AEROSPACE LABORATORY & TESTING CENTER

TEC-Eurolab
we make you feel sure

AEROSPACE LABORATORY & TESTING CENTER

YOUR CHALLENGE IS THE CONTINUOUS IMPROVEMENT OF PERFORMANCE AND RELIABILITY

Developing safer, higher-performance products, building aircrafts and components that withstand longer flying hours while saving energy and reducing environmental impact: the challenge of innovation in your industry is more pressing than ever, and depends increasingly on new materials and technologies. Your most strategic partner is the one who helps to reduce your time-to-market, increasing the confidence that your products are offering the highest attainable level of quality and safety.

OUR PROMISE IS TO HELP YOU TO GET THE BEST OUT OF MATERIALS AND SPECIAL PROCESSES

Advanced testing and failure analysis technologies together with thorough knowledge of the most recently developed materials (composites, super alloys, and additive manufacturing materials among others) can make a major quality contribution while cutting time-to-market and reducing development costs.

As an independent analysis and test centre for the aerospace industry, TEC Eurolab gives you complete confidence in every stage of your production process and every link in your supply chain. TEC Eurolab is a reliable, internationally recognized, partner capable of supporting your decisionmaking, from design to final testing. We make you feel sure and we help you to reach greater heights.

QUALITY ACCREDITATION

- **NADCAP**: SAE Aerospace Standard AS7003 for Material Testing, Non Destructive Testing, Aerospace quality systems.
- **EN 9100:2018** for test laboratory for the aeronautical and aerospace industry - **UNI EN ISO 9001:2015** (SAI GLOBAL)
- **UNI CEI EN ISO/IEC 17025:2018** - material testing laboratory **UNI CEI EN ISO/IEC 17024:2012 -UNI CEI EN ISO/IEC 17065:2012** , certification of personnel and services (welding, ATP, NDT, F-Gas, ISO 3834) - (ACCREDIA)
- **ITANDTB**: Aeronautical Examination Center for Non-Destructive Controls.
- **NOTIFICATION BODY NB2770:** as per Regulation (EU) 305/2011 for FCP Certification.

CUSTOMER APPROVALS

- **GE AVIATION**
- **LEONARDO SPA**
- **AVIO SPA**
- **THE BOEING COMPANY**
- **SAFRAN LANDING SYSTEMS**
- **AVIO AERO**
- **ELBIT SYSTEMS**

LABORATORY INSTRUMENTATIONS AND TESTING CAPABILITIES

NON DESTRUCTIVE TESTING

3D TOMOGRAPHIC SYSTEMS

- 6 MEV LINAC for high density alloys
- 450 KV Large Size CT
- 240 KV High Resolution CT

2D X-RAY NADCAP INSPECTION SYSTEMS

- 160KV and 320KV radiographic inspection systems, both film and digital (RT, CR, DR)

FPI NADCAP INSPECTION

- Water Washable Fluorescent Penetrant Inspection (I3Aa)
- Post Emulsifiable Fluorescent Penetrant Inspection (I3Da)

PERSONNEL QUALIFICATIONS

Non-destructive inspections performed by personnel qualified at level II and III according to:

- **ISO 9712** (General Industry), methods: MT, PT, UT, RT, CT, VT
- **NAS 410/EN 4179** (Aerospace), methods: MT, PT, RT Film & RT Non Film (Computed Radiography/Computed Tomography)

CHEMICAL & PHYSICAL TESTING

METALS AND METALLIC POWDERS

- Chemical analysis of metallic alloys (ICO-OES, XRF, SPARK-OES)
- Gas analysis: combustion and fusion method for C-S-H-O-N
- Chemical process solution control: ion chromatography
- Cleanliness test
- Debris analysis by SEM EDS, Smart PI application
- Flow rate
- Tap-Apparent Density
- Particle size distribution: Light Scattering / Sieve Method
- Powder Morphology by SEM analysis
- Thermal conductivity and thermal diffusivity
- Dilatometry: Coefficient of linear expansion

