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CT has successfully completed WELDER, a toolkit for next-generation aeronautics equipment

- Clean Sky 2 WELDER project has successfully delivered and commissioned the ultrasonic and resistance welding heads.
- The two new welding solutions will replace conventional joining systems relying on fastening, riveting and adhesives, greatly improving the environmental and economic performance of the aerospace sector, in line with Clean Sky 2 objectives.

Madrid, April 12 of 2023,- Precision welding equipment is an essential component for high-quality aerospace manufacturing. The WELDER (Welding Equipment for optimized, fast and accurate Longitudinal barrel joint closure) project aims to be at the forefront of the aerospace industry's thermoplastic adoption strategy through the provision and demonstration of aeroplane fuselage welding.

CT, a leading engineering company in technological innovation throughout the complete product life cycle, has been responsible for the system integration and the coordination of the project consortium, formed by AIMEN, AITIIP and Dukane.

The main objective of the project was to design, develop and deploy two robot-based, modular, flexible (Plug-and-Produce) and fully operative welding solutions, including all the needed tooling and auxiliaries for performing the longitudinal barrel joint of the 8 m long fuselage at the Multi-Functional Fuselage Demonstrator.

The two welding solutions (namely, ultrasonic welding and resistance welding end-effectors), were designed and developed by Dukane and AITIIP, respectively.

WELDER's multidisciplinary team of experts in welding, materials and design worked closely with the four consortium members to achieve the success of the project. The welding heads designed and developed by Dukane and AITIIP were integrated by CT into a complete system, while AIMEN conducted the welding tests in the laboratory, which was tested and commissioned by the WELDER team.



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Moreover, WELDER focused on implementing an online monitoring and control system based on an end-to-end digital manufacturing solution, which enabled a bidirectional dataflow to feed the digital twin. This system optimizes process and product performance and has enabled new approval/acceptance procedures, thus becoming the spearhead of the aerospace industry's thermoplastic adoption strategy.

Thanks to its successful execution, the WELDER project opens the door to new collaborations and similar R+D initiatives in the field of welding thermoplastic composite materials.

WELDER is one of the two projects, along with [RETPAIR](#), that CT has submitted to the Clean Sky 2020 bid to move forward in the aerospace industry thermoplastic adoption strategy, and greatly improve the environmental and economic performance of the aerospace sector, according to CS2 objectives.



About WELDER

Included within the Horizon 2020 Framework Programme, WELDER (Welding Equipment for optimised, fast and accurate Longitudinal barrel joint closure) has a total research funding of €1,6 M granted from the H2020 program. Its consortium is made up of AIMEN, AITIIP and DUKANE, and led by CT.

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This project has received funding from the Clean Sky 2 Joint Undertaking (JU)

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About CT

CT is a leading technological company that provides innovation and engineering services in the aeronautical, space, naval, automotive, rail, energy and industrial plants sectors. CT pushes the boundaries of technology through innovation, raising performance to new levels throughout the entire life cycle of products, from design, manufacturing to post-sales support. With over 35 years of experience, today CT's success is driven by more than 1,800 talented employees based in seven countries, spanning three continents. www.thectengineeringgroup.com

The CT Engineering Group - Departamento de Comunicación: dmiancu@ctingenieros.es +34 91 683 20 30 etc. 7120