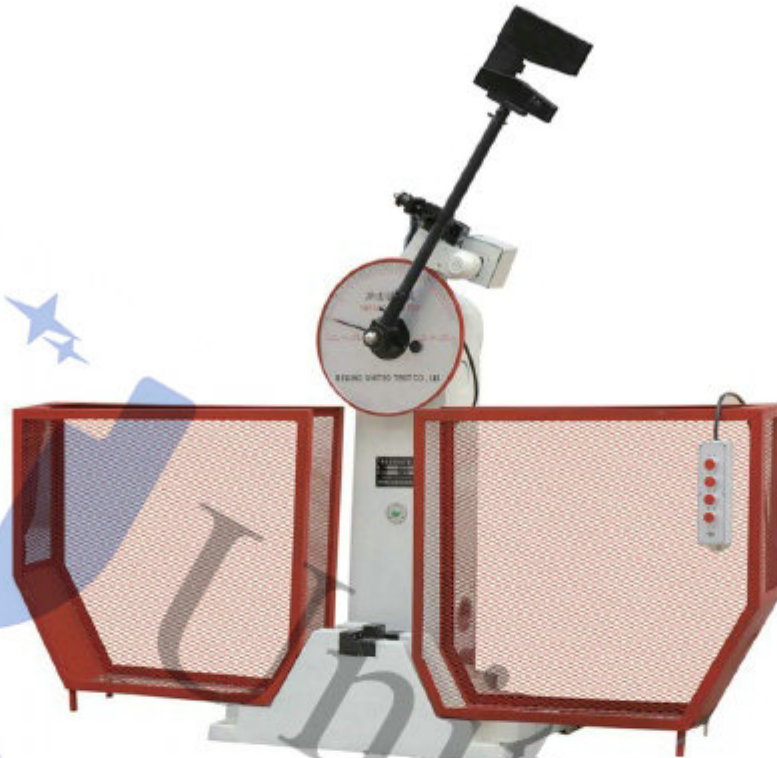


Charpy Impact Testing Machine



1, General introduction

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.

United Test Pendulum Impact Testing Machine mainly used to determine the anti-impact capability of ferrous metal materials with high toughness, especially for steel and iron material and their alloy, under dynamic load impacting. They are essential testing instruments for quality testing section, university and college, research institution and industrial and mining enterprise. The machine can do the test according to ASTM E23 and ISO 148 or other equal standards.

The energy capacity can be from 50J, 150J, 250J, 500J to 750J or even more according customer requirement. With dial display, touching screen type, computer control type etc., can be operated semi-automatically or fully automatic sample feeding. Or Instrumented chieve parameter of Impact velocity, impact time, impact energy, absorb energy, displacement, crack forming energy, crack extension energy, yield load, yield time, peak load, time of peak load, displacement of peak load, energy of peak load, unstable crack extension start load, unstable crack extension stop load, unstable crack extension start energy etc.

2, Reference

The Charpy Impact Test is commonly used on metals, but is also applied to composites, ceramics and polymers. With the Charpy impact test one most commonly evaluates the relative toughness of a material, and as such, it is used as a quick and economical quality control device.



Charpy sample

The standard Charpy Impact Test specimen consist of a bar of metal, or other material, 55x10x10mm having a notch machined across one of the larger dimensions.

V-notch: 2mm deep, with 45° angle and 0.25mm radius along the base

U-notch and keyhole notch: 5mm-deep notch with 1mm radius at base of notch

ASTM E23 "Standard Test Methods for Notched Bar Impact Testing of Metallic Materials"

ISO 148 "Metallic materials -- Charpy pendulum impact test"

BS EN 10045 "Charpy impact test on metallic materials. Test method (V- and U-notches)"

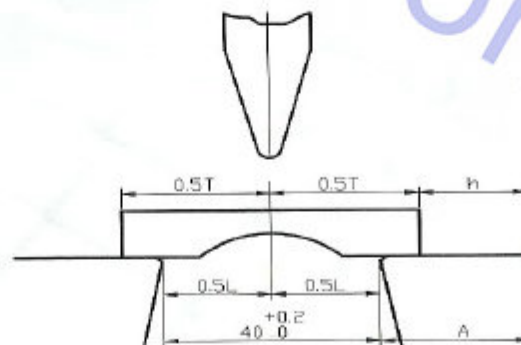
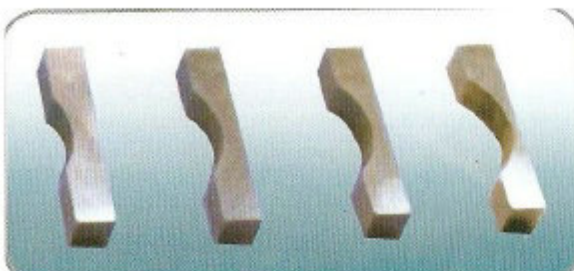
GOST 9454 "Metals. Method for testing the impact strength at the low, room and high temperature"

3, Test Specimen

According to ASTM A370, the standard specimen size for Charpy impact testing is 10 mm × 10mm × 55mm. Subsize specimen sizes are: 10 mm × 7.5 mm × 55mm, 10 mm × 6.7 mm × 55 mm, 10 mm × 5 mm × 55 mm, 10 mm × 3.3 mm × 55 mm, 10 mm × 2.5 mm × 55 mm. Details of specimens as per ASTM A370 (Standard Test Method and Definitions for Mechanical Testing of Steel Products).

