
Lansmont
Field-to-Lab®

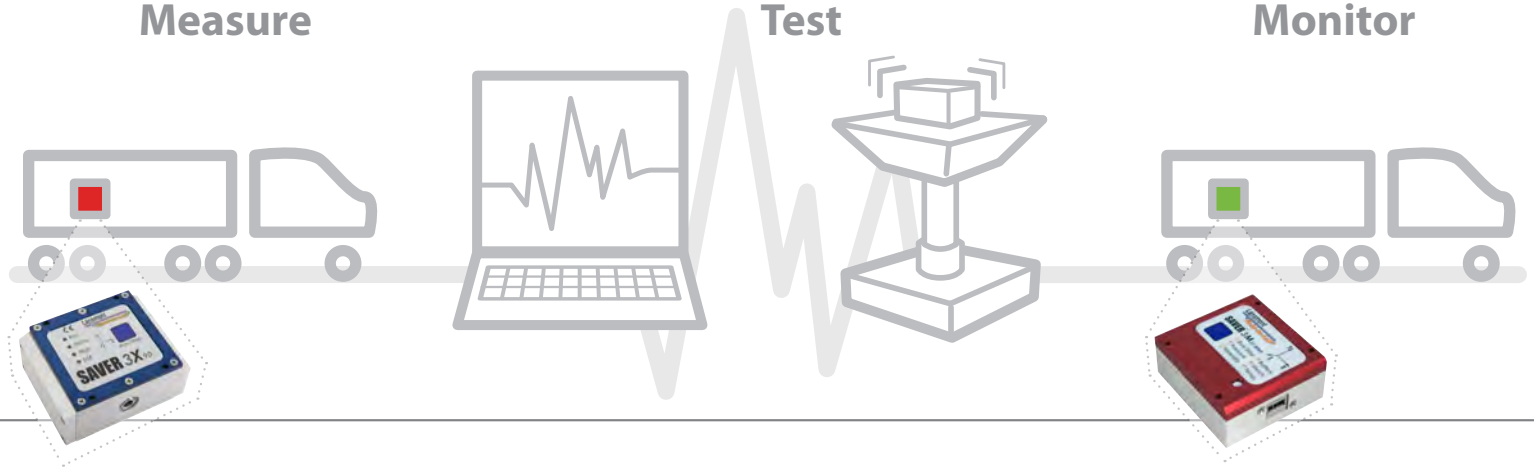
Introduction

Lansmont Field-to-Lab®

Founded in 1971, Lansmont provides state of the art engineering services, manufacturing and test and measurement products to the world's leading technology companies, government laboratories and educational institutions.

- Headquartered in Monterey, California
- Global Sales and Support
- Employee Owned Company (ESOP)
- Service Disabled Veteran Owned Business (SDVOSB)
- ACLASS Accredited Calibration Services

Lansmont products measure real world dynamics and simulate them in laboratory environments. Our products deliver **Field-to-Lab**™ Solutions.



Field-to-Lab™

Measure
Measure transport hazards in the field.

Test
Use the results to construct laboratory testing.

Monitor
Continue monitoring the field to see if anything changes.

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10.5.12

Introduction

Lansmont Field-to-Lab®

Design & Manufacture:

- Field Instruments
- Test Instruments
- Shock Test Systems
- Vibration Test Systems
- Drop Test Systems
- Compression Test Systems
- Incline Impact Test Systems
- Mechanical Shakers
- Machine Controls and Instrumentation

Field Instruments

SAVER™3D15

SAVER™3X90

SAVER™9X30

SAVER™3M30

SAVER™3M30 PLUS

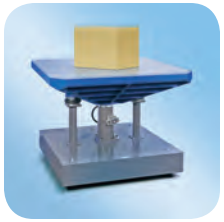
Test Instruments

TP 4 – 8 Channel Configuration

TP 4 – 40 Channel Configuration

Test Equipment

Shock

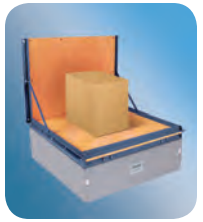


Vibration

Drop

Compression

Impact



Mechanical Shaker

Advanced Engineering & Design Services:

For high-performance, application-specific, mission-critical test and measurement systems.

Introduction

Lansmont Field-to-Lab®

Services & Support:

- Data Analysis Services
- Training & Consultation
- Equipment Operator Certification
- Preventative Maintenance
- Equipment and Instrument Calibration
- Engineering & Design Services

Knowledge Network

Data Analysis

Training

Consulting

Technical Expertise

Lansmont products are trusted in markets such as:

- Aerospace
- Defense
- Electronics
- Consumer Goods
- Medical
- Energy
- Transportation
- Packaging

Aerospace

Defense

Electronics

Consumer Goods

Medical

Energy

Transportation

Packaging

Introduction

Lansmont Field-to-Lab®

Lansmont actively participates in key industry organizations such as:

- ASTM International
- International Safe Transit Association (ISTA)
- ISO Technical Committee 122 SC3
- International Association of Packaging Research Institutes (IAPRI)
- Institute of Packaging Professionals (IoPP)
- JEDEC – Global Standards for Microelectronics
- SAVE – Shock and Vibration Exchange

ista® distributing confidence, worldwide.™

SAVE SHOCK & VIBRATION EXCHANGE

iapri

JEDEC

ISO

ASTM INTERNATIONAL Standards Worldwide

Institute of Packaging Professionals

At Lansmont, we help our customers:

- Prevent damage
- Build more cost-effective packaging
- Improve quality
- Achieve regulatory compliance
- Increase bottom line
- Meet sustainability goals

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Field Instruments

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Field Instruments

Lansmont Field-to-Lab®

Measurement Instruments

Do you know what kind of hazards your product is being exposed to? You really should, because when products are damaged while being manufactured, shipped, or used, the only effective way to uncover the cause is by using optimized field data recording practices and a high quality data logger.

Lansmont offers two primary categories of Field Instruments: **Measurement and Monitoring**. Step 1 of Lansmont's Six Step Method calls for Defining of the Environment. **Measurement Instruments** provide the ability to record nearly everything that occurs during a recording session. Whether significant or not, Lansmont Measurement Instruments store up to tens of thousands of events, which can be used to clearly assess, characterize, and define various environments.

		SAVER™ 3D15	SAVER™ 3X90	SAVER™ 9X30
		 Ideal for low-frequency dynamics, which may occur in aerospace, amusement park rides, rail impacts, crash recording, brake testing, and others.	 Characterizing complete dynamic and environmental conditions (temperature and humidity) as they exist in longer-term transport conditions.	 Same as 3X90 with external dynamic channel connections and the ability to seamlessly link all data to GPS location, all in one data file.
	Size	3.7 x 2.9 x 1.7 in. (95 x 74 x 43 mm)	3.7 x 2.9 x 1.7 in. (95 x 74 x 43 mm)	5.0 x 4.9 x 1.7 in. (127 x 124 x 43 mm)
	Weight	16.7 oz. (473 g)	16.7 oz. (473 g)	35.0 oz. (1 kg)
	Triggering	threshold and timer	threshold and timer	threshold and timer
	Memory	128 MB	128 MB	128 MB
	Programmable Sampling	50-5,000 samples per second	50-5,000 samples per second	50-10,000 sample per second
	Programmable Filtering	10, 20, 25, 50, 100, 200, 250, 500 Hz.	10, 20, 25, 50, 100, 200, 250, 500 Hz.	10, 20, 25, 50, 100, 200, 250, 500 Hz. external channels: 1,000, 2,000, 2,500 Hz.
	Continuous Record Time	15 days	90 days	30 days
	Accelerometer Type	triax MEMS	triax piezoelectric	triax piezoelectric
	Accelerometer Range	50 g	200 g	200 g
	3dB Frequency Response	DC to filter maximum	0.4 Hz. to filter maximum	0.4 Hz. to filter maximum
Data	**Shock**	✓	✓	✓
	Vibration	✓	✓	✓
	Temperature	✓	✓	✓
	Humidity	✓	✓	✓
	Atmospheric Pressure			✓
	GPS Location	able to import external data	able to import external data	optionally embedded in **9X-GPS**
	External Acceleration Channels			6 programmable

Field Instruments

Lansmont Field-to-Lab®

Monitoring Instruments

Step 2 of Lansmont's Six Step Method calls for Defining a Product's Fragility. How many G's can the product withstand, how much velocity change, and at what frequencies do the product's components resonate? That information serves as the benchmark to which one can compare with field data captured with **Monitoring Instruments**. With monitoring, the focus is clear. Typically only data that exceeds predetermined threshold/severity/ fragility levels is captured.

Lansmont offers the industry's most robust line of unattended, battery operated data loggers, as well as turnkey transportation monitoring services to fulfill your field data acquisition requirements. We're the leader in this highly specialized field and we offer sophisticated products and services to assist your company in its efforts.

		SAVER™ 3M30	SAVER™ 3M30 Plus
		 Monitoring for shock hazards, acquiring acceleration waveform events that exceed predefined threshold triggers, providing related LED alarm indicator.	 Same as 3M30, only *more* shock events, as well as temperature, humidity and atmospheric pressure data, plus corresponding LED alarm indicators for all data types.
	Size	3.1 x 2.9 x 1.3 in. (79 x 74 x 33 mm)	3.1 x 2.9 x 1.3 in. (79 x 74 x 33 mm)
	Weight	12.5 oz. (354 g)	14.0 oz. (397 g)
	Triggering	threshold	threshold acceleration and timer environmental
	Memory	20 largest shock events recorded	100 largest shock events recorded
	Programmable Sampling	100-2,500 samples per second	100-2,500 samples per second
	Programmable Filtering	10, 20, 50, 100, 250 Hz.	10, 20, 50, 100, 250 Hz.
	Continuous Record Time	30 days	30 days
	Accelerometer Type	triax piezoelectric	triax piezoelectric
	Accelerometer Range	100 g	100 g
	3dB Frequency Response	0.5 Hz. to filter maximum	0.5 Hz. to filter maximum
Data	Shock	✓	✓
Data	Temperature		✓
Data	Humidity		✓
Data	Atmospheric Pressure		✓
Data	GPS Location	able to import external data	able to import external data

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SAVER™ 3M30

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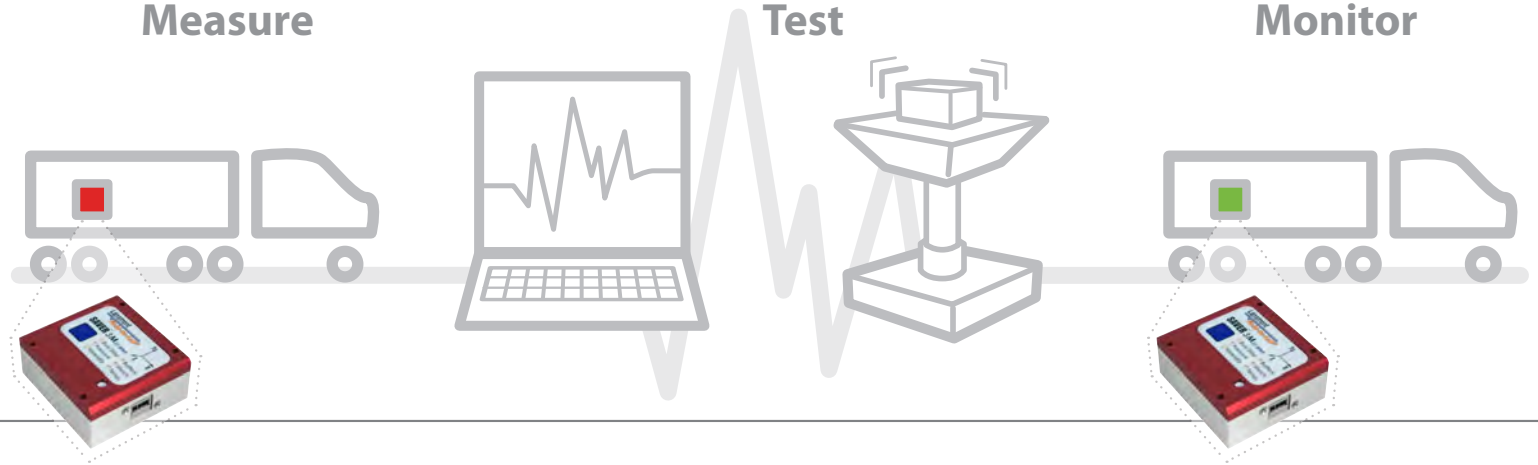
The SAVER™ 3M30 and 3M30 Plus are self-powered field data recorders with an internal tri-axial accelerometer. The 3M30 Plus is provided with temperature, humidity and atmospheric pressure sensors. The 3M30s are powered by a USB-rechargeable lithium ion battery, providing up to 30 days of continuous operation.



Field-to-Lab™

Measure
Measure transport hazards in the field.

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Monitor
Continue monitoring the field to see if anything changes.

SAVER™ 3M30

Lansmont Field-to-Lab®

FEATURES

Field-to-Lab®

Use SaverXware™ software to analyze data captured with SAVER™ instruments, and seamlessly create random vibration test profiles that can be easily imported into Lansmont TouchTest Vibration Controllers for immediate use. Only Lansmont offers this cross-platform integration.

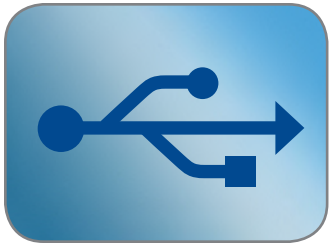
30 Day battery Life:

The SAVER™ 3M30 is powered by a lithium ion, rechargeable battery. and provides continuous operation for up to 30 days. The battery is charged through the USB cable connection.

T/RH and Atmospheric Pressure Sensors:

The 3M30 Plus utilizes three atmospheric sensors, providing even further event measurement detail. All sensors are tied to LED overlay indicators so that when a predetermined threshold is exceeded, the LED will provide immediate and constant verification of that occurrence.

OPTIONS



External Power:

For some recording applications, 30 days may not be enough recording time. Not a problem. The ability to charge the 3M30's battery through the USB connection provides unique versatility. 5V power sources delivering 500mA current can extend the 3M30 run time indefinitely.

Mounting Kits:

Mounting kits can make it easier to fix SAVER™ 3M30's to vehicles or structures. Kits include mounting plates and attachment hardware. If you are attaching to a ferrous surface, magnetic mounting kits are available.

Data Analysis Center:

Trust Lansmont data specialists to interpret your data and provide you with even greater confidence. Lansmont data specialists are experts at acquiring, analyzing and summarizing data; if you need help defining parameters or protocols, we can help. We can provide quick, relevant answers to your question through focused solutions like our **Simple Health Monitor Report.**

SAVER™ 3M30

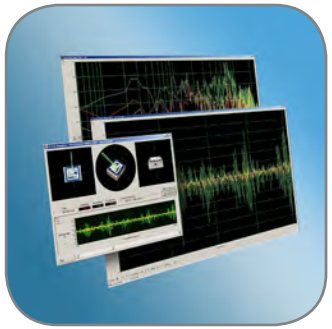
Lansmont Field-to-Lab®

SaverXware™

Each SAVER™ purchase includes Lansmont's SaverXware™, the easy-to-use software that communicates with the SAVER™ 3M30 for setup prior to recording — as well as data analysis once you've collected some data. Data analysis features include drop heights, impacts, vehicle motion, vibration, as well as temperature and humidity cycles.

Measurement Setup

Users are provided with simple, standard setup gateways for common measurement applications. Advanced setup options provide complete control over all setup parameters, providing unparalleled capability for instrument users.



Data Analysis

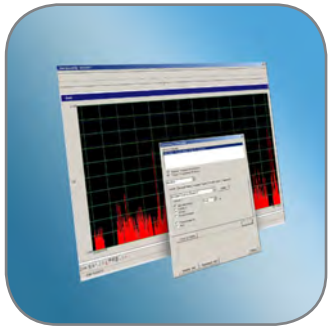
Powerful individual and multi-event summary analyses providing time-history, frequency domain, and vector visualizer playback and review.

Summary Reporting and Export

Generate user-defined project summary reports and print to document measurement results. Additionally, export the project data itself to ASCII files for analysis and reporting using universally available software applications.

Event Table and History

Multi-data files can be viewed in single, common project databases. The data file's measured events are chronologically presented in event tables, which are positioned underneath measurement Quick Histories. The Quick Histories display the captured data from the project beginning to end in one view. Corresponding event thumbnails are updated as different events are highlighted in the table.



Summary Event Selection

Extremely useful event selection options based upon acceleration and Grms levels, time occurrence, type of event and even impact type and orientation. A quick history zoom-to-summary option with user-defined range cursors is provided as an alternative summary selector.

GPS Integration

Externally captured GPS data can be imported and automatically synchronized with SAVER™ 3M30 data to add further value and definition to your measurement results.

SAVER™ 3M30

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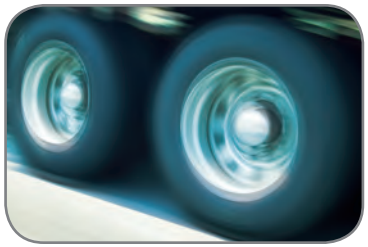
MONITORING APPLICATIONS

The 3M30 and 3M30 Plus instruments represent the most affordable performance monitoring devices on the market. These instruments serve as entry-level data recorders within the SAVER™ family designed for high volume monitoring applications. Use 3M30 instruments to determine when, and even where any design threshold criteria are exceeded during actual use or transport of products.

Manufacturing



Vehicles

Structural Measurements

Asset Transport

Oil Platforms

Amusement Rides

Off Road Measurements

Packages

Aerospace

Effective integration of measurement and monitoring programs provide customers the ability to:

- Characterize the dynamic and climatic hazards within a given environment
- Establish product design criteria
- Develop laboratory testing and simulation criteria
- Audit distribution channels and carriers
- Establish liability in transport damage situations
- Determine normal vs. abnormal handling and transport of your goods
- Create climatic histograms of environmental conditions (Temp/RH)

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SAVER™ 3M30

Lansmont Field-to-Lab®

SPECIFICATIONS

	3M30	3M30 PLUS
PHYSICAL		
Envelope Size:	3.1 x 2.9 x 1.3 in. (79 x 74 x 33 mm)	3.1 x 2.9 x 1.3 in. (79 x 74 x 33 mm)
Volume:	11.7 $in.^3$ (193 cm^3)	11.7 $in.^3$ (193 cm^3)
Chassis Material:	6061-T6 anodized aluminum	6061-T6 anodized aluminum
Weight:	14.0 oz. (397 grams)	14.0 oz. (397 grams)
Environmental:	Weather Resistant	Weather Resistant
Mounting:	4 thru holes for #6 screws	4 thru holes for #6 screws
DATA ACQUISITION		
Sampling Rates:	100, 200, 500, 1,000, and 2,500 samples per second	100, 200, 500, 1,000, and 2,500 samples per second
A/D Conversion:	12-bit	12-bit
Accelerometer Type:	Tri-axial piezoelectric	Tri-axial piezoelectric
Acceleration Ranges:	100 g (full scale)	100 g (full scale)
Anti-Alias Filter:	3-pole, low pass filter 10, 20, 50, 100 and 250 Hz	3-pole, low pass filter 10, 20, 50, 100 and 250 Hz
3-dB Frequency Response:	0.5 Hz to filter setting	0.5 Hz to filter setting
Measurement Accuracy:	±5% with nominal variations ±5% with nominal variations in temperature and frequency	±5% with nominal variations ±5% with nominal variations in temperature and frequency
DATA RECORDING		
Signal Trigger:	User programmable acceleration (g) threshold	User programmable acceleration (g) threshold
Timer Trigger:	N/A	10 minute interval for Temperature, Humidity and Atmospheric Pressure
Pre-Trigger:	User-programmable signal event pre-trigger	User-programmable signal event pre-trigger
Data Retention Modes:	Max. Overwrite	Max. Overwrite
MEMORY		
Memory Size:	20 most significant events	100 most significant events
Memory Type:	FLASH	FLASH
Memory Retention:	Retains data even when batteries are exhausted	Retains data even when batteries are exhausted

	3M30	3M30 PLUS
ENVIRONMENTAL		
Operating Temperature:	-20° to +60°C (-4° to +140°F)	-20° to +60°C (-4° to +140°F)
Communications Temperature:	0° to +60°C (32° to +140°F)	0° to +60°C (32° to +140°F)
Battery Charging Temperature:	0° to +45°C (32° to +113°F)	0° to +45°C (32° to +113°F)
Temperature Measurement Range:	N/A	-20 to +60°C (-4 to +140°F)
Temperature Measurement / Accuracy:	N/A	±1.0°C from +5° to +40°C ±2.0°C from -20° to +60°C
Humidity Measurement Range:	N/A	5% to 95% RH, non-condensing
Humidity Measurement / Accuracy:	N/A	±3% from 20% to 80% RH at 25°C ±5% from 5% to 95% RH at 25°C
Atmospheric Pressure Measurement Range:	N/A	10 to 1100 mbar
Atmospheric Pressure Measurement Accuracy:	N/A	±4 mbar from 750 to 1100 mbar at 25°C
POWER	Rechargeable lithium ion battery, extended run time options available	Rechargeable lithium ion battery, extended run time options available
SOFTWARE / COMMUNICATIONS		
User Interface:	SaverXware™ software	SaverXware™ software
Compatibility:	Microsoft Windows® XP (SP3), Vista, 7	Microsoft Windows® XP (SP3), Vista, 7
COM Interface:	COM Interface USB 1.1 or 2.0 compatible	COM Interface USB 1.1 or 2.0 compatible
Data Rate:	400 kB/s (typical)	400 kB/s (typical)
CONTROLS AND INDICATORS		
Controls:	Run / Stop button	Run / Stop button
LED Indicators:	Green / Yellow: Run / Stop Yellow: Battery Red: Shock Alarm	Green / Yellow: Run / Stop Yellow: Battery Red: Shock Alarm Red: Temperature Alarm Red: Humidity Alarm Red: Pressure Alarm

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SAVER™ 3M30

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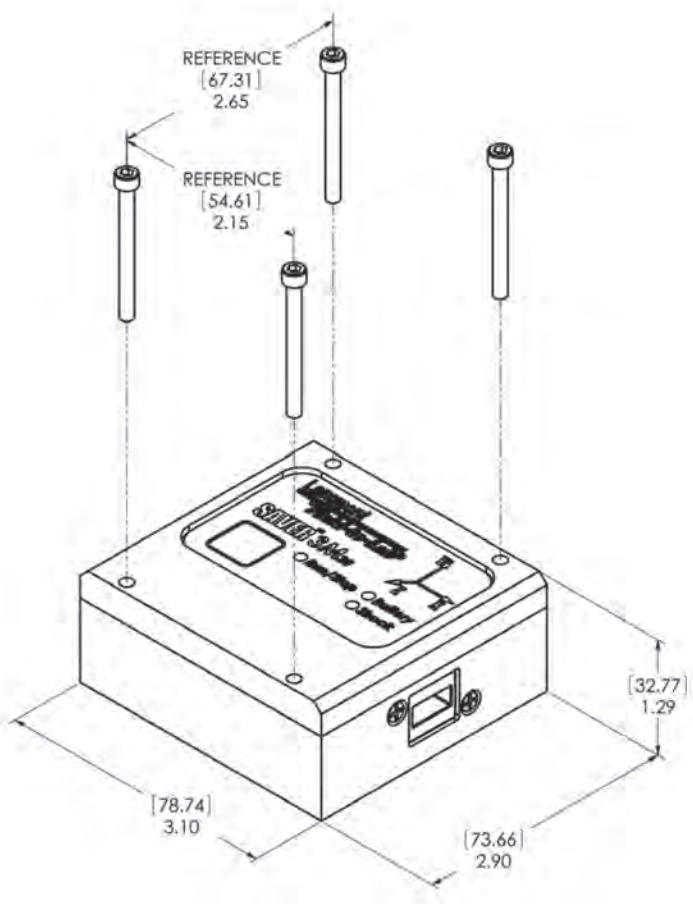
SYSTEM DRAWINGS – MOUNTING DIMENSIONS

ISOMETRIC VIEW

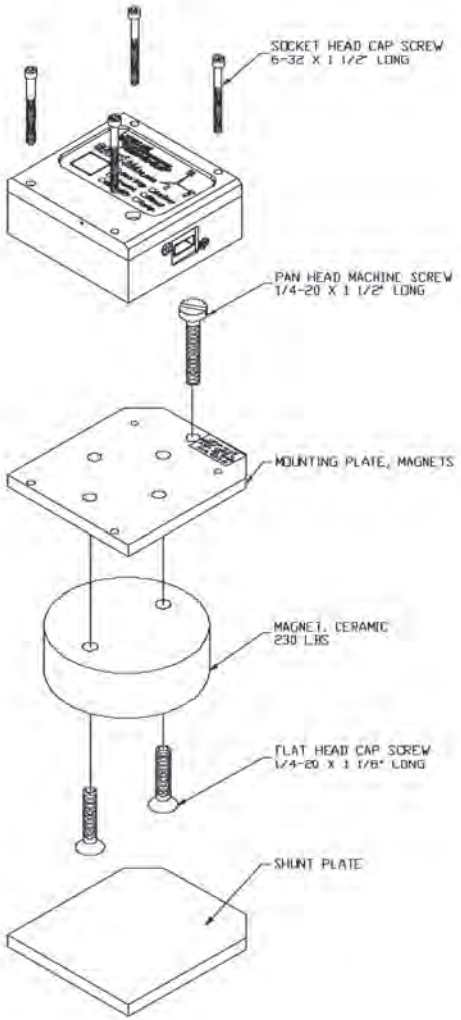


(Dimensions are identical for 3M30 and 3M30 PLUS)

