

Description

WANCE offers this series of pendulum impact testing machine designed for determining the impact resistance of metallic materials under dynamic loading.

This series is engineered for maximum accuracy, simplicity of design, ease of operation and safety, and performs standard notched bar impact tests.

Equipped with force transducer, precise data sampling and measurement system, it fully satisfies instrumented impact tests complying with international standards.

Equipped with low temperature chamber, it can perform impact tests under temperature from ambient to -180 °C.



Standards

ASTM E23, ASTM E1820, ASTM E2298, ISO 148, EN10045, GB/T 3808, GB/T 229, JJG145, JJG 609

Significance and use

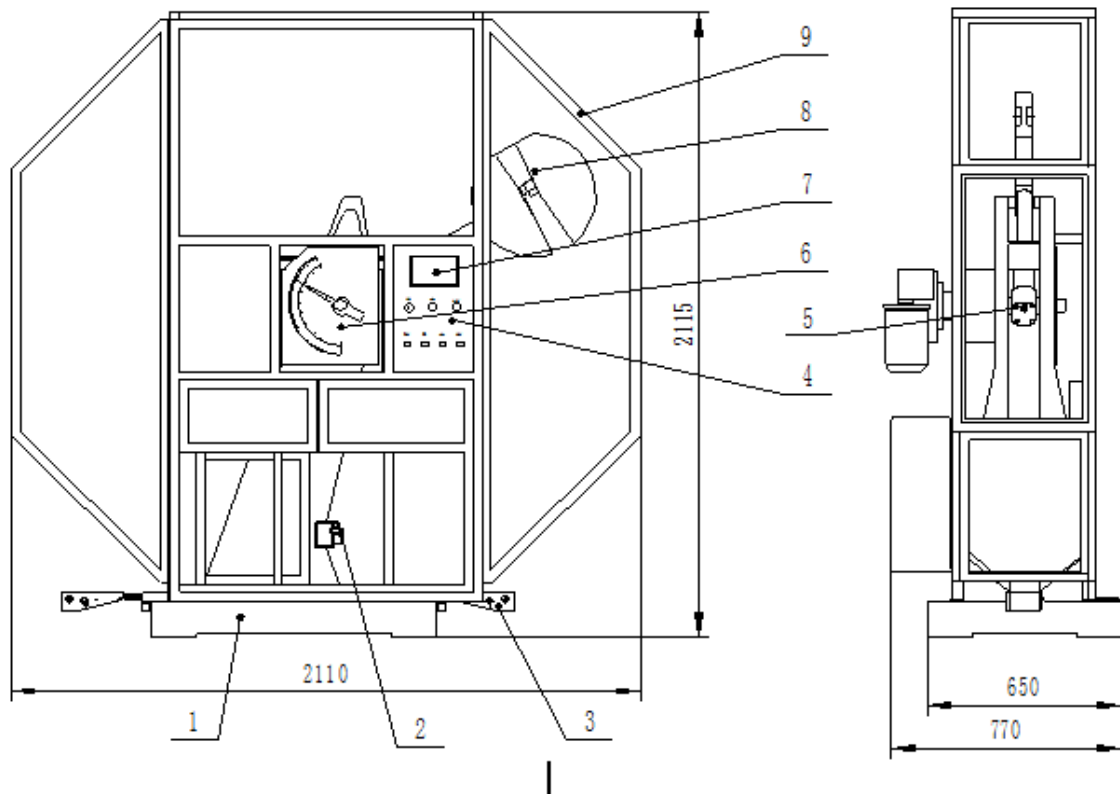
Compared with traditional pendulum impact testing machine, instrumented type is more useful for accurate analysis of material property during crack, facilitating the engineers to understand the most fragile part of materials when developing new materials.

In addition to providing an measure of total absorbed energy (W_t), instrumented testing enables the determination of characteristic force, energy, and displacement parameters, such as the pre-maximum force energy (W_m); the post maximum force energy; the general yield force (F_{gy}); the force at brittle fracture initiation (F_{bf}); the arrest force (F_a).

