High Speed Shock Test Systems

Lansmont Field-to-Lab®

Lansmont High Speed Shock Test Systems are specialized shock machines capable of generating extremely high energy impacts.

The incredible shock levels that High Speed Shock Systems can achieve are needed for defense, aerospace and high performance electronics applications. To provide the increased testing capability, High Speed Shock Test Systems utilize highly efficient Acceleration Kits, suspended seismic reaction masses, and oversized load frame components for greater strength.

Mechanical shock tests accurately measure the fragility of products and evaluate how they respond to particular shock inputs. Shock test data is key information to ensure any product is capable of withstanding its intended "real world" use. To make shock testing as simple and easy as possible, each High Speed Shock System comes standard with a TouchTest Shock 2 Controller which communicates seamlessly with Test Partner Data Acquisition Systems.

Model HSX20

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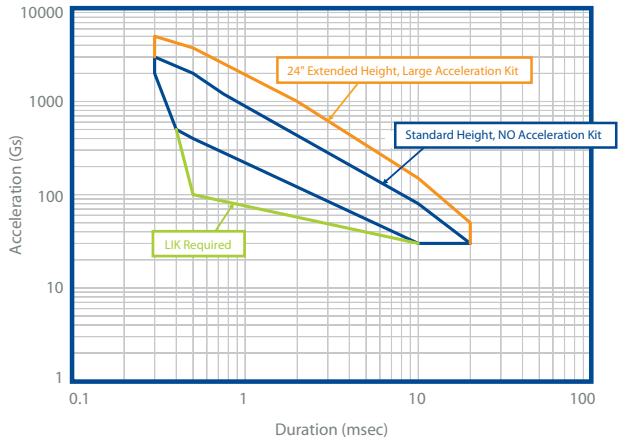
Selecting the Lansmont Shock Test System for your Application

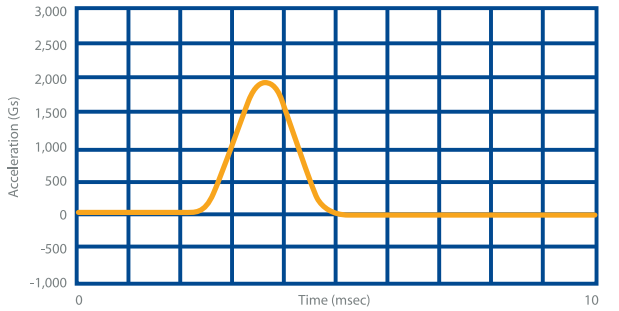
Lansmont makes a wide range of Shock Systems. We recommend the most suitable system configuration for every testing application based on two important criteria:

- The size of your largest test item
- The performance capability needed to meet your testing needs



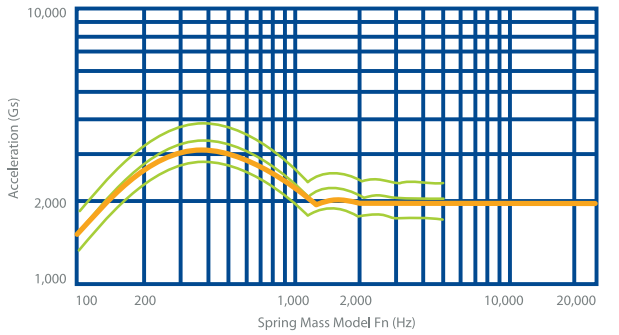
Test Item Size

Each customer has unique requirements for their dynamic testing equipment. It is important to know the size and weight of test items to correctly configure the appropriate testing equipment. The size of your largest test item will help determine the table surface area. The maximum payload will help determine the shock system performance category.



Performance Capability

Shock testing levels vary significantly depending on the product you are evaluating or the conditions you are simulating. The two most important shock performance criteria are velocity change and acceleration level. It is also important to know the shock pulse waveforms—half sine, sawtooth, or trapezoidal.



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TouchTest Shock 2 Controls

TouchTest Shock 2 is designed specifically with test efficiency and ease of use in mind. From a small, high-resolution LCD touch screen, the user can perform the initial setup and test initiation quickly and easily. Simple touch screen menus enable the user to make convenient adjustments to machine settings and to provide total control of the Lansmont Shock Test System during operation.

