



SOLUTION

REGIUS AJ SERIES

NEXT LEVEL LASER PROCESSING



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NEXT LEVEL LASER PROCESSING

HIGH SPEED, MORE AUTONOMOUS LASER PROCESSING

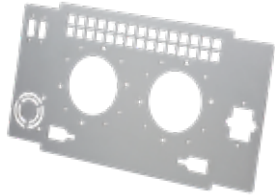
INTELLIGENT FEATURES TO MAXIMIZE UPTIME

The REGIUS-AJ series fibre laser cutting machines utilize AMADA's in-house designed fibre laser engine and incorporate several new technologies aimed at more autonomous processing. These are combined with high speed, 3-axis linear drives and intelligent head control, providing a fusion of technologies which results in ultra high-speed, high accuracy processing capabilities in an ever more demanding market.

Introducing AMADA's Laser Integration System (LIS), the REGIUS-AJ series includes automatic nozzle centring, automatic nozzle checking, automatic beam condition checking, automatic protection glass monitoring, automatic head collision recovery and an advanced process monitoring system. A high capacity nozzle changer is also standard, which cleans the nozzle and calibrates the cutting head automatically.



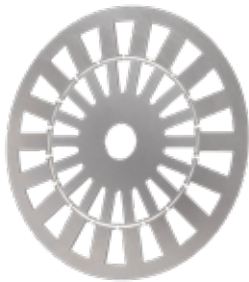
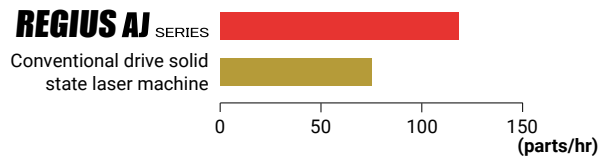
TYPICAL PROCESSING SAMPLES



