## LABORTECH TESTING SYSTEMS





made in the Czech Republic

## **ABOUT LABORTECH**



## We apply our many years of experience

LABORTECH is a purely Czech company that has been participating in the world market since 1995 with the development and production of testing machines, equipment and automated testing systems. Thanks to our own innovative product development, comprehensive product portfolio, and above all the superior service of our application technicians, we provide our customers with comprehensive services in the field of material testing in many industries such as the automotive, aerospace, metals, plastics, rubber, chemicals, constructions, biomechanics, as well as in research institutes and universities.

In addition to a comprehensive product portfolio, our goal is to provide our customers with exceptional advice, expertise and modern technical and technological solutions in the field of testing.

For decades, our company LABORTECH has been employing a team of qualified technicians and company specialists with experience in the field of mechanical testing of materials, who have successfully developed, supplied and applied hundreds of standard and special testing machines and equipment around the world.

LABORTECH uses the know-how of its experts to create 3D machine models, electrical projects, custom software and, last but not least, its own precise CNC machining to the last detail, because

## Every small detail matters...

That is our motto.









## Quality creates mutual trust

Our success is based on adherence to the highest quality standards of our products. Our testing machines and systems must unconditionally provide functional reliability and, above all, precision – something that is a matter of course for us. LABORTECH is ISO 9001 and ISO 14001 certified, operating a highly effective management system in accordance with internationally recognized standards to ensure absolute reliability and quality, even in its own processes and procedures.

Immediately following the production process, every single test device manufactured by us is 100% inspected, both in terms of functionality and metrological settings. We are committed to the highest quality standards, which is why our products are characterized by minimal maintenance, high reliability and trouble-free operation.











### Our services create your efficiency

Whether in consulting, performing calibrations or manufacturing test equipment, all services offered by LABORTECH are focused on quick response. They are backed by a highly committed, customer-oriented team that is able to meet the complete customer requirements quickly and efficiently. Express delivery of complete spare parts, professional service and backup support help optimize the productivity of LABORTECH customers.

### Our products and services

## Production of machines and systems for mechanical testing of materials:

- Servo-hydraulic or electromechanical, static, and dynamic universal testing machines
- Pendulum impact testers and drop weight testers
- Testing machines for long-term CREEP tests
- Automated testing systems
- Torsion testing systems
- Hardness measurement systems
- Specific customer testing systems
- Test accessories hydraulic units, temperature chambers, high-temperature furnaces, etc.
- Machines for testing building materials
- Modernization of existing testing machines in a modular way





## Customized solutions and continuous development

The development department of LABORTECH is an expert in the analysis of technical requirements for the production of special testing machines and equipment.

Our specialists can deeply understand the specific issues of the customer and design and manufacture a tailor-made machine with high quality and uniqueness. The more unusual the application, the more it inspires us to find innovative solutions.

The development of technically advanced products often starts with the details that define the resulting functionality and efficiency.

### Investing in research and innovation

For many years, LABORTECH has been investing heavily in research and development in the field of material testing with the aim of forming new trends in materials engineering. Every year, we participate in international projects that allow us to push the boundaries of technology and development. Our experts – from designers, programmers to material engineers – use their wealth of experience, know-how and individual approach to deliver creative and innovative solutions that meet even the most demanding requirements.požadavky.

## Subsidies and support from the EU

We place great emphasis on the use of subsidy titles from the European Union, which allow us to constantly improve the quality of our services and innovations. In addition, we also use programs supported by the state and the Chamber of Commerce, which helps us to provide even more added value to our customers and partners.

### Individual approach to projects

With our extensive R&D activities, we provide customers with a unique opportunity to realize their goals through individually designed projects. Each project is tailor-made, exactly according to the needs and requirements of the client, while we make maximum use of subsidy

programs to achieve the best possible results.





### **ELECTROMECHANICAL TESTING MACHINES AND SYSTEMS**

Electromechanical universal testing machines from LABORTECH in single-column and double-column design are designed for static and low-cycle tensile, compression and bending tests, as well as shear and torsion tests up to a maximum test force of up to 2000 kN. LabTest testing machines and systems are designed for comprehensive testing of materials, components and products in accordance with EN, ISO, ASTM and GOST standards and other industry standards. Our test machines and systems include a wide range of accessories depending on the size of the test machine and the required test standard.

LabTest machines excel in technical processing, robustness, mechanical resistance, and accuracy. Combined with powerful measuring and control electronics with data collection up to 10 kHz and the Test&Motion test software, the machines achieve an excellent price/performance ratio. These characteristics set the direction for maximum flexibility in any type of test.

We will meet your requirements efficiently, precisely, and ecologically...



## Single-column testing machines up to 5 kN

Vertical benchtop single-column design of LabTest E.1 machines for maximum forces of 5 kN. The integrated precise linear guides in the machine frame enable offaxis loading. The machines are produced in three height variants. Machine control is performed by measuring and control electronics with sampling frequency of 2.5 kHz and higher.

**Type of tests** – tensile, compression and bending tests of plastics, test for peeling of the test specimen at an angle, tensile and compression tests of springs, etc.

**Industry** – universal – textile, plastics, rubber, automotive, research institutions etc.





LabTest



ČSN EN ISO 527-1, ČSN EN ISO 6892-1, EN 28510-1, ISO 8510-1, EN1939, EN 408 +A1, EN ISO 17706 and other standards.



## Universal testing machines up to 100 kN

## ... Do you like tabletop or standing, narrow or wide design...

Universal benchtop or stand design of LabTest E.2 machines in several length and width modifications for test forces of 3, 5, 10, 20, 30, 50 and 100 kN with the possibility of using multiple working spaces. The integrated precision linear guide of the crossbeam allows off-axis loading to be performed. The machine is controlled by measuring and control electronics with a sampling frequency from 2.5 kHz and a precise dynamic AC servo drive.





## Stand testing machines up to 600 kN

LabTest E.3 series universal testing machines in two-column and four-column stand versions up to 600 kN in several modifications for test forces of 100, 250, 400 and 600 kN with the possibility of using more working areas. The tried and tested machine concept combined with the flexible, rigid and modular design of the load frame guarantees the optimal solution for the most demanding test applications. Machine control is performed by measuring and control electronics with sampling frequency from 2.5 kHz and precise dynamic AC servo drive.

Type of tests — tensile, compressive, bending, and torsional tests on test specimens or whole products at room temperature or in the temperature range -196  $^{\circ}$ C to +2000  $^{\circ}$ C

**Industry** – universal – engineering, railway, aerospace, construction, plastics, rubber, automotive industry, research institutions, etc.