According to EN 10045-1, standard specimen sizes are 10 mm × 10 mm × 55 mm. Subsize specimens are: 10 mm × 7.5 mm × 55 mm and 10 mm × 5 mm × 55 mm.

According to ISO 148, standard specimen sizes are 10 mm × 10 mm × 55 mm. Subsize specimens are: 10 mm × 7.5 mm × 55 mm, 10 mm × 5 mm × 55 mm and 10 mm × 2.5 mm × 55mm.



Standard Charpy Impact Specimen

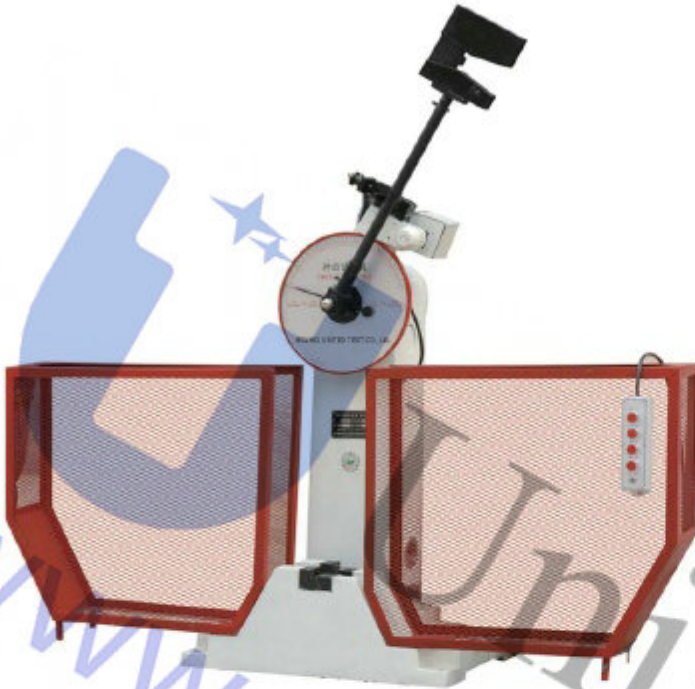
This standard impact specimen mainly used for metal pendulum impact testing machine energy calibration, compare the impact testing machine, evaluation impact tester software, examine operator etc.

Dial Display Semi-automatic Impact Testing Machine

JB-B Series

Key Features

- 1), Pendulum rising, impact, free releasing is realized as automatically by remote control box;
- 2), Safety pin guaranties the impact action, standard protection shell to avoid any accident
- 3), Pendulum will automatically rising and ready for next impact action after specimen breakout
- 4), With two pendulums (big and small) and corresponding two Dial scales to read test result.



Main technical specification

Model	JB-300B	JB-500B	JB-750B
Display mode	Dial scale display		
Impact energy	300J/150J	500J/250J	750J
Distance between pendulum center to impact point	750mm	800mm	750mm
Impact velocity	5.2m/s	5.4m/s	5.24 m/s
Pendulum preparing angle	150°		
Span of specimen seat	40+0.2mm		
Round angle radius of Grips	R1-1.5mm		
Round angle radius of striking edge	R2-2.5mm, R8±0.08mm		
Angle of impact knife	30°		
Specimen size	10 (7.5, 5, 2.5)mm*10mm*55mm		
Power supply	3 phases 4 lines, 50Hz, 380V		
Weight	550Kg	850Kg	2400Kg

Main accessories

High Stiffness Frame	1 set
Large pendulum	1 set
Small pendulum	1 set
Motor (on the loadframe)	1 set
Rising pendulum driving device (on the loadframe)	1 set
Automatic hitch pendulum device (on the loadframe)	1 set
Safety pin (on the loadframe)	1 set
Manual control box	1 set
Supporting seat span adjusting device (L=40)	1 set
Specimen center device (L=40 V.U type)	1 set
Safety cover	1 set
Device to dismantle pendulum	1 set
Terra anchor bolts (M16×300)	1 set
Documents (Manual, packing list, certificate)	

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Touching Screen Semi-automatic Impact Testing Machine

JBS-B Series

Key Features

- 1), Pendulum rising, impact, free releasing is realized as automatically by micro control meter or remote control box;
- 2), Safety pin guaranties the impact action, standard protection shell to avoid any accident
- 3), With two pendulums (big and small), digital display the energy loss, impact tenacity, rising angle, and test average value, meantime the dial scale show test result as well.
- 4), With two pendulums (big and small) and corresponding two Dial scales to read test result.
- 5), Built-in micro printer to print test result.