TouchTest Shock 2 Features

- One-button operation to reduce test cycle time
- Auto cycle control mode, allowing drop cycles up to 32,000 drops
- Shock pulse estimator function to set up machine based on desired shock pulse
- Programmable safety interlocks to ensure a safe working environment
- Digital drop height rand pressure control for optimal pulse accuracy and repeatability

TouchTest Shock 2 communicates seamlessly with Lansmont's TestPartner™ Data Acquisition System, a Windows-based software system. TestPartner™ includes powerful analysis tools. Such as Shock Response Spectrum (SRS) analysis, FFT analysis, shock response animation in both 2D and 3D modes, Shock Response analysis with programmable model Fn and damping, and tolerance band overlays with selectable MIL-STD and programmable pulse parameters.

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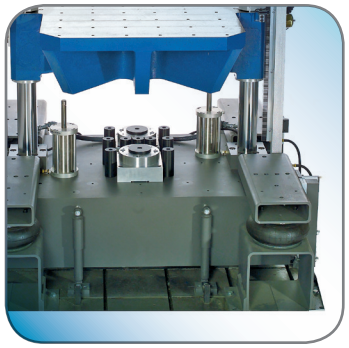
FEATURES

Guide Rods

When moving the shock table structure up or down prior to a shock test or when the table falls during the shock pulse event, it travels on solid steel, chrome-plated Guide Rods. The Guide Rods are machined to tight tolerances to maintain precise alignment between the table and shock pulse programming during impact. The Guide Rods are also the surfaces that the shock table brake pistons act against following the shock event to avoid any secondary impacts.

Electric Hoist Lifting and Positioning System

Precise drop height accuracy is critical to performing repeatable shock pulses. Lansmont Shock Test Systems utilize electric hoists for lifting and positioning the shock table prior to shock test.



Seismic Base

Shock Test Systems produce dynamic energy during operation. To attenuate these impact forces, the system is mounted to a large steel mass called a seismic base. For high performance or heavy payload shock testing applications, Lansmont offers Low Frequency and Floating Seismic Base options.

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OPTIONS

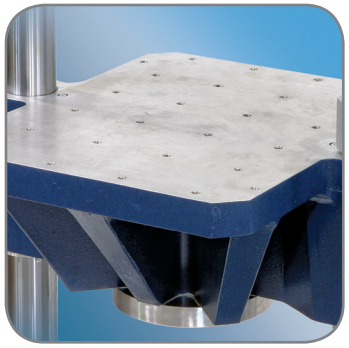


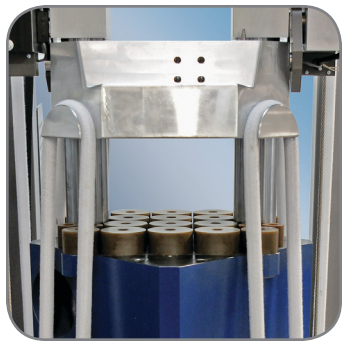
Table Structure

Table design greatly influences the performance of your shock system. Lansmont designs tables as light as possible for maximum performance with enough stiffness such that the table's frequency response does not adversely affect shock pulse quality.

High Speed Shock System tables vary in size from 6.3 in. (16 cm) square up to 18 in. (45.7 cm).

Shock Pulse Programmers

The table structure impacts a shock pulse programmer during a shock test to create the waveform needed for the testing application. Whether it be a short duration or long duration half sine, trapezoidal, or sawtooth pulse requirement, Lansmont makes the type of shock pulse programmer you will need for generating these waveforms.



Acceleration Kit

Acceleration Kits increase the velocity change capability of the shock system. The Kits include bungee cord assemblies, pulleys, pulley brackets, and in some cases, electric winches.

HS16
Shock Tester

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PERFORMANCE SPECIFICATIONS

TABLE DIMENSIONS

Front Face	6.3 x 6.3 in. (16 x 16 cm)
Top Face	6.3 x 6.3 in. (16 x 16 cm)

TEST CAPABILITIES

Max. Acceleration	6,000g (10,000g optional)
Min. Pulse Duration	0.2 msec (half sine)
Max. Velocity Change	60 – 120 ft./sec (18.3 – 36.6 m/sec)
Pulse Waveforms	Half Sine
**with Optional Programmers*	Trapezoidal*
	Terminal Peak Sawtooth*

MAXIMUM PAYLOAD

110 lbs. (50 kg)

MACHINE SPECIFICATIONS

DIMENSIONS

Height	115 – 175 in. (292 – 445 cm)
Side to Side	30.5 in. (77.5 cm)
Front to Back	41.7 in. (106 cm)

POWER REQUIREMENTS

Machine	200 – 240 VAC/3Φ/50 – 60 Hz: 10 amp min.
	380 – 480 VAC/3Φ/50 – 60 Hz: 5 amp min.
Controller	100 – 120 VAC/1Φ/50 – 60 Hz: 1 amp min.
	200 – 240 VAC/1Φ/50 – 60 Hz: 1 amp min.

