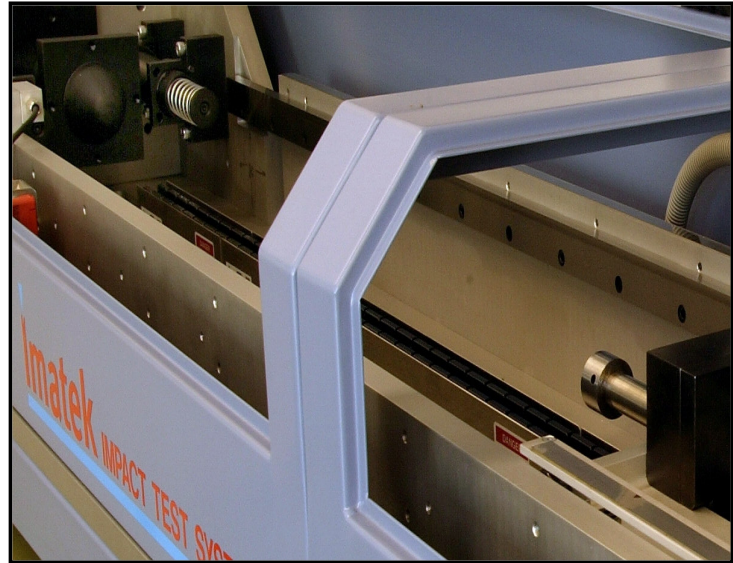


## Imatek Horizontal Impact Tester

### Imatek HIT

The Horizontal Impact Tester from Imatek brings a stunning new approach to the world of material testing. Its patented design uses a linear electric motor to achieve high rates of deformation in a compact, bench height, form factor that will fit in any laboratory.



#### Key features:

- Compact design
- Precisely controlled impact energy even for highly-deformed specimens
- Very low impact energies possible
- High quality instrumentation
- Very high level of operator safety
- Convenient bench-height sample loading
- Robust, reliable design
- World-class analysis software, Impacqt
- Imatek support

Applications include plaque and film testing, automated testing for quality assurance purposes, characterisation of energy-absorbing materials, resilience testing of rubbers, low-energy testing of advanced composites, high-rate tensile testing, Charpy and IZOD testing and fatigue testing.

### Mechanical

Construction	Linear motor, hardened and ground bearings, and anvil support mounted on machined steel frame. For high-energy applications the steel frame is bolted to the floor. Clear polycarbonate cover.
Anvil stiffness	1000kN / mm
Safety	Interlocked covers prevent operator access when impact cycle is active Linear motor de-energised when cover is open 89/392/EEC & 91/368/EEC - machinery safety accreditation
Dimensions	1500mm(h) x 2500mm(w) x 500mm(d) Weight 200kg
Services	220VAC 50/60Hz 32A Compressed air 0.4 to 0.6Mpa



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## Impact parameters

Mass	2kg to 25kg in 1kg increments
Velocity	0.5 m/s to 10.0 m/s, continuously variable
Energy	0.25J to 1000J, continuously variable

## Instrumentation

Impact force	Piezo-electric force links 2kN to 120kN full-scale, with exceptionally large dynamic range. Linearity better than 1%.
Impact velocity	By time of flight of accurately machined flag measured by a laser and a photodiode with a resolution of 50ns. Accuracy better than 0.5%
Displacement	Non-contact inductive digital encoder with 10µm resolution. Cumulative error better than 10µm + 20µm per metre, temperature co-efficient 11µm/m/K
Data acquisition	4 channels, plus displacement 14-bit, no missing codes 2,000,000 samples per second maximum 32,000 samples per test per channel 1.1MHz bandwidth <1 bit system noise <0.1% gain error

## Test standards

## Software

The Impact software is a single package that is used to configure tests and to analyse the resulting data. It may also be used in stand-alone mode for offline analysis.

The software is designed for high productivity and includes many ease-of-use features and very powerful analysis and reporting. The user interface is highly configurable to let you work in the way you want, and a series of user levels can be defined to restrict access to certain features of the software so that less advanced users can use the software without the risk of producing invalid results.

