NEWSLETTER #1

HYBRID MANUFACTURING

Multi-material | Lightweight | Complex Geometry

PROJECT WEBSITE

PROJECT UPDATES

DISCO2030 is entering an exciting stage. The project's advanced manufacturing solutions are moving from research and process development into full-scale components, testing and demonstration.

By combining different metals and **polymers through additive manufacturing**, DISCO2030 aims to create lighter, more efficient and multifunctional components. **Recent progress** across our **three industrial use cases** shows how the project is **turning this ambition** into **tangible results.**

THREE USE CASES, REAL PROGRESS

Rocket Engine: Preparing advanced components for demanding conditions

The project has manufactured **two copper-alloy demonstration combustion chambers** and successfully produced and accepted an additively manufactured injector head.



Hot-fire testing at the DLR P8 facility

The hot-fire test campaign at the **DLR P8 facility successfully validated** the injector's fluid-dynamic and combustion performance.

Throughout multiple hot runs during five test days, the system demonstrated **stable operation across a wide range of throttling levels and mixture ratios**, achieving firing durations of **up to 190 seconds**. These results enabled the injector head to reach **Technology Readiness Level 6 (TRL6)**, confirming its thermomechanical robustness and reliable combustion stability under representative operating conditions.

This is an **important contribution to the growing knowledge base in Europe** for effectively leveraging the advantages of additive manufacturing for future European space-propulsion systems. The work is also generating valuable knowledge about manufacturing challenges, including the safe removal of residual powder from complex internal cooling channels.

Marine heat exchanger: Compact design with promising performance



Four full-size copper heat-exchanger bodies were successfully manufactured with complex internal structures that would be difficult to produce using conventional methods.

Although **challenges in sealing the dissimilar-material interface prevented the prototypes from progressing to engine testing**, this work delivered valuable information about the current capabilities and limitations of hybrid manufacturing at full scale. Advanced computer simulations confirmed the potential of the design. The simulated outlet air temperature reached the project **target of 62°C**. The concept could provide **approximately half the heat-exchange power of a traditional solution while occupying less than one-third of its volume.** A revised inlet design also indicated the potential for a **further 31% increase in heat-exchange power.**

These results support the project objective of developing more compact and high-performing solutions for marine and energy applications.

Hydrogen storage: Lighter solutions for future transport



Five pressure vessels have been manufactured, including two equipped with functional internal heat exchangers.
Four vessels have already undergone various tests focused on lightness, strength and durability.

Important results were achieved during these test campaigns. In addition to successfully achieving a burst pressure that **exceeded the minimum regulatory requirements**, the results from the service life and durability tests were used to further improve the developed tank design.

Based on the first campaign, **the aluminium liner was redesigned**. The optimized design has the potential to **reduce the liner mass by approximately 36%** while **increasing storage volume** by **around 6%** compared with the previous design. **The initial results indicate** that the project's targets for improving hydrogen storage density can be achieved, supporting more efficient hydrogen-storage systems for heavy-duty transport.

WHAT COMES NEXT?

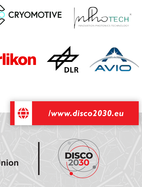
Disseminating project outputs with the **scientific community.**



FROM RESEARCH TO IMPACT

DISCO2030 is creating impact not only through its demonstrators, but also through the practical expertise being developed by the consortium. The results are also informing follow-up research activities in areas such as space propulsion, compact heat exchangers, hydrogen storage, smart components and **hybrid manufacturing.**

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FEATURED EVENT IN WARSAW, POLAND

DISCO2030 European Technology & Industry Forum – 28 October 2026, 09:00-17:00 – Dome Hall, Ministry of Economic Development and Technology, Warsaw.

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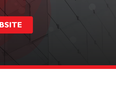
EUROPEAN PROJECT

ADVANCE REGISTRATION IS REQUIRED | REGISTER FOR THE WARSAW FORUM

UPCOMING EVENTS



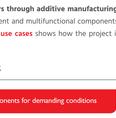
Euro PM2026 Congress & Exhibition
11.10 – 14.10.2026 at
Budapest, Hungary



35.BI-MU
13.10 – 16.10.2026 at
Milan, Italy



MAMC 2026
10.11 – 12.11.2026 at
Vienna, Austria



Formnext 2026
17.11 – 20.11.2026 at
Frankfurt, Germany

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