**Everything is coordinated to the last detail...** 



## High-capacity testing machines up to 2000 kN

LabTest E. 4 series high-capacity benchtop electromechanical testing machines designed for high force testing up to 2000 kN. The robust four-column support frame ensures excellent crossbar guidance and high rigidity of the machine. The test force is developed by ball screws with conical bevel gearboxes and AC servo drive with low noise and high dynamics.

These characteristics are of fundamental importance for operator safety according to ES and, in combination with powerful measurement and control electronics and the Test&Motion+ software, provide highly accurate test data throughout the test.

**Type of tests** — tensile, compressive, and bending tests of metals and composites on test specimens or whole products at room and elevated temperatures.

**Industry** – universal – engineering, railway, aerospace, construction and automotive industries, research institutions, etc.

## Performance and precision are the attributes of the E.4 series...

ČSN EN ISO 6892-1, ČSN EN ISO 6892-2, ISO 15630, ISO 898, EN 2002-002, ASTM E21, and other standards

## Sample marking equipment - EMS series

The EMS series sample preparation equipment is specially designed for marking precise distances on tensile specimens in order to measure the elongation after breaking the sample when a full burst extensometer is not used. Since it is used to mark the engraving of the precise tip (line 0.02 to 0.05 mm thick), there is no distortion and no influence on the test results due to poor visual reading of the dimension by the operator.



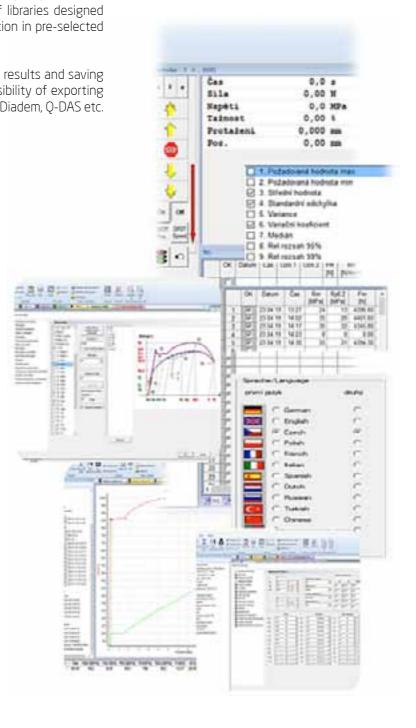








### Software Test&Motion+



## **SERVO-HYDRAULIC TESTING MACHINES AND SYSTEMS**



LABORTECH servo-hydraulic testing machines with a central hydraulic drive are designed for tension, compression and bending applications with a maximum test force of up to 20000 kN. They are offered in both vertical and horizontal designs, suitable for testing metals, alloys, composites, wood, concrete, steel ropes, textile straps, insulators and hanging hooks. They stand out for their robust construction made of high-quality materials, frame rigidity and long life. In conjunction with powerful measurement and control electronics, they provide accurate data throughout the entire test period. Emphasis is placed on operator safety, which meets strict EC and EU standards.

For every mechanical test of a material or part, we have a solution...

## Electro-hydraulic testing machines of the EC pro series testing of sheet metal

The electro-hydraulic machines of the EC series, in benchtop or stand design, are designed for automatic testing of deep-drawn sheets using the ERICHSEN method. With a tensile force of 60-1000 kN and a fully automatic testing sequence using SMTest software, they are ideal for inspecting the production of ferrous and non-ferrous sheets according to standardized standards. They are characterized by high frame rigidity, reliability and measurement accuracy.



Test of the cup ČSN EN 1669, KWI Test, ISO 16630:2017, test at temperatures up to 550°C, ERICHSEN ČSN EN ISO 20482, ČSN EN ISO 1520, etc.

## Vertical servo-hydraulic test systems

The robust vertical design of LabTest H.2 series machines with fixed or freely adjustable crossbar height and freely adjustable clamping length of the working area thanks to a test cylinder stroke of up to 620 mm. The test system includes powerful compact hydraulic units of the HAS series with a low noise level of <62 dB.

**Type of tests** – tests of metallic materials, steel reinforcement – tensile and bending tests, railway applications, wood – determination of modulus of elasticity in tension and bending, testing of springs, testing of samples and products in temperature chambers and high-temperature furnaces in the range from -196 °C to +1600 °C, etc.

**Industry** – engineering, railway, construction, automotive, aerospace and research institutions



## Hydraulic test presses

Test presses series H.4 in design up to 10 MN are designed for mechanical tests in compression and bending of concrete and stoneware samples, cubes, beams and other products. The basic equipment of the machine includes a central silent and economical hydraulic unit of the HAS series. Each machine includes a protective safety cover according to EC standards (EN ISO 14120:2015).

## With our range of test presses you can try everything...

**Type of tests** – bending strength tests on cement, mortar and gypsum beams, mortar screeds and screeds, ceramic tiles and slabs, concrete, ceramic and clay roof tiles, refractory materials, concrete beams, concrete slabs, concrete curbs, concrete paving stones, natural stone paving stones, slabs, and elements of natural stone.

**Industry** – construction and research Institutions



## Hydraulic units HAS series

Compact covered hydraulic units with minimal power consumption designed for static tests, with air cooling, low noise level <62 dB, system pressure of 280 or 350 bar and the possibility of independent control of hydraulic jaws in any mode.

HALT 18 – Diagnostic SIEMENS – integrated control unit with system monitoring of statuses, pressures and service intervals via touch LCD.

Service with low environmental impact – components are located outside the oil tank, part of the tank is an oil sump.

SN EN ISO 6892-1, ČSN EN ISO 6892-2, ISO 15 ISO898, EN 2002-002, ASTM E21, EN 1555: 15020 +A1, ČSN EN 380, ČSN EN 310, ČSN EN 1 +A1, ČSN EN 10092-2, ČSN EN 13906-1 and standards.









# Clamping length and test forces have no limits...



## Horizontal servo-hydraulic tensile test systems

LabTest series H.7 horizontal modular tensile test systems are designed for mechanical tensile testing of high-strength materials with abnormal clamping length up to 30 m and a maximum test force of 20 000 kN. The machines have a fixed or freely adjustable (mechanically or electrically) length of the working space and mechanical or hydraulic clamping of the sample. Each machine includes a protective safety cover according to EC standards (EN ISO 14120:2015) and a powerful compact hydraulic unit of the HAS series with a low noise level.

