VECTOR
SCIENTIFIC TESTING DEVICES

HYDRAULIC UNIVERSAL TEST MACHINE

- Servo-hydraulic test systems designed for tensile, compression, and bending tests.
- Capable of determining the strength, deformation, and life expectancy of polymers, composites, metals, and other materials.
- Fully computer-controlled, with load and deformation values displayed in real-time
- Tests can be programmed according to the desired standard, test type, speed, specimen dimensions, and conditions. The system includes a library of predefined test standards, while also allowing users to create and save custom test settings for future use.
- Supports a wide range of tests in accordance with international standards using appropriate grips and fixtures.

VTR-50-0500

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TESLA Series – Universal Hydraulic Testing Machines

Standarts Compliance

Machine Standards: ISO 7500-1, ASTM E4, DIN 51221, AFNOR A03-501, TS EN ISO 6892-1, TS 1398-1, TS EN ISO 178:2010
Material Test Standards: ASTM A370, A615, C39, C109, E4, E8, E9, E83, E290, F606; ISO 6892-1, 6892-2, 7438, 7500-1, 9513, 15630-1; BS 4449; EN 10002-1, 10002-2

Applications

- Tensile strength determination for metals, polymers, and composites.
- Compression testing of rigid and semi-rigid materials.
- Flexural/bending strength evaluation for plastics, composites, and metals.
- Material behavior analysis under varying speeds and loads.
- R&D studies, quality control, and academic research applications.

Control & Operation

- Fully computer-controlled operation via dedicated TESLA Series software.
- User-defined test parameters including:
  - Test type flexibility: Supports tensile, compression, and bending tests, as well as staggered (stepwise) load tests such as staged tensile or staged compression, allowing simulation of real-world loading conditions.
  - Test speed, Test Force Rate, Test Strain Rate
  - Sample dimensions
  - Environmental conditions (with optional chambers)
- Pre-programmable test methods saved in the system for quick recall.
- Real-time monitoring of load, elongation, and displacement values.

Accessories & Fixtures

- Wide selection of tensile grips for different materials.
- Compression platens, bending fixtures, and extensometers.
- Custom jigs and fixtures available on request.

Design & Construction

- Hydraulic Operation: TESLA series devices are servo-hydraulic, providing smooth and precise control of tensile, compression, and bending tests.
- Dual-Test Capability: Allows testing in tension, compression, and bending without changing the main setup.
- Load Cell Accuracy: All load cells are Class 0.5, with ±0.5% accuracy according to ISO 7500-1, suitable for both tension and compression tests.
- • High-Speed, Long-Stroke Actuator: Crosshead movement range from 0.001 mm/min to 1000 mm/min, adjustable continuously during tests.
- Advanced test control system: Supports multiple control modes, including force rate control, displacement control, and strain rate control, enabling precise and versatile testing across various materials and standards.
- Crosshead Guidance: Linear guidance system ensures precise alignment of the load string throughout the stroke.
- Central Travel Measurement: Co-axially mounted encoder measures actuator travel at the center of the load string for high precision.
- User-Friendly Operation: Ergonomic controls, including handset with fine position wheel, programmable softkeys, start/stop/return, and variable-speed jog, improve operator comfort.

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Safety & Ergonomics

- Emergency stop button for immediate test interruption.
- Overload protection to prevent damage to the machine or specimen.
- Optional transparent safety enclosure for operator protection.
- Low-noise operation for laboratory environments.

Hardware Features

- 2 extra analogue channels.
- •ntegrated amplifiers for sensor outputs and signal conditioning.
- RS-232 or Ethernet interface for PC connection.
- Displacement-controlled, strain rate and load-controlled operation modes.
- Heavy-duty load frame designed for long-term stability and precision.

TECHNICAL SPECIFICATIONS

Numbers of Columns	4 Column			
PID Controlled Loading Range	1 Newton			
Accuracy	≤ ±%0,5			
Elongation Accuracy	< ±1% (%1 - %100 of total scale of the extonsemeter)			
Crosshead Accuracy	0.05 mm			
Load Resolution	0.01-1 kN			
Deformation Measurement Range	Adjustable			
Adjustable Speed	0.5 mm/dk - 250 mm/dk			
Interface	PC software			
Communication All USB 2.0/3.0	USB			
Capacity (kN)	300 kN	500-600 kN	1000-2000 kN	3000-5000 kN
Wegiht (kg)	1460 kg	1650 kg	4500-6000 kg	8000-15000 kg
Power (kW)	3 kW	10 kW	10 kW	10 kW

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