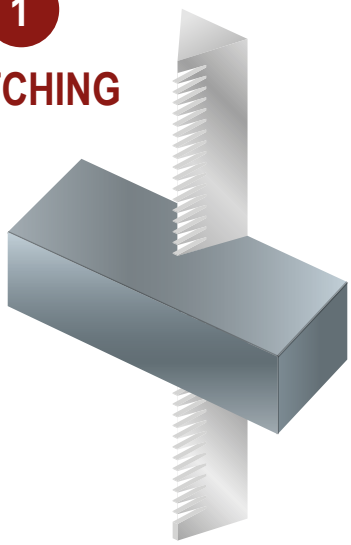
IMPACT TEST

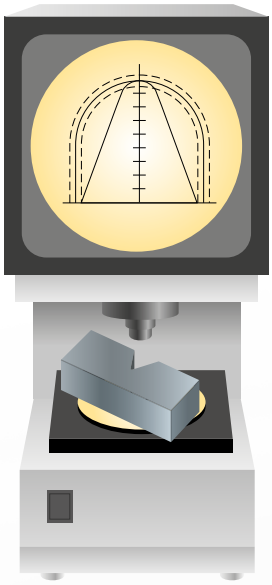
In material science, resilience is the ability of a material to absorb energy when it is deformed elastically, and release that energy upon unloading. Proof resilience is defined as the maximum energy that can be absorbed up to the elastic limit, without creating a permanent distortion. The modulus of resilience is defined as the maximum energy that can be absorbed per unit volume without creating a permanent distortion.

In the laboratories the resilience is calculated by the Charpy and Izod impact testing tests. The apparatus consists of a pendulum of known mass and length which is released from a known height to impact a notched specimen. The energy transferred to the material can be inferred by comparing the difference in the height of the hammer before and after the fracture (energy absorbed by the fracture event). The notch in the sample affects the results of the impact test, thus it is necessary for the notch to be of regular dimensions and geometry. The size of the sample can also affect results, since the dimensions determine whether or not the material is in plane strain.

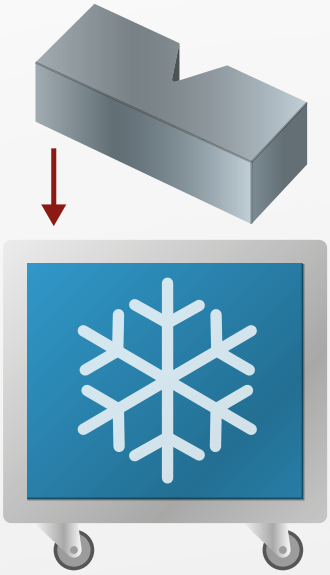
1 NOTCHING



2 MAGNIFICATION



3 REFRIGERATION



4 IMPACT TEST

Impact Testing Machines

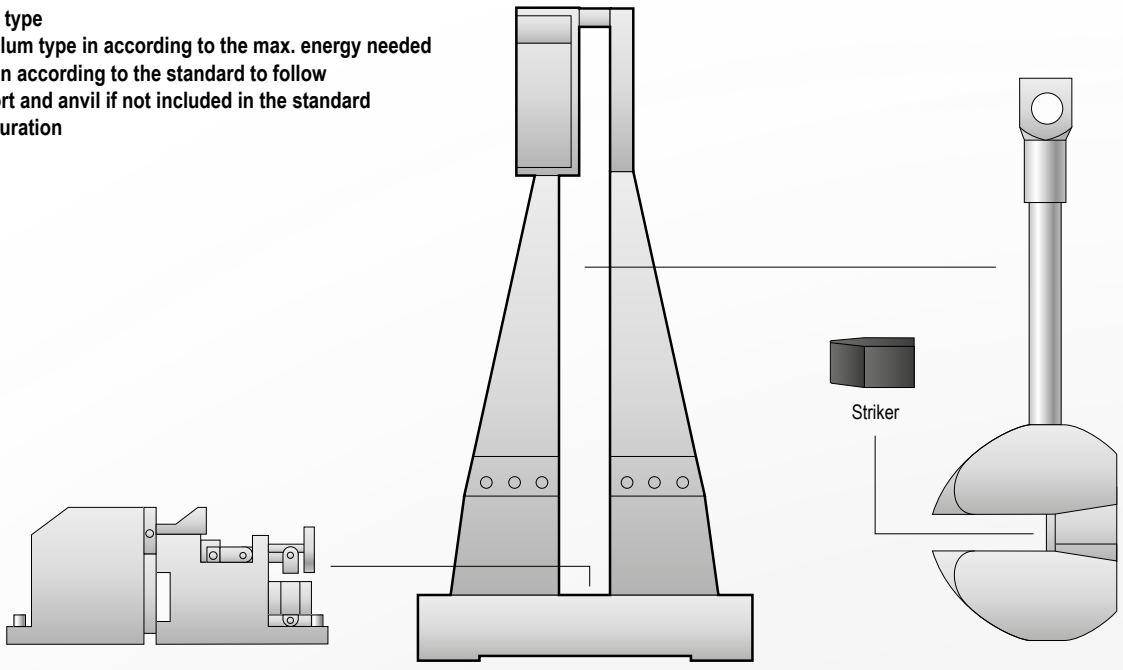
- Accurate impact testing on a wide range of materials like metals, polymers, plastic, etc, require high performance equipment.
- echoLAB pendulum family for Charpy, Izod and Tensile test in according to standards like ISO 148, ISO 179, ISO 180, ISO 8256, ISO 9854-1, ASTM D256, ASTM D1822 and ASTM E23.