**Type of tests** – testing of structural ropes, steel wound loops, textile webbings and slings, threaded steel reinforcements or insulators

**Industrial sector** – engineering, construction, textile, and energy industries













### Software Test&Motion+

Intelligent, intuitive, and powerful software designed to measure the mechanical properties of materials in static uniaxial or multi-axis test mode. Unlimited number of test methods with support for EN, ISO, DIN, ASTM and GOST standards, modular system of libraries designed for standardized tests, easy orientation in pre-selected definitions, etc.

Automatic or custom setting of test results and saving of results to database with the possibility of exporting data to ASCII, EXCEL, WORD, Eclipse, Diadem, Q-DAS etc.

Intuitive tensile, compression and bending test software you'll love...



## **DYNAMIC AND FATIGUE TESTING SYSTEMS**

**Labor** Tech

Every small detail matters...

LABORTECH offers an extensive range of fully integrated dynamic and fatigue testing machines and systems up to 2000 kN. Servo-hydraulic and electrodynamic machines or linear drives safely cover the entire portfolio of dynamic, static and fatigue tests up to 200 Hz. All modifications of dynamic test systems produced by us are designed so that the customer can fully rely on their function at high cycles, low-cycle fatigue tests, crack propagation and growth, biaxial and axial torsion test or fracture toughness, etc.

Excellent axial stiffness of the frame guaranteed alignment and mechanical resistance combined with powerful measuring and control electronics with high sampling frequency provide highly accurate test data throughout the test.

In short, we have everything under control...

## **Electrodynamic test systems**

Vertical bench or rack design of the EP series for max. test forces up to 20 kN, featuring oil-free and noiseless drive technology with digital cooling feedback control. High dynamic performance at frequencies up to 200 Hz at full load.

**Type of tests** – fatigue and fracture mechanics testing, axial-torsional stress of test samples or whole products in the temperature range from -196 °C to +450 °C

**Industry** – engineering, automotive and pharmaceutical industries, healthcare including orthopedics and biomedicine, research institutions or testing of consumer electronics



ASTM E466, ASTM E399, ASTM E606, ASTM E647 ISO 12106, DIN 50100, ČSN ISO 18489, ASTM F2193, ČSN EN ISO 14801, ASTM F1798, ASTM F1717 and other standards











## components under different loads. ČSN ISO 12106, ČSN EN 6072, ČSN ISO 1099, ASTM

LC - LOW CYCLE ELECTRODYNAMIC

The electrodynamic testing machines of the LC series

are designed for testing materials, components and

structures in laboratories, research centers and industri-

al applications. Compared to high-cycle machines, they

perform tests with lower frequencies, up to a maximum of 6 Hz, and fewer tensile, compressive and torsional

cycles under different temperature conditions. They

are ideal for investigating the behavior of materials and

**TESTING MACHINES** 

**Industry** – laboratories – investigating the behaviour of materials and components under different loads and conditions

#### Other parameters:

Max. axial load – 500 kN Max. torsional torque – 6 000 Nm

E647. ASTM E606/E606M

# Perfect visualization of the shaft alignment of the BENTROD...

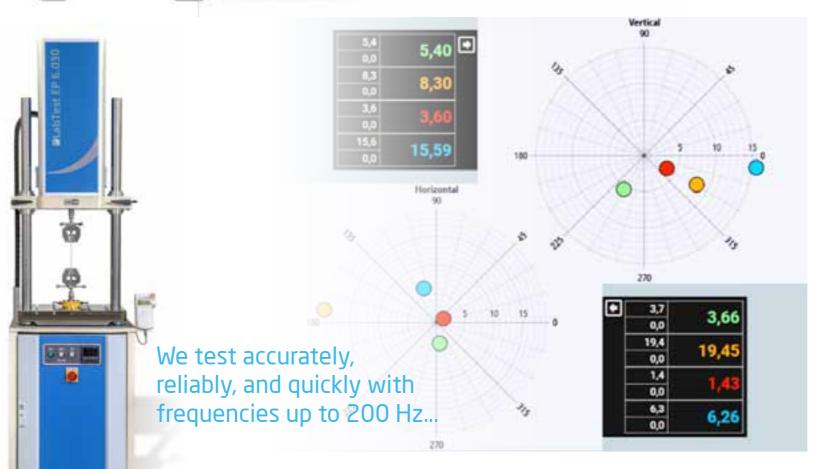
#### BENTROD SYSTEM

Measuring and setting system designed for evaluation and optimization of concentric and edge correction of alignment (misalignment) of clamping jaws for static and dynamic testing machines according to ASTM E1012, GES400 (NADCAP), GE450 and ISOTC 164SC5WG11. Visualization of three levels using R, G, B points. Choice of static or dynamic settings, etc.











11,3 ±12,1 14,5 ±1.1 ±0,8 ±6,3 ±2,0 Labor | Tech  $\pm 0.32$ ±2,5 Every small detail matters... ±0.15 ±1.3 ±0.45 ±1,3 ±0,60 ±0,33 **Dynamic fatigue systems** ±0,9 ±0,17 ±0.28 ±0,12 ±0.9 ±0,35 The servo-hydraulic testing machines of the H.5 series HAD 63 HAD 80 are available in various sizes with test forces from 25 P=37kW, 3x400V/75A P=45kW, 3x400V/90A kN to 5000 kN. They are characterized by high frame ri-

The servo-hydraulic testing machines of the H.5 series are available in various sizes with test forces from 25 kN to 5000 kN. They are characterized by high frame rigidity, mechanical resistance and coaxiality. The range of the machine depends on the dynamic stroke and frequency and consists of a test frame, servo-hydraulic cylinder and hydraulic unit of the HAD series.

**Type of tests** – low and high cycle fatigue tests, fracture toughness, crack propagation, quasi-static testing at temperatures ranging from -196 °C to +450 °C

**Industry** – engineering, construction, automotive, nuclear, aerospace, research institutions

Stiffness, accuracy, coaxiality and service life, these are the parameters in the standard...

In the beginning, there is the right choice of test set-up...

these are the parameters in the standard...4

16,5

12,18

11,31

19,14

13,02

11,83

HAD 620

P-320kW, 3x400V/2x315A

mize tird v zivinlost na poštem

We can simulate the rocking of an ocean liner!

ČSN ISO 12106, ASTM E606, DIN 50100, ASTM E399, ASTM E647, ASTM E466, ČSN EN ISO 6892-1 and other standards.

