

# Mechanical and Structural testing

Mechanical and structural validation of products made of metal and composite materials



## LABORATORY SPECIALISING IN MEDIUM AND HIGH LOAD TESTING

Applus+ Laboratories carries out comprehensive structural validation plans for aerospace components and structures made from metallic and composite materials. We specialise in uniaxial and multiaxial high-load testing. We are a global benchmark in the testing of aerospace components and structures, including large carbon-fibre panels, engine parts and other critical aircraft components.

## LARGE-SCALE FACILITIES AND VAST TECHNICAL EXPERTISE

- Universal 100 kN (22 Kips), 500 kN (112 Kips), 1,000 kN (225 Kips), 3,000 kN (674 Kips) and 15,000 kN (3,372 Kips) testing machines
- 39 x 39 ft strong floor with gantries and walls and a testing capacity of up to 1,500 kN (270 Kips)
- Chambers for accelerated ageing of samples
- Climate chambers for testing under controlled thermal conditions
- Instrumentation with numerous data-acquisition channels
- Optical measuring and video correlation equipment
- Low speed impact equipment to induce controlled structural damage

## COMPREHENSIVE SERVICES

- Test engineering and design
- Tooling design
- Manufacture of test specimens
- Inspections: non-destructive testing
- Management of validation programmes
- Remote monitoring of tests using online tools

## AREAS OF EXPERTISE

Our unique facilities enable us to validate the structural integrity of large components and subcomponents for a range of industries in which we are well qualified and for which we have specialist technical know-how.

## AEROSPACE

Applus+ is an approved strategic provider of structural mechanical testing for the major aerospace manufacturers. We are a “preferred supplier” of structural testing for Airbus (ST2S) and Rolls Royce and we collaborate closely with other manufacturers such as Aernnova, Aciturri and Safran. Our structural testing laboratory upholds strict quality criteria, which are certified under the aerospace sector’s ISO 9100 standard.

We also have a network of NADCAP-accredited materials laboratories for carrying out metallic materials, non-metallic materials and non-destructive testing. The combined capacities of our laboratories mean that we can test everything from coupons up to large aerospace components.

## ENERGY: RENEWABLES AND OIL AND GAS

Applus+ has been audited by Germanischer Lloyd for the structural testing of wind-turbine components and our large-scale facilities enable us to conduct tests in a wide range of fields. We work with renewable energy sources such as wind or solar energy at the same time as testing components for use in the extraction and distribution of hydrocarbons or gas.

As such, we have facilities capable of housing large structures, applying loads at various points along these structures and getting the answers we are looking for by drawing on a vast array of measuring devices.

## VEHICLES AND MODES OF TRANSPORT



In the maritime sector, we test the substructures of both surface vessels and submarines.

The Applus+ structural testing laboratories also have in-depth experience of testing a variety of rail structures, from infrastructure to rolling stock.

In addition, we test automotive components – from the mechanical characterisation of elastomers to the fatigue testing of vehicle substructures.

## CONSTRUCTION AND CIVIL INFRASTRUCTURE

Applus+ has been partnering with the construction industry for the past 100 years and has amassed the equipment, accredited laboratories and technical specialists necessary to undertake the mechanical validation of enclosures, construction materials, building systems, structural bearings and waste channels and grates. In addition, our laboratories have been audited by EOTA-approved bodies for the structural testing of reactive bridge components.