

ASTM E-23, EN 10045/1, ISO 148-1, JIS Z 2242

www.Torontech.com/materials-testing/impact-testers/charpy-impact-tester-metals

Application

Ability of a material to absorb energy and plastically deform without fracturing is much required in materials for better toughness used in modern industry. Amount of energy per unit volume that a material can absorb before rupturing is needed to be measured, in other words keeping a balance of strength and ductility, higher the material's resistance to fracture when stressed tougher the material.

The Charpy impact test, also known as the Charpy V-notch test, is a standardized high strain-rate test which determines the amount of energy absorbed by a material during fracture. This absorbed energy is a measure of a given material's notch toughness and acts as a tool to study temperature-dependent ductile-brittle transition. It is widely applied in industry, since it is easy to prepare and conduct and results can be obtained quickly and cheaply.

ASTM E23 and other international standards like EN 10045/1, ISO 148-1, and JIS Z 2242 prescribe a standard procedure to test the absorbed energy of Metallic Notched Bars with Instruments known as Charpy Machines.

Charpy Impact Testers conduct large quantities of metal impact tests continuously, display the impact absorbing energy and pre-elevation rotation angle of the pendulum and print test reports. It is useful not only for manufacturers of metal materials and quality inspection organizations, but also for research institutes for analysis of new materials.

Torontech's **TT-APIT Series of Instrumented Impacted Testers for Notched Bars** are the advance versions of these machines having automatic sample feeding system to greatly improve the test efficiency and reduce human errors. Temperature Controlling Chambers further facilitate this testing to perform tests at sub-zero temperatures.

Features

Torontech's **TTPIT Series of Impact Testers for Metallic Notched Bars** are one of its kind of state of art Charpy Impact Testers for Metals build of integrated mainframe and base design, symmetric pillars, and beam supported pendulum shaft, with the features of high stability, good rigidity, simple and reliable structure, and high machining precision. The pendulum is shake free in operation, so it is more suitable for high-energy impact. Available in 150 Joules, 300 Joules, 500 Joules and 750 Joules capacities with Hammer Torque's of 80.38 Nm, 160.77 Nm, 267.95 Nm and 401.93 Nm.

The software package contains self-check programs in accordance with the latest ASTM E23-05 and ISO148

Specially engineered Pendulum damping system to avoid impact generated during operation of the pendulum and damage to the pendulum, effectively reduce operation noises, increase the service life of the equipment and improve operating safety.

Standard double-stage reducer replaced the old pendulum and complex transmission system, with the features of simple structure, easy assembly and repair, long service life and low failure rate. A fully-enclosed protective cage to effectively avoid splatter of fractured samples, prevent the operator from entering the test field during testing, and ensure the safety of the operators and the equipment.

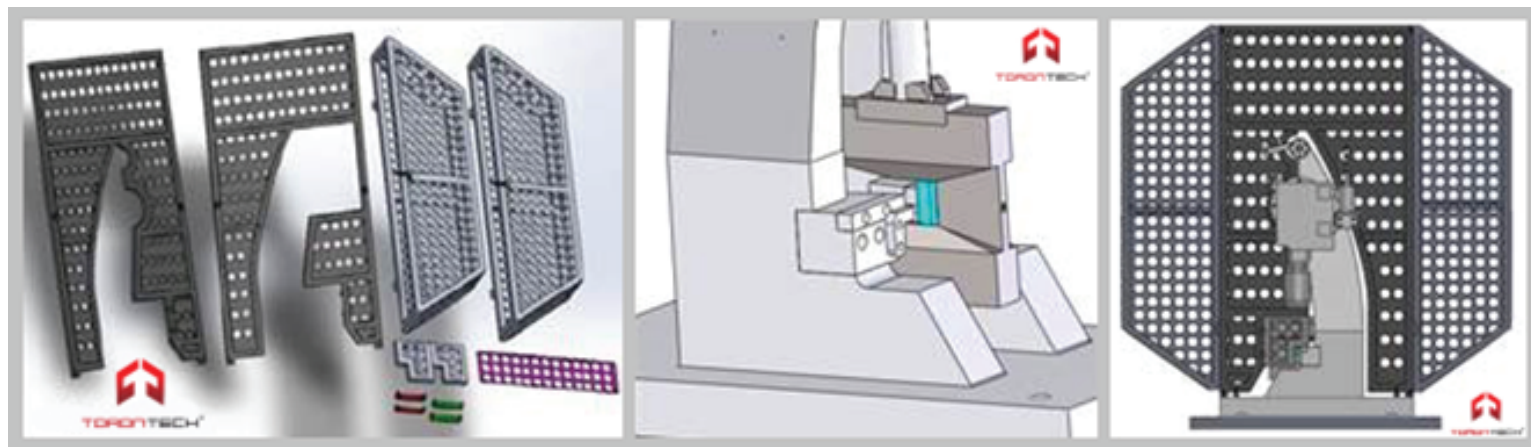
Advanced PLC control system controls the operation of the pendulum (lift, fall and impact), and a high-precision rotary encoder is used to ensure the pendulum positions in real time. The system has good anti-interference, reliability, stability and data accuracy. Wide measurement range, with a lower limit of 10J, greatly widening the application range. Digital display (Minimum resolution of 0.1J) to prevent energy loss from pointer friction; touch screen or computer for easy test control; automatic transmission of test results to the database for direct production management; advanced touch screen system for multi-function control, such as the energy display, parameters setting and automatic verification.



TT-PIT Series of Impact Tester for Metallic Notched Bars

Torontech provides a complete solution to ensure your needs of analysing quality of material

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| • Broaching/Charpy Specimen Preparation Machines | • Low Temperature Chambers/Baths |
| • Notch Gauges | • Impact Fracture Analyzers |
| • Notch Profile Projector | • Certified Samples for calibration of Impact Tester |



Technical Parameters

Series	TTPIT Series of Pendulum Impact Tester for Metals			
Standards	ASTM E-23, EN 10045/1, ISO 148-1, JIS Z 2242			
Model				
Maximum impact energy (Joules)	150 J	300 J	500 J	750 J
Pendulum/ Hammer Torque (Nm)	80.38 Nm	160.77 Nm	267.95 Nm	401.93 Nm
Pendulum Pre-elevation/ release angle	150°			
Length of Pendulum/ Distance between pendulum axis and sample center	750mm			
Impact Velocity	5 – 5.5 m/s			
Span of sample support	40 mm			
Arc radius of sample support ends	1 – 1.5 mm			
Supporting Surface inclination of sample support	11° ±1°			
Arc radius of impact knife	2 – 2.5 mm			
Included angle of impact knife	30°			
Thickness of impact knife	18 mm			
Resolution	0.1 J			
Angle resolution	0.06°			
Sample specification	55 mm x 10 mm x 10 mm 55 mm x 10 mm x 7.5 mm 55 mm x 10 mm x 5 mm			

Power supply	Motor Power: 180 W Host Power: 380V ±0.10%, 50 Hz (3 ph, 5 wire AC) Power must be free of spikes and surges exceeding 10% of the nominal voltage.	
Operating temperature	0 to +38°C (+32 to +100°F)	
Humidity range	10% to 90% non-condensing	
Storage temperature	-40 to +66°C (-40 to +150°F)	
Machine Dimension L x W x H (mm)		
Machine	1450 x 1020 x 820	1605 x 1200 x 930
Shield (Safety Cage)	1950 x 2140 x 820	2100 x 2280 x 950
Weight	1,100 kg	1,600 kg