## **MULTI-AXIS TEST SYSTEMS**

## **Axial-torsion test systems**

Robust vertical rack design of the H.8 series with extremely high lateral stiffness, resonant and mechanical resistance in dynamic mode for each machine test axis. Servo-hydraulic, electromechanical, or combined design. Just choose.



## At the beginning, the correct selection of the test set...

**Type of tests** – performing torsional oscillation or tensile/torsion tests of test specimens or whole products in the temperature range from -196 °C to +1600 °C

Industry - engineering, pharmaceuticals, construction and automotive industries, including academic institutions



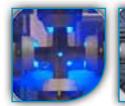
## Biaxial test systems

Robust vertical rack design of the H.11 series with extremely high lateral stiffness, resonant and mechanical resistance in dynamic mode for each machine test axis up to 250 kN and 50 Hz.

Integrated VIDEO AOX extensometer – can accurately measure, control and analyze excellently...

**Type of tests** – static and dynamic plane biaxial testing of stress states of materials by high cycle fatigue, crack growth of materials and simulation of the environment on various types of materials

Industry - aerospace, automotive, nuclear and wind turbine blade development









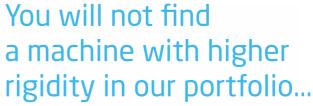


### Software Test&Motion+ - DYNPACK

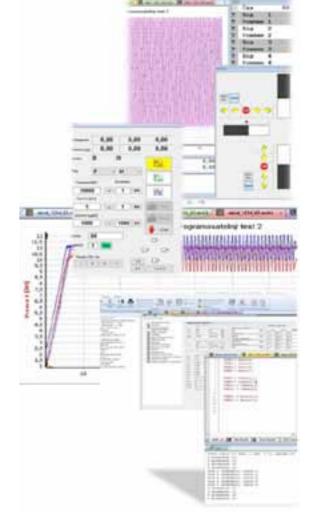
Intelligent, intuitive, and powerful software designed to measure the mechanical properties of materials in dynamic uniaxial or multi-axis test mode.

Unlimited number of test methods with support for EN, ISO, DIN, ASTM and GOST standards, modular system of libraries designed for standardized tests, easy orientation in pre-selected definitions, etc.

Automatic or custom setting of test results and saving of results to database with the possibility of exporting data to ASCII, EXCEL, WORD, Eclipse, Diadem, Q-DAS etc. Dynamic modules - biaxial test, commands from a file, long-term storage of all data, etc.







With the right choice of hydraulics, you have the whole system under control...

## Hydraulic units of the HAD series

Compact modular hydraulic pressure units with minimal power consumption designed for fatigue tests with minimum cooling water consumption, low noise level < 65 dB and system pressure of 210 or 280 bar.

HALT 18 – Diagnostic SIEMENS – integrated control unit with system monitoring of statuses, pressures, and service intervals via touch LCD.

Service with low environmental impact – components are located outside the oil tank; part of the tank is an oil sump.



## **TORSION TEST SYSTEMS**



Every small detail matters...

## **KM - Torsion test systems-LABORTECH**

The specialty of LABORTECH is the development and production of test equipment for torsion tests. KM torsion test systems are available in several basic segments.

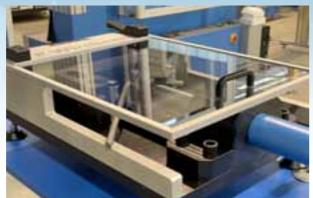
## Vertical and horizontal angular or rotational torsion systems

All these machines are used to detect torsion – moment at a given angle or fatigue rotation tests, when simulating samples, components and whole products in laboratories or operations up to 10000 Nm. Excellent frame rigidity and mechanical resistance in conjunction with powerful control electronics provides highly accurate test data and control for testing wires, fasteners, lamellae, couplings, converters, metal components, used in the engineering, automotive, aerospace, military or construction industries.

## Equipment for preparation of rotary torsion samples - WIREBENT

We know how to do it. The patented WIREBENT system from LABORTECH makes it easy, safe and reliable to prepare test samples for rotational torsion tests up to 5000 Nm.





### **Torsion Test Software**

## FAROTEST - system software designed for formability in simple torsion conditions

System software designed for basic rotational testing on SIMATIC systems. Integration of standards EN ISO 7800, GOST 1545. Verification of the suitability of samples of specified types shall be plastically deformed by a simple unidirectional torsion about its own axis in one direction. The number of revolutions shall be recorded and compared with the number prescribed for the product quality in question.

## KMTest-intuitive software for torque, angle and torsional fatigue measurement...

Intuitive software designed for torque and angle measurement or torsional fatigue tests. Unlimited number of test methods with modular library system for the given tests. Easy orientation in pre-selected definitions with graphical visualization of products. Saving measured data into a database with the possibility of filtering. Statistical evaluation of data and graphs, extensive selection of statistical methods including data export, etc.













## **AUTOMATED TEST SYSTEMS**

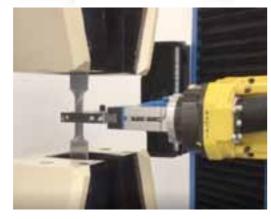
Thanks to our own development and many years of experience, we supply various industries with testing automatons and automated lines that are able to provide both assembly and, above all, 100% control of the mechanical properties of individual samples, parts, as well as entire end products such as test specimens for tensile and compressive tests or notched toughness, pressure bottles, diaphragm springs, automotive lamellas, pressure discs, PKW clutches, etc.

## X-RUNNER robotic systems

LabTest X-RUNNER automated test systems use robotic arms – robots to test metal, plastic or other tensile, compression or bending samples, as well as entire parts and products in automatic mode. Complying with EN, ISO and ASTM standards for a wide range of materials, these systems are manufactured in a modular design, guaranteeing high accuracy and speed with repeatable results for different types of tests.











## Designed for Industry 4.0



## X-SPRINTER positioning manipulators

X-SPRINTER positioning manipulators from LABORTECH make it possible to handle standard standardized samples as well as entire products. The modular system of positioning manipulators offers the possibility to perform the required tests quickly, efficiently and reproducibly. Customized solutions can be individually assembled from standardized components.

Reliability, quality, accuracy, repeatability and 100% service within 24 hours - these are our commitments to you, our customers.





We produce several types of X-SLOB conveyor systems in many variants for testing machines and equipment. The modular system allows you to supplement conveyors with various types of bases or prepare them for installation in production and assembly lines. All types of conveyor systems are tailor-made.

