

- Induction heating machines
- Automation
- Special machines
- Test benches
- Retrofitting machines

## Newsletter ISR-24-N02



### Discover Our Latest Innovation : Automatic Robotic Pressing and Welding Machine

ISR Industrial Solutions Research  
Headquarters  
Via della Meccanica 24/26/26A  
41 018 San Cesario sul Panaro (MO) **ITALY**  
Tel : +39 059 922 105

ISR Industrial Solutions Research  
Deutschland  
Weisserlenstrasse Nr. 19  
79108 Freiburg-Hochdorf – **GERMANY**  
Tel: +49 761 151895-60

[http: www.i-sr.com](http://www.i-sr.com)

### **Contact**

Giuseppe Cocuzza  
Mobil: +49 152 23854920  
Mail: [coc.de@i-sr.com](mailto:coc.de@i-sr.com)

Fabrice Garcia  
Mobil: +33 7 69 83 13 45  
Mail : [f.garcia@vipc.fr](mailto:f.garcia@vipc.fr)

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Dear Ladies and Gentlemen,

We are thrilled to unveil our latest breakthrough in manufacturing technology:  
The Automatic Press and Welding Machine for cardan shafts.

This state-of-the-art machine represents a significant advancement in efficiency and precision, and we are excited to share its success with you.

Our machine has been meticulously developed and is currently in full production at our esteemed customer sites. The feedback we've received has been overwhelmingly positive, with customers expressing high satisfaction with both the performance and reliability of the equipment.

Should you have an interest in exploring the capabilities of this cutting-edge machine firsthand, we warmly invite you to schedule a visit to witness its operation in action. Additionally, we are prepared to cater to your specific needs by providing detailed and personalized quotations upon request. Your satisfaction and success are paramount to us, and we are committed to tailoring our offerings to meet your unique requirements.



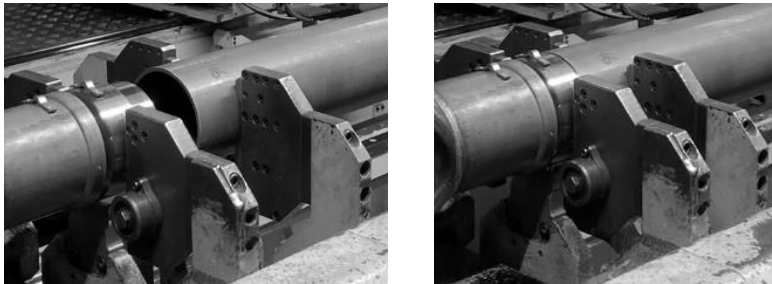
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## **Short Technical Description of the system.**

Inside the machine are two centering devices to support the tube. On the right and left sides, there are tailstocks to receive the end fittings.

The left tailstock is fixed to the machine bed, while the right tailstock is movable to facilitate the fitting process.

Once the tube is placed in the centering device and the end fittings are secured in the tailstocks, the automatic cycle initiates. The end fittings are then aligned, pressed, concentricity-checked, welded, and brushed.



Prior to fitting, alignment/offset between the two end fittings is performed. The phase tolerance between the two end fittings is  $\pm 20'$ . The offset of both components (shaft and end fitting) is always checked, in automatic, at the end of each work cycle.

The precision of the universal joint connection is  $\pm 2^\circ$ .

Alignment is followed by fitting the end fittings into the tube. The fitting force is generated by a controlled hydraulic circuit. The set value is entered as a parameter in the program, and the actual value is continuously monitored. If the fitting force exceeds the limit value, the fitting process is halted, and an operator is alerted.

Rotation drive on the tailstock is provided by a brushless motor with the ability to set the rotation speed.

As with all our machines, the HMI (Human-Machine Interface) is customizable according to your requirements, and manual cycles are available in compliance with CE regulations.

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Two welding torches are positioned at the rear of the machine.

Each welding torch is mounted on a special 6-axis ABB robot. The system automatically searches for the position of the grooves to be welded.

The robot on the left has a fixed position, while the one on the right is mounted on a carriage to be moved into the welding position according to the length of the part.



After welding, the weld seams can be brushed.



To do this, the 2 brushes are positioned close to the weld bead.

The brushes are rotated by an electric motor, while a pneumatic cylinder ensures constant pressure on the workpiece, regardless of brush wear.

**We prioritize your safety and operator ease-of-use.**

Safety first

The workspace is enclosed by two sliding doors during the welding process. To allow observation of the welding process, each sliding door is equipped with a viewing window fitted with tinted safety glass.

Consideration of air quality

The system features a specialized industrial vacuum that transports residues to a dedicated container.

To streamline work

-The interior area in direct contact with the material to be welded is coated with appropriate refractory paint (gray or black). Exterior finish according to customer preferences.

-The top section is designed to allow access for lifting equipment.

-The machine structure is designed to enable easy and safe access during cleaning and maintenance operations.

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## Technical data

- Workpiece definition
  - length max. 2500 mm
  - Tube  $\varnothing$  45 to 150 mm
  - Weight max. 100 kg
  - Overall max.  $\varnothing$  400 mm
- Concentricity :
  - Measurement eccentricity tolerance 0.10 /0.50 mm
  - Measurement Resolution of  $\pm$  0.01 mm
- Pressing force 200 daN to 10,000 daN
- The height of the working axis of the machine from the floor is 1000 mm
- The access opening in the working area is 2800 mm wide.
- Cycle time : Depending on the diameter of the weld and the number of additional operations, the automatic cycle time is 30 to 90 sec.



**PLEASE DON'T HESITATE TO SHARE YOUR PROJECTS WITH US; WE'RE HERE AND EAGER TO CRAFT THE PERFECT SOLUTION FOR YOU !**

Giuseppe Cocuzza  
I.S.R. Deutschland GMBH  
[coc.de@i-sr.com](mailto:coc.de@i-sr.com)



Fabrice Garcia  
I.S.R. Group  
[f.garcia@vipc.fr](mailto:f.garcia@vipc.fr)

