

CEAST



progress in testing

RESIL FAMILY



Resil Family

The CEAST family of impact pendulums is designed to determine the impact resistance of plastic, ceramic and other materials. "Resilience" is a critical testing parameter in the evaluation of characteristic properties of materials. Resil Impactor pendulums measure first the energy required to break a specimen and then calculate its resilience based on its cross-section. Test results can be obtained in both Metric and British Units.

International standards

The Resil pendulums are designed and continuously reviewed to satisfy all international testing and safety standards, including: ISO 179, ISO180, ISO 8256, ISO 9854, ISO 7628-2, ASTM D 256, ASTM D 4812, ASTM D 6110, ASTM E 23, BSI 2782-359, DYNSTAT DIN 51230, DYNSTAT DIN 53435 and other equivalent.

Principle of construction (manufacturing) according to ISO 13802 "Plastics - Pendulum impact testing machines - Verification of Charpy, Izod, and Tensile impact testing,

Energy range of impact pendulums

The Resil Family includes Resil 5.5 and Resil Impactor Resil Impactor Junior (separate leaflet available). The energy ranges are:

- Resil 5.5: 0.5 to 5.5 J
- Resil Impactor Junior: 1 to 25 J
- Resil Impactor: 1 to 50 J



Resil 5.5
code 6844.000



Resil Impactor with manual brake
code 6957.000 - 6967.000



Resil Impactor with pneumatic brake
code 6958.000 - 6959.000
6960.000 - 6956.000

Reliability

CEAST Resil family pendulums have been evolved over 45 years of research and development in impact testing. FEM studies in hammer geometry and calibration have produced the famous CEAST high accuracy hammer range. The patented, extra heavy, cast iron frame design virtually eliminates base vibrations during impact. Advanced international expertise and precision manufacture contribute to the long-term reliability of RESIL pendulums.

Flexibility

Each Resil pendulum can carry out the full range of impact tests. A complete range of fully interchangeable hammers and vices allows the operator to perform Izod, Charpy, Tensile Impact tests at different impact velocities and energies.

Automation

Starting from completely manual impact test systems, additional options provide different levels of automation in the testing process. From automatic hammer calibration, repositioning, auto-braking, partially broken specimen clearance and pneumatic clamping.

Safety

Resil pendulums are manufactured in compliance with CE directive and ISO 13802 Standard. Ceast pendulums are supplied with sturdy safety shields and switches.

Outstanding features of pendulum RESIL 5.5 and RESIL IMPACTOR

- Calibration Check procedure, to verify the reduced length of hammers and their compliance with the standards.
- Reduced length (L_r) measurement is independent from "local gravity acceleration (g)"; L_r is correctly calculated by CEAST innovative pendulum self calibration system.
- Calibration report print-out.
- Automatic windage and friction corrections.
- Soft-touch alphanumeric keypad for functions control and report customization.
- Easy parameters setting in numbers and letters.
- 16-character LCD display with back-lighting.
- Start-angle displayed.
- LED to indicate precise verticality of impact point.
- Measuring Units selection: Metric (SI) or Imperial (BU) units. The user can select these units in the following parameters:

Energy: Joules (J) - SI
foot-pound (ft-lb) - BU
 $Kg_f \cdot cm$

Resilience: kiloJoule/square meter (kJ/m^2) - or Joule/meter (J/m) - SI
foot-pound/square foot (ft-lb/ft²) or
foot-pound/foot (ft-lb/ft) - BU
 $Kg_f \cdot cm/cm^2$

Speed: meter/second (m/s) - SI
foot/second (ft/s) - BU

Width/Thickness: millimeter (mm) - SI
inches (in) - BU

- Serial port for PC, parallel port for printer, additional port for specimen measuring unit.
- Test Report print-out.
- Calculation of statistical values for all tests.
- Safety protection on Resil Impactor available on request.

Hammers

All CEAST hammers must pass exhaustive checking and calibration procedures used with Resil Impactor before qualifying for certification. Such tests include:

- Weight at 90°
- Impact length
- Potential energy
- Reduced length
- Period of swing
- Verticality at rest
- Windage and friction loss
- A series of dimensional measures

Every CEAST hammer is supplied with a calibration certificate containing all the above parameters.

Instrumented hammers used for instrumented determination

Specially designed transducers fitted into the tups of hammers provide a wealth of data on impact events. The value of "instrumented impact" depends on the quality and scope of data obtained and the capacity to elaborate the information. CEAST instrumented hammers, with individual calibration signatures loaded on disk, transfer up to 16,000 data points from each impact to the hardware and software of the latest CEAST impact analysis systems, DAS Junior and DAS 16000, in Windows environment (separate leaflet available). Individual calibration charts are supplied with each instrumented hammer (or vice in case of instrumented Tensile Impact tests) according to EN ISO 9001 requirements.