Electro galvanised steel 1.2 mm
286.0 mm x 152.0 mm

RUNNING COST & PRODUCTIVITY COMPARISON

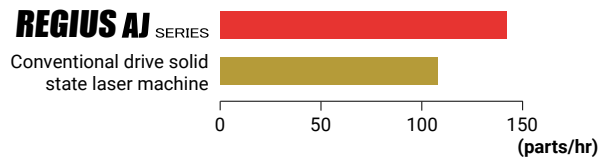
29.0% COST REDUCTION PER PART



Mild steel 1.2 mm
150.0 mm x 150.0 mm

RUNNING COST & PRODUCTIVITY COMPARISON

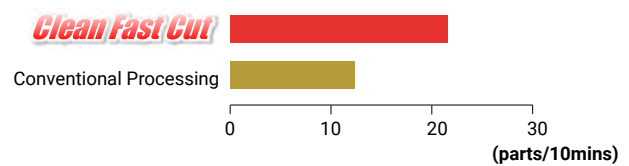
16.0% COST REDUCTION PER PART



Stainless steel 6 mm
246.5 mm x 157.0 mm

RUNNING COST & PRODUCTIVITY COMPARISON

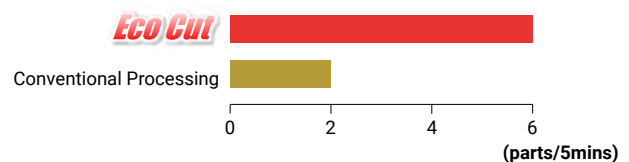
47.0% COST REDUCTION PER PART



Mild steel 20 mm
125.0 mm x 125.0 mm

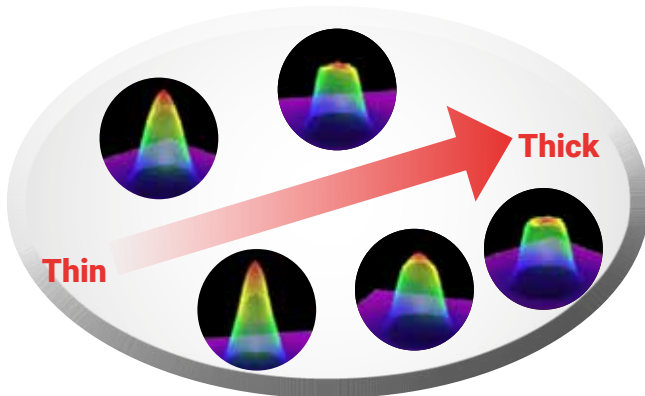
RUNNING COST & PRODUCTIVITY COMPARISON

65.0% COST REDUCTION PER PART



REGIUS AJ SERIES

VARIABLE BEAM CONTROL TECHNOLOGY COMPLETE BEAM MODE CONTROL



BEAM SHAPE IMAGES

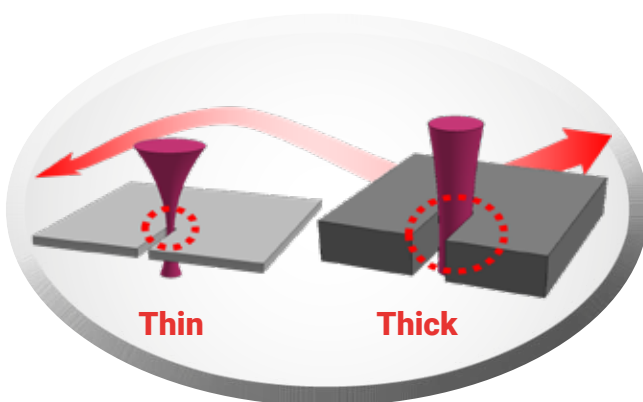
ADAPTING THE BEAM TO SUIT EVERY MATERIAL COMBINATION

AMADA's original Variable Beam Control technology has been in use since 2014, providing highly stable cutting of thin to thick materials by automatically adapting the laser beam mode exactly to the type and thickness of material being processed. The system does not simply switch from a 'thin' mode to a 'thick' mode. It incrementally changes the beam mode to provide complete control over the entire material range. The beam mode can also be instantly changed between piercing and cutting to bring the benefit of high speed piercing and increased productivity.

Another advantage of this system is that a single lens can be used to cut the entire specification range. This reduces the amount of setup required and ensures costly mistakes do not happen.

The REGIUS-AJ series is offered with AMADA's in-house designed fibre laser engine in 6kW, 9kW and 12kW variants. When combined with Variable Beam Control technology, every requirement for metal processing can be covered, ensuring lower cost-per-part and higher profitability.

AUTO COLLIMATION TECHNOLOGY COMPLETE SPOT SIZE CONTROL



OPTIMUM BEAM DIAMETER AND FOCUS POINT

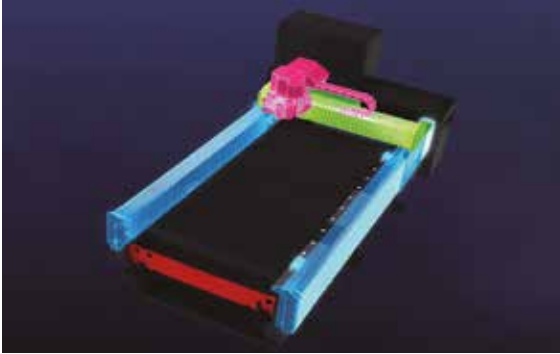
AMADA's original Auto Collimation technology offers the ability to precisely control the laser beam spot size and focus position, allowing the seamless removal of molten metal from within the kerf of the cut. This has solved the issue that standard fibre lasers can have when processing thicker mild steel: If molten material is not removed from the cut quickly enough, the cutting speed needs to be reduced. AMADA's Auto Collimation technology ensures the highest cutting speeds with a high quality cut surface.

Further benefits of the Auto Collimation technology are improved cut edge quality and greatly reduced bevel angles. Also, a wider cut kerf on thicker materials ensures easy part removal to provide increased productivity when parts are removed manually by the operator. This is also the ideal solution when automated part removal is considered, providing highly reliable manufacturing.

Auto Collimation is being utilised for all REGIUS-AJ series fibre lasers.

ULTRA HIGH PRODUCTIVITY

HIGH SPEED, 3-AXIS LINEAR DRIVES



COMBINED TECHNOLOGIES

High speed linear drives on all 3 axes of the REGIUS-AJ provide rapid acceleration / deceleration and high accuracy positioning. Combined with the newly developed intelligent head control system, ultra high productivity can be achieved.

