

Product Information

Pendulum Impact Tester RKP 450



Range of application

- Impact and impact bending tests on metals (Charpy, Izod – conventional and instrumented)
- Bruggen-Method tests to ensure the wear characteristics of toothed gear wheels
- Wedge-impact test to determine the strength characteristics of structural adhesives

An operationally ready instrument includes:

- Basic instrument, with electro-magnetic pendulum release and motorized pendulum return, grout and heavy duty screw anchors, electrically monitored safety device and safety housing
- Steel armament or concrete base
- Test specific accessories such as vises, supports and anvils, pendulums and fins
- Optional accessories such as PC equipment or specimen temperature units

Basic instrument

The basic instrument is designed to be mechanically stiff and is made of vibration damping cast iron. It is leveled on the foundation with the aid of three leveling planes, then casted with the grout and anchored with four bolts.

Safety device

Zwick pendulum impact testers in size category RKP 450 satisfy the EC Machinery Directive 2006/42/EC, the EN ISO 12100 as well as the EN ISO 13849-1/2.

This means that the failure of a single safety monitoring element must not pose any risk to the operator. As a result, the RKP 450 has been updated in this area, and the safety device fully complies with the requirements of national and international standards.

Important characteristics and functions of the safety device:

- It is equipped with a double safety protection system using twin, certified, independently operating control units, special safety switches and components.
- It monitors the pendulum impact tester according to its operational mode (e.g. test or set-up mode)
- It recognises incorrect operation and displays this with blinking signals on the operating keys
- It allows the pendulum to be released via a push button integrated into the door handle. The test can then be started immediately after closing the safety door. This is important for tests according to ISO 148 and ASTM E 23 on temperature conditioned specimens, which must be tested less than 5 seconds after removing them from the temperature unit.

Safety housing

The design of the safety housing facilitates easy handling during the testing process, changing tools, pendulums or fixtures, re-configuring different test types and maintenance and calibration. Operating components are centralized and illuminated to show the machine status and error messages, making the RKP450 safe, simple and fast. Front door, side doors and specimen removal slot allow:

- Simple placement of the specimen
- Quick changing of the vise and the pendulum
- Easy access during maintenance, inspection and calibration
- Easy removal of specimen remains

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Installation

According to international Standards, the base frame should be firmly anchored to the floor. This is done either with

- A steel reinforcement for the foundation. The making of the foundation is performed by the customer.
- Or with a ready-made concrete foundation with > 40 times the mass of the largest pendulum, incorporating steel reinforcement. The foundation is equipped with metal lugs for bolting to a solid cement floor.

Please pay attention to the remarks in PI 476.

Technical data for the basic instruments

Electrical connections: 3 x 400 V, 50 Hz, 0.5 kW; dimensions with foundation (height x width x depth): 2450 x 2000 x 1000 mm; weight without foundation approx. 700 kg; impact velocity: 5.23 m/s
 Corresponds to following safety requirements: EC Machinery Directive 2006/42/EC, EN ISO 12100 and EN ISO 13849-1/2
 Test standards: ISO 148-1, ISO 14556, DIN 50115, ASTM E 23, BS131-1, ZF 15-53, ISO 11343, JIS Z 2242, GOST 9454-78.
 Indirect verification and acceptance with reference test piece:

- According to ASTM E 23 in the NIST specimen range: low (14-20 J) and high (88-136 J), super high currently not available
- According to ISO 148-2 in the ERM or ZRM specimen range: low (<20 J), mean (30-110 J), high (110-220 J) and super high (>220 J) energy

Basic instruments

Description	Item number
Pendulum Impact Tester RKP 450 AR with analog display: the affordable option for tests without PC	326195
Pendulum Impact Tester RKP 450 GE with digital and analog display: for „plug and play“ USB connection to PC for testing in production and quality control	326197
Pendulum Impact Tester RKP 450 IR with analog display and high speed electronics: for instrumented tests	027178
Pendulum Impact Tester RKP 450 KIR with analog display and high speed electronics: for instrumented wedge impact tests according to ISO 11343 and EN 14493	027179
A PC and a Standard or Master Test Program testXpert II are required for the RKP 450 GE, IR and KIR models	

Environmental conditions

Description	Item number
Steel reinforcement for construction of on-site foundation	940438
Ready-made concrete foundation including steel reinforcement and lugs for fixing to a solid cement floor, Foundation weight: approx. 1500 kg	940439

Options

Description	Item number
Pendulum hammer 150 J	326203
Pendulum arm for pendulum heads 300 J and 450 J	326205
Pendulum head 300 J	326207
Pendulum head 450 J	326209
Tools for different test methods (Support, anvil, ...)	On request
Anvils and tups in different quality depending on application's requirements (specimen material, specimen throughput)	On request
Temperature chambers from - 190 °C to + 180 °C	On request
Pendulum release unit for tests at an impact velocity of 3.7 m/s or 5.23 m/s	On request
Height adjustment for the pendulum hammer for tests with variable impact speeds	On request
Reference specimen for indirect commissioning of RKP instruments to ASTM E 23, EN 10045-2 (Charpy)	On request
Transformers for adaptation to various mains voltage conditions and leakage current reduction	On request