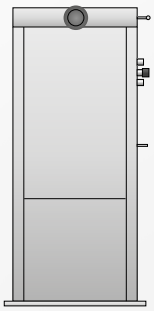
Different systems:

- Uninstructed system that provides the absorbed energy value
- Fully instrumented system for collect complete analysis of material reactions to impact for evaluate the type of failure and the dynamic response
- Complete range of pendulum:
- 1J to 50J for Charpy test, 1J to 22J for Izod test on plastic and polymers samples
- 150, 300 and 450J for steel resilience tests
- 600 and 750J for high-strength metals resilience tests

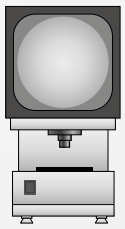
To select the right impact testing machine must be choosen:

- Frame type
- Pendulum type in according to the max. energy needed
- Knife in according to the standard to follow
- Support and anvil if not included in the standard configuration

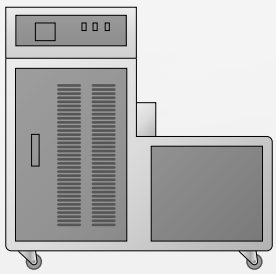




Notching machine



Notch profile projector



Low temperature chamber

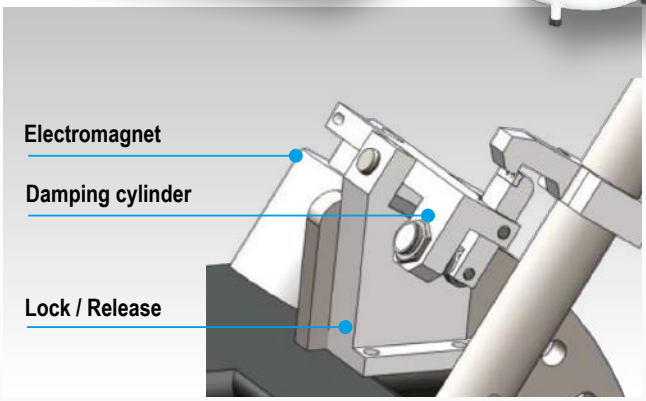
ITM-MP series

ITM-MP series impact tester for:

- Charpy and Izod
- Tensile impact test
- Wedge impact test of adhesive bond
- Brugger method test of toothed gear wheels
- fully complying to ISO 148, ISO 14556, ISO 11343, >EN 10045, ASTM E23, ASTM E1820, ASTM E2298, GOST 9574, JIS Z 2242, JIS B 7722 with impact energy 150J, 300J, 450J.

CHARPY AND IZOD METHODS

- Heavy solid steel base machine structure for anvil and heavy-duty cast steel uprights supports.
- Structure designed to change different pendulums easily.
- Impact testing machines equipped with electromagnetic hammer release system and clutch for locking and raising to initial position, dumper to prevent strong bump.
- ITM-MP series equipped with Siemens PLC for tester controls and with high precision rotary encoder NEMICON, to measure the angle with resolution of 0.025° to ensure high accuracy of impact energy

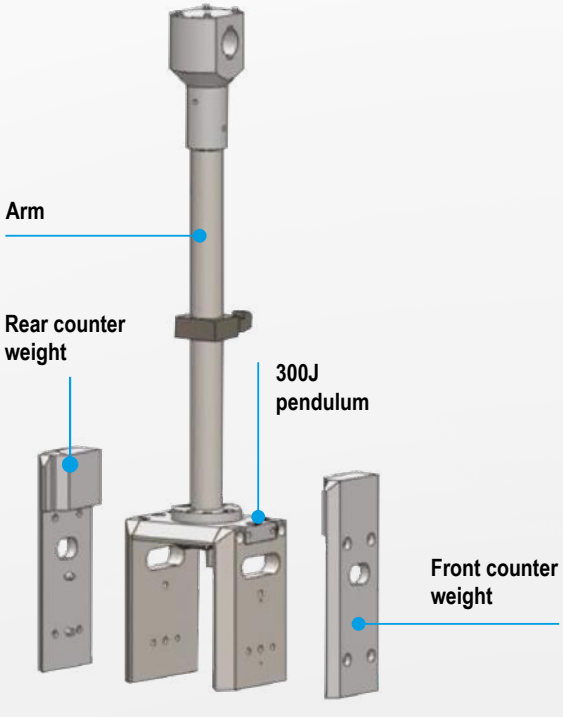


Three versions available:

- ITM-MPD with analogue dial gauge and touch screen display
- ITM-MPC with computer connection and software echoTestPilot .
- ITM-MPI with instrumented impact system consisting in striking knife with force transducer, data sampling card, signal conditioner and test software.

- For all versions are available, as optional, automatic specimen feeding systems and the related automatic cooling systems up to -180°C, combined with software allow fully automatic impact testing.

- ITM-MP series supplied with pendulums projected to ensure accurate striking point and moment.
- High stiffness pendulum rod, no vibration after impact.
- 450J pendulum consists in 300J pendulum with two counter weights. This flexible design facilitates switching impact energy.

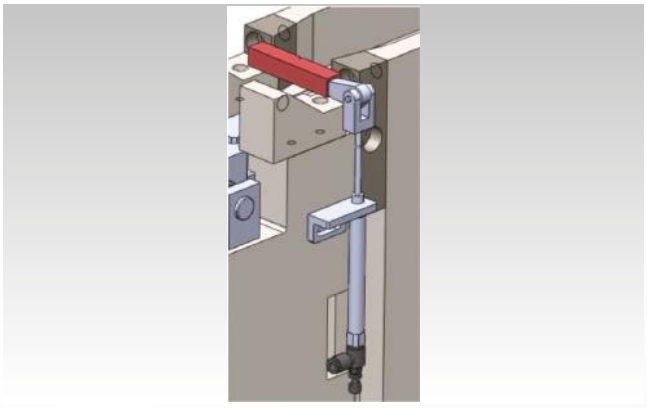


› ITM-MP series standard configuration includes Charpy support and anvil with a smart design and easy to assemble, possibility to install multi-purpose fixture for Charpy, Izod and Tensile impact tests.

