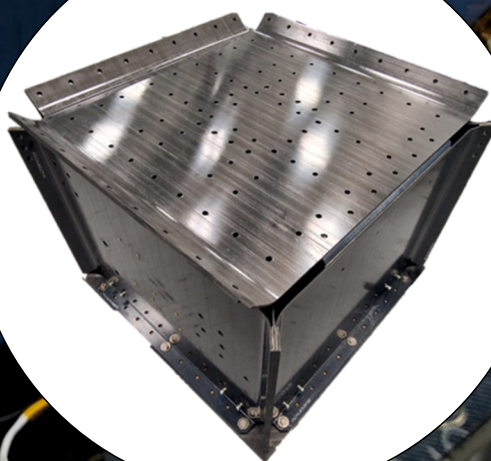




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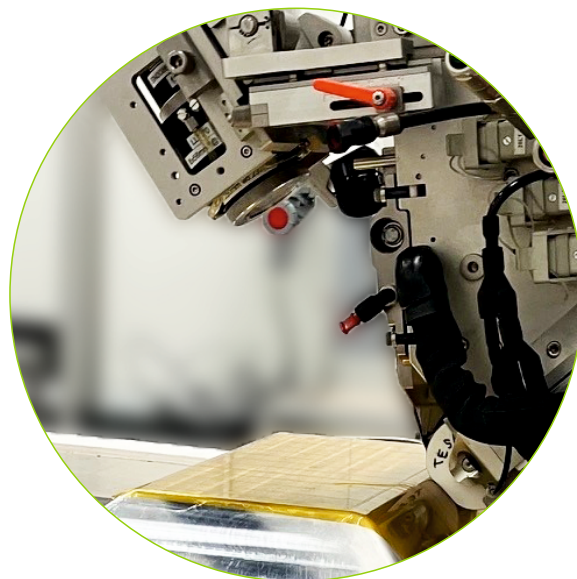
TESAT

**THERMOPLASTIC
SATELLITE
STRUCTURE FOR
NEXT-GENERATION
SPACE SYSTEMS**

CHARACTERISTICS

This is a breakthrough approach to the design and manufacturing of satellite structures, based on thermoplastic composites, enabling significant weight reduction, simplified integration, and scalable production tailored to the needs of modern space missions and satellite constellations.

- Low mass [30% reduction compared to aluminium].
- High specific strength and stiffness.
- Good resistance to environmental conditions (vacuum, radiation, temperature).
- Ability to easily manufacture complex shapes.
- Fast manufacturing processes enabling production automation.
- Use of recyclable materials.



CORE TECHNOLOGIES

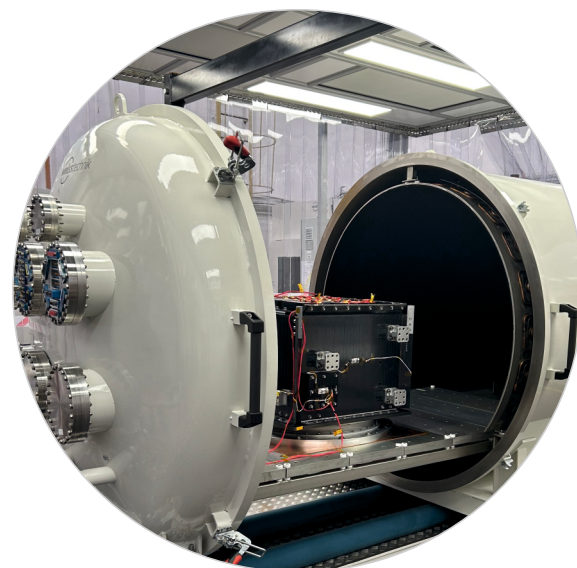
- Automated Fiber Placement (AFP) for thermoplastic composites.
- Thermoforming of structural components using presses.
- PAEK/PEEK – materials qualified for space environments.
- Resistance and ultrasonic welding.
- Fast insertion processes for bolted joints.

WHO TESAT IS FOR

- Satellite system integrators.
- SmallSat platform manufacturers.
- Companies developing satellite constellations.
- Companies seeking alternatives to aluminum in load-bearing structures.

TESAT is a ready-to-implement technology. It reduces mass, shortens production time, and lowers costs while maintaining a clear ESA qualification pathway.

The project was funded by the European Space Agency [ESA], in cooperation with a commercial partner.



The Łukasiewicz Research Network – Institute of Aviation offers a wide range of specialized research, engineering services and products. We provide comprehensive solutions, ranging from dedicated analyzes, simulations, engineering design, through the selection, testing and certification of materials and structures, to rapid prototyping and additive manufacturing.

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