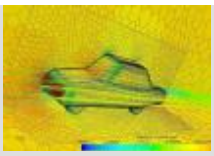
AEROSPACE RESEARCH AND TEST ESTABLISHMENT

Mission

Aerospace Research and Test Establishment (VZLÚ) is a national centre for research, development and testing in aeronautics and space. The main mission of VZLÚ is to generate new knowledge, transfer it into industrial practice and to provide its partners with the maximum support in the development of new products. As a multi-discipline research organisation, VZLÚ exploits synergic effects and also contributes to progress of automotive, rail, defence, security and power industry and civil engineering. The major multidisciplinary fields of VZLÚ include: aerodynamics, structure strength and durability, material and corrosion engineering, composite materials and technologies, and accredited testing. In the field of product development, VZLÚ is focused on rotor blades, industrial fans, aircraft engines and satellite equipment. VZLÚ collaborates closely with similar organisations throughout Europe to provide feed-back necessary for its continuous development.

Disciplines and scope

- Aerodynamics
- Strength of structure
- Accredited testing
- Aircraft engines
- Air propeller and industrial fans
- Development of scientific instruments for the use in space
- Production of models



Computer Fluid Dynamics

For CFD computations we use both in-house codes and commercial software.

Flight Mechanics

Complete computations of aircraft performance and properties based upon geometric data set by the customer.

Optimization

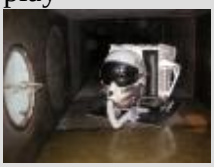
Multi-criterion optimization of aircraft aerodynamic shapes and other industrial applications.

Aicraft Design

Complete aerodynamic design and optimization of aircraft of various categories.

Low Speed Wind Tunnels

LSWT are situated in Prague-Letňany. Here measurements are taken of aircraft, cars, trains, aerials, traffic signs, athletes, simply everything that moves and causes air drag to play a major role.



High Speed Wind Tunnels

Subsonic, transonic, supersonic tunnels located in Prague Palmovka neighbourhood. They are designed for ultrasonic measurements particularly for customers from aviation industry.

A wind tunnel for turbo machinery purposes

Located in Prague – Palmovka neighbourhood, this tunnel is used by customers from power engineering, aeronautics, and other engineering fields up to a flow velocity of Mach 3.5.

Boundary Layer Wind Tunnel BLWT

BLWT in Prague is designed to test wind load of buildings and bridges, pedestrians´ weather comfort simulation, propagation of dust emissions and hazardous stuff in urban agglomerations.

Strength tests

We perform static and fatigue tests of complete structures in whole or in part. more...

Landing gear and their parts tests

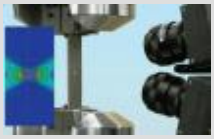
We perform a wide spectrum of tests on landing gears, dampers, wheels, brakes and tyres.

Modal tests

We conduct modal tests on complete assemblies, dynamically similar models, structural parts, including establishing modal parameters.

Non Destructive Evaluation

We provide our customers with services in the field of non-destructive material testing.

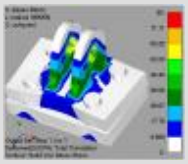


Material Testing and Experimental Stress Analysis

Trials are conducted on the loading machines MTS, Instron Schenck, Tira, Inova, Instron, Amsler up to 500 kN.

Structural tests by strike of flying object (bird impact)

Structural tests by strike of flying object (bird impact) 0,5 kg – 4 kg of weight with range of velocity 100 – 999 kmph.

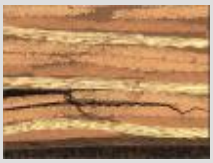


Structure analyses and computing

FEM calculations and analyses, limit values calculations taking into consideration plasticity, fatigue damage calculation and other analytical methods.

Aeroelasticity Analyses

Aeroelasticity optimization, modal calculation (modes of shape and eigenfrequency), dynamic models tuning into the results of modal experiments and other services.



Analyses of fractures and materials

Fractographical analysis of fracture surfaces and materials´ micro structures.

UAV Propellers

VZLU has been working on the design and manufacture of propellers for unmanned air vehicles for years.

Aircraft propellers

VZLU provides comprehensible services in the field of aircraft propellers.

Industrial fans

We provide complex services in the field of developing axial fans and other rotor types from preliminary studies via design and development to testing and ensuring series production.