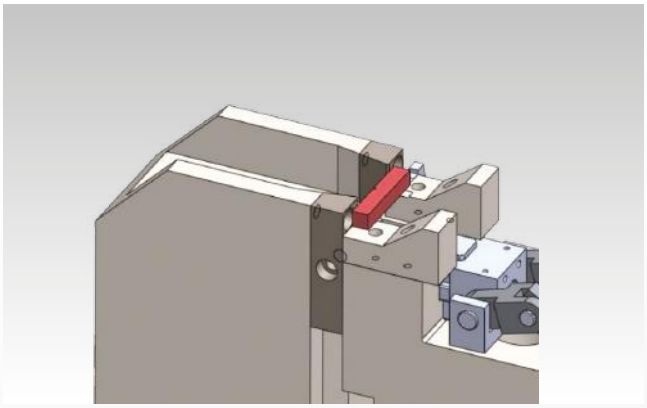
Multi-purpose fixtures available:

Manual type:
- For Charpy test with manual sample centering
- For Izod test with manual sample clamp

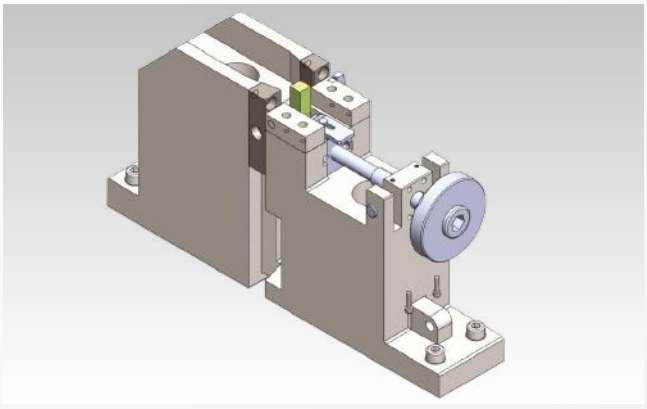
Pneumatic type:
- For Charpy test with pneumatic cylinder sample centering
- For Izod test with pneumatic cylinder sample clamping



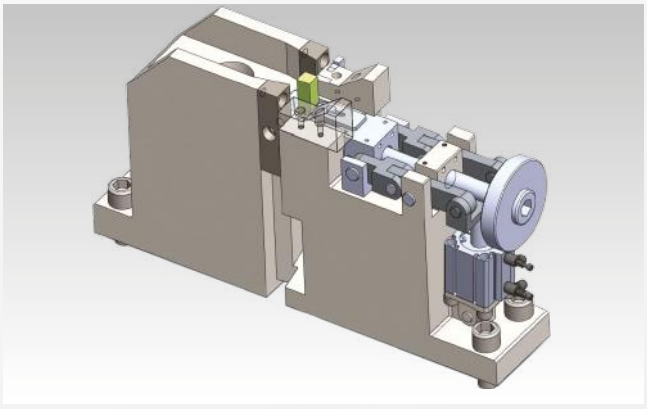
Charpy pneumatic type



Charpy manual type



Izod manual type



Izod pneumatic type

ITM-MP series

Model		ITM-MPD	ITM-MPC	ITM-MPI
Version		**Easy**	**Conventional**	**Instrumented**
Max Energy	J	450		
Analog display	-	Included	Included	Included
Touch screen	-	Included	Included	Included
Software and RS232 cable	-	N/A	Included	Included
Instrumented impact system	-	N/A	N/A	Included
Pendulum moment 150J	Nm	80.3848		
Pendulum moment 300J		150.7695		
Pendulum moment 450J		241.1543		
Pendulum moment 600J		321.5390		
Pendulum moment 750J		401.9238		
Angle resolution	°	0.025		
Striking angle	°	30-150 adjustable		
Distance from support axis to percussion center	mm	750		
Striking velocity	m/s	5.24		
Support span	mm	40		
Radius of support curvature	mm	1		
Angle of support taper	°	11±1		
Striking edge radius	mm	2(R2) or 8(R8)		
Striking thickness	mm	16		
Striking tip angle	°	30		
Specimen dimensions	mm	55x10x10		
	mm	55x10x7.5		
	mm	55x10x5		
Motor power	kW	0.8		
Power supply	V-Hz-ph	400-50/60-3		
Dimensions	mm	1960x680x2000		
Weight	kg	800		

Included accessories

SIEMENS PLC
Full-closed protection cover
Pendulum lock/release system
Driving system
Angle measurement system
Servo motor
Anchor bolt
Charpy support and anvil compliance with ISO and ASTM
Span block
Specimen centering block
Centering tongs
Wedge block
Specimen collection device

Accessories

Model	Description
PITM-MP15	Pendulum without striker knife 150J
PITM-MP30	Pendulum without striker knife 300J
PITM-MP45	450J pendulum counter weights assembled on 300J pendulum
CSKR2	Charpy striker knife ISO 148, R2 (For versions ITM-MPD and ITM-MPC)
CSKR8	Charpy striker knife ASTM E23, R8 (For versions ITM-MPD and ITM-MPC)
ISKI	Izod striker knife ASTM E23 (For versions ITM-MPD and ITM-MPC)
IISSK2I	Instrumented Charpy striking knife ISO 148, R2 with 30kN force transducer (For version ITM-MPI)
IISSK8I	Instrumented Charpy striking knife ISO 148, R8 with 30kN force transducer (For version ITM-MPI)
IISISKI	Instrumented Izod striker knife ASTM E23 (For versions ITM-MPI)
FIX010	Manual specimen fixture for Charpy and Izod
FIX020	Pneumatic specimen fixture for Charpy and Izod
FIX030	Tensile impact fixture for round specimen
FIX040	Tensile impact fixture for flat specimen
AP004	Air pump tfor with model FIX020