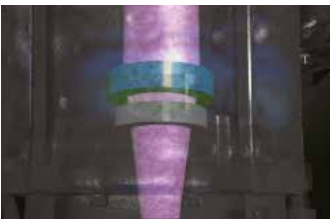
HIGHER AUTONOMY

LASER INTEGRATION SYSTEM (LIS)



i-Nozzle Checker

In order to remove subjective operator decisions and maximize machine uptime, the i-Nozzle Checker automatically confirms the nozzle condition (working with the 16 station nozzle changer to replace it if necessary), centres the laser beam to the nozzle and checks the laser beam condition.



i-Optics Sensor

The single processing lens used on the REGIUS-AJ is protected by a glass shield which is monitored to alert the operator if there is any contamination that could interrupt production. This glass shield can then be cleaned or replaced as necessary.



i-Process Monitoring

The new i-Process Monitoring system on the REGIUS-AJ is capable of checking the piercing and cutting performance for all thicknesses of mild steel, stainless steel and aluminium, and react accordingly when processing difficulties are encountered.



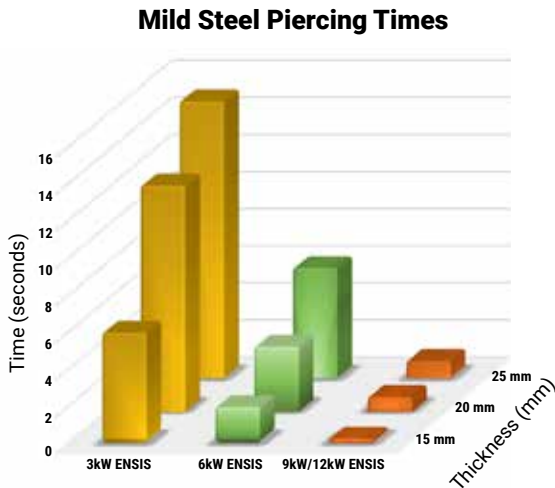
Auto Head Collision Recovery

If there is a collision during processing, the cutting head automatically retracts, re-aligns itself and uses the i-Nozzle Checker to verify the nozzle condition, replacing it if necessary, before continuing at the next cutting profile.

REGIUS AJ SERIES

HIGHER PRODUCTIVITY

HIGH SPEED PIERCING REDUCES PROCESSING TIMES



ENSIS TECHNOLOGY

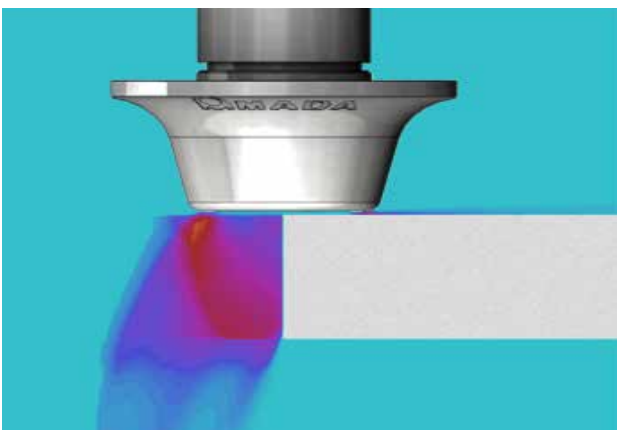
Thanks to the combination of the Variable Beam Control and Auto Collimation technologies, the REGIUS-AJ can pierce thicker mild steel very quickly. The 9kW variant can pierce 25mm in as little as 1 second depending on material quality.

The machine can instantly change between a high power density beam for piercing and the ideal beam mode for high quality, high speed cutting which provides faster processing times.

This high speed piercing can save up to 57% of the processing time for a full sheet of parts.

LOWER COST

REDUCED ASSIST GAS CONSUMPTION



CLEAN FAST CUT (CFC)

CFC processing of mild steel and stainless steel provides higher cutting speeds and lower assist gas usage compared to traditional nitrogen cutting. Large diameter nozzles are used in combination with low assist gas pressures, which results in speed increases of up to 90% and a potential 70% less gas usage per cutting metre, depending on the application.

STANDARD EQUIPMENT AND FUNCTIONS



Nozzle Changer

To ensure uptime is maximized, the REGIUS-AJ is equipped with a 16 station automatic nozzle changer for fast changeover times. The changer incorporates a cleaning station and automatically calibrates the cutting head as part of the nozzle change sequence.



