

# SOLUTION

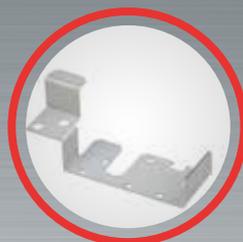
BENDING



## EG 6013 AR



FULLY AUTOMATIC BENDING SYSTEM



**AMADA**

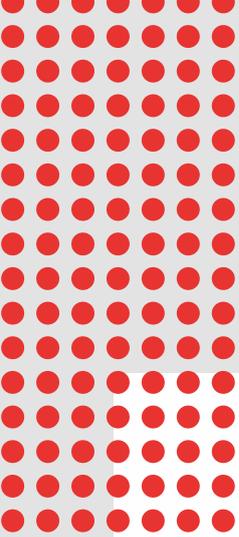
# EG 6013 AR

FULLY AUTOMATIC BENDING SYSTEM

## AUTOMATIC, HIGH SPEED AND ACCURATE BENDING OF SMALL AND COMPLEX PARTS

The EG-6013AR uses a high speed, high accuracy servo press brake with the world's first dual servo press (DSP) drive mechanism. The press brake is combined with a robot for optimum bending of small parts. The combination of precision press brake and robot offers consistently high and accurate production. Small parts that involve hazardous operations when handled manually can now be bent safely and efficiently.





## TYPICAL PROCESSING SAMPLES



Material: galvanised steel 1.0 mm  
 Dimensions: 104 x 36 x 44 mm  
 Total number of bends: 5



Material: galvanised steel 1.0 mm  
 Dimensions: 74 x 60 x 23 mm  
 Total number of bends: 7



Material: galvanised steel 1.0 mm  
 Dimensions: 275 x 63 x 19 mm  
 Total number of bends: 5



Material: galvanised steel 1.0 mm  
 Dimensions: 144 x 41 x 15 mm  
 Total number of bends: 5

### PRODUCTIVITY COMPARISON for 120 pieces each

With the EG AR press brake, the operator only has to set-up the parts before processing and perform an inspection after processing. The robot will process the parts alone.

**93% REDUCTION IN OPERATOR WORKING TIME**

**EG 6013 AR** █



**TOTAL PRODUCTION TIME**

**EG 6013 AR** █



# EG 6013 AR

## PROCESSING INTELLIGENCE



### AMNC 3i

- The AMNC 3i control is optimised for ease of use.
- The multi-touch LCD panel, with its user-friendly design, provides intuitive and smart operation.
  - The 18.5 inch vertical display is the unique control panel where operator can manage the entire process.



1 Program load



2 Tool layout



3 Condition check



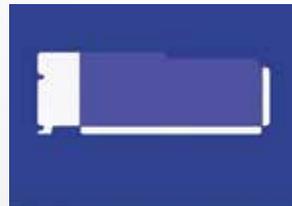
4 Start

### DEDICATED CAM

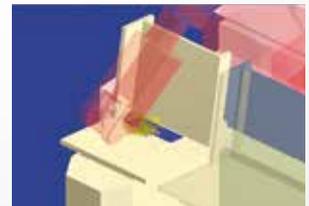
The 3D views of a part to be bent are selected from a database and used to determine processing conditions for the part (robot grip positions, tools and bend sequence). The automatic generation of robot motions eliminates the need for teaching the robot manually. Programs can be created offline in the office and quickly transferred to the machine via the network.



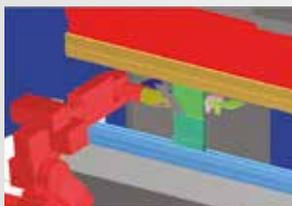
Tool layout



Bend sequence



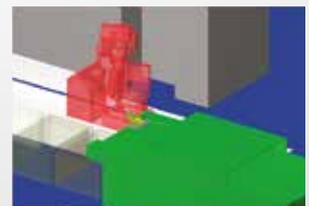
Loading (gripper selection)



Bending simulation



Thickness detector



Unloading

# OPTIMISING SMALL-PART BENDING



Robot can operate within the press brake



Storing punch and die



Removing punch and die

## DEDICATED ROBOT

The dedicated robot has been specifically developed and optimised for the bending process. The arm of the robot is capable of going inside the press brake to bend small parts which would previously have been impossible to bend automatically.

## HIGH SPEED AND SPACE SAVING BENDING

Both tool changing and workpiece handling are performed by a single robot achieving high speed bending with a compact footprint.