Platform	Windows 2000/XP
Recommended system	Pentium 4 2GHz, 128MB RAM, 40GB disk drive, 1280x1024 display resolution. One free PCI slot is required for the standard system, an additional PCI slot is required for the 8 channel option.
Machine control	Impact velocity (may be specified as energy) Sample strippers on/off Data acquisition parameters Impact cycle control (impact only, impact then fetch, multiple impact) Sample chamber temperature (option) Automatic sample loading (option) Manual motor control Full machine status display
Transducer database	Details of all transducer configuration, including calibration information, is held in a database, so working with multiple transducers is made more convenient. The software contains routines to assist with static calibration (single or multi-point) and dynamic calibration (single point)



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Basic analysis	Calculation of force, acceleration, velocity, displacement and energy
Markers	Markers identify points within the captured data. Markers are initially positioned automatically by the software, and may be repositioned manually. An arbitrary number of markers may be defined, for example peak force, peak displacement, sample failure.
Single value analysis	Single values may be extracted from the data and reported. Simple examples include peak force, energy to fail or maximum displacement. There is no limit to the number or complexity of results that may be defined, so analysis can be tailored to specific applications. The software provides a rich set of functions for manipulating measured and calculated data, markers and documentation fields to produce results.
User defined curves	In addition to calculated results, the software also allows you to use the measured data to calculate your own curves. This is most commonly used to calculate engineering stress and strain, but again arbitrarily complex equations can be defined to calculate just about any useful information.
Units	The software allows you to work in whatever units you choose – it provides by default SI, cgs and US units, but also allows you to define your own. All numeric quantities (measured data and documentation information) are recorded along with their units, and when results are calculated their resulting units are calculated too, ensuring consistency and greatly reducing the potential for errors.
Documentation	Two types of documentation information are saved along with the test data: automatically recorded documentation (data acquisition parameters for example), and user-entered documentation. Documentation fields are configurable depending on your particular requirements, and fields can be made mandatory to ensure that critical information is recorded for every test.
Graphs	Graphs are used for displaying measured data and calculated curves. Multiple tests and multiple quantities may be displayed on the same graph. Highly configurable appearance including colours, automatic or manual axis scaling, linear or logarithmic scaling, user-defined or automatic labelling. Graphs may be zoomed to examine the data in detail. Markers are displayed on graphs and may be used to extract quantitative information.
Tables	Tables are used to display single calculated results or documentation information. The results from multiple tests may be displayed in the same table. Flexible formatting includes colours, fonts, column headings, units and the format of numeric results.
Data export	Data can be exported to Microsoft Excel (Office 95 onwards) in native file format. There is also the facility to export data in CSV (comma separated values) format, compatible with almost all numeric analysis packages. The software also includes a graphical editor to prepare curves for publishing.
Filtering	The software includes powerful filtering to remove noise and remove resonances. Filtering is non-destructive, so that the original data is always retained. Three types of filter are available in different strengths: Butterworth, Bessel and FFT. Both low-pass filters and notch filters may be applied. To help you choose the right filter the software includes a tool that allows you to examine data in the frequency domain both before and after the filter is applied, and also shows you the transfer function of any filter you define. Filter settings may be named and saved for repetitive tasks, and data acquisition channels may have default filters defined.
Multiple impact	A multiple impact facility allows you to perform fatigue testing. A series of impacts is performed without user intervention, at a defined rate. You can specify a termination condition to automatically stop the sequence if the sample fails.



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Test database	Test data may be saved either in individual files, or in a test database (Microsoft Access format). Multiple databases may be created, for different users or different applications. Test data stored in files may be copied into the database and <i>vice versa</i> . A powerful search tool can be used to interrogate the database and find tests that match particular criteria: for example, by the date of the test, the type of sample, the peak force seen during the test or the energy absorbed by the specimen.
Auto-save	An auto-save facility ensures that data from a test is never lost, and also imposes a consistent naming scheme for data files. Data can be automatically saved to files or to the test database. If you are performing a multiple impact sequence with a large number of impacts, auto-save lets you save only the results of certain impacts, and discards the rest.
High speed video	Support for the high-speed video option is fully integrated into the software, including camera set-up, automatic control over lighting, and the display of video data from within the software either as still images, moving images, or linked to a graph marker to correlate captured data and video. It also lets you extract calibrated measurements from the video data.
User levels	The software provides for three password-protected user levels. The software functions available to each level may be defined, preventing access to sensitive operations that might affect the accuracy of the data.
Saving settings	Entire software configurations, or partial configurations, may be saved and later restored. This facility is useful both as a back-up mechanism and also to allow quick switching between different test types (for example, compression testing and tensile testing).
Documentation	Full context sensitive help is available, together with a printed and an on-line manual.