Single Lens

A single lens is used to process all materials and thicknesses, eliminating costly manual lens changes that can introduce human error into the production cycle. The lens is fully accessible by the operator for routine maintenance operations.



Deep Etch

AMADA's Deep Etch function, completed in a single pass of the laser beam, allows part identification to be readable even after coating and without any secondary operation, allowing part traceability through the whole manufacturing process.



V-Monitor

This allows you to check the real-time machine status remotely on your smart device, as well as on the machine control. Additionally, whenever an alarm occurs, V-Monitor will also record HD video to enable rapid, accurate diagnosis of the issue.



Auto WACS II

AMADA's original Water Assisted Cutting System (WACS) has been improved to provide more functionality and thick mild steel processing capability. The AUTO WACS function keeps the water tank filled from a local supply, reducing operator burden and improving reliability.



Front and Side Access

To allow the most flexible access to the cutting area, the REGIUS-AJ fibre laser is equipped with 3 gull wing side doors as well as end sliding doors. These give the ability to retrieve cut parts or position material for urgent processing jobs.



Compressed Air Cutting

The REGIUS-AJ has the ability to process stainless steel, aluminium and mild steel with compressed air., significantly reducing the cost-per-part versus nitrogen processing, especially as cutting speeds for stainless steel and mild steel are generally the same as nitrogen cutting.

REGIUS AJ SERIES

STANDARD EQUIPMENT AND FUNCTIONS



ECO Cut

AMADA's original ECO Cut technology is a system that gives high productivity when processing thick mild steel, while reducing the cost-per-part. Faster piercing times, such as 1 second in 25mm mild steel with the 9kW REGIUS-AJ, can also be achieved.



i-Camera Assisted System (i-CAS)

A camera built into the machine enclosure can display a sheet of material or a remnant anywhere on the cutting bed, allowing part drawings to be placed accurately within the frame of previously cut parts and processed without having to create a dedicated NC program.



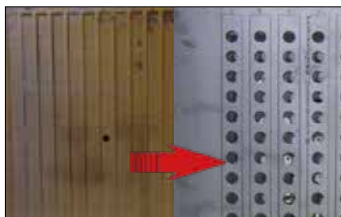
Oil Shot

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



X-Direction Conveyor

Scrap and small parts are unloaded in the X direction by the conveyor installed in the frame of the laser machine.



Dust Air Blow

In order to improve the quality of mild steel parts, the REGIUS-AJ is equipped with the dust air blow system. This continuously feeds a blade of air across the underside of the metal sheet to inhibit any dust created by the cutting process from adhering to it.



LST-E

The REGIUS-J is equipped with an all electric pallet change system. The vertical table motion is achieved with servo motors and ball screws. No hydraulic oil is required. This provides electrical energy savings and removes the need to replace and dispose of hydraulic oils.



V-Remote

Allowing remote access to the AMNC 3i Plus control allows the production management team to add jobs to the schedule and check the current processing situation. Compatible with iPad devices.

IMPROVED EASE OF OPERATION

AMNC 3i PLUS NUMERICAL CONTROL



AMNC 3i

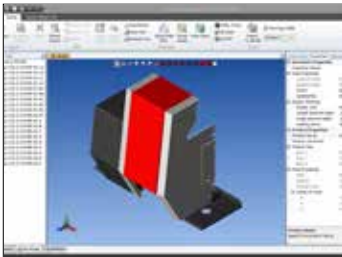
SIMPLIFIED HMI

The new AMNC 3i Plus control on the REGIUS-AJ laser utilizes the latest in high speed processing and functionality. The touch screen interface allows the user to quickly and easily perform each task required. There are one-touch options for procedures such as head calibration, nozzle cleaning, machine origin, etc. and useful features such as restart and retry operations.

It is also possible to adjust the microjoint sizes on programs produced with the VPSS 3i Blank CAM package, allowing easy switching of programs between different materials or cutting gases, without the need to reprogram them.

SOFTWARE SYSTEMS

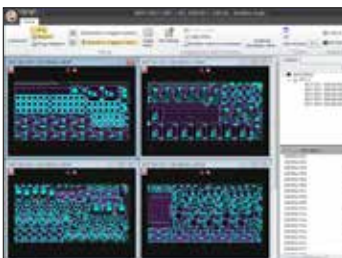
CAD



PRODUCTION DESIGNER

Production Designer can import different 3D data formats; it automatically converts them into 3D sheetmetal parts and saves the data into the AMADA Digital Database. Production Designer can automatically recognize sheetmetal specific attributes like bend data (V bend, hemming bend etc.), and blanking data (extrusions, tapping, emboss, louver, etc.).

