VECTOR
SCIENTIFIC TESTING DEVICES

ROBO CHARPY

This equipment is designed to evaluate the impact resistance of metallic materials under dynamic loading conditions, helping determine their behavior and toughness during sudden force applications. The test is performed by measuring the difference in potential energy of the pendulum before and after impact, which is displayed on a dial to calculate the absorbed energy by the test specimen. The system supports a maximum impact energy of 300J and can be equipped with additional pendulums of different energy levels (e.g., 150 J or as required), depending on testing needs. The standard specimen size is 10 × 10 mm in cross section.

VTR-II-0600

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VECTOR

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Vector Robo Charpy

Fully Automated Low-Temperature Impact Testing System

Overview

The machine is engineered for high precision and durability, featuring a cast steel main body and base that ensure exceptional stability and operational accuracy. Its advanced pendulum design optimizes strike center alignment and torque consistency. A built-in pendulum lock mechanism and safety interlocks provide secure and reliable operation, while the cantilever-supported swing shaft allows for straightforward installation. High-precision bearings minimize friction, with empty pendulum energy loss kept below 0.3%, enhancing measurement accuracy. The pendulum suspension system incorporates a spring-buffered mechanism that absorbs impact shocks, prevents mechanical wear, and ensures a consistent drop angle over long-term use. With a modular structure, the machine simplifies assembly and maintenance while significantly improving mechanical precision. The impact blade is manufactured from hardened alloy steel and fastened with high-strength bolts for quick replacement. A fully automated control system is powered by a PLC, featuring a built-in energy loss correction function to guarantee accurate and standards-compliant test results. The system communicates via RS232 with a computer running proprietary software for intuitive operation, data storage and automatic processing. The pneumatic auto-feeding mechanism ensures fast and reliable specimen handling. A high-efficiency liquid nitrogen cooling unit provides precise and uniform low-temperature conditioning, maintaining temperature stability over extended periods.

Applicable standards (please consult us about other applicable standards)

- ASTM E23-2018 Standard Test Methods for Notched Bar Impact Testing of Metallic Materials (can meet the standard while equip with American standard pendulum)
- ISO 148.1-2016 Metallic materials—Charpy pendulum impact test—Part 1: Test method
- ISO 148-2: 2016 Metallic materials—Charpy pendulum impact test-Part 2: Verification of test
- machines
- ISO 148.3-2016 Metallic materials—Charpypendulum impact test—Part 3: Preparation and
- characterization of Charpy V-notch test pieces for indirect verification of pendulum impact
- machines
- ISO R83 Steel-Charpy impact test (U-notch)

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TECHNICAL SPECIFICATION

Impact Energy		300J	150J
Dial Scale Range and Indexing Value	Energy Range	0-300J	0-150J
	Indexing Value for Each Cell	2J	1J
Pendulum Torque		M=160.7695N·m	M=80.3848N·m
Pendulum Preparing Angle		150°	
Pendulum Shaft Center of Rotation to the Impact Point Distance (Sample Center)		750mm	
Impact Speed		5.2m/s	
Specimen Support Span		40mm	
Round Cornet of Support Jaw		R (1.0 - 1.5)mm (1mm can be provided upon requests)	
Blade Curvature Radius		R (2.0 - 2.5)mm (8mm can be provided upon requests)	
Specimen Holder Support Surface Angle		11°	
Impact Blade Angle		30°	
Impact Blade Thickness		16 mm	
Measuring Angle Range		0-360°	
Angle Resolution		≤0.06°	
Specimen Dimensions		10×10×55 mm (Thickness 7.5mm, 5mm can be provided upon requests)	
Cartridge Capacity		10 Specimens	
Refrigeration Mode		Liquid Nitrogen and Pure Ethanol	
Temperature Range		+60℃ to -196℃	
Temperature Control Accuracy		Fluctuation±1 .5 , Grads 2	
Digital Display Timer		1 min-999 min, resolution 1 min	
Delivery Speed		5 Tests Per Minute	
Power Supply		Three Phase Four-Wire, 380V 50Hz 450W	

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