



Metals Impact Tester - Class G 450J - Single Column Charpy and Izod Impact Tester

Application:

- Impact on metals, Charpy and Izod, both non-instrumented and instrumented
- Wedge impact test of adhesive bonds
- Bruggen method test of toothed gear wheels
- Servo motor driven pendulum can stop at any position, realizing different angle/energy impact test for R&D use
- Equipped with cooling system, I can perform low temperature test down to -180°C

Standards:

ASTM E23, ASTM E1820, ASTM E2298, AS 1544, ISO 148, EN10045, ISO 14556, ZF 15-53, ISO 11343, JIS Z 2242, JIS B 7722, GOST 9454



Machine Structure:

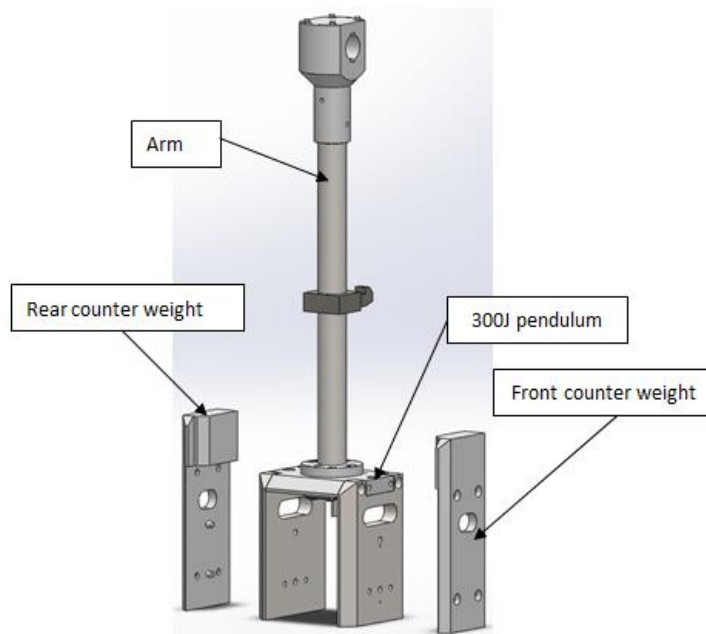
The basic model consists of a heavy solid steel base on which the specimen holder (anvil) and a heavy-duty cast steel upright are mounted. The machine is constructed with main frame, driving system, pendulum lock/release system, angle encoder, display, protection shield and other accessories.

Pendulum:

3D CAD software provides advanced design and analysis, ensuring accurate striking point and pendulum moment. High stiffness pendulum rod ensures no vibration after impact.

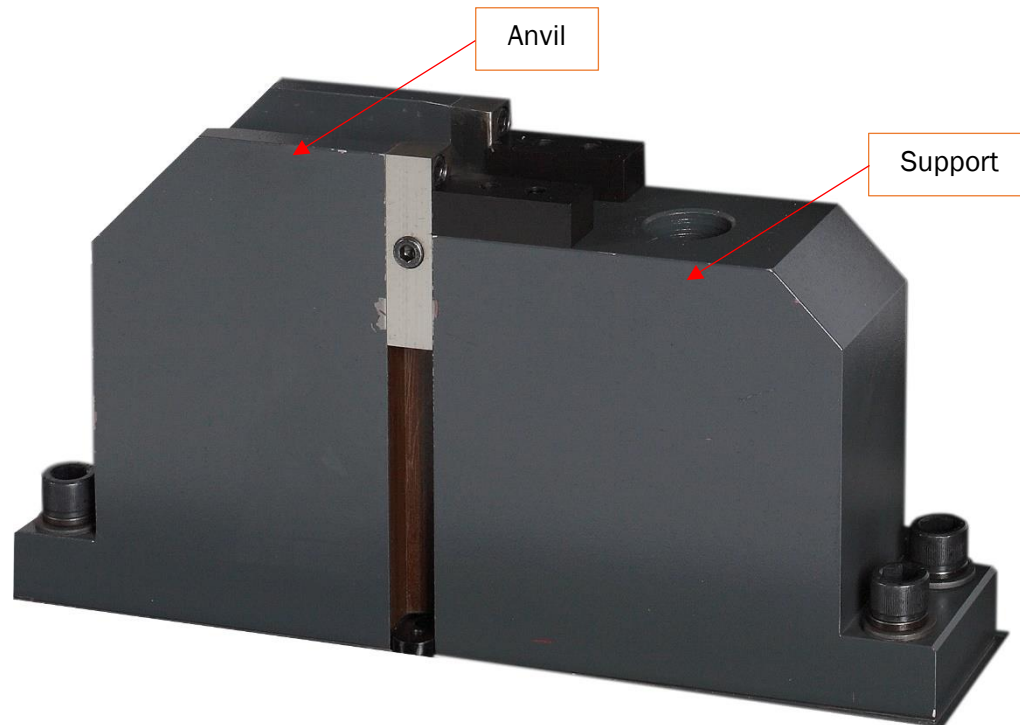
Customer can change striking knife according to test standard requirements, such as R2 for ISO/GB standard, R8 for ASTM, or R2/R8 instrumented knife, or Izod knife complying with ASTM E23.