Dynamic calibration of instrumented hammers

The force calibration of instrumented hammers is a matter of primary importance since all test data and material properties are calculated on the basis of force: deformation, velocity, energy, and all fracture parameters. The new dynamic calibration procedure allows accurate force measurements due to the fact that calibration is performed at the same dynamic conditions as the test itself. This method does not require any additional equipment, except those used for normal impact test execution: pendulum, instrumented tup and CEAST software module for dynamic calibration (paper available).

Data output: "stand alone" or Network?

Resil 5.5 and Resil Impactor can work alone providing the "absorbed energy" data. Display resilience value, impact speed and rising angle in both Metric and British Units. Data can be directly printed providing a test report with: test conditions, material information, absorbed energy, resilience, average values and standard deviation. Test data can also be sent to a PC using the VISUALIMPACT software with statistical analysis (you'll find more details in this booklet). This option allows many networking possibilities for LIMS or other applications.



Instrumented hammer



Statistic set curves from VISUALIMPACT



General Description

The RESIL 5.5 is the smallest CEAST pendulum designed for testing low resilience impact specimens, from 0.5 Joule to 5.5 Joule, according to current international standards. The major features are: the accurate self-calibration system and the automatic windage friction correction during tests. The absorbed energy is measured by a digital encoder mounted on the shaft of the pendulum.

Test data and parameters can be printed directly without need of a PC.



Soft-touch keypad to set up parameters



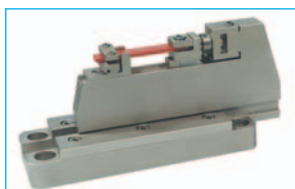
LCD display



Hammer for Charpy impact tests



Vice for Charpy impact tests



Vice for instrumented tensile impact tests

- ① The soft-touch alphanumeric keypad on the control panel of the instrument allows the user to set up to 16 parameters including: energy, speed, start angle, specimen dimensions, notch type, operator name, material data, comments, etc. It also controls the calibration system, friction and windage correction, language selection (English, Italian, French and German), data print-out and measuring unit selection. Another feature is the vertical position indicator which confirms the exact levelling of the instrument.
- ② LCD display shows all operating data: test parameters, self-calibration result, start angle, absorbed energy and impact resilience in Metric (SI) and British Units (BU).
- ③ A complete range of hammers, both instrumented and normal, is available for different energies, speeds and types of test (IZOD, CHARPY and TENSILE IMPACT).
- ④ Full range of vices for IZOD, CHARPY and TENSILE IMPACT testing. Vices are interchangeable depending on impact speed and type of test. Instrumented vices are available for instrumented TENSILE IMPACT testing.
- ⑤ Serial connection to an optional PC with VISUALIMPACT statistical software and parallel connection for hammer calibration report and test report print-out. An additional feature allows the user to digitally measure the specimen dimensions via an optional measuring unit - code 6844.013.

Vice and hammer to carry out tests according to DYNSTAT - DIN 51230 are also available.

An optional device for selection of hammer starting angle allows to perform tests at different potential energies and impact velocities.

General Description

The Resil Impactor is the biggest and most sophisticated pendulum of CEAST Resil Family. The microprocessor controlled keypad commands all its functions, options and test protocols. Like the RESIL 5.5 it features the self-calibration system for hammers and also automatic windage/friction correction during tests. Data can be sent directly to a printer or to VISUALIMPACT statistical software on a PC.

Models available:

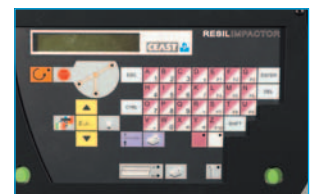
- 6967.000 - with Manual brake - 25 J
- 6957.000 - with Manual brake - 50 J
- 6958.000 - with Pneumatic brake - 25 J
- 6959.000 - with Pneumatic brake - 50 J
- 6956.000 - with Pneumatic brake and hammer repositioning - 25 J
- 6960.000 - with Pneumatic brake and hammer repositioning - 50 J



