Shape of tube / structural steel	Tube (Round / Square / Rectangular), Angle (even, uneven L shape), Section steel (C-channel)
Outer dimension of tube / structural steel mm	Round tube: ϕ 9~220 Square tube: \square 19~150 Rectangle tube: Circle circumscribing less than ϕ 220 Angle (L shape): 19~90(h) × 19~90(w) C-channel: 19~150(h) × 19~150(w)
Maximum processing length mm	6000 * Size exceeding processing is supported by repositioning
Thickness of tube / structural steel mm	1~9 (tube) 1~12 (angle, C-channel)
Maximum tube / structural steel mass kg	200
Support chuck	Main chuck synchronization method

■Oscillater specification

Oscillation type	ENSIS-3000
Oscillation method	LD excitation fiber laser
Rated output W	3000
Stability %	±2.0 or lower
Pulse peak output W	3150
Pulse frequency Hz	1~10000
Duty %	0~100
Wave length nm	1080±4

● Please contact to AMADA about other options or combination.

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- This system requires a dedicated shield material against wave length 1.07μm.
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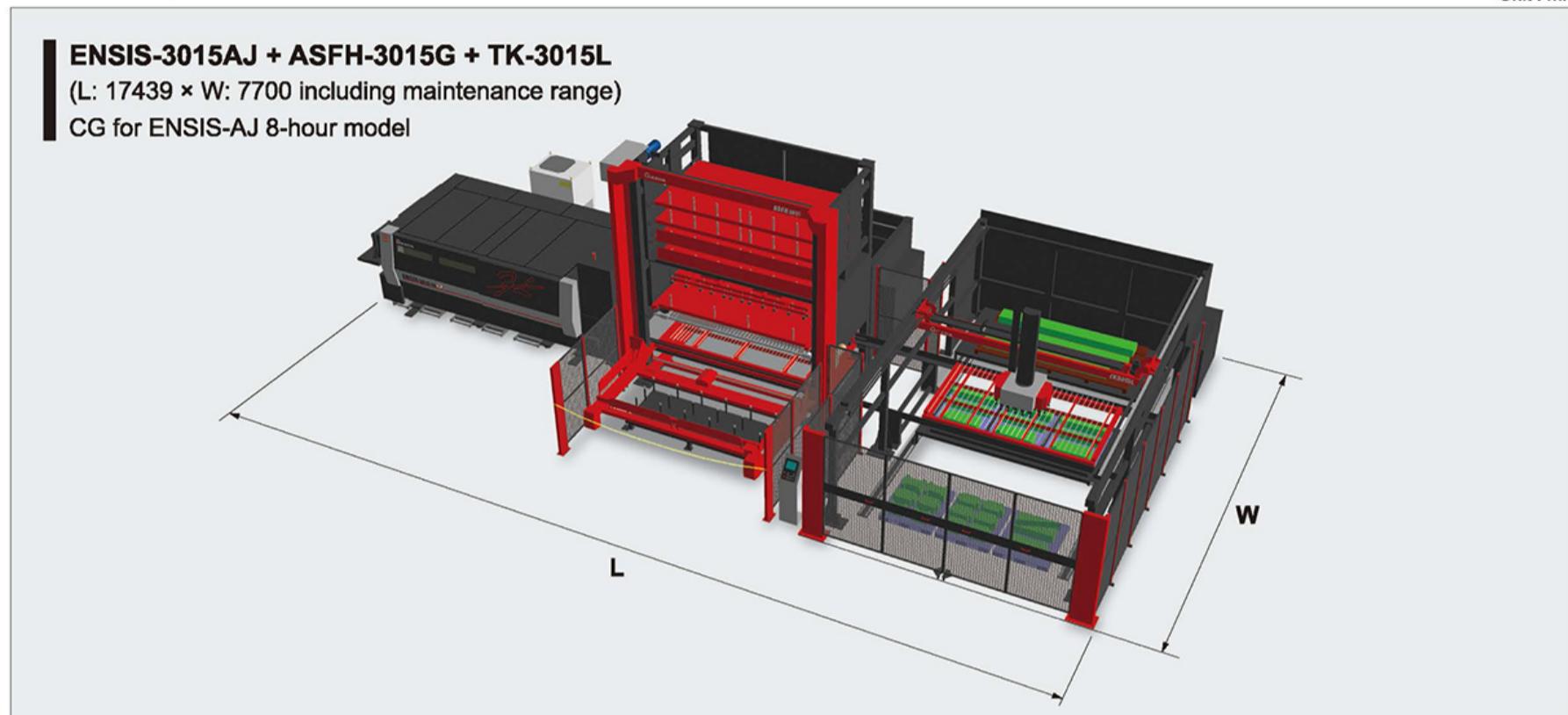
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ENSIS-AJ+ASFH+TK-L