## NEW GRIPPER

A new gripper with both clamp and vacuum functions reduces the number of required robots from two to one. This achieves both a simplified system and a smaller footprint.



Gripper change



Vacuum function



Clamp function

# IMPROVED PRODUCTIVITY AND ENVIRONMENTAL IMPACT

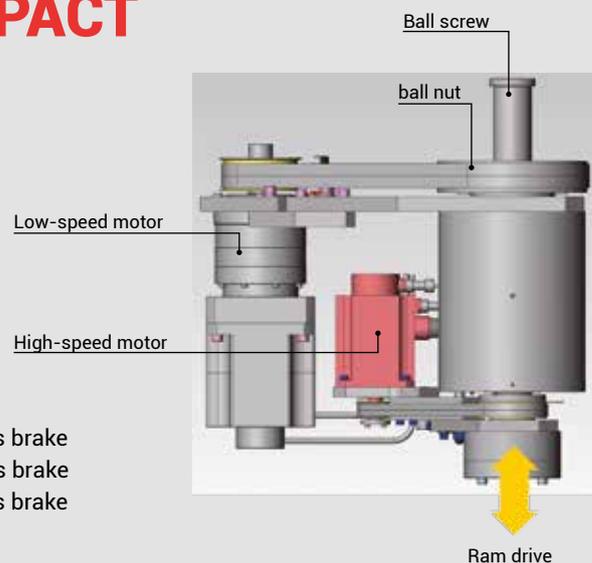
## NEW DUAL SERVO PRESS (DSP) DRIVE SYSTEM

Two motors are used in AMADA's patented DSP drive system to achieve a maximum bending force of 600 kN and a 10% power reduction when compared with a conventional high-end press brake. One motor drives a ball screw during high speed opening and closing, whilst the other drives a ball nut system during the highly accurate bending process.

### COMPARISONS WITH CONVENTIONAL PRESS BRAKE

- Approach speed:** 220 mm/s      **120% faster** than a conventional press brake
- Bending speed:** 25 mm/s\*      **150% faster** than a conventional press brake
- Return speed:** 250 mm/s      **150% faster** than a conventional press brake

\* Maximum value according to bending condition



# EG 6013 AR

## FUNCTIONS AND OPTIONAL EQUIPMENT



### Press brake EG-6013R

The open height is increased by 150 mm as compared with conventional press brakes. The DSP drive mechanism is utilised to provide higher speed and accuracy.



### Robot EG-ROBOT

With a payload of 10kg (including the gripper), 6 articulated axes and 1 travel axis, the EG robot acts like a human operator.



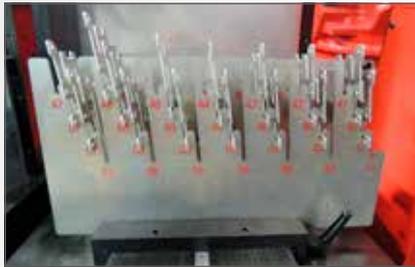
### Angle sensor Bi-S

This angle measuring system takes into account springback and material variations to ensure reliable, accurate bending results.



### Standard loading

Can be operated in up to four schedules. Mixed production by standard loader and vertical loading is possible.



### Vertical loading

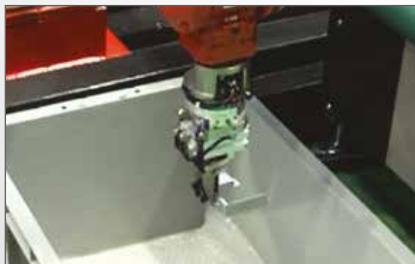
The vertical loading area is used in case of special parts that cannot be stacked flat.



### Double sheet detector and repositioner

The workpiece thickness detector and repositioner expand the processing range.

Material thickness	0.5 mm - 2.5 mm
Minimum part size	40 mm x 80 mm
Maximum part size	300 mm x 300 mm
Part stacking height	300 mm
Number of part loading tables	4
Vaccum	Repositioning part from vaccum to clamp after loading
Clamp repositioner	Repositioning during bending cycle



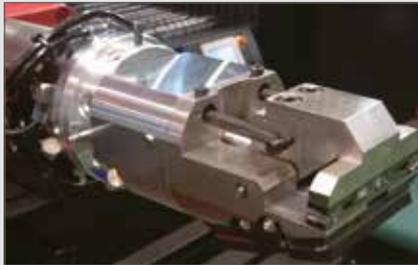
### Unloading container box

Large-capacity box suitable for mass production of small parts.