PNEUMATIC REQUIREMENTS

Plant Air	90 psi (6.2 bar)

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HS45
Shock Tester

Lansmont Field-to-Lab®

PERFORMANCE SPECIFICATIONS

TABLE DIMENSIONS

Front Face	17.7 x 11.8 in. (45 x 30 cm)
Top Face	17.7 x 17.7 in. (45 x 45 cm)

TEST CAPABILITIES

Max. Acceleration	6,000g
Min. Pulse Duration	0.5 msec (half sine)
Max. Velocity Change	60 ft./sec (18.3 m/sec)
Pulse Waveforms	Half Sine
**with Optional Programmers*	Trapezoidal*
	Terminal Peak Sawtooth*

MAXIMUM PAYLOAD

220 lbs. (100 kg)

MACHINE SPECIFICATIONS

DIMENSIONS

Height	115 – 175 in. (292 – 445 cm)
Side to Side	41.7 in. (106 cm)
Front to Back	41.7 in. (106 cm)

POWER REQUIREMENTS

Machine	200 – 240 VAC/3Φ/50 – 60 Hz: 10 amp min.
	380 – 480 VAC/3Φ/50 – 60 Hz: 5 amp min.
Controller	100 – 120 VAC/1Φ/50 – 60 Hz: 1 amp min.
	200 – 240 VAC/1Φ/50 – 60 Hz: 1 amp min.

PNEUMATIC REQUIREMENTS

Plant Air	90 psi (6.2 bar)

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HSX20
Shock Tester

Lansmont Field-to-Lab®

PERFORMANCE SPECIFICATIONS

TABLE DIMENSIONS

Front Face	8.0 in. (20.3 cm)
Top Face	8.0 in. (20.3 cm)

TEST CAPABILITIES

Max. Acceleration	10,000g
Min. Pulse Duration	0.2 msec (half sine)
Max. Velocity Change	75 – 150 ft./sec (22.9 – 45.7 m/sec)
Pulse Waveforms	Half Sine
**with Optional Programmers*	Trapezoidal*
	Terminal Peak Sawtooth*

MAXIMUM PAYLOAD

250 lbs. (113 kg)

MACHINE SPECIFICATIONS

DIMENSIONS

Height	115 – 175 in. (292 – 445 cm)
Side to Side	36 in. (91.4 cm)
Front to Back	53.7 in. (136.4 cm)

POWER REQUIREMENTS

Machine (hoists)	200 – 240 VAC/3Φ/50 – 60 Hz: 10 amp min.
	380 – 480 VAC/3Φ/50 – 60 Hz: 5 amp min.
Machine (winch)	100 – 120 VAC/1Φ/50 – 60 Hz: 30 amp min.
Controller	100 – 120 VAC/1Φ/50 – 60 Hz: 1 amp min.
	200 – 240 VAC/1Φ/50 – 60 Hz: 1 amp min.

PNEUMATIC REQUIREMENTS

Plant Air	90 psi (6.2 bar)

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HSX45
Shock Tester

Lansmont Field-to-Lab®

PERFORMANCE SPECIFICATIONS

TABLE DIMENSIONS

Front Face	18.0 in. (45.7 cm)
Top Face	18.0 in. (45.7 cm)

TEST CAPABILITIES

Max. Acceleration	10,000g
Min. Pulse Duration	0.5 msec (half sine)
Max. Velocity Change	100 ft./sec (30.5 m/sec)
Pulse Waveforms	Half Sine
**with Optional Programmers*	Trapezoidal*
	Terminal Peak Sawtooth*

MAXIMUM PAYLOAD

300 lbs. (136 kg)

MACHINE SPECIFICATIONS

DIMENSIONS

Height	195 – 219 in. (495 – 556 cm)
Side to Side	58 in. (147 cm)
Front to Back	58 in. (147 cm)

POWER REQUIREMENTS

Machine (hoists)	200 – 240 VAC/3Φ/50 – 60 Hz: 10 amp min.
	380 – 480 VAC/3Φ/50 – 60 Hz: 5 amp min.
Machine (winch)	100 – 120 VAC/1Φ/50 – 60 Hz: 30 amp min.
Controller	100 – 120 VAC/1Φ/50 – 60 Hz: 1 amp min.
	200 – 240 VAC/1Φ/50 – 60 Hz: 1 amp min.

PNEUMATIC REQUIREMENTS

Nitrogen	2200 psi (152 bar)
Plant Air*	90 psi (6.2 bar)

**for Low Impulse Kit*

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