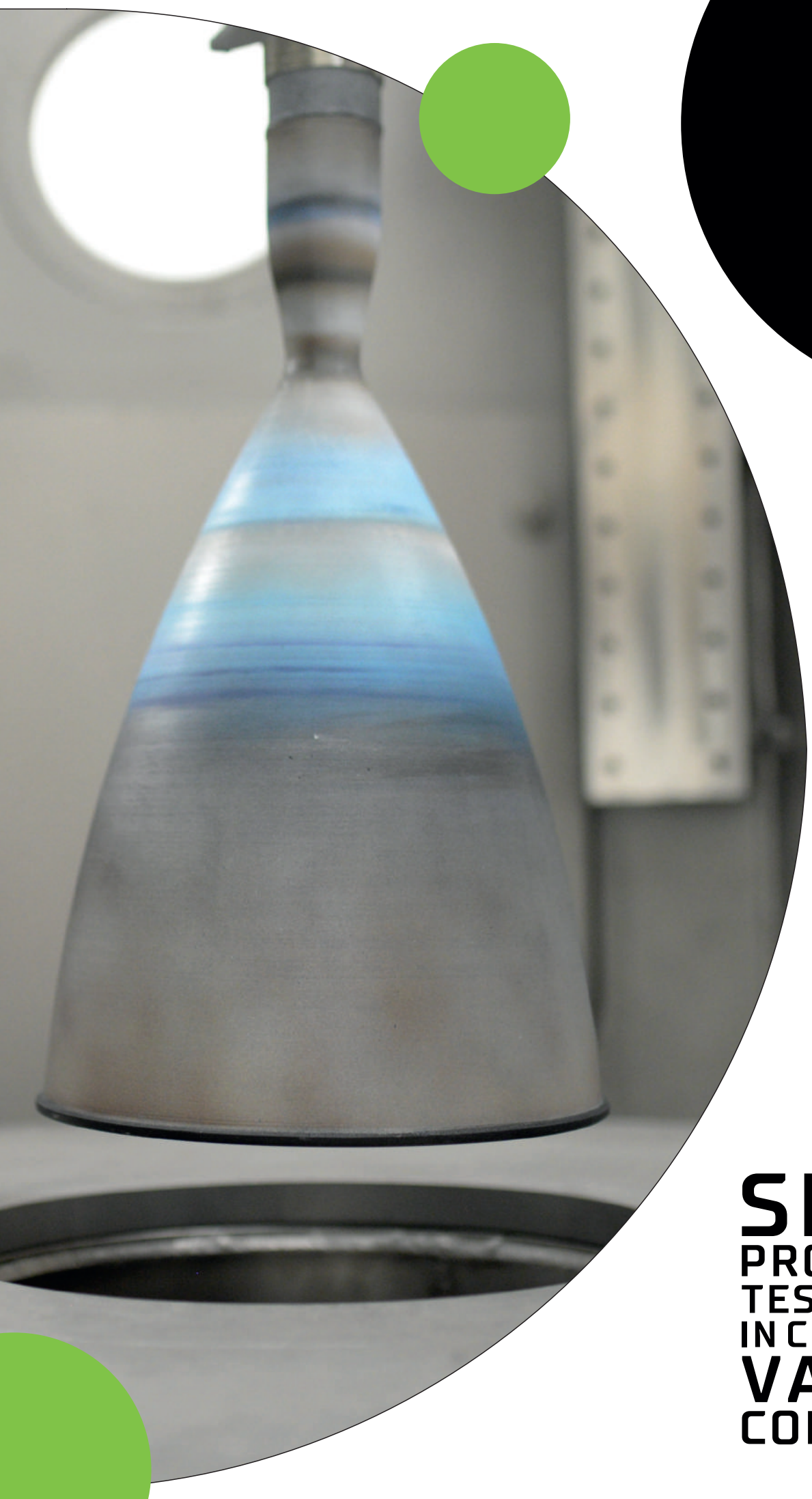


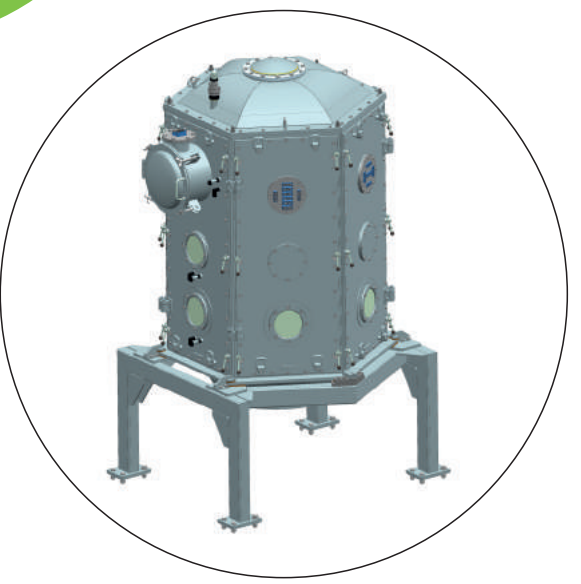
Łukasiewicz
Institute
of Aviation

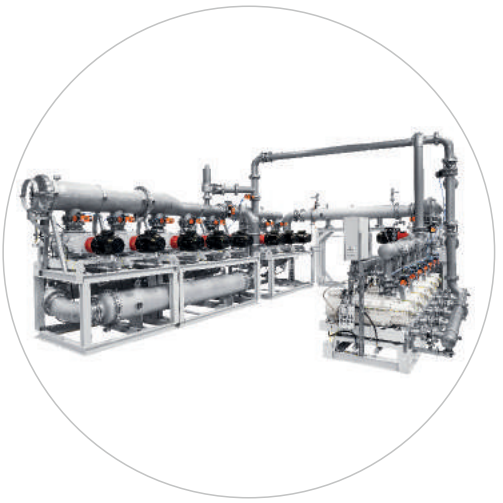
Thrust levels up to 500 N

SPACE PROPULSION TEST FACILITY IN CONTINUOUS VACUUM CONDITIONS

CHARACTERISTICS

Unique, vertically oriented and tailored for green propellants hot fire vacuum facility was opened in 2023 at Łukasiewicz – Institute of Aviation.
This state-of-the-art facility offers scientists, engineers, and innovators a unique and indispensable resource for conducting groundbreaking research, qualification testing, and ultimately elevating the technological readiness of propulsion and other space products to higher levels (TRL 6-8).





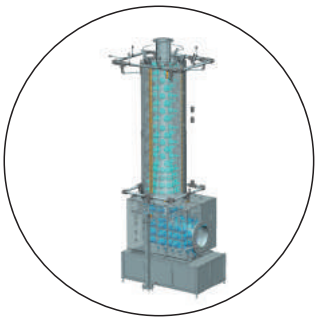
KEY FEATURES

- **Thrust range:** up to 500 N.
- **Testing time:** depends on the mass flows.
- **Test pressure range:** 1-100 mbar(abs).
- **Fuel:** max. 400 ltr @ 40 bar(g).
- **Oxidizer (H2O2):** max. 800 ltr @ 40 bar(g).
- **Data acquisition:** 16 channels up to 2 MS/sec
  > 200 channels up to 500 kS/sec.
  Single time server.
- **Measurement capabilities:** pressures, mass flows, force, temperatures, vibration, high speed cameras, thermal cameras and other on equipment on request.

RESEARCH OBJECTIVES

- Verification of space propulsion performance in a high-altitude (vacuum) environment.
- Qualification and development testing for space propulsion, propulsion components and systems with thrust ranging up to 500 N, using non-toxic, storable propellants.
- Performance and durability testing.

The vacuum chamber is equipped with a cooled thrust stand featuring an in-vacuum calibration system for force measurement. The chamber incorporates a range of proprietary technological solutions enabling precise verification of all propulsion system parameters or the entire propulsion system (with its self-contained propellant supply system).



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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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