300J and 450J pendulum is a combined design. It consists of 300J pendulum, and two counter weights. It can reach 450J when assembling 300J pendulum head with two counter weights. This flexible design facilitates switching impact energy, simple and high efficiency.



Charpy Support & Anvil

Standard configured Charpy support and anvil comply with ISO148, EN10045, and ASTM E23. Smart design of anvil is easy to assemble, simplifying maintenance.

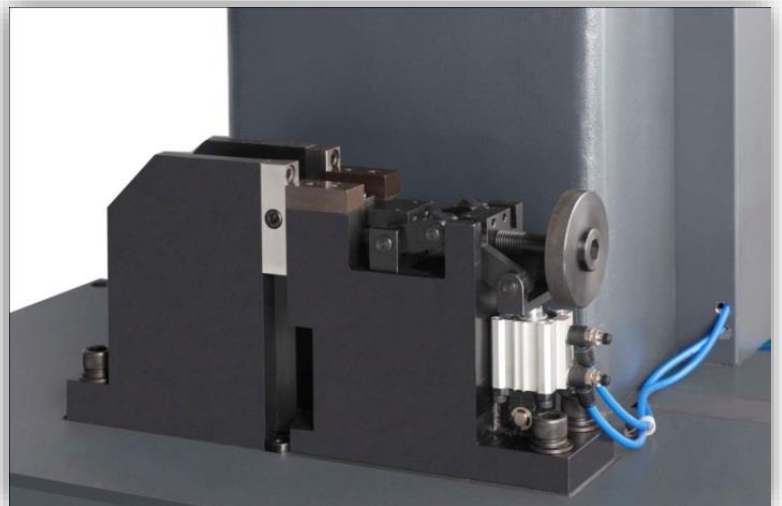


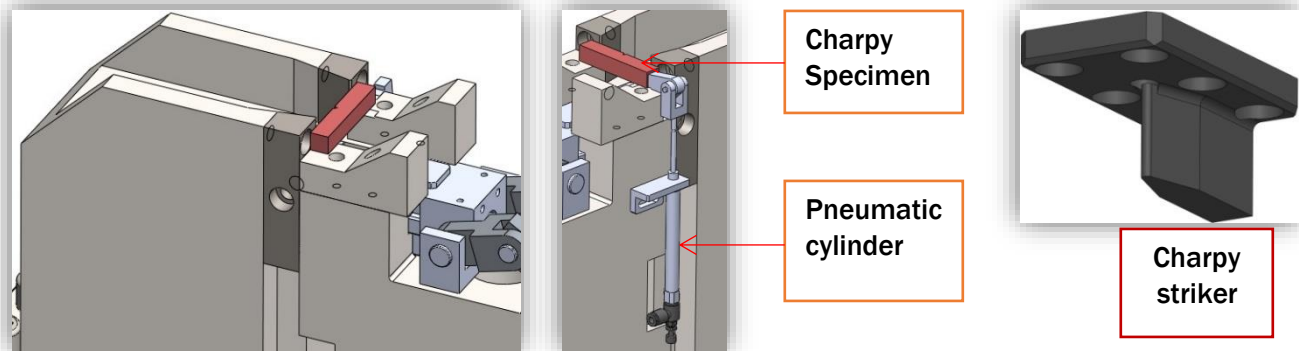
Optional Multi-Purpose Fixture

