Labor Tech

Every small detail matters...

Impact pendulum hammers for metals series CHK 750 J

The quality of the impact resistance of a sample or part is a measure of durability and durability. The impact resistance of materials or parts is one of the most important features that designers must take into account when designing products. In these tests, loading takes place very quickly, so-called shock, where the impact value of materials can change with temperature. Exactly for the measurement of these parameters offers LABORTECH LabTest impact pendulum testers with nominal energy of 750 J with accuracy, rigidity, safety, reliability, originality and ergonomic design. With the central integrated control of the machine LCD TOUCH monitor, you have everything under control, from the measured data to the actual course of the test. Modification of impact testers up to 750 J:

basic, instrumented, with angular adjustment...



Key features

- Very rigid foundation structure with 4 levelling holes.
- Centrally ergonomically positioned controls for easy operation and testing.
- Automatic arm lift using a special magnetic gearbox with integrated AC motor, controlled converter with electronic brake.
- Protective safety cover with electronic door opening monitoring and high safety according to ČSN EN ISO 13849-1, ČSN EN ISO 12100 and ČSN EN ISO 14120.
- Quick replacement of the outriggers and pendulum ensures simple and convenient operation for the user, even in harsh industrial environments.
- Lowering and breaking the sample after closing the door within 5 seconds.
- Integrated sampling box designed for the collection of broken samples with an efficiency of up to 95 % intended for further use (metallographic analysis, etc.) in the base of the machine.
- Integrated LCD touch screen monitor with PC in the machine frame with intuitive and powerful IMPACTTest-BASIS software at the base of the machine with the possibility of storing data in a database.
- Analog and digital display of impact energy.
- High-resolution incremental encoder up to 72,000 imps per revolution for precise angle measurement.
- Automatic identification of mallets and cutting edges.
- Centering of samples in the base of the machine.
- Possibility to import data from the OPTOLab system 55 II.

Types of tests according to standards

- Impact tests of metals using Charpy, Izod, Dynstat, Brugger, impact tensile test etc. according to ČSN EN ISO 148-1, ČSN EN ISO 148-2, ČSN EN ISO 14556, ČSN EN ISO 11343, ASTM E23, BS131-1, GOST 9454-78.

Industrial deployment

- engineering, metallurgical, aerospace and nuclear industries, research institutions, universities, etc.

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Modification modules of impact testers

Module – BASIC



- Base module integrated in IMPACTTest software.
- Defined basic types of tests in the database – Charpy, Izod, Brugger, impact tests in tension of metal samples, etc.
- Digital and analogue display of measured values.
- Storing measured data in a database with the possibility of filtering by definition, order, date, etc.
- Automatic identification of the ram and blades in the base of the machine.
- Integrated calibration mode – ram weight, swing radius, initial angle, actual energy, friction correction, swings – time – angle, calibration of cutting edges and supports, etc.

Module – I – Instrumented test

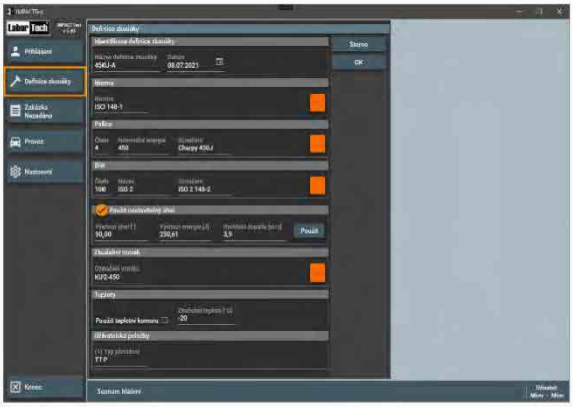


- Automatic recording of instrumented test results including retrospective modification and evaluation according to EN ISO 14556:2015.
- Recording of multiple curves, zooming using ZOOM – finding x, y coordinates for individual samples, etc.
- Dynamic linearization of ASTM E 2298.
- Linearization of instrumented cutting edges including calibration according to ČSN EN ISO 148-2, ASTM E 23, ASTM E 2298 and ČSN EN ISO 7500-1.

