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Every small detail matters...

Electromechanical Testing Machines Series

LabTest 7.100 E.2

The new generation of universal electromechanical testing machines LABORTECH LabTest 7.100 with a maximum test force of 100 kN combines modern industrial design, high frame rigidity, robust construction and the latest technologies from LABORTECH. The innovated rack design offers excellent ergonomics, easy access to the test area and high operational reliability.

The machines are designed for static tests in tensile, compression, bending, shear and torsion, including continuous and low-cycle loads up to 2 Hz. They enable precise testing of metals, plastics, composites, rubbers, textiles and finished products in a wide range of deformations.

The modular concept allows configuration with one or two test rooms, integrated or external measuring electronics and a wide range of accessories, including climate chambers, high-temperature furnaces, extensometers, pneumatic and hydraulic clamps and special fixtures.

The fully digital control system with Test&Motion+ software ensures intuitive operation, test automation, online evaluation of results and the creation of professional reports. Integrated safety systems protect the system against overload, overrun and collision in accordance with the relevant safety standards. The LabTest 7.100 combines top precision, high reliability, modular flexibility and modern design for demanding laboratories, development centers and industrial plants.

Modern design. Maximum precision. Unlimited testing possibilities.



Industry

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

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Key features and benefits of the E.2 series

We use new technologies and emphasize safety...



NEW Test Frames

The LabTest test frame is characterized by high robustness, rigidity and accuracy for a wide range of test applications. The precise crossbar guidance ensures perfect alignment, high static and dynamic load carrying capacity and resistance to off-axis loads. The frame uses a linear guide with a 300 HV hardness profile rail and highly prestressed carriages. The vertical movement of the crossbar is ensured by ball screws with high accuracy and position repeatability. The integrated lubrication system extends the service life and ensures reliable operation.



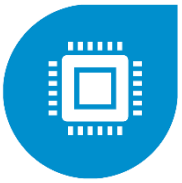
Force Sensors

LabTest testing machines use LTx Force force sensors of our own production as well as sensors from renowned manufacturers, calibratable according to ČSN EN ISO 7500-1 and ASTM E4-21. They are characterized by tensile and compressive measurements, high accuracy of class 0.02 to 0.05, overload capacity of up to 300% of the nominal force, mechanical resistance, fatigue strength and resistance to lateral forces. The integrated EEPROM memory ensures automatic sensor identification, storage of calibration constants and multi-point linearization for tension and compression.



Powerful and precise AC servo drive

LabTest test machines are equipped with powerful, dynamic and maintenance-free AC servo drives that ensure high accuracy, stability and reliability of testing. They enable constant speeds as low as 0.0005 mm/min and provide extremely precise position control and smooth movement even at extremely low speeds thanks to a feedback encoder with a resolution of up to 2,097,152 pulses per revolution. Fast response to load changes guarantees precise control of test processes. The optimized servo drive enables a return speed at least 50% higher than the standard test speed, significantly reducing retest time.



Measurement and control electronics

LabTest test machines use powerful measurement and control electronics for precise test control. Two variants are available: EDCi20x for static applications up to 5 Hz, with 2.5 kHz communication, 3 external slots (up to 16) and a resolution of ±1,000,000 pieces. EDCi70x for static and dynamic applications up to 300 Hz, with 10 kHz communication, 8 slots (up to 16) and a resolution of ±250,000 pieces. Both variants support automatic sensor identification, tension/pressure linearization and zero force correction. PC connection is provided by USB 3.0 and 10/100 Mbit Ethernet. The electronics meet CE requirements and include ECO mode and E-Stop according to ISO



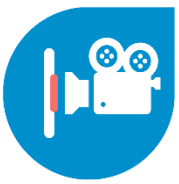
Remote control of the machine

Remote control of LabTest testing machines ensures high comfort and flexibility in control of test processes. There are RMCi6, RMCi7 and RMCi8 controllers, designed with an emphasis on ergonomics according to ČSN EN 614-1+A1. The highest model RMCi10 is equipped with a touch LCD display allowing full control of tests without connection to a PC. Speeds can be set directly on the controller and the test crossbar can be stepped. This solution increases efficiency, flexibility and comfort of operation during testing.



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. A user-friendly interface on touchscreen LCD displays 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 instant and accurate results, facilitates integration with automation systems, and offers easy export and management of measurement data.



Test accessories

LabTest testing machines are characterized by high flexibility and the possibility of integrating a wide range of accessories, including VIDEO extensometers for non-contact measurement of deformations, temperature chambers and high-temperature furnaces for metal testing according to ČSN EN ISO 6892-2. They allow testing in a wide range of temperatures, including extreme conditions. Safety enclosures according to ČSN EN ISO 14120 ensure the protection of the operator. The modular concept allows expansion by a second test room and the integration of measuring and control electronics according to individual customer requirements.