Wance is the leading R&D and manufacturing of instrumented impact testing system in China, and has experienced experts for force transducer design. Combined with our high speed data sampling system, Wance provides the full complement of solutions for laboratory, ranging from 0.1J for engineering plastic to 100,000J for steel DWTT test.

Machine structure

The basic model consists of a heavy steel base on which the specimen holder (anvil) and a heavy-duty cast steel upright are mounted.



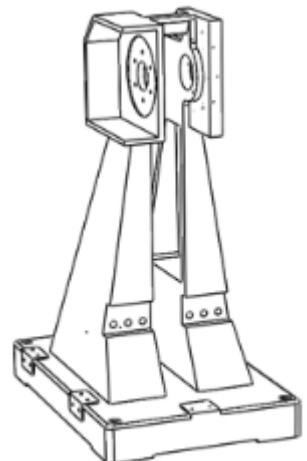
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|------------------------------|--------------------------------|
| 1 Framework | 2 Specimen supports and anvils |
| 3 Specimen collection device | 4 Control panel |
| 5 Pendulum | 6 Dial gauge display |
| 7 Touch screen | 8 Striker |
| 9 Protection shield | |

Framework

The framework is processed with one body casting. Front and rear columns are symmetric with single beam support axis, with high stiffness and precision.

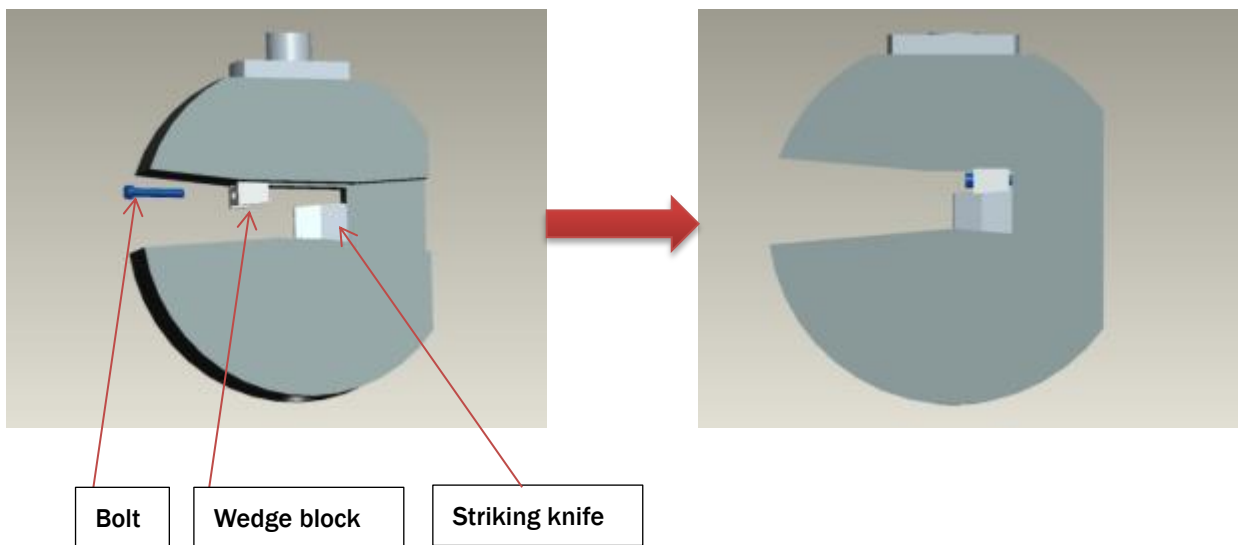
The framework is made from ductile cast iron with high strength and stiffness, and with good capability of vibration absorbing.

The seat mass is 822kg, 15 times than 750J pendulum mass (54.65), fully complying with standards that seat mass must be 12 times than pendulum mass.



Pendulum

Pendulum is designed with 3D CAD software, greatly ensuring the striking center accuracy and pendulum moment precision. High strength pendulum rod highly reduces vibration after impact.



Striking knife is tightened by wedge block, simple to change. Striking knife is available with R2 and R8, fully complying with ASTM, JIS, DIN, GB, ISO, EN and other standards.

