SD-SERIES™ SHOCK MACHINE

In today's world, products and packaging are required to go through an extensive amount of testing before reaching the distribution environment. Many products are subjected to a specific test standard that requires the shock test. The L.A.B. Shock Machine is used to conduct such tests due to its ability to produce drop impacts that are controlled and reproducible.

TEST WITH CONFIDENCE

The SD-Series™ of mechanical shock machines are used in the design of products and cost effective protective shipping packages. The SD-Series™ produces Half-Sine, Sawtooth, and Square-Wave pulses which comply with ISTA, ASTM, ISO, MIL STD, JEDEC, and other internationally recognized test standards.

SD-SERIES™ FEATURES

- High Performance Carriage: Every SD-Series™ Shock Test System carriage is solid aluminum and precision machined
- Specimens are firmly anchored to the mounting surface, which has a grid of tapped and reinforced holes
- Rebound brakes on every system incorporate a design requiring no auxiliary air or electrical services. The brake arrests the carriage after rebound, preventing secondary impacts, and maintaining position during the hoisting cycle
- Safety guards are standard equipment on all SD-Series™ machines. These safety enclosures surround the hoist mechanism and the carriage falling zone. Opening the electrically interlocked enclosure door will interrupt hoist operation
- No special foundation is needed. A solid steel reaction mass is isolated from the floor by heavy-duty springs and shock absorbers. This unique feature prevents transmission of shock waves created by the carriage impact, and is standard on all models
- Automatic Cycle Counter allows multiple tests without operator intervention
- All SD-Series™ are manufactured in the USA using the finest materials available
SD- SERIES™ OPTIONS

- Additional drop height is available if required by customer
- Half-Sine Shock Programmer Packs are calibrated to produce standard shock pulses and supplied with Engineering Data
- Trapezoidal (Square-Wave) Programmer - pneumatic cylinder using 2000psi compressed NO^2 to generate Square or Trapezoidal waveforms
- Elastomer Half-Sine Kit includes multiple elastomer modules, mounting plates, and fasteners. This allows a wide variety of manually programmed Half-Sine or Haversine pulses
- Dual Mass Shock Amplifier produces short duration, high acceleration shock pulses on small payloads
- Low Velocity Kit produces shock pulses with a velocity change of 1.5 m/s (5ft/sec) or less with a pneumatic cylinder that decelerates the shock table prior to impact
- High Performance Data Analysis and Acquisition Systems are available
- Acceleration Kit - Utilized to increase velocity without additional drop height
- International power source/CE Compliance

