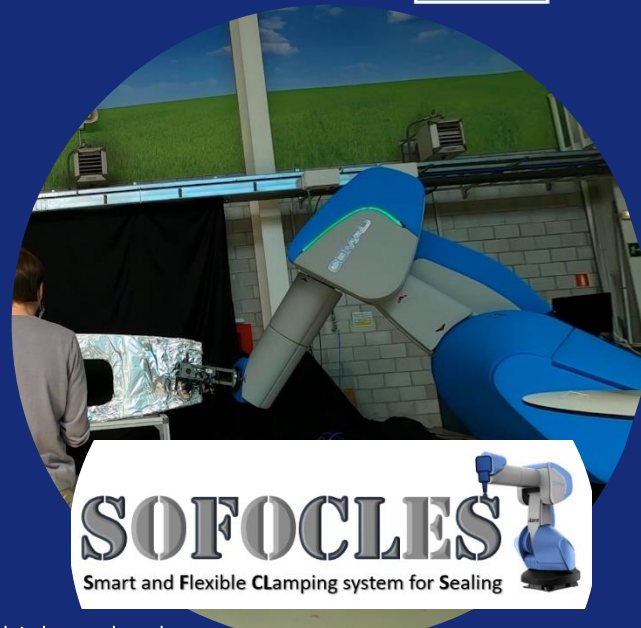


CHALLENGE

Handling and tooling large parts for industrial process in the aeronautical sector as sealing, welding, WAAM ... might be time and specific knowledge demanding. In addition, different tools may be needed for different references of manufactured parts, which can require high investments.

PROPOSED SOLUTION

The SOFOCLES project proposes a flexible solution using two collaborative robots working in coordination with flexible and reconfigurable grippers to achieve a robotic cell acting as manipulator placing the part in the different positions necessary to carry out the desired operations and as tooling keeping the part in position during the operation.



BENEFITS

- Reduction of the time of positioning and clamping the parts;
- Elimination of errors in the positioning and clamping of the parts in the cell,;
- cost reduction of the needed tooling by its flexibility;
- reduction of the costs of the cell, by using the same system for handling and tooling;
- Elimination of risks in the handling of large structural parts by the operators, by the implementation of a safe and efficient H-R collaborative system.
- Flexibility of the production plant since the solution allows the use of standard robots that can be used in a coordinated way or independently.



DEVELOPMENTS

Using collaborative AURA robots with high payload working in coordination and the monitoring of the working area allow the operator to interact safely with the robotic cell.

TRL7 validation of the SOFOCLES solution.

Development of the coordination of the movement of two industrial robotic arms in a collaborative robotic cell through an external SW, maintaining the independence of the controls to allow modularity in a flexible production plant

The digital twin allows continuous monitoring of the cell.

The virtual reality tool will help in the cell's offline programming stage.

The reconfigurable and flexible gripper allows the cell to handle parts of different sizes and the compliant element allows the efforts in the parts to be acceptable.