Ratings	Units	Module-I
Sampling rate*	MHz	4
AD converter	bit	16
Track resolution	mm	< 0,07

*For four measuring channels

Module – A – continuously adjustable starting angle



- Setting up and capturing the test ram with a special magnetic coupling that offers unprecedented possibilities to perform notch toughness testing associated with the development of new materials.
- Freely electronically adjustable starting angle with an accuracy of 0.05° **without any angular limitation.**
- After starting the test, the arm is adjusted to a predefined position, waiting for stabilization and the sample is broken.

Ratings	Units	Module-A
Adjustable impact speed – max 5,5 m/s	%	3 až 100
Adjustable starting energy – max 450 J	%	7 až 100
Continuously adjustable start angle	%	15 až 100

Unlimited combinations

Individual basic modification modules can be combined with each other and thus increase the versatility of impact testers of the CHK series from LABORTECH.

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Individual parts of impact testers

Test ram

- In some standards, the impact energy is associated with the energy of the test ram. LABORTECH offers test rams in these modifications: 150 J, 300 J, 450 J and 750 J.
- The carbon bearing of the ram ensures stability and minimal vibrations
- Replacing the test ram is simple with 2 screws.
- Identification of the test ram is a matter of course.



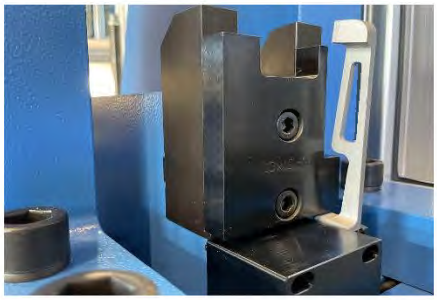
Test edges and supports

- The type of test lips and supports is always associated with the test standard. LABORTECH offers the following edges: radius 2 or 8 mm – standard and instrumented – Charpy method, as well as cutting edges for Izod method and other standards.
- Changing the cutting edges is simple with 4 screws.
- Identification of test blades is a matter of course.
- The test abutments are designed in such a way that samples do not remain in the working area after breakage and are therefore suitable for serial testing.
- Test abutments can be used at multiple support points, and therefore the service life is 4 times higher.



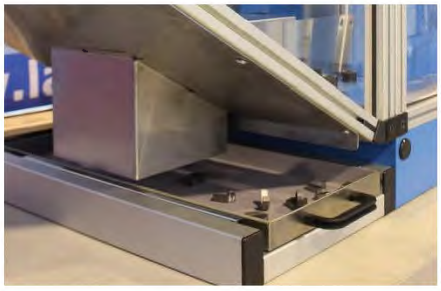
Centering equipment

- LABORTECH offers 3 types of centering equipment for its machines.
- Center centering — allows you to center the pattern exactly centered according to the notch. After insertion of the sample, the central stop is electromagnetically released.
- Lateral centering – the pattern is centered along the side edge of the sample. After insertion of the sample, the side stop is electromagnetically released.
- Centering with pliers – the pliers are adapted so that the sample is precisely grasped by the central stop and precisely and quickly placed between the abutments even if the sample is cold to -80 °C.



Collection of broken samples

- Each impact tester of the CHK.2 and CH.3 series from LABORTECH includes a pull-out collection box designed for collecting broken samples and a collection tunnel.
- This tunnel has an efficiency of up to 98 % in catching broken test samples, so the samples after breaking are not located in the working area of the machine, but in a precisely defined place – a pull-out box.



Concrete foundation

- According to EN ISO 148-2, an impact pendulum rocker must have a base weight of at least 40 times the pendulum energy.
- If the customer is not able to ensure this condition, LABORTECH offers its customers a special design concrete foundation with preparation for anchoring the impact hammer.
- The foundation of LABORTECH has a weight of 2650 kg.
- The surface treatment as well as the color can be chosen by the customer according to his wishes, completely free of charge.

