Mechanical testing of materials, components and structures

TVFA is a leading provider of mechanical component and material testing for industry in Europe. Our two locations in Vienna are accredited testing laboratories and offer testing of components of any material, geometry and size.

Our main services

- Structures- & component testing
- Materials testing & metallurgical analysis
- In-service measurement incl. MRT
- Failure analysis
- Engineering services
- Inspection & certification

We connect research and industry.

We support our customers in developing and improving the safety and performance of their products. We design, perform and evaluate complex mechanical testing of components and assemblies.

As part of the TÜV AUSTRIA Group and the TU-Wien, Vienna University of Technology, we meet the highest standards of safety and innovation to the same extent. Our tests and analyses make state-of-the-art technologies safe and competitive. We guarantee this as an independent test laboratory accredited according to EN ISO/IEC 17025.
Structures- & component testing

We are experts in testing components statically and dynamically, from small components to large complex structures. These tests can be performed according to international standards or selectable specifications according to your demands.

Our services

- Static and dynamic testing of components from simple specimens to large complex structures
- Full-service test conception, definition, jig manufacturing, test preparation and execution, documentation
- Measurement and evaluation of relevant data

Equipment

- Testing field with 16 servo hydraulic control channels up to 650 kN (13x20 m)
- Servo-hydraulic testing machines up to 630 kN
- Electro-dynamic testing machines up to 400 kN and 200 Hz
- Non-contact 3D strain measurement ARAMIS
- 250+ synchronised measuring channels
- Tensile testing machines up to 10 MN and 15 m clamping length
- Compression testing machines up to 1500 kN
- Torsion testing machine 10 kNm
- Temperature chambers, from -120 °C to +300 °C
- Workshops for jig and sample manufacturing
Materials testing & metallurgical analysis

We perform all standard tests and full metallographic characterisation. Additionally we offer fracture mechanics investigation and volatile hydrogen measurement in the lab and with mobile devices.

Our services

- Determination of typical mechanical material properties
- Fracture mechanics, $K_{IC}$, CTOD
- Chemical analysis
- Metallography
- Corrosion tests
- Measurement of volatile hydrogen in steel structures

Equipment

- Fully equipped testing laboratory, universal testing machines up to 1000kN
- Non-contact strain measurement ARAMIS
- Microscopes, light and REM/EDX
- Elemental analysis with spark spectrometry OES
- In-situ metallography (replica testing)
- Climate testing chambers (10 m$^3$, -40 ºC to +90 ºC, humidity 95 %)
- Corrosion testing, salt spray testing, mobile hydrogen measuring probe
- Workshops for jig and sample manufacturing
In-service measurement

We measure, in the laboratory or in the field, physical quantities such as force, motion, strain, acceleration, pressure, temperature incl. recording, evaluation and interpretation of data.

Equipment

- Strain gauge application
- Non-contact strain measurement ARAMIS
- Force, displacement measurement
- Acceleration, vibration measurement
- Pressure, temperature measurement
- 250+ parallel measuring channels, also mobile
- Classification and Rainflow Analysis
Engineering, failure analysis

We provide advice in specifying test requirements for the best results. We offer development of test concepts and test specifications according to your needs. Our decades of experience in failure investigation of mechanical components enable us to design load situations and measuring points as efficiently as possible. We carry out extensive failure analysis including sampling, metallography, testing and interpretation. You will receive a court-proof documentation of the results.

Our services

- Development of test concepts and test specifications
- Component strength calculation for linear elastic and elastic-plastic deformations
- Influence of temperature field, thermal residual stresses, natural oscillations
- Calculation of elastic buckling, fatigue behaviour and service life evaluation
- Verification of static and dynamic loads
- Fracture mechanical investigations and calculations of crack growth behaviour and fracture toughness
- Assessment of the load-bearing capacity and remaining useful life of pre-damaged components
- Advice on material selection
- Welding consultation
- Inspection services
Magnetic Rope Testing MRT

Our technicians have decades of experience in testing of cableway components and periodic testing of hauling, traction and support cables by means of magnetic-inductive testing.

Our services

- Magnetic rope testing MRT, visual inspection of cables (ropeway, bridge, guy wires, cable crane)
- Testing of cables in accordance with EN 12927-8, Wire Rope Conditions (DSB) 80 and Ski-tow Guidelines
- Non-destructive tests on ropeways acc. Inspection Regulation (SeilbÜV) 2013
- Management of measurement data and inspection interval management

Equipment

- MRT measuring systems from 6mm to 80mm rope diameter
- Database with evaluation software for assessing of remaining service life
- NDT equipment as needed
Your benefit

The extensive specialist knowledge of our engineers and the use of state-of-the-art methods achieve goal-oriented solutions. This saves time and reduces costs, because companies whose new technical products have a short time to market, break even a lot faster.

- Assistance with approval procedures
- Top-quality and reliable performance of tests and inspections
- Implementation of customer-specific requirements and solutions
- Maintenance recommendations to extend safe service life and optimize costs
- Shorter and simpler approval procedures
- International recognition of our test results
- Flexibility and adherence to deadlines in all our services
- Implementation of special requirements and company-specific solutions
- Access to TÜV AUSTRIA Group facilities
- Access to TU-Wien facilities
Partners

We work with selected partners and team up for our customer’s success.

TÜV AUSTRIA Group offers a broad range of services for almost any industrial sector and complements our services with non-destructive testing, acoustic emission testing and EMC services just to name a view.
www.tuv.at/en/solutions/industry-energy/

TU-Wien, Vienna University of Technology, is our prime scientific partner and offering academic excellence through research and wide-ranging competence through teaching.
www.tuwien.at/en/

METALogic together with TVFA covers all areas of a materials laboratory, from fatigue testing of large structures to special testing of coating systems.
https://www.metalogic.be/

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