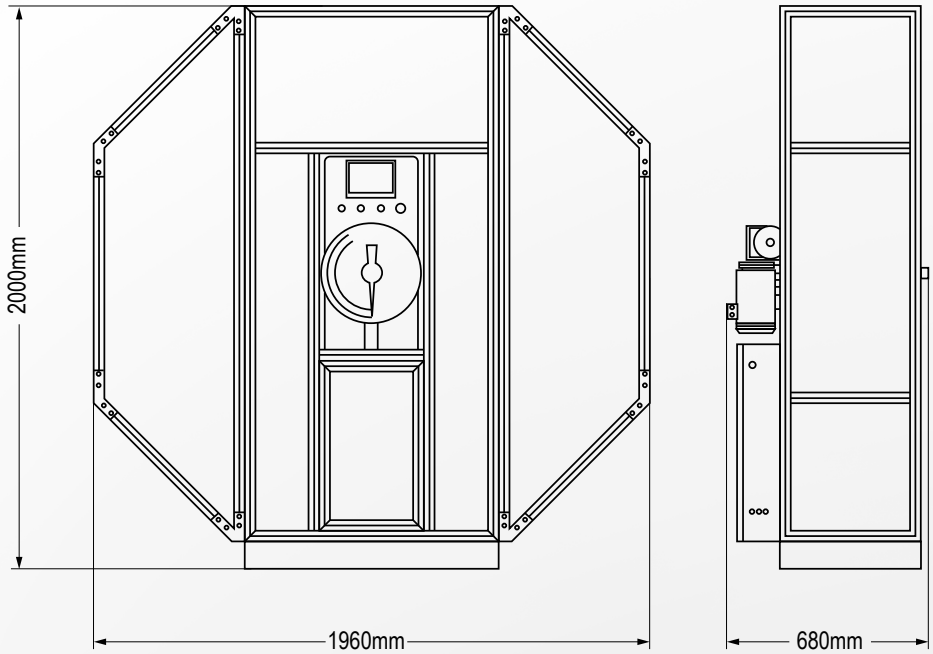
Instrumented impact system

Model	Description	
Force transducer	kN	30/50
A/D sampling resolution	bits	16
Maximum sampling frequency	MHz	1.25
Frequency band width	kHz	500
Motor power	kW	0.1
Power supply	V-Hz-ph	230-50/60-1

Optional accessories

Automatic system

Model	Description
AFS100	Automatic specimen feeding system to test 40 specimens at time continuously at room temperature
AFS180	Automatic specimen feeding system to test 12 specimens at time continuously at room temperature
ACS60	Cylinder liquid nitrogen cooling capacity 160L Automatic cooling system to use with model AFS100 Temperature range from environment to -60°
ACS100	Cylinder liquid nitrogen cooling capacity 160L Automatic cooling system to use with model AFS100 Temperature range from environment to -100°
ACS180	Cylinder liquid nitrogen cooling capacity 160L Automatic cooling system to use with model AFS180 Temperature range from environment to -180°
BMA 350	Motorized notching machine
NPP 50	Notch profile projector
CCS 65	Low temperature chamber -60°C
CCS 85	Low temperature chamber -80°C



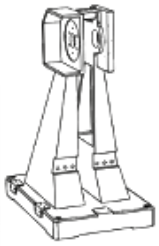
ITM-HF series

ITM-HF series impact tester for:

- Impact on metals, Charpy, both non-instrumented and instrumented
- Servo motor driven pendulum can stop at any position, realizing different angle/energy impact test for R&D use
- Standards: ASTM E23, ASTM E1820, ASTM E2298, ISO 148, EN10045, ISO 14556, JIS Z 2242, GOST 9454-78

HIGH LOADS

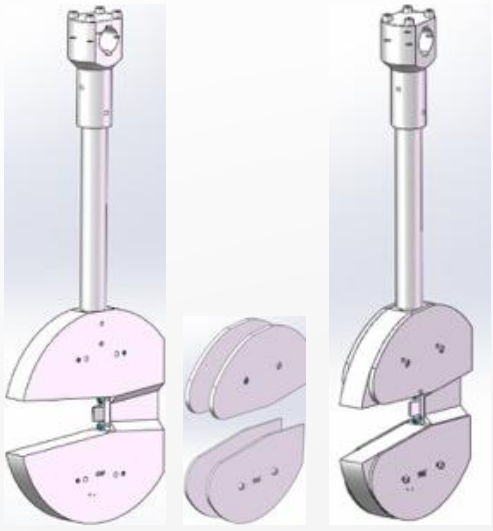
- Heavy solid steel base machine structure for anvil and heavy-duty cast steel uprights supports.
- Structure designed to change different pendulums easily.
- Impact testing machines equipped with electromagnetic hammer release system and clutch for locking and raising to initial position, dumper to prevent strong bump.
- ITM-HF series equipped with Siemens PLC for tester controls and with high precision rotary encoder NEMICON, to measure the angle with resolution of 0.025° to ensure high accuracy of impact energy



Three versions available:

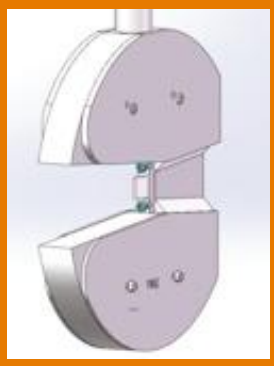
- ITM-HFD with analogue dial gauge and touch screen display
- ITM-HFC with computer connection and software echoTestPilot .
- ITM-HFI with instrumented impact system consisting in striking knife with force transducer, data sampling card, signal conditioner and test software.

- For all versions are available, as optional, automatic specimen feeding systems and the related automatic cooling systems up to -180°C, combined with software allow fully automatic impact testing.
- High stiffness pendulum rod, no vibration after impact.
- 450J, 750J pendulum consists in 300J, 600J pendulum with two counter weights. This flexible design facilitates switching impact energy.



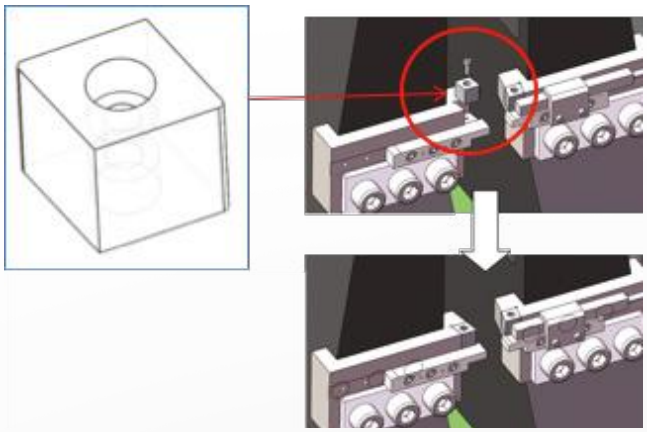
600J pendulum | Counter weights | 750J pendulum

- 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.



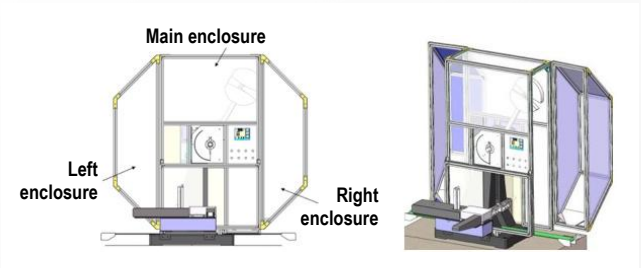
Supports and anvils:

- The anvil material is made high quality steel, 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.
- Anvil is exchangeable and can be used four times by changing mount directions, greatly improving the servicing life and saving cost.