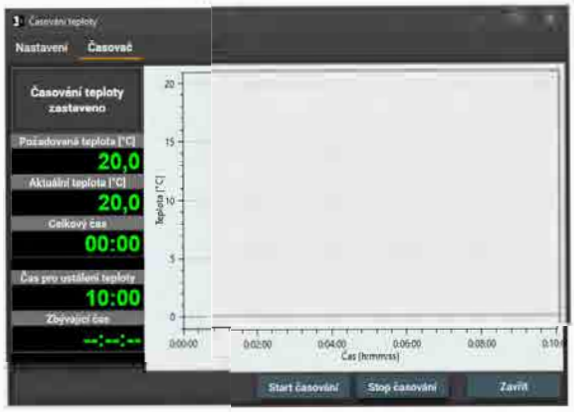


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Extension modules of impact testers

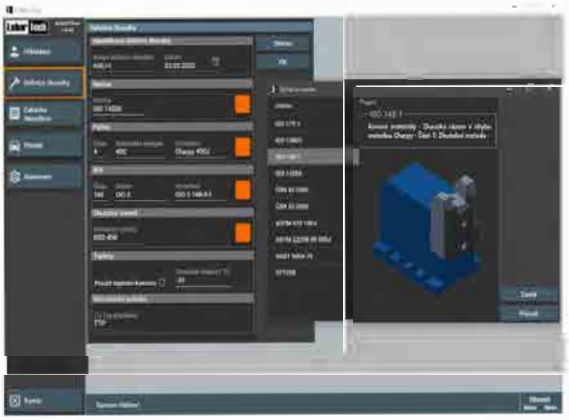
Module – T – automatic temperature monitoring

- Automatic temperature monitoring and mutual communication with the LABCool 21 cooling chamber.
- Setting parameters – coolant temperature tolerance, time setting for temperature stabilization, time setting for temperature stabilization after dropping out of tolerance, setting units at X and Y axes in the graph, tolerance field, etc.
- After the timing is finished, the background of the information message will be changed in green and the "Start test" button on the machine panel will be unlocked.
- Display – desired temperature, current temperature, total time, time for temperature stabilization, remaining time, graphical display of the waveform, etc.



Module – BR – robotic workplace X-RUNNER

- The BR software module is designed for the BLUE RUNNER and YELOW RUNNER robotic systems from LABORTECH.
- These systems were created primarily to minimize the operator's influence on the reproducibility of test results by loading and breaking samples within 5 seconds, as required by EN ISO 148-1.
- Automatic selection of samples from a defined container.
- Communication and control with the temperature chamber for temperatures up to -95 °C, including the storage system. Communication with optical inspection of OPTOLab 55 II samples, including database exchange of measured data.
- This module can be applied to both the BASIS module and module I, A or combined IA.



Module – O – Inspection of sample dimensions

- Data acquisition module from the OPTOLab 55 II optical system.
- Display of measured values with given tolerances directly on the sample.
- Storing all values in a database with filtering of individual parameters.

Data transfer from the OPTOLab system	Units
Sample height	mm
Sample length	mm
Sample width	mm
Axis distance	mm
Výška pod drážkou	mm
Height under the groove	°
Axis angle	°
Radius of the root	°
Side angle	°



