Zwick Roell

Zwick
Materials Testing

Product Information

Pendulum Impact Tester RKP 450

Range of application

- Impact and impact bending tests on metals (Charpy, Izod – conventional and instrumented)
- Brugger-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 protection units and protection housing
- Steel armament or concrete base
- Test specific accessories such as vises, supports and abutments, 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.

Protection unit

High capacity Pendulum Impact Testers such as the RKP 450, must fulfil the safety requirements of EN 954-1, category 3. 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 protection unit fully complies with the requirements of national and international standards.

Important characteristics and functions of the protection unit:

- 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.

Protection housing

The design of the protection 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

PI 475 2.0313

Product Information

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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: (height x width x depth): 2000 x 1920 x 500 mm; weight without foundation approx. 700 kg; impact velocity: 5.23 m/s
Corresponds to following safety requirements: EN 62061-Level 2, EN 954-1 Category 3, DIN 51233, EN ISO 12100-1/-2
Test standards: ISO 148-1, DIN 50115, ASTM E 23, EN 2003-1, BS131-1, ZF 15-53, ISO 11343, JIS B 7722
Indirect verification and acceptance with reference test piece:
• According to ASTM E 23 in the NIST specimen range: low (13-20 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 diffenrent 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**

All data at ambient temperature.