SD- SERIES™ MODEL™ COMPARISON

<table>
<thead>
<tr>
<th>SD-Series</th>
<th>METRIC</th>
<th>ENGLISH</th>
<th>METRIC</th>
<th>ENGLISH</th>
<th>METRIC</th>
<th>ENGLISH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machine Type</td>
<td>SD-10</td>
<td>406 x 406 mm</td>
<td>16 x 16 in</td>
<td>610 x 610 mm</td>
<td>24 x 24 in</td>
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<tr>
<td>Size</td>
<td>254 x 254 mm</td>
<td>10 x 10 in</td>
<td>16 x 16 in</td>
<td>610 x 610 mm</td>
<td>24 x 24 in</td>
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<tr>
<td>Test Load Rating</td>
<td>14 kg</td>
<td>31 lbs</td>
<td>91 kg</td>
<td>201 lbs</td>
<td>181 kg</td>
<td>400 lbs</td>
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<tr>
<td>Carriage Weight</td>
<td>20 kg</td>
<td>44 lbs</td>
<td>77 kg</td>
<td>170 lbs</td>
<td>245 kg</td>
<td>540 lbs</td>
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<tr>
<td>Mounting Hole Pattern</td>
<td>M6x1.50 mm</td>
<td>M8x1.25-75 mm</td>
<td>M10x1.25-100 mm</td>
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<tr>
<td>Standard Carriage Fall</td>
<td>1067 mm</td>
<td>42 in</td>
<td>1524 mm</td>
<td>60 in</td>
<td>1524 mm</td>
<td>60 in</td>
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<tr>
<td>Optional Carriage Fall</td>
<td>*** Consult Factory ***</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Maximum Acceleration</td>
<td>3500 G</td>
<td>1500 G</td>
<td>1000 G</td>
<td></td>
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<tr>
<td>Minimum Pulse Duration</td>
<td>0.3 ms</td>
<td>0.5 ms</td>
<td>1 ms</td>
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<tr>
<td>Isolated Base Weight</td>
<td>228 kg</td>
<td>503 lbs</td>
<td>952 kg</td>
<td>2099 lbs</td>
<td>1497 kg</td>
<td>3300 lbs</td>
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<tr>
<td>Floor Space Required</td>
<td>12 x 25 in</td>
<td>686 x 838 mm</td>
<td>27 x 33 in</td>
<td>1219 x 1219 mm</td>
<td>48 x 48 in</td>
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<tr>
<td>Overall Machine Height</td>
<td>Carriage Fall Plus 1321 mm</td>
<td>Carriage Fall Plus 52 in</td>
<td>Carriage Fall Plus 54 in</td>
<td>Carriage Fall Plus 54 in</td>
<td>Carriage Fall Plus 1829 mm</td>
<td>Carriage Fall Plus 72 in</td>
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<tr>
<td>Approx. Shipping Weight</td>
<td>431 kg</td>
<td>950 lbs</td>
<td>1588 kg</td>
<td>3500 lbs</td>
<td>2495 kg</td>
<td>5500 lbs</td>
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<tr>
<td>Standard Power Inputs</td>
<td>120-220V/1 PH/60Hz</td>
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DAS-105 SHOCK DATA ACQUISITION SYSTEM

Introducing the DAS-105 shock data acquisition and analysis system. The DAS-105 represents the latest advancement in shock event detection technology. With a high speed, low noise hardware design, and an easy to use software based graphical interface, the DAS-105 is the perfect blend of performance and user convenience.

WHAT DOES THE DAS-105 OFFER?
- Up to 8 channels dual DSP distributed architecture (standard package is 4 channels)
- All DAS Systems come standard with a Triax Accelerometer
- Plug and play USB interface
- ICP or analog input
- 24 bit resolution for analog-to-digital conversion
- 192 KHz sampling frequency per channel
- Built in programmable amplifier or ICP constant flow signal conditioning
- 0.1 to 100ms pulse duration capture
- Manual or automatic triggering modes
- FFT, time domain, shock response, force deflection, and RSS analysis
- Flexible filtering options
- Detects Half-Sine, Square, Trapezoidal, Clock, Triangle, and Sawtooth Waveforms

DAS-105 FEATURES
- Custom real-time data storage & presentation
- Programmable testing parameters
- Real-time auto scale graphing
- Programmable home preset for repetitive testing
- Universally exportable data format
- Custom control & presentation options available
- Data storage and retrieval
- Multi and single set graphing
- Static (warehouse) simulation control settings for load, duration, and displacement
- Complies with ASTM, ISO, and other internationally recognized standards

DATA STORAGE
- Playback: Manually play back shock waveforms
- Automatically saves signals
DATA ACQUISITION SOFTWARE

SHOCK RESPONSE SPECTRUM (SRS) ANALYSIS *

- Resolution: 1, 1/2, 1/3, 1/6, 1/12, 1/24th multiple frequency formula analysis
- Analysis of parameters: Adjustment of D (damp) and Q value, individually adjusting upper and lower limit and reference frequency
- SRS Chart, SRS Cascade Observation, Force deformation analyst, Triaxial analyst, and Torsion impact analyst
- SRS Definition: Calculation of SRS via ideal waveforms, automatic generation of RRS, setting of allowance in RRS table or waveform

DAMAGE BOUNDARY CURVE (DBC) *

- Measures frailty of product
- Critical velocity change is determined
- Knowing the DBC will reduce testing on standard products that have been modified
- Reduces cushioning of packaging and overkill in the design process

* Standard on 8 Channel DAS-105, optional on 4 Channel

IDEAL WAVEFORMS

FILTER SETUP

TEST TARGET SETUP

Due to our continuous commitment to product development, the above specifications and features may be modified without notice.