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Electromechanical Testing Machines Series

LabTest 7.0051 - 7.051 E.1

The LabTest E.1 series single-column electromechanical testing machines are a universal solution for static testing of materials and products up to a maximum force of 5 kN. Thanks to their compact benchtop design, they are ideal for use in research and development, inspection laboratories and production facilities.

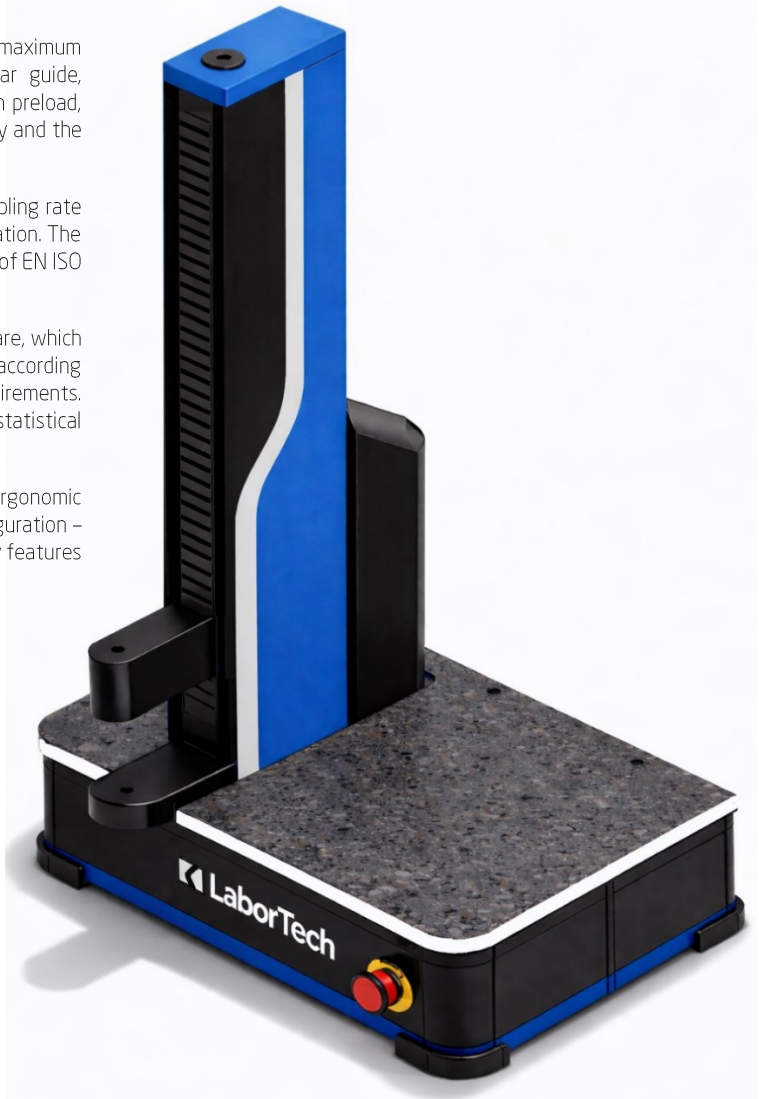
The machines allow a wide range of tests to be performed – tensile, compressive, bending, shear and torsion – both on individual materials (plastics, metals, composites, paper, rubber) and on complete products. In combination with extensive accessories, they provide high flexibility and the possibility of adapting to specific applications.

The design of the machine is designed with an emphasis on maximum rigidity, stability and long service life. The integrated linear guide, together with a precision AC servo drive and a ball screw with preload, ensure minimal frame deformation, high measurement accuracy and the possibility of implementing off-axis loading of the sample.

Modern measurement and control electronics with a high sampling rate and high resolution guarantee accurate and reliable test evaluation. The system supports multiple sensors and meets the requirements of EN ISO 7500-1 and ASTM E4.

The machine is controlled by means of Test & Motion® software, which enables the creation of an unlimited number of test methods according to EN, ISO, ASTM standards or individual customer requirements. Advanced result evaluation, real-time graphical display and statistical data processing are included.

The E.1 series is characterised by a high level of ease of use, ergonomic access to the work area and the possibility of individual configuration – from the expansion of the test area to the integration of safety features according to applicable standards.



Versatility, precision and reliable performance in a compact and flexible design for a wide range of test applications...

Industry

engineering, plastics, construction, automotive, research institutions and schools, etc.