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LabTest 7.100.1.xx Testing Machine Specifications – D640 mm

Technical data	Units	LabTest 7.100.1.10	LabTest 7.100.1.20	LabTest 7.100.1.30
Product code		1.05061125	1.05061225	1.05061325
Test Force	kN	100	100	100
Machine configuration		Double-column desktop or rack design with internal or external electronics and LCD		
Measurement accuracy		Better than +/- 0.5% read down to 1/1000 of load cell capacity		
Workspace				
Workspace Width (D)	mm	640	640	640
Test Chamber Height – Lower (E1)	mm	1045	1445	2265
Test Chamber Height - Top (E2) [1]	mm	1055	1455	2275
Test frame - stand version				
Machine height – stand version (A)	mm	1750	2235	2970
Machine width with integrated electronics (B) – MI version – rack version[6]	mm	1220	1220	1220
Machine width with external electronics (B) – MO[2] version	mm	1389	1389	1389
Machine Depth – Rack Version (C)		900	900	900
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	2500	2500	2500
Speed control accuracy	%	+/- 0,03	+/- 0,03	+/- 0,03
Position repeatability	µm	±1.5	±1.5	±1.5
Machine drive resolution	nm	0,12245	0,12245	0,12245
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, CAN open...		
Electrical connection				
Supply voltage/frequency	V / Hz	3Ph/N/PE/400V/50-60Hz		
Machine power consumption	kVA	4	4	4
Other parameters				
The basic weight of the machine without	kg	318	355	394
Machine noise at V max[4]	dB	65	65	65
Color combination	RAL	1015, 5015		
PC interface		USB, Ethernet		
Environmental conditions				
Working Environment Temperature	°C	+10 ... +35		
Humidity of the working environment	%	<90		

[1] The upper working area is not in the base of the testmachine (such as accessories), the width of the machine is only a test frame without an LCD monitor
[2] Machine weight is without force sensor and test fixtures
[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] Minimum resolution at 2,097,152 imp/rp, at encoder resolution 8,388,608 imp/rp, machine resolution is 0.03178 nm
Technical changes to parameters reserved