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.



ITM-HF series

Model		ITM-HFD	ITM-HFC	ITM-HFI
Version		**Easy**	**Conventional**	**Instrumented**
Max Energy	J	750		
Analog display	-	Included	Included	Included
Touch screen	-	Included	Included	Included
Software and RS232 cable	-	N/A	Included	Included
Instrumented impact system	-	N/A	N/A	Included
Pendulum moment 150J	Nm	80.3848		
Pendulum moment 300J		150.7695		
Pendulum moment 450J		241.1543		
Pendulum moment 600J		321.5390		
Pendulum moment 750J		401.9238		
Angle resolution	°	0.025		
Striking angle	°	30-150 adjustable		
Distance from support axis to percussion center	mm	750		
Striking velocity	m/s	5.24		
Support span	mm	40		
Radius of support curvature	mm	1		
Angle of support taper	°	11±1		
Striking edge radius	mm	2 (R2) or 8 (R8)		
Striking thickness	mm	16		
Striking tip angle	°	30		
Specimen dimensions	mm	55x10x10		
	mm	55x10x7.5		
	mm	55x10x5		
Motor power	kW	1		
Power supply	V-Hz-ph	400-50/60-3		
Dimensions	mm	2200x800x2150		
Weight	kg	800		

Included accessories

SIEMENS PLC
Full-closed protection cover
Pendulum lock/release system
Driving system
Angle measurement system
Servo motor
Anchor bolt
Charpy support and anvil compliance with ISO and ASTM
Span block
Specimen centering block
Centering tongs
Wedge block
Specimen collection device

Accessories

Model	Description
PITM-HF30	Pendulum without striker knife 300J
PITM-HF45	450J pendulum counter weights assembled on 300J pendulum
PITM-HF60	Pendulum without striker knife 600J
PITM-HF75	750J pendulum counter weights assembled on 600J pendulum
CSKR2	Charpy striker knife ISO 148, R2 (For versions ITM-HFD and ITM-HFC)
CSKR8	Charpy striker knife ASTM E23, R8 (For versions ITM-HFD and ITM-HFC)
IISSK2I	Instrumented Charpy striking knife ISO 148, R2 with 30kN force transducer (For version ITM-HFI)
IISSK8I	Instrumented Charpy striking knife ISO 148, R8 with 30kN force transducer (For version ITM-HFI)

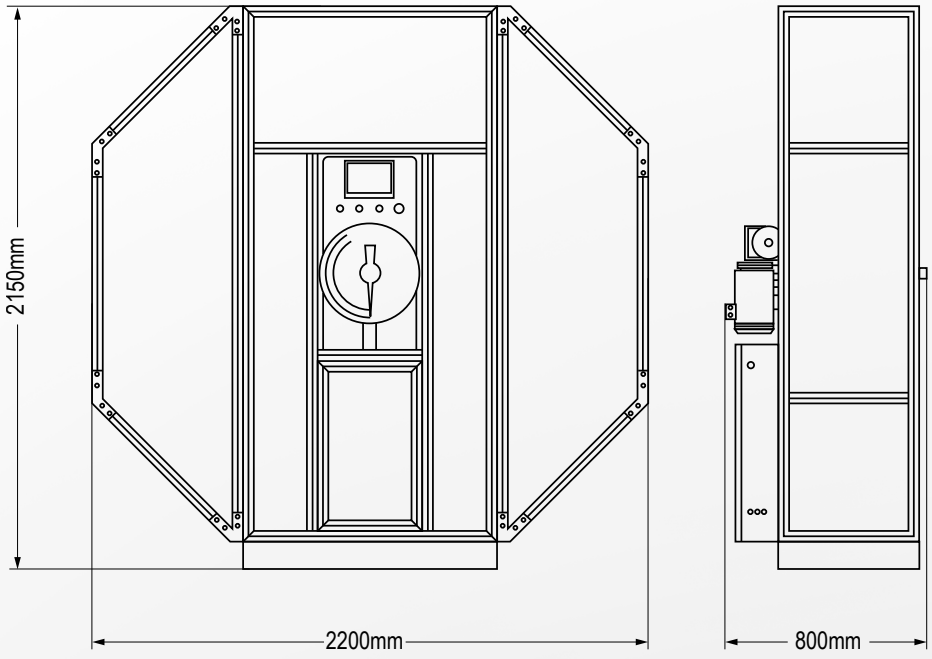
Instrumented impact system

Model	Description	
Force transducer	kN	30/50
A/D sampling resolution	bits	16
Maximum sampling frequency	MHz	1.25
Frequency band width	kHz	500
Motor power	kW	0.1
Power supply	V-Hz-ph	230-50/60-1

Optional accessories

Automatic system

Model	Description
AFS100	Automatic specimen feeding system to test 40 specimens at time continuously at room temperature
AFS180	Automatic specimen feeding system to test 12 specimens at time continuously at room temperature
ACS60	Cylinder liquid nitrogen cooling capacity 160L Automatic cooling system to use with model AFS100 Temperature range from environment to -60°
ACS100	Cylinder liquid nitrogen cooling capacity 160L Automatic cooling system to use with model AFS100 Temperature range from environment to -100°
ACS180	Cylinder liquid nitrogen cooling capacity 160L Automatic cooling system to use with model AFS180 Temperature range from environment to -180°
BMA 350	Motorized notching machine
NPP 50	Notch profile projector
CCS 65	Low temperature chamber -60°C
CCS 85	Low temperature chamber -80°C



ITM-S series

ITM-S series impact tester for metal and other materials, fully complying to ISO 148, EN 10045, ASTM E23, GOST 9574

- One-body cast frame design structure provides high stability and rigidity.
- Front and rear columns are symmetrical and pendulum arm is designed as cantilever beam support.
- ITM-S series is equipped with small friction high precision bearings. Absorbed energy without loading less than 0.3%.
- Double reduction gear system replaces the old drive system with high efficiency avoiding transmission failure.