NextGen's patented design of multiple purpose fixture is able to perform Charpy, Izod and tensile impact test without changing the specimen fixture, greatly reducing the labor and improving efficiency.

There are two types of fixture:

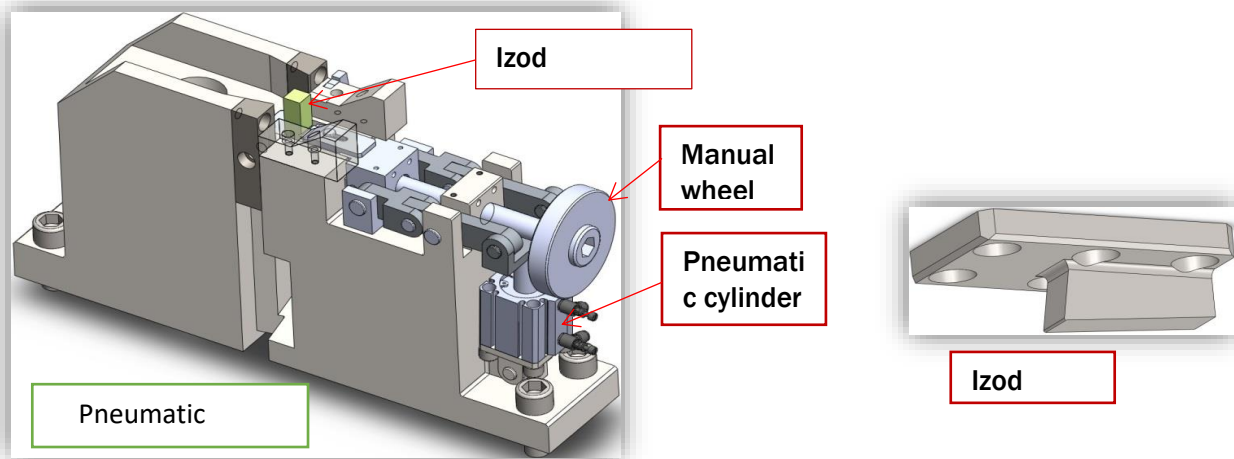
1. Manual type: manually center the Charpy specimen, manually clamp the Izod specimen.
2. Pneumatic type: pneumatic cylinder is used to center Charpy specimen, and to clamp Izod specimen.





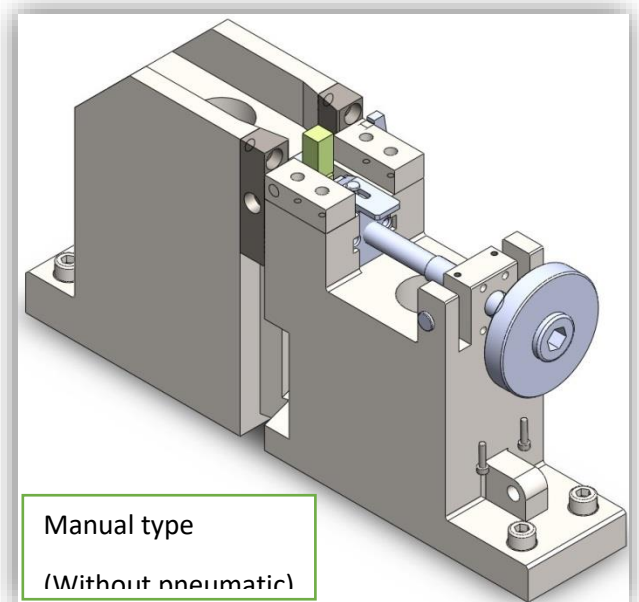
For Charpy test, specimen can be manually centered or assisted by pneumatic cylinder.