POLYMERS AND COMPOSITES

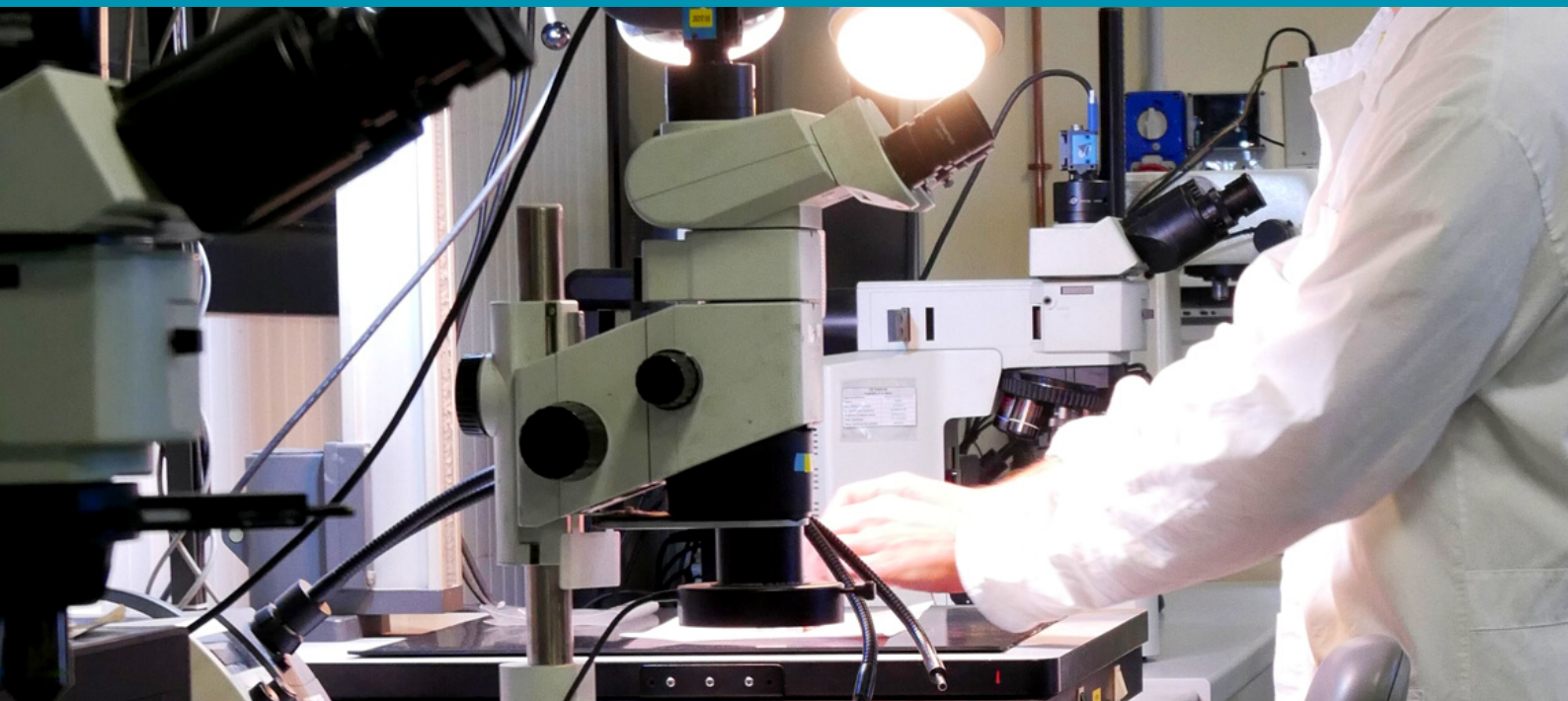
- Infrared spectroscopy FTIR
- Thermal analysis: DSC, TGA
- High Pressure Liquid Chromatography HPLC
- Resin/Fiber/Void/Volatile content of composite materials
- Resin Flow/Gel Time/Fiber Areal Weigh
- Thermal conductivity/Thermal diffusivity
- Dilatometry: Coefficient of linear expansion

METALLURGICAL TESTING

- Failure analysis
- Scanning electron microscopy, EDS detector
- Macrographic analysis
- Micrographic analysis: core and near surface
- Grain size, inclusion content, surface contamination
- Density of AM specimens by micrographic examination
- Hardness: brinell, vickers, rockwell

AGING AND CORROSION TESTING

- Neutral Salt Spray, Acetic acid and Copper
- Artificial accelerated Weathering
- UV condenser
- Humidity aging
- Thermal shock test
- Thermal cycles exposure



MECHANICAL TESTING

METALS

Full range of testing in accordance with ISO/ASTM standards on semiproducts, components and AM on metallic alloys:

- Static tensile testing (up to 600kN) at room temperature
- Static hot tensile testing up to 100kN up to 1000°C
- Torque testing
- Stress Rupture and Creep testing up to 50kN up to 1100°C
- Vibrophores for HCF up to 1100°C
- Servohydraulic system for LCF/HCF up to 1100°C
- KIC and da/dN testing for fracture mechanics
- Internal machining capabilities with EDM wire and finishing tecnologie

POLYMERS & COMPOSITES

Full range of testing in acccordance with ISO/ASTM/SACMA standards on composite laminates/sandwiches at low and high temperature:

- Static testing (Tensile, Bending, Shear, Compression, Charpy/IZOD Impact toughness)
- Dynamic/fatigue and custom testing in dry and wet condition
- DMA analysis

PRODUCT VALIDATION

DIMENSIONAL INSPECTION & METROLOGY

- Zeiss Prismo CMM coordinate measuring machine (for surveying all dimensional and geometric dimensions on drawing)
- Optical video measuring machine VMM CNC Automatic OGP (300 x zoom, for the measurement of all drawing dimensions on biomedical plastic samples and probing force-sensitive samples)
- 2 Faro Arm measuring arms with probing strategies and laser head,(for dimensional inspection, reverse engineering and Cad Comparison)
- Roughness meter and Profilometer Hommel Werke (for the evaluation and analysis of surfaces at macrogeometric and microgeometric level)
- Hommel Werke round-diameter (for the survey of geometrical dimensions with tolerances of a few thousandths for special applications such as Racing and Aeronautical sectors)

WELDING AND JOINING INSPECTION AND QUALITY DEVELOPMENT

- Third-party welding and joining processes inspection and quality development
- Customized Audits for quality systems, including welding and joining processes
- Technical support for NADCAP accreditations, including technical support for welding process setting up
- Analysis and writing of technical specifications, procedures and operating instructions

FUNCTIONAL & ENVIRONMENTAL TEST ENGINEERING

- Pressure tests, including burst tests and cyclic tests up to 35bar in air and 600bar in oil, from -70°C up to +180°C
- Leak test in high vacuum conditions
- Customized set-ups and dedicated test rigs for functional tests on mechanical and electromechanical components
- Strain Gages on-site application and analysis; sampling and data analysis of sensorized components
- Technical support for evaluation and writing of test specifications.

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