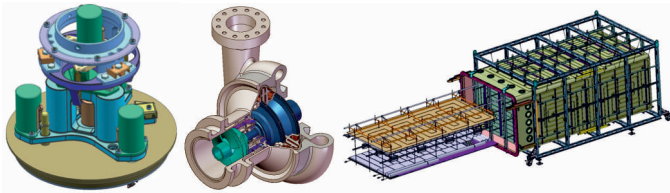
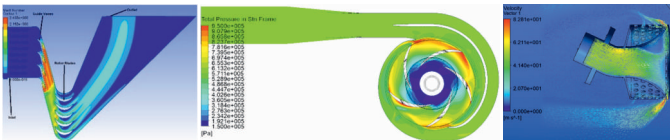


COMOTI's Capabilities for Space Market

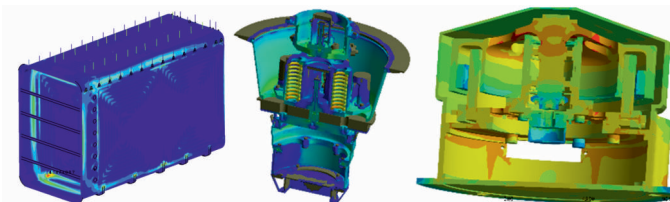
Design and 3D Modeling



Optimization and CFD Analysis



Stress and Thermal Analysis



Manufacturing (CNC Machining, ALM-SLM, Composite Autoclave)



COMOTI in Space - Topics of interest -

Spacecrafts and Satellites equipment

- Pumps for MPFL Systems;
- Mechanisms (e.g. for exploratory and sample return missions);
- Sample containers;
- Satellite structures/components (design and manufacture metallic/composite parts);
- Mechanical Ground Support Equipment (MGSE);
- Space components developed through additive manufacturing (SLM).

Propulsion

- Green propulsion;
- Storable gas propulsion;
- Electric propulsion;
- Equipment and components: turbopumps, pumps, valves, injectors.

Launchers

- Flanges, interstages;
- Separations systems;
- Mechanisms;
- Cryogenic tanks AVD (antivortex devices) and diffusers.

Testing Facilities (developed or under development)

- Pumps, turbopumps, valves, AVD and diffusers test benches;
- Electric thrusters testing facilities;
- Green and storable gas thrusters testing facilities;
- Assembly and integration facility in clean room environment (ISO8 and ISO5);
- Mechanical, thermal and vacuum test facilities.

• R&D for Satellites and Space Equipment Dept.

Contact: radu.mihalache@comoti.ro

• R&D for Launchers and In-Space Advance Propulsion System Dept.

Contact: dan.ifrim@comoti.ro

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GAS TURBINES

COMOTI IN SPACE

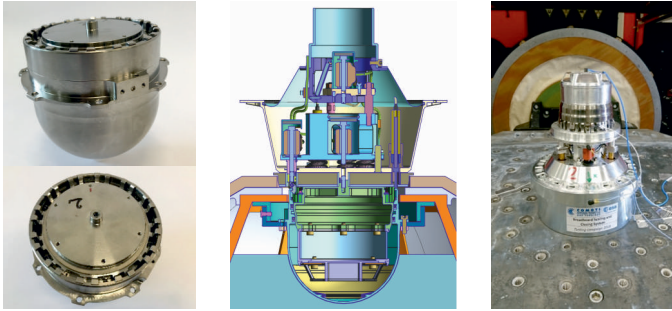
Ariane 6 - new European launcher.



Space Equipment

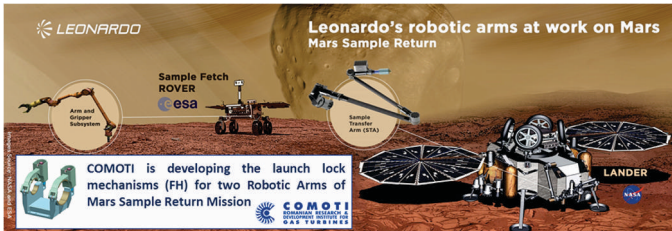
Closing and Sealing System for Sample Return Missions

ESA Program: MREP-2 (Mars Robotic Exploration Programme 2)



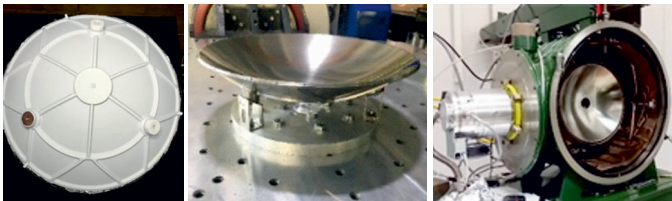
HDRMs for Robotic Arms

ESA/NASA Program: Mars Sample Return Mission.
Contractor: Leonardo.