Main technical specification

Model	JBS-300B	JBS-500B	JBS-750B
Display mode	Touching Screen		
Impact energy	300J/150J	500J/250J	750J
Distance between pendulum center to impact point	750mm	800mm	750mm
Impact velocity	5.2m/s	5.4m/s	5.24 m/s
Pendulum preparing angle	150°		
Span of specimen seat	40+0.2mm		
Round angle radius of Grips	R1-1.5mm		
Round angle radius of striking edge	R2-2.5mm, R8±0.08mm		
Angle of impact knife	30°		
Specimen size	10 (7.5, 5, 2.5)mm*10mm*55mm		
Power supply	3 phases 4 lines, 50Hz, 380V		
Weight	600Kg	900Kg	2500Kg
*** JBS-Z series is fully automatic, with automatic sample feeding system.			

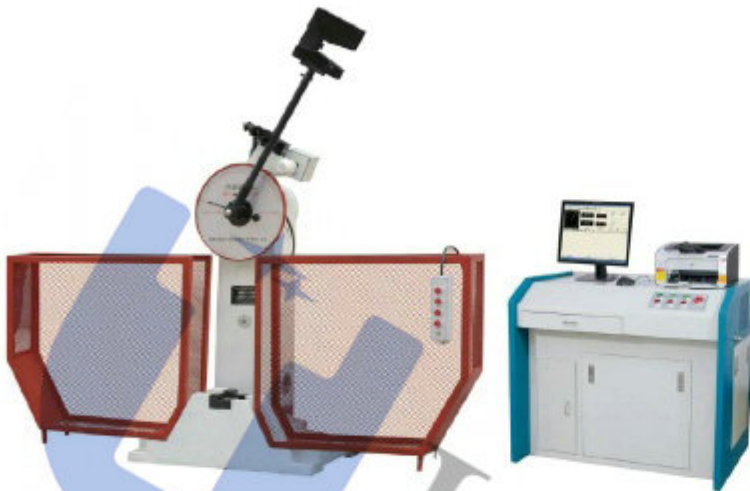
Main accessories

High Stiffness Frame	1 set
Large pendulum	1 set
Small pendulum	1 set
Motor (on the loadframe)	1 set
Rising pendulum driving device (on the loadframe)	1 set
Automatic hitch pendulum device (on the loadframe)	1 set
Safety pin (on the loadframe)	1 set
Touching Screen Control Meter	
Manual control box	1 set
Supporting seat span adjusting device (L=40)	1 set
Specimen center device (L=40 V.U type)	1 set
Safety cover	1 set
Device to dismantle pendulum	1 set
Terra anchor bolts (M16×300)	1 set
Documents (Manual, packing list, certificate)	

Computer Controlled Semi-automatic Impact Testing Machine

JBW-B Series

Key Features



- 1), Pendulum rising, impact, free releasing etc. action can be controlled easily by PC mouse simple click, as well as the remote control box;
- 2), Safety pin guaranties the impact action, standard protection shell to avoid any accident
- 3), With two pendulums (big and small), digital display the energy loss, impact tenacity, rising angle, and test average value, meantime the dial scale show test result as well.
- 4), With two pendulums (big and small), PC software to display the energy loss, impact tenacity, rising angle, test average value etc. test data and result, also the curve display available; with calculation and report printing function. The dial scale can show test results too.

Main technical specification

Model	JBW-300B	JBW-500B	JBW-750B
Display mode	Touching Screen		
Impact energy	300J/150J	500J/250J	750J
Distance between pendulum center to impact point	750mm	800mm	750mm
Impact velocity	5.2m/s	5.4m/s	5.24 m/s
Pendulum preparing angle	150°		
Span of specimen seat	40+0.2mm		
Round angle radius of Grips	R1-1.5mm		
Round angle radius of striking edge	R2-2.5mm, R8±0.08mm		
Angle of impact knife	30°		
Specimen size	10 (7.5, 5, 2.5)mm*10mm*55mm		
Power supply	3 phases 4 lines, 50Hz, 380V		
Weight	600Kg	900Kg	2500Kg
*** JBS-Z series is fully automatic, with automatic sample feeding system.			

Main accessories

High Stiffness Frame	1 set
Large pendulum	1 set
Small pendulum	1 set
Motor (on the loadframe)	1 set
Rising pendulum driving device (on the loadframe)	1 set
Automatic hitch pendulum device (on the loadframe)	1 set
Safety pin (on the loadframe)	1 set
Computer	1 set
Professional Impact Test Software	1 set
Manual control box	1 set
Supporting seat span adjusting device (L=40)	1 set
Specimen center device (L=40 V.U type)	1 set
Safety cover	1 set
Device to dismantle pendulum	1 set
Terra anchor bolts (M16×300)	1 set
Documents (Manual, packing list, certificate)	