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Key features and benefits of the E.1 series

We use new technologies and emphasize safety...

Test frames

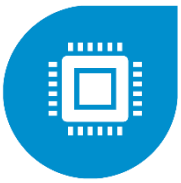
The LabTest test frame is designed for maximum robustness and accuracy, ensuring reliable performance in a wide range of tests. Its high rigidity and precise crossbeam guidance guarantee alignment, high static and dynamic load carrying capacity and resistance to off-axis loads. The frame uses a linear guide with a profile rail and a pre-tensioned carriage. The vertical movement of the crossbar is controlled by ball screws with an integrated lubrication system, which ensure an accurate and repeatable position.

Force Sensors

For our LabTest testing machines, we use our own LTx Force force sensors as well as sensors from renowned manufacturers that can be calibrated in accordance with ČSN EN ISO 7500-1 and ASTM E4-21 standards. All force transducers have several key features in common: tensile and compressive measurement, high accuracy – accuracy class 0.02 to 0.05, extreme overload capacity up to 100% of the nominal force. Each force sensor is equipped with an EEPROM that allows for automatic identification of the load cell, storage of calibration constants, and performance of multi-point linearization for both tension and pressure.

NEW Powerful and Precise AC Servo Drive

LabTest test machines are equipped with powerful, dynamic and maintenance-free AC servo drives, which provide exceptional accuracy and reliability in testing. These drives ensure consistent speeds even at extremely low values, up to 0.0005 mm/min, which is essential for performing high-precision tests. With a feedback encoder resolution of up to 2,097,152 pulses per revolution, these servo drives provide exceptional position measurement accuracy and stability of motion even at very low speeds, guaranteeing a quick and accurate response to changes during testing.



Measurement and control electronics

LabTest test machines are equipped with powerful measurement and control electronics that ensure precise test control. Two variants are available: EDCi20x for static applications with a maximum test frequency of 5 Hz and a data communication rate of 2.5 kHz. It has 3 external slots (expandable to 16) and an effective tensile/compressive resolution of ±1,000,000 pieces. The electronics support automatic sensor identification, linearization for tension/pressure, and zero force correction. The interface to the PC includes USB 3.0 and Ethernet 10/100 Mbit. The electronics meet CE standards and include ECO mode and E-Stop according to ISO 13850:2015.

Remote control of the machine

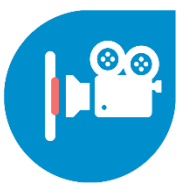
The remote control of LabTest test machines ensures high comfort and flexibility in the control of test processes. We offer various driver variants, including RMCi6, RMCi7, RMCi10 models. All controllers are designed with ergonomics in mind according to the ČSN EN 614-1+A1 standard, which ensures easy and comfortable use. Users can set any speeds and perform step on the test crossbar directly on the controller. This approach increases the flexibility and efficiency of testing, while at the same time paying attention to ergonomics and operator comfort (controllers are not part of the basic range).

Touch monitor for machine control

LabTest test machines can be integrated touch monitors that are included with the machine. The monitors are placed on a special hinge, allowing easy adjustment in both horizontal and vertical positions. The monitors run the Test&Motion+ software with a virtual machine controller, which replaces the need for external RMCi controllers. This innovation ensures more comfortable operation and increases user comfort.

Test&Motion+ Trial Software

It is included with every LabTest test machine and is designed to increase productivity and test quality. This intuitive software enables efficient and accurate test execution with a customizable environment for measuring the mechanical properties of materials. The user-friendly interface on the LCD touch screens makes it easy to operate. It supports international standards (EN, ISO, DIN, ASTM, GOST) and allows you to create and manage test methods for different types of tests. It provides immediate and accurate results, facilitates integration with automation systems, and offers easy export and management of measurement data.



Test accessories

LabTest test machines are designed with flexibility and customizability in mind, allowing for easy integration of different types of accessories. The most commonly used are VIDEO extensometers for non-contact measurement of deformations. Designed in accordance with the ČSN EN ISO 14120 standard, the protective safety covers ensure a safe working environment and the protection of the operator.