Activating modules

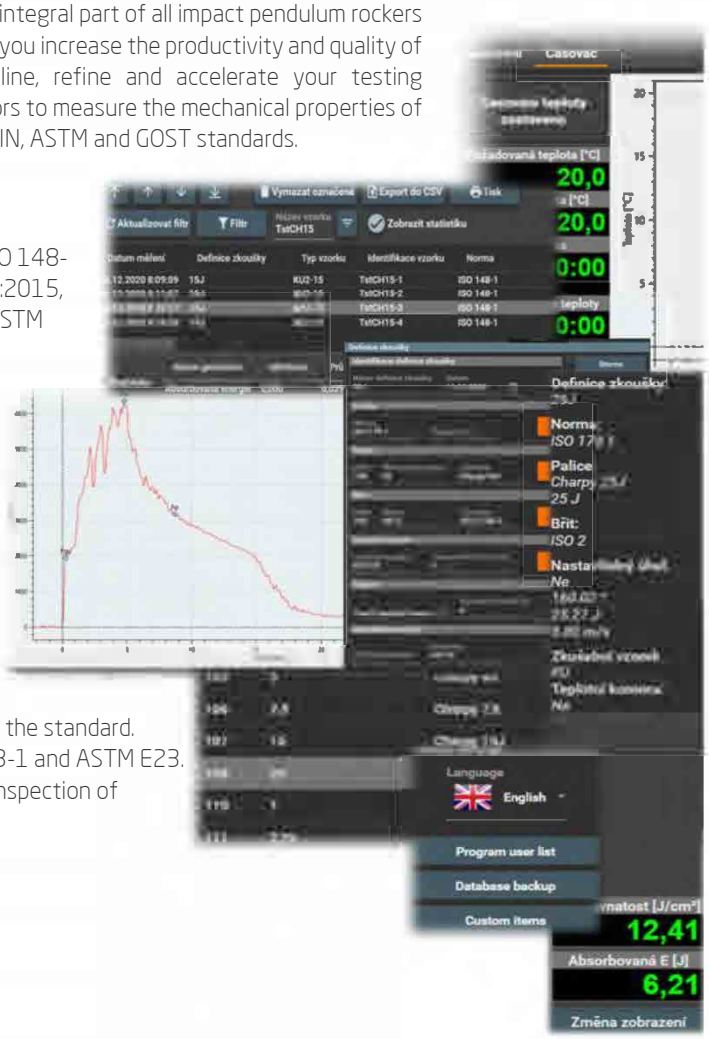
If you decide to buy an optical sample size inspection OPTOLab 55 II, a chamber for cooling samples LABCool 21 or a robotic workplace X-RUNNER from LABORTECH together with the impact tester, we will automatically activate the individual impact impact impact module for you.

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Software IMPACTTest – BASIC

Measuring the impact strength of materials and the impact force course that you will love...

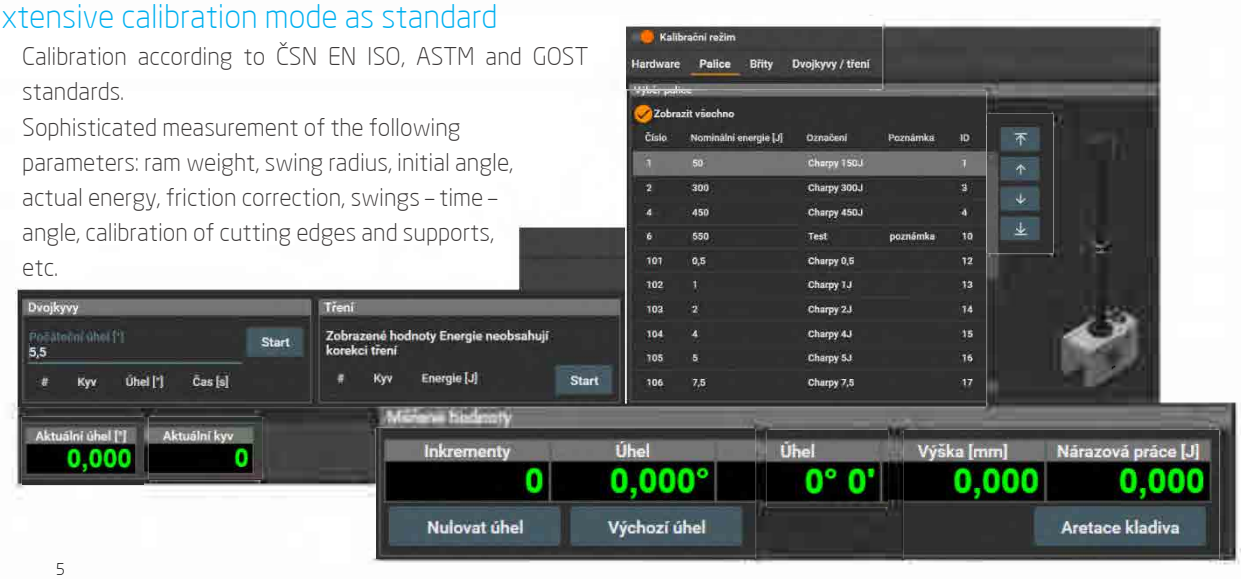
IMPACTTest – intelligent, intuitive and powerful software that is an integral part of all impact pendulum rockers of the LabTest CHK series from LABORTECH. This software will help you increase the productivity and quality of testing in your testing rooms and test labs. You can streamline, refine and accelerate your testing and customize your environment testing to make it easy for operators to measure the mechanical properties of materials using the notch toughness method according to EN, ISO, DIN, ASTM and GOST standards.



