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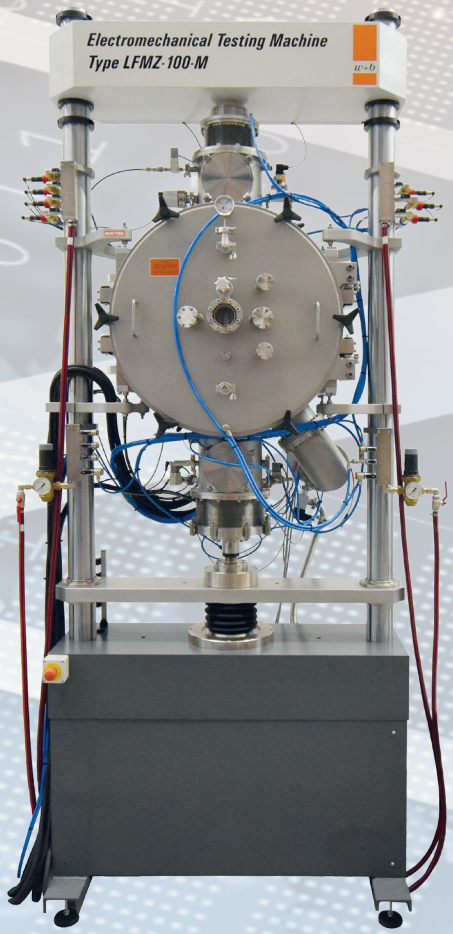
News & Applications
Materials and Components Testing

This year once again we look back on new altitudes we have reached by the development of sophisticated and complex testing solutions at w+b. The testing systems we cover with this overview are staying beyond the scope of standard realizations. This would not be possible without our highly qualified specialists and without diligent customers from another side that are constantly striving to the new horizons in materials science and testing techniques.

With pleasure, we are presenting you our novel solutions that we believe are the subject of your interest.

2000°C High Temperature Vacuum and Inert Gas Test System

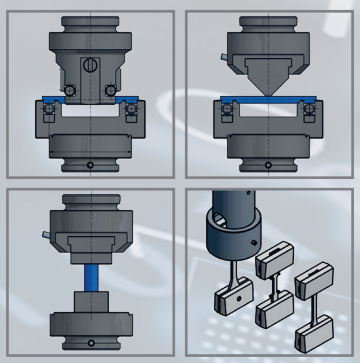
Innovative materials are in demand in many sectors of industries and technology. In the field of Aerospace, Energy and others new high temperature and strength materials are of utmost importance to increase efficiency to extend the life of turbines, reactors, etc.



The 2000°C high temperature test system is designed for testing of different materials including steel, nickel alloys, ceramic and ceramic matrix composites. These systems offer beside of testing under vacuum also the possibility to perform tests in inert gas.

The system with graphite heater is designed for tension, flexural and compression tests up to 2000°C in vacuum ($1x10^{-6}$ mbar) or inert gas.

The LFMZ testing machine with its high resolution and high speed control unit enables backlash-free montonic and cyclic testing. The incorporated modules are temperature measurements system by thermocouples and pyrometer as well as 2000°C motorized extensometer for accurate stain measurement. The load cell is integrated inside the vacuum chamber eliminating measuring errors generated by applying a vacuum.



Coming soon:
High Temperature Vacuum System for Fatigue Crack Growth and Fracture Toughness Testing

SWISS QUALITY

Versatile Servo Hydraulic Test Systems LFV Series
to Meet Your Testing Needs

Testing machines with integrated T-slot platen offers a flexible workbench for mounting and testing everything from grips and fixtures to components and large subassemblies.

We are able to design, develop and produce a very specific and customized testing system for you. We deliver customized solutions and complete installations for physical and mechanical testing laboratories worldwide. Our prior goal is to supply advanced and up-to-date testing equipment designed for standard and severe conditions, coupled with long-lasting and reliable operation.