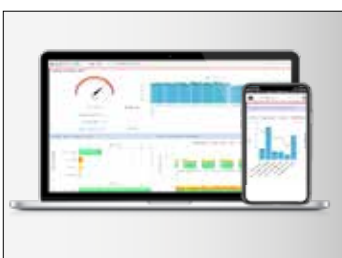
CAM



VPSS 3i BLANK

The evolution of CAM for AMADA blanking machines. Fully integrated in the VPSS 3i suite, VPSS 3i BLANK is a perfect mix of advanced algorithms for automatic processing (nesting creation, tool assignment and process sequence) and a smart manual environment for a quick manual editing.

MONITORING

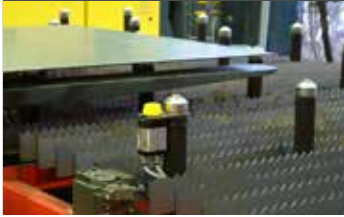


V-factory

V-factory helps customers improve the efficiency of their factory and connects each working process. V-factory is a structure to create profits by connecting the customer and AMADA. All factory aspects such as machines, tooling, software and AMADA IoT Support Centre are linked by secured communication technology.

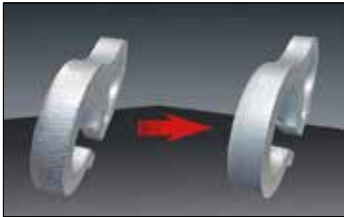
REGIUS AJ SERIES

OPTIONAL EQUIPMENT AND FEATURES



Free Bearing Table

In order to make material loading easier and safer for a single operator, a free bearing table can be added to the standard LSTe pallet changer. This is especially useful when loading and positioning thicker materials.



Gas Mixer

When processing aluminium, a mix of nitrogen and oxygen allows the perfect combination of improving the cut quality compared to nitrogen, while keeping the weldability of the material, which is a problem when processing with oxygen.



OVS-D

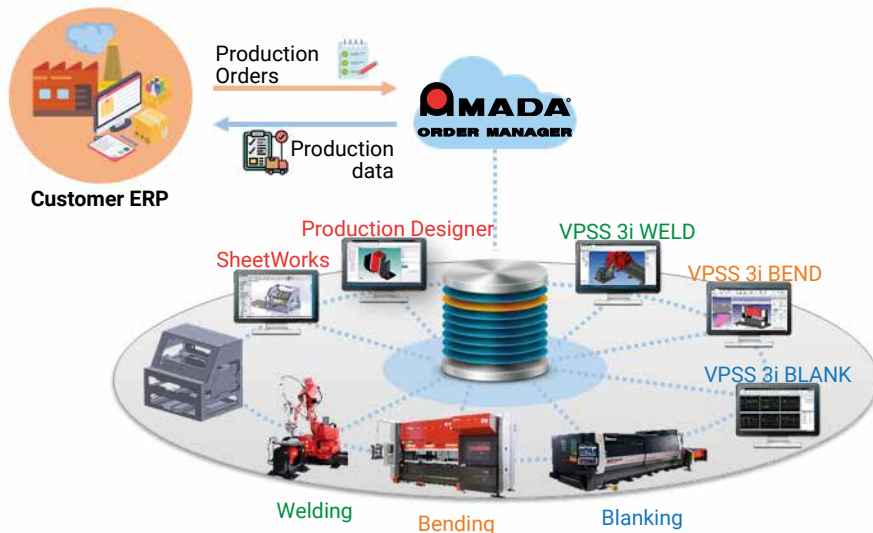
The OVS-D system measures the pitch of two reference holes and automatically compensates for any origin deviation when transferring a sheet of parts from the punch machine. The pitch and circularity of the cut holes are also measured. When the measured values fall outside the specified limits, an alarm is activated.

A BRIDGE BETWEEN ERP AND AMADA ECO-SYSTEM

AMADA Order Manager (AOM) is the new cloud-based platform created by AMADA.

Thanks to the AMADA standard data exchange interface, the customer's existing ERP system can be easily connected to AOM to allow the production data to be sent to the AMADA machines and for collecting the machine production data.