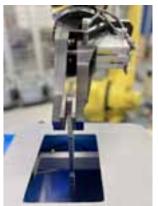












### IMPACT TESTERS AND DROP TESTERS

The quality of the impact resistance of a sample or part is a measure of durability and durability. The impact resistance of materials or parts is one of the most important features that designers must take into account when designing products. In these tests, the loading takes place very quickly, the so-called shock, where the impact value of the materials can change with the temperature. Precisely for the measurement of these parameters, LABORTECH offers testing systems of the CHK and DPFest series with excellent technical processing, robustness, mechanical resistance, accuracy and barrels, which faithfully simulate the actual conditions of impact tests according to EN, ISO, ASTM and GOST standards.

Our impact test systems include a wide range of accessories depending on the required conditions, temperatures, or the required test standard. The IMPACTTest or DROPTest test software guarantees the correct evaluation of the impact test, including the calculation and display of all required parameters.

We break everything precisely, controlled, quickly and repeatedly...

## Pendulum impact testers up to 50 J

Pendulum impact testers in the LabTest CHK.1 series have maximum rigidity, accuracy, safety, and variability. Changing mallets or supports is simple, as is operating the machine. LabTest hammers are manufactured in several custom modifications: the simplest with manual return of the mallet and control via LCD display, or the most sophisticated, where you choose the course of the test, including data or automatic selection of the type of test and impact speed, on an LCD monitor that is part of the machine.

**Type of tests** – impact tests of plastics and composites using Charpy, Izod, impact tensile test, etc.

**Industry** – universal – plastics, rubber, automotive, research institutions, universities, etc.





ČSN EN ISO 179-1, ASTM D 6110 ČSN, EN ISO 180, ASTM D 256, ASTM D 4812, ČSN EN ISO 8256, methods A, B, ASTM D 1822 and other standards

## Impact Test Software - IMPACTTest

Intelligent, intuitive, and powerful software designed for fast and rational impact tests. Unlimited number of test methods supported by EN, ISO, DIN, ASTM and GOST standards. Modular system of libraries designed for standard tests, easy orientation in pre-selected definitions with visualization of supports, edges and mallets. Extensive calibration mode according to ČSN EN ISO 148-2 already in the standard. Automatic or custom setting of test results and saving the results to a database with the possibility of exporting data to ASCII, EXCEL, CSV – BASIS, MY SQL, MS SQL, etc.



Manual, automatic, or instrumented...





## Pendulum impact testers up to 750 J

LabTest impact pendulum testers with nominal energy of 450 J and 750 J have precision, rigidity, safety, reliability, originality, and ergonomic design. With the central integrated control of the machine LCD TOUCH monitor, you have everything under control, from the measured data to the actual course of the test. CHK impact testers are manufactured modularly in several modifications – basic, instrumented and with continuous angular adjustment.

**Type of tests** – impact tests of metals using Charpy, lzod, Brugger, impact tensile test, etc.

**Industrial sector** – engineering, metallurgical, aerospace and nuclear industries, research institutions, universities, etc.

## Cooling of notch toughness samples LABCool 21

Tempering of test specimens with liquid medium in the range of -80 °C to +20 °C in accordance with EN ISO 148-1, GOST 9457-78, ASTM E 23. Use of ecological refrigerant **R449A/R170**.



## **VRE** notching devices

Formation of V and U notches in accordance with EN ISO 148-1, ASTM E 23, GOST 9457-78. High notch milling speed with automatic cycle, etc.



ČSN EN ISO 148-1, ČSN EN ISO 148-2, ČSN EN ISO 14556, ČSN EN ISO 11343, ASTM E23, BS131-1, GOST 9454-78 and other standards.

Basic, instrumented, with angular adjustment

27

## Optical inspection of sample dimensions OPTOLab 55 II

Automatic, non-contact measurement of samples accurately, quickly and stably with color optical visualization in accordance with EN ISO 148-1, GOST 9457–78, ASTM E 23.



## Low-capacity drop testers up to 3000 J

Low-capacity LabTest drop testers with nominal energy up to 3000 J with a maximum impact speed of up to 20 m/s are designed for impact testing of materials, samples, parts of various shapes in a wide range of low and medium energies. Our DPFest devices are designed to test and simulate the behavior of materials and components at different speeds, energies, impact heights, collisions, accidental drops and repeated impacts. Dropdown devices are manufactured in several modifications and are designed so that in conjunction with an integrated LCD touch monitor with DROPTest-S software or a full-fledged PC with DROPTest-BASIC software, they fully meet customer requirements and testing standards according to EN, ISO, ASTM, GOST, BS or NF.

**Type of tests** – impact tests of plastics, plastic foils, composites using Charpy, Izod, impact tensile test

**Industry** – development – plastics, rubber, automotive, research institutions, universities, etc.



Impact tests at temperatures - 196°C to +1200 °C

We break the sample by free fall or accelerator...





ČSN EN ISO 6603, ČSN EN ISO 148-2, ČSN EN ISO 14556, ČSN ISO 7764-2:2022, ČSN EN ISO 179-2, EN ISO 180, ASTM D 256, and other standards.



## High-capacity drop testers up to 120 000 J

High-capacity drop testers are designed for testing materials in the field of high energies. The machine is controlled by a SIEMENS PLC with an integrated LCD touch display. Automatic loading of the sample into the test zone by the manipulator, breaking the sample within 10 s according to ASTM E436. Six high-performance shock absorbers...

**Type of tests** — a piece of metal materials by a falling weight

**Industry** – engineering, Railway and Metallurgical Industry

ČSN EN 10274, ASTM E436, API RP 5L3 and other standards.

Measurement of bending impact and impact force...



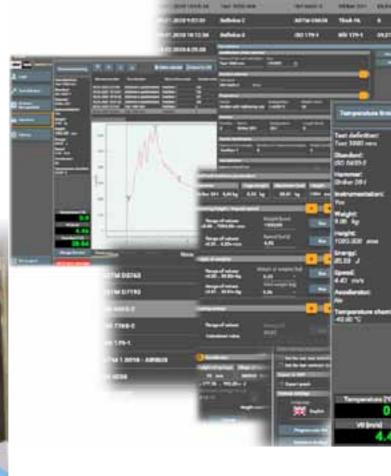


Intelligent, intuitive, and powerful software designed for fast and rational vertical and horizontal impact tests on drop rigs. Unlimited number of test methods, modular system of libraries designed for standardized tests, easy orientation in pre-selected definitions with visualization of jigs - supports and pestles. Digital display of all current values - energy, speed, drop height, temperature, etc. Freely adjustable drop option according to - height, energy, speed, etc.