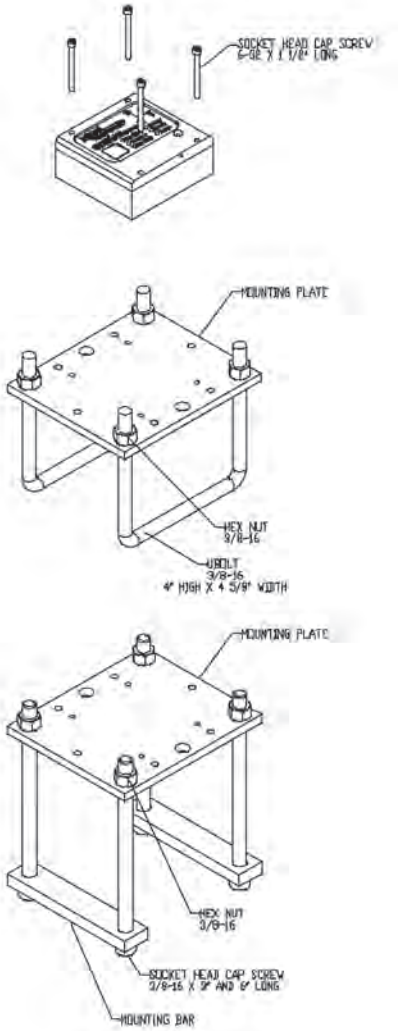
Note: Dimensions in inches [millimeters]

MOUNTING OPTIONS

MAGNET MOUNT



STANDARD MOUNT



Note: Dimensions in inches [millimeters]

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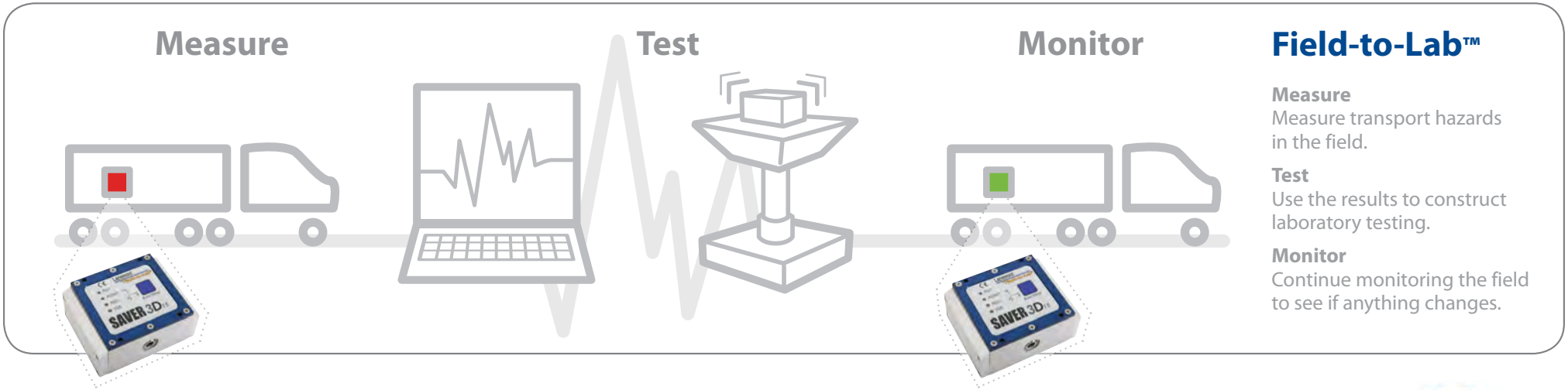
SAVER™ 3D15

Lansmont Field-to-Lab®

SAVER™ 3D15 is a self-powered field data recorder with an internal tri-axial MEMS accelerometer, possessing DC-response measurement capability. The 3D15 also incorporates temperature and humidity sensors, and USB connectivity. Powered with 9V lithium batteries, the instrument will operate continuously for up to 15 days. 16-bit resolution allows you to take precise measurements of your dynamic environment.



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GSA Schedule Contract

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SAVER™ 3D15

Lansmont Field-to-Lab®

FEATURES

Field-to-Lab®

Use SaverXware™ software to analyze data captured with SAVER™ instruments, and seamlessly create random vibration test profiles that can be easily imported into Lansmont TouchTest Vibration Controllers for immediate use. Only Lansmont offers this cross-platform integration.

15 Day battery Life:

SAVER™ 3D15 is powered with user replaceable 9V lithium (or alkaline) batteries and provides continuous operation of the MEMS DC Response accelerometers in the field for up to 15 days.

T/RH sensor:

In addition to dynamic measurements, your SAVER™ 3D15 will also capture temperature and relative humidity conditions. Internal sensors mounted to the back side of the SAVER™ 3D15 measure and record environmental conditions per the user-defined setup.

OPTIONS

External Battery Pack:

For some recording applications, 15 days may not be enough recording time. Not a problem. Lansmont offers an External Battery Pack that extends the continuous operation time from 15 to 40 days.

Mounting Kits:

Mounting kits can make it easier to fix SAVER™ 3D15s to vehicles or structures. Kits include mounting plates and attachment hardware. If you are attaching to a ferrous surface, magnetic mounting kits are available.

Data Analysis Center:

Trust Lansmont data specialists to interpret your data and provide you with even greater confidence. Lansmont data specialists are experts at acquiring, analyzing and summarizing data; if you need help defining parameters or protocols, we can help.

SAVER™ 3D15

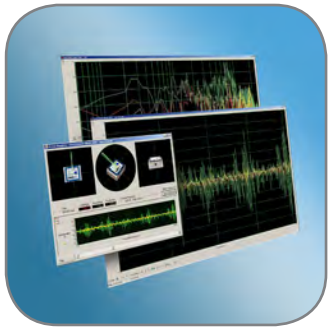
Lansmont Field-to-Lab®

SaverXware™

Each SAVER™ purchase includes Lansmont's SaverXware™, the easy-to-use software that communicates with the SAVER™ 3D15 for setup prior to recording — as well as data analysis, once you've collected some data. Data analysis features include drop heights, impacts, vehicle motion, vibration, and temperature and humidity cycles.

Measurement Setup

Users are provided with simple, standard setup gateways for common measurement applications. Advanced setup options provide complete control over all setup parameters, providing unparalleled capability for instrument users.



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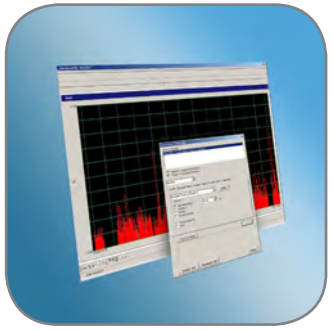

Summary Event Selection

Extremely useful event selection options based upon acceleration and Grms levels, time occurrence, type of event and even impact type and orientation. A quick history zoom-to-summary option with user-defined range cursors is provided as an alternative summary selector.

GPS Integration

Externally captured GPS data can be imported and automatically synchronized with SAVER™ 3D15 data to add further value and definition to your measurement results.

SAVER™ 3D15

Lansmont Field-to-Lab®

MEASUREMENT APPLICATIONS

There are specific applications where DC recording capabilities are required to measure low frequency energy. For instance, amusement park rides, aerospace flight applications, rail-car coupling impacts, and vehicle crash testing all contain low frequency responses with long duration, constant acceleration time histories. The 3D15, with it's MEMS DC Response accelerometers, is the right instrument to address those applications.

Rail Impacts


Vehicle Crash Testing


Aerospace Dynamics


Asset Transport


Structural Measurements


Amusement Rides


Off Road Measurements


Packages


Seismic

Effective integration of measurement and monitoring programs provide customers the ability to:

- Characterize the dynamic and climatic hazards within a given environment
- Establish product design criteria
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SAVER™ 3D15

Lansmont Field-to-Lab®

SPECIFICATIONS

PHYSICAL

Size:	3.74 x 2.90 x 1.7 in. (95 x 74 x 43 mm)
Volume:	18.4 in.^{3} (302 cm^3)
Chassis Material:	6061-T6 anodized aluminum
Weight:	16.7 oz. (473 grams)
Environmental:	Weather Resistant
Mounting:	4 thru holes for #6 screws

DATA ACQUISITION

Sampling Rates:	50, 100, 200, 250, 500, 1000, 2500, and 5000 samples per second
A/D Conversion:	16-bit
Accelerometer Type:	Tri-axial MEMS
Acceleration Ranges:	5, 10, 20, 50 g (full-scale)
Anti-Alias Filter:	4-pole, low-pass Butterworth filter 10, 20, 25, 50, 100, 200, 250 and 500 Hz. (cut-off frequency)
Software Filters:	1 or 2-pole, low-pass RC post-process filters 0 to 10 kHz (cut-off frequency)
3-dB Frequency Response:	DC to filter setting
Instrument Noise Floor:	0.03 Grms typical at 500 Hz bandwidth
Dynamic Range:	80 dB typical
Measurement Accuracy:	±5% with nominal variations in temperature and frequency

DATA RECORDING

Signal Trigger:	User programmable acceleration (g) threshold
Timer Trigger:	User programmable "wake-up" interval
Pre-Trigger:	User programmable signal event pre-trigger
Data Retention Modes:	Max. Overwrite Fill, / Stop Wrap, / Overwrite
Temperature / Humidity:	Temperature and RH readings recorded for each event

MEMORY

Memory Size:	128 MB
Memory Type:	Non-volatile FLASH
Memory Retention:	Retains data even when batteries are exhausted or removed

ENVIRONMENTAL

Operating Temperature:	-40° to +60°C (-40° to +140°F) using lithium batteries -20° to +54°C (-4° to +130°F) using alkaline batteries
Communication Temperature:	0° to +60°C (32° to +140°F)
Temperature Measurement / Accuracy:	-40° to +60°C (-40° to +140°F) ±1.0°C from +5° to +40°C; ±1.5°C from -40° to +60°C
Humidity Measurement / Accuracy:	5% to 95% RH, non-condensing ±2% from 10% to 90% RH @ 25°C; ±3% from 5% to 95% RH @ 25°C

POWER

Internal:	2 lithium or alkaline 9V batteries
External:	4-D Cell battery pack
Continuous Run Times:	15 days using lithium batteries 7 days using alkaline batteries 40 days using 4-D cell battery pack (option)

SOFTWARE / COMMUNICATIONS

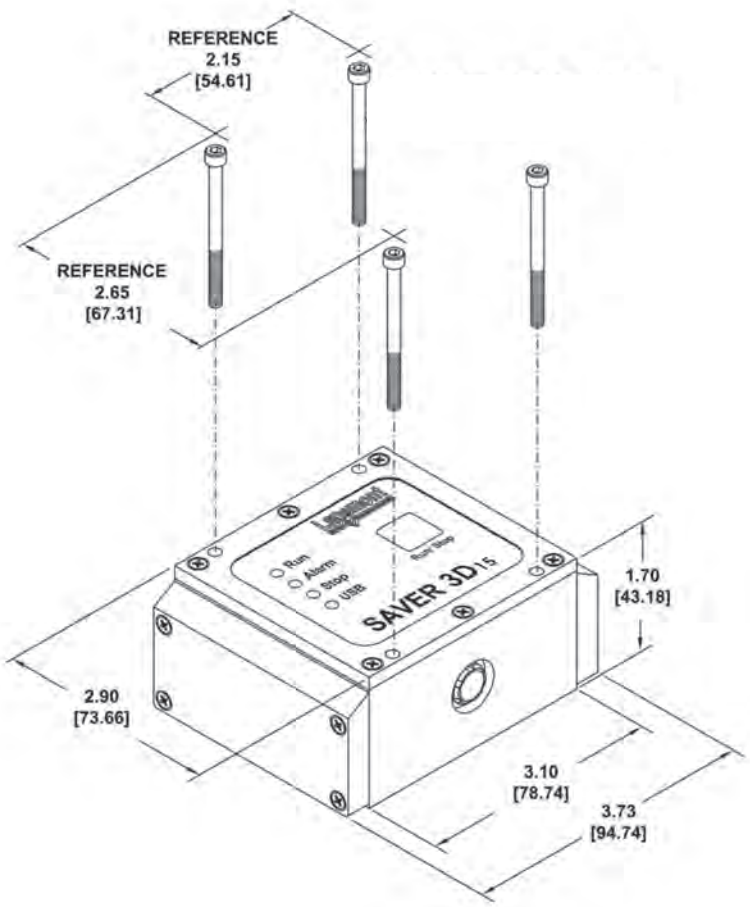
User Interface:	SaverXware™ software
Compatibility:	Microsoft Windows® XP (SP3), Vista, 7
COM Interface:	USB 1.1 or 2.0 compatible
Data Rate:	400 kB/s (typical)

CONTROLS AND INDICATORS

Controls:	Run / Stop button
LED Indicators:	Green: Run Red: Alarm Yellow: Stop Green: USB cable connected

SYSTEM DRAWINGS – MOUNTING DIMENSIONS

ISOMETRIC VIEW



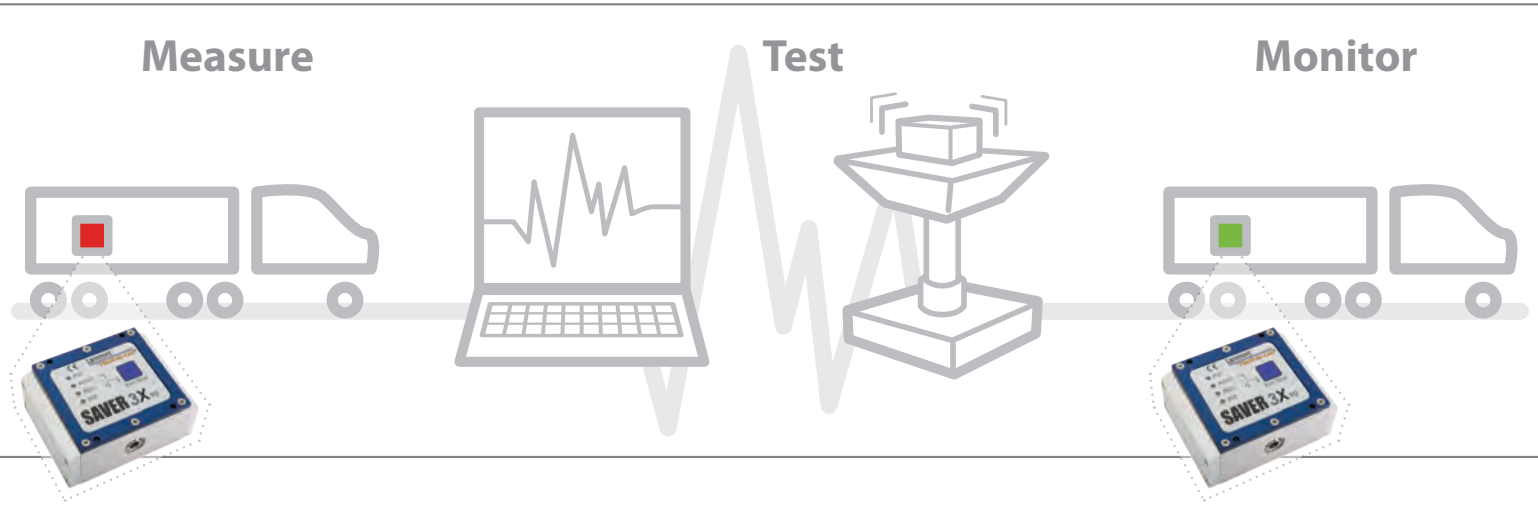
Note: Dimensions in inches [millimeters]

10.9.12

SAVER™ 3X90

Lansmont Field-to-Lab®

SAVER™ 3X90 is a self-powered field data recorder with an internal tri-axial accelerometer, temperature and humidity sensors, and USB connectivity. Powered with 9V lithium batteries, the instrument will operate continuously for up to 90 days. 16-bit resolution electronics allow you to take precise measurements of your dynamic environment.



Field-to-Lab™

Measure
Measure transport hazards in the field.

Test
Use the results to construct laboratory testing.

Monitor
Continue monitoring the field to see if anything changes.

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GSA Schedule

10.9.12

SAVER™ 3X90

Lansmont Field-to-Lab®

FEATURES

Field-to-Lab®

Use SaverXware™ software to analyze data captured with SAVER™ instruments, and seamlessly create random vibration test profiles that can be easily imported into Lansmont TouchTest Vibration Controllers for immediate use. Only Lansmont offers this cross-platform integration.

90 Day battery Life:

SAVER™ 3X90 is powered by two 9V batteries located on either side of the unit. The unit will run for 90 days on lithium batteries (45 days on alkaline batteries). Step-by-step instructions are provided in SaverXware™ for replacing the batteries.

T/RH sensor:

In addition to dynamic measurements, your SAVER™ 3X90 will also capture temperature and relative humidity conditions. Internal sensors mounted to the back side of the SAVER™ 3X90 measure and record environmental conditions per the user-defined setup.

OPTIONS

External Battery Pack:

For some recording applications, 90 days may not be enough recording time. Not a problem. Lansmont offers an External Battery Pack that extends the continuous operation time from 90 to 250 days.

Mounting Kits:

Mounting kits can make it easier to fix SAVER™ 3X90's to vehicles or structures. Kits include mounting plates and attachment hardware. If you are attaching to a ferrous surface, magnetic mounting kits are available.

Data Analysis Center:

Trust Lansmont data specialists to interpret your data and provide you with even greater confidence. Lansmont data specialists are experts at acquiring, analyzing and summarizing data; if you need help defining parameters or protocols, we can help.

SAVER™ 3X90

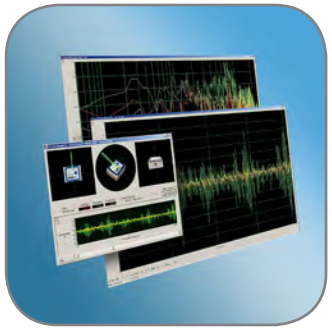
Lansmont Field-to-Lab®

SaverXware™

Each SAVER™ purchase includes Lansmont's SaverXware™, the easy-to-use software that communicates with the SAVER™3X90 for setup prior to recording — as well as data analysis once you've collected some data. Data analysis features include drop heights, impacts, vehicle motion, vibration, as well as temperature and humidity cycles.

Measurement Setup

Users are provided with simple, standard setup gateways for common measurement applications. Advanced setup options provide complete control over all setup parameters, providing unparalleled capability for instrument users.



Data Analysis

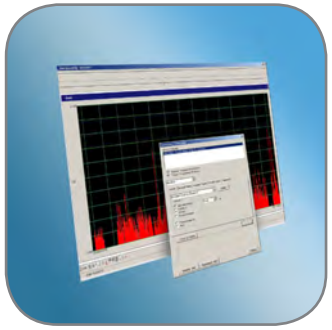
Powerful individual and multi-event summary analyses providing time-history, frequency domain, and vector visualizer playback and review.

Summary Reporting and Export

Generate user-defined project summary reports and print to document measurement results. Additionally, export the project data itself to ASCII files for analysis and reporting using universally available software applications.

Event Table and History

Multi-data files can be viewed in single, common project databases. The data file's measured events are chronologically presented in event tables, which are positioned underneath measurement Quick Histories. The Quick Histories display the captured data from the project beginning to end in one view. Corresponding event thumbnails are updated as different events are highlighted in the table.



Summary Event Selection

Extremely useful event selection options based upon acceleration and Grms levels, time occurrence, type of event and even impact type and orientation. A quick history zoom-to-summary option with user-defined range cursors is provided as an alternative summary selector.

GPS Integration

Externally captured GPS data can be imported and automatically synchronized with SAVER™ 3X90 data to add further value and definition to your measurement results.

SAVER™ 3X90

Lansmont Field-to-Lab®

MEASUREMENT APPLICATIONS

Do you know what kinds of hazards your products must endure within their transport or in-use environments? The SAVER™ 3X90 Field Instrument is the right tool for thoroughly measuring dynamic and climatic conditions in manufacturing, transport, and in-use environments.

Manufacturing

Vehicles

Structural Measurements

Asset Transport

Oil Platforms

Amusement Rides

Off Road Measurements

Packages

Aerospace

Effective integration of measurement and monitoring programs provide customers the ability to:

- Characterize the dynamic and climatic hazards within a given environment
- Establish product design criteria
- Develop laboratory testing and simulation criteria
- Audit distribution channels and carriers
- Establish liability in transport damage situations
- Determine normal vs. abnormal handling and transport of your goods
- Create climatic histograms of environmental conditions (Temp/RH)

10.9.12

SAVER™ 3X90

Lansmont Field-to-Lab®

SPECIFICATIONS

PHYSICAL

Size:	3.74 x 2.90 x 1.7 in. (95 x 74 x 43 mm)
Volume:	18.4 in.^{3} (302 cm^3)
Chassis Material:	6061-T6 anodized aluminum
Weight:	16.7 oz. (473 grams)
Environmental:	Weather Resistant
Mounting:	4 thru holes for #6 screws

DATA ACQUISITION

Sampling Rates:	50, 100, 200, 250, 500, 1000, 2500, and 5000 samples per second
A/D Conversion:	16-bit
Accelerometer Type:	Tri-axial piezoelectric
Acceleration Ranges:	5, 10, 20, 50, 100, and 200 g (full-scale)
Anti-Alias Filter:	4-pole, low-pass Butterworth filter 10, 20, 50, 100, 200, 250, and 500 Hz (cut-off frequency)
Software Filters:	1 or 2-pole, low-pass RC post-process filters 0 to 10 kHz (cut-off frequency)
3-dB Frequency Response:	0.4 Hz to filter setting
Instrument Noise Floor:	0.02 Grms typical at 500 Hz bandwidth
Dynamic Range:	80 dB typical
Measurement Accuracy:	±5% with nominal variations in temperature and frequency

DATA RECORDING

Signal Trigger:	User programmable acceleration (g) threshold
Timer Trigger:	User programmable "wake-up" interval
Pre-Trigger:	User-programmable signal event pre-trigger
Data Retention Modes:	Max. Overwrite, Fill / Stop, Wrap / Overwrite
Temperature / Humidity:	Temperature and RH readings recorded for each event

MEMORY

Memory Size:	128 MB
Memory Type:	Non-volatile FLASH
Memory Retention:	Retains data even when batteries are exhausted or removed

ENVIRONMENTAL

Operating Temperature:	-40° to +60°C (-40° to +140°F) using lithium batteries -20° to +54°C (-4° to +130°F) using alkaline batteries
Communication Temperature:	0° to +60°C (32° to +140°F)
Temperature Measurement / Accuracy:	-40° to +60°C (-40° to +140°F) ±1.0°C from +5° to +40°C; ±1.5°C from -40° to +60°C
Humidity Measurement / Accuracy:	5% to 95% RH, non-condensing ±2% from 10% to 90% RH @ 25°C; ±3% from 5% to 95% RH @ 25°C

POWER

Internal:	2 lithium or alkaline 9V batteries
External:	4-D Cell battery pack
Continuous Run Times:	90 days using lithium batteries 45 days using alkaline batteries 180 days using 4-D cell battery pack (option)