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Specification of testing machines LabTest 7.0051.1.x–500 N

Technical data	Units	LabTest 7.0051.1.1	LabTest 7.0051.1.2	LabTest 7.0051.1.3
Product code		1.050000825	1.05000925	1.05001025
Test Force	kN	0,5	0,5	0,5
Machine configuration		Single-column desktop design with internal or external electronics		
Measurement accuracy		Better than +/- 0.5% read down to 1/1000 of load cell capacity		
Workspace[1]				
Workspace Depth (D)	mm	105	105	105
Height of the test area (E)	mm	650	1110	1500
Test Frame				
Machine height (A)	mm	1065	1525	1915
Machine width with integrated electronics (B)	mm	548	548	548
Machine Depth (C)	mm	480	480	480
Electric drive				
Crossbar speed – min	mm/min	0,0005	0,0005	0,0005
Crossbar speed – max[3]	mm/min	2500	2500	2500
Crossbar Speed – Return[3]	mm/min	3000	3000	3000
Speed control accuracy	%	+/- 0,5	+/- 0,5	+/- 0,5
Position repeatability	µm	±2	±2	±2
Machine drive resolution	nm	0,477	0,477	0,477
Cycle time	Hz	2500	2500	2500
Engine type		AC servo motor with high torque thanks to special winding		
Feedback Path Measurement		21-bit absolute magnetic encoder with a resolution of at least 2,097,152 imp, HIPERFACE		
Controller		Fully digital, 4MHz pulse frequency, EtherCAT communication interface, CANopen...		
Electrical connection				
Supply voltage/frequency	V / Hz	115 or 230/50-60/1 phase		
Machine power consumption	kVA	1	1	1
Other parameters				
Basic weight of the machine	kg	60	66	72
Machine noise at V max[4]	dB	67	67	67
Color combination	RAL	1015, 5015		
PC Interface[5]		USB, Ethernet		
Environmental conditions				
Working Environment Temperature	°C	+10 ... +35		
Humidity of the working environment	%	<90		

[1] The top workspace cannot be used on these types of machines
[3] If there is no protective cover included in the test machine, the return test speed is limited in accordance with ISO 12100 and ISO 14120
[4] The noise measurement of the machine is in accordance with the standard ČSN EN ISO 3745 - Acoustics – Determination of sound power levels ...
[5] See page 7 for more information

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Specification of testing machines LabTest 7.031.1.x–3000 N

Technical data	Units	LabTest 7.031.1.1	LabTest 7.031.1.2	LabTest 7.031.1.3
Product code		1.05001125	1.05001225	1.05001325
Test Force	kN	3	3	3
Machine configuration		Single-column desktop design with internal or external electronics		
Measurement accuracy		Better than +/- 0.5% read down to 1/1000 of load cell capacity		
Workspace[1]				
Workspace Depth (D)	mm	105	105	105
Height of the test area (E)	mm	650	1110	1500
Test Frame				
Machine height (A)	mm	1065	1525	1915
Machine width with integrated electronics (B)	mm	548	548	548
Machine Depth (C)	mm	480	480	480
Electric drive				
Crossbar speed – min	mm/min	0,0005	0,0005	0,0005
Crossbar speed – max[3]	mm/min	1500	1500	1500
Crossbar Speed – Return[3]	mm/min	2000	2000	2000
Speed control accuracy	%	+/- 0,5	+/- 0,5	+/- 0,5
Position repeatability	µm	±2	±2	±2
Machine drive resolution	nm	0,113	0,113	0,113
Cycle time	Hz	2500	2500	2500
Engine type		AC servo motor with high torque thanks to special winding		
Feedback Path Measurement		21-bit absolute magnetic encoder with a resolution of at least 2,097,152 imp, HIPERFACE		
Controller		Fully digital, 4MHz pulse frequency, EtherCAT communication interface, CANopen...		
Electrical connection				
Supply voltage/frequency	V / Hz	115 or 230/50-60/1 phase		
Machine power consumption	kVA	1	1	1
Other parameters				
Basic weight of the machine	kg	65	72	79
Machine noise at V max[4]	dB	67	67	67
Color combination	RAL	1015, 5015		
PC Interface[5]		USB, Ethernet		
Environmental conditions				
Working Environment Temperature	°C	+10 ... +35		
Humidity of the working environment	%	<90		

[1] The top workspace cannot be used on these types of machines
[3] If there is no protective cover included in the test machine, the return test speed is limited in accordance with ISO 12100 and ISO 14120
[4] The noise measurement of the machine is in accordance with the standard ČSN EN ISO 3745 - Acoustics – Determination of sound power levels ...
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Specification of testing machines LabTest 7.051.1.x–5000 N