Automatic or custom setting of test results and saving of results to database with the possibility of exporting data to ASCII, EXCEL, WORD, Eclipse, Diadem, Q-DAS etc.

Intuitive impact strength measurement software...

## We also have custom solutions...









## HARDNESS MEASUREMENT SYSTEMS - HARDNESS TESTERS



LABORTECH specializes in the production and supply of hardness testers, from manual instruments to fully automated hardness measuring systems. Our hardness testers are designed for a wide range of materials, from soft foams and plastics to hardened steel and carbon.

We offer equipment for hardness measurement methods such as Vickers, Micro Vickers, Knoop, Rockwell, Super Rockwell and Brinell. Our hardness testers stand out for their high level of innovation, automation and easy-to-use FESTTest software. With the ability to easily integrate into corporate networks, they increase testing efficiency and flexibility.

With our products, you will not only gain reliability and accuracy, but also professional support, fast service and availability of spare parts. Our equipment is designed for continuous operation to meet your highest demands for mechanical material testing.

We make unique and meaningful connections with those who choose our products and services



## ATB SYSTEM - Automated hardness measurement in production lines

Automatic ATB hardness measuring systems from LABORTECH are designed in several modifications that They comply with various test method requirements, such as Brinell (EN ISO 6506, ASTM E10) or Vickers (ISO 6507, ASTM E92). The systems are tailored to handle large sample volumes, saving time and increasing process efficiency, especially in production where quality testing is critical. Emphasis is placed on how many samples need to be tested per shift, day or week, what types of products or samples will be tested, how many punctures will be made on a given sample, what the cycle time will be and how the handling will take place. Automated hardness testing using ATB systems and robots ensures strict quality standards in production lines.

LABORTECH offers a wide range of manipulators for ATB systems, such as X-RUNNER and X-SLOB, which ensure efficient sample handling. Thanks to the intuitive control via the LCD TOUCH monitor and the integrated sophisticated FESTTest test software, ATB systems gain a high added value.

ATB systems are a reliable solution for automating hardness measurement in high-volume plants.



It is important for us to reiterate that we are not just suppliers and we are not interested in selling an anonymous bulk product without guarantees.

## LABORTECH hardness testers - Reliability for laboratories and heavy industry

LABORTECH hardness testers are designed for use not only in test rooms and laboratories, but also in demanding industrial operations. Thanks to their robust design and high measurement stability, they can handle even the toughest conditions. Precise load is achieved using a high-resolution AC servo motor, which allows loads up to 29,400 N. Hardness testers are easy and intuitive to operate thanks to the high-resolution TOUCH LCD display with mechanical resistance. The sophisticated FESTTest testing software with integrated modules provides unlimited measurement possibilities according to all available test methods and standards, making our hardness testers the ideal solution for a wide range of applications.



## MACHINES FOR LONG-TERM TESTING - CREEP

LABORTECH offers special testing machines for long-term CREEPTest tests designed to determine creep or stress relaxation in material. These machines allow tests to be carried out at a constant temperature up to +1600 °C, where deformation is recorded at specified time intervals. The constant load on these machines is generated by a lever mechanism and weight, a spring mechanism or a special low-speed AC drive with a long service life. All modifications of CREEP test systems produced by us are designed so that the customer can fully rely on its function and accuracy under long-term constant loading (creep of material) by force or tension, including elongation and at a constant homogeneous temperature in a high-temperature furnace.

## C.5 CREEP machines for quasi-dynamic cyclic testing and long-term testing

Electromechanical testing machines CREEP series C.5 designed up to 250kN designed for quasi-dynamic cyclic testing and long-term tests. Constant precise loading with the possibility of cycling up to 2 Hz is ensured by means of a central load system. These machines are suitable for classical and advanced creep tests, stress relaxation in the material at a constant homogeneous temperature in a high-temperature furnace with reliable declaration of results with maximum accuracy of force control and axial alignment.



**Type of tests** – fatigue tests in the range over zero, Creep test with slow speeds, ductility and relaxation tests, classical creep tests, modelling of strain, tests of growth and crack widening, determination of hydrogen embrittlement, tests with continuous regulation of force and temperature

**Industry** – engineering, energy and nuclear industries, research institutions, universities, etc.

## Guaranteed results for 10000 hours of continuous loading

ISO 204, EN 202-005, ASTM E2714, ASTME1457, ASTM G129, ASTM F519, ASTM D638, ISO 527 and other standards.









## CREEP machines LabTest with lever or spring mechanism

LABORTECH offers testing machines for long-term tests where a constant load is induced by a lever mechanism, weights and gravitational force or by means of a spring and a control force sensor. The machines have automatic alignment of the lever mechanism to the horizontal position. The design of the machines is in accordance with EN ISO 204, ASTM E 292 and ASTM E139, GOST 10145, and GOST 3248. The integrated intuitive LOTETest test software ensures machine control.

## CREEP tests at elevated temperatures are present and future





Heat resistant materials: MAR247, Allooy, Haynes, Luxal...





## Long-term test software

Intuitive and trouble-free use of CREEPTest and Test&Motion+ -CREEP test software designed for long-term tests produced by LABORTECH guarantees reliable declaration of results even after 100 000 hours of continuous loading.

## Special CREEP machines up to 500 kN

Vertical four-column design up to 500 kN maintaining a constant load by means of a central loading mechanism consisting of a central ball screw and a special loading mechanism. Integrated temperature chamber with a temperature range of -60 °C to +80 °C with temperature control accuracy of  $\pm$  1 °C according to ISO 204 and ASTM E139.

**Type of tests** – performance of long-term low-cycle fatigue in quadrant up to 2 Hz, determination of crack propagation, creep

**Industry** – engineering, energy and nuclear industry

## Types of tests

Creep Stress Relax CF, LCF CCCG, CFCG FCGR, TMF SSRT, HE Tensile, Compression Flexure

## Temperature ranges -90°C to + 2000°C



## **AUTOMOTIVE TESTING SYSTEMS**

Thanks to our own development and many years of experience, our company supplies to AUTOMOTIVE INDUSTRY special test machines, which are designed for testing on individual parts as well as on whole finished products. These machines, which operate 7 days a week, 24 hours a day, place the highest demands not only on functionality, but also on fast operative service and the availability of spare parts.