MOST VERSATILE

- Round pendulum head design reduces the windage losses and its arm prevents axial and transverse vibrations.
- Structure designed to change different pendulums easily.
- Impact testing machines equipped with electromagnetic hammer release system and clutch for locking and raising to initial position, dumper to prevent strong bump.
- ITM-S series equipped with Siemens PLC for tester controls and with high precision rotary encoder NEMICON, to measure the angle with resolution of 0.025° to ensure high accuracy of impact energy

Three available versions:

- ITM-SD with analogue dial gauge and touch screen display
- ITM-SC with computer connection and software echoTestPilot
- ITM-SI with instrumented impact system consisting in striking knife with force transducer, data sampling card, signal conditioner and test software

Automatic Specimen Feeding System

For all versions are available, as optional, automatic specimen feeding systems and the related automatic cooling systems up to -180°C, combined with software allow fully automatic impact testing.

Model		ITM-SD1	ITM-SC1	ITM-SI1
Version		**Easy**	**Conventional**	**Instrumented**
Max Energy	J	450		
Analog display	-	Included	Included	Included
Touch screen	-	Included	Included	Included
Software and RS232 cable	-	N/A	Included	Included
Instrumented impact system	-	N/A	N/A	Included
Pendulum moment 150J	Nm	80.3848		
Pendulum moment 300J		150.7695		
Pendulum moment 450J		241.1543		
Angle resolution	°	0.025		
Striking angle	°	150±1		
Distance from support axis to percussion center	mm	750		
Striking velocity	m/s	5.4		
Support span	mm	40		
Radius of support curvature	mm	1		
Angle of support taper	°	11±1		
Striking edge radius	mm	2		
Striking thickness	mm	16		
Striking tip angle	°	30		
Specimen dimensions	mm	55x10x10		
	mm	55x10x7.5		
	mm	55x10x5		
Motor power	kW	1.5		
Power supply	V-Hz-ph	400-50/60-3		
Dimensions	mm	2124x835x2100		
Weight	kg	1000		

Included accessories
SIEMENS PLC
Full-closed protection cover
Pendulum lock/release system
Driving system
Angle measurement system
Anchor bolts
Span block
Specimen centering block
Centering tongs
Wedge block
Specimen collection device

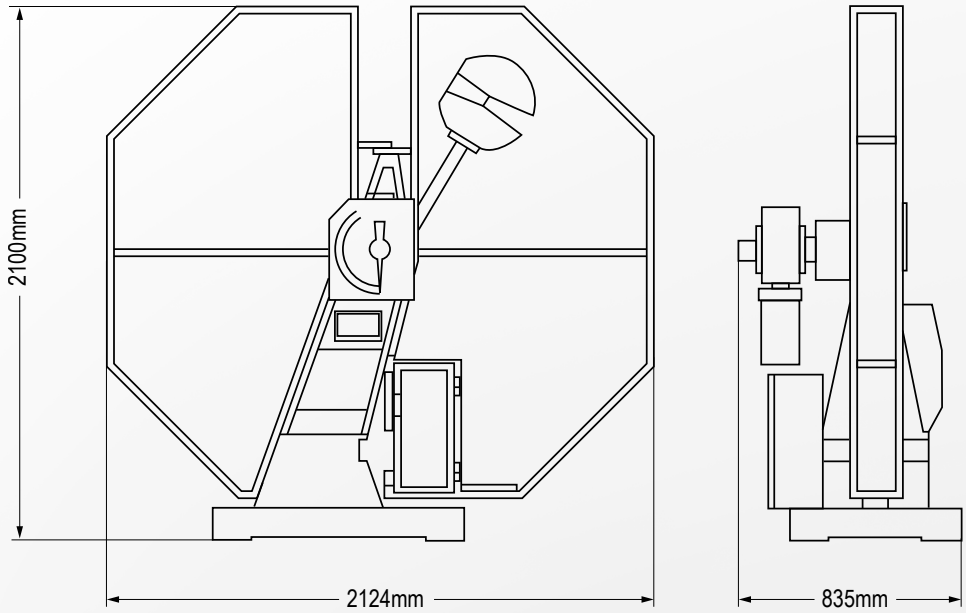
Accessories	
CPITM-S15	Charpy pendulum without striker knife 150J (For versions ITM-SD and ITM-SC)
CPITM-S30	Charpy pendulum without striker knife 300J (For versions ITM-SD and ITM-SC)
CPITM-S45	Charpy pendulum without striker knife 450J (For versions ITM-SD and ITM-SC)
CPITM-SIIS15	Charpy pendulum with instrumented striker knife 150J (For version ITM-SI)
CPITM-SIIS30	Charpy pendulum with instrumented striker knife 300J (For version ITM-SI)
CPITM-SIIS45	Charpy pendulum with instrumented striker knife 450J (For version ITM-SI)
CSKR2	Charpy striker knife ISO 148, R2
CSKR8	Charpy striker knife ASTM E23, R8

NOTE: Choose the knife between ISO 148, R2 or ASTM E23, R8

Instrumented impact system		
Force transducer	kN	30/50
A/D sampling resolution	bits	16
Maximum sampling frequency	MHz	1.25
Frequency band width	kHz	500
Motor power	kW	0.1
Power supply	V-Hz-ph	230-50/60-1

Computer System		
Computer System	ECHOCS01	Computer
	ECHOCS02	Monitor
	ECHOCS03	Color printer
	ECHOCS04	Mouse
	ECHOCS05	Keyboard

Optional accessories	
AFS100	Automatic specimen feeding system to test 40 specimens at time conitnuously at room temperature
AFS180	Automatic specimen feeding system to test 18 specimens at time conitnuously at room temperature
ACS60	Cylinder liquid nitrogen cooling capacity 160L Automatic cooling system to use with model AFS100 Temperature range from environment to -60°
ACS100	Cylinder liquid nitrogen cooling capacity 160L Automatic cooling system to use with model AFS100 Temperature range from environment to -100°
ACS180	Cylinder liquid nitrogen cooling capacity 160L Automatic cooling system to use with model AFS180 Temperature range from environment to -180°
BMA 350	Motorized notching machine
NPP 50	Notch profile projector
CCS 65	Low temperature chamber -60°C
CCS 85	Low temperature chamber -80°C



ITM-B series

ITM-B series for Charpy tests on metallic materials, fully complying to ISO 148, EN 10045, ASTM E23, with impact energy 150J, 300J and 450J

- Vibration damping cast iron structure, possibility to choose between three versions:
  - ITM-BA with analogue dial gauge for impact energy reading
  - ITM-BD with analogue dial gauge and touch screen display
  - ITM-BC with computer control and software echoTestPilot.