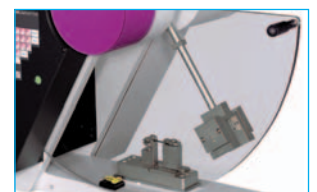
- ① A 16 character LCD displays RESIL status, operating prompts and the following data: test parameters, calibration result, start angle, absorbed energy and impact strength in Metric and Imperial units (SI - BU).
A digital encoder mounted on the rotational axis accurately measures the rising angle.
- ② The soft-touch alphanumeric keypad allows easy entry of all test parameters, such as: energy, speed, start angle, specimen dimensions, notch type, operator name, material data and comments.
It also controls all the operating functions including: hammer calibration system, friction and windage correction, measuring units, calibration and results printing, hammer braking and repositioning after impact, specimen clamping and cutting, language selection [English, Italian, French and German].
A vertical position indicator on the panel confirms the exact levelling of the instrument.
- ③ A full range of hammers for all standards and testing modes is available, both instrumented and non-instrumented.
The compliance of hammers with the standards can be verified at any moment by activating the self-calibration function.
- ④ Parallel connection to a printer and serial connection to PC are provided on the back of the instrument. Additional port for the optional specimen measuring unit is also provided as standard.
- ⑤ Full range of interchangeable vices for IZOD, CHARPY and TENSILE IMPACT modes and instrumented vices for TENSILE IMPACT tests are available.
- ⑥ Double switch to release the hammer.

Available as an option is the specimen cutting device, designed to remove the unbroken portion of IZOD specimens immediately after impact and before the backswing of the hammer. The purpose is to prevent damage to the hammers during intensive impact testing.

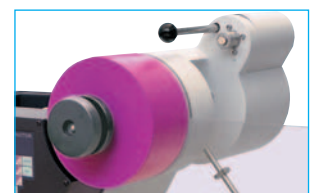
Specimen dimensions can be digitally measured and stored in the instrument via an optional measuring unit (code 6844.013) to calculate directly the resilience in J/m or kJ/m². A full safety system protects the user.



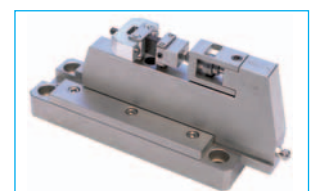
Soft-touch keypad to set up parameters





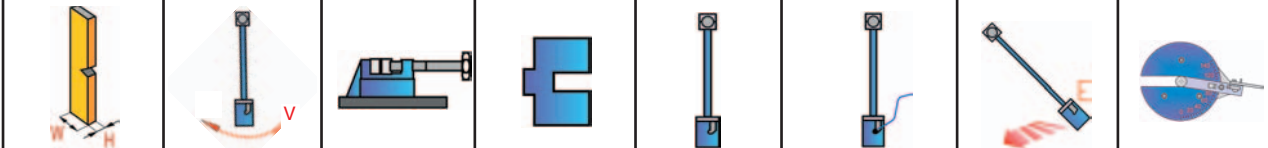
Hammer and vice for non-instrumented impact tests


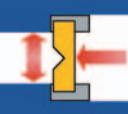
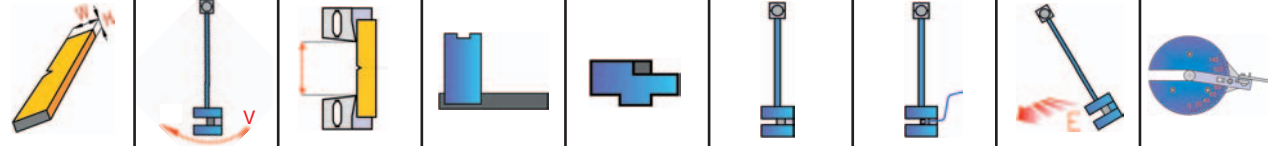



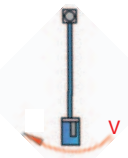





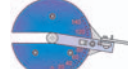
Manual brake system


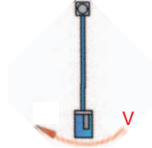
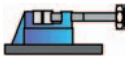
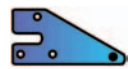




Instrumented vice for tensile impact tests



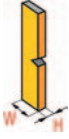


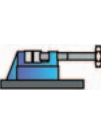

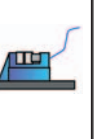
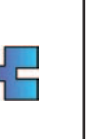
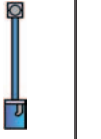
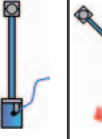
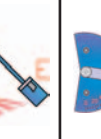

