



# NEWSLETTER #2

## HYBRID MANUFACTURING

Multi-material | Lightweight | Complex Geometry

[PROJECT WEBSITE](#)

### PROJECT UPDATES

DISCO2030 combines the advantages of PBF and DED to create **lightweight, complex geometry components and structures** that can operate in harsh environments. The process is expected to **reduce lead times** by at least 20% compared to **traditional manufacturing methods**, such as die casting and brazing. It will also **produce multi-material parts** that are 50% lighter and 30% more performant than reference products.



In this **first year**, the project has reached several noteworthy milestones. First, candidate **metal and polymer materials** have been **chosen and designated** for the project's objectives. Furthermore, the initiative has successfully initiated the creation of the initial **Additive Manufacturing (AM) designs** for the demonstration components, representing a crucial advancement in the project's development.

Lastly, the undertaking has formally defined **comprehensive testing protocols and procedures** specifically tailored for the meticulous evaluation of dissimilar materials, underscoring the project's commitment to systematic and methodical progress. DISCO2030 will **demonstrate its methods on three use-cases** that are relevant to the **European economy**: a rocket engine, a marine engine, and a cryogenic hydrogen tank for the **automotive sector**. All components manufactured using the **DISCO hybrid methods** will be rigorously tested to **industry standards**.

### PROJECT UPDATES



#### 2<sup>ND</sup> GENERALASSEMBLY

**November 16<sup>th</sup> and 17<sup>th</sup>, 2023**

On **November 16<sup>th</sup> and 17<sup>th</sup>, 2023**, the Second General Assembly of the #DISCO2030 Project convened in Garching near Munich, Germany.

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#### FORMNEXT 2023

**November 7<sup>th</sup> and 10<sup>th</sup>, 2023**

On **November 7<sup>th</sup> and 10<sup>th</sup>, 2023**, LKR Leichtmetallkompetenzzentrum Ranshofen and Oerlikon met and presented DISCO2030 at Formnext.

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### PARTNER SPOTLIGHT

## oerlikon

Oerlikon's role within this project encompasses several pivotal tasks.

Firstly, the company is responsible for the production of a **Laser Powder Bed Fusion Copper (LPBF) alloy combustion chamber** designed for liquid rocket engines, while employing **Direct Energy Deposition (DED) techniques** to **reinforce its structure** with Nickel superalloys.

Additionally, Oerlikon is tasked with the manufacture of an **Aluminium heat exchanger** via LPBF, intended for application in **hydrogen storage**.

Furthermore, the company is entrusted with the **development of methodologies** for the seamless integration of the heat exchanger into an Aluminium DED tank, which is **manufactured** by the project partner, LKR.

Finally, Oerlikon will **fabricate** a Copper heat exchanger using LPBF technology, and Oerlikon Metco will **employ Steel DED** to craft a **lightweight housing** characterized by remarkable mechanical strength.



[disco2030.eu/disco2030-consortium.html](https://disco2030.eu/disco2030-consortium.html)

### UPCOMING EVENTS



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