

Impact Tester

Ball Drop

Easy operating falling dart instrument according ASTM D 1709 and ISO 7765-1

This testing instrument covers the determination of the energy that causes plastic film to fail under specified conditions of impact of a free-falling dart.

This energy is expressed in terms of the weight (mass) of the falling dart from a specified height which would result in 50 % failure of specimens tested.

Features:

- Stable and ergonomic table design
- New Quick-Fix clamping system provides wrinkle-free clamping
- Easy and quick falling height adjustment by guiding lever arm
- Ball drop QC-Link data evaluation system (optional)
- Pre-leveled and ready to operate instrument
- No electrical power supply needed!



Options:

- Film clamping by means of a vacuum pump for tests according BS
- Film roll for continuous testing

Technical data:

	Ball drop
Dimensions	
Width (mm)	560
Height (mm)	2530
Depth (mm)	640
Weight (kg)	60
Compressed air supply (bar)	6
Code No.	4200.000

Falling Weight Tester

Easy operating falling weight tester according RAL 716-1 and others.

This testing instrument is designed to perform biaxial falling weight tests on window profiles, frames, pipes, etc. according different international standards.

Features:

- Stable and ergonomic floor standing design
- Anti-rebound device prevents double impact on specimens
- Easy and quick falling height adjustment
- Self-centering specimen clamping device
- Different specimen vices available
- Variable dropping height



Technical data:

	FWT
Dimensions	
Width (mm)	450
Height (mm), approx.	2500
Depth (mm)	600
Weight (kg), approx.	75
Code No.	4100.000

Impact Tester

Falling Weight Tester - Series PipeTester

The falling weight tester type "PipeTester" has been developed to perform tests on pipes in accordance with ISO 3127, BS EN 1411, BS EN 744 and similar.

This instrument is used to determine the resistance against external shock loading and consist essentially of a downspout (maximum height of 2 metres), a striker (striker weight max. 16 kg) and a corresponding sample holder for the testing of pipes up to a diameter of 630 mm. An anti-rebound device prevent the specimen from a double impact.

Features:

- Robust and rigid design
- Energy range upto 314 Joule
- Energy loss smaller than 0,25%
- Simple and easy specimen holder exchange
- Variable impact velocity thru adjustable falling height from 50 ... 2000 m
- Large impact area for specimens with a length upto 300 mm



Technical:

	PipeTester
Characteristics	
Falling height (mm) (+/- 2)	50 ... 2000
Specimen dimension (mm)	Ø 10 ... 630 mm
Striker geometry (mm)	d25 or d90 (ISO 3127)
Falling weight (kg) with striker d25	0,50 ... 1,25
Falling weight (kg) with striker d90	0,50 ... 16
Potential energy range (J)	10 ... 314
Velocity (m/s)	upto 6,26
Return velocity (m/min.)	12 m/min.
Dimensions	
W x H x D (mm)	1100 x 600 x 3800
Weight (kg), approx.	300 kg
Electrical data	
Power supply (±10 %) 50 Hz (V)	230
Compressed air supply (Mpa)	0,4 ... 0,8



Impact Tester

Falling Weight Tester - Series IT

A highly versatile range of drop weight impact testers for performing a wide range of medium energy tests on materials, end products of various geometries and standardized specimens according to ISO 6603-2, EN ISO 4651, ASTM D 4168, ASTM D 7136 & ASTM D 7137 (Standard Test Method for Measuring the Damage Resistance of a Fiber-Reinforced Polymer Matrix Composite to a Drop-Weight Impact Event) and others.

Various options as:

- Wide range of strikers, anvils, fixtures and jigs available for standard test geometries and for custom testing.
 - Optional sample strippers for extracting striker from tough ductile specimens.
 - Optional second impact prevention system for non-penetrating tests.
 - Optional high velocity impact option for impact velocities up to 20m/s.
 - Optional dynamic displacement measurement system for direct measurement of the sample deformation.
 - Optional high speed, fully integrated video system to provide visualization of specimen failure mode.
 - Optional temperature conditioning chamber, -70°C to +150°C.
- expand the use of this instrument.