- Impact testing machine structure, weight and height, are precisely designed to ensure high accuracy
- High precision bearing for small friction.
- ITM-B equipped with motor-driven hammer raising system, auto-return after impact and with electromagnetic pendulum lock.
- Siemens PLC control unit allows high accuracy pendulum action.
- Round shape pendulum design reduces wind resistance

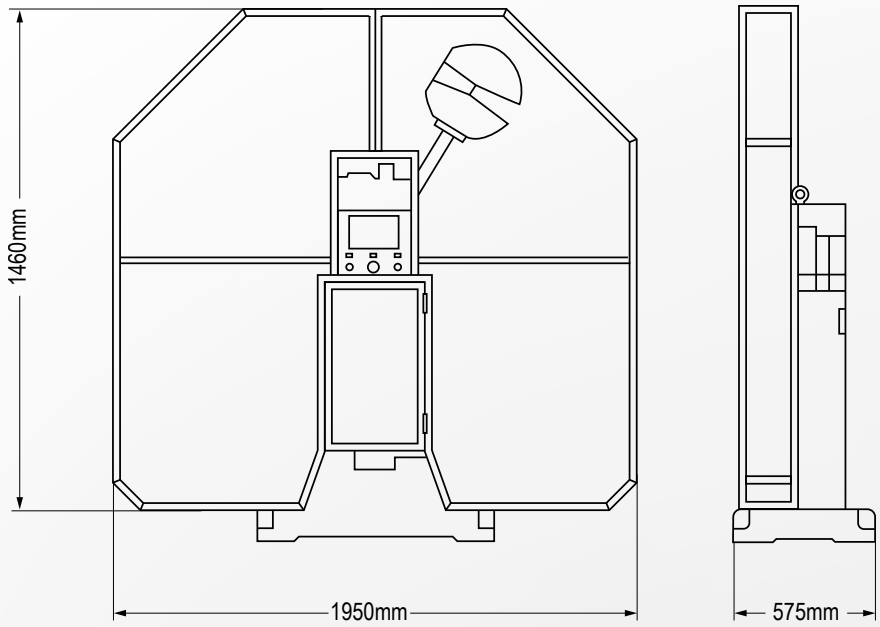
Model		ITM-BA	ITM-BD	ITM-BC
Version		**Easy**	**Conventional**	**Instrumented**
Max Energy	J	450		
Analog display	-	Included	N/A	N/A
Touch screen	-	N/A	Included	Included
Software and RS232 cable	-	N/A	N/A	Included
Pendulum moment 150J	Nm	80,385		
Pendulum moment 300J		160,770		
Pendulum moment 450J		241,154		
Angle resolution	°	0.025		
Striking angle	°	150±1		
Distance from support axis to percussion center	mm	750		
Striking velocity	m/s	5.2		
Support span	mm	40,000		
Radius of support curvature	mm	2.5		
Angle of support slope	°	0		
Angle of support taper	°	11±1		
Striking edge radius	mm	2-2.5		
Striking thickness	mm	16		
Specimen dimensions	mm	55x10x10		
	mm	55x10x7.5		
	mm	55x10x5		
Motor power	kW	0.8		
Power supply	V-Hz-ph	400-50/60-3		
Dimensions	mm	1950x575x1460		
Weight	kg	700		

Included accessories
SIEMENS PLC
Full-closed protection cover
Pendulum lock/release system
Driving system
Angle measurement system
Anchor bolts
Span block
Specimen centering block
Centering tongs
Wedge block

Optional accessories	
Model	**Description**
BMA 350	Motorized notching machine
NPP 50	Notch profile projector
CCS 65	Low temperature chamber -60°C
CCS 85	Low temperature chamber -80°C

Accessories	
Model	**Description**
CPITM-B15	Charpy pendulum without striker knife 150J
CPITM-B30	Charpy pendulum without striker knife 300J
CPITM-B45	Charpy pendulum without striker knife 450J
CSKR2	Charpy striker knife ISO 148, R2
CSKR8	Charpy striker knife ASTM E23, R8

Computer System		
Computer System	ECHOCS01	Computer
	ECHOCS02	Monitor
	ECHOCS03	Color printer
	ECHOCS04	Mouse
	ECHOCS05	Keyboard



IMP series

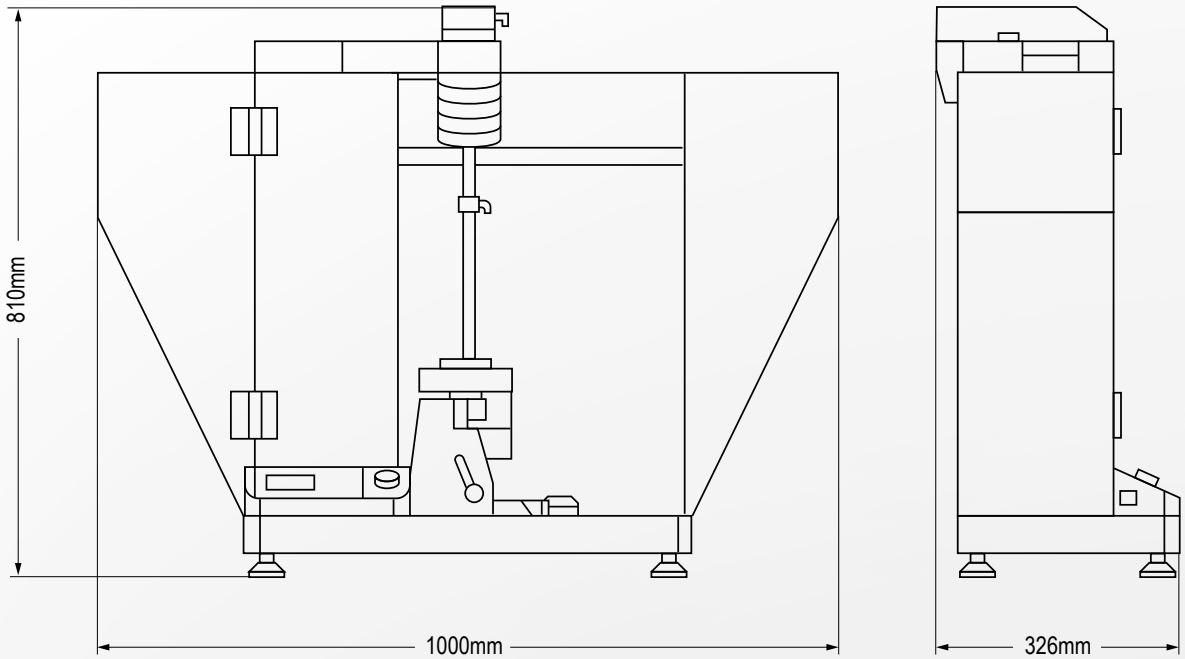
IMP series for Izod, Charpy and Tensile impact tests on plastic pipes, films, sheets and polymers.