Torsion Testing Machines
for Static and Dynamic Torsion Testing

Walter+Bai AG Testing Machines supplies torsional test systems for static and dynamic torsion tests to determine the mechanical properties of engineering components and testing of full-size parts as shafts, axles, twist drills couplings, clutches or drive line components for the Oil and Gas Industry, Steam and Diesel Engines, Gas Turbines, for Wind Turbines, Ship-building / Marine Industry or for calibration purpose of torque transducers. Depending on the dynamic requirements we supply electromechanical or servohydraulic tests systems.

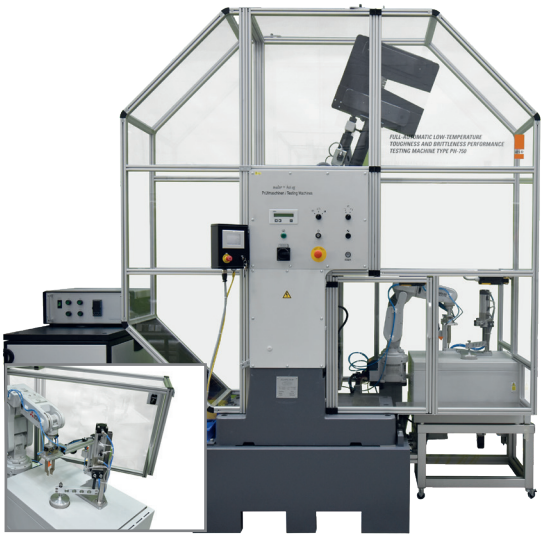
Application example: 16 kNm Fatigue Rated Dynamic Torque Test Systems to Test Dampers and Anti-Vibration Mounts.

The LFV-16000-T tests system is designed to test torque dampers and anti-vibration elements up to 16 kNm.
The test system incorporates a torque-generating high-performance torsional cylinder with hydrostatically supported balanced double-vane rotor design ensuring zero actuator backlash during revers testing and is well suited for high speeds. Mounted on opposite side is a high precise, dynamic rated torque transducer for accurate torque measurement. The distance between the mounting flanges can be adjusted by pressing forward/backwards buttons on the touch screen panel. To simulate a wide temperature range, the test system is equipped with a environmental chamber series ET providing low temperature testing down to -70°C without LN2/CO2 and elevated temperatures up to 280°C.

Fully Automated Robotic Charpy Impact Test System

Robotic pendulum impact test systems enable the increase of productivity and the reproducibility, and considered as indispensable unit at large-scale production plants as well as of quality management system. w+b offers robotic impact test systems for standard to sub-sized specimens for various temperature ranges.

The 6-axis robot guarantees that the thermally conditioned specimens are transferred for impact test below the required 5 seconds. The grippers of the robot remain in the specimen conditioning chamber assuring they have the same temperature as the specimens. The specimen magazine can be filled with up to 40 specimens (larger capacities are available).



750 Joule instrumented impact tester for temperature range -180°C to +300°C

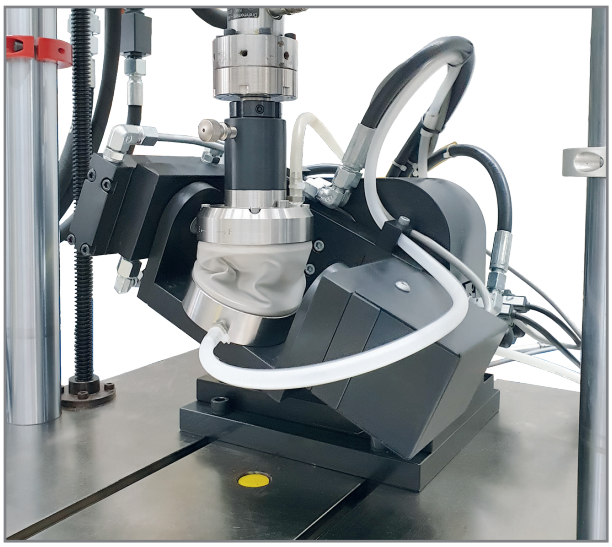
50 Joule instrumented impact tester for temperature range -180°C to +900°C

