

FUTURE SPACE TRANSPORTATION FLPP AUTUMN SESSION 2025



EFA LARGE ADDITIVE MANUFACTURING (DED & AFSW ON CURVED)

MT AEROSPACE



Location: Germany

Founded: 1969

Employees: 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 competitive commercial products that combine maximum performance at minimum weight.

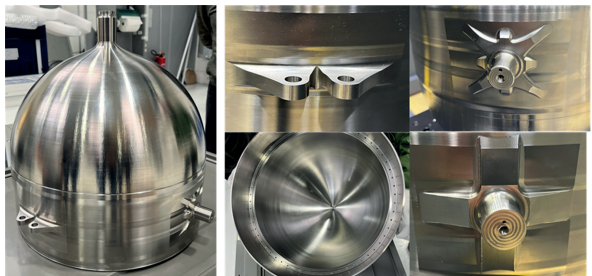
ESA FLPP ACTIVITY

Project name: ESA FLPP AM AFSW/DED Project – Large Additively Manufactured Structures for Launchers

Objective: The objective of the present activity is to develop and demonstrate the two selected processes AFSW & DED with major focus on mass and cost optimization for introduction to future launcher flight hardware. The development is based on existing heritage and R&D results available at MT Aerospace.

Applications

- AFSW LH2 Tank Panels and ITS Panels
- DED Spacecraft and Satellite propellant tanks, Ti-liner for COPV and Polar and equatorial tank mountings



GET IN TOUCH

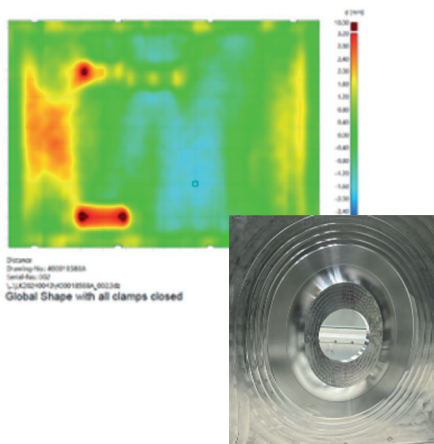
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KEY RESULTS

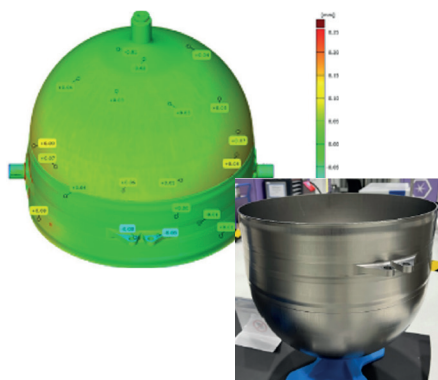
AFSW

- **NDI:** Inline PAUT NDI for inner defects successfully developed and implemented. Automated data evaluation assessed, and technical feasibility proven
- **Structure Panels:** Development and optimization of dedicated process parameters and WOF for the AFSW process with AA7475 alloy meeting the requirements for TRL 5
- **Tank Panels:** Development and optimization of dedicated process parameters and WOF for the AFSW process with AA2219 meeting the requirements for TRL 6 with restriction



DED

- For the different regions of the use-case the WOF has been developed and implemented fulfilling the success criterion for the technology “Direct Energy Disposition with Titan Powder on Half shell” and meets the requirements for TRL 6



NEXT STEPS AND MARKET READINESS

- AFSW: Process optimization with a new process route
- DED Further development and implementation of NDI methods like Thermography and Digital Radioscopy
- DED: Test of Implementation of HIP and powder variations
- DED Processing: Welding development and qualification, Upscaling to bigger components, Implementation of process monitoring