Technical data	Units	LabTest 7.051.1.1	LabTest 7.051.1.2
Product code		1.05001425	1.05001525
Test Force	kN	5	5
Machine configuration		Single-column desktop design with internal or external electronics	
Measurement accuracy		Better than +/- 0.5% read down to 1/1000 of load cell capacity	
Workspace[1]			
Workspace Depth (D)	mm	105	105
Height of the test area (E)	mm	650	1110
Test Frame			
Machine height (A)	mm	1065	1525
Machine width with integrated electronics (B)	mm	548	548
Machine Depth (C)	mm	480	480
Electric drive			
Crossbar speed – min	mm/min	0,0005	0,0005
Crossbar speed – max[3]	mm/min	1500	1500
Crossbar Speed – Return[3]	mm/min	2000	2000
Speed control accuracy	%	+/- 0,5	+/- 0,5
Position repeatability	µm	±2	±2
Machine drive resolution	nm	0,0528	0,0528
Cycle time	Hz	2500	2500
Engine type		AC servo motor with high torque thanks to special winding	
Feedback Path Measurement		21-bit absolute magnetic encoder with a resolution of at least 2,097,152 imp, HIPERFACE	
Controller		Fully digital, 4MHz pulse frequency, EtherCAT communication interface, CANopen...	
Electrical connection			
Supply voltage/frequency	V / Hz	115 or 230/50-60/1 phase	
Machine power consumption	kVA	1	1
Other parameters			
Basic weight of the machine	kg	73	79
Machine noise at V max[4]	dB	67	67
Color combination	RAL	1015, 5015	
PC Interface[5]		USB, Ethernet	
Environmental conditions			
Working Environment Temperature	°C	+10 ... +35	
Humidity of the working environment	%	<90	