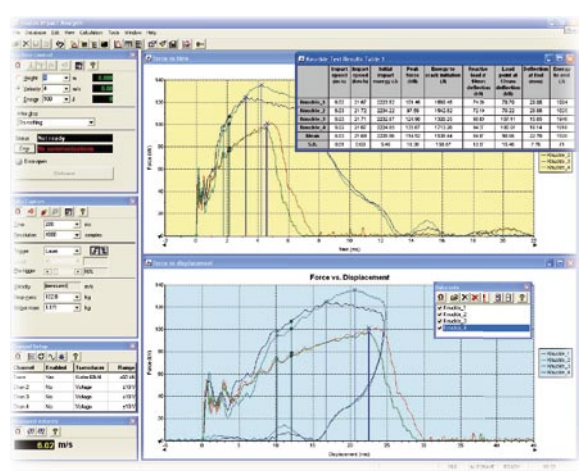
Features:

- Laboratory grade instrumentation and rigid construction for highest accuracy test results
- Guided mass system to ensure that the impact geometry is correct throughout the test.
- Robust construction stands up to the rigours of dynamic testing to provide high reliability
- Easily interchangeable contact parts simplify maintenance and reduce cost of ownership.
- Very high levels of safety employing multiple redundant systems, compliant with 89/392/EEC and 91/368/EEC directives.

Software:

The GUI provides both control of the impact test (drop parameters and data acquisition parameters) and analysis of the resulting data.

Control	Impact parameter (height, velocity or energy) Data acquisition parameters (sample rate, sweep length) Impact sequence
Indication	Machine status Current impact mass position (height, velocity, energy)
Data capture	Force vs time Initial impact velocity



Impact Tester

Options:

Displacement Measurement

Highly accurate, optical displacement measurement allows the direct and synchronous measurement of the specimen deformation and tension. Very high measurement accuracy can be obtained in case of a high change of impact speed during the test.

Features:

- Digital system, does not require a periodical calibration
- High - speed measurement allows a synchronous data capturing (force and acceleration)
- Non-contact measurement - no influence thru impact event

Type	optical sensor
Range	10 mm 200mm F.S.
Resolution	10 μ m
Max. velocity	15 m/s
Rate	max. 3000000 datapoints / sec.
Error	10 μ m + 3 μ m / m
Temperature-coeff.	22 μ m / m / °C



High-Velocity-Option

The High-Velocity option is available for the instrument type IM10-20 and IM100. Test speeds upto 20 m/s (72kph, 45mph) can be obtained.

This option can also be used with the tensile impact kit.

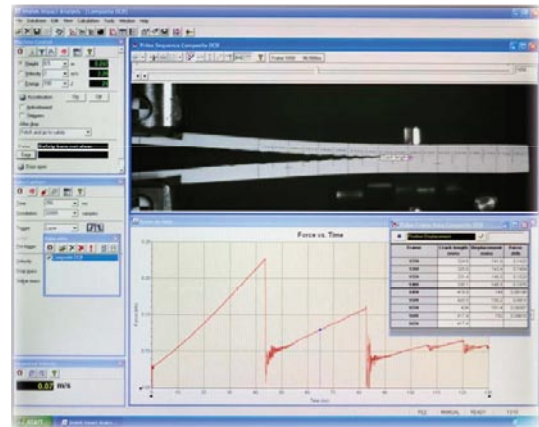
Technical specification:

Speed range (10kg mass):	5 m/s ... 20 m/s
Energy range (10Kg mass):	125 ... 2000 Joule
Reproducibility:	\pm 1%



High-speed camera

The high-speed option is available for any of the range of impact testers, to greatly enhance understanding of the behaviour of a specimen as it undergoes an impact. We offer a fully integrated system under the control of the ImpAcqt software. This is used to both control the camera and analyse the resulting video sequence. Since the camera and the data acquisition share the same trigger, data points and images can be precisely correlated. A video sequence provides a great deal of qualitative information about the impact event, and the software also allows quantitative information to be extracted.



