FUTURE SPACE TRANSPORTATION FLPP AUTUMN SESSION 2025

OPTIMISED UPPER STAGE EURECCA

MT AEROSPACE AG

Location: Augsburg, Germany

Founded: 1969

Employees: about 600

Mission: MT Aerospace is a leading international aerospace company. More than 600 employees develop, manufacture and test components for space and defence programs. We create commercial competitive products that combine maximum performance at minimum weight.

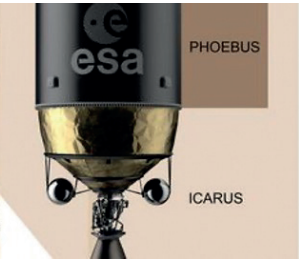
ESA FLPP TECHNOLOGY DISRUPTORS ACTIVITY

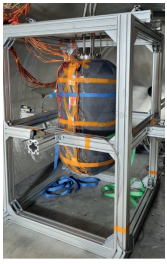
Project name: EURECCA: EURopean cryogEnically Compatible Carbon fibre mAterial – Pre-Development

Objective: Development of a European sourced cryogenically compatible carbon-fibre reinforced plastic (CFRP) material, for future light weight upper stage tanks

Applications

- Possible use for next launcher (Ariane 6) upper stage propellant tanks for LH2 and LOX application
- Other cryogenic components in civil applications i.e. hydrogen storage





GET IN TOUCH

Contact: D. Lanuschny / B. Thoma / R. Hartmond
Website and Socials: www.mt-aerospace.de | MT Aerospace De

FLPP AUTUMN SESSION 2025 – OPTIMISED UPPER STAGE EURECCA

TECHNOLOGY AND INNOVATION

What we developed: Together with established European CFRP raw materials provider, a cryogenically compatible material has been developed on the basis of structural and operational requirements for a leak-tight launcher propellant tank, compatible with liquid hydrogen, LH2, as well as for liquid oxygen LOX.

Unique feature:

- First cryogenically compatible CFRP material developed in and from a European source inside a standard material procurement environment and cost envelope
- Verified requirements on sample level at room temperature and under cryogenic conditions
- Verified leak tightness of the European sourced CFRP material under cryogenic conditions with a subscale pressure vessel inside a vacuum chamber

KEY RESULTS

Developed CFRP Material is

- compatible with the high strength and fracture control requirements allowing for a leak tight pressure vessel in a cryogenic environment
- compatible with the pre-selected manufacturing processes 'Automated Fiber Placement' and its follow-on processes of curing and part finalization
- based on a European established CFRP source and has been optimised with respect to economic standard procurement prices

NEXT STEPS AND MARKET READINESS

- **Roadmap:** Prototyping has been performed during the closed first phase; further testing and verification is running within the second phase of this project
- **Opportunities**: Material is compatible for high performance applications within the launcher sector but can be applied to any application within a cryogenic environment
- **Target launch:** The material shall be justified for serial production within the next phase to be ready or the use within a direct product development