### Unloading conveyor

The conveyor is designed to prevent scratching when parts are placed onto it. Parts are removed from bending cell without interrupting production.

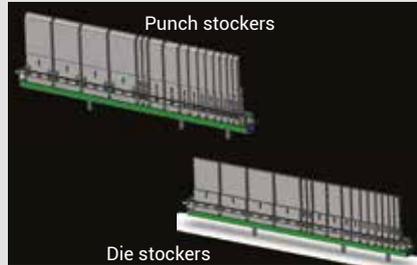


### Robot grippers

Grippers designed to make the most of the work envelope of the robot.

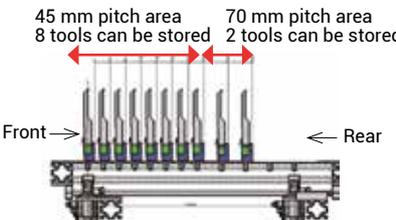
Normal gripper	Micro gripper
	
Application	Bending (combination type)
Minimum workpiece size	40 mm x 80 mm
Maximum workpiece size	300 mm x 300 mm

Tool gripper	
Application	Tool changing
Maximum tool mass	3.1 kg (100 mm gooseneck punch)
Total length	15 mm ~100 mm



### Tool stockers

Flexible tool storage allows for a wide range of bending applications.

	
Total number of stockers	10
Tool length and quantity per stocker	2 each for 15, 20, 25, 30 and 50 mm tools 4 for 100 mm tools 1 each for 5 and 10 mm lancing tools
Effective tool height	150 mm for both punches and dies
Tool registration	One tool type per stocker or per half stocker



### Dedicated enclosure

Dedicated enclosure designed for safety and visibility.

## SYSTEM CONFIGURATION

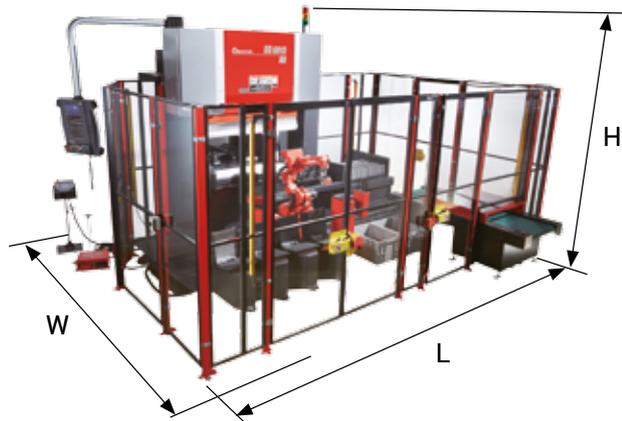


## DIMENSIONS

### EG-6013 AR

(L) 5045 x (W) 3610 x (H) 3028

Unit: mm



## MACHINE SPECIFICATIONS

PRESS BRAKE		EG-6013AR	
Capacity	kN	600	
Open height	mm	635	
Stroke length	mm	150	
Approach speed	mm/s	220	
Bending speed	mm/s	25 (without robot follow-up)	
ROBOT			
Axis composition		Robot: 6 axes, Travel axis: 1 axis	
Payload	kg	10 (with gripper)	
Travel axis	Stroke length	m	3.2
Grippers	Number of grippers for bending	2 (combination type)	
	Number of grippers for tools	1	
Tool stockers	Number of tool stockers	10 (stocker type LS2)	
Loader	Number of loading positions	4	
	Workpiece size	mm	300 × 300
	Workpiece stack height	mm	300
Unloader (option)	Number of containers	2	
	Conveyor size	mm	550 × 2000
	Conveyor capacity	kg	60
Maximum workpiece size	mm	300 × 300 × 2.5	
Minimum workpiece size	mm	40 × 80 × 0.6	

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



#### For Your Safe Use

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

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

- Hazard prevention measures are removed in the photos used in this catalogue.
- Safety devices recommended by Amada are available as options for your use in taking appropriate safeguard measures to suit the parts you produce.

The official model name of machine described in this catalogue is EG6013AR. Use the registered model name when you contact the authorities for applying for installation, exporting, or financing. The hyphenated spelling EG-6013AR is used in some portions of this catalogue for ease of readability.

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