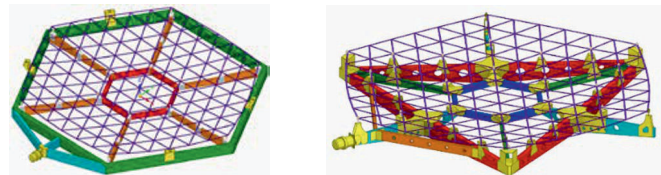
High Geometrical Accuracy and Low Mass Metallic Antenna Reflector

ROSA (Romanian Space Agency) Program: STAR



CFRP Structure for Metallic Mesh Antenna

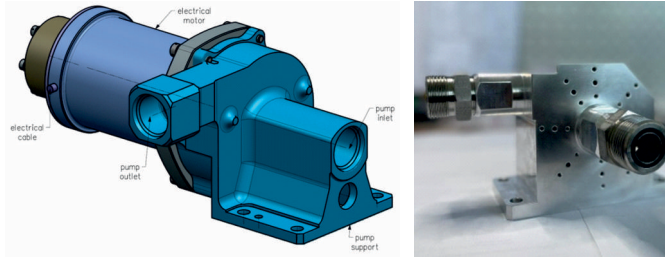
ESA Program: ARTES



Space Equipment and MGSEs

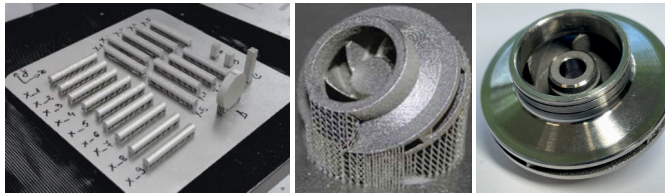
Centrifugal Pumps for Thermal (MPFL) Systems

Program: ESA's Romanian Incentive Scheme and GSTP



Additive Manufacturing Expertise

ESA Program: GSTP



Mechanical Ground Support Equipment (MGSE)

Proba 3 mission – entire MGSE family and
ASPIICS Instrument Transport Container.
Contractor: Airbus DS and CSL (Centre Spatial de Liege).



JUICE mission – Wide Range Thermal Test Facility.
Contractor: CSL (Centre Spatial de Liege).

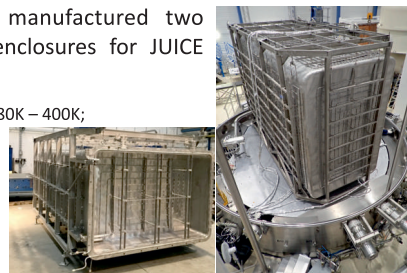
COMOTI designed and manufactured two stainless steel thermal enclosures for JUICE mission testing campaign.

Operational temperature cycles: 80K – 400K;
Pressure:

- Outside: 10-5 mbar;
- Inside: 1 mbar;

Overall dimensions:

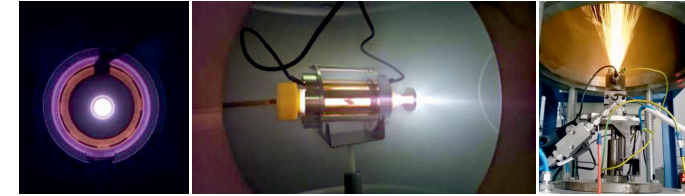
- Big box: 4.5m x 2m x 3m
- Small box: 3.8m x 2m x 1.2m



Propulsion & Launchers

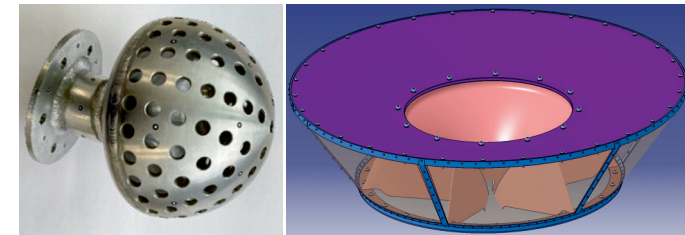
Electric and Green Propulsion

Program: ESA's Romanian Incentive Scheme and GSTP

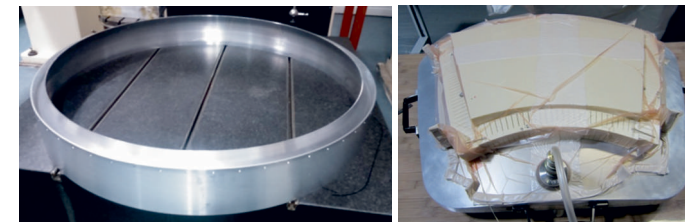


Launchers Cryogenic Tank Components and Tools

ESA Program: FLPP. Contractor: MT Aerospace.



Anti vortex devices and diffusers for LOX, LH2 and LCH4 Cryogenic Tanks.



Y – ring for cryogenic tank bulkhead.

Tools for cryogenic tank bulkhead components.

Turbopump Testing Facilities



Centrifugal pump water similitude test bench:

- Max. power on shaft: 600 kW;
- Max. speed on shaft: 25.000 rpm.

Turbine test facility:

- Pressure to turbine inlet: 50 bar to 100 bar;
- Gas flow: 4 kg/s – 6 kg/s.