[1] The top workspace cannot be used on these types of machines
[3] If there is no protective cover included in the test machine, the return test speed is limited in accordance with ISO 12100 and ISO 14120
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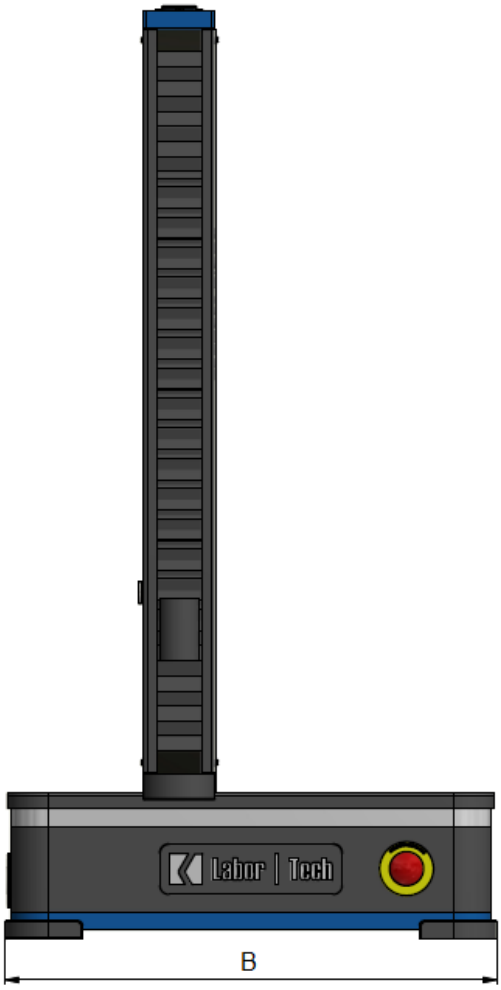
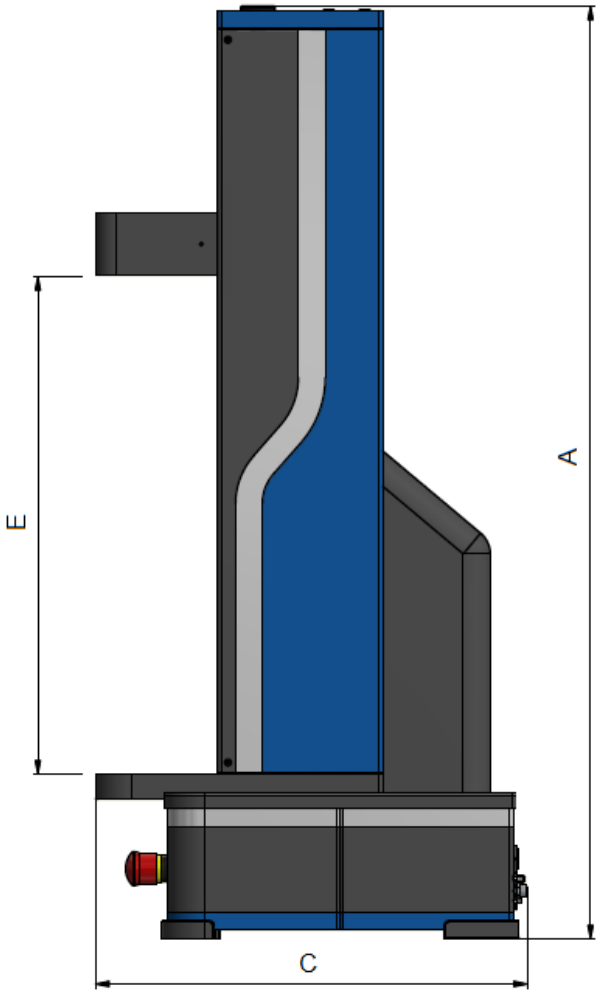
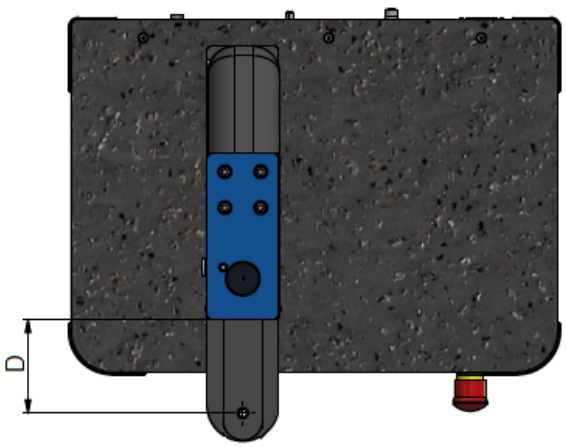
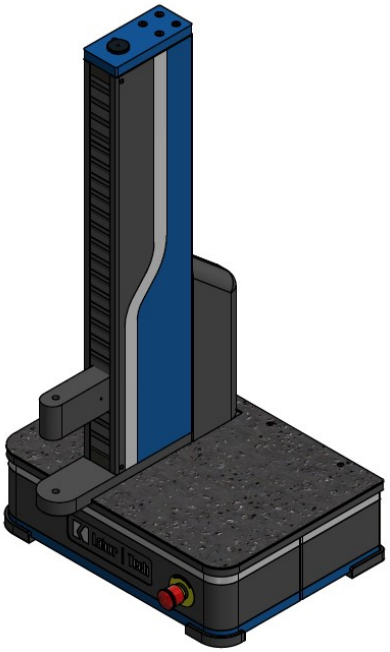
Testing Machines Diagram LabTest 7.0051.1.x to 7.051.1.xx









Various customer variants

We offer more than 15 customer variants as standard
We also supply customized applications
For more information, please contact our sales representative

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Machine electronics of the LabTest series

