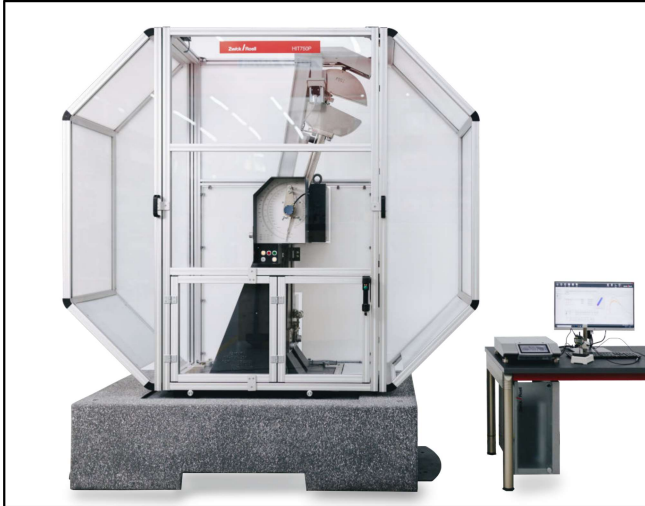


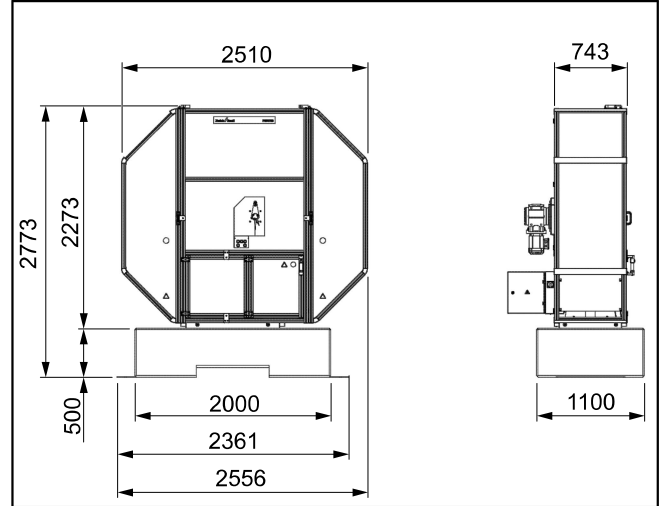
Product Information

HIT750P pendulum impact tester for metal specimens

CTA: 236327 237059



HIT750P pendulum impact tester



Pendulum impact tester HIT750P, dimensions

Applications

The HIT750P can be used for tests to the following standards: ISO 148-1, ISO 14556, ASTM E23, JIS Z 2242, GOST 9454-78, DIN 50115 (withdrawn).

- Impact bending tests on metals (Charpy, conventional and instrumented)
- Impact tensile tests on metals

Function description

The basic instrument is equipped with many functions. Automatic pendulum lifting and the electro-magnetic pendulum release increase operating comfort and avoid user errors. The specimen can be quickly and easily inserted through the large hinged door on the front. This makes it possible to stay within the preset test time of 5 seconds for temperature-conditioned specimens with no problem. All doors are equipped with safety monitoring to ISO 13849-1 and correspond with the safety requirements of the EG Machinery Directive 2006/42/EG, EN ISO 12100 and EN ISO 13849-1/2.

Advantages and features

The new user interface saves time and money

- Training is unnecessary: ZwickRoell testing machines and instruments are operated with the same user interface logic.
- Plug and play: Common standards are already set up in the ZwickRoell testing software.

Reliable test results

- Plausibility check of test results enabled by a combination of electronic and analog displays.
- The air and bearing friction of the pendulum hammer and the friction of the analog display drag pointer are determined and evaluated with support from the software.
- Transmission errors are eliminated: Measurement data from the caliper are read in directly; test series can be transmitted to a PC via a USB port.
- The instrumentation determines further important material-specific properties in addition to the potential energy, e.g. force/time characteristic lines.

Safety and ergonomics

- Complies with the requirements of ISO 13849.
- With the safety device it is possible to release the pendulum using an integrated release button on the door handle. Immediately after closing the safety device, the test can be initiated. This allows for quick testing of temperature-conditioned specimens.

Reduced operating costs

- Anvils made of modern materials with high-quality coatings reduce wear and tear.

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The basic instrument includes:

- Analog display
- Integrated impact fixture
- Safety device, electrically interlocked, CE-compliant
- Motorized pendulum lift
- Pendulum brake and release
- Pendulum rod for Charpy and impact tensile pendulum heads
- Specimen-centering tongs for Charpy specimens
- Tool
- Assembly aid for pendulum changes
- Charpy specimens for initial tests

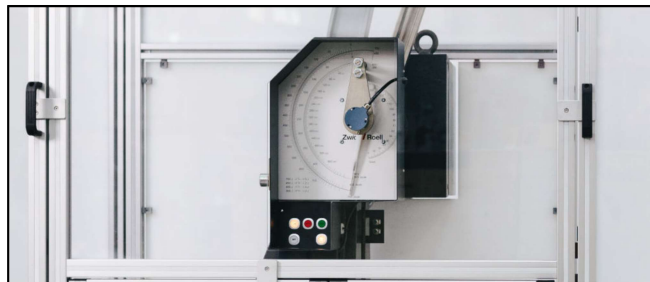
Analog/digital display

Two systems, which can also be used in combination, are available for the determination of the impact energy:

Analog display: The analog display of the HIT750P directly indicates the absorbed impact energy in joules. Conversion of the scale units is not necessary, because based on the energy of the hammer, corresponding scales are mounted on the dial. The parallax free display presents the measurement results repeatably. The robust mechanical design and ease of operation have proven themselves at ZwickRoell for decades.

