



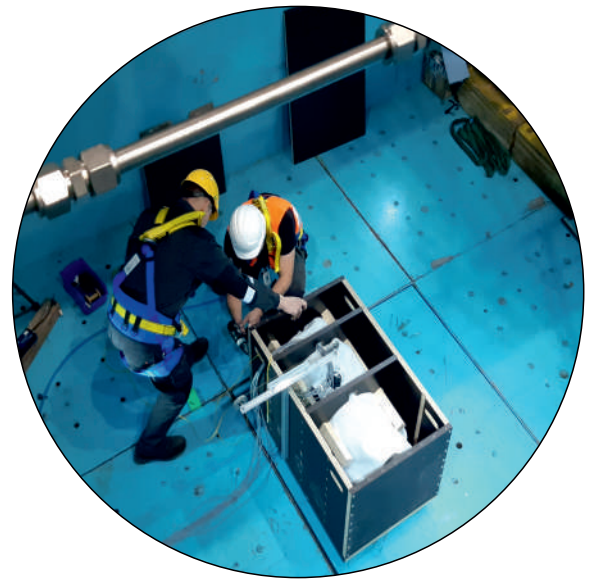
Łukasiewicz
Institute
of Aviation



PRESSURE AND TEMPERATURE TESTS

The Pressure and temperature test laboratory specializes in comprehensive testing services, focusing on pressure and temperature qualifications for various products. It supports product line extensions, new product introductions (NPI), and readiness-to-serve assessments, ensuring compliance with the highest industry standards. By leveraging innovative technologies, it delivers reliable testing solutions that enhance product performance and meet stringent regulatory requirements.

Operating since 2010, the laboratory provides high- and low-pressure qualifications across a wide temperature range. It conducts precise pressure, temperature, and pressure-temperature tests using gas and water-based fluids. Additionally, it offers helium-based vacuum leak testing, ensuring outstanding accuracy and reliability.



EQUIPMENT

PRESSURE BOOSTERS

N2 gas to 25 kpsi (~1720 bar)
liquid to 42 kpsi (~2900 bar)

PC CONTROLLED HPU SKIDS

5 kpsi (~350 bar) oil systems
20 kpsi (~1400 bar) water-based fluid systems

N2 GAS GENERATION SYSTEM

20T liquid N2 vessel
Evaporator with pump
700l bottles under Pressure of 200 bar

PLC controlled Hollow Spindle Jack Compression

Hydraulic piston cylinder working in 2 directions
Force from piston side: 1.5 MM lbs. (push) 680 metric tons
Force from rod side: 0.1 MM lbs. (pull) 45 metric tons

Helium Detector

Vacuum testing 3 x 10⁻¹¹ mbar x l x s l

LASER TRACKER MEASURING EQUIPMENT

High precision 3D measurements

TEST PIT

42 ksi (~2900 bar) hydraulic testing
25 ksi (~1720 bar) gas testing
Test space dimensions [14,7ft x 14,7ft x 14,7ft] [4,5mx4,5mx4,5m]

ENVIRONMENTAL CHAMBERS PARAMETERS

Rated Temperature Limits:
-148 ° F / +500 ° F [-100 ° C / +260 ° C]
Temp. change speed 2 ° C / min
Test space dimensions [8ft x 8ft x 8ft] [2,5mx2,5mx2,5m]

Laboratory meets **PN-EN ISO/IEC 17025:2018-02** standard requirements. Accredited activities are defined in Accreditation Certificate No AB 1491 issued by Polish Center for Accreditation.

QUALIFICATION TYPES

Based on API recommendations [mainly API 6A /17D]

FAT's [Factory Acceptance Tests]

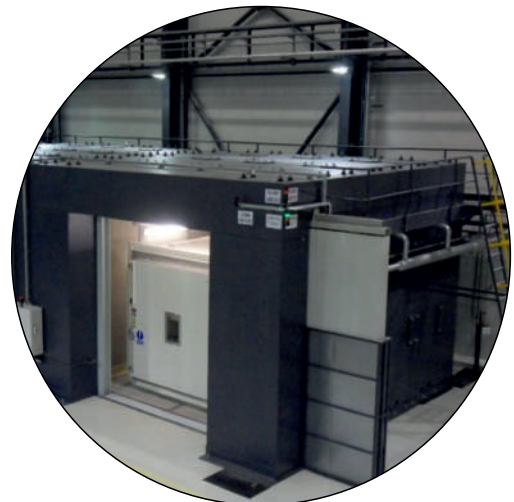
Functional / leakage tests

Materials performance verifications / resistance to pressure and temperature

Pressure / temperature / pressure-temperature, including cycling
Proof / durability, endurance tests

Rapid Gas Decompression tests

Reverse engineering purposes tests / sealing connections
geometry modification tests



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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