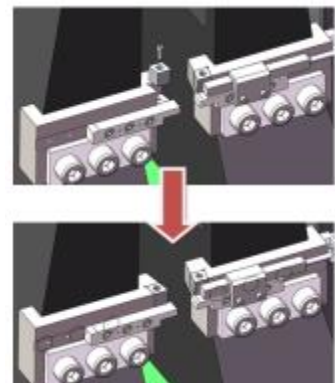
Striking knife is made of anti-wearing high speed tool steel with hardening treatment, and hardness is larger than HRC60, with high strength, ductility and abrasion resistance.

Supports and anvils

Anvil shape is rhombus and can be used in any direction, meaning the using life is 4 times than traditional anvil.

The anvil material is high speed tooling steel CW6Mo5Cr4V2 after hardening treatment, and the hardness is larger than HRC60, with high strength, ductility and abrasion resistance.

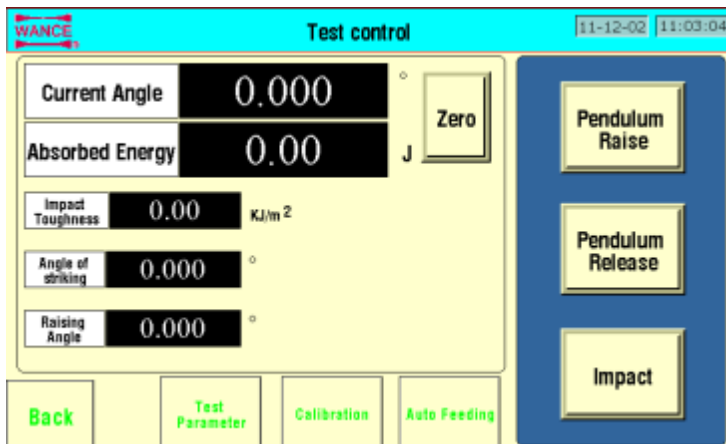
It is very simple to change anvils with inner hexagon spanner. The anvil is machined by special process with high precision and good interchangeability.