Note: pneumatic cylinder is optional, please specify in order and customer need prepare air pump.



For Izod test, specimen can be clamped manually or assisted by pneumatic cylinder.

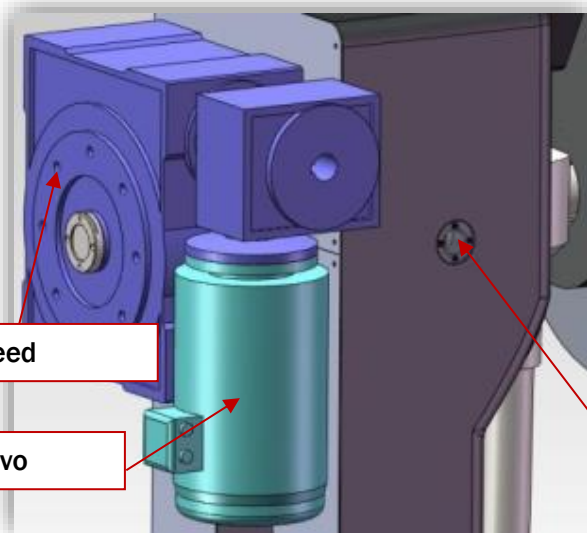
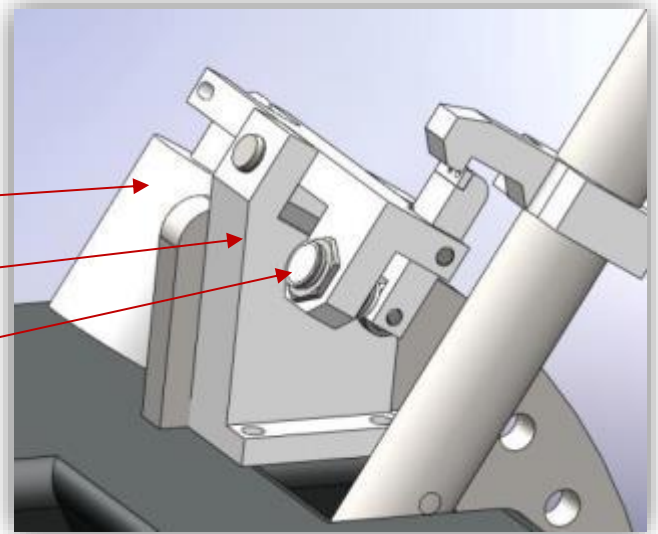
Note: pneumatic cylinder is optional, please specify in order and customer need prepare air pump



Pendulum Holding & Releasing Mechanism

It features damping design during pendulum holding to prevent any damages, lower noises and improve durability and safety.

- Electromagnet
- Lock/release
- Damping cylinder



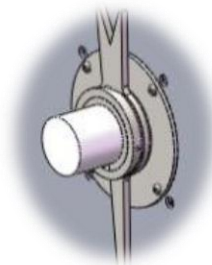
Driving System:

This series adapts standard double speed reducer instead of old complicated driving system, featuring simple structure, easy repair, and high durability and free of maintenance.

Angle Measurement System

Japanese made NEMICON high precision optical encoder is used for angle measurement, angle resolution can reach 0.025° to ensure high accuracy of impact energy.

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.