Digital display/instrument electronics: The high resolution instrument electronics enable standard-compliant testing with a 750 J hammer starting at 1.5 J. The smallest impact energies are recorded with accuracy. Changing pendulums to lower energy values is unnecessary, eliminating set-up time. In connection with the electro-mechanical pendulum release the system works operator-independently and provides reliable test results. The electronics support common calibration methods with the Help function and are prepared to operate with a PC and testXpert III.

Tip: Especially in the case of test results for specimen materials with large scatter, a combination of analog display with the instrument electronics is useful. This allows for a plausibility check after every impact.



Analog display



Digitale touch display

Pendulum hammer

In some standards the specimen break energy is assigned to a pendulum hammer energy. Accordingly, for the HIT750P, the pendulum hammers are available in 300 J, 450 J, 600 J and 750 J.

Concrete base

For standard-compliant operation of a pendulum impact tester the mass of the base must amount to 40 times the pendulum energy. For efficient operation ZwickRoell recommends the concrete base specially manufactured for the HIT750P. The instrument is permanently set up using leveling units and casting compounds, so that a clean calibration is ensured. Alternatively, reinforcing steel bars are available for in-house construction of the concrete base.



Concrete base

Anvil/tup

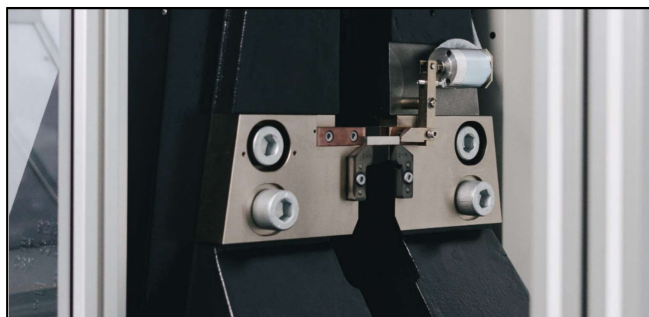
Wear to tups and anvils can be reduced by selecting appropriate materials. Available from ZwickRoell is a wide range of different materials. Based on experience it has been possible to determine the following guide values for the average life expectancy of anvils and tups with specimens of low-alloy iron-based materials.

Anvils made of S1 materials can be supplied on request. These are special materials developed by ZwickRoell for the most demanding applications and display outstanding wear properties, particularly with specimen materials made of high-alloy and corrosion-resistant steels.

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Anvil

Guide values for average life expectancy of anvils and tups with specimens of low-alloy iron-based materials

As referred to above, these values may be exceeded in individual cases, but may also fail to be attained by a considerable margin. In extreme cases single tests can result in anvils becoming unfit for further use.

	Recommendations		Experience
	Inspect after number of tests	Replace after number of tests	Average service life/ number of tests
Anvil			
TS	50	1500	3000
HSS	100	3500	7000
PM	150	7000	14000
Tup			
TS	200	9000	18000
PM	300	15000	30000

Number of Charpy tests if anvils and tups are regularly and well maintained, with absorbed impact energies below 80% of the nominal initial potential energy of the pendulum impact tester in use.

Instrumented tests

In instrumented tests the force is measured during the impact. The result obtained is in the form of a force-time curve. All the required components can be selected or retrofitted on a modular basis. The sampling rate of ZwickRoell measurement electronics is 4 MHz and is three times as high as the basic physical principles require. This allows an extremely high level of fidelity to be achieved for high-speed processes.

known, the displacement on impact can be calculated via a double integration method. This method is commonly used and is permitted for evaluation in most standards. It offers good travel resolution and accuracy. This method eliminates the need for expensive high-speed travel-measuring instruments which are not necessarily more accurate.

Deformation measurement

Deformation can be determined indirectly via a calculation method. Because the impacting mass is

Type	HIT750P	
Item No.	1086220	
Nominal potential energy	750	J
Drop height	1500	mm
Impact velocity	5.42	m/s

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Type	HIT750P	
Item No.	1086220	
Weight		
Without pendulum hammer	3186	kg
Concrete base	2520	kg
Safety device	130	kg
Dimensions, with base		
Height	2773	mm
Width	2556	mm
Depth	1100	mm
Ambient temperature	+10 ... +35	°C
Temperature during storage and transport	-25 ... +55	°C
Relative humidity (non-condensing)	20 ... 90	%
Test results, numerical	Impact energy [%], impact energy [J], impact strength [KJ/m ²]	
Output units	Analog display, digital instrument electronics	
Pulse resolution	0.036	°
Interfaces	<ul style="list-style-type: none"> • Ethernet port to connect a PC • 2 x USB port to connect a printer or USB stick or USB Multiplexer • 2x RS232 interface 	
Power input specifications		
Power supply	400	V
Phases	3Ph/N/E	
Permissible voltage fluctuation	±10	%
Power consumption (full load), approx.	1	kVA
Power frequency	50/60	Hz

Accessories

To specify suitable accessories for your testing requirements please contact our Sales Department.