Fatigue Strength Testing Machines
Zwick offers the most comprehensive selection of drive technology for dynamic testing.

**Electro-mechanical testing actuators**
High test speed, precise control, simple handling For higher amplitudes and lower frequencies

**Linear motor testing systems**
The clean solution for test loads up to 10kN

**Vibrophores**
High testing frequencies for metal components and specimens with amplitudes <6mm

**Servo-hydraulic testing machines**
The all-rounder for maximum flexibility in everyday testing
Dynamic and Fatigue Testing Systems

One testing system for dynamic and quasi-static tests. testXpert II for static tests and testXpert Research for dynamic tests.
Servo-hydraulic testing machines

Zwick offers the right solution for uni- and multi-axial tests on components and structures.
Zwick offers standard testing machines and systems for 10-2.500 kN for a range of applications.
Servo-hydraulic testing machines

Zwick offers standard testing machines and systems for 10-2.500 kN for a range of applications.
Servo-hydraulic testing machines

HC-T / HB-T testing machines – 
For combined tensile/compression/torsion loading.

**HC-T table-top testing machine**
- size 10 kN / 100 Nm
- size 25 kN / 250 N
- stroke 100 mm
- angle 100° or 270°C

**HB-T floor-standing testing machine**
- axial forces 100 - 500 kN
- torque 1000 – 4000 Nm
- stroke 100 mm
- angle 100°
Servo-hydraulic testing machines

Anything but standard—Zwick develops testing machines and test methods for specific customer requirements.
Servo-hydraulic testing machines

Zwick offers all components which are needed for a servo-hydraulic testing machine or testing rig.

Controller and software for uni- and multi axial tests

Servo valves

Connector units

Actuators

Hydraulic grips

Hydraulic pumps

Cooling / Chiller
Servo-hydraulic testing machines

Zwick offers a comprehensive standard product range for high-speed testing.

HTM 2512  25kN 12m/s
HTM 5020/8020  50 / 80kN  20m/s
HTM 16020  160kN 20m/s
Vibrophores

Zwick's Vibrophores are an economic solution for performing fatigue tests on metal specimens and components.
Vibrophores

The wide application range includes fatigue tests and fracture mechanics investigations, as well as static tests.

- Fatigue and durability tests on specimens and components with testXpert Research software
  - determine fatigue properties shown by the Wöhler curve (S/N curve)

- Static test with testXpert software
  - With the two in one function and testXpert II the Vibrophore is a static testing machine

- Fracture mechanics investigations
  - pre-cracking of CT and SEB specimens (ASTM E 399)

- Tests under various environmental conditions
  - high / low temperatures, aggressive fluids
Zwick's Vibrophore produces fast test results for dynamic tests while keeping operating costs to a minimum, saving time and money in everyday testing.

- **Short test times** and a high specimen throughput level for dynamic tests due to high frequencies
- **Low energy consumption** thanks to resonance principle (approx. 2% of the energy consumption of a servo-hydraulic test system)
- **Minimal maintenance** costs because there are no wear parts
- **Easy installation** without additional infrastructure, such as a hydraulic system, coolant, or compressed air
- Yet the Vibrophore is a full-fledged **static testing machine**
Vibrophores

The Vibrophore is available from 50 to 1,000 kN

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<tr>
<th>Vibrophore 1000</th>
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<tr>
<td>Vibrophore 500</td>
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<td>Vibrophore 250</td>
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[Images of Vibrophore machines]

Corporate presentation – Fatigue Testing Machines
Linear Motor Testing Systems

An LTM testing system can be used in all areas of materials testing quality control and component testing.

Medical
- Dental implants
- Hip implants
- Spinal column implants
- Vertebral body implants

Auditorium Lecture Rooms
- 3- and 4-point flexure test
- Fracture mechanics for plastics - aluminum
- Composites
- TCU, HT, corrosion

Academia
- Rubber-metal
- Adhesive bonds
- Fatigue test on athletic shoes
- Fatigue test on prosthetics

Aerospace, automotive, plastics, composites
- Hip implants
- Spinal column implants
- Vertebral body implants
Linear Motor Testing Systems

The new linear motor testing system LTM is based on an internally developed and patented electro-dynamic drive system, which optimally fulfills the requirements of materials testing.

- Flexible use for static and dynamic tests
  - Optimal drive characteristics thanks to a wide speed range of 0.016 mm/s to 1.5 m/s
- Accurate test results thanks to optimal positioning of the travel measuring system
  - Force application and travel measuring system align with the test axis, preventing tilting and bending moments, and thus travel measurement errors
  - Minimization of heat drifts produces more accurate test results
- Minimization of stick/slip effects resulting in more accurate test results even with lower amplitudes
  - Lower friction thanks to piston rod with hydrostatic bearing
- No additional costs or downtime for maintenance and adjustments
  - Maintenance-free piston break system
  - Oil-free testing system
Electro-Mechanical Testing Actuators

High test speed, precise control, simple handling — the single testing actuator is ideal for flexible use in the lab and in production.

- Flexible mounting
- Compact size even at high forces
- Can be used in customized test arrangements
- testXpert® II and testControl II
- No hydraulic power pack
- Test loads from 1 to 100 kN
Modernization technology for dynamic testing systems. Reliable service and future upgradeability with this new technology.

- State-of-the-art technology for uni-axial testing systems
- Highest degree of safety for the operator thanks to 2-channel safety circuits and operation mode switch for SETUP and TEST modes
- Simple handling of complex testing system
- Modular software structure for optimum customization to the test requirements
- Highly suitable for multi-axial test benches
- Cascadable servo controller
We offer

- State-of-the-art technology and modern testing machines
- Fast and standard-compliant testing
- Tests to factory standards
- Comparison testing
- Assistance in bridging your capacity bottlenecks
- Cost flexibility

Our trained engineers have many years of experience and sound expertise. Contact us.

Do you have a test to perform but no way of testing it?

We perform all types of testing services on all static and dynamic materials testing machines.
Dynamic Testing Application Technology

You have the test objective—we find the perfect material testing machine solution for the task.

You can rely on comprehensive consultation and support from Zwick experts in our dynamic application test lab.

- Let us demo our various dynamic testing machines for you, free of charge.
- We will pretest your materials to find the right machine and accessories.
- We offer customized training courses in our lab or at your location.
- We facilitate joint preacceptance of your solution at our headquarters in Ulm.
Dynamic Testing Service Portfolio

Zwick offers customized consultation and services. We support you throughout the entire lifecycle of your dynamic materials testing machine.

- Consultation
- Demonstration
- Pretesting

- Preliminary acceptance
- Installation
- Instruction in two stages if needed
- Initial calibration as needed

- Inspection
- Hydraulic maintenance
  - Replacing the filter
  - Oil change
  - Hose change
- Calibration
- Retrofit
- Machine relocation

- Hotline support
- Repair work
- Spare parts
- Software services
- ZwickAcademy customer training courses
- Contract testing

Procurement
Commissioning
Operation of the machine

LTM
Vibrophone

ZwickService - expertise and reliability
The Zwick Roell Group serves major industries.

DIRECT LINKS: Innovations // testXpo in Ulm // What is testing? // SAFETY // Reliable Test Results