SOFTWARE / COMMUNICATIONS

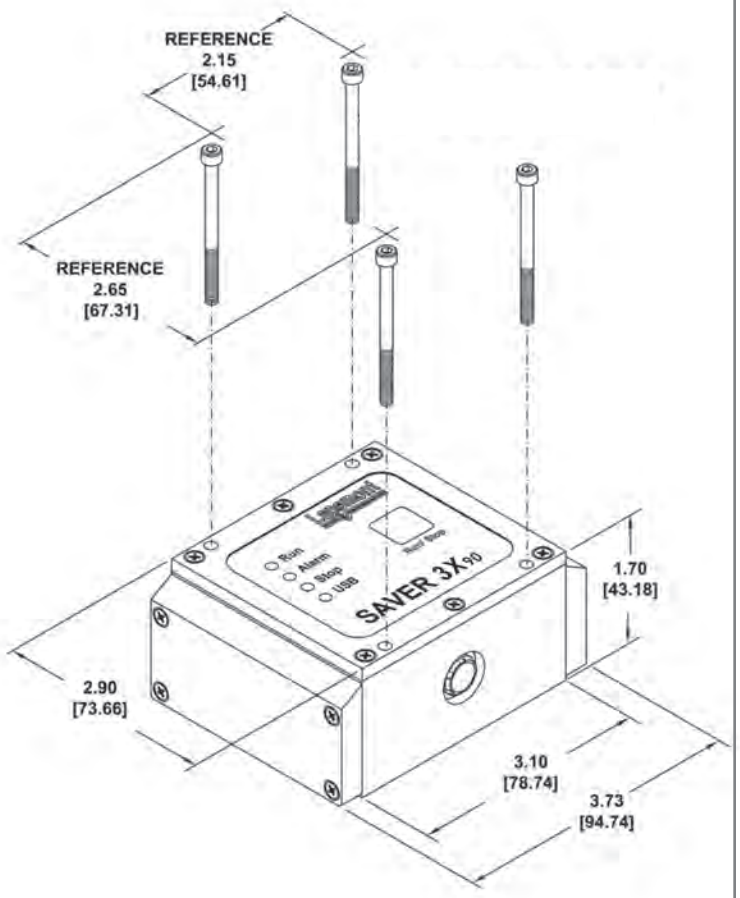
User Interface:	SaverXware™ software
Compatibility:	Microsoft Windows® XP (SP3), Vista, 7
COM Interface:	USB 1.1 or 2.0 compatible
Data Rate:	400 kB/s (typical)

CONTROLS AND INDICATORS

Controls:	Run / Stop button
LED Indicators:	Green: Run Red: Alarm Yellow: Stop Green: USB cable connected

SYSTEM DRAWINGS – MOUNTING DIMENSIONS

ISOMETRIC VIEW



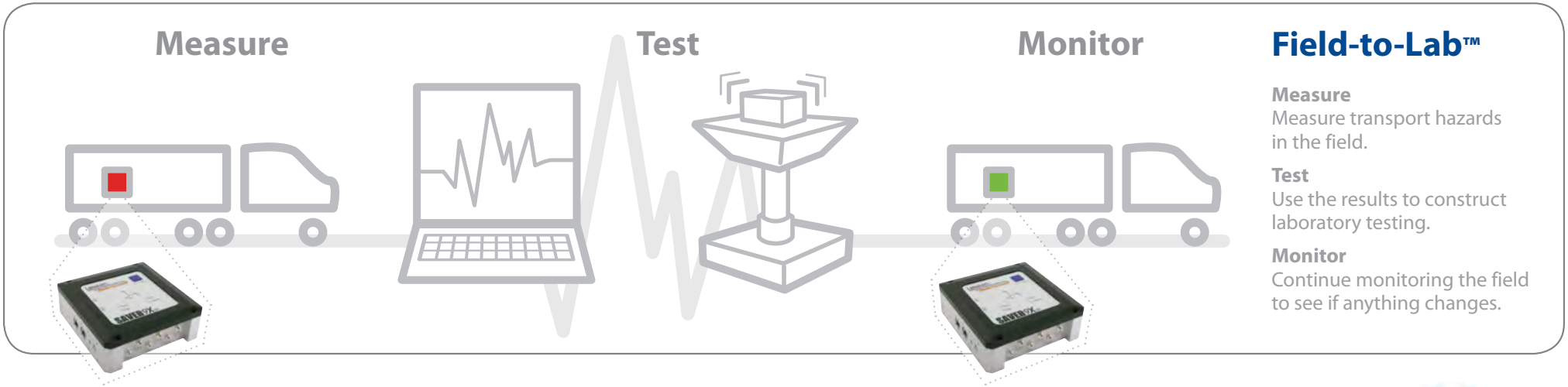
Note: Dimensions in inches [millimeters]

10.9.12

SAVER™ 9X30

Lansmont Field-to-Lab®

The SAVER™ 9X30 is a self-powered field data recorder with an internal tri-axial accelerometer, and six externally configurable channels. The 9X30 is provided with temperature, humidity and atmospheric pressure sensors and can be optionally configured with onboard GPS logging capability. Powered with 9V lithium batteries, the instrument and will operate continuously for up to 30 days.



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GSA Schedule

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SAVER™ 9X30

Lansmont Field-to-Lab®

FEATURES

Field-to-Lab®

Use SaverXware™ software to analyze data captured with SAVER™ instruments, and seamlessly create random vibration test profiles that can be easily imported into Lansmont TouchTest Vibration Controllers for immediate use. Only Lansmont offers this cross-platform integration.

30 Day Battery Life:

SAVER 9X30 is powered by two 9V batteries located on the side of the unit. The unit will run for 30 days on lithium batteries (15 days on alkaline batteries). Step- by- step instructions are provided in SaverXware™ for replacing the batteries.

Nine Dynamic Measurement Channels:

The 9X30 incorporates a dedicated internal tri-axial with 6 external accelerometer inputs, along with temperature, humidity, atmospheric pressure sensors. Sampling rates up to 10KHz per channel provide unparalleled portable measurement capability. The 9X30 includes built in signal conditioning for all of the dynamic channels along with selectable recording ranges and filters.

OPTIONS

9X-GPS Configuration:

Optionally configured as the SAVER™ 9X-GPS, the internal GPS hardware adds valuable location and speed detail to your measurement data. This detail is directly part of the SaverXware™ data stream, requiring an intermediate import and synchronization.

External Battery Pack:

Lansmont offers External Battery Pack options that can extend the continuous operation from one to multiple months of run time.

Mounting Kits:

Mounting kits can make it easier to fix SAVER™ 9X30's to vehicles or structures. Kits include mounting plates and attachment hardware. If you are attaching to a ferrous surface, magnetic mounting kits are available.

Data Analysis Center:

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SAVER™ 9X30

Lansmont Field-to-Lab®

SaverXware™

Each SAVER™ purchase includes Lansmont's SaverXware™, the easy-to-use software that communicates with the SAVER™9X30 for setup prior to recording — as well as data analysis once you've collected some data. Data analysis features include drop heights, impacts, vehicle motion, vibration, as well as temperature and humidity cycles.

Measurement Setup

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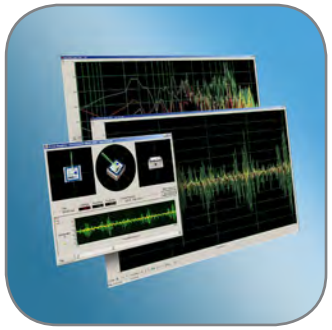

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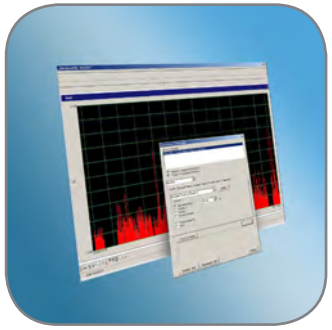

Summary Event Selection

Extremely useful event selection options based upon acceleration and Grms levels, time occurrence, type of event and even impact type and orientation. A quick history zoom-to-summary option with user-defined range cursors is provided as an alternative summary selector.

GPS Integration

Externally captured GPS data can be imported and automatically synchronized with 9X30 events. Optionally configured as a 9X-GPS, position and speed data will automatically be directly embedded into captured data files. This adds further value and definition to your measurement results.

SAVER™ 9X30

Lansmont Field-to-Lab®

MEASUREMENT APPLICATIONS

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- Establish liability in transport damage situations
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- Create climatic histograms of environmental conditions (Temp/RH)

10.9.12

SAVER™ 9X30

Lansmont Field-to-Lab®

SPECIFICATIONS

PHYSICAL

Size:	5.0 x 4.9 x 1.7 in. (127 x 124 x 43 mm)
Volume:	41.2 in.^{3} (675 cm^3)
Chassis Material:	6061-T6 anodized aluminum
Weight:	35.0 oz. (1 kg)
Environmental:	Weather Resistant
Mounting:	4 thru holes for #6 screws

DATA ACQUISITION

Sampling Rates:	50, 100, 200, 250, 500, 1000, 2500, 5000 and 10,000 samples per second
A/D Conversion:	16-bit

INTERNAL CHANNELS

Accelerometer Type:	Tri-axial piezoelectric
Acceleration Ranges:	5, 10, 20, 50, 100 and 200 g (full-scale)
Anti-Alias Filter:	4-pole, low-pass Butterworth filter 10, 20, 25, 50, 100, 200, 250 and 500 Hz. (cut-off frequency)
Software Filters:	1 or 2-pole, low-pass RC post-process filters 0 to 10 kHz (cut-off frequency)
3-dB Frequency Response:	0.4 Hz to filter setting
Instrument Noise Floor:	0.02 Grms typical at 500 Hz bandwidth
Dynamic Range:	80 dB typical
Measurement Accuracy:	±5% with nominal variations in temperature and frequency

DATA RECORDING

Signal Trigger:	User programmable acceleration (g) threshold
Timer Trigger:	User programmable "wake-up" interval
Pre-Trigger:	User-programmable signal event pre-trigger
Data Retention Modes:	Max. Overwrite, Fill / Stop, Wrap / Overwrite
Temperature / Humidity / Atmospheric Pressure:	Temperature, RH and Atmospheric Pressure readings recorded for each event

MEMORY

Memory Size:	128 MB
Memory Type:	Non-volatile FLASH
Memory Retention:	Retains data even when batteries are exhausted or removed

EXTERNAL CHANNELS

Number of Channels:	6
Input Modes:	Charge and Voltage
Anti-Alias Filter:	4-pole, low-pass Butterworth filter 10, 20, 25, 50, 100, 200, 250 and 500, 1,000, 2,000, and 2,500 Hz. (cut-off frequency)

Charge Mode:

Accelerometer Type:	Piezoelectric
Input Sensitivity:	0.3 to 30.0 pC/g
Acceleration Ranges:	5, 10, 20, 50, 100, and 200 g (full scale)
3-dB Frequency Response:	0.4 Hz to filter setting
Measurement Accuracy:	±5% with nominal variations in temperature and frequency

Voltage Mode:

Input Range:	+5 volts AC or DC
Input Sensitivity:	0.3 to 5000mV/g
AC Response:	0.4 Hz to filter setting
3-dB Frequency DC Response:	DC to filter setting
Measurement Accuracy:	±5% with nominal variations in temperature and frequency

ENVIRONMENTAL

Operating Temperature:	-40° to +60°C (-40° to +140°F) using lithium batteries -20° to +54°C (-4° to +130°F) using alkaline batteries
Temperature Measurement / Accuracy:	-40° to +60°C (-40° to +140°F) ±1.0°C from +5° to +40°C; ±1.5°C from -40° to +60°C
Communication Temperature:	0° to +60°C (32° to +140°F)
Humidity Measurement / Accuracy:	5% to 95% RH, non-condensing ±2% from 10% to 90% RH @ 25°C; ±3% from 5% to 95% RH @ 25°C
Atmospheric Pressure	
Measurement Range:	10 to 1100 mbar.
Measurement Accuracy:	±4 mbar from 750 to 1100 mbar at 25°C.

POWER

Internal:	2 lithium or alkaline 9V batteries
External:	Extended run time options available
Continuous Run Times:	30 days using lithium batteries 15 days using alkaline batteries, extended run-time options available

SOFTWARE / COMMUNICATIONS

User Interface:	SaverXware™ software
Compatibility:	Microsoft Windows® XP (SP3), Vista, 7
COM Interface:	USB 1.1 or 2.0 compatible
Data Rate:	400 kB/s (typical)

CONTROLS AND INDICATORS

Controls:	Run / Stop button
LED Indicators:	Green: Run Red: Alarm, Yellow: Stop, Green: USB cable connected

Optional Embedded GPS (9X-GPS):

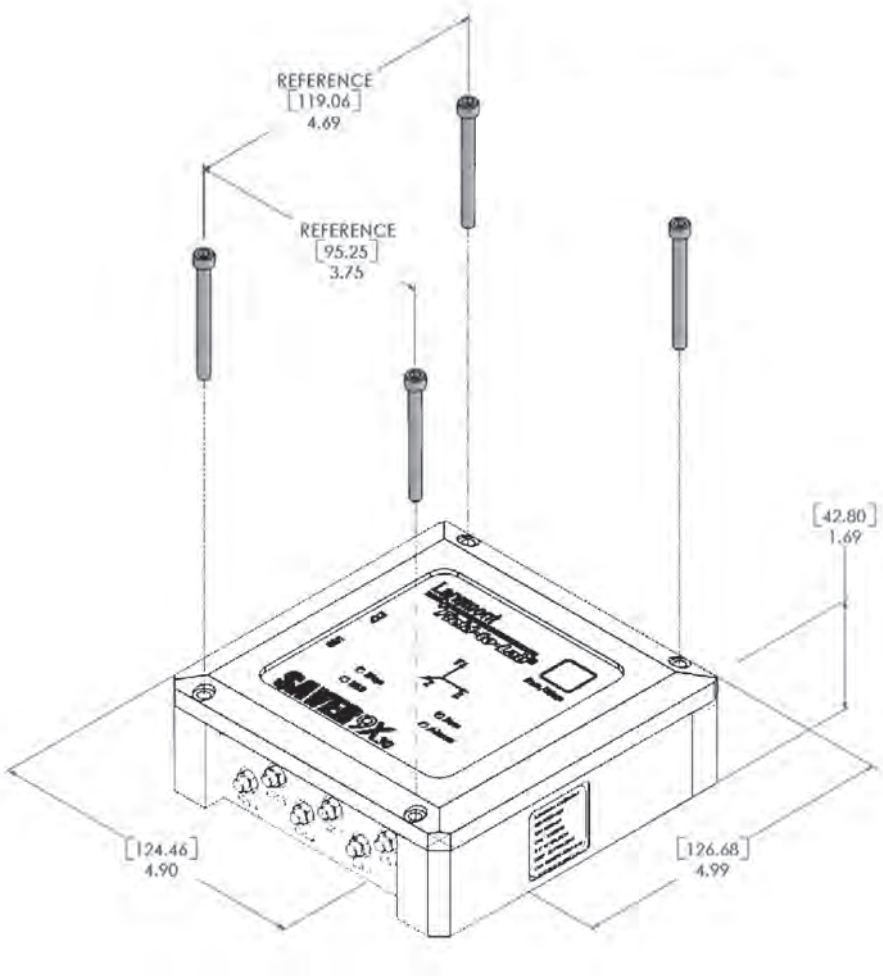
Antenna:	External with SMA connector and magnetic mount
Data Acquisition:	GPS position recorded with every event
Run Time:	100 hours of vehicle movement on lithium batteries 50 hours of vehicle movement on alkaline batteries GPS turns off when instrument is not moving

SAVER™ 9X30

Lansmont Field-to-Lab®

SYSTEM DRAWINGS – MOUNTING DIMENSIONS

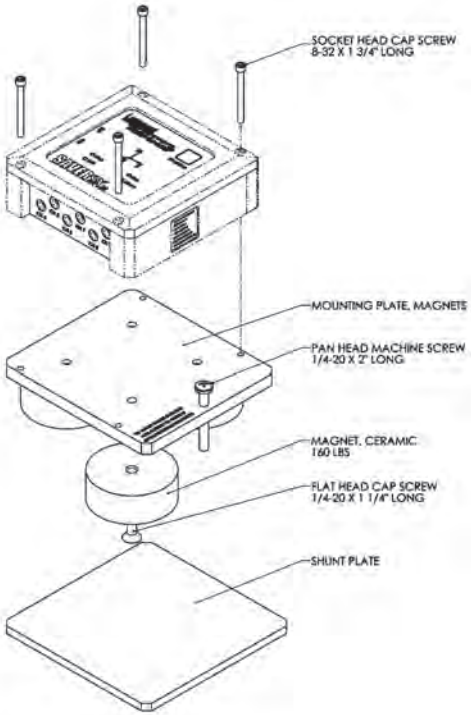
ISOMETRIC VIEW



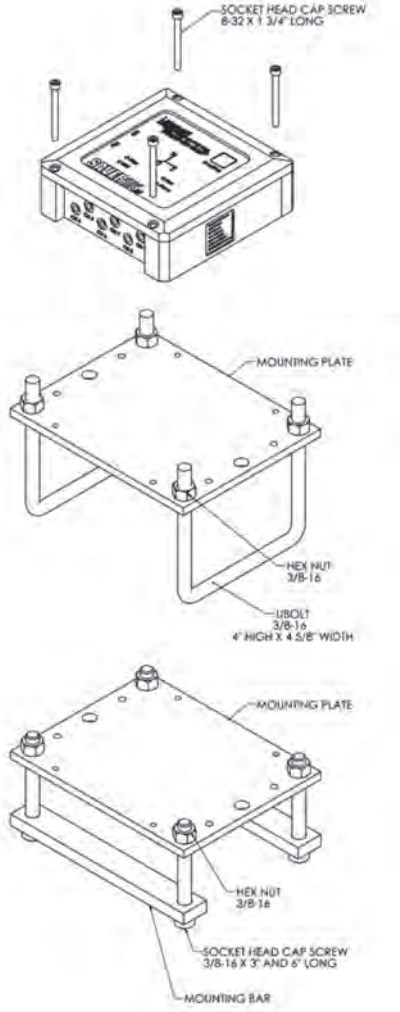
Note: Dimensions in inches [millimeters]

MOUNTING OPTIONS

MAGNET MOUNT



STANDARD MOUNT



Note: Dimensions in inches [millimeters]

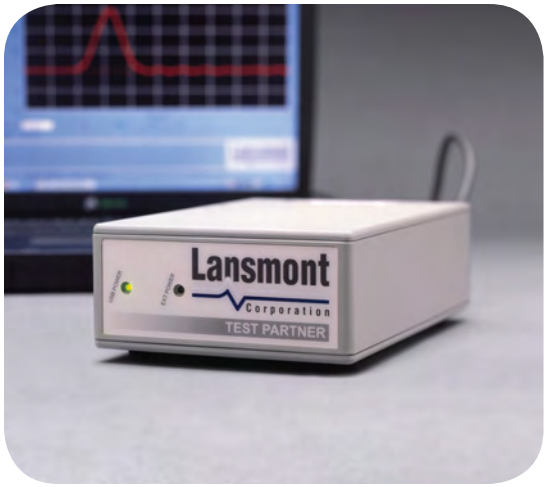
10.9.12

Test Instruments

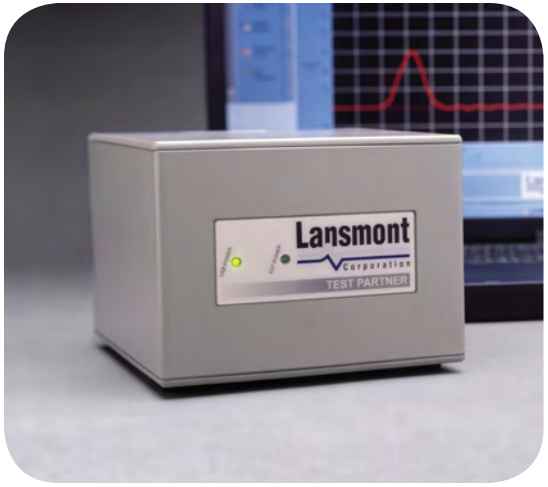
Lansmont
Field-to-Lab®

Test Partner™ 3

Lansmont Field-to-Lab®



Test Partner Mini



Test Partner USB 4x4

Test Partner 3 is a powerful combination of computer software and hardware specifically tailored to the capture and analysis of transient shock events. It can acquire up to sixteen channels of acceleration data simultaneously from shock, drop, or other kinds of impact events.

Test Partner 3 utilizes the USB port on your computer for convenient plug-and-play simplicity. **Test Partner 3 comes in two hardware platforms:** the four-channel **Mini configuration** and the **4x4 configuration**. The Mini provides four-channel portability while the 4x4 addresses greater multi-channel needs. The 4x4 can be configured in modular, four-channel increments, up to 16 channels total. Both the Mini and 4x4 include all signal conditioning built into the hardware. The Mini and the 4x4 (four-channel configuration only) are fully powered through the USB, providing flexible mobility.

Test Partner 3 systems are available with two different software options: TP3.Lite, and **TP3.ETC**. The Lite version includes 4 channels of acquisition, basic shock analysis, and reporting functions. The ETC software includes all features of the Lite software, plus up to 16 channels of acquisition, the ability to compute Shock Response (SR) time domain, Shock Response Spectra (SRS), Force vs. Deflection analysis, Tolerance Bands for MIL-Spec compliance and FFT analysis. Either software package will run on Test Partner Mini or 4x4 hardware platforms.

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10.11.12

Test Partner™ 3

Lansmont Field-to-Lab®

SPECIFICATIONS

	Test Partner 3 Mini	Test Partner 3 4x4
Channels:	4 Total	4,8,12 or16
Sampling Rate:	1 MHz	1 MHz
Resolution:	16 Bits	16 Bits
External Trigger:	Included	Included
CE Compliant:	Yes	Yes

POWER

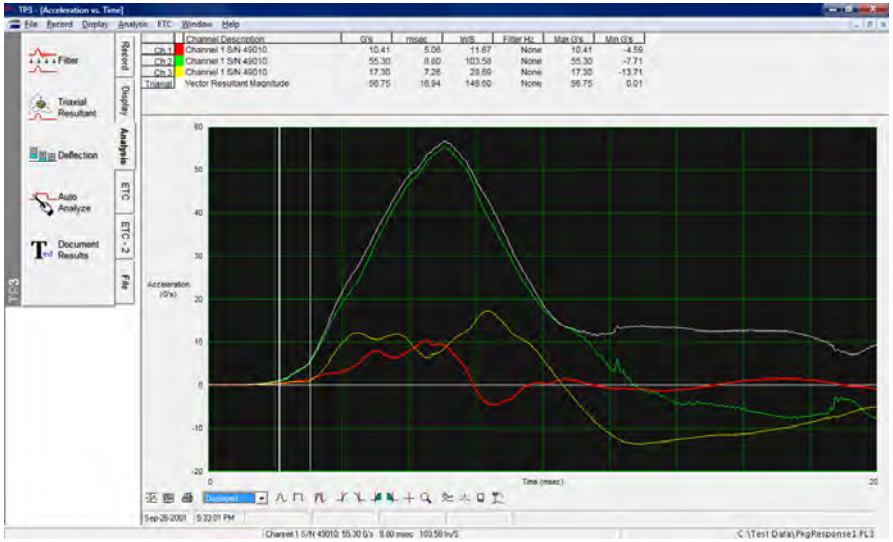
USB:	Yes	Four-Channel Version Only
AC Adapter:	Included	Included
Voltage:	110 – 220 VAC	110 – 220 VAC
Frequency:	50 – 60 Hz	50 – 60 Hz

DIMENSIONS

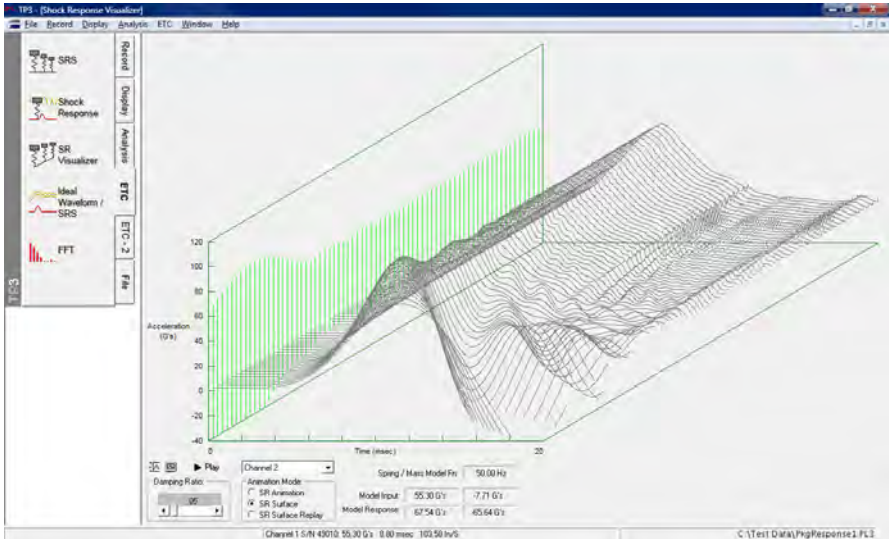
Length:	8.0 in. (20.0 cm)	8.0 in. (20.0 cm)
Width:	4.6 in. (11.7 cm)	6.5 in. (16.5 cm)
Height:	2.3 in. (5.7 cm)	5.0 in. (12.7 cm)

Software Features

- Selectable channel and threshold triggering
- Pre- and/or Post- acquisition signal filtering
- Time domain display, multi-channel overlay
- Tri-axial resultant overlay
- Shock Response Spectra (SRS)
- Shock Response - time domain display
- Ideal waveform - with SRS target and tolerance
- SRS Visualizer
- Force / Deflection / Energy calculations
- Rotational shock
- FFT
- Comprehensive data acquisition, output and reporting functionality



Multi-channel acceleration vs. time waveforms



Shock Response 3D surface waveform

10.11.12

Test Partner™ 4

Lansmont Field-to-Lab®

8 channel configuration shown above

Test Partner 4 (TP4) is Lansmont's latest generation data acquisition system designed to capture dynamic event data. TP4 integrates an onboard computer for processing and analyzing data and a host controller which controls 8-channel analog cards with built-in signal conditioning to support IEPE sensors or Analog Event Detection. Analog input channels are capable of output sample rates up to 2.5MHz per channel providing versatility to acquire data attributed to drop, shock, and impacts, as well as pyro-shock and blast impact events where high frequency energies are present.