Technical data	Units	Parameters
Electronics for Static Applications and Low Cycle Fatigue		EDCi20x (2.001030117)
Number of external slots (expandable to 16)		3
Speed of data communication with PC	kHz	2,5
Maximum machine test frequency	Hz	5
Electronics for Static and Dynamic Applications		EDCi70x (2.001050117)
Number of external slots (expandable to 16)		8
Speed of data communication with PC	kHz	10
Maximum machine test frequency	Hz	300
Other common parameters		
Real-time channel synchronization		YES
Bit accuracy of the internal driver	Bit	64
Control loop speed	kHz	2,5
Adjustable system time	µs	400/500/600... 1000
Internal processing of measured analogue	Bit	32
Calculated Resolution – Tension/Compression	Bit	21
Effective tensile/compressive resolution at the time of integration	pieces	± 1,000,000 (100ms)
Standard Tensile/Compressive Resolution	pieces	± 250,000 (20ms)
Loading speed of measured analogue quantities	kHz	20
PC interface		USB 3.0, Ethernet 10/100 Mbit
Measurement accuracy class		0.5/1, depending on load cell, sensor calibration in accordance with ČSN EN ISO 7500-1, ASTM E4-21
Linearization of Tension/Compression Sensors Separately		YES
Automatic sensor identification		YES
Identification and LOG of exceeding the sensor's max. force F		YES
Zero force correction		YES – automatic
Possibility of connecting these input channels and quantities		iDCA – strain gauges Multi analog IO Digital IO analogue ± 10 V
		iCFA – LVDT and 10 V analogue ± strain gauges
		iINC – two incremental (A/B/R) or SSI interfaces
		iADA – four analogue outputs and four analogue inputs (+/-10 V)
		iIO - 24 V DC IO (8 outputs, 8 inputs)
		iINCX – two incremental interfaces (A/B/R) with RS485 on MFX
Possibility to connect a remote control of the machine		YES
Types of remote control		RMCi6, RMCi7, RMCi10, LTW023 wireless control
ECO mode		YES
E-Stop by		ČSN EN ISO 13850 with monitoring
CE Compliance		under the Machinery Directive 2006/42/EC and 2023/1230
Electrical connection		
Supply voltage/frequency - external electronics	V / Hz	115 or 230/50-60/1 phase
Supply voltage/frequency - internal electronics	V/DC	24
Other parameters		
Basic dimensions of external electronics	mm	99 x 463 x 244
Color combination of external electronics	L	Alu, graphite grey
Environmental conditions		
Working Environment Temperature	°C	+10 ... +35
Humidity of the working environment	%	<90

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The elements that characterize us...

We offer everything from development to implementation and listen to your needs...

Warranty and post-warranty service

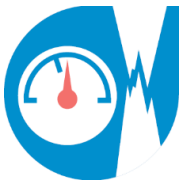
From the moment our machines are delivered, our commitment does not end. We pride ourselves on standing by our products and customers even after they leave our company. In order to ensure maximum satisfaction and peace of mind with our equipment, we provide complete online warranty and post-warranty service. With our dedicated team of experts, we are here for you to provide you with the best possible support throughout the lifecycle of our products. With our online warranty and post-warranty service, you are safe, aware of our support whenever you need it.

Ecological approach

We are proud to be a company that not only develops and manufactures quality testing machines and equipment, but also cares seriously about the environment. For us, ecology is not just a phrase, but an essential aspect of our business. We are committed to minimal environmental impact and sustainable working practices. Our commitment to the environment does not end with the possession of ISO 14001:2016 certification. We believe that every step towards sustainability is crucial for the future of our planet.

Simple operation

In our company, we place emphasis on quality training and training for the operation of our machines. We are convinced that professional competence and the ability to be easy to use are key factors in achieving optimal results and customer satisfaction. When developing our equipment, we focus not only on performance and innovation, but also on ease of use. This allows for quick adaptation and efficient work even for less experienced users. We are here to ensure that our technologies are not only powerful, but also easy to use for all users.



Reliability, accuracy and repeatability of measurements

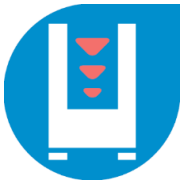
With LabTest test machines, the accuracy and repeatability of force and path measurements are our top priority. We have combined these key aspects with the high dynamics of electronics to guarantee a more affordable and efficient way to set up our devices. Thanks to the innovative approach to electronics in our testing machines, we have achieved excellent accuracy and repeatability in the testing process. The reliability of our equipment is important not only for research and development, but also for industrial and testing applications.

Versatility and versatility

Our LabTest test machines have a dual advantage: versatility and intuitive operation that brings efficiency to the tests themselves. By combining our high-quality testing machines with highly functional accessories, we offer versatility for a wide range of testing needs. This flexibility allows our customers to perform different types of tests and measurements with a single device, which is an economical and practical benefit. Thanks to these features, you can rely on precise results and trouble-free operation in everyday practice.

Security at the highest level

We strongly promote safety at the highest level, in accordance with the latest Directives 2006/42/EC and 2023/1230 and industry standards such as IEC 60947. Every product we create is the result of many years of experience, research and experimentation in the field of mechanical testing of materials. Our compliance with standards is documented by the EC and EU declaration of conformity, which is why we leave nothing to chance.



Mechanical resistance and maintenance-free operation

When developing our products, we emphasize that LabTest machines have robustness, rigidity, long life, mechanical durability and maintenance-free operation – these are our key priorities. Our offer includes professional engineering and consulting services, which are harmoniously intertwined in the design of systems and the implementation of the tests themselves.

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