

## 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<sup>2</sup> 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

## SD-Series



	METRIC		ENGLISH		METRIC		ENGLISH		METRIC		ENGLISH	
Machine Type	SD-10				SD-16				SD-24			
Size	254 x 254 mm		10 x 10 in		406 x 406 mm		16 x 16 in		610 x 610 mm		24 x 24 in	
Test Load Rating	14 kg		31 lbs		91 kg		201 lbs		181 kg		400 lbs	
Carriage Weight	20 kg		44 lbs		77kg		170 lbs		245 kg		540 lbs	
Mounting Hole Pattern	M6x1-50 mm				M8x1.25-75 mm				M10x1.25-100 mm			
Standard Carriage Fall	1067 mm		42 in		1524 mm		60 in		1524 mm		60 in	
Optional Carriage Fall	*** Consult Factory ***											
Maximum Acceleration	3500 G				1500 G				1000 G			
Minimum Pulse Duration	0.3 ms				0.5 ms				1 ms			
Isolated Base Weight	228 kg		503 lbs		952 kg		2099 lbs		1497 kg		3300 lbs	
Floor Space Required			12 x 25 in		686 x 838 mm		27 x 33 in		1219 x 1219 mm		48 x 48 in	
Overall Machine Height	Carriage Fall Plus 1321 mm		Carriage Fall Plus 52 in		Carriage Fall 1549 mm		Carriage Fall Plus 61 in		Carriage Fall Plus 1829 mm		Carriage Fall Plus 72 in	
Approx. Shipping Weight	431 kg		950 lbs		1588 kg		3500 lbs		2495 kg		5500 lbs	
Standard Power Inputs	120-220V/1 PH/60Hz											

## 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.

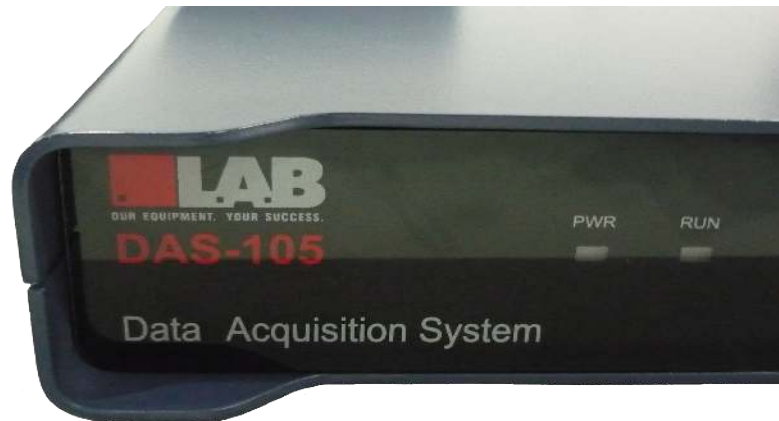
### WHAT DOES THE DAS-105 OFFER?

- 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

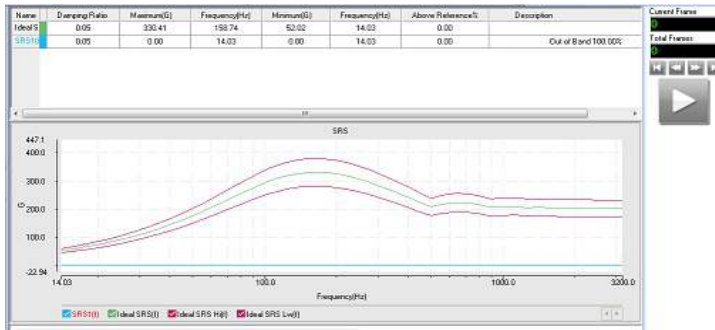
- Custom real-time data storage & presentation
- Programmable testing parameters
- Real-time auto scale graphing
- Programmable home preset for repetitive testing
- Universally exportable data format
- Custom control & presentation options available
- Data storage and retrieval
- Multi and single set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



### DATA STORAGE Windows 8

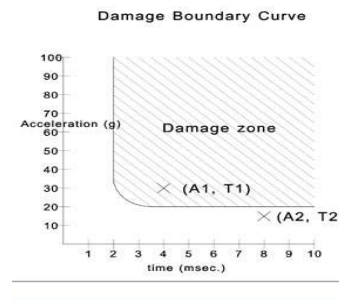
- Playback: Manually play back shock waveforms
- Automatically saves signals

## 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

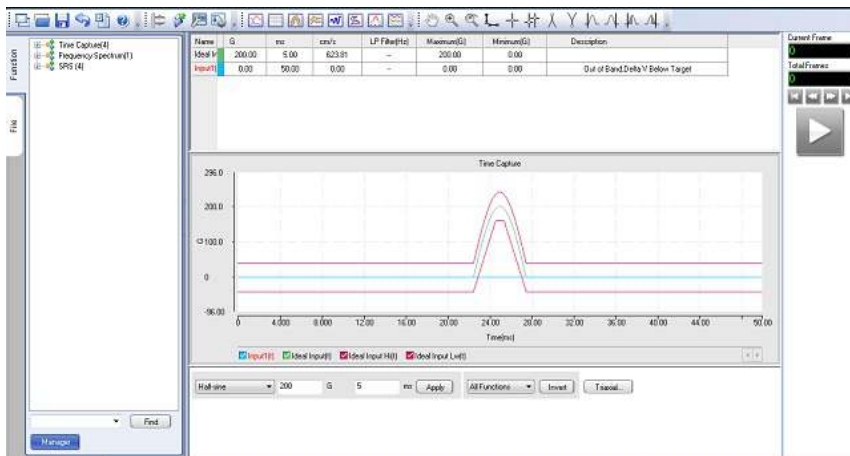
## DAMAGE BOUNDARY CURVE (DBC) \*



- 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

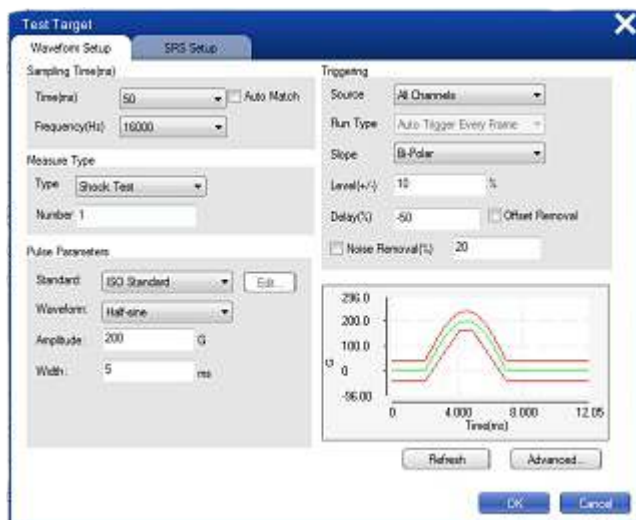
## IDEAL WAVEFORMS



## FILTER SETUP



## TEST TARGET SETUP



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