Analog Event Detection provides capabilities to define test constraints of electrical interconnect designs and determine when those design constraints have been exceeded. TP4 enables setup of event detection conditions per analog channel by configuring minimum event duration and corresponding voltage levels to detect intermittent electrical faults, permanent faults and/or critical faults.

An External I/O channel can be configured to trigger or arm the system with ±12V and an Ethernet interface allows the user to operate TP4 remotely over the network or connected locally to a PC.

Hardware Features

- Software configurable analog I/O channels for Acceleration or Analog Event Detection
- External Trigger/Arm channel
- 100/1000 Base-T Ethernet
- Supports IEPE sensors
- 24-bit Sigma-Delta A/D per channel
- Valid bandwidth up to 100kHz; Max. Phase Shift (0 to 5)°
- Input oversampling at 20MHz

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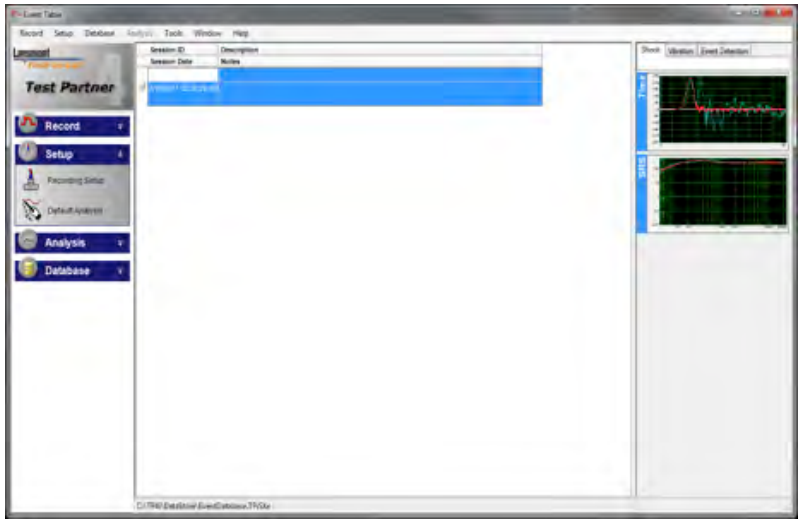
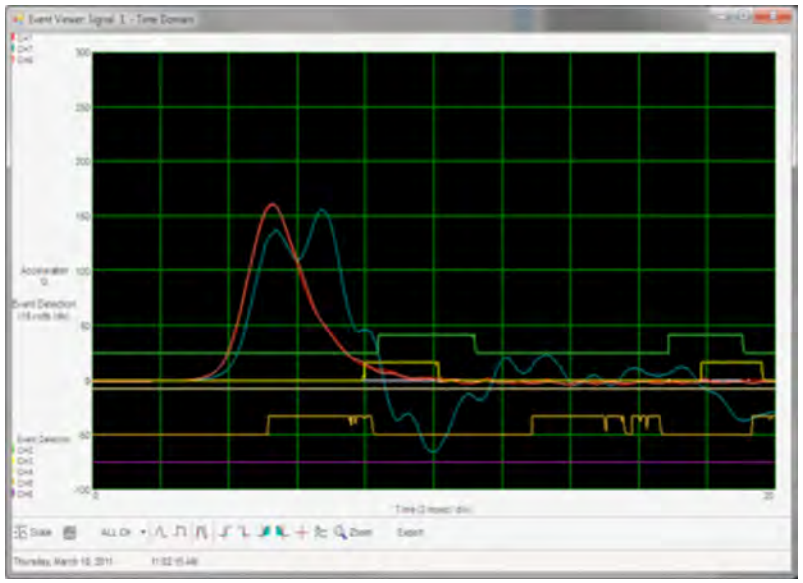
1.30.13

Test Partner™ 4

Lansmont Field-to-Lab®





TP4 Software

TP4 software provides the user with an intuitive interface, loaded with powerful features for system setup and recording configurations with a suite of tools for analyzing, reporting and managing data. Database file management simplifies processing and retention of large data sets. The software allows the user to configure and interact with single or multiple TP4 systems over the network via commercially available Ethernet hubs and switches.

Software Features

- Intuitive User Interface
- Network Configurable
- Database File Management
- SRS Analysis
- PSD Analysis
- Automatic or manual non-destructive filtering
- Automatic or manual analysis of Shock or Vibration events (Peak Acceleration, Duration, Velocity Change, Grms)
- Automatic or manual analysis of Events Detected (Detected, Duration, Min/Max, Critical-to-Failure "CTF")

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Test Partner™ 4

Lansmont Field-to-Lab®

32 channel configuration shown above

40 channel configuration shown above

SPECIFICATIONS	8-CH	32-CH	40-CH
SYSTEM			
Size	9.2" x 7.9" x 3.7" (234 x 200 x 95)cm	13.9" x 10.6" x 6.3" (354 x 270 x 160)cm	
Weight	TBD	TBD	TBD
Memory	256MB Sample Storage	1024MB Sample Storage	
Communications	100/1000 Base-T Ethernet	100/1000 Base-T Ethernet	
ENVIRONMENTAL			
Operating Temperature	(0 to 55)°C		
POWER			
Watts	34W	93W	112W
Frequency	(50 to 60)Hz		
AC Voltage	(94 to 240)VAC		
ANALOG INPUTS			
Type	BNC		
Input Impedance	100kΩ		
Input Protection	±59.6V		
Maximum Input Voltage	±10V		
Maximum Input Current @ 10V	100µA		
Input Type	IEPE		
IEPE Excitation Voltage	23.5V		
IEPE Excitation Current	4.7mA		
IEPE DC Bias Voltage	(6 to 16)V		
IEPE AC Bias Voltage	(4 to 18)V		
Selectable Voltage Input Ranges	±2.5V, ±5.0V, ±10.0V		
Signal-to-Noise Ratio (SNR)	80dB		
DC Valid Bandwidth	DC to 100 kHz		
DC Max. Phase Shift	(0 to 5)°		
AC Valid Bandwidth	(1 to 100)kHz		
AC Max. Phase Shift	(0 to 5)°		
Analog-to-Digital Conversion (ADC)	24-bit Sigma-Delta		
Input Oversampling	20MHz		
Analog Anti-Alias Filter	9MHz		
Output Sample Data Rate	5kHz to 2.5MHz		
Digital Decimation Filtering	Dependent upon output sample data rate		
EXTERNAL I/O			
Connector	BNC		
Trigger	Input/Output		
Arm	Input/Output		
Max. Input Voltage	±12V		
Max. Output Voltage	±12V		

Vibration Test Systems

Lansmont
Field-to-Lab®

Vibration Test Systems

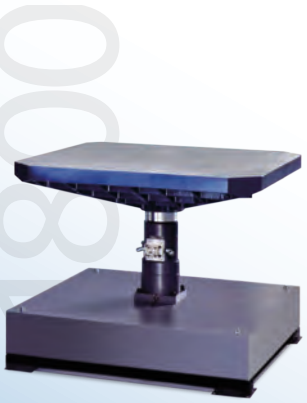
Lansmont Field-to-Lab®

Lansmont Vibration Test Systems are versatile, easy to operate, and reliable servo-hydraulic vibration testing equipment. Whether you are testing bare products, individual packages, full pallet loads, or much larger crated systems, Lansmont has a vibration system model that is perfect for your testing applications.

During product development or validation, vibration tests are used to assess reliability and determine fragility levels. To evaluate packaging systems used to transport those products, vibration tests simulate shipping and handling conditions.

Lansmont Vibration Test Systems are widely utilized for product and packaging evaluations, as well as, a wide range of vibration tests in accordance with government, industry, and corporate specifications.

Model 1000	Model 1800	Model 10000	Model 56000



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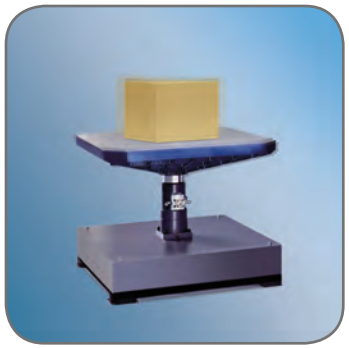
Vibration Test Systems

Lansmont Field-to-Lab®



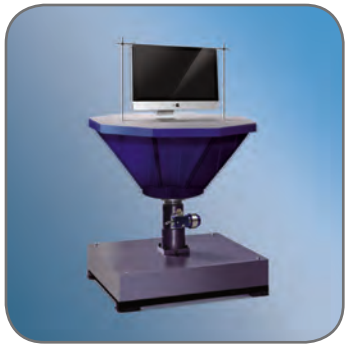
Selecting the Lansmont Vibration Test System for your Application

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 size of the actuator.



Performance Capability

Vibration testing levels vary significantly depending on the product you are evaluating or the conditions you are simulating. The two most important vibration performance criteria are frequency range and acceleration levels. It is also important to know the type of vibration—sinusoidal or random.

Vibration Test Systems

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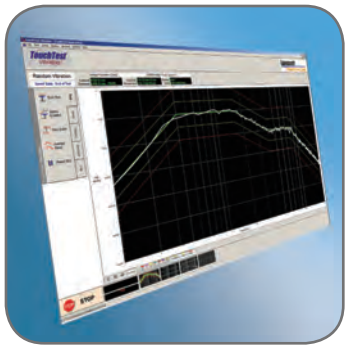
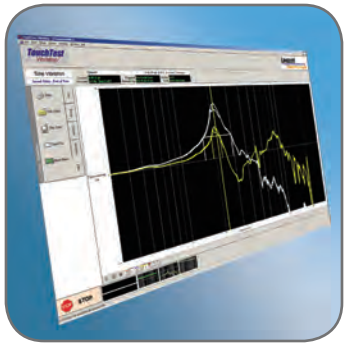
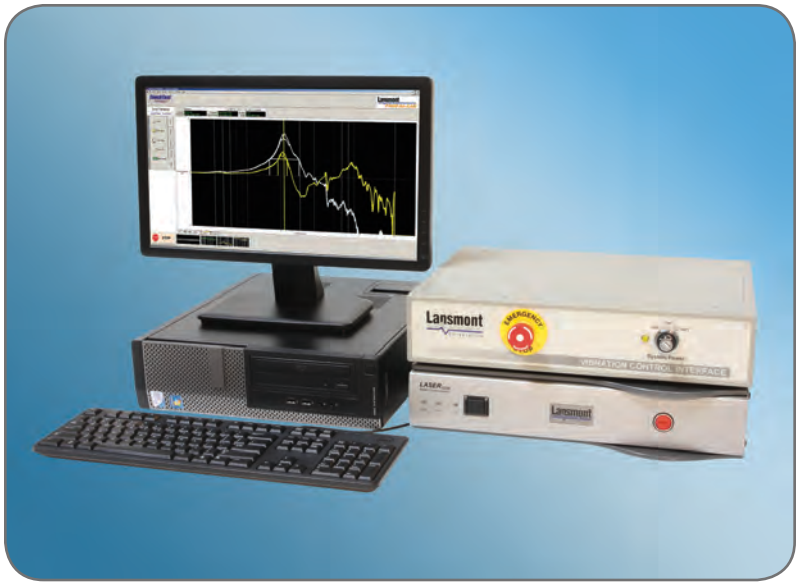




TouchTest Vibration 2 Controls

Lansmont offers the only integrated servo hydraulic vibration control system available today. The controller provides intelligence to the system—a vital component which acts as the brain to direct the hydraulic brawn.

- Swept Sine, Dwell, Random, and Field-to-Lab™ vibration
- QuickStart technology
- Up to 8 acceleration input channels
- Built-In Signal Conditioning
- Multi-channel control and response measurement
- Integrated HPS sequencing



With the single touch of a button, your TouchTest controller will engage your hydraulic power supply, bring your vibration table to its center position, and initiate your pre-loaded vibration test. Control complex tests with integrated simplicity.

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Vibration Test Systems

Lansmont Field-to-Lab®

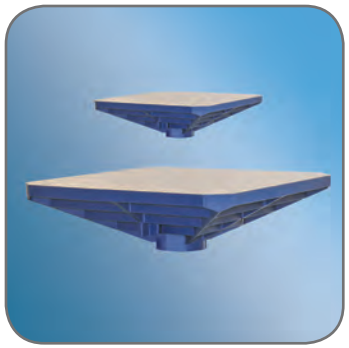

Table Structure

Table design greatly influences the performance of your vibration system. Lansmont designs tables as light as possible for maximum performance with enough stiffness such that the table's frequency response does not impact the vibration system's control or the items undergoing testing.

Lansmont offers several table sizes. Standard tables vary in size from 25.8 in. (65.5 cm) square up to 60 x 98 in. (152 x 249 cm). High performance and custom table sizes are also available.

Actuator

The actuator is located underneath the vibration table. The engineering of this high performance component allows you to "shake" the test load, while controlling frequency, displacement, and acceleration. Hydraulic oil ported by the servo valve forces the piston inside the actuator body up and down at varying amplitudes and frequencies.

Lansmont has several actuators available with varying force and stroke capacity.

Hydrostatic vs. Hydro-Film Actuators

Hydrostatic actuators offer advantages over conventional hydro-film actuators:

- Hydrostatic actuators have no piston to bearing contact
- Hydrostatic actuators tolerate excessive side loads and heavy use better
- Hydrostatic actuators run at low acceleration levels and high frequencies

Vibration Test Systems

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Servo Valve

A Servo Valve assembly, attached to the actuator, ports hydraulic fluid above or below the piston to create vibratory motion. The ability to move the actuator up and down allows your Lansmont vibration system to perform the vibration needed for your testing.

High Performance Servo Valve

The Lansmont 1SVC servo valve represents the next generation in high-flow, high-frequency response servo-valve technology.

Key Features:

- High-flow at high frequencies
- Single-stage with high performance voice coil
- Minimal moving parts
- High reliability
- Easy set-up and adjustment

Hydraulic Power Supply

The Hydraulic Power Supply (HPS) is the "heart" of your vibration system. These self-contained pump units provide the hydraulic fluid needed to make your vibration system function properly. Lansmont HPS designs are available with either water-cooled or air-cooled heat exchangers.

GEN3 HPS Unit

The GEN3 HPS design provides reliable, efficient performance. Our latest HPS model is equipped with a filter protection relief valve, which redirects excessive hydraulic pressure from your filter back into the oil reservoir. This protects your filter from potential collapse during operation.

Each unit also includes highly accurate temperature and fluid level interlocks. The temperature interlocks assure the water or air-to-oil cooling systems operate efficiently and correctly. The fluid level interlocks protect your system from operating if a minimum amount of oil is not present in the HPS reservoir.

Vibration Test Systems

Lansmont Field-to-Lab®

OPTIONS

1-G Supports:

1-G Supports are airbags mounted underneath the vibration table. The air pressure is regulated automatically by the controller. These optional supports improve the system performance, particularly with heavy test items. By producing an upward force to counterbalance the table load, 1-G Supports will increase the payload capacity. 1-G Supports also restrict table rotation during testing.

Seismic Base:

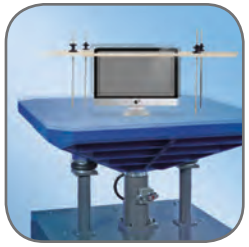
Vibration Test Systems produce dynamic energy during operation. To attenuate these vibrational forces, the system is mounted to a large steel mass called a seismic base.

SAVER™ Field Instruments:

Real world vibration conditions can be replicated in the laboratory. Our SAVER™ Field Instruments can record the vibration your products and packages experience in shipping and this data is easily replayed in the lab using your Lansmont Vibration Test System.

Column Stacking Fixtures:

Column stacking fixtures mount to the vibration table to keep large test items corralled during testing. They can also keep packages or products aligned and restrained during stacking simulations.

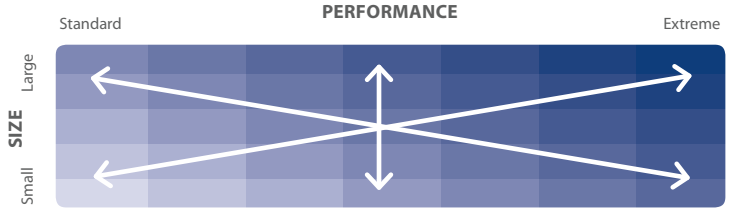


Hold Down Fixtures:

For certain testing applications, it may be desirable to couple the test item with the vibration table surface. Hold Down Fixtures will keep your products and packages secured to the table surface during vibration testing.

MADE TO ORDER

Not quite the equipment size or performance level that you need? If we do not already manufacture the test machine ideally suited for your company's testing applications, our engineering team can custom design a test system specific to your needs.



Vibration Test Systems

Lansmont Field-to-Lab®

VIBRATION TEST SYSTEM MATRIX - STANDARD PERFORMANCE

MODEL	STROKE	FREQUENCY RANGE	MAX PAYLOAD	TABLE SIZES
1000	2.5 in. (6.4 cm) 4.0 in. (10.2 cm) 6.0 in. (15.2 cm)	1 – 300 Hz	75 lbs. (34 kg)	15.7 in. (40 cm) 25.6 in. (65 cm) 33.5 in. (85 cm)
1800	2.5 in. (6.4 cm) 4.0 in. (10.2 cm) 6.0 in. (15.2 cm)	1 – 300 Hz	1500 lbs. (680 kg)	33.5 in. (85 cm) 48 in. (122 cm)
6200	2.5 in. (6.4 cm) 4.0 in. (10.2 cm) 6.0 in. (15.2 cm)	1 – 300 Hz	2000 lbs. (907 kg)	33.5 in. (85 cm) 48 in. (122 cm) 60 in. (152 cm)
7000	2.5 in. (6.4 cm) 4.0 in. (10.2 cm) 6.0 in. (15.2 cm)	1 – 300 Hz	2500 lbs. (1134 kg)	48 in. (122 cm) 60 in. (152 cm)
10000	2.5 in. (6.4 cm) 4.0 in. (10.2 cm) 6.0 in. (15.2 cm)	1 – 300 Hz	3500 lbs. (1587 kg)	48 in. (122 cm) 60 in. (152 cm) 60 x 98 in. (152 x 249 cm)
15000	10.0 in. (25.4 cm)	1 – 100 Hz	3500 lbs. (1587 kg)	48 in. (122 cm) 60 in. (152 cm)
28000	2.5 in. (6.4 cm) 4.0 in. (10.2 cm) 6.0 in. (15.2 cm)	1 – 200 Hz	3500 lbs. (1587 kg)	60 in. (152 cm) 60 x 98 in. (152 x 249 cm) 102 x 160 in. (259 x 406 cm)
6000 Horizontal	6.0 in. (15.2 cm)	1 – 100 Hz	3000 lbs. (1361 kg)	36 in. (91 cm) 60 in. (152 cm)

Vibration Test Systems

Lansmont Field-to-Lab®

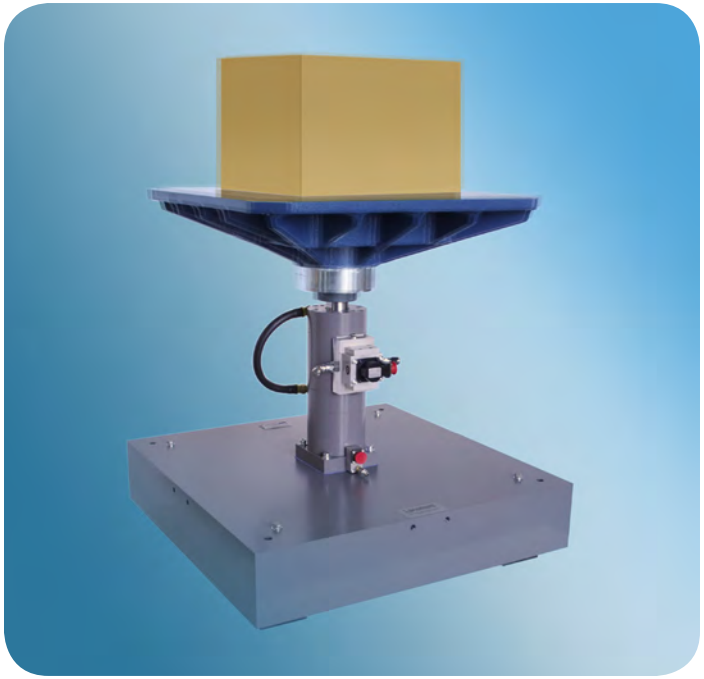
VIBRATION TEST SYSTEM MATRIX - HIGH PERFORMANCE

MODEL	STROKE	FREQUENCY RANGE	MAX PAYLOAD	TABLE SIZES
1000	2.5 in. (6.4 cm) 4.0 in. (10.2 cm)	1 – 500 Hz	50 lbs. (23 kg)	15.7 in. (40 cm) 25.6 in. (65 cm)
1800	2.5 in. (6.4 cm) 4.0 in. (10.2 cm)	1 – 500 Hz	500 lbs. (227 kg)	36 in. (91 cm)
6200	2.5 in. (6.4 cm) 4.0 in. (10.2 cm) 6.0 in. (15.2 cm)	1 – 500 Hz	500 lbs. (227 kg)	36 in. (91 cm)
28000	2.5 in. (6.4 cm) 4.0 in. (10.2 cm)	1 – 500 Hz	1000 lbs. (454 kg)	50 in. (127 cm) 60 in. (152 cm)
56000	2.5 in. (6.4 cm) 4.0 in. (10.2 cm)	1 – 500 Hz	8000 lbs. (3628 kg)	48 x 96 in. (122 x 244 cm)
65000	2.5 in. (6.4 cm) 4.0 in. (10.2 cm)	1 – 300 Hz	2000 lbs. (907 kg)	83 x 98 in. (210 x 250 cm)

Performance Capability: Vibration testing levels vary significantly depending on the product you are evaluating or the conditions you are simulating. The two most important vibration performance criteria are frequency range and acceleration levels. It is also important to know the type of vibration—sinusoidal or random.

1000
Vibration Tester

Lansmont Field-to-Lab®



The Model 1000 Vibration Test System is designed to test small and lightweight objects and can perform a wide range of testing specifications. Both sinusoidal vibration tests and random vibration tests are possible for product and package testing. The Model 1000 performs testing per ASTM, ISTA, ISO and other common industry test specifications.

For testing small products or packages, the Model 1000 might be the vibration system best suited to your needs. Each vibration system features a table sized to the application, a rugged hydraulic actuator, a reliable hydraulic power supply, and Lansmont's TouchTest Vibration Control System.

PERFORMANCE SPECIFICATIONS	Standard Performance	High Performance
Frequency Range	1 – 300 Hz.	1 – 500 Hz.
Maximum Stroke Options (peak-to-peak)	2.5 in. (6.4 cm) 4 in. (10.2 cm) 6 in. (15.2 cm)	2.5 in. (6.4 cm) 4 in. (10.2 cm)
Actuator Stall Force (at 3000 psi (207 bar))	1225 lbs. (5.4 kN)	1225 lbs. (5.4 kN)
Actuator Dynamic Force (at 3000 psi (207 bar))	816 lbs. (3.6kN)	816 lbs. (3.6 kN)

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10.18.13

1000
Vibration Tester

Lansmont Field-to-Lab®

SPECIFICATIONS

PHYSICAL

Table Sizes	15.8 in. (40 cm) square 33.5 in. (85 cm) square	25.6 in. (65 cm) square
Standard Hole Patterns	6 in. grid, 3/8-16 Stainless Steel inserts 15 cm grid, M10 x 1.5 Stainless Steel inserts	

POWER REQUIREMENTS

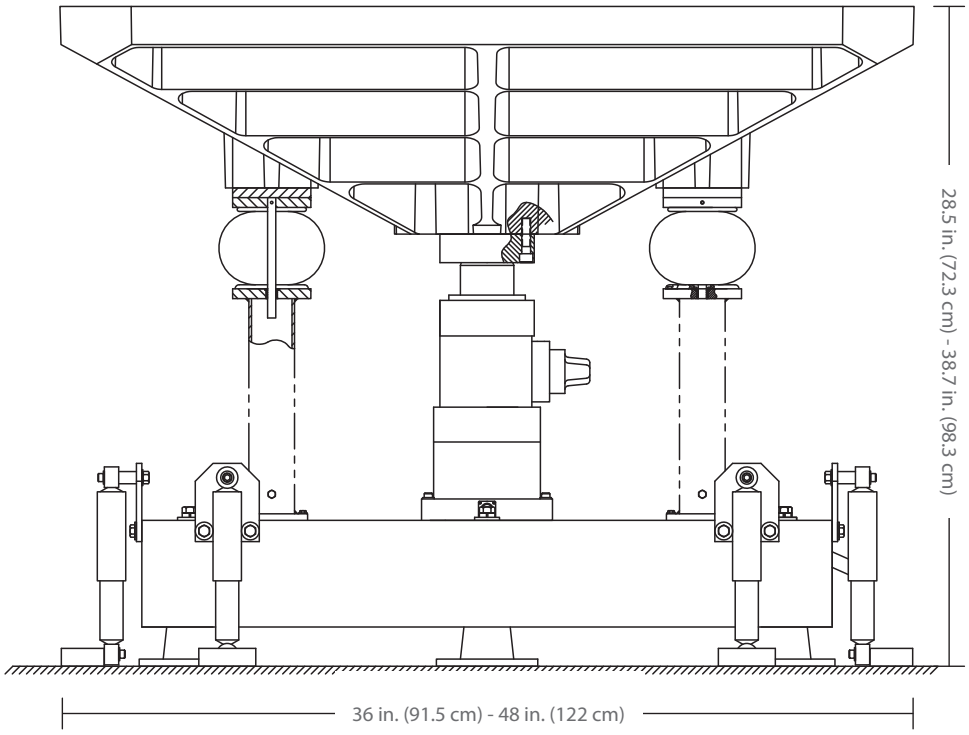
	System	Controls
Voltage	115 – 230 VAC, 230 – 460 VAC	100 – 230 VAC
Frequency	50, 60 Hz.	50, 60 Hz.
Phase	Single (115 – 230 VAC) Three (230 – 460 VAC)	Single Phase

FACILITY REQUIREMENTS

Cooling Water	The Model 1000 HPS has a built-in cooling fan and does not require cooling water.
Plant Air	The Model 1000 does not require plant air.