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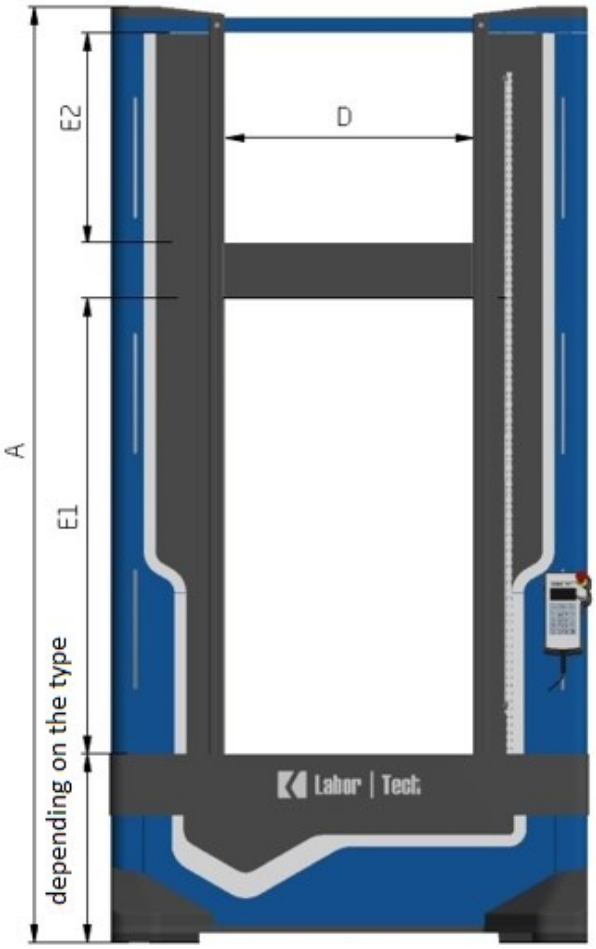
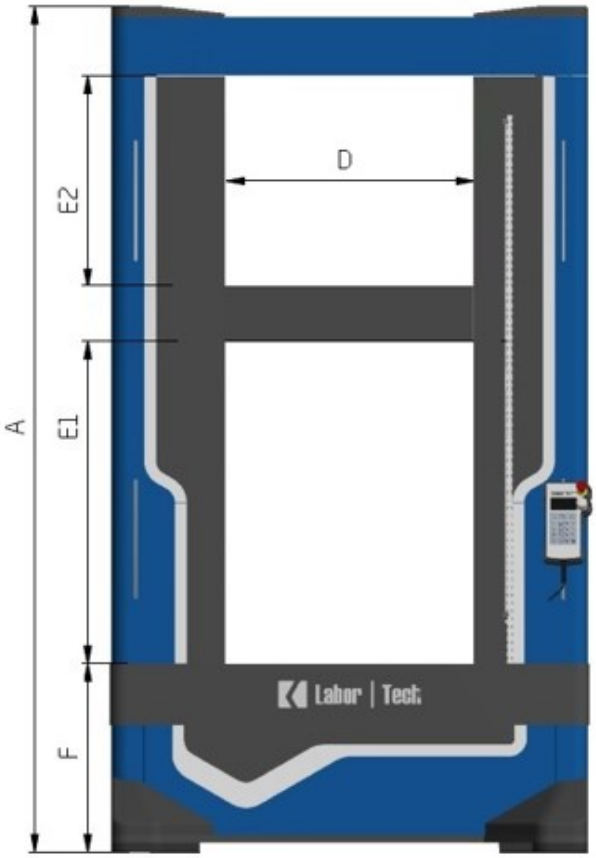
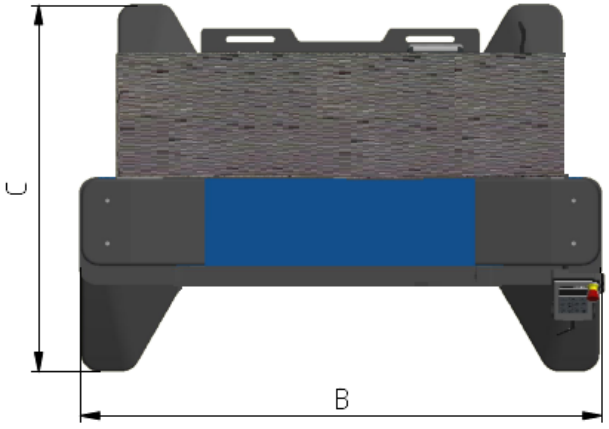
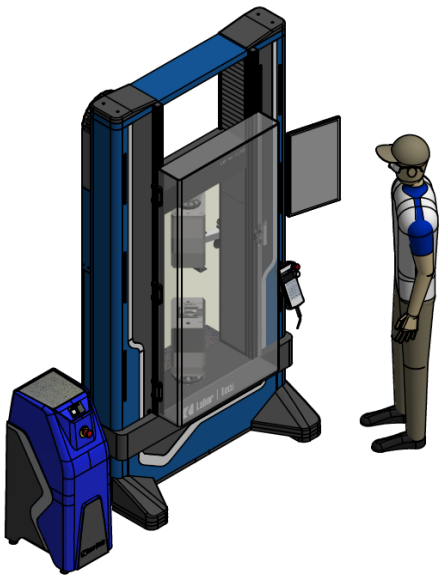
LabTest 7.100 Testing Machine Diagram









Various customer variants

We offer more than 50 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	**EDCi20**	
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	**EDCi70**	
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 quantities	Bit	32
Calculated Resolution – Tension/Compression	Bit	21
Effective tensile/compressive resolution at the time of	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 – MO	V / Hz	115 or 230/50-60/1 phase
Supply Voltage/Frequency - Internal Electronics – MI	V/DC	24
Other parameters		
Basic dimensions of external electronics – MO	mm	99 x 463 x 244
Color combination of external electronics – MO	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 very moment our machines are delivered, our commitment does not end. We pride ourselves on constantly standing behind our products and customers even after they have left our company. In order to ensure you are as satisfied and carefree as possible 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 entire lifecycle of our products. With our online warranty and post-warranty service, you are safe, aware of our support whenever you need it.



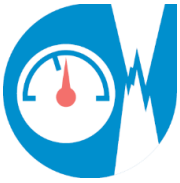
Ecological approach

We are proud to be a company that not only develops and manufactures quality testing machines and equipment, but also takes the environment seriously. 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 having an ISO 14001:2016 certificate. We believe that every step towards sustainability is crucial for the future of our planet.



Simple operation

In the company, our company emphasizes quality training and training for the operation of our machines. We believe that professional competence and the ability to be easy to use are key factors for 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 the electronics to guarantee a more affordable and efficient way to set up our equipment. With an innovative approach to electronics in our test 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 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 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 blend harmoniously in the design of the systems and the implementation of the tests themselves.

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