› This new series offer the best configuration for Charpy test from 1J to 50J and Izod test from 1J to 22J, in according to international standards like:

- ISO 179
- ISO 180
- ISO 8256
- ISO 9854-1
- ASTM D256
- ASTM D1822

The IMP series is designed according to high engineering standards with:

› **High resolution**: shaftless encoder allows angle resolution of 0.045°.
› **Energy losses**: shaftless encoder rotates without any friction, only support bearings friction and windage has the lowest energy losses
› **Center alignment**: rotating design, fast and accurate specimen alignment center for Charpy test
› **Support and anvils**: supports tightened by dovetail groove firmly. Fast disassembly for change the supports
› **Exchangeable pendulum**: simply change the pendulum to perfomr Izod, Charpy and Tensile impact test
› **LCD display**: LCD display provides easy setup of specimen dimensions, pendulum energy, units and calibration data. Display test results like impact toughness and absorbed energy.



Model		IMP550
Main frame		
Max Energy	J	50
Motor power	kW	0.3
Striking angle	°	150
Angle resolution	°	0.045
Digital display resolution	J	0.01
Power supply	V-Hz-ph	230-50/60-1
Dimensions	mm	1000x326x810
Weight	kg	140
Pendulum moment		
Charpy	1J	0.5358983 Nm
	2J	1.0717967 Nm
	4J	2.1435935 Nm
	7.5J	4.0192 Nm
	15J	8.0385 Nm
	25J	13.397 Nm
	50J	26.795 Nm
Izod	2.75J	1.4737205 Nm
	5.5J	2.94744 Nm
	11J	5.8949 Nm
	22J	11.7898 Nm
Tensile impact	7.5J	4.01923 Nm
	15J	8.03847 Nm
	25J	13.39745 Nm
Charpy test for plastic (ISO 179)		
Impact energy	J	1/2/4/7.5/15/25/50
Impact speed	m/s	2.9 (≤5J)
	m/s	3.8 (>5J)
Distance from support axis to percussion center	mm	230 (≤5J)
	mm	395 (>5J)
Radius of striker edge	mm	2±0.5
Span	mm	40/60/70 (adjustable by span block)
Specimen dimensions (support span 40mm)	mm	80x10x4
	mm	50x6x4
	mm	120x15x10
Charpy test for plastic pipe (ISO 9854-1)		
Impact energy	J	15/50
Impact speed	m/s	3.8
Distance from support axis to percussion center	mm	395
Radius of striker edge	mm	2±0.5
Span	mm	40/70 (adjustable by span block)
Specimen dimensions LxWxH (support span 40mm)	mm	50±2x6±0.2xE
Specimen dimensions LxWxH (support span 70mm)	mm	120±0.2x15±0.5xE
	mm	100±2 (whole pipe)
Izod test (ISO180, ASTM D256)		
Impact energy	J	2.75/4/5.5/11/22
Impact speed	m/s	3.5
Distance from support axis to percussion center	mm	335
Distance from striking knife to vice upper surface	mm	22±0.2
Radius of striker edge	mm	0.8±0.2
Specimen dimensions LxWxH (impact energy 2.75J)	mm	80x10x4
	mm	63.5x12.27x12.27
	mm	63.5x12.7x6.4
	mm	63.5x12.7x3.2
Tensile impact test (ASTM D1288, ISO 8256)		
Impact energy	J	7.5/15/25
Impact speed	m/s	3.444
Distance from support axis to percussion center	mm	327
Starting height	mm	610
Maximum specimen thickness	mm	4

Included accessories

Encoder angle Shaftless
Controller with digital display
Electromagnetic hook
Half portection shield

Accessories

Model	Description
550CA	Charpy anvil
550IA	Izod anvil

Accessories Charpy (ISO 179)

Model	Description
550C1179	Charpy pendulum 1J
550C2179	Charpy pendulum 2J
550C4179	Charpy pendulum 4J
550C7.5179	Charpy pendulum 7.5J
550C15179	Charpy pendulum 15J
550C25179	Charpy pendulum 25J
550C50179	Charpy pendulum 50J

Accessories Charpy (ISO 9854-1)

Model	Description
CP159854	Charpy pendulum 15J for pipe test
CP509854	Charpy pendulum 50J for pipe test

Accessories Izod (ISO 180, ASTM D256)

Model	Description
550I2.75180	Izod pendulum 2,75J (ISO 180)
550I5.5180	Izod pendulum 5.5J (ISO 180)
550I11180	Izod pendulum 11J (ISO 180)
550I22180	Izod pendulum 22J (ISO 180)
550I2.75256	Izod pendulum 2,5J (ASTM D256)
550I5.5256	Izod pendulum 5.5J (ASTM D256)
550I11256	Izod pendulum 11J (ASTM D256)
550I22256	Izod pendulum 22J (ASTM D256)

Accessories Tensile Impact (ASTM D1822, ISO 8256 method B)

Model	Description
TI7.51822	Tensile impact pendulum 7.5J
TI151822	Tensile impact pendulum 15J
TI251822	Tensile impact pendulum 25J
TI1822TIA	Tensile impact anvil

Optional accessories

Model	Description
PNM 100	Manual notching machine