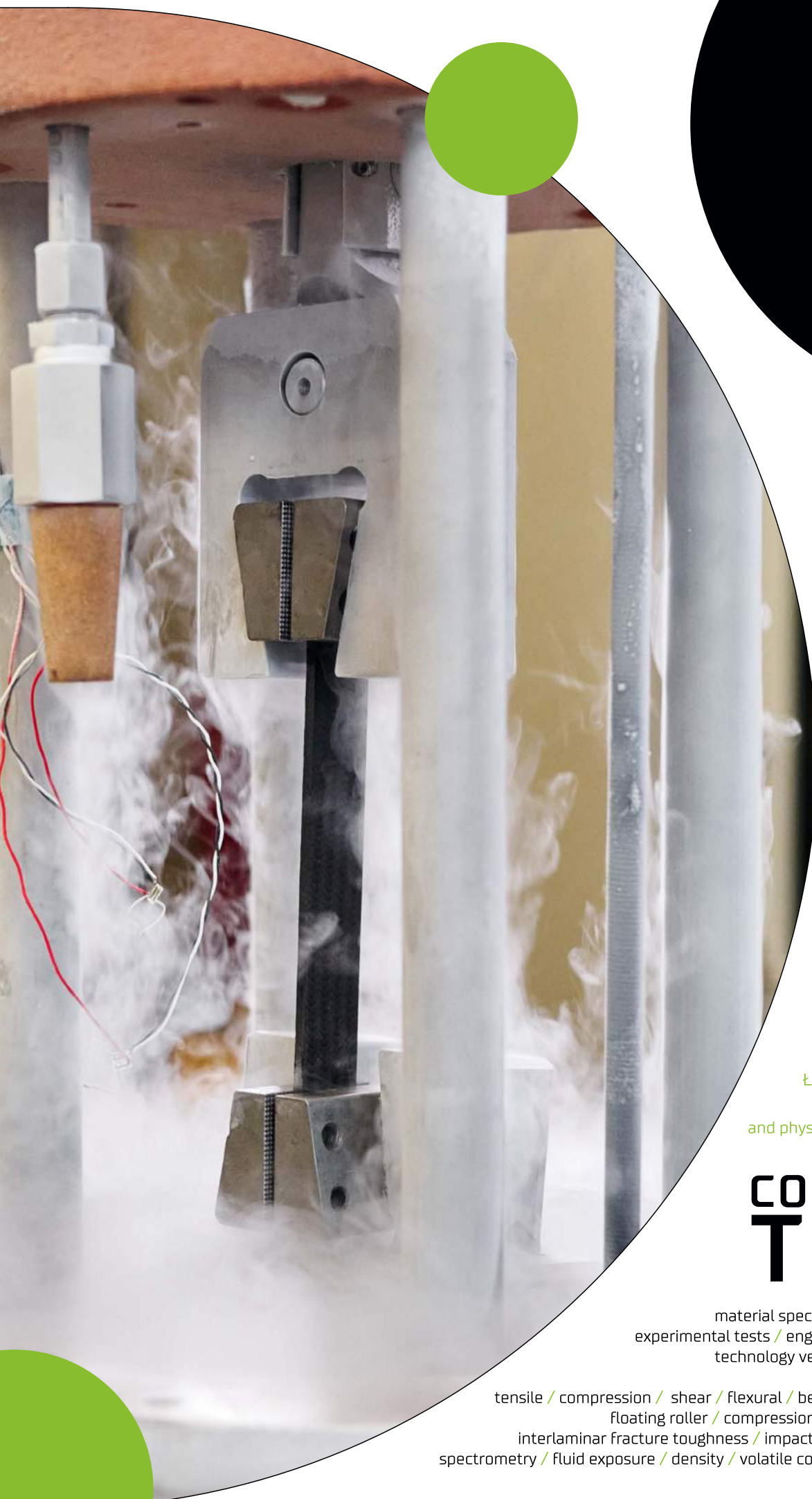




Łukasiewicz
Institute
of Aviation



Łukasiewicz – Institute of Aviation
carries out mechanical, thermal
and physical tests of composite materials

COMPOSITES TESTS

material specification / process specification /
experimental tests / engineering tests / screening tests /
technology verification / material qualification

tensile / compression / shear / flexural / bearing strength / climbing drum /
floating roller / compression after impact / single lap shear /
interlaminar fracture toughness / impact tests / NDI / DMA / DSC / TGA /
spectrometry / fluid exposure / density / volatile content / ply thickness / resin flow

EQUIPMENT

MECHANICAL TEST

MTS 322 AND 370.10 TEST FRAMES

Loading range	0-250 kN
Actuator stroke length	150 mm
Temperature range	-196°, -130°÷315°C

INSTRON ELECTROPULS E3000 TEST FRAME

Loading range—static	0-2100 N
Loading range—dynamic	0-3000 N
Actuator stroke length	60 mm
Maximum frequency	300 Hz

IMPACT TEST

INSTRON CEAST 9350 DROPTOWER

Energy range	0,59 - 1800 J
Impact speed	0,77 - 24 m/s
Simulated drop height	0,03 - 29,4 m

THERMAL TEST

DIFFERENTIAL SCANNING CALORIMETER TA INSTRUMENTS Q2000

Temperature range	-90° ÷ 550°C
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DYNAMIC MECHANICAL ANALYZER TA INSTRUMENTS DISCOVERY DMA 850

Temperature range	-90° ÷ 550°C
Frequency range	0,001 ÷ 200 Hz

THERMOGRAVIMETRIC ANALYZER TA INSTRUMENTS DISCOVERY TGA 5500

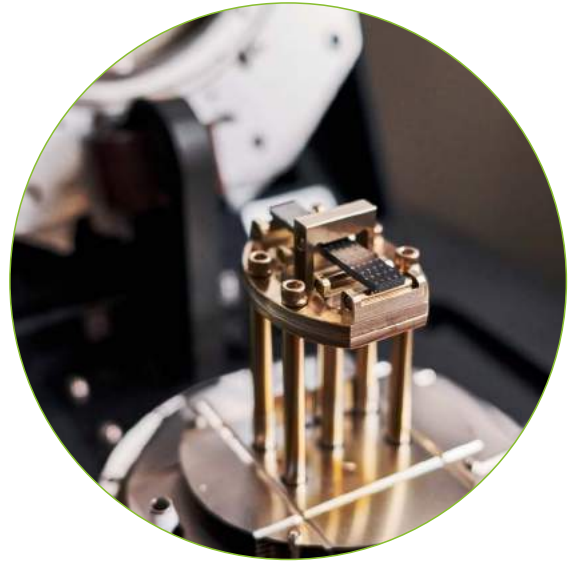
Maximum temperature	1200°C
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SPECTROMETER FTIR NICOLET I550

TGA-IR accessory	
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Mechanical, thermal and physical tests are performed according to international standards (ASTM, ISO, ECSS) or customer specification.

The Composite Testing Laboratory has PN-EN ISO/IEC 17025:2018-02 and NADCAP accreditation for Non-Metallic Materials Testing.



CAPABILITIES

Preparation of material and process specification, directed to individual customers' needs.

Panels manufacturing and coupons preparation (machining, tabbing, strain gauging, conditioning).

Screening, qualification and experimental tests of composite materials.

Element level testing (DTA, mechanical and bonded joints).

Custom fixture design and manufacturing.

Non-destructive testing and quality control processes.



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.

al. Krakowska 110/114, 02-256 Warsaw, Poland
e-mail: info@ilot.lukasiewicz.gov.pl / www.ilot.lukasiewicz.gov.pl