■ Solution mode dimensions

Unit : mm



■ Fork type pallet changer specification

Machine name		ASFH-3015G (Standard specification)	
Material	Maximum dimension X×Y mm	3015 × 1525	
	Material	Steel / Non steel	
	Minimum dimension X×Y mm	Processing pallet: 800 × 150 Material pallet: 914 × 914	
	Thickness range mm	Processing pallet: Max 25 Material pallet: 0.6~12	
Processing pallet	Loading weight kg/pallet	920	
	Number of clamp piece/pallet	4	
Material pallet	Loading weight kg/pallet	2000	
	Loading height mm	260 (including wooden skid height 50mm)	
Product pallet	Thickness range mm	0.6~12.0	
	Loading weight kg/pallet	2000	
	Loading height mm	260 (including wooden skid height 50mm)	

■ Take out loader for laser specification

Machine name		TK-3015L
Thickness	mm	1.0~12.0
TK maximum picking up capacity	kg	150 (2500 × 1250 × thickness 6.0mm equivalent)
Maximum unloading dimensions X × Y	mm	2500 × 1250
Minimum unloading dimensions X × Y	Thickness 1.6mm or lower mm	250 × 50
	Thickness 1.7mm or higher mm	175 × 50

● Please contact to AMADA about other options or combination.

For Your Safety
Be sure to read the operator's manual carefully before use.

● Use of this product requires hazard prevention measures to suit your work.

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

* The specifications described in this catalog are for the Japanese domestic market.

* Use these registered model names when you contact the authorities for applying for installation, exporting, or financing.

The hyphenated spellings like ENSIS-3015AJ, are used in some portions of this catalog for sake of readability. This also applies to other machines.

Support your manufacturing

AMADA SOLUTION CENTER

Solution proposal from AMADA and engineering proposal by solution pack are done for manufacturing issue that you have.



P&P room



The latest machines are displayed



AMADA TECHNICAL CENTER

Your Base (Technical center)

At the Technical Center, you can verify parts processed according to their data and can confirm the functions, performance and operability of AMADA machines. You can utilize the center as your base with reinforced technical service functions.



Kansai technical center



AMADA school



P&P room

AMADA SATELLITE CENTER

Your Local Base (Satellite center)

5 satellite centers are established to provide the familiar and region-based service for customer. The latest machines can be observed anytime and capacity can be confirmed by first-hand experience. In addition, not only machines but also experience of each software and seminar are planned.



Touhoku satellite center



Kita-kanto satellite center



Chubu satellite center



Hokuriku satellite center



Kyushu satellite center

Service system

AMADA group has domestic and oversea network, high quality service, and requires customer's processing such as tooling, software and peripheral equipment.



Software call center



Machine maintenance



Parts center

Fiber laser premium support
(Maintenance discount / Free repair for oscillator / IoT support)

Growing Together with Our Customers



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inquiry



AMADA's head office is certified and registered with the environment management system, ISO14001:2004.

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