Servohydraulic ISO Hip Simulator

for Wear Testing of Hip Implants

The current ISO hip joint simulator was specifically designed for in vitro wear testing of acetabular cups against ceramic femoral heads of hip implants in fluid environment. The simulator unit allows the simultaneous independent three angular motions: flexion/extension, abduction/adduction, and internal/external rotation, with the periodic application of axial load on an implant according to ISO 14242 standard. All angular displacements are executed with high precision that is enabled by the implementation of rotary encoders. The fluid test medium fills a flexible bag surrounding an implant, and is in constant circulation under controlled temperature.

The servohydraulic hip simulator can be introduced in the existing testing systems to enable the transformation of your rig into the orbital hip wear simulator that allows the mimic of physiological motions of the hip joint in vivo environmental conditions.



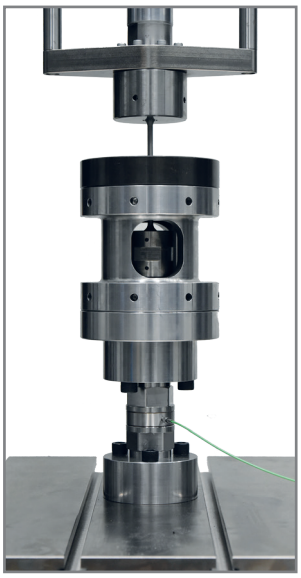
Application example:
Servohydraulic simulator for wear testing of hip implants integrated in a servo hydraulic dynamic testing machine.

SWISS QUALITY

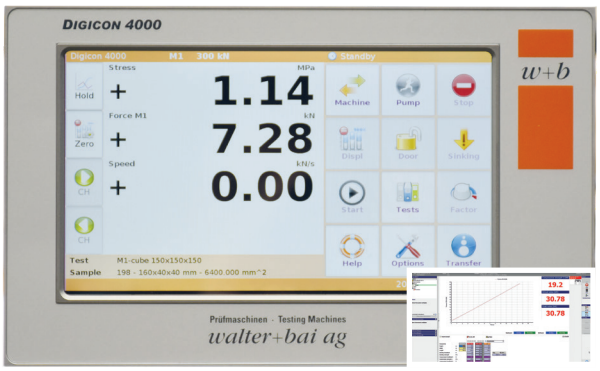
Servohydraulic High Speed Test Systems

Mechanical behaviour at high strain rates differs considerably from that observed at quasi-static or intermediate strain rates, and many engineering applications require characterization of mechanical behaviour under dynamic conditions.

Our servohydraulic high-speed test systems provide loading and strain-rates over a wide range. The systems are designed to for tension or compression tests on metals, plastics and other materials at ambient temperature or in combination with environmental chamber.
Models with actuator mounted on upper crosshead or on machines base are available.
Typically used actuator stoke is 250 mm plus 70 mm cushioning on each side. Directly on the actuator high responsive servovalves are attached with accumulators providing high flow rates and minimizing hydraulic pressure fluctuations. The system incorporates a high-speed high-rigid piezo-electric load measurement and data acquisition system.



New Digital Control System DIGICON 4000
for Building Materials Testing Machines



DIGICON 4000 is the latest generation of digital measurement and control system tailor-made for testing of building materials including cement, concrete, rocks, asphalt and soils.

The DIGICON 4000 is the direct replacement of the DIGICON 2000 controller with consequent enhancement and continuous implementations of new standards, customer inputs, feedbacks and hundredfold successful installations across the globe.
The controller can be used in standalone operation, in combination with its large 7" color touch screen with intuitive pre-defined test templates or in combination with the comprehensive Proteus application software.

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Testing Machines

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