	Component configurations for: IZOD TESTS FOR RESIL 5.5								
	Standards	Specimens W x H [mm]	Speeds [m/s]	Vices	Adapters	Hammers	Instrumented Hammers	Potential Energy [J]	
ISO 180* ASTM D 256* BSI 2782 - 350*	12.7 x 12.7	3.46	6844.005	6545.124	6545.920 6545.919 6545.024 6545.025	6547.935 6547.936	0.5 1 2.75 5.5	6545.922 + 6844.138	
	12.7 x 6.35	3.46	6844.005	6545.050					
	12.7 x 3.17	3.46	6844.005	Included in vice 6545.051					
ISO 180* BSI 2782 - 350*	10 x 4	3.46	6844.005	Included in vice 6545.250					
									


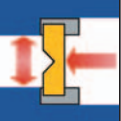






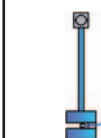
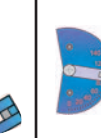

	Component configurations for: CHARPY TESTS FOR RESIL 5.5								
	Standards	Specimens W x H [mm]	Speeds [m/s]	Free Clearance [mm]	Vice	Shoulders	Hammers	Instrumented Hammers	
DIN 53453*	6 x 4	2.9	40	6844.007	6545.055	6545.911 6545.916 6545.011 6545.012	6547.923 6547.924	0.5 1 2 4	6545.922 + 6844.138
ISO 179*	4 x 10	2.9	40 - 62 - 70	6844.007	6545.251				
BSI 2782-359*	10 x 4	2.9	40 - 62 - 70	6844.007	6545.259				
DIN 53453*	10 x 15	2.9	40 - 70	6844.007	6545.056	6545.012 + additional masses 6545.811	6547.924 + additional masses 6545.811	5	
	10 x 15	2.9	100	6844.007	6545.057				
	15 x 10	2.9	40 - 70	6844.007	6545.068				
	15 x 10	2.9	100	6844.007	6545.070				
ASTM D 6110*	12.7 x 3.17	3.46	95.3	6844.006	Included in vice	6545.917 6545.918 6545.935 6545.936	6547.950 6547.951	0.5 1 2.75 5.5	
	12.7 x 6.35	3.46	95.3	6844.006	Included in vice				
	12.7 x 12.7	3.46	95.3	6844.006	Included in vice				
									








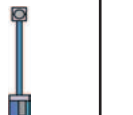


Standards	Specimens W x L [mm]	Speeds [m/s]	Component configurations for: TENSILE IMPACT TESTS FOR RESIL 5.5																					
			Not Instrumented Vices	Instrumented Vices	Crossheads	Hammers	Potential Energy [J]	Starting Angle																
DIN 53448*	Type 1B 10 x 80	2.9	6545.760 + 6844.075 fixed clampings for films 6545.780 or according to ISO 8256 T.5 6545.775	6547.919 6547.920 + 6844.075	6845.080 or 6845.081	6545.960 6545.961 6545.020 6545.021	0.5 1 2 4	6545.922 + 6844.138																
	Type 2 10 x 60	2.9																						
	Type 4 15 x 80	2.9																						
ISO 8256*	Type 1 10 x 80	2.9			6545.760 + 6844.075 fixed clampings for films 6545.780 or according to ISO 8256 T.5 6545.775				6547.919 6547.920 + 6844.075	6545.084 or 6545.085	6545.960 6545.961 6545.020 6545.021	0.5 1 2 4	6545.922 + 6844.138											
	Type 2 10 x 60	2.9																						
	Type 3 15 x 80	2.9																						
	Type 4 10 x 60	2.9																						
ISO 8256 (Type 5)* NF T 51 - 111*	15 x 80	2.9								6545.760 + 6844.075 fixed clampings for films 6545.780 or according to ISO 8256 T.5 6545.775				6547.919 6547.920 + 6844.075	6545.815 or 6545.750	6545.960 6545.961 6545.020 6545.021	0.5 1 2 4	6545.922 + 6844.138						
       																								




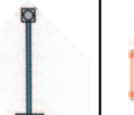
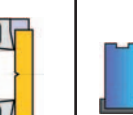






Standards	Specimens W x H [mm]	Speeds [m/s]	Component configurations for: DYNSTAT TESTS FOR RESIL 5.5			
			Vice	Support 76°	Hammers	Potential Energy [J]
DIN 51230* (Dynstat)	10 x 1.5 - 4.5	2.2	6844.095	6844.096	6844.901 6844.902 6844.903	0.5 1 2
     						