All automotive test machines and test systems developed and manufactured by us are designed so that customers can fully rely on their function, reliability, accuracy, repeatability, environmental friendliness, quick changeover and low maintenance during high production volumes.

## Design of automated lines from A to Z...

## Line for automatic balancing of clutch pressure discs

Unloading and loading tray system for 80 parts. Drilling correction with automatic metal chips extraction. Test time 50 s.

BALANCERTest software with a special algorithm.







## **Automatic PKW lamella inspection lines**

KMTest lamella torque measurement, ABC Control machine for cushioning, delaying and rotating the lamella, marking laser and VSTest balancing machine. Test time 50 s. ABCControl software for testing mechanical properties of lamella.

## Automatic continuous line of hardening, sandblasting, optical and mechanical checks of PKW spring

Spring testing with a special algorithm. Continuous optical inspection of springs with automatic GOOD and BAD resolution.

CDS – central database system of results from multiple lines, etc.

Car window seals
Air conditioning systems
Car seat fabrics
Car seat
Braking systems
Deep-drawing plates
Chassis parts







## Designed for Industry 4.0









# We test, 100% check, adjust, balance:

Torsion converters
Clutches
Lamellas
Pressure discs
Diaphragm springs
Wandlers
Two-state flywheels
Shock absorbers...

### Special AUTOMOTIVE software

The intuitive and seamless use of our special AUTOMOTIVE test software guarantees reliable testing under the most demanding conditions with the possibility of further processing of data for statistical analysis.

## Precisely, quickly, and clearly...



### PKW clutch assembly line, 100% mechanical and optical inspection, coupling balancing and IO and NIO selection

Automatic clutch mounting – spring, pressure disc, etc. Optical inspection of clutch completeness. Measurement of clamping and breaking force, flatness, thumb throwing and adjustment. Balancing with riveting correction. Test time 35 s. Software BALANCERTest, EDHTest, EDHXtend.

#### SPECIFIC TESTING MACHINES AND SYSTEMS

## Tailor-made testing machines from LABORTECH: Quality and innovation in every detail

The development department of LABORTECH specializes in the analysis of technical requirements for the production of specific testing machines and systems. All machine designs are always in accordance with the standards and regulations of the country, which are then applied in the declaration of conformity according to EU and EC directives. Our experts, equipped with many years of experience and corporate know-how, are able to get to know the needs of each customer in detail and propose individual solutions with an emphasis on quality and uniqueness.

During development, we use modern tools such as 3D models, stress simulations, electrical projects and customer software. The development of these specific products represents approximately 40% of our activity. The more unusual the application, the more it motivates us to look for a new solution that must always meet the customer's expectations. Safety always comes first.

## Labtest SST 6.10-5.1 load capacity testing machine for shelving

The LabTest SST 6.10-5.1 rack load testing machine is a key piece of equipment for ensuring the safety and reliability of storage. This machine allows you to accurately determine the maximum weight and load (max. 50kN - 5x10kN per shelf) that a given rack or overall racking system can withstand, thus preventing accidents and damage to inventory. The LabTest SST testing machine is equipped with a system for monitoring and recording data on the tests performed. This allows the results to be documented and changes in the load capacity of the racks to be tracked over time.





After the development, assembly and calibration of the machine is completed, the testing and fine-tuning phase follows. Each machine undergoes an acceptance procedure with the customer, during which the last details are fine-tuned for its optimal functionality. An integral part is the creation of technical documentation that exactly corresponds to standards and norms, such as ČSN EN ISO 12100, ČSN EN ISO 20607 and others.

## There are no borders, only new challenges to overcome...





ČSN EN 16122

**Industry** – various consumer goods industries

### Other parameters:

Max. test contact force – 50kN (5 x 10kN), Max. shelf length / width - 2400 x 700 mm





## Testing of spring clips for rail fixing - LabTest 6.50H.5-TS

One of the unique testing machines for the railway industry is the LabTest 6.50H.5-TS device. This machine is specially designed for testing tension and spring clips made of spring steel according to DBS 918 127 -Deutsche Bundesbahn standard. Testing takes place in dynamic mode, which ensures not only the quality and reliability of individual parts, but also their maximum safety. In this way, LabTest 6.50H.5-TS contributes to the safety of passengers and railway workers, which is crucial for trouble-free operation.

DBS 918 127

**Industrial Sector** – Machinery & Railway

### Other parameters:

Max. test force - 50 kN, Cylinder stroke 50 mm, Max. test frequency 50 Hz







## Lab Test TWS 300-12 Torque assembly and tightening bench

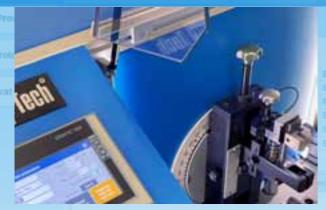
The torque assembly and tightening bench for pressing and disassembling wheelsets for trams from LABORTECH is a special device that allows safely, efficiently, accurately and controllably dismantling and assembling double wheels so that the necessary maintenance work can be carried out.

ČSN EN 15566, ČSN EN 14033-1

Industry- railway industry and production of rail vehicles and trams, repair shops for rail vehicles



## SPECIFIC TESTING MACHINES AND SYSTEMS



## Sheet and strip testing machine SMB 200

Machine for determining the ability of metal sheets and strips of 3 mm thickness and less to deform plastically by alternating bending. The method can be used for aluminum and its alloys. SIMATIC control and evaluation unit with LCD touch screen and MBTest software.

## Multi-axis testing machine MCS-20

Determination of the helix elongation number for copper and copper alloys. The MCS testing machine determines the elongation in the wire phase for high-purity copper of grade Cu-ETP1. SIMATIC control and evaluation unit with LCD touch display and MCSTest software.

ČSN EN 12893, ČSN EN 1977, GOST 28515

Industrial Sector - engineering, metallurgical and manufacturing

#### Other parameters:

Vertical axis length 1300 mm, testing speed 20 mm/s, winding speed 50 mm/min.









**Industry** – engineering and metallurgical industry

GOST 13813, ČSN ISO 7799 ISO 7801

#### Other parameters:

Prestressing force 20 to 100 N Sample dimensions 0,15 to 10 mm Rotation angle 90° ±1°















## LabTest MPT 1500-PA semi-automatic drawbar assembly workstation

Carousel-based system with four workstations - rod installation, test press for assembly up to 300 kN, test position with functional test up to 1500 kN, removal assembly position. The machine can be used to completely assemble and measure drawbar units for railcars using a touchscreen LCD monitor in conjunction with the MSVTest v.1 test software. The protection of the working area is monitored by a camera system from SICK.