AMADA provides a suite of perfectly integrated software products. Each software technology can take advantage of the VPSS concept (Virtual Prototype Simulation System) to lead to a total, enhanced and error-free production with AMADA machines.



AUTOMATION SYSTEMS



MPF-3015
Single pallet 3m L/UL



MP-4020
Dual pallet 4m L/UL



TK Systems
3m / 4m part removal



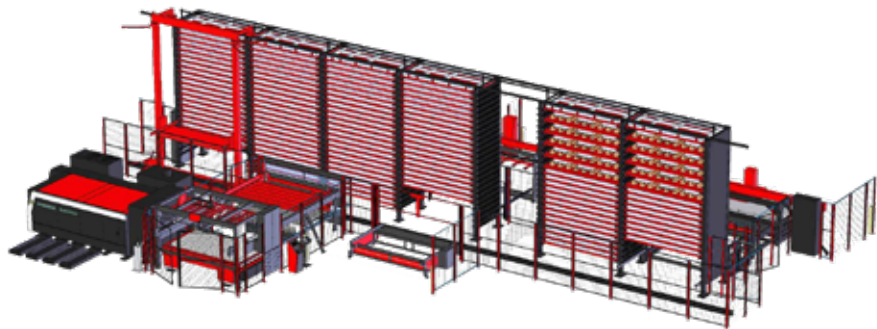
Single Towers
3m / 4m versions



Double Towers
3m / 4m versions



2nd Output
3 side unloading



CS II Systems
Automated stockyards



Laser + Tower + TK

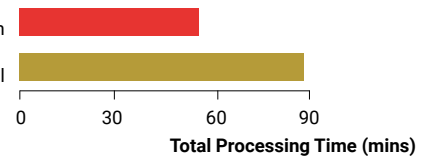
Laser + Tower

PRODUCTIVITY COMPARISON

TK CELL CAN BE **43%** HIGHER PRODUCTIVITY

Laser cell + TK System

Lacer cell



Total processing time includes sheet loading, cutting, sheet unloading, auto / manual part picking for an 8 sheet schedule

DIMENSIONS

L x W x H

REGIUS-3015AJ + shuttle table (LST-E)

6kW: 10346 x 2990 x 2450

9kW: 10346 x 2990 x 2750

12kW: 10346 x 2990 x 2520

REGIUS-4020AJ + shuttle table (LST-E)

6kW: 12174 x 3199 x 2450

9kW: 12174 x 3199 x 2750

12kW: 12174 x 3199 x 2520



Unit: mm

MACHINE SPECIFICATIONS

			REGIUS-3015AJ	REGIUS-4020AJ
Numerical Control			AMNC 3i Plus	
Controlled axes			X, Y, Z axes (three axes controlled simultaneously) + B axis	
Axis travel distance	X x Y x Z	mm	3070 x 1550 x 100	4070 x 2050 x 100
Maximum processing dimensions	X x Y	mm	3070 x 1550	4070 x 2050
Maximum simultaneous feed rate	X/Y	m/min	340	
Repeatable positioning accuracy		mm	± 0.01	
Maximum material mass		kg	920	1570
Processing surface height		mm	940	
Machine mass		kg	11900 (6kW) 12000 (9kW) 12100 (12kW)	14900 (6kW) 15000 (9kW) 15100 (12kW)

OSCILLATOR SPECIFICATIONS

ENSIS			6000	9000	12000
Beam generation			Laser diode-pumped fibre laser		
Maximum power	W		6000	9000	12000
Wavelength	µm		1.08		
Maximum processing thickness*	Mild steel	mm	25	25	25
	Stainless steel		25	25	25
	Aluminium		25	25	25
	Brass		15	18	18
	Copper		12	12	12
	Titanium		10	15	15

* Maximum value depends on material quality and environmental conditions

SHUTTLE TABLE SPECIFICATIONS

			LST-3015E	LST-4020E
Max. material dimensions X x Y	mm		3070 x 1550	4070 x 2050
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 to EN 60825-1

The official model name of the machines and units described in this catalogue are non-hyphenated like REGIUS3015AJ. Use this registered model name when you contact the authorities for applying for installation, exporting, or financing.

The hyphenated spellings like REGIUS-3015AJ 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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