SYSTEM DRAWING

SIDE VIEW



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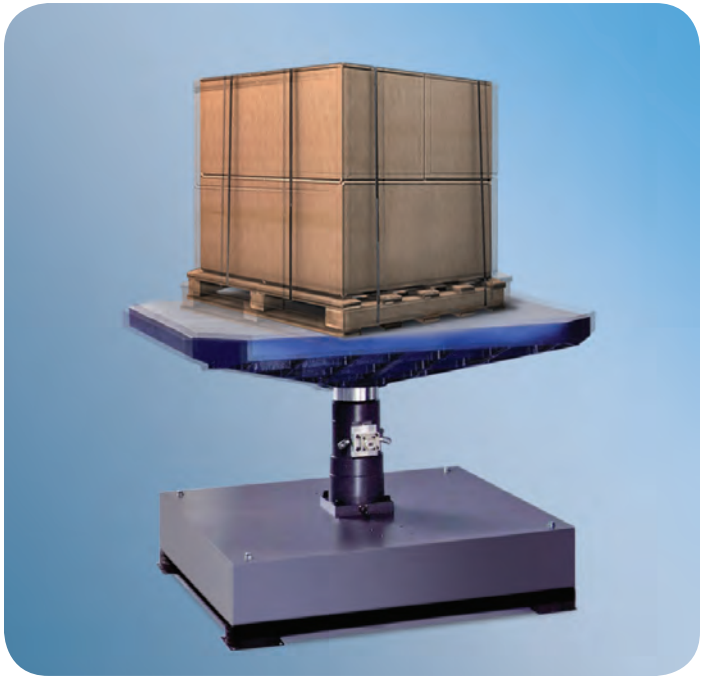
1800
Vibration Tester

Lansmont Field-to-Lab®



The Model 1800 Vibration Test System will perform a wide range of testing applications. The system runs resonance search and fixed-frequency dwell tests for product evaluation. Additionally, the 1800 is used for distribution simulation, referencing ASTM, ISTA, ISO and other common industry test specifications, as well as test profiles created from SAVER™ environmental data.

For testing small products to light pallet loads, Lansmont will configure a Model 1800 that will meet your needs. Each vibration system features a table sized to the application, a rugged hydraulic actuator, a reliable hydraulic power supply, and Lansmont's TouchTest Vibration Control System.

PERFORMANCE SPECIFICATIONS	Standard Performance	High Performance
Frequency Range	1 – 300 Hz.	1 – 500 Hz.
Maximum Stroke Options (peak-to-peak)	2.5 in. (6.4 cm) 4 in. (10.2 cm) 6 in. (15.2 cm)	2.5 in. (6.4 cm) 4 in. (10.2 cm)
Actuator Stall Force (at 3000 psi (207 bar))	4566 lbs. (20.3 kN)	4566 lbs. (20.3 kN)
Actuator Dynamic Force (at 3000 psi (207 bar))	3044 lbs. (13.5 kN)	3044 lbs. (13.5 kN)

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1800
Vibration Tester

Lansmont Field-to-Lab®

SPECIFICATIONS

PHYSICAL

Table Sizes	25.6 in. (65 cm) square	33.5 in. (85 cm) square
	48 in. (122 cm) square	60 in. (152 cm) square
	72 in. (183 cm) square	
Standard Hole Patterns	6 in. grid, 3/8-16 Stainless Steel inserts	
	15 cm grid, M10 x 1.5 Stainless Steel inserts	

POWER REQUIREMENTS

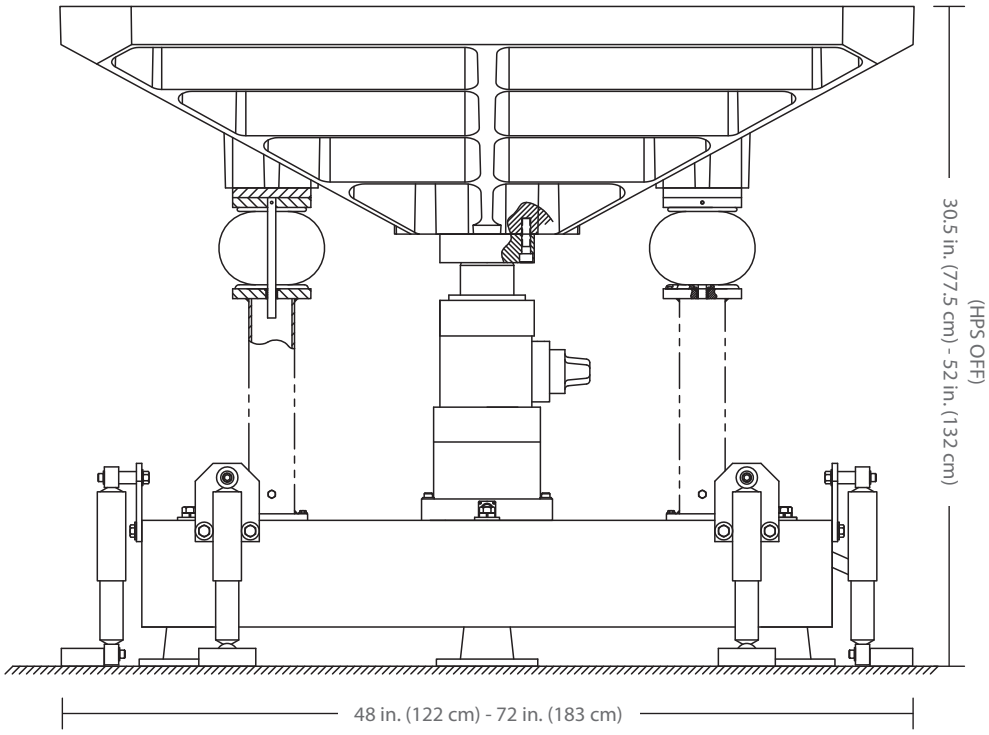
	System	Controls
Voltage	200 – 460 VAC	100 – 240 VAC
Frequency	50, 60 Hz.	50, 60 Hz.
Phase	Three Phase	Single Phase

FACILITY REQUIREMENTS

Cooling Water	6 gpm at 60°F (15.5°C at 23 L/min.)
Plant Air	80 psi (552 kPa) for 1-G Supports (optional)

SYSTEM DRAWING

SIDE VIEW



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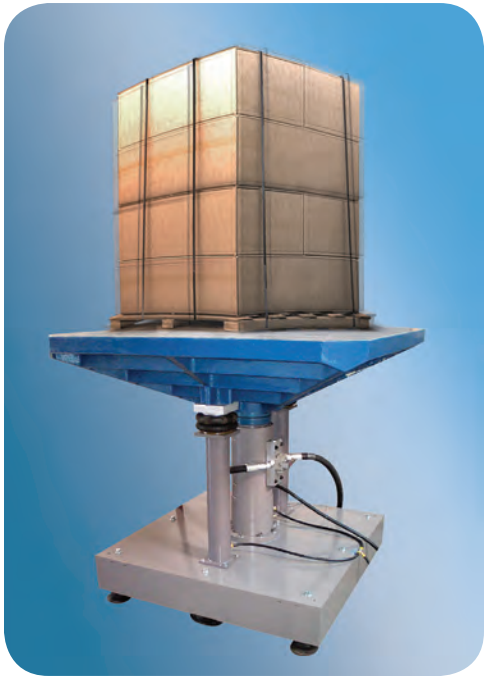
6200
Vibration Tester

Lansmont Field-to-Lab®



The Model 6200 Vibration Test System has a longer stroke actuator which makes the system design more versatile for performing low frequency, high energy vibration test profiles. The actuator force and stroke capabilities make the Model 6200 the ideal vibration system for Field-to-Lab® test protocols. The Model 6200 is also used to perform testing per ASTM, ISTA, ISO and other common industry test specifications.

For testing products, individual packages and unitized loads, Lansmont will configure a Model 6200 that will meet your needs. Each vibration system features a table sized to the application, a rugged hydraulic actuator, a reliable hydraulic power supply, and Lansmont's TouchTest Vibration Control System.

PERFORMANCE SPECIFICATIONS	Standard Performance	High Performance
Frequency Range	1 – 300 Hz.	1 – 500 Hz.
Maximum Stroke Options (peak-to-peak)	2.5 in. (6.4 cm) 4 in. (10.2 cm) 6 in. (15.2 cm)	2.5 in. (6.4 cm) 4 in. (10.2 cm)
Actuator Stall Force (at 3000 psi (207 bar))	7404 lbs. (32.9 kN)	7404 lbs. (32.9 kN)
Actuator Dynamic Force (at 3000 psi (207 bar))	4936 lbs. (21.9 kN)	4936 lbs. (21.9 kN)

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6200
Vibration Tester

Lansmont Field-to-Lab®

SPECIFICATIONS

PHYSICAL

Table Sizes	33.5 in. (85 cm) square	36 in. (91 cm) square
	48 in. (122 cm) square	60 in. (152 cm) square
	72 in. (183 cm) square	
Standard Hole Patterns	6 in. grid, 3/8-16 Stainless Steel inserts	
	15 cm grid, M10 x 1.5 Stainless Steel inserts	

POWER REQUIREMENTS

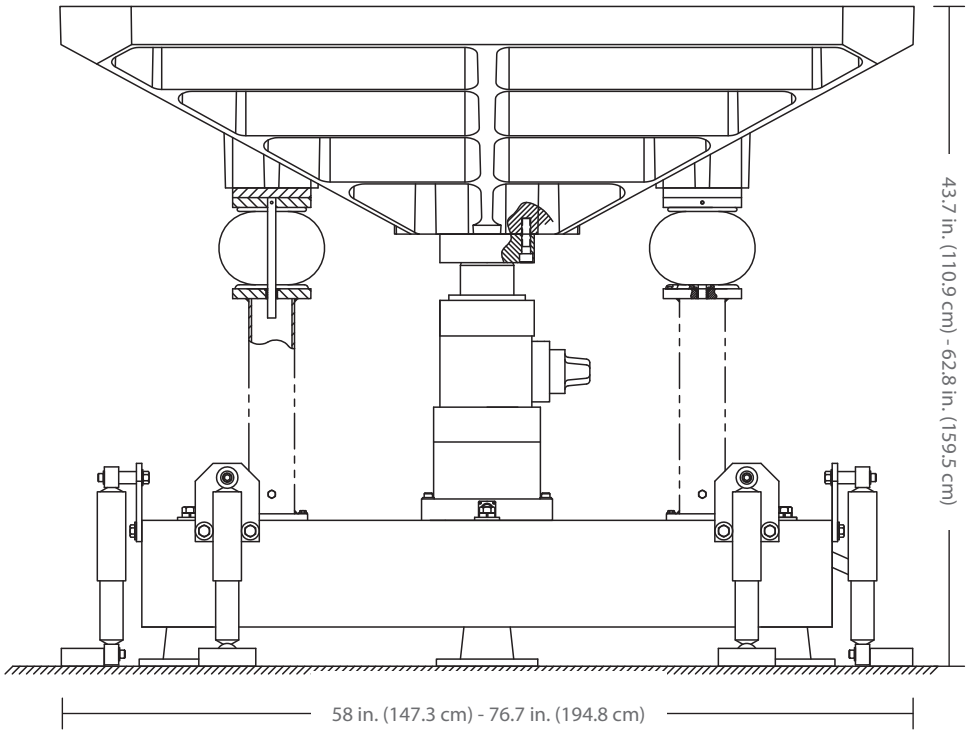
	System	Controls
Voltage	200 – 460 VAC	100 – 240 VAC
Frequency	50, 60 Hz.	50, 60 Hz.
Phase	Three Phase	Single Phase

FACILITY REQUIREMENTS

Cooling Water	Standard HPS – 6 gpm at 60°F (23 L/min. at 15.5°C)
	High Performance HPS – 17 gpm at 60°F (64 L/min. at 15.5°C)
Plant Air	80 psi (552 kPa) for 1-G Supports (optional)

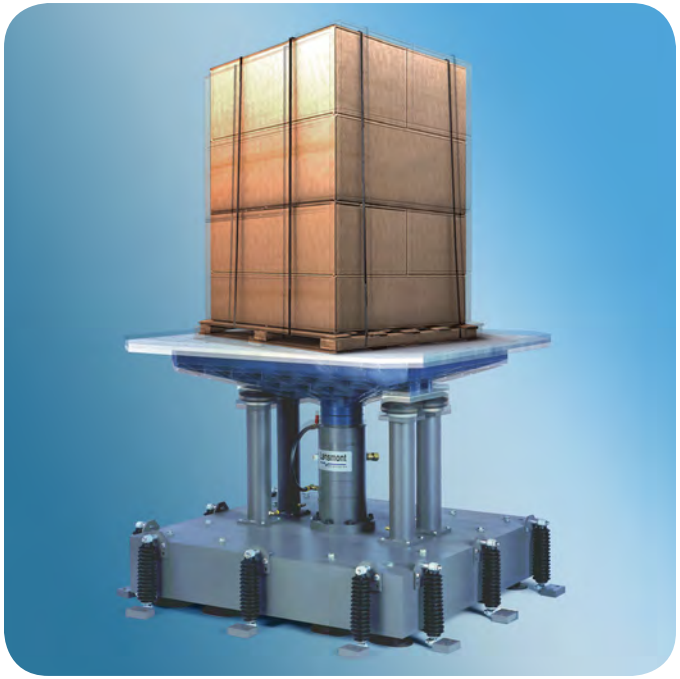
SYSTEM DRAWING

SIDE VIEW



7000
Vibration Tester

Lansmont Field-to-Lab®



The Model 7000 Vibration Test System has similar performance to the Model 1800 with the advantage of being able to accommodate heavier payloads. The system runs resonance search and fixed-frequency dwell tests for product evaluation and is also used for distribution simulation per ASTM, ISTA, ISO and other common industry test specifications. The system will also run test profiles created from SAVER™ environmental data.

For testing heavier test items or unitized loads, the Model 7000 might be the best choice for to satisfy your performance and payload requirements. Each vibration system features a table sized to the application, a rugged hydraulic actuator, a reliable hydraulic power supply, and Lansmont's TouchTest Vibration Control System.

PERFORMANCE SPECIFICATIONS	
Frequency Range	1 – 300 Hz.
Maximum Stroke Options (peak-to-peak)	2.5 in. (6.4 cm) 4.0 in. (10.2 cm) 6.0 in. (15.2 cm)
Actuator Stall force (at 3000 psi (207 bar))	9171 lbs. (41 kN)
Actuator Dynamic Force (at 3000 psi (207 bar))	6114 lbs. (27.2 kN)

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7000 Vibration Tester

Lansmont Field-to-Lab®

SPECIFICATIONS

PHYSICAL

Table Sizes	48 in. (122 cm) square	60 in. (152 cm) square
	72 in. (183 cm) square	
Standard Hole Patterns	6 in. grid, 3/8-16 Stainless Steel inserts	
	15 cm grid, M10 x 1.5 Stainless Steel inserts	

POWER REQUIREMENTS

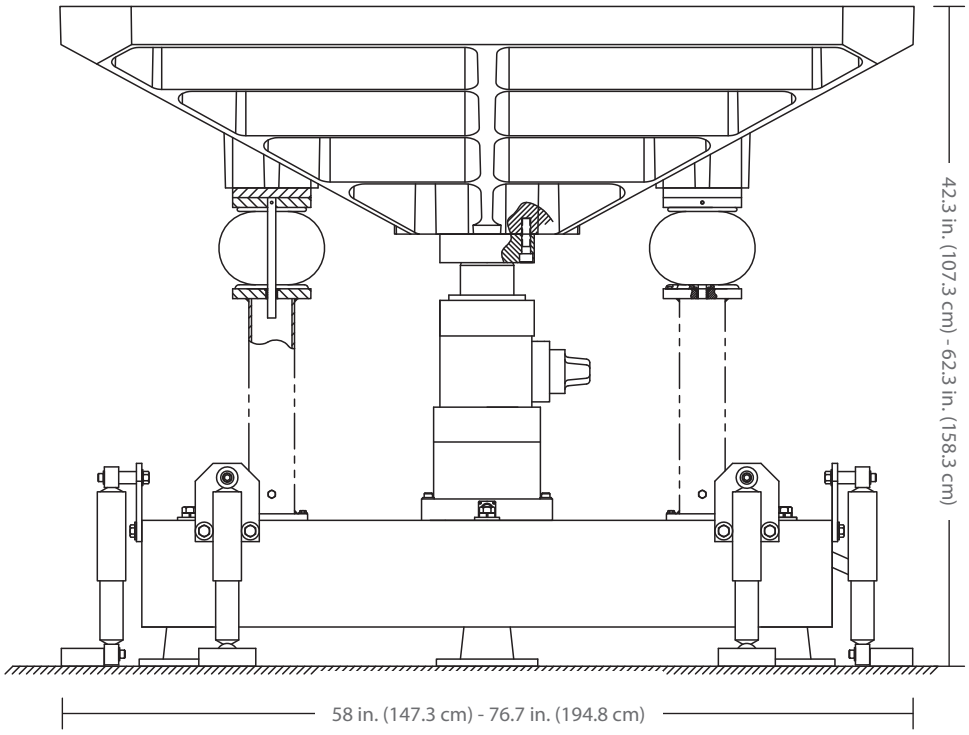
	System	Controls
Voltage	200 – 460 VAC	100 – 240 VAC
Frequency	50, 60 Hz.	50, 60 Hz.
Phase	Three Phase	Single Phase

FACILITY REQUIREMENTS

Cooling Water	Standard HPS – 6 gpm at 60°F (23 L/min. at 15.5°C)
Plant Air	80 psi (552 kPa) for 1-G Supports (optional)

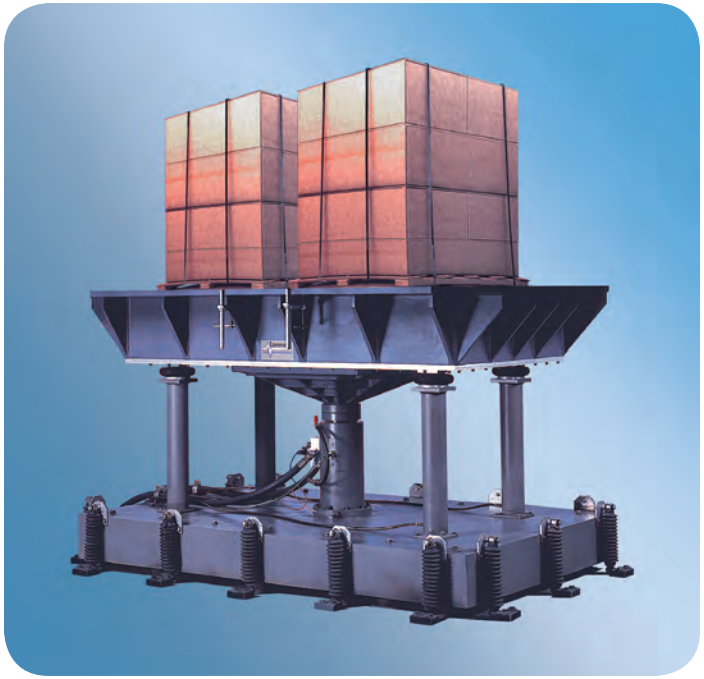
SYSTEM DRAWING

SIDE VIEW



10000
Vibration Tester

Lansmont Field-to-Lab®



The Model 10000 Vibration Test System is designed for testing large, heavy payloads. The actuator force and large table options make the Model 10000 the ideal vibration system for testing unit loads and large crated products. The Model 10000 performs testing per ASTM, ISTA, ISO and other common industry test specifications. The system will also run test profiles created from SAVER™ environmental data.

The Model 10000 has several table size choices to best cater to the intended testing application. In addition to the vibration table, each vibration system includes a rugged hydraulic actuator, a reliable hydraulic power supply, and Lansmont's TouchTest Vibration Control System.

PERFORMANCE SPECIFICATIONS	
Frequency Range	1 – 300 Hz.
Maximum Stroke Options (peak-to-peak)	2.5 in. (6.4 cm) 4.0 in. (10.2 cm) 6.0 in. (15.2 cm)
Actuator Stall Force (at 3000 psi (207 bar))	12,370 lbs. (55 kN)
Actuator Dynamic Force (at 3000 psi (207 bar))	8247 lbs. (36.7 kN)

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10000
Vibration Tester

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SPECIFICATIONS

PHYSICAL

Table Sizes	48 in. (122 cm) square	60 in. (152 cm) square
	72 in. (183 cm) square	60 x 98 in. (152 x 249 cm)
Standard Hole Patterns	6 in. grid, 3/8-16 Stainless Steel inserts	
	15 cm grid, M10 x 1.5 Stainless Steel inserts	

POWER REQUIREMENTS

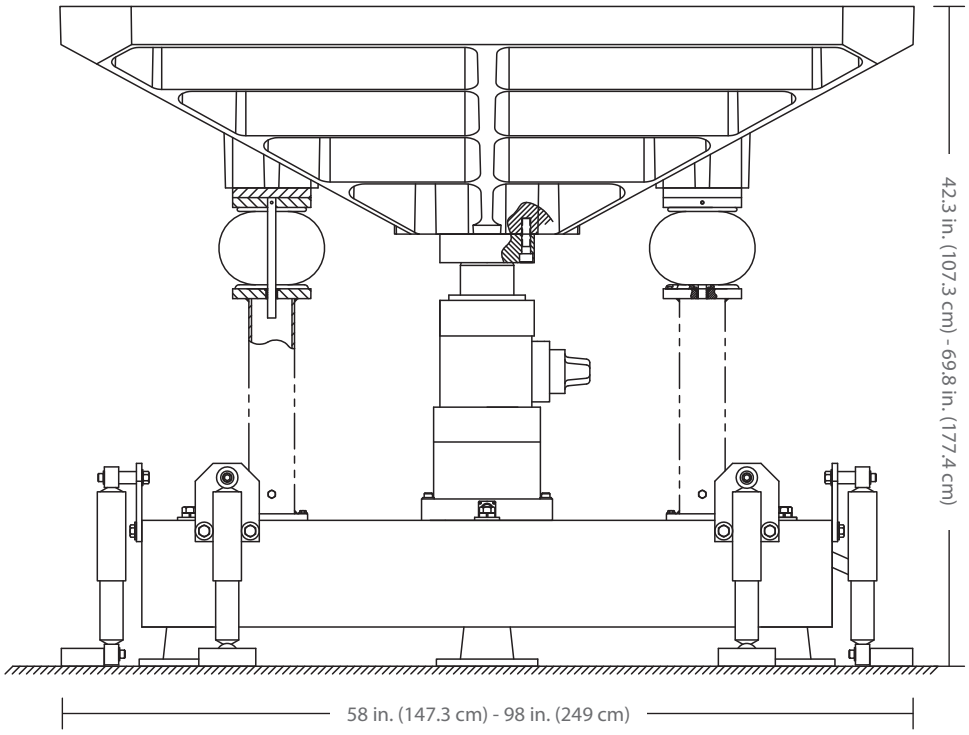
	System	Controls
Voltage	200 – 460 VAC	100 – 240 VAC
Frequency	50, 60 Hz.	50, 60 Hz.
Phase	Three Phase	Single Phase

FACILITY REQUIREMENTS

Cooling Water	Standard HPS – 6 gpm at 60°F (23 L/min. at 15.5°C)
Plant Air	80 psi (552 kPa) for 1-G Supports (optional)

SYSTEM DRAWING

SIDE VIEW



28000
Vibration Tester

Lansmont Field-to-Lab®

The Model 28000 Vibration Test System is our most versatile test platform. The system can be outfitted with large components for testing bulky and heavy payloads. The Model 28000 can also be configured with high-performance components for testing to 500 Hz. or higher.