* and other equivalent standards

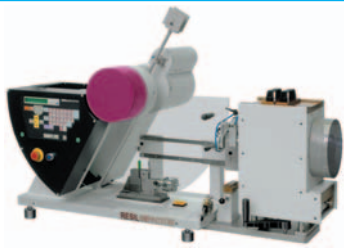
 <p style="text-align: center;">Component configurations for: IZOD TESTS FOR RESIL IMPACTOR</p> 											
Standards	Specimens W x H [mm]	Speeds [m/s]	Manual Vices	Adjustable Clamping Force Manual Vice	Adjustable Clamping Force Pneumatic Vice without Load Cell	Adjustable Clamping Force Pneumatic Vice with Load Cell	Adapters	Hammers	Instrumented Hammers	Potential Energy [J]	Starting Angle
ASTM D 256* ISO 180* BSI 2782 - 350*	12.7 x 12.7	3.46	6845.099	6956.030	6956.070	6956.071	6545.124	6545.919		1	6957.075 only for 6957.000 6958.000 6959.000 6967.000
	12.7 x 6.35	3.46	6845.099	6956.030	6956.070	6956.071	6545.050	6545.024 6545.025 6545.951 6545.951	6547.935 6547.936 6547.902 6547.902	2.75 5.5 7.5 11	
	12.7 x 3.17	3.46	6845.099	6956.030	6956.070	6956.071	Included in vice 6545.051	6545.951 6545.951 6545.951	6547.902 6547.902 6547.902	15 22 25	
ISO 180* BSI 2782 - 350*	10 x 4	3.46	6845.099	6956.030	6956.070	6956.071	Included in vice 6545.250	6545.925 6548.925	6547.902 6547.902	50	
          											

 <p style="text-align: center;">Component configurations for: CHARPY TESTS FOR RESIL IMPACTOR</p> 											
Standards	Specimens W x H [mm]	Speeds [m/s]	Free Clearance [mm]	Vices	Shoulders	Hammers	Instrumented Hammers	Potential Energy [J]	Starting Angle		
DIN 53453*	6 x 4	2.9	40	6545.010	6545.055	6545.916 6545.011 6545.012	6547.923 6547.924	1	6957.075 only for 6957.000 6958.000 6959.000 6967.000		
ISO 179* BSI 2782 - 359*	10 x 4	2.9	40 - 62 - 70	6545.010	6545.259			6547.924		2	
	4 x 10	2.9	62	6545.010	6545.251			6547.924		4	
DIN 53453*	10 x 15	2.9	100	6545.010	6545.057	6545.012 + additional masses 6545.811	6547.924 + additional masses 6545.811	5			
	10 x 15	2.9	40 - 70	6545.010	6545.056						
	15 x 10	2.9	100	6545.010	6545.070						
	15 x 10	2.9	40 - 70	6545.010	6545.068						
ASTM D 6110*	12.7 x 3.17	3.46	95.3	6545.005	Included in vice	6545.918 6545.935 6545.936 6545.937 6545.938 6548.930	6547.950 6547.951 6547.952 6547.908 6547.954	1			
	12.7 x 6.35	3.46	95.3	6545.005	Included in vice			2.75 5.5 11			
	12.7 x 12.7	3.46	95.3	6545.005	Included in vice			22 - 25 50			
DIN 53453*	6 x 4	3.7	22 - 30 - 40	6545.013	6545.058	6545.014 6545.015 6545.015	6547.917 6547.901 6547.901	7.5			
ISO 179* BSI 2782 - 359*	10 x 4	3.7	22 - 30 - 62	6545.013	6545.073			15			
	4 x 10	3.7	22 - 30 - 62	6545.013	6545.111			25			
DIN 53453*	10 x 15	3.7	40 - 70	6545.013	6545.059	6548.195	6547.906	50			
	15 x 10	3.7	40 - 70	6545.013	6545.074						
        											

