

CHARPY IMPACT TESTER FOR METALS



Ensure the toughness and safety of your materials with the Torontech TT-PIT Series, the Charpy impact test machine engineered for uncompromising performance. Designed to precisely quantify a material's ability to absorb energy in strict accordance with ASTM E23 and ISO 148-1, this is the definitive instrument for validating material quality.

To configure the ideal impact testing solution for your laboratory, contact a Torontech specialist today.

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

Side-by-side overview of TT-PIT Charpy impact testers and supporting specimen preparation / analysis tools.

TT-PIT Series Charpy Impact Testers

Feature	Charpy Impact Tester TT-PIT300	Charpy Impact Tester TT-PIT450	Charpy Impact Tester TT-PIT750
Primary purpose	Charpy impact energy testing for metals	Charpy impact energy testing for metals (higher capacity class)	Charpy impact energy testing for metals (higher capacity class)
Best for	General Charpy testing workflows in QC, production, and R&D	Labs needing a higher impact energy range than TT-PIT300	Labs needing the highest impact energy range in this series

Feature	Charpy Impact Tester TT-PIT300	Charpy Impact Tester TT-PIT450	Charpy Impact Tester TT-PIT750
Typical use	Material qualification, batch verification, and toughness evaluation	Broader test coverage for tougher materials (method dependent)	High-energy testing needs for demanding materials (method dependent)
How to choose	Choose when your impact energy range requirement fits the 300 class	Choose when you need more capacity than the 300 class	Choose when you need the highest capacity option in the TT-PIT lineup
Selection tip	If you are starting a standard Charpy lab setup, this is often the baseline option	If you test a wider range of metals or higher toughness materials, consider this step-up	If your program requires the highest energy range and maximum flexibility, choose this option

Specimen Preparation and Result Verification Tools

Feature	Charpy Notch Broaching Machine	Charpy Notch Projector TT50X	Fracture Image Analyzer (TT-FIA)
Workflow stage	Before testing (specimen notch preparation)	Before testing (notch verification and inspection)	After testing (fracture surface analysis)
Primary purpose	Create consistent Charpy specimen notches for testing	Check notch profile/geometry and verify notch quality	Analyze and document fracture appearance and results

Feature	Charpy Notch Broaching Machine	Charpy Notch Projector TT50X	Fracture Image Analyzer (TT-FIA)
Best for	Labs preparing high volumes of specimens needing repeatable notches	Labs that want confidence in notch geometry before running tests	Labs requiring fracture documentation and analysis workflows
Decision driver	Need reliable notch prep to improve repeatability and reduce rework	Need notch inspection capability to support compliance and QA	Need fracture analysis output for reporting and investigation
Selection tip	Choose if specimen preparation is a bottleneck or consistency issue	Choose if you want to verify notch quality before testing	Choose if your workflow includes fracture characterization and reporting

Looking for low-temperature testing setups or certified calibration samples? Add them based on your lab’s testing standard and workflow needs.

APPLICATIONS

The Charpy impact test (or Charpy V-notch test) is a standardized, high strain-rate test that determines the amount of energy absorbed by a material during fracture. This absorbed energy is a measure of the material's notch toughness and serves as a vital tool to study its temperature-dependent ductile-brittle transition.

The TT-PIT Series Charpy test machine is essential for:

- Metal Manufacturers: Ensuring raw materials and finished products meet the required balance of strength and ductility.

- Quality Inspection Organizations: Providing continuous, reliable impact testing for third-party material verification and compliance.
- Research Institutes: Conducting foundational analysis of new materials and advanced alloys.

FEATURES

- **Superior Structural Integrity:** Built with an integrated mainframe and base, symmetric pillars, and a beam-supported pendulum. This design guarantees high stability, exceptional rigidity, and the machining precision required for accurate, repeatable results. Available in 150J, 300J, 500J, and 750J capacities.
- **Advanced Control and Data Acquisition:** A PLC control system and high-precision rotary encoder precisely manage pendulum operations (lift, fall, impact). Test results are displayed digitally with a 0.1J resolution via touch screen or computer, preventing energy loss data errors from pointer friction.
- **Modern, Reliable Drivetrain:** A standard double-stage reducer replaces older, complex transmission systems. This results in a simpler structure, easier maintenance, a longer service life, and a significantly lower failure rate.
- **Automated Efficiency:** Greatly improve test throughput and reduce human error with an optional automatic sample feeding system. Integrate optional Temperature Controlling Chambers to seamlessly perform tests at sub-zero temperatures.
- **Uncompromised Operator Safety:** Every machine includes a fully-enclosed protective cage to prevent splatter of fractured samples. A specially engineered pendulum damping system avoids operational impact, reduces noise, and increases the service life of the equipment.
- **Compliance-Driven Software:** The included software package contains self-check programs designed in accordance with the latest ASTM E23 and ISO 148 standards, ensuring your testing protocol is always compliant.

TECHNICAL SPECIFICATIONS

Series	TTPIT Series of Pendulum Impact Tester for Metals
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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



Torontech Inc.

251 Consumers Road, Suite 1200
Toronto, Ontario, M2J 4R3, Canada 🇨🇦

Phone: +1 416 368 2721 | Fax: +1 416 981 7652
Email: info@torontech.com

Torontech, LLC

601 Brickell Key Drive, Suite 700
Miami, FL 33131, USA 🇺🇸

Toll-Free: 1-866-383-7919
Email: sales@torontech.com

Torontech ME FZE

Meydan Grandstand, 6th Floor,
Meydan Road, Nad Al Sheba,
Dubai-261440, UAE 🇦🇪

Phone: +971 488 19252
Email: me@torontech.com