The Model 28000 Vibration Test System is designed for extreme payload or high performance testing. Each vibration system features a table sized properly for the intended applications, a rugged hydraulic actuator, a reliable hydraulic power supply, and Lansmont's TouchTest Vibration Control System.

PERFORMANCE SPECIFICATIONS	Standard Performance	High Performance
Frequency Range	1 – 300 Hz.	1 – 500 Hz.
Maximum Stroke Options (peak-to-peak)	2.5 in. (6.4 cm) 4 in. (10.2 cm) 6 in. (15.2 cm)	2.5 in. (6.4 cm) 4 in. (10.2 cm)
Actuator Stall Force (at 3000 psi (207 bar))	29,400 lbs. (131 kN)	29,400 lbs. (131 kN)
Actuator Dynamic Force (at 3000 psi (207 bar))	19,600 lbs. (87.3 kN)	19,600 lbs. (87.3 kN)

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28000
Vibration Tester

Lansmont Field-to-Lab®

SPECIFICATIONS

PHYSICAL

Table Sizes	36 in. (91 cm) square	48 in. (122 cm) square
	50 in. (127 cm) square	60 in. (152 cm) square
	60 x 98 in. (152 x 249 cm)	102 x 160 in. (259 x 406 cm)
Standard Hole Patterns	6 in. grid, 3/8-16 Stainless Steel inserts	
	15 cm grid, M10 x 1.5 Stainless Steel inserts	

POWER REQUIREMENTS

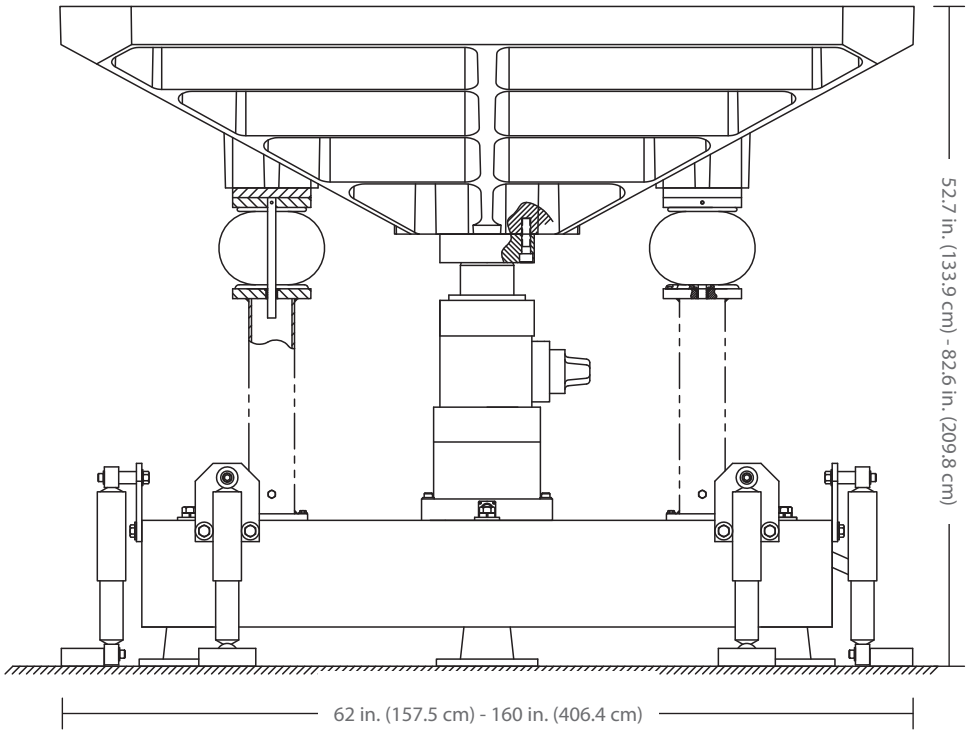
	System	Controls
Voltage	460 - 630 VAC	100 – 240 VAC
Frequency	50, 60 Hz.	50, 60 Hz.
Phase	Three Phase	Single Phase

FACILITY REQUIREMENTS

Cooling Water	Standard HPS – 10 gpm at 60°F (38 L/min. at 15.5°C)
Plant Air	80 psi (552 kPa) for 1-G Supports (optional)

SYSTEM DRAWING

SIDE VIEW



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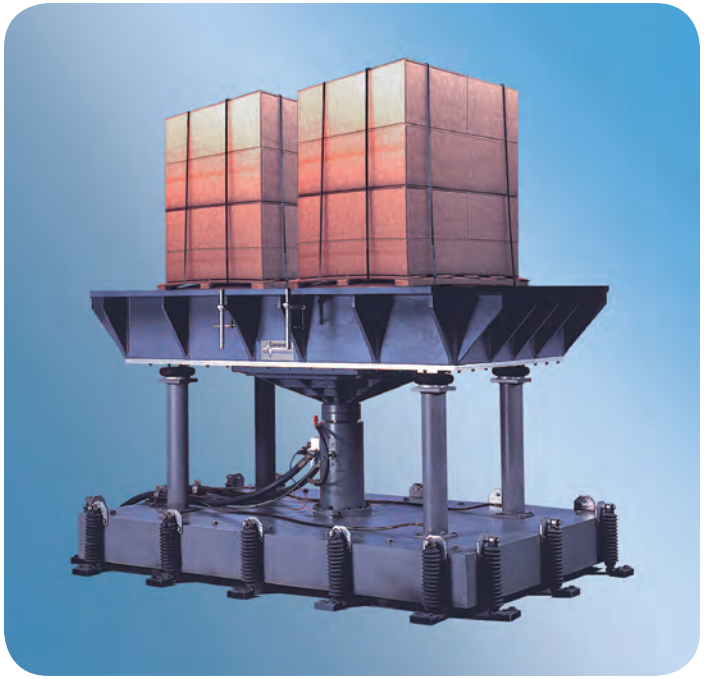
65000
Vibration Tester

Lansmont Field-to-Lab®



The Model 65000 Vibration Test System is the largest force system in our line of vibration equipment. Designed for testing very large payloads, the Model 65000 can be outfitted with the large test platforms that we have to offer, measuring up to 10 ft. (3 m) in length.

The Model 65000 Vibration Test System is a highly custom vibration system which can be tailored specifically to any extreme payload vibration testing application. Each vibration system features a table sized properly for the intended applications, a rugged hydraulic actuator, a reliable hydraulic power supply, and Lansmont's TouchTest Vibration Control System.

PERFORMANCE SPECIFICATIONS	
Frequency Range	1 – 300 Hz.
Maximum Stroke Options (peak-to-peak)	2.5 in. (6.4 cm) 4 in. (10.2 cm) 6 in. (15.2 cm)
Actuator Stall Force (at 3000 psi (207 bar))	63,720 lbs. (283.4 kN)
Actuator Dynamic Force (at 3000 psi (207 bar))	42,480 lbs. (189 kN)

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65000
Vibration Tester

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SPECIFICATIONS

PHYSICAL

Table Sizes	60 x 98 in. (152 x 249 cm)	82.7 x 98.4 in. (210 x 250 cm)
	82.7 x 124 in. (210 x 315 cm)	
Standard Hole Patterns	6 in. grid, 3/8-16 Stainless Steel inserts	
	15 cm grid, M10 x 1.5 Stainless Steel inserts	

POWER REQUIREMENTS

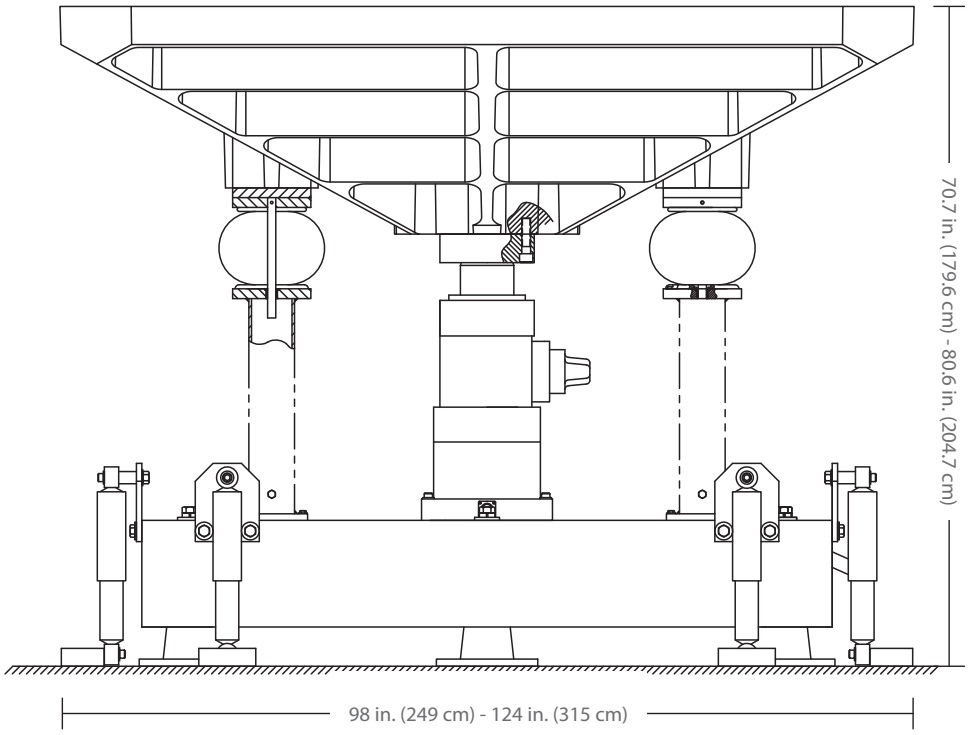
	System	Controls
Voltage	200 – 460 VAC	100 – 240 VAC
Frequency	50, 60 Hz.	50, 60 Hz.
Phase	Three Phase	Single Phase

FACILITY REQUIREMENTS

Cooling Water	Standard HPS –10 gpm at 60°F (38 L/min. at 15.5°C)
Plant Air	80 psi (552 kPa) for 1-G Supports (optional)

SYSTEM DRAWING

SIDE VIEW



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Upgrade Options: Vibration

Lansmont Field-to-Lab®

Hydrostatic Actuator Assembly

Much of the mechanical magic associated with your Lansmont Vibration Test System can be attributed to the design and performance of the hydraulic actuator. This underappreciated, and rarely visible piece of hardware is attached to the bottom of your table. The engineering of this high performance piece of hardware allows you to shake thousands of pounds of test load, while controlling frequency, displacement, and acceleration for what may be literally thousands of operating hours. Hydraulic oil pressures of up to 3,000 pounds per square inch force the piston up and down at varying amplitudes and frequencies for hours on end and most of us take that for granted.

To put it simply, vibration actuators move your table up and down. Like any moving part, actuators are susceptible to wear and tear. If and when your actuator fails, your testing stops; sometimes for weeks. That's a problem, so planning for maintenance and maximizing up-time is essential. There's no way around wear associated with moving parts, so we address it by engineering design specifications that reduce and minimize wear and tear, while maximizing long-term performance.

Hydrostatic Bearing Actuator vs. Hydro-film

Hydrostatic actuators offer advantages over conventional hydro-film actuators. Traditional hydro-film actuators have piston-to-bearing contact, thus they're inherently more susceptible to friction. This friction not only affects system control and performance, but also increases wear and tear on the entire actuator assembly.

- Hydrostatic actuators have no piston to bearing contact; the pistons are supported by pressurized oil. Wear is not a factor and friction is very low.
- Hydrostatic actuators tolerate excessive side loads and heavy use better than hydro-film actuators.
- Hydrostatic actuators run at low acceleration levels and high frequencies because the friction levels are so low.
- All currently installed conventional hydro-film actuators now have hydrostatic counterparts so retrofitting is a simple process.

9.14.11

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Upgrade Options: Vibration

Lansmont Field-to-Lab®

MAIN ASSEMBLY | **HYDRAULICS / PNEUMATICS** | CONTROLS | ACCESSORIES

Hydraulic Power Supply

If your Lansmont Vibration Test System is approaching two decades in age, you need to consider upgrading your hydraulic power supply (HPS), the true engine that drives your test system. Protecting your system's engine is critical for maximum up time, while avoiding potentially catastrophic, costly equipment failures. GEN1 and GEN2 HPS units are now considered obsolete and can no longer be supported through standard Lansmont Customer Service offerings.

Early generation HPS units lack safety systems that protect critical components, such as the HPS filter and motor. Dirty, old hydraulic oil passing through a deteriorated filter can cause the filter to structurally collapse, in addition to putting an inordinate amount of stress on the HPS motor. That same dirty oil can cause the unit to run at hot temperatures. Hot oil accelerates critical component failures, such as the high pressure seals within the system actuator, as well as the sensitive, precision servo-valve, which drives the actuator and table at the desired frequencies.

GEN3 HPS Unit

Lansmont's GEN3 HPS design incorporates modern technology that drives reliable, efficient performance while simultaneously protecting against potential failure conditions via a number of system safety interlocks and mechanisms. All Lansmont GEN3 HPS's…

GEN3 HPS with air-to-oil cooling.

… are available with either water or high efficiency air-to-oil cooling systems. This allows for flexibility in configuring HPS's to be used with water cooling, in facilities utilizing industrial chilling units. Alternatively, HPS's configured with completely self-contained* air-to-oil cooling eliminate the requirement for water/chiller, and all of the plumbing/hardware that comes with it.

…offers a more environmentally responsible solution, versus using/wasting water or other chemicals used in chilling systems.

…are equipped with a filter protection relief valve, redirecting excessive hydraulic pressure from your filter, back into the oil reservoir. This protects your filter from potential collapse, while decreasing the operational load on your HPS's motor, extending the life of your system.

…incorporate updated, highly accurate temperature and fluid level interlocks. The temperature interlocks assure the water or air-to-oil cooling systems operate efficiently and correctly. The fluid level interlocks protect your system from operating if a minimum amount of oil is not present in the HPS reservoir (due to leaks/etc).

9.14.11

* Remote application heat exchangers (air cooled) are available, but must be within 50 feet of HPS.

Upgrade Options: Vibration

Lansmont Field-to-Lab®

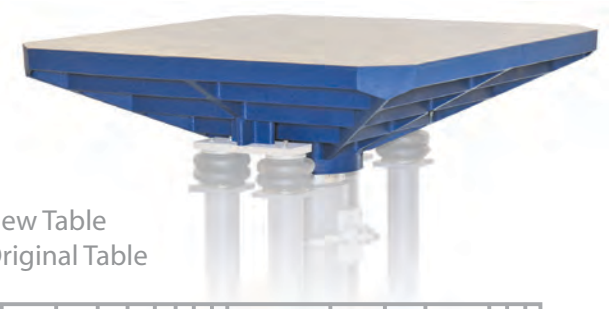
Table Assembly

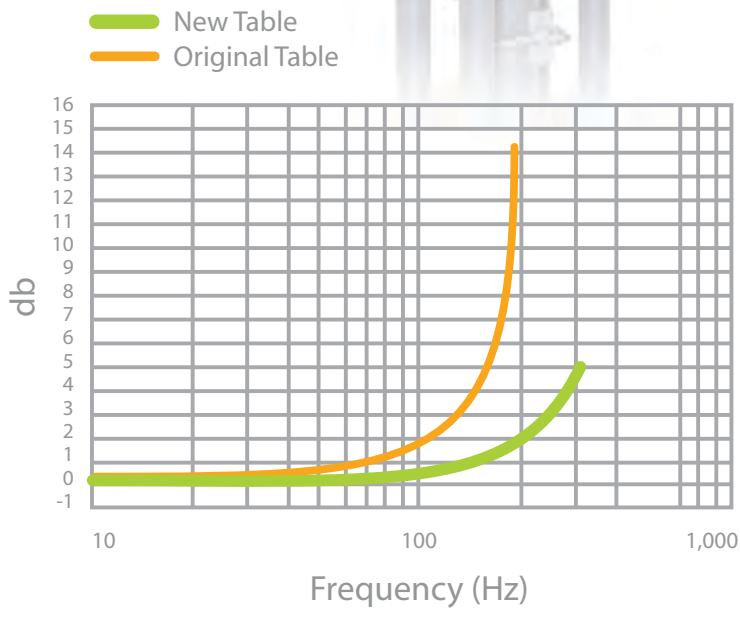
Lansmont Vibration Test Systems are used for product and package design, as well as distribution simulation. Whether simulating over-the-rail, in-the-air, or over-the-road transport, your system's table acts as the interface where the rubber meets the road, so to speak… Yes, your hydraulic power supply provides the horsepower to make things move, and your actuator provides the muscle to keep things moving back and forth. But in the end all the action takes place at the interface between the table and the product under test. In fact, the control accelerometer, entirely responsible for your control system's feedback, is attached directly to the base of the table.

You might not realize it, but the design and manufacturing of vibration tables is critical to the proper operation of your test system. Everything, including vibration tables, has resonant characteristics. Thus it's critically important that our tables are designed with enough stiffness such that the table's frequency response does not impact the vibration system's control or the items undergoing test. Additionally, the lighter we can design and manufacture our tables, the easier it is for our system to perform, while providing additional load capacity to be placed on our table for testing.

60" x 60" Cast Aluminum Table

- Single piece of cast aluminum, weighing less than previous table design, which consisted of a two-piece coupled assembly.
- Much stiffer than original table assembly, providing flatter table response over a wider frequency range.
- Provides the ability to test large test samples at higher frequencies, without degradation of system control.
- Drop-in simplicity of upgrading existing systems.
- Nearly twice the performance at a lower cost compared to the original table design.





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Shock Test Systems

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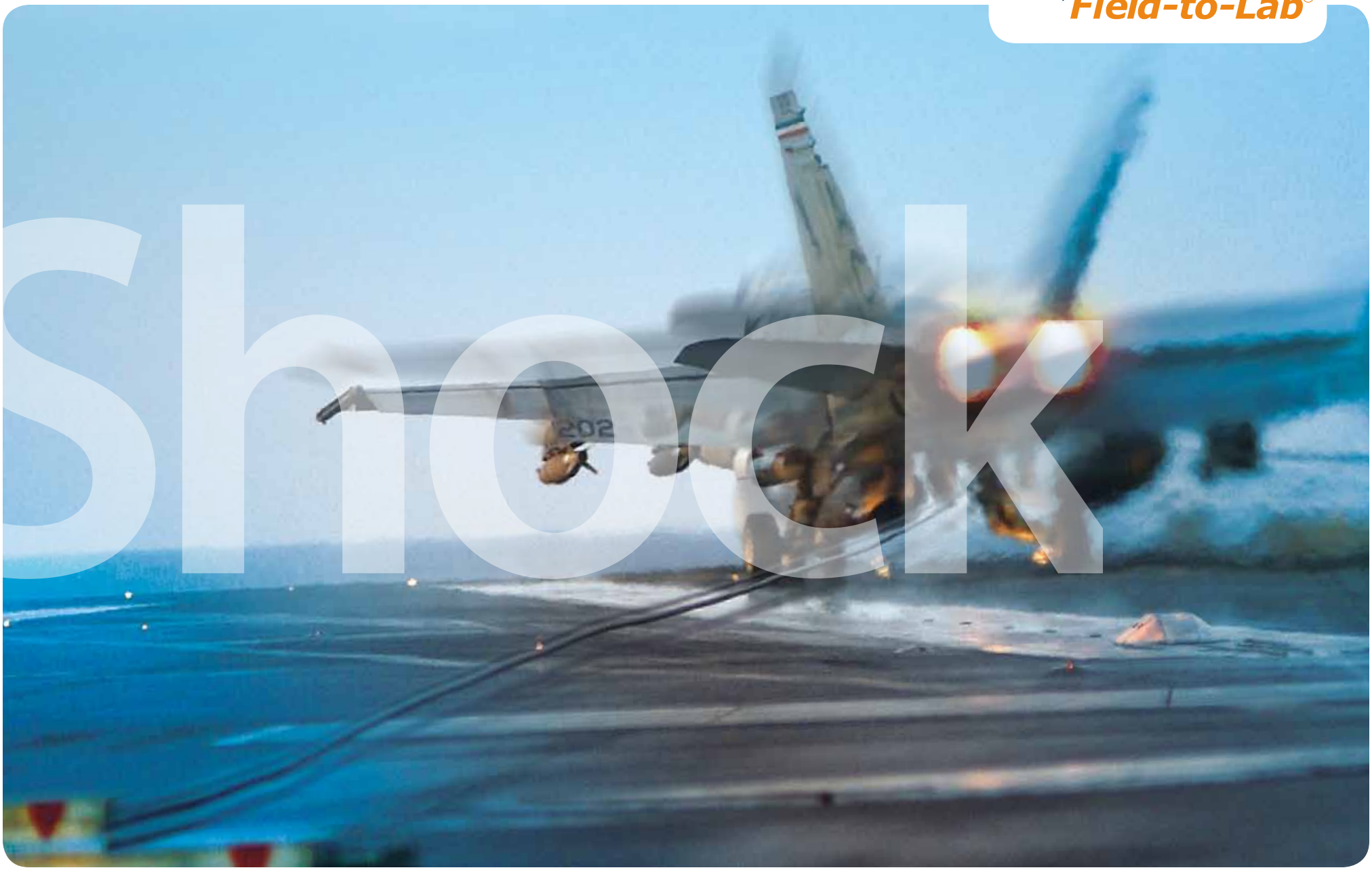

Shock Test Systems

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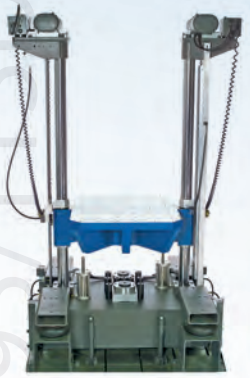
Mechanical shock tests accurately measure the fragility of products and evaluate how they respond to particular shock inputs. Shock test data is key information to ensure any product is capable of withstanding its intended "real world" use. Whether you wish to perform a complete Damage Boundary Product Fragility Assessment, an industry / mil standard shock pulse, or a company-specific test specification, **Lansmont Shock Test Systems** are available with the performance to meet your application.

The products you take for granted every day have undergone shock testing. Lansmont Shock Test Systems are used worldwide to test the consumer, automotive, medical, military and aerospace products and components that shape our lives. For any type of product or shock testing applications, Lansmont has a shock system model that is perfect for your testing applications.

Model 65/81

Model 95/115D



Model 152

Model 23

Model 122-213

Model HSX20

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Shock Test Systems

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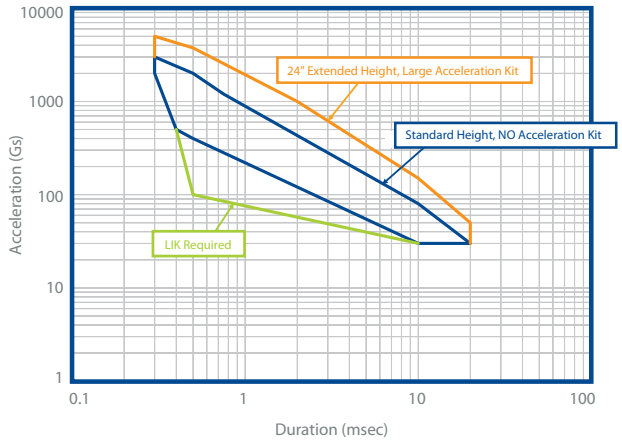
Selecting the Lansmont Shock Test System for your Application

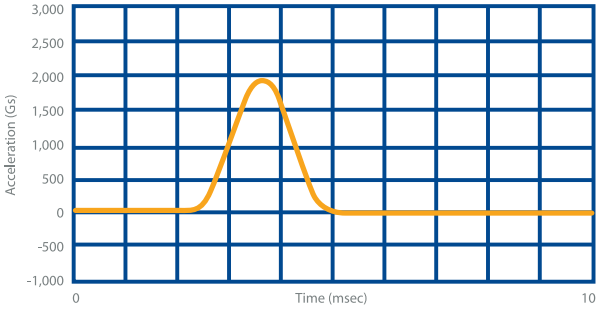
Lansmont makes a wide range of Shock Systems. We recommend the most suitable system configuration for every testing application based on two important criteria:

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



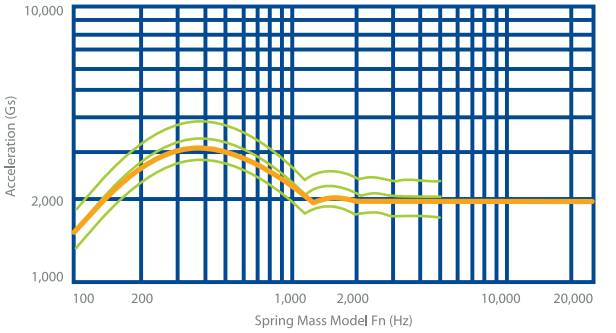
Test Item Size

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.