High Rate Tensile Test

The high rate tensile test allows tensile tests to be performed at strain rates unobtainable using traditional servo hydraulic machines. Using appropriate specimens strain rates up to 1500/s or more may be achieved.

The test apparatus is fitted in the impact chamber of an IM10 system.

The specimen is held between two sets of grips – the upper set fixed and the lower set free to move up and down. A special striker fixed to the weight carriage of the impact tester strikes the lower jaws and provides the force required to stretch the specimen (usually to failure).

A transducer attached to the upper jaws measures the force on the specimen and hence the stress.



Cylinder Crush Test

The cylinder crush test combines a highly specialised anvil, a striker and software analysis to investigate the flow stress behaviour of metallic materials. With appropriate selection of specimen size strain rates of up to 1500/s can be achieved.

Temperature conditioning of the anvil is offered as an option in order to investigate flow stress under different thermal conditions.

The anvil is designed to disperse the initial shock wave in order to minimise reflections that would disrupt the results.

The use of the dynamic displacement measurement system is highly recommended.



Impact Tester

Options:

Charpy-V-Notch Test

By using the appropriate anvil and striker, in conjunction with a load cell positioned just above the striker, the IM10 can be used to perform instrumented Charpy testing to quality standards such as ASTM E23, DIN EN ISO 179, ISO10045 and ISO14556.

The rigidity of the anvil, together with the precise guidance of the IM10 falling weight ensure accurate results. Adjustments are provided on the anvil to ensure the correct impact geometry.

The whole apparatus is usable in temperature controlled chamber, enabling tests to be performed at lowered and elevated temperatures, to determine the brittle to ductile transition temperature.

In conjunction with the Impact software the test measures total energy to failure.

In addition, because the system is equipped with high-speed instrumentation, values can be obtained for crack initiation energy and crack propagation energy.



Further options:

- Temperature chamber
 - Temperature range: -70 ... +200°C
 - Dimensions: 360 x 600 x 360 mm (WxDxH)
- Microphon
- Further DAQ - channels (max. 16), 5 ms/s
- CAI - Testing device (Compression after impact testing) acc. ASTM D7136 & D7137
- Testing device for aluminium honeycombs as well as for polymer foams according EN ISO 4651 and ASTM D 4168



Technical data:

	IM 10 - 20
Falling height (mm)	50 ... 2000
Resolution (mm)	1
Accuracy (mm)	+/- 2
Falling weight (kg)	8 ... 30
Steps of ... (kg)	1
Accuracy (%)	+/- 0,5
Velocity (m/s)	1,0 6,26
....with HV - option (m/s)	1,0 20
Energy range (J)	2,5 2000
Testing area	
Dimension clamping area / T-slot plate W x d (mm)	1200 x 700
Height (mm)	650
Instrumentation	
Type	Piezo-electric (Kistler)
Measuring range (kN)	10 ... 120
Linearity (%)	< 0,5
Hysteresis (%)	< 0,5
Oberload range (%)	+/- 150%
Data capturing	
Sampling Rate	3.000.000 / sec.
Resolution	16 Bit
Number of data points / Test	50.000
Velocity measurement	
Resolution (ns)	25
Accuracy (%)	+/- 0,1
Signal conditioning	
Bandwidth	DC - 50 kHz, -3dB
Range (pC)	+/- 100 ... 999000
Output (V)	+/- 10
Linearity (%)	< +/- 0,1
Accuracy (%)	< +/- 0,5
Auto-zero function: automatic zero of force signal output applied	Yes, during test
Calibrated accuracy (%)	+/- 0,1
Timebase accuracy (%)	+/- 0,01
Trigger	via force, laser/photodiode or external signal
Further channels (simultaneous / synchronous measurement)	3
Dimensions	
W x H x D (mm)	1420 x 760 x 450
Weight (kg), approx.	2800 kg
Electrical data	
Power supply (± 10 %) 50/60 Hz (V)	230
Fusing (A)	16
Compressed air (bar)	5 ... 8