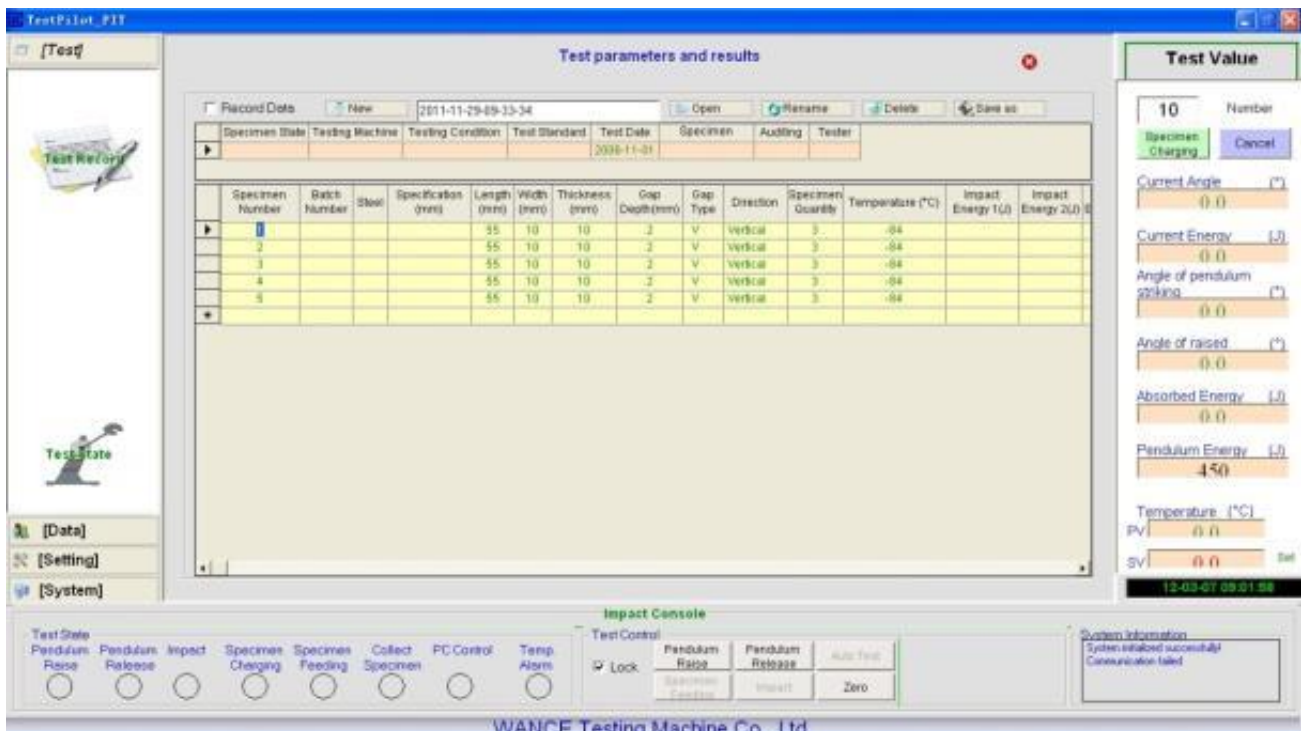
Energy display system

Three types of energy display are available:

- Dial gauge: simple and direct to read impact energy
- Wide view touch screen
- Computer with test software



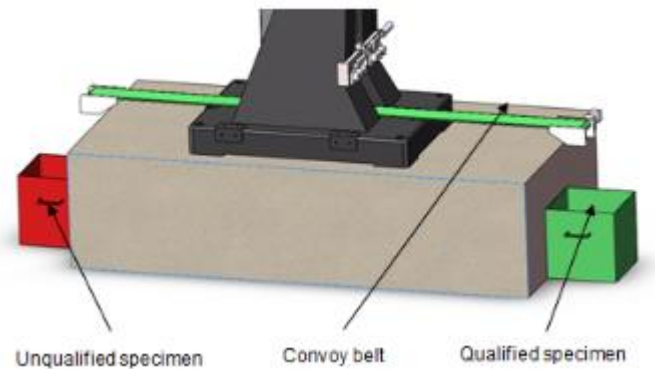
Wide view touch screen display



Standard test software

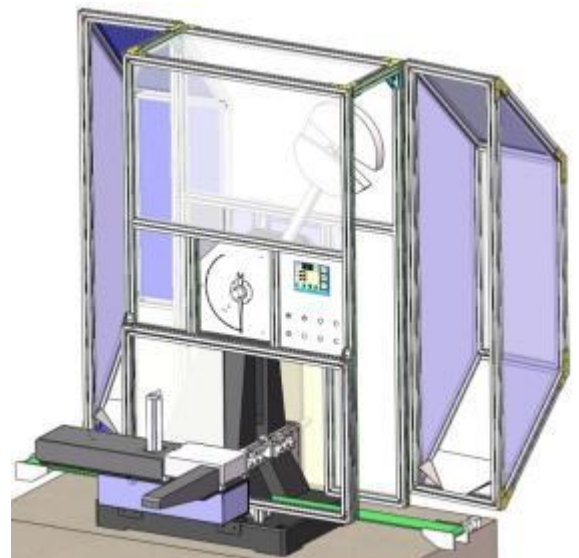
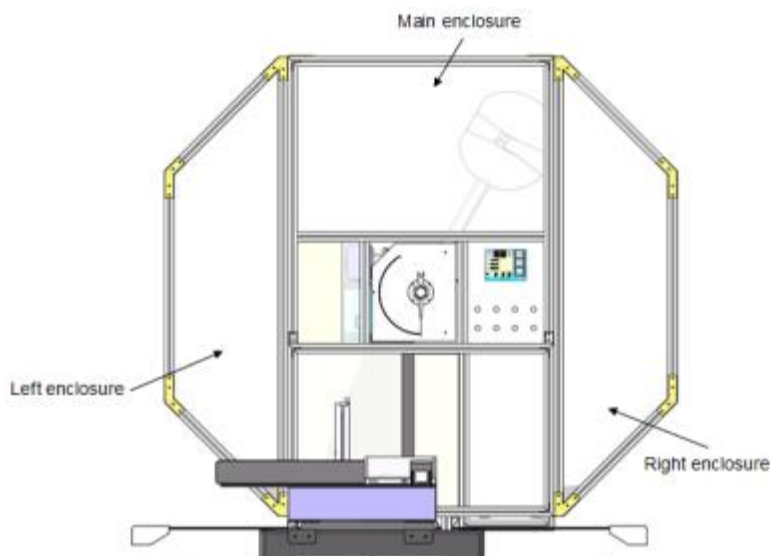
Specimen collection system