Shock Test Systems

Lansmont Field-to-Lab®

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.

Shock Test Systems

Lansmont Field-to-Lab®

OPTIONS

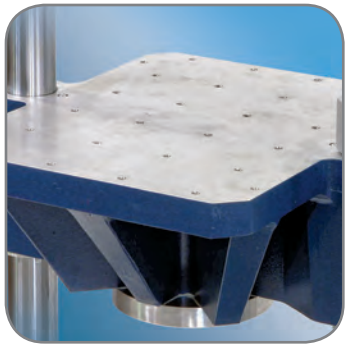


Table Structure

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.

Standard shock system tables vary in size from 6 in. (15 cm) square up to 60 in. (152 cm). High performance and custom shock table sizes are also available.

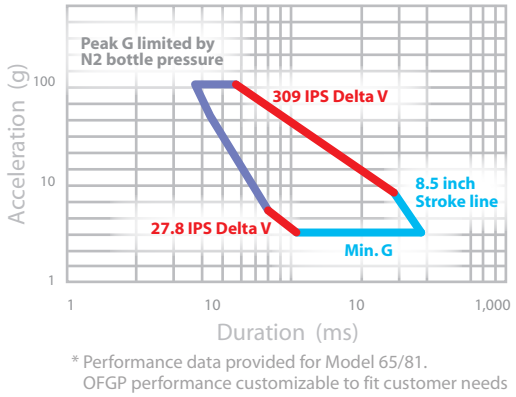
Shock Pulse Programmers

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.

Opposing Force Gas Programmer

For extremely long duration half sine shock pulse testing, Lansmont developed a special type of gas programmer. The OFGP is tuned using high pressure nitrogen and is programmed remotely from the TTS2 controller.

OFGP DVAT Performance Plot



* Performance data provided for Model 65/81.
OFGP performance customizable to fit customer needs

Shock Test Systems

Lansmont Field-to-Lab®

OPTIONS

High Cycle Shock

Certain test requirements call for hundreds, if not thousands of consecutive shock impacts to be performed on test items during a given test session. Considering the requirements, event cycle time is of utmost importance in maintaining an efficient testing regimen. Lansmont now offers a High Cycle (HC) Series of test systems that address such requirements, including those specified by JEDEC for testing of electronic circuit boards.

Features

- Incorporates high fidelity table designs
- Innovative high-speed lifting and positioning system for decreased cycle time
- Tailored to perform pulses in accordance with JEDEC JESD22-B104C
- Can perform pulse durations from 0.3 to 2.0 msec
- Test up to six JEDEC test boards simultaneously
- Tailored to JEDEC testing with table sizes, and mounting-hole pattern
- Designed to run 24/7 non-stop for extended shock test evaluations

Shock Test Systems

Lansmont Field-to-Lab®

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.

Shock Test Systems

Lansmont Field-to-Lab®

OPTIONS

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.

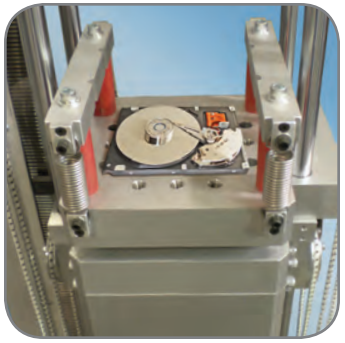
Low Impulse Kit:

Low Impulse Kits (LIK) are used to reduce the minimum velocity change performance of a shock system to allow for low level shock pulse impacts. The amount of velocity change reduction is controlled by the operating air pressure.

Test Partner Mini

Test Partner™ 3 Data Acquisition System:

Test Partner™ 3 is a powerful combination of computer software and hardware specifically tailored to the capture and analysis of transient shock events. It can acquire up to sixteen channels of acceleration data simultaneously from shock, drop, or other kinds of impact events.

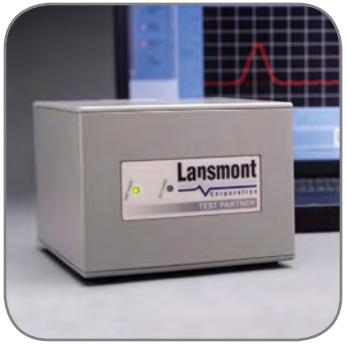


DMSA:

For lightweight test specimens, a Dual Mass Shock Amplifiers (DMSA) can be mounted to the shock table to produce shock pulses with high accelerations (30,000+ g) and very short durations (less than 1 msec).

Hold Down Fixtures:

Consists of lightweight, rectangular aluminum bars used to hold down test items to the shock table. Bars are slotted so they may be used with different size test items.



Test Partner USB 4x4

Shock Test Systems

Lansmont Field-to-Lab®

SHOCK TEST SYSTEM MATRIX - STANDARD

MODEL	TABLE SIZE	MAX ACCELERATION	MAX PAYLOAD
15D	6 in. (15.2 cm) cube	2000g	40 lbs. (18 kg)
23	9.06 in. (23 cm) square	5000g	80 lbs. (36 kg)
23D	9.06 in. x 6 in. (23 x 15 cm) [top surface] 9.06 in. (23 cm) square [front surface]	2000g	40 lbs. (18 kg)
65/81	25.6 in. x 32 in. (65 cm x 81 cm)	600g	500 lbs. (227 kg)
65/81D	25.6 in. x 32 in. (65 cm x 81 cm)	600g	500 lbs. (227 kg)
95/115	37.2 in. x 45.4 in. (95 cm x 115 cm)	600g	1000 lbs. (454 kg) [standard] 2500 lbs. (1134 kg) [heavy duty]
95/115D	37.2 in. x 45.4 in. (95 cm x 115 cm)	600g	1000 lbs. (454 kg)
122	48 in. (122 cm) square	600g	750 lbs. (340 kg) [standard] 2500 lbs. (1134 kg) [heavy duty]
152	60 in. (152 cm) square	400g	2000 lbs. (907 kg)

Shock Test Systems

Lansmont Field-to-Lab®

SHOCK TEST SYSTEM MATRIX - PERFORMANCE SERIES

MODEL	TABLE SIZE	MAX ACCELERATION	MAX PAYLOAD
P15	6 in. (15.2 cm) square	5000g	110 lbs. (50 kg)
P23	9.06 in. (23 cm) square	5000g	110 lbs. (50 kg)
P30	11.8 in. (30 cm) square	5000g	110 lbs. (50 kg)
P30M	12 in. (30.5 cm) square	1500g	150 lbs. (68 kg)
P60M	24 in. (60.9 cm) square	1500g	150 lbs. (68 kg)
P65/81L	25.6 in. x 31.9 in. (65 cm x 81 cm)	1000g	1500 lbs. (680 kg) [free fall] 500 lbs. (227 kg) [accelerated]
P95/115L	37.2 in. x 45.4 in. (95 cm x 115 cm)	1000g	2500 lbs. (1134 kg) [free fall] 1000 lbs. (454 kg) [accelerated]
P122L	48 in. (122 cm) square	1000g	2500 lbs. (1134 kg) [free fall] 1000 lbs. (454 kg) [accelerated]
P152L	60 in. (152 cm) square	1000g	2500 lbs. (1134 kg) [free fall] 1000 lbs. (454 kg) [accelerated]

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Shock Test Systems

Lansmont Field-to-Lab®

SHOCK TEST SYSTEM MATRIX - HIGH SPEED SERIES

MODEL	TABLE SIZE	MAX ACCELERATION	MAX PAYLOAD
HS15	6 in. (15.2 cm) square	5000g	250 lbs. (113 kg)
HSX15	6 in. (15.2 cm) square	10,000g	250 lbs. (113 kg)
HSXX20	7.9 in. (20 cm) Square	10,000 g	250 lbs. (113 kg)
HS23	9.06 in. (23 cm) square	5000g	250 lbs. (113 kg)
HSX23	9.06 in. (23 cm) square	10,000	250 lbs. (113 kg)
HS30	11.8 in. (30 cm) square	5000g	250 lbs. (113 kg)
HSX30	11.8 in. (30 cm) square	10,000g	250 lbs. (113 kg)
HSX30M	11.8 in. (30 cm) square	7500g	500 lbs. (227 kg)
HSX60M	23.6 in. (60 cm) square	1500g	2000 lbs. (907 kg)

Shock Test Systems

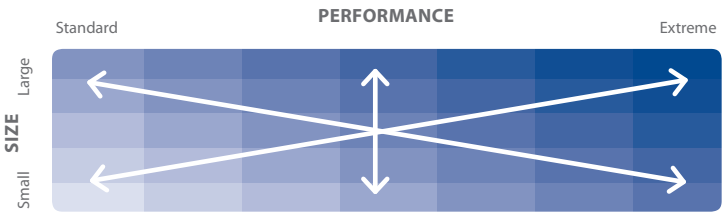
Lansmont Field-to-Lab®

SHOCK TEST SYSTEM MATRIX - HIGH CYCLE SERIES

MODEL	TABLE SIZE	MAX ACCELERATION	MAX PAYLOAD
HC18	7.09 in. (18 cm) cube available mounting on 3 sides of cube	2900g	25 lbs. (11.3 kg)
HC23	9.06 in. (23 cm) cube available mounting on 3 sides of cube	2900g	25 lbs. (11.3 kg)

MADE TO ORDER

Not quite the equipment size or performance level that you need? If we do not already manufacture the test machine ideally suited for your company's testing applications, our engineering team can custom design a test system specific to your needs.



Upgrade Options: Shock

Lansmont Field-to-Lab®

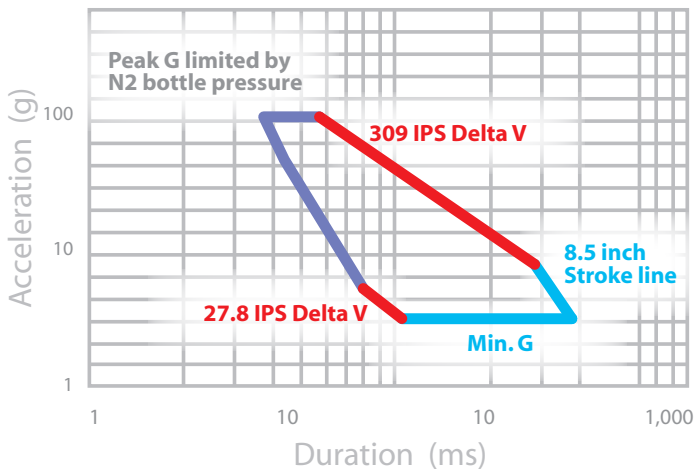
MAIN ASSEMBLY | HYDRAULICS/PNEUMATICS | CONTROLS | **ACCESSORIES**

Opposing Force Gas Programmer (OFGP)

Lansmont Shock Test Systems are used for product and package design, as well as durability testing. You're probably most familiar with the upper mounting surface of the table, yet it's really the interaction of the impacting surfaces underneath the table that dictate the specific shock pulse characteristics. The shape (half-sine, square wave) and duration of shock event are determined by what impacting surfaces/materials you're using. Traditionally there's a fair amount of effort involved changing out those materials as you setup your test system to generate the desired results.

Now we've changed that for the better. Lansmont has designed an innovative accessory for our Shock Test Systems, called the Opposing Force Gas Programmer (OFGP). This assembly, which is bolted directly to the bottom of your table, allows for a wide range of targeted half-sine shock pulses without requiring any physical adjustments of the hardware itself. Users simply program both the targeted pulse amplitude and duration directly into Lansmont TouchTest Shock controls and the OFGP automatically adjusts its own operating parameters accordingly. Lansmont's OFGP removes the trial and error from your shock testing setup, making your laboratory efforts much simpler, efficient and repeatable.

OFGP DVAT Performance Plot



* Performance data provided for Model 65/81.
OFGP performance customizable to fit customer needs

9.14.11

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Horizontal Impact Test Systems

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Horizontal Impact Test Systems

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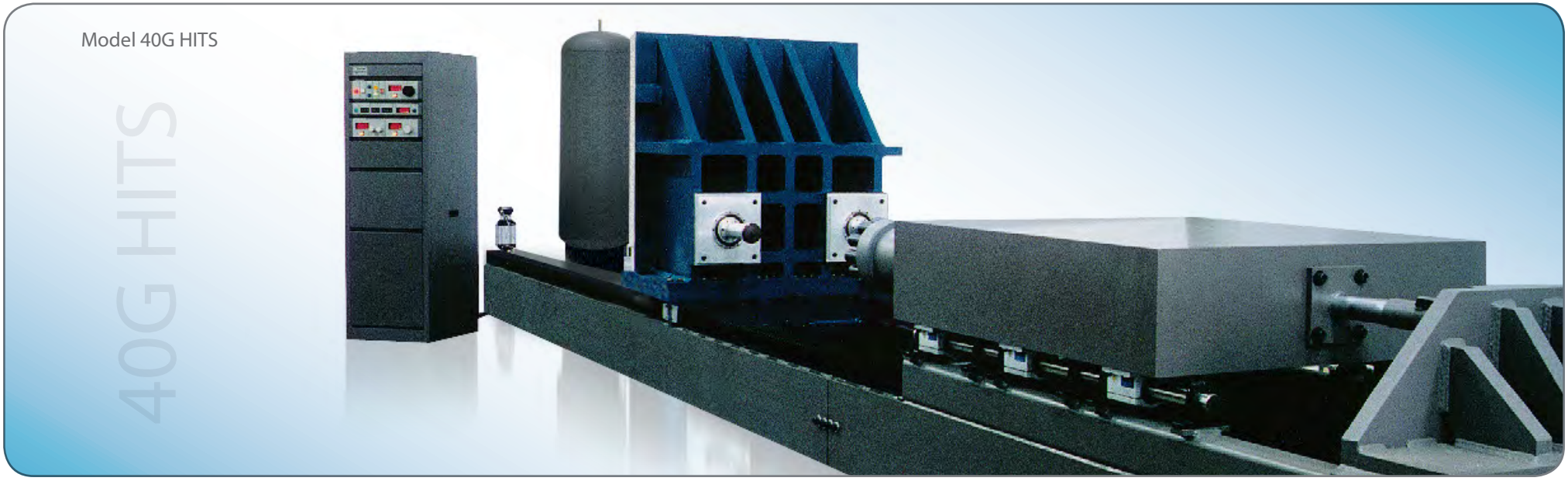
Horizontal Impact Test Systems (HITS)

These precision testing machines are used to simulate the horizontal shock effects of rail switching, truck docking, and other types of horizontal impacts. Our standard HITS models are specifically designed to test in accordance with ASTM D4169 Schedule J, "Performance Testing of Shipping Containers and Systems," and ASTM D4003 "Controlled Horizontal Impact Test for Shipping Containers," as well as other corporate, industry and government specifications.

Custom HITS are available that can meet the Federal Motor Carrier Safety Administration's (FMCSA) published Cargo Securement Rules, or can replicate much higher intensity horizontal impacts associated with crash or explosive events.



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Horizontal Impact Test Systems

Lansmont Field-to-Lab®

Selecting the Lansmont HITS for your Application

We can customize the HITS design specific to your application. The most suitable system configuration will be based on two important criteria:

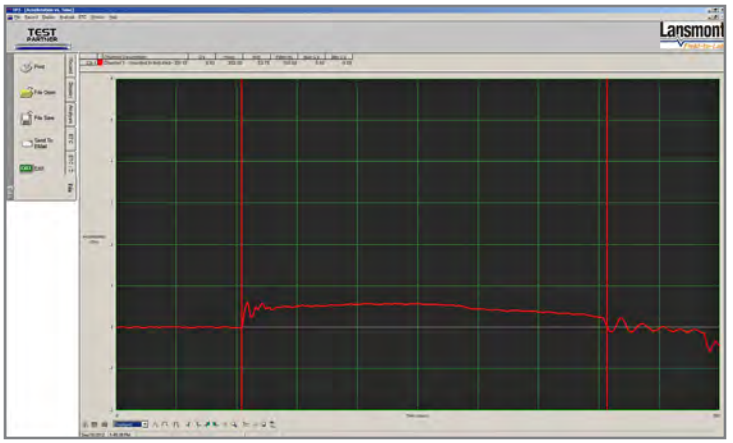
- The size of your largest test item
- The performance capability needed to meet your testing needs

Test Item Size

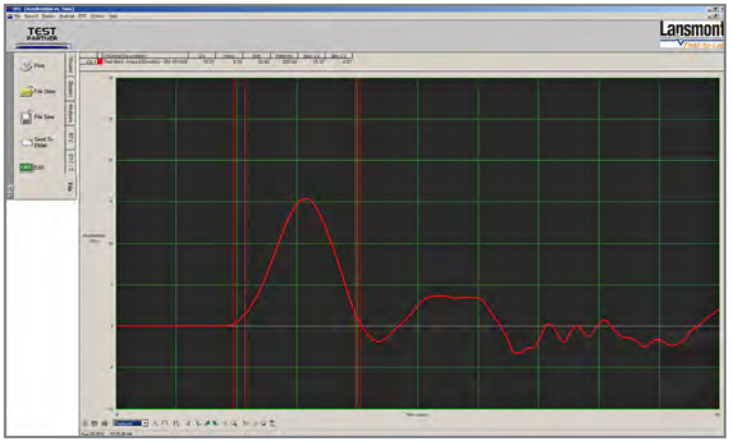
Each customer has unique requirements for their dynamic testing equipment. It is important to know the size and weight of test items to correctly configure the appropriate testing equipment. The size of your largest test item will help determine the carriage surface area. The maximum payload will help determine the rail structure, frame, and seismic reaction mass needed for your application.

Performance Capability

Horizontal impact testing levels vary depending on the product you are evaluating or the conditions you are simulating. The two most important horizontal impact criteria are impact velocity and acceleration levels. It is also important to know the shock pulse waveforms—half sine or trapezoidal.



Rail Coupling Impact



Pallet Marshalling Impact

Horizontal Impact Test Systems

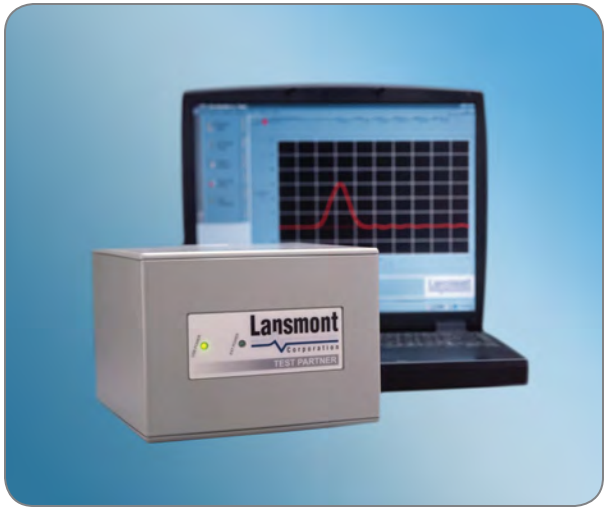
Lansmont Field-to-Lab®

TouchTest HITS Controls

TouchTest HITS are 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 provide total control of the Lansmont HITS during operation.

TouchTest HITS Features:

- One-button operation to reduce test cycle time
- Auto cycle control mode to allow multiple, uninterrupted impacts
- Shock pulse estimator function to set up machine based on desired shock pulse
- Programmable safety interlocks to ensure a safe working environment
- Digital sled retract and pressure control for optimal pulse accuracy and repeatability

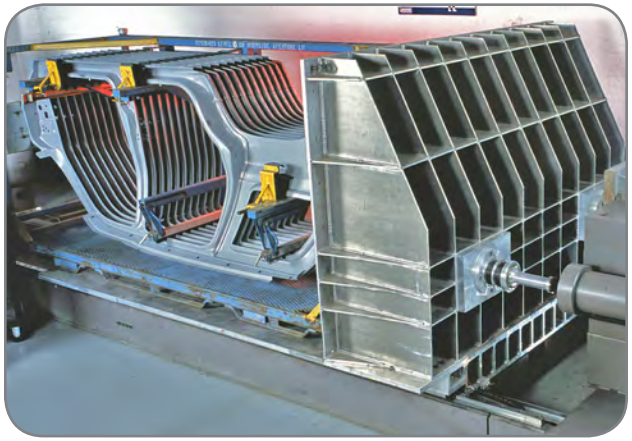


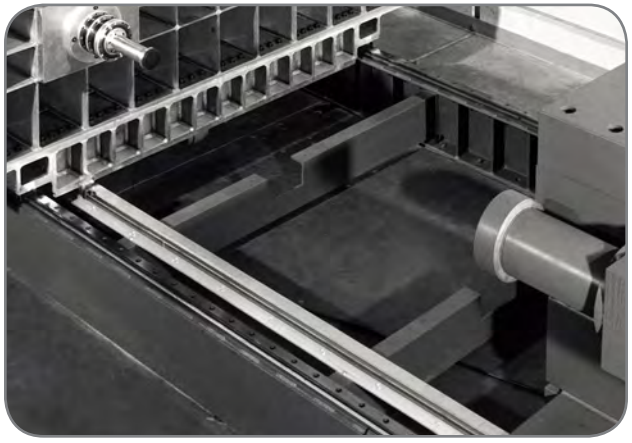
TouchTest HITS communicate seamlessly with Lansmont's Test Partner™ Data Acquisition System, a Windows-based software system. Test Partner™ includes powerful analysis tools, such as Shock Response Spectrum (SRS) analysis, FFT analysis, shock response animation in both 2D and 3D modes, Shock Response analysis with programmable model natural frequency (F_n) and damping, and tolerance band overlays with selectable MIL-STD and programmable pulse parameters. TouchTest HITS are an incredibly reliable control system, which combined with Test Partner™ for analyzing your shock events, makes up an extraordinarily powerful set of tools for shock testing.

Horizontal Impact Test Systems

Lansmont Field-to-Lab®

FEATURES





Carriage

The carriage is a rigid weldment with a solid horizontal surface and an integral vertical impact surface ("bulkhead") at the forward end. The vertical structure simulates the end of a railcar or trailer, and is designed to resist the horizontal impact loads of packages and products. Each of the surfaces (horizontal and vertical) are fitted with threaded inserts for the mounting and securing of test specimens. Both the horizontal surface and the vertical bulkhead surface are covered with varnished plywood laminate, attached with flathead screws at all of the insert locations. When this plywood becomes degraded and damaged after prolonged use, it may be replaced to renew both the appearance and function of the carriage.

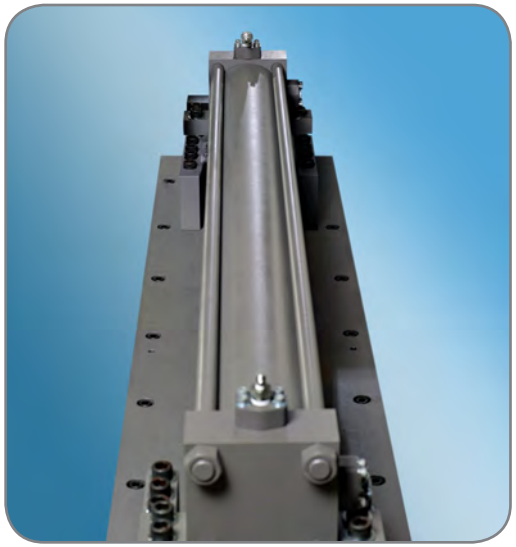
Guide System

Two precision guide rails secured to C-beams provide the horizontal support and guidance for the HITS carriage. Zero clearance recirculating ball bearings on the carriage allow the carriage to travel smoothly along the guide rails. The bearings are mounted underneath the carriage, resulting in a system with zero clearance specimen surface side access; the widest part of the system is the side of the carriage itself.

Horizontal Impact Test Systems

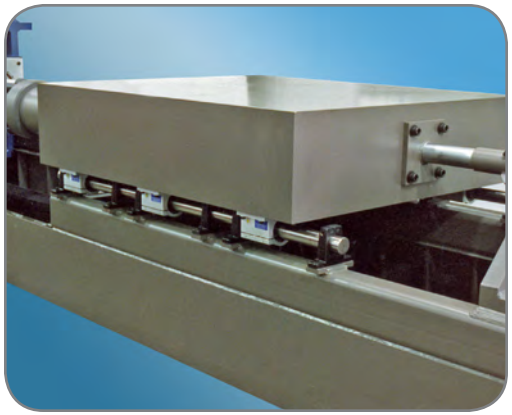
Lansmont Field-to-Lab®

FEATURES



Accelerating System

The carriage is accelerated by a long-stroke pneumatic cylinder, the rod of which is permanently attached underneath the carriage. Before a test, the air supply is isolated from this cylinder and both ends are vented to atmosphere, making the carriage completely passive and safe to be approached for specimen loading and/or inspection. The brakes are also applied under these conditions, for additional safety. Just before a test, a large valve is operated to connect the aft end of the cylinder to a pre-charged air reservoir. When the brakes are released to initiate a test, air flows into the cylinder, the rod extends, and the carriage is accelerated to the desired velocity.