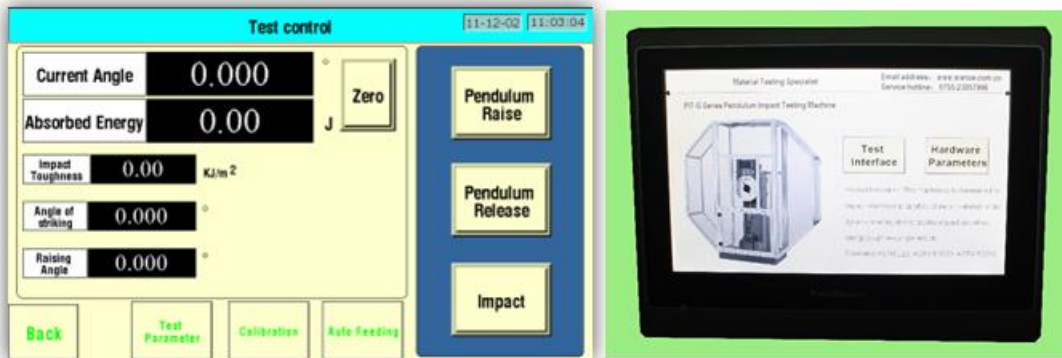
Energy Display System:

Three types of energy display are available:

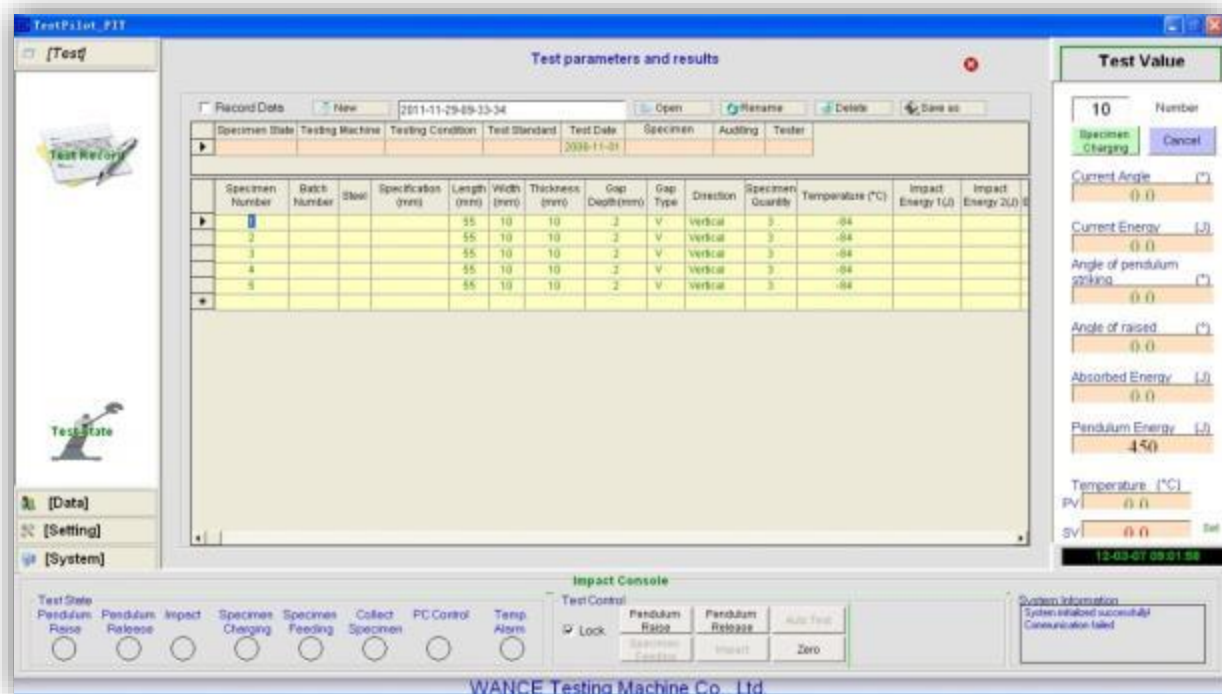
- Analogue: simple and direct to read impact energy
- Wide view touch screen
- Computer with test software



Analogue



Wide view touch screen display



Professional test software

Instrumented Impact System

Instrumented impact system consists of striking knife with force transducer, data sampling card, signal conditioner and professional test software. Instantaneous force signal from transducer assembled on the striker is transferred to and enlarged by high speed signal conditioner. Enlarged signal is A/D converted by high speed data sampling card, then transferred to computer for storage and analysis. After calculating and analyzing original force vs. displacement curve, more characteristic parameters could be determined, furthermore specimen deformation and fracture property could be precisely judged.

