

PENDULUM IMPACT TESTERS

9000 Series



The Instron 9000 Series of pendulum impact testers are designed for determining the impact resilience of thermoplastics. Available in capacities from 0,5 to 50 Joules, the 9050 models are reliable and easy to operate.

SIMPLIFY YOUR TESTING

- Work safer and efficiently with ergonomic set-up of the hammers and specimen supports.
- All-In-One. Easily switch from high (50J) to low (0,5J) energy hammers and from Charpy to Izod configuration with one pendulum.
- With the integrated touch panel PC take control of your testing and maximize lab efficiency using the extensive set of test parameters stored for prompt use.
- Along with a double braking surface and convenient position, the hammer disk brake assures high torque, low effort and smooth operations.

WORK SMARTER

- The touch panel PC shows information, such as percentage of the absorbed energy, ensuring operators that each test is run according to the testing standards.
- The “one piece” patented hammer structure, specifically designed to reduce the energy wasted in vibration, ensures incomparable rigidity and superior accuracy.
- With the optional software, add value to your results and export anything post-test, from a professional report with graphs and tables to customized text files.
- The optional thermal conditioning chamber, positioned to enclose the specimen vice, guarantees quick time to impact when testing at low temperatures.

SECURE THE FUTURE

- The advanced electronics automatically recognizes the mounted hammer and retrieves all its relevant data from the internal database, eliminating the risk of manual errors.
- When performing pendulum impact tests, accurate energy values can only be achieved with a system made of a robust monolithic structure and a precise non-contacting magnetic encoder able to ensure zero friction.
- Safety guards, both for manual and motorized versions, prevents unwanted access to the test area ensuring maximum protection.
- All Instrumented hammers are free of wire: any downtime due to hammer connection set-up and damages to the wire are eliminated.

MOST COMMON APPLICATIONS

Charpy and Izod impact testing are the most popular methods of determining the impact strength of a material. These tests measure the total amount of energy that a material can absorb. This energy absorption is directly related to the brittleness of the material. Understanding a material's energy absorption properties is critical, as it predicts how much plastic deformation the material will be able to withstand before catastrophic failure. While both the Izod and Charpy methods measure similar properties, the crack propagation is different because specimen design and testing configuration are different.

	Charpy Impact Test	Izod Impact Test
Strengths	<ul style="list-style-type: none"> • Broader range of applications: different specimen orientations can explore both bulk and surface impact resistance • Instrumented test for a complete impact profile 	<ul style="list-style-type: none"> • One impact velocity • Similar method for both ISO and ASTM standards • High repeatability
Weaknesses	Un-constrained specimen (specimen is supported at its two ends on an anvil)	<ul style="list-style-type: none"> • Repeatable clamping force needed • More resonance in instrumented results
Type of notches	<ul style="list-style-type: none"> • V-shape with 3 different radii • Unnotched 	<ul style="list-style-type: none"> • V-shape with 2 different radii • Unnotched
Position of the specimen	Edgewise or Flatwise	Vertical (held in a cantilevered manner)
Striking point	Three-point bending struck in the middle of the specimen	Upper tip of the specimen (at the end of the exposed cantilever)
Most common Standard specimen dimensions (T x W x L)	4x10x80mm 3 x 15 x 33-39-75mm 3 x 10 x 33-39-75mm 3.17 x 12.7 x 127mm 6.35 x 12.7 x 127mm 12.7 x 12.7 x 127mm 10 x 10 x 55mm 10 x 7.5 x 55 mm 10 x 5 x 55mm 10 x 2.5 x 55mm 5 x 5 x 55mm	4x10x80mm 3.17x12.7x63.5mm 12.7x12.7x63.5mm 6.35x12.7x63.5mm
Most common Standards*	ISO 179-1, ISO 179-2, ASTM D6110	ISO 180, ASTM D256

*Note: In ISO tests, each hammer used has to be in a range of 10% to 80% of its nominal initial potential energy. ASTM permits use up to 85%.

USEFUL SPECIFICATIONS

	9050 Manual Model	9050 Motorized Model
Hammer release	Manual (pneumatic optional)	Pneumatic
Hammer braking	Manual	Pneumatic
Hammer recovery	Manual	Pneumatic
Machine dimensions	1035 × 430 × 880 mm	1035 × 510 × 1190 mm
Machine weight	220 kg (330 with 50 J Plate)	270 kg (380 with 50 J Plate)

www.instron.com



Worldwide Headquarters
825 University Avenue, Norwood, MA 02062-2643 USA
Tel: +1 800 564 8378 or +1 781 575 5000

European Headquarters
Coronation Road, High Wycombe, Bucks HP12 3SY, UK
Tel: +44 1494 464646

CEAST Headquarters
Via Airauda 12, 10044 Pianezza TO, Italy
Tel: +39 011 968 5511