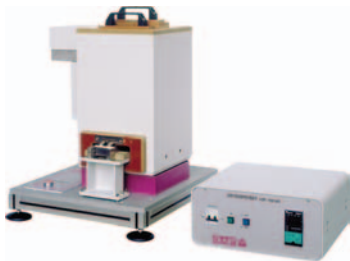
		Components configuration for: TENSILE IMPACT TESTS FOR RESIL IMPACTOR							
Standards	Specimens W x L [mm]	Speeds [m/s]	Not Instrumented Vices	Instrumented Vices	Mobile Clampings	Hammers	Potential Energy [J]	Starting Angle	
DIN 53448*	Type 1B 10 x 80	2.9	6545.760 ÷ 6845.075	6547.919 6547.920 ÷ 6845.075	6845.080 or 6845.081	6545.961 6545.020 6545.021	1 2 4	6957.075 only for 6957.000 6958.000 6959.000 6967.000	
	Type 2 10 x 60	3.7	6545.760	6547.919 6547.920	6845.081 or 6845.082	6545.022 6545.023	7.5 15		
	Type 4 15 x 80	3.7	6545.760	6547.919 6547.920	6845.082 or 6845.083	6545.023	25		
		3.7	6545.926		6545.281	6548.926	50		
ISO 8256*	Type 1 10 x 80	2.9	6545.760 + 6845.075	6547.919 6547.920 + 6845.075	6845.080 or 6845.081	6545.020 6545.021	2 4	6957.075 only for 6957.000 6958.000 6959.000 6967.000	
	Type 2 10 x 60	3.7	6545.760	6547.919 6547.920	6845.081 or 6845.082	6545.022 6545.023	7.5 15		
	Type 3 15 x 80	3.7	6545.760	6547.919 6547.920	6845.082 or 6845.083	6545.023	25		
	Type 4 10 x 60	3.7	6545.926		6845.281	6548.926	50		
ISO 8256* (Type 5) NF T 51 - 111*	15 x 80	2.9	6545.760 + 6845.075		6545.815 or 6545.750	6545.020 6545.021	2 4	6957.075 only for 6957.000 6958.000 6959.000 6967.000	
	15 x 80	3.7	6545.760		6545.750 or 6545.755	6545.022 6545.023	7.5 15		
	15 x 80	3.7	6545.760		6545.755 or 6545.765	6545.023	25		
									

		Components configuration for: ASTM E 23 CHARPY TESTS FOR RESIL IMPACTOR 50 J							
Standards	Specimens W x H [mm]	Speeds [m/s]	Free Clearance	Vice	Shoulders	Hammers	Instrumented Hammers	Potential Energy [J]	Starting Angle
ASTM E 23* (Charpy)	10 x 10	3.46	40	6545.914	Included in vice	6548.915	6547.915	50	6957.075 only for 6957.000 6958.000 6959.000 6967.000
	10 x 7.5	3.46	40	6545.914	Included in vice	6548.915	6547.915		
	10 x 5	3.46	40	6545.914	Included in vice	6548.915	6547.915		
	10 x 2.5	3.46	40	6545.914	Included in vice	6548.915	6547.915		
									

* and other equivalent standards



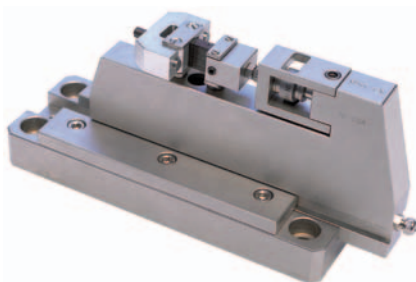
Cryomatic



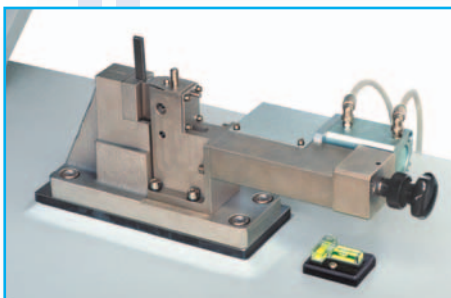
Cryodispenser



Cryobox



Tensile Impact Instrumented Vice



Pneumatic Vice

Ancillary Equipment

Cryomatic - code 7250.000 - 7251.000

The CRYOMATIC is a manual device designed to condition **many** specimens at different temperatures between $-70^{\circ}\text{C} \div +100^{\circ}\text{C}$ and to carry them from the conditioning chamber to the Izod or Charpy vice. The manually-operated handling system assures accurate and repeatable specimen positioning and avoids any contact between the specimen itself and the operator's hands.

Cryobox - code 6956.016

The CRYOBOX, is a cold temperature test chamber designed to condition **one** specimen and carry out Charpy and Izod tests using a Resil Impactor pendulum. The Cryobox is a simple instrument to study the behavior of materials at low temperature, in fact, its cooling system by liquid Nitrogen can perform the test between $-50^{\circ}\text{C} \div +20^{\circ}\text{C}$.

Cryodispenser - code 7260.000

The CRYODISPENSER is a thermostatic chamber for the conditioning of the specimens, usable to carry out Charpy and Izod impact tests at different temperatures. It can be used with all the pendulums and it is equipped with a system that allows to move the specimens, one by one, out of the conditioning chamber. Once out of the chamber, the specimen has to be positioned manually, using a special tool, on the vice. Its conditioning system (cooling by liquid nitrogen and heating by electric resistances) can perform the test from -70°C to $+100^{\circ}\text{C}$.