- Intelligent, intuitive and powerful software designed for fast and rational impact tests.
- Software designed for impact in bending according to ČSN EN ISO 148-1, ČSN EN ISO 148-2, ASTM E23, GOST 9454-78, EN ISO 14556:2015, ČSN 42 0382, ČSN 42 0383, EN ISO 179, ISO 9854, ISO 8256, ASTM D1822, ASTM D256.
- Unlimited number of test methods, modular system of libraries designed for standard tests, easy orientation in pre-selected definitions with visualization of supports, edges and mallets.
- Editable types of samples and testing standards, including modification of item names.
- Digital display of all current values including analog energy display.
- Storing measured data in a database with the possibility of filtering by definition, order, date, etc.
- Statistical evaluation of data and graphs, extensive selection of statistical methods.
- Extensive calibration mode according to EN ISO 148-2 already in the standard.
- Automatic cooling timing before testing according to EN ISO 148-1 and ASTM E23.
- Data transfer from temperature chamber, thermometer, optical inspection of OPTOLab 55 II samples, VRE notching device, etc.
- Multilingual version (CZE, EN, DE, FR, POL, RU, ESP, etc.)
- Print the report in PDF format.
- Export dat do CSV – BASIS, nebo do MY SQL a MS SQL.
- Perpetual license.
- Installation on any computer without using a license, etc.

Extensive calibration mode as standard

- Calibration according to ČSN EN ISO, ASTM and GOST standards.
- Sophisticated measurement of the following parameters: ram weight, swing radius, initial angle, actual energy, friction correction, swings – time – angle, calibration of cutting edges and supports, etc.



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Specification

Ratings	Units	CHK 750 J
Product code		1.09030017
Maximum working range	J	750
Fall height	m	1533
Resolution at max. working range	J	0,0062
Angular resolution	°	0,005
Max. hammer impact velocity	m/s	5,5
Calibration mode according to		EN ISO, ASTM, GOST
Machine weight without cover and	kg	1258
Housing weight	kg	162
Weight of concrete foundation	kg	2650
Environmental conditions		
Temperature of the working	°C	+10 ... +35
Storage temperature	°C	-25 ... +55
Humidity of the working environment	%	<90
Electrical connection		
Supply voltage / frequency	V	200 to 240 V
Number of phases		1
Frequency	Hz	50-60
Wattage	kVA	0,55
Other parameters		
Color combination	RAL	1015, 5015
PC interface		Ethernet, USB ...

Measurement parameters		
Aries	**Resolution at 15 J**	**Measuring range from**
300	0,016	0,4
450	0,023	0,6
750	0,046	0,9

Accessories	
Product code	**Product name**
2.330717	Instrumented Striker – 2 mm
2.330517	Instrumented Striker – 8 mm
2.330017	Charpy Pendulum 75 J
2.3318-2017	Izod Pendulum 150, 300, 450 J
2.332317	Striker Izod – SH
2.332317	Instrumented Striker Izod
2.332417	Fixture anvil for Izod
2.332517	Striker for tensile test
2.332617	Device for clamping samples with threaded
2.332717	Instrumented Striker
2.3328-2917	Brugger Pendulum 300, 450 J
2.333117	Striker for Brugger
2.333217	Instrumented Striker Brugger
2.333317	Fixture anvil for Brugger