- Motorized device is used for collecting broken specimens after impact, instead of manual cleaning, which fully prevents striker from getting stuck
- Unique specimen filtering function: automatically judge and transport qualified and unqualified specimens to different collecting box



Safety system

This series of machine has fully closed protection shield to protect operator against specimen splitting during test, and to deny any access to the inside during test. Built-in door interlock further ensures operator safety. The protection shield is constructed with aluminum alloy profile for frame and fiber glass for easy observation. Split-type door design is simple to repair and change pendulum.



Specifications for main machine

Name		Description
Maximum impact energy		750J, 600J, 450J, 300J
Angle resolution		0.025°
Distance from the axis of support to the center of percussion		750mm
Velocity of striking		5.24m/s
Angle of striking		30°~150°, adjustable
Anvil	Span	40mm
	Radius of curvature of supports	1mm
	Angle of taper of supports	11°±1°
Instrumented striking knife	Radius of striking edge	2mm(R2) or 8mm(R8)
	Angle of striking tip	30°
	Thickness of striker	16mm
Dimension (with protection shield)		1960 x 680 x 2000 mm
Weight		800kg
Power supply		380V±10% 50Hz 5A

Standard configurations:

Name	Description	Model		
		PIT752H-2	PIT752H-3	PIT752H-4
Framework	Frame	√	√	√
	Pendulum lock/release system	√	√	√
	Driving system	√	√	√
	Angle measurement system	√	√	√
	SIMENS PLC control	√	√	√
	Dial gauge display	√	√	√
	Touch screen	√	√	√
	Protection shield	√	√	√
	Other auxiliary parts	√	√	√
Servo motor		√	√	
Instrumented impact system (model: IIS105)	Data sampling card Data Conditioner Instrumented test software			√
Software			√	√
Accessories	Span adjusting device specimen center alignment device inside-hexagonal spanner foundation bolts wedge block	√	√	√

Optional pendulums

Name	Description	Compatible Model
Charpy pendulum & specimen support (striking knife: R2/R8)	300J	PIT752G-2, PIT752G-3
	450J	
	600J	
	750J	
Please specify ISO striker or ASTM striker		

Optional instrumented pendulums

Name	Description	Compatible Model
Instrumented Charpy pendulum & specimen support (striking knife with 30kN force transducer: R2/R8)	300J	PIT752G-4
	450J	
	600J	
	750J	
Please specify ISO striker or ASTM striker		

Optional notch broacher

Name	MODEL
Notch making machine	NSM201B

Optional configurations:

Name	Model	Description	Accessories
Low temperature specimen auto-feeding system	LTC601A-2	-60°C~ambient Cooling method: air compressor	Specimen auto-feeding system Low temperature chamber Air compressor
	LTC801A-2	-80°C~ambient Cooling method: air compressor	
	LTC102B-2	-100°C~ambient Cooling method: liquid nitrogen	Specimen auto-feeding system Low temperature chamber Liquid nitrogen cylinder
	LTC182B-2	-180°C~ambient Cooling method: liquid nitrogen	
Manual cooling system	LTC601A-1	-60°C~ambient Cooling method: air compressor	Low temperature chamber Air compressor
	LTC801A-1	-80°C~ambient Cooling method: air compressor	
	LTC102B-1	-100°C~ambient Cooling method: liquid nitrogen	Low temperature chamber Liquid nitrogen cylinder
	LTC182B-1	-180°C~ambient Cooling method: liquid nitrogen	