Specimen temperature reading device - code 6956.012

Non-contact laser thermometer for measuring specimen temperature immediately before impact to accurately determine actual thermal impact conditions. Measurement range: -100 to 200°C .

Remote control hammer release - code 6956.011

Remote I.R. hammer release system available for Resil Impactor model: 6958.000 - 6959.000 - 6956.000 - 6960.000.

To be ordered with instrument (retrofit not possible).

Tensile-Impact Vice used for Instrumented Tensile Determination code 6547.919 - 6547.920

CEAST has developed a new high sensitivity version of the instrumented vice based on the following elements:

- Piezoelectric sensor of extreme rigidity: traditional strain gauge sensors are made up of elastic elements to which the strain gauges are attached, and from their deformation the value of force is obtained. In piezoelectric sensors the deformation can be kept smaller by several degrees of magnitude than in passive strain gauge systems. Thanks to this high degree of rigidity, an extremely broad measuring frequency is achieved, since rigid systems have an inherently higher natural frequency than non rigid ones.
- Ultra-light clamping device: The new tensile impact vice has an ultra-light titanium clamping fixture, so combined with the extremely rigid piezoelectric sensor, it achieves a higher natural frequency of the entire system (around 25 kHz) than any other design. The CEAST tensile-impact vice featuring the aforementioned elements allows the user to obtain the material's impact characteristics with the highest accuracy.

Izod Vices with Adjustable Clamping Force code 6956.030 - 6956.070 - 6956.071

CEAST introduces a new set of accessories for Resil Impactor to measure and adjust the clamping force on Izod specimens. Two kinds of vices are available: manually and pneumatic. The manual vice (code 6956.030) consist of an Izod Vice instrumented with a Strain gauge transducer for measuring the force with which the specimen is clamped.

A new pneumatic vice is also available. The vice is mechanically operated by a foot pedal and is available without load cell (code 6956.070) or with load cell (code 6956.071) to visualize the clamping force on the Resil Impactor LCD display. The ISO 180 Standard, (Plastics, Determination of Izod impact strength), says: "Some plastics are sensitive to clamping pressure. When testing such materials, a means of standardizing the clamping force shall be used and the clamping force shall be recorded in the test report". Therefore, to guarantee consistent repeatability of the test results it is necessary to control the clamping pressure. Until now, this important parameter was solely dependent on the operator's ability and individual subjective criteria, thus generating impact data which could be not comparable between different operators. From now on, thanks to these new CEAST devices the uncertainties of impact tests can be reduced.

Pipe Tests on Resil Impactor

Resil Impactor also offers the possibility to carry out Charpy tests on small pipes, with outside diameter from 4 to 20 mm, according to ISO 7628-2.

The necessary equipment to perform this test includes:

- Charpy Hammer for pipe tests - 7.5 Joules, code 6545.320
- Charpy Vice for pipe tests, code 6545.325
- Metal Adapters for pipes diameter: 4-6-8-10-12-15-16-18-20 mm
- Polyamide interchangeable adapters for the above pipes diameters.

Besides, specific accessories allow to carry out, using Resil Impactor, tests on pipes according to ISO 9854 "Thermoplastics pipes for the transport of fluids - Determination of pendulum impact strength by the Charpy method".



Ancillary for Impact Pipe Tests

Software for acquisition, storage and processing of impact data using CEAST Resil Family Pendulums

Ceast Software available with Resil Family VISUALIMPACT - code 0710.680

The new VISUALIMPACT software is designed to control CEAST pendulums and falling weight instruments, managing tests and offering a user-friendly interface for instrumented (with DAS systems) and non-instrumented tests. It records data related to impacts, visualizes and analyzes the results and calculates resilience.

The operator is guided through parameters setup by means of tables describing strikers and specimens that are filtered according to the test type and international standard selected. Working with groups of tests the software performs a statistical analysis. Multiple sets of tests can be programmed and run, controlling specimen conditioning cycles by environmental chambers and cryogenic units, optical and IR imaging options, and dimension-measuring devices.

The features of this program are:

Test parameters definition Fig. 1, 2

- A table, filtered according to the selected international standard, helps the operator choose the specimen to be used by displaying graphically the requested shape and dimensions; it is also possible to use customized specimens
- A table, filtered according to the selected international standard, assists in the hammer and striker choice, using either serial number (written in the certificate) or component description
- Subdivision of other parameters in several windows to help in parameters compilation

Performing tests

- Main settings of the instrument and test parameters can be displayed at any time
- Customizable graphs for test output visualization

Results visualization Fig. 3, 4

- Absorbed energy during impact and calculated resilience value (expressed in kJ/m^2 , in J/m and in BU units) are shown in graphs
- Statistical data from impacted specimens (minimum, maximum, medium value, standard deviation and variance) are shown
- The operator can discard or include again (in results visualization and in the test reports) selected specimens to study variations of statistical data
- Data can be filtered by break type (i.e. complete break, partial break,...)
- The operator can change specimen dimensions after test and recalculate test results

Data Export

- Data export in .txt or Excel format
- Customizable selection of fields to appear in exported file
- Print out of parameters and results to be exported

Other Features

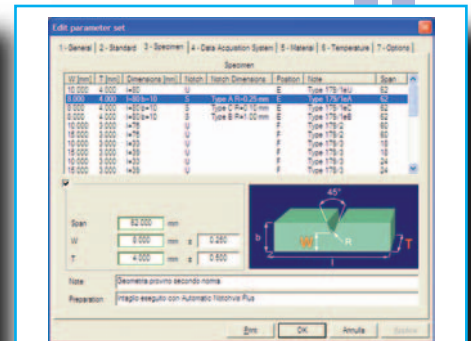
- Possibility to connect a micrometer for direct acquisition of specimen dimensions
- Full management of Data Acquisition System (CEAST DAS 8000 or DAS 16000) for instrumented tests, with drivers for USB connection to PC

Languages

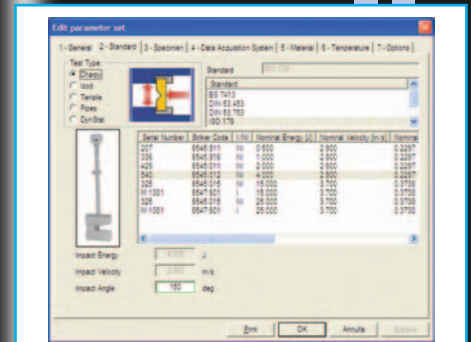
- English, French, German, Italian, Japanese,...

Operating system

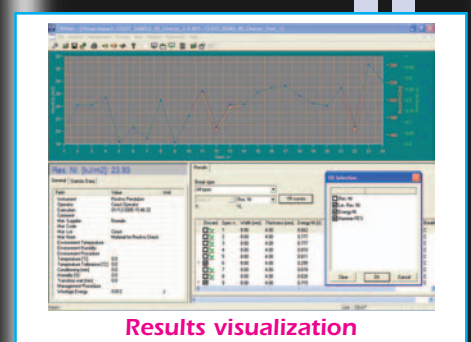
- Microsoft Windows
- Communication: Serial port, USB port
- Printer supported: All printers supported by Windows



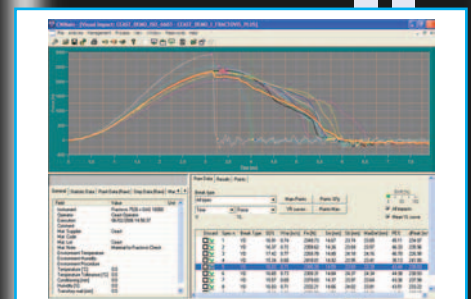
Parameter table for specimen choice



Parameter table for striker choice



Results visualization



Statistic set curves from VISUALIMPACT

Technical Data

Model Code	RESIL 5.5 6844.000	RESIL Impactor 6967.000	RESIL Impactor 6957.000	RESIL Impactor 6958.000	RESIL Impactor 6959.000	RESIL Impactor 6956.000	RESIL Impactor 6960.000
		Manual brake	Manual brake	Pneumatic brake	Pneumatic brake	Pneumatic brake and hammer repositioning system	Pneumatic brake and hammer repositioning system
Energy Range (J)	0.5 ÷ 5.5	1 ÷ 25	1 ÷ 50	1 ÷ 25	1 ÷ 50	1 ÷ 25	1 ÷ 50
Dimensions (L x D x H) [mm] Including Safety Shields	900 x 400 x 750	1,000 x 600 x 800					
Weight [kg]	80	200	340	230	370	200	370
Supply	230 V - 50/60 Hz Singlephase (110 V on request)						
Power [W]	50	80	80	100	100	500	500
Compressed Air Supply [MPa]				0.6			
Paint	gray RAL 7035 fuchsia RAL 4006	gray RAL 7035 - fuchsia RAL 4006 - anthracite RAL 7006					



"Due to the continuous development policy of CEAST's Research and Development Department, changes may be introduced without notice"

These instruments are made in compliance with CE health and safety requirements



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