

INSTRUMENTED PENDULUM IMPACT SYSTEM

API ASPEN™

SERIES
API

You can now get more information on your plastics from the Izod/Charpy impact tests! Standard Izod/Charpy tests provide a single integrated force vs. time response value for a test specimen but provide little or no information as to the specific performance of the material during the impact event. By adding fast-responding transducers to the pendulum impactor, the actual force at each “instantaneous” point in time during the impact can be determined. Thus, several specimens with the same “impact strength” integrated over time by traditional tests may be shown to differ greatly in their actual performance and instantaneous peak impact resistance.

The ASPEN™ (Acquisition System for instrumented Pendulum impact) system is a complete add-on accessory to the API Advanced Pendulum Impact Tester consisting of instrumented pendulum arms and a high-speed PC-based data acquisition system. It automatically measures, collects and displays the “instantaneous” force in the contact zone of the high-speed impact event, typically 0.2 ~ 20 milliseconds in duration.

The ASPEN system can be added to new or existing API instruments performing traditional Charpy/Izod/Tensile impact tests or added to an API for instrumented-only Charpy/Izod testing.



The API Instrumented Pendulum Impact System uses a highly precise no-preload piezoelectric transducer mounted in the impactor head rather than the simpler, less precise strain gage technology used on other models. This sensor has a rigid body, no moving parts and uses a stable quartz sensing element for long life. The quartz sensor is not sensitive to temperature, and its

high frequency response permits accurate capture of short-duration impulse force data. This, coupled with a very-low-noise precision instrumentation amplifier, provides the highest attainable stability and sensitivity. Results from single or multiple specimens can be digitally analyzed and graphically displayed or transferred to other software such as Microsoft Excel for customized analysis.

The Instrumented Pendulum Impact System includes high range pendulum arm(s) with piezoelectric transducer and added weight sets, instrumentation amplifier, cables, ASPENsoft software, and IBM compatible personal computer (printer not included) with Windows operating system.

NOTE: Instrumented Arm Option does not include API Advanced Pendulum Impact Tester or optional standard Izod and Charpy components for non-instrumented impact testing. Specimen positioning tools are recommended.

SERIES API

OPTIONS:

Three Instrumented Arm Options are available:

- Instrumented Charpy Testing Package for ISO 179 Part 2 (This option includes a special Charpy specimen vise for instrumented-only impact testing.)
- Instrumented Izod Testing Package (Izod specimen vise required.*)
- Instrumented Charpy and Izod Combination (Izod specimen vise required.*)

* Standard vise or clamping-force measuring instrumented vise required.

FEATURES

- PC based Pentium processor (PCI bus)
- Windows based ASPENsoft software
- High speed A/D converter with a 12-bit resolution
- Sampling rate: 500,000 samples/second
- Band Width: 1 MHz
- Automatic triggering (Data sampling begins with signal from API)
- Automatic shut-off of sampling
- Piezoelectric transducer used to measure impact force
- Signal conditioning unit for use with piezoelectric transducer
- Connection to a PC for high speed data transmission
- Accuracy: +/- 0.012% of range (+/- 0.5 LSB)

IMPACT VALUES DISPLAYED

- Peak Time
- Peak Force
- Maximum Deflection
- Energy at Peak
- Total Energy
- Impact Strength

IMPACT DATA DISPLAYS

- Energy vs. Time
- Velocity vs. Time
- Deflection vs. Time
- Force vs. Time
- Energy vs. Deflection
- Force vs. Deflection

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