ČSN EN 15566, AS 7524:2018

**Industry** – mechanical engineering and railways

### Other parameters:

Operator - one person, assembly time incl. test 142 s, number of sets per shift – 105 pcs



## **Customer solutions** - uniqueness down to the last detail

## Testing machine for determining hardenability according to Jomini

The test for hardenability according to this standard consists of heating a cylindrical test body, rapid hardening and measuring the hardness at specified points. The dimensions of the test pieces are 25 mm diameter and 100 mm length. SIMATIC control and evaluation unit with LCD touch screen and AQUATest software.

ČSN EN ISO 642, ASTM A255

**Industry** – engineering and metallurgical industry

### Other parameters:

3 positions, water temperature monitoring 20 ± 5 °C, outlet height of water stream 65 ± 10 mm, distance between inlet and hardened surface 12.5 ± 0.5 mm









## **Vertical balancing machines**

Robust vertical frames with high rigidity and resistance to dynamic interference, durability, suitable ergonomic layout and maintenance-free operation.

Modular machine design – machine variants with various imbalance corrections and handling. Clamping of parts: mechanical, pneumatic, special clamping. Software BALANCERTest.

Balanced parts - rotors without their own shaft, turbines, brake discs, clutches, plates, grinding discs, propellers, drums, instruments, etc.



## Horizontal balancing machines

Frames with high rigidity and resistance to dynamic interference, durability, suitable ergonomic layout and maintenance-free operation. Modular machine design – machine variants with various imbalance corrections and handling. Clamping of parts by cardan drive or pneumatic strapping. Software BALANCERTest.

**Balanced parts** – rotors, crankshafts, tool spindles, blowers, cardan shafts, etc.

All the equipment we produce is designed so that the customer can fully rely on its function even when performing more demanding tasks in the field of dynamic balancing. LABORTECH offers a wide range of options for these machines to correct imbalance - drilling, milling, surfacing Our machines can work independently or in automated test lines.







We balance accurately, quickly, reliably and safely...



### Software BALANCERTest

### Intuitive software for dynamic balancing machines

Balancing in one or two planes. Unlimited database of balanced pieces. Storing results in a database. Filtration of measured results. Drilling, riveting, welding, and milling programs. Automatic check of the performed test. Identification by part number, date, and time of measurement. Automatic evaluation of the balancing process. Adaptation for LCD touch monitors. Monitoring of service intervals. Export to SQL or in CVS, Excel, etc. Print the report.

#### ČSN ISO 21940-23



Balanced parts - turbines, brake discs, clutches, lamellas, grinding wheels, propellers, drums, rotors, crankshafts, tool spindles, blowers, cardan shafts, etc.

## **Imbalance** correction...

Drilling Milling Grinding Riveting Welding Sealing Splicing...





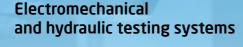
### **Balancing automatic machines**

Fully automatic vertical or horizontal design. Semi-automatic or automatic mode of loading and unloading of balanced parts. Selection of parts after balancing on IO and NIO pieces. Various types of unbalanced correction according to the requirements of the customer. Machine control via LCD touch monitor and PC with BALANCERTest-BASIS software in the base of the machine.



### **MODERNIZATION OF TEST SYSTEMS**

LABORTECH is a suitable, reliable and competent partner for the modernization of your existing test systems. For modernizations, we use proven components that are used in new testing machines and equipment supplied by us, including measuring and control electronics of the EDCi series, hydraulic aggregates of the HAS, HAG and HAD series, SCHEIDER series drives, sensors from renowned companies such as HBM, GTM or AST and, last but not least, testing software. An integral part of the modernized machines is the current technical documentation in 3D and VIDEO format used for new machines.



The original test frame or test accessories remain. Amortized electronic or manual measurement is replaced by new electronics of the EDCi series including the RMC controller. New electric drive units or hydraulic units. Intelligent software Test&Motion+ - BASIC or DYNPACK with appropriate modules.



### The documentation includes:

operating and maintenance manuals software manuals Declaration of conformity calibration sheets inspection reports VIDEO manuals...



### Pendulum impact testers

The original test frame is retained, including the test hammers and strikers. Installation of a new electric drive unit for the hammer stroke including electrical security. Possibility to extend the machine with instrumentation or adjustable angle. Supplementing the machine with safety guards that meet the most stringent safety requirements. Intelligent software IMPACTTest.



EN ISO 12100:2011, EN ISO 14120:2017, EN ISO 60204-1 ed.3, EN ISO 13850:2017, EN 61000-6-2 ed. 4, EN ISO 4413:2011 it all depends on the type of device.

#### Hardness testers

Installation of a new optical system – camera + optics including integrated PC and touch LCD monitor for industrial use on the original frame. The hydraulic unit goes through a complete GO and adaptation to the new system. FESTTest intelligent software with Brinell and Vickers modules.



### **TESTING ACCESSORIES**



# Each test system has its accessories...

In addition to testing machines, LABORTECH also offers a myriad of various accessories that extend the quality of the test itself. Thanks to many years of experience and know-how of LABORTECH, these accessories are developed and manufactured in the highest quality. We offer both standard accessories and "tailor-made" accessories, where we first create a 3D model using a computer simulation and then develop and successfully put the accessories into practice.

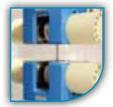




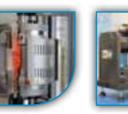


























Our sales managers and application engineers will be happy to advise you on how to choose the right accessories to match your requirements and needs.





## Where you can find us

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## Why choose LABORTECH?

Because we offer everything from development to implementation and listen to your needs...



We provide you with on-line service all the time by our qualified application and service technicians.



We offer a suite of professional engineering and consulting services that are in harmony in system design and testing.



We are conscientious environmental manufacturers. We are not indifferent to ecology which is why we hold ISO 14001:2016 certification.



Accuracy and repeatability of measurements are our priorities. We provide industry-leading, calibration services in accordance with EN, ISO and ASTM standards.



We make sure that our operators are trained and competent and that our machines are easy to operate.



We promote security at the highest level. We leave nothing to chance, and what we produce is the result of many years of experience, research and experiments.



The speed of measurement combined with high dynamics guarantees a more accessible way of tuning and setting up LabTest test machines.



Our testing machines, in conjunction with high-quality accessories, have versatility and intuitive control of the tests themselves.

## Labor | Tech

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