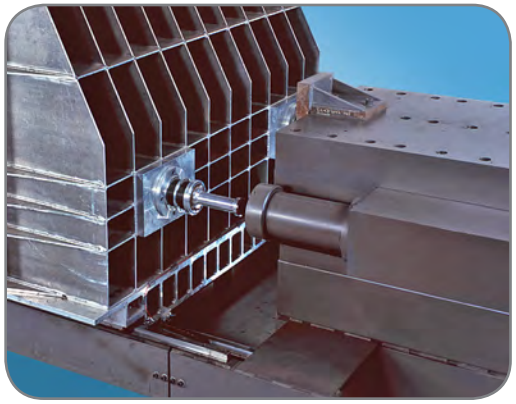
Seismic Reaction Mass

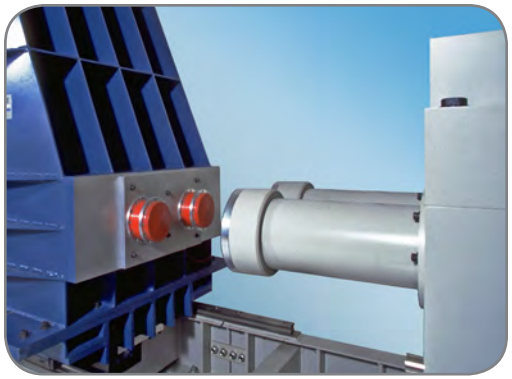
The seismic reaction mass is a massive, solid steel structure which rides on rails and bearing which are independent from the carriage. It is restrained by a snubbing cylinder specially designed for the purpose. The seismic mass serves to isolate the high shock forces from the floor so that no large concrete foundation or buttress-backstop is required.

Horizontal Impact Test Systems

Lansmont Field-to-Lab®

OPTIONS





Shock Pulse Programmers

Trapezoidal Waveform Programming Kit

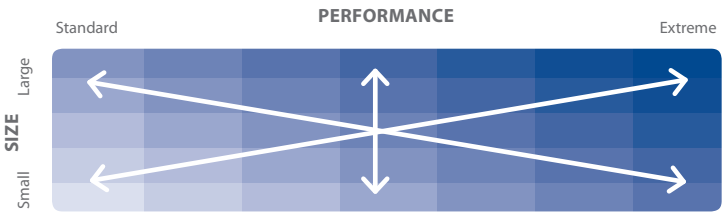
This programmer design simulates a variety of cushioned draft gear railcar impacts or other low amplitude, long duration events. It consists of a pneumatic cylinder mounted to the seismic mass, a plunger with elastomer modules mounted to the carriage's vertical bulkhead, and a pressure controller. The plunger and elastomers control the rise and decay of the trapezoidal pulse, and the cylinder controls the acceleration level, according to its internal pressure.

Half Sine Programming Kit

This programmer kit simulates a variety of standard draft gear railcar impacts or other relatively high amplitude, short duration events. It includes elastomer modules which mount to the seismic mass and/or to the front of the carriage, and which may be combined in various ways to achieve the desired pulses.

MADE TO ORDER

Not quite the equipment size or performance level that you need? If we do not already manufacture the test machine ideally suited for your company's testing applications, our engineering team can custom design a test system specific to your needs.



Horizontal Impact Test Systems

Lansmont Field-to-Lab®

40 G HITS SPECIFICATIONS

PERFORMANCE

Maximum Payload:	6000 lbs. (2721.5 kg)
Maximum Velocity Change:	12 mph (19.3 km/h)
Maximum Pre-Acceleration:	0.4 g
Pre-Acceleration Distance:	120 in. (304.8 cm)

DIMENSIONS

Machine Footprint:	39 ft. long x 5 ft. wide. (1188.7 cm x 152.4 cm)
Carriage:	106 in. long x 55 in. wide (269.4 x 139.7 cm)
Bulkhead:	60 in. tall x 55 in. wide (152.4 cm x 139.7 cm)

WEIGHTS

Seismic Mass Weight:	20000 lbs. (9071.8 kg)
Shipping Weight:	30000 lbs. (13607.7 kg) approx.

SHOCK PULSE CAPACITY

4, 6, 8 mph [6.4, 9.7, 12.9 km/h] impacts per ASTM D4169 Schedule G

15 g, 30 msec half sine (w/max payload)

1 g, 300+ msec trapezoidal (w/max payload)

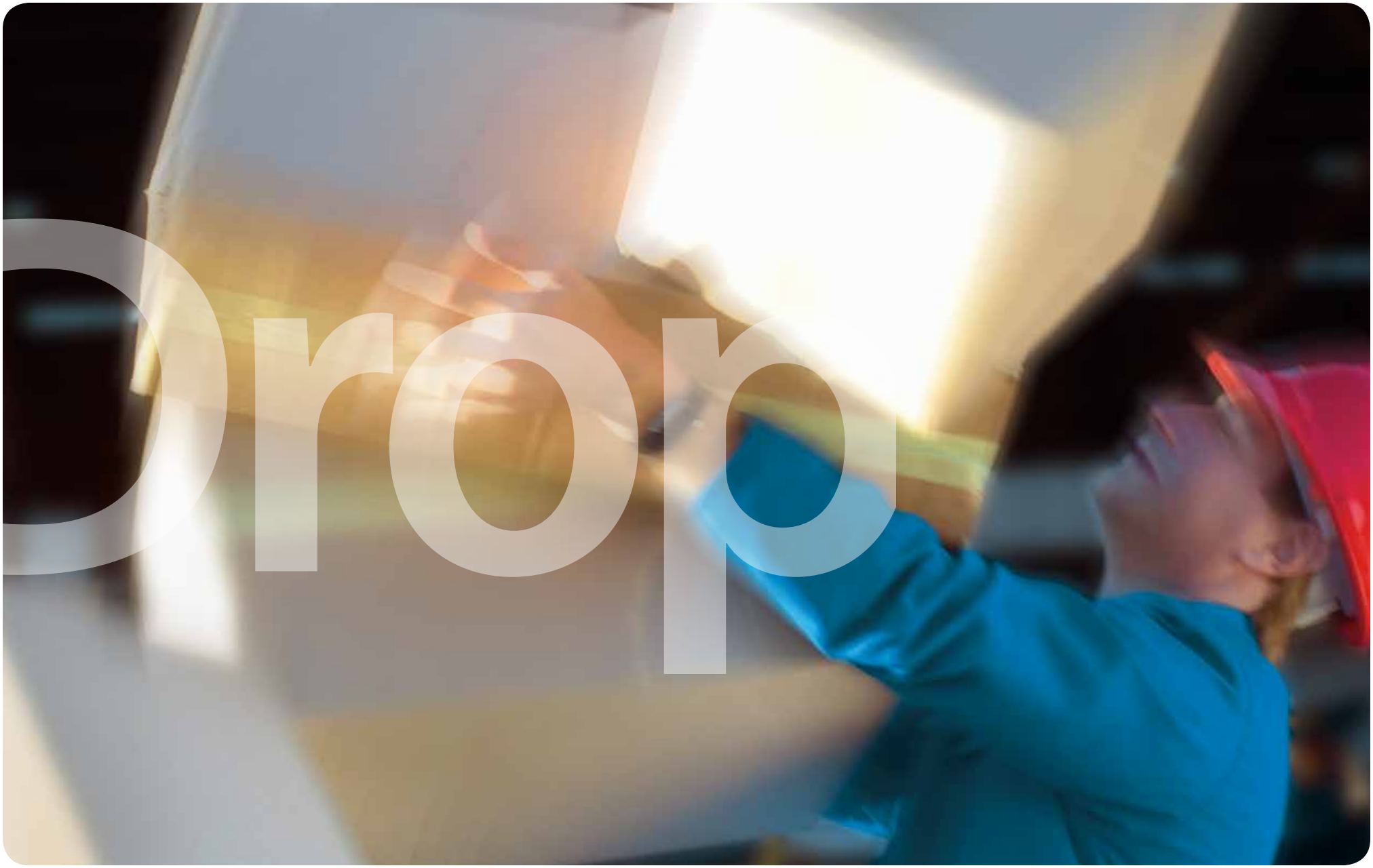
10 g, 50 msec half sine (w/up to 3000 lb. [1360.7 kg] payload)

40 g, 10 msec half sine (w/up to 3000 lb. [1360.7 kg] payload)

UTILITIES

Controller:	110 VAC – 1Φ – 60 Hz.
Plant Air:	90 psi (439.4 kg/m^2)
Nitrogen:	2200 psi (10,741.3 kg/m^2)

Drop Test Systems



PDT 80M
Precision Drop Tester

Lansmont Field-to-Lab®

The transport and distribution environment holds numerous opportunities for packages to experience impacts and/or drops. As a result, shock is transmitted both into, and throughout, a given package. The products within the packaging respond to both the amplitude and frequency characteristics of the shock. How the various packaging components mitigate that shock determines how much shock is transmitted into the product held within. Lansmont Drop Test Systems are used to perform pre-shipment testing in an effort to design and verify cost-effective, optimized protective packaging solutions.

PERFORMANCE SPECIFICATIONS

Maximum Package Weight:

Standard platen	177 lbs. (80.0 kg)
Extended platen option	150 lbs. (68.0 kg)

Maximum Package Size:

Standard platen	24.0 in. (61.0 cm) front to back
Extended platen option	36.0 in. (91.5 cm) front to back

Drop Height Range:

Standard platen

12.0 - 36.0 in. (30.5 - 91.5 cm), 1.00 in. (2.54 cm) increments
36.0 - 42.0 in. (91.5 - 107 cm), 2.00 in. (5.08 cm) increments
35.0 – 71.0 in. (88.9 – 180 cm) and 36.0 – 72.0 in. (91.5 – 183 cm),
6.0 in. (15.2 cm) increments

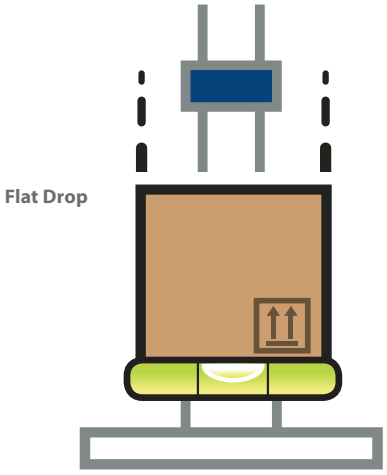
Extended platen

18.0 - 36.0 in. (45.7 - 91.5 cm), 1.00 in. (2.54 cm) increments
36.0 - 42.0 in. (91.5 - 107 cm), 2.00 in. (5.08 cm) increments
35.0 – 71.0 in. (88.9 – 180 cm) and 36.0 – 72.0 in. (91.5 – 183 cm),
6.0 in. (15.2 cm) increments

*Extended drop height available.

FLATNESS ACCURACY

Before each drop tester is shipped,
its accuracy is verified to within +/- 2 degrees.



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PDT 80M
Precision Drop Tester

Lansmont Field-to-Lab®

FEATURES

Foot Switch:

The drop mechanism of the PDT 80M Drop Tester is operated via a footswitch. When the footswitch is pressed, the drop leaf is activated and performs a drop test. After the footswitch is released, the drop leaf will reset. The footswitch is protected inside a metal guard enclosure to avoid accidental activation.

Precision Cam Design:

Lansmont's precision cam and bearings design is a key machine feature for producing a flat drop event. When the drop tester is armed and fired, the drop leaf first moves straight down faster than the package and then swings out of the way in time to clear the path for the package's free fall.

Counter-Balance Assembly:

The drop height of the PDT 80M Drop Tester is adjusted manually. To alleviate the weight of the drop assembly when making height adjustments, the PDT 80M incorporates a unique counter–balance assembly. This feature makes the height adjustment process simple and easy for any test engineer.

OPTIONS

Edge and Corner Holding Fixture:

The optional flexible structure mounts to the drop tester and holds packages in position prior to the drop event when performing edge or corner drops.

Extended Platen:

If your package dimensions are too big for the standard platen, we offer an optional extended platen to accommodate larger package sizes. The extended platen holds packages with a front-to-back dimension of up to 36 inches.

Slotted and Oversized Baseplates:

For customers that need to test to drop heights below 12 inches, we have a slotted baseplate option and foundation kit that allows for drops as low as 1 inch.

Larger packages may necessitate a larger impact surface. We offer an oversized baseplate which widens the impact area from the standard 36 inches to 60 inches.

Test Partner Data Acquisition:

Lansmont's Test Partner sets the standard for data acquisition systems used for laboratory impact testing. Test Partner is a powerful combination of software and hardware specifically tailored to capture and analyze mechanical shock, drop, and impact events. It can acquire up to sixteen channels of acceleration data simultaneously.

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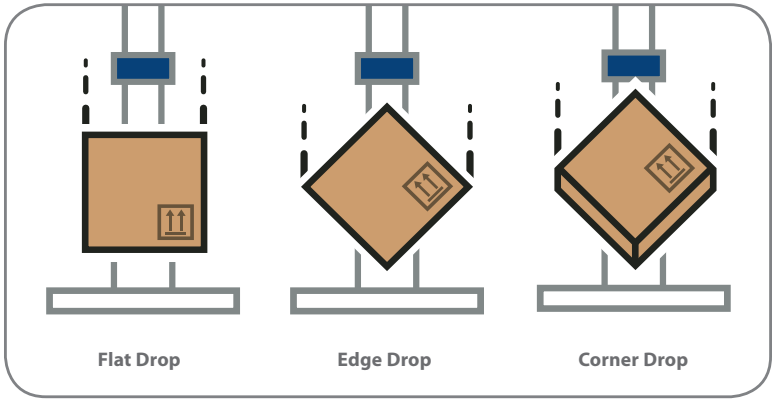
PDT 80M
Precision Drop Tester

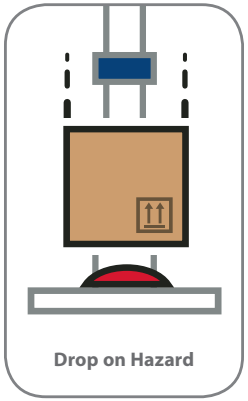
Lansmont Field-to-Lab®

APPLICATIONS



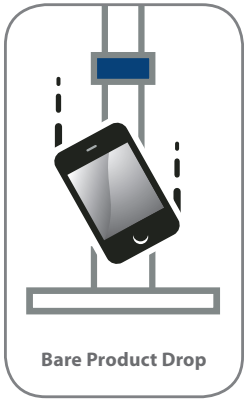
Controlled Orientation

Test procedures and industry standards specify the requirement for controlled orientation drops, resulting in test sample impacts on predetermined faces, corners and edges. Lansmont Precision Drop Testers are built in accordance with ASTM D5276 requirements.



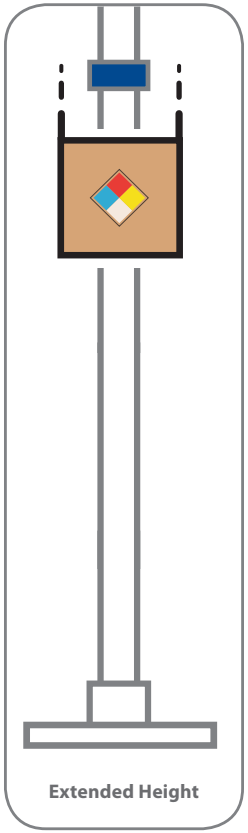
Hazard Drops

In reality, not all items are dropped on flat, laboratory-style floors. In fact, some small parcel distribution tests require drops to occur on a predetermined hazard.



Product Drops

Lansmont customers use drop testers to perform bare product drop testing to simulate in-use events that may occur once out of their protective packaging and in the hands of the consumer.

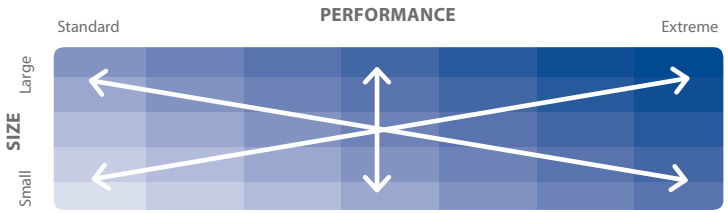


Extended Height

Dangerous goods packages undergo severe drop tests during certification testing. Other high performance products and packages also need to survive high energy impacts. Lansmont offers extended height drop testers to satisfy these testing applications. Custom drop height options are available to extend your machine's drop height range.

MADE TO ORDER

Not quite the equipment size or performance level that you need? If we do not already manufacture the test machine ideally suited for your company's testing applications, our engineering team can custom design a test system specific to your needs.



PDT 80M
Precision Drop Tester

Lansmont Field-to-Lab®

SPECIFICATIONS

UTILITIES

Power -

Standard voltages:	110 VAC - 1 phase - 60 Hz. (10 amps)	220 VAC - 1 phase - 50 Hz. (5 amps)
Optional voltages:	100 VAC - 1 phase - 50 Hz. (10 amps)	200 VAC - 1 phase - 50 Hz. (5 amps)
	100 VAC - 1 phase - 60 Hz. (10 amps)	220 VAC - 1 phase - 60 Hz. (5 amps)
		200 VAC - 1 phase - 60 Hz. (5 amps)

Plant Air -

Pressure:	40 - 60 psi (2.8 - 4.1 bar)
Flow Rate:	0.5 scfm

MACHINE DIMENSIONS (standard machine)

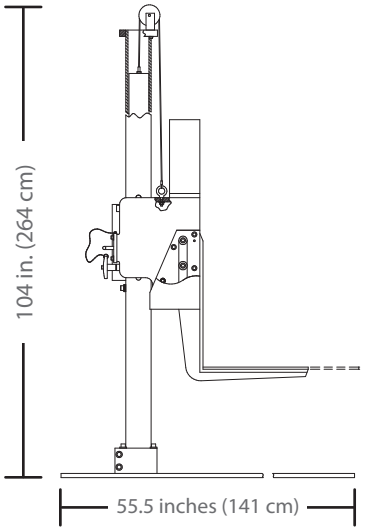
Height:	104 in. (264 cm)
Baseplate width:	36.0 in. (91.5 cm)
Baseplate length:	55.5 in. (141 cm)

CRATE INFORMATION (standard machine)

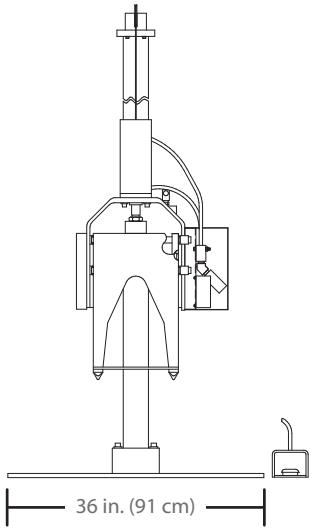
Height:	29 in. (74 cm)	
Width:	39 in. (99 cm)	
Length:	108 in. (274 cm)	
Shipping Weights:	Gross Weight	750 lbs. (340 kg)
	Net Weight	420 lbs. (190 kg)

SYSTEM DRAWINGS

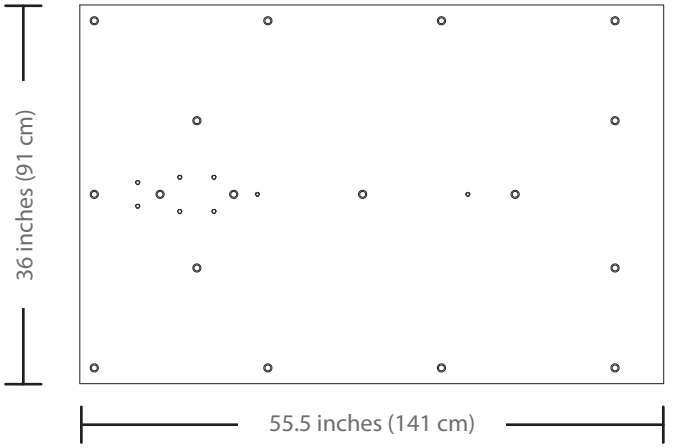
SIDE VIEW



FRONT VIEW



STANDARD BASEPLATE



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PDT 80
Precision Drop Tester

Lansmont Field-to-Lab®

The transport and distribution environment holds numerous opportunities for packages to experience impacts and/or drops. As a result, shock is transmitted both into, and throughout, a given package. The products within the packaging respond to both the amplitude and frequency characteristics of the shock. How the various packaging components mitigate that shock determines how much shock is transmitted into the product held within. Lansmont Drop Test Systems are used to perform pre-shipment testing in an effort to design and verify cost-effective, optimized protective packaging solutions.

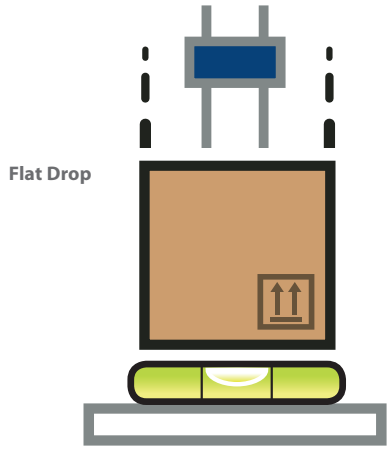
PERFORMANCE SPECIFICATIONS

Maximum Package Weight:	
Standard platen	177 lbs. (80.0 kg)
Extended platen option	150 lbs. (68.0 kg)
Maximum Package Size:	
Standard platen	24.0 in. (61.0 cm) front to back
Extended platen option	36.0 in. (91.5 cm) front to back
Drop Height Range:	
Standard baseplate	12.0 - 72.0 in. (30.5 - 183 cm)
Slotted baseplate option	1.0 - 72.0 in. (2.5 - 183 cm)
Extended platen option	18.0 - 72.0 in. (45.7 - 183 cm)

* Extended drop height available.

FLATNESS ACCURACY

Before each drop tester is shipped, its accuracy is verified to within +/- 2 degrees.



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PDT 80
Precision Drop Tester

Lansmont Field-to-Lab®

FEATURES

Handheld Controller:

The rugged handheld controller provides all necessary functionality for using Lansmont's Precision Drop Test Systems. The user can select the desired drop height via the controller and the machine will automatically move the drop platen to this height setting. No tape measure or manual adjustment is needed. All important information about the drop tester or the current settings is easily read on the LED screen on the front of the controller pendant.

Precision Cam Design:

Lansmont's precision cam and bearings design is a key machine feature for producing a flat drop event. When the drop tester is armed and fired, the drop leaf first moves straight down faster than the package and then swings out of the way in time to clear the path for the package's free fall.

Electric Hoist:

If you are changing drop heights frequently or testing heavier packages, it pays to have a lifting mechanism to keep you from having to do all of this work manually. The PDT 80 features an electric hoist for raising and lowering the drop leaf assembly and test package.

OPTIONS

Edge and Corner Holding Fixture:

The optional flexible structure mounts to the drop tester and holds packages in position prior to the drop event when performing edge or corner drops.

Extended Platen:

If your package dimensions are too big for the standard platen, we offer an optional extended platen to accommodate larger package sizes. The extended platen holds packages with a front-to-back dimension of up to 36 inches.

Slotted and Oversized Baseplates:

For customers that need to test to drop heights below 12 inches, we have a slotted baseplate option and foundation kit that allows for drops as low as 1 inch.

Larger packages may necessitate a larger impact surface. We offer an oversized baseplate which widens the impact area from the standard 36 inches to 60 inches.

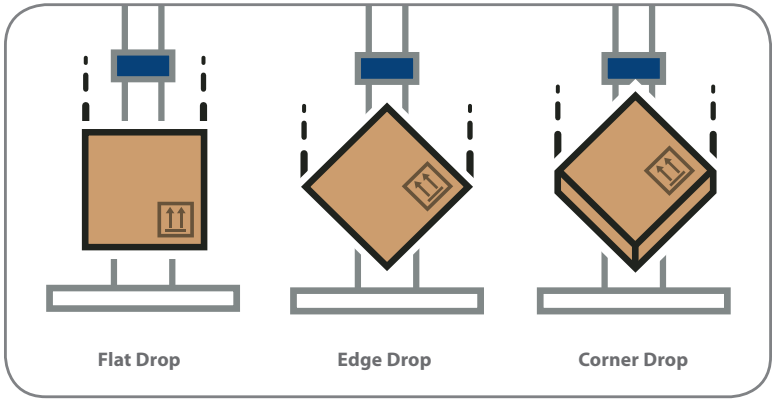
Test Partner Data Acquisition:

Lansmont's Test Partner sets the standard for data acquisition systems used for laboratory impact testing. Test Partner is a powerful combination of software and hardware specifically tailored to capture and analyze mechanical shock, drop, and impact events. It can acquire up to sