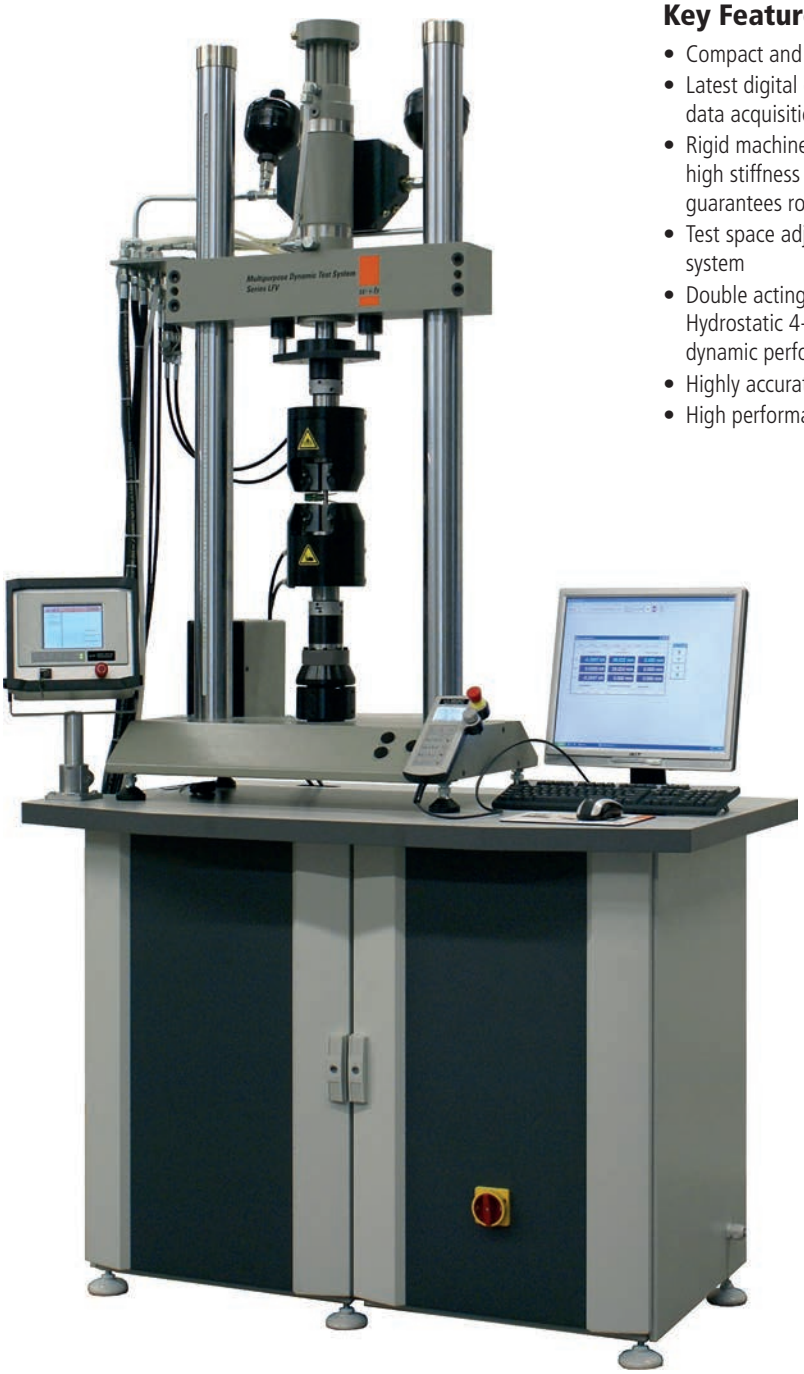
Multipurpose Dynamic & Fatigue Testing Systems

LFV-L Series up to 50 kN

The LFV-L servohydraulic Table Top series are ideal for testing of Biomedical or Advanced Materials. This series is well suited for monotonic (static) tension, compression, bend, shear, fracture toughness and durability & fatigue tests including fatigue crack growth testing.
The fatigue rated actuator is double acting and double ended with equal area and features Hydrostatic 4-Pocket Bearings for the best friction free static and dynamic performance with nearly service-free operation.
The actuator is conveniently mounted in the upper crosshead for easy table mounting.
The load cell is mounted on the piston rod end and also can be mounted on the lower base platen, depending on the solution.



Key Features

- Compact and space saving design
- Latest digital control electronics with high closed loop control and data acquisition rate and self-identification transducer coding
- Rigid machine frame as preferred for Table-Top models with high stiffness providing superior axial and lateral stiffness and guarantees robust, durable and long-term operation
- Test space adjustment available from mechanical lift to automatic system
- Double acting, double ended, equal area Servo Actuator with Hydrostatic 4-Pocket Bearings for the best friction free static and dynamic performance with virtually service-free operation.
- Highly accurate load cell and digital piston stroke transducer
- High performance Servovalve(s)

Multipurpose Dynamic & Fatigue Testing Systems

LFV Compact Series up to 50 kN

The LFV Compact Series represents ergonomically and space saving test systems ideal for characterizing the static and dynamic properties of materials and components at force capacities up to 50 kN.
The hydraulic power supply of the machine is integrated in the base of the testing machine making this series extremely compact, space saving and easy to install.
The fatigue rated actuator is conveniently mounted in the upper crosshead. The system incorporates an extremely versatile lower integral T-slot platen. The corrosion resistant T-slot platen is well suited to mount grips & fixtures, specimens and any kind of engineering components or finished goods.
Typical applications includes monotonic (static) tension, compression, bend, shear and other tests, durability and fatigue tests including fatigue crack growth testing, testing of components and manufacturing assemblies for the biomedical, automotive, aircraft, electronic, plastic injection moulding and other industries.

Key Features

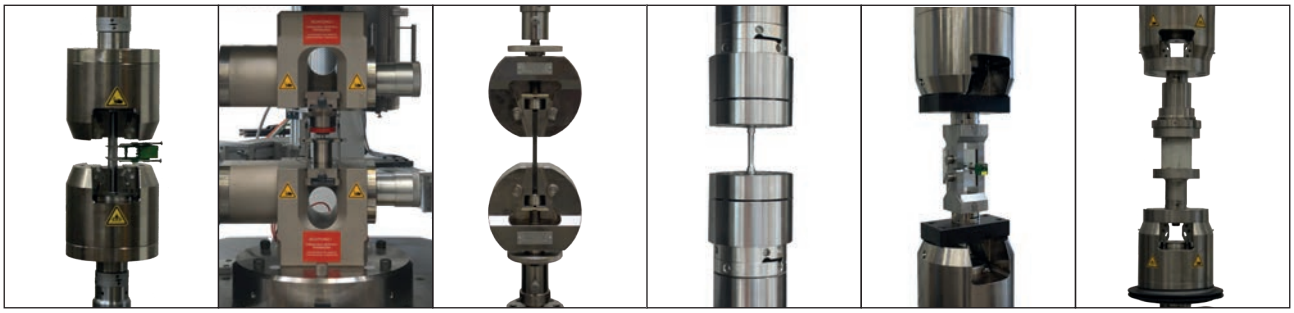
- Versatile design for testing components and a variety of materials
- Compact and space saving due to on integrated hydraulic power pack
- Latest digital control electronics with closed loop control and data acquisition rate, and with self-identification transducer coding
- Rigid machine frame of high stiffness, provides superior axial and lateral stiffness and guarantees robust, durable and long-term operation
- Test space adjustment available from mechanical lift to automatic system
- Hydraulic passive clamping (Version HH) system assures that the upper crosshead is clamped to the column without any hydraulic pressure applied.
- Double acting, double ended, and equal area Servo Actuator with Hydrostatic 4-Pocket Bearings for the best friction free static and dynamic performance with nearly service-free operation.
- Highly accurate load cell and digital piston stroke transducer
- High performance Servovalve(s)

Testing Accessories

w+b offers the comprehensive range of accessories for static, dynamic and fatigue testing on materials and engineering components.
Besides the general purpose components, hundreds of application-focused accessories are available for the full spectrum of mechanical testing in different environmental conditions.
Typical testing accessories include hundreds of grips & fixtures, clamps, joints, contacting and non-contacting extensometers, load cells, load frame accessories, environmental simulation chambers, furnaces, vacuum systems, hydraulic supplies & componetns, digital controllers with data acquisition accessories, application software.

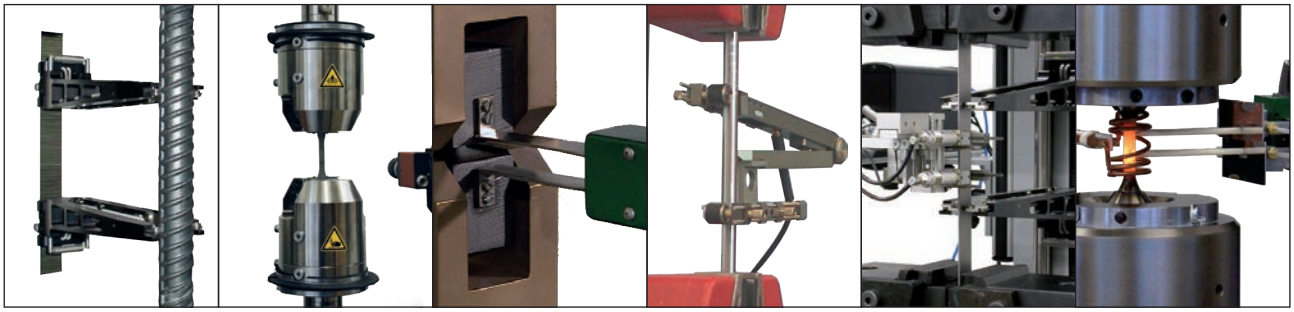
Grips

The use of proper grips for testing is crusial so as to obtain meaningful results. w+b offers the extensive range of different grips for all kind of monotonic to fatigue materials testing.
The product range includes application-oriented and material optimized solutions.



Extensometer

The requirements for strain measurements varies for different materials. The spectrum ranges from accurate extensometers for testing of me-tals to long-stroke extensometers for extendable materials. We are offering a comprehensive line of extensometers including double spacing cost-effective clip-on models, fully automatic extensometers, non-contacting Video- or Laser Extensometers, high and low temperature extensometers, units to be used in corrosive mediums and other liquids, humidity proof units as well as extensometers to be used in vacuum, high pressure or in radioactive environment.



Environmental Chambers

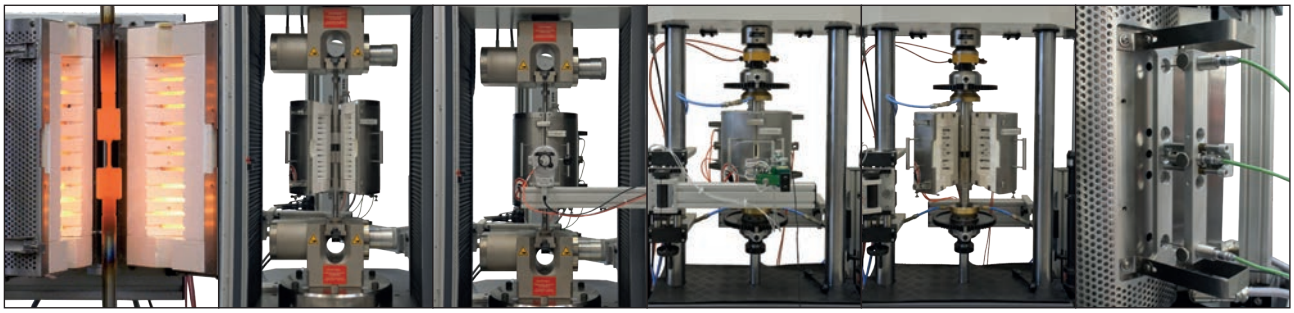
w+b offers different lines of environmental chambers which have been designed specifically for materials testing applications. The product ranges includes chambers for temperatures from -180°C to +600°C, as well as chambers with additional humidity control.
The ETC Series of environmental chambers provides LN2 or CO2 cooling injection via a rear mounted cooling pack, whereas the cooling of the ET Series features an LN2 / CO2 free cooling through an incorporated hermetic refrigeration compressor.
Additional humidity simulation is available as option.

High Temperature Accessories

The challenging applications such as testing materials employed in aircraft turbines, rocket propulsion, hot outer skin structures, automotive industry for exhaust systems, etc., requires high temperature testing installations.
w+b supplies a wide range of thermal products for typical applications include tension, compression, bending, fracture mechanics and other tests for materials like alloys, composites, ceramics and finished components as body and engine mounts, tire cords, shock absorbers, isolators or laminates.

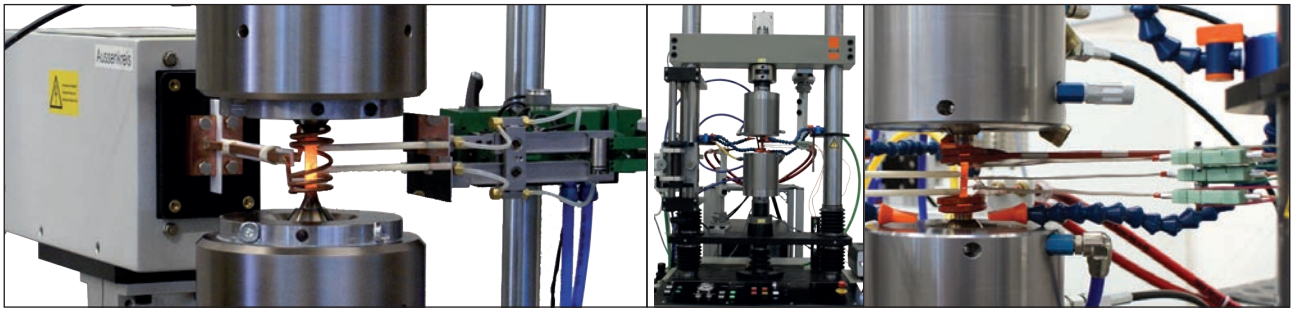
High Temperature Furnaces

The family of high-temperature furnaces is designed to cover a wide range of temperatures
for testing of a variety of materials. Trey are typically used in systems applications simulating the thermal cycles induced by power generation plant and aircraft engines. All furnaces are available as split or closed type with one up to 5 heating zones.



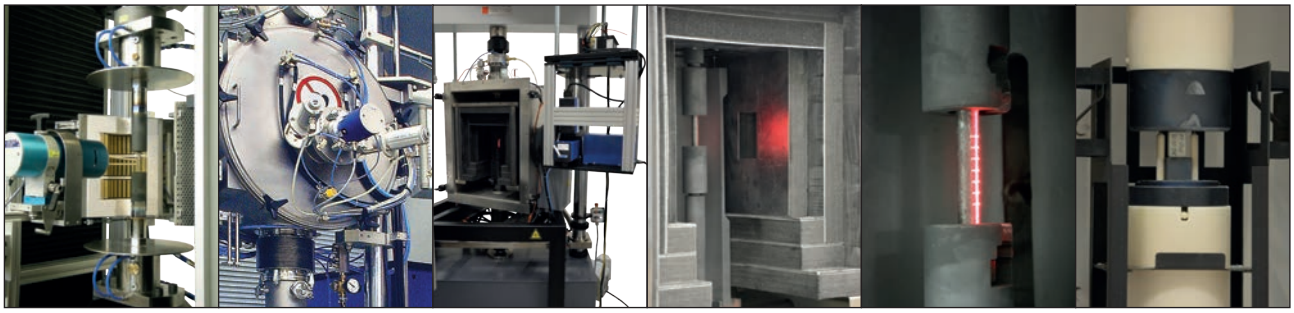
High Speed Induction Heating Systems

Induction heating is a method of providing fast, consistent heat and allows as well a precise homogeneous heating of test specimens. The heating process relies on induced electrical currents within the material to produce heat. Induction heating works directly only with conductive materials, typically metals. Plastics and other non-conductive materials can often be heated indirectly by heating first a conductive metal-susceptor, which then transfers the heat to the non-conductive material.



High Temperature Strain (Deformation) Measurement

w+b offers the extensive range of high temperature extensometers for tensile, compression, deflexion or crack strain measurement under high to ultra-high temperatures. The range of units includes also extensometers with adjustable gage length and automatic units. Further we can equip you with high temperature installation with non-contacting video extensometer and laser extensometer up to 2300°C.



Testing Accessories for LCF & TMF Testing

w+b offer the comprehensive range of test accessories for Low Cycle Fatigue as well as Thermo-Mechanical-Fatigue Testing.
Typical testing accessories includes Alignment System, suitable grips and extensometer, heating system as well as vacuum-systems.

Specimen Alignment

To minimize bending strains, specimen fixtures should be aligned such that the major axis of the specimen closely coincides with the force axis throughout each cycle. It is important that the accuracy of alignment be kept consistent from specimen to specimen.

Alignment fixture AF

The alignment fixture is capable to perform alignment adjustments while the load train is fully preloaded, saves time and provides better test data's.

Alignment Verification Equipment

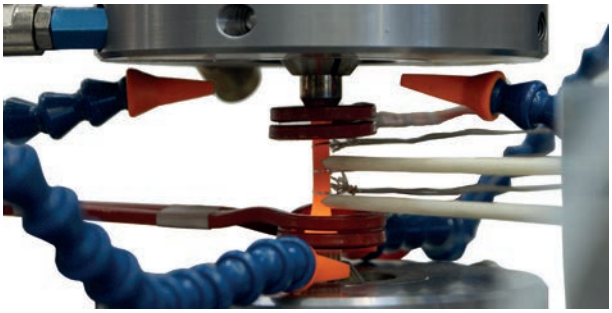
The Alignment Verification equipment consisting of:
Strain gage rod (round specimen) or flat specimen with 12 (or 8) strain gages for correction of both concentric and angular misalignment.

Specimen Gripping

The testing machine, together with the gripping system used in the test program, must meet the bending strain criteria where the maximum bending strain should not exceed 5% of the minimum axial strain range imposed during any test program. The selection of the grip-type depends primarily upon the user's specimen design and temperature.

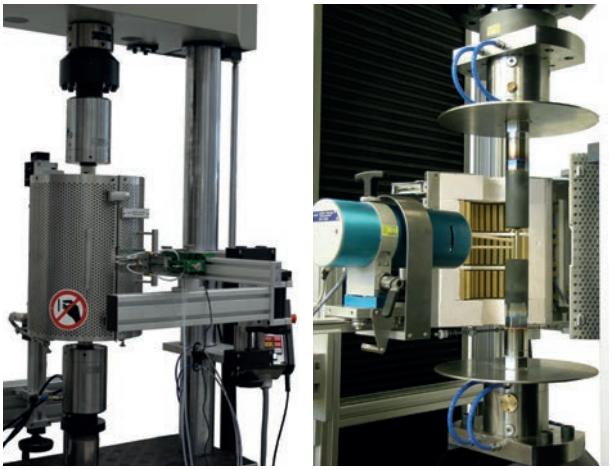
High Temperature Grips Series HTG

High temperature grips for temperatures up to 1000°C or higher.
The HTG Grips are specially designed for high temperature tension, tension-compression of low cycle fatigue testing in combination with high temperature furnaces.
The grip heads and pull-rods extend into the heated zone of the furnace.
The grips bodies which remains outside of the chamber are water cooled to isolate the hot parts of the grips from the actuator piston rod and from the load cell or other accessories.
For temperatures above 1000°C and forces greater than 10 kN at 1000°C contact our sales department.



Extensometer

The extensometer, used for measuring deformation and strain control should be suitable for dynamic use over long periods of time. The selection of the suitable extensometer depends primarily upon the user's specimen design and temperature. For best results the extensometer system must have a low nonlinearity and hysteresis. Therefor it's recommended to use extensometers with small measuring range, typically +/- 10% of the gage length.
Further the selected extensometer should have low activation force to prevent damage to the specimen surface and consequential premature fatigue failure at contact points and preferable low mass to provide high natural frequency for improved dynamic response.

Specimen Heating System

For elevated temperature LCF testing common heating methods includes resistance furnace or high-frequency induction system.