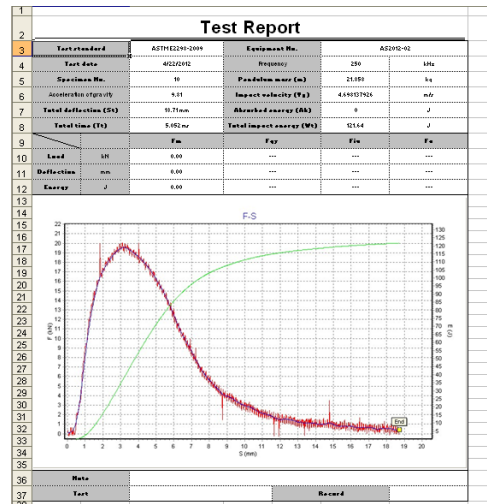
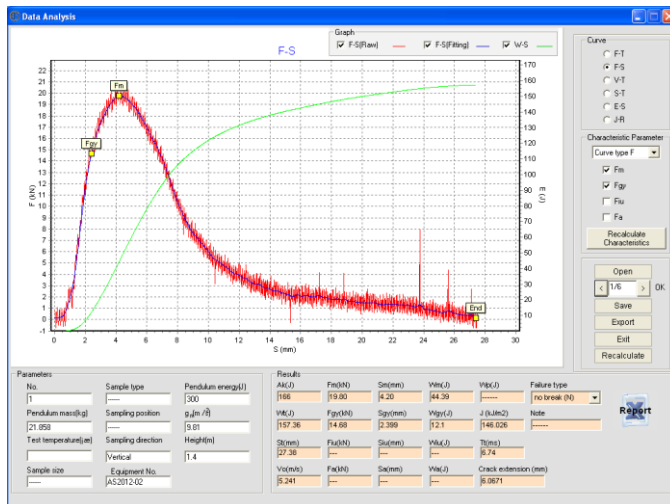


Technical Specifications

Model	NG452G-2
Force transducer	30kN, 50kN
A/D sampling resolution	16bits
Maximum sampling frequency	1.25MHz
Frequency band width	500kHz
Power supply	AC220V±10%, 50Hz, 100W

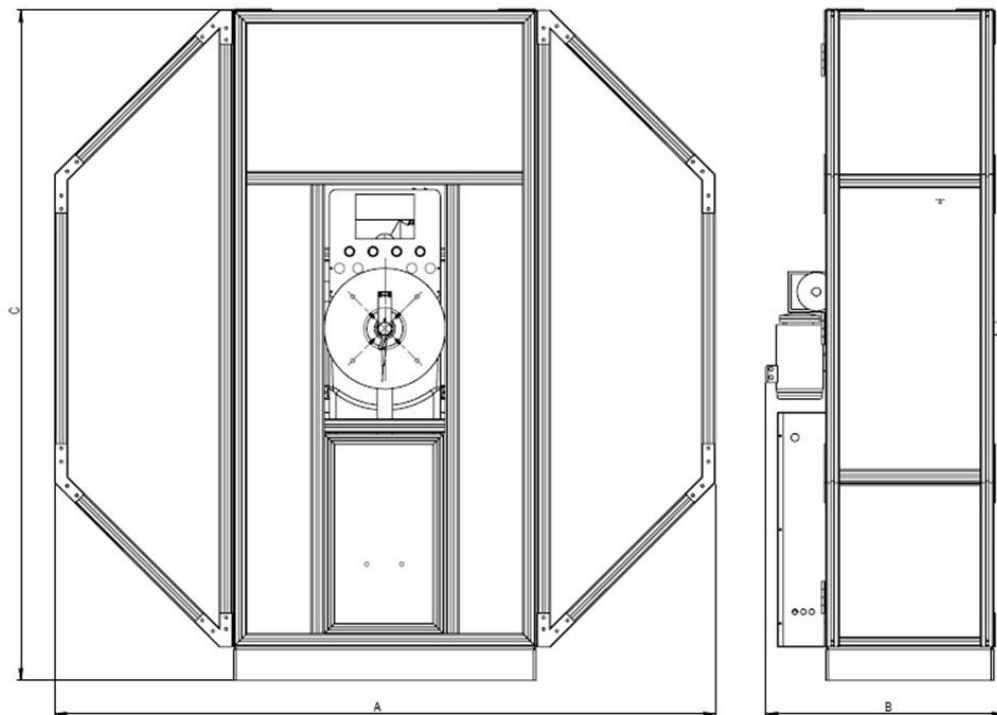
Instrument Data Analysis System – Software

- Automatic curve fitting of force vs. displacements
- Automatically determine F_{gy} , F_m , F_{iu} , F_a , and other characteristic parameter, further determine after calculation S_{gy} , S_m , S_{iu} , S_a , S_t , W_m , W_{iu} , W_a , W_t and others.
- Fully automatic data processing permits to get test results and report after each test immediately.
- Curve and raw data can be exported



Technical Specifications:

NG-Impact Class G		
Maximum impact energy		450J (300J, 150J)
Angle resolution		0.025°
Distance from the axis of support to the center of percussion		750mm
Velocity of striking		1.40~5.24m/s
Angle of striking		30°~150°, adjustable
Pendulum Moment	150J	80.8348N•m
	300J	160.7695N•m
	450J	241.15 N•m
Charpy anvil	Span	40mm
	Radius of curvature of supports	1mm
	Angle of taper of supports	11°±1°
Charpy striking knife	Radius of striking edge	2mm(R2) or 8mm(R8)
	Angle of striking tip	30°
	Thickness of striker	16mm
Izod Striking knife	Radius of striking edge	0.8±0.2
	Angle of striking tip	75±1°
Dimension (with protection shield) AxBxC		1960mm×680mm×2000mm
Weight		800kg
Power supply		1-phase, 220±10%VAC, 50Hz
Power consumption		800W



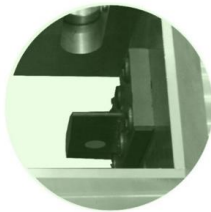
Standard Configurations

Name	Description	Model		
Machine Frame	NG452 Class G	NG452	NG452	NG452
		G-2	G-3	G-4
Framework	Frame	X	X	X
	Pendulum Lock/Release System	X	X	X
	Driving System	X	X	X
	Angle Measurement	X	X	X
	PLC	X	X	X
	Dial Gauge Display	X	X	X
	Touch Screen	X	X	X
	Full Protection Shield	X	X	X
Servo Motor		X	X	X
Software	TestPilot		X	X
Accessories	Span Block			
	Specimen Centering Block			
	Centering Tongs	X	X	X
	Standard Tools			
	Anchor Bolts Wedge Block			
PC Connection	RS232		X	X
Instrumented Impact System	Force Transducer in Pendulum for quick plotting of the force-time graph Access to more testing parameters on TestPilot software			X

Optional accessories

Name	Specifications
Manual multi-purpose fixture	Manually clamp Charpy or Izod specimen
Pneumatic multi-purpose fixture	Pneumatically clamp Charpy or Izod specimen
Air pump (YH-04)	Air capacity: >60L/min, Air pressure: 0.45~0.75MPa
Pendulum *	150J, 300J, 450J
Striker knife	ISO148 R2, or ASTM E23 R8
Instrumented striker knife	ISO148 R2, or ASTM E23 R8

* 450J pendulum is assembled by 300J pendulum with two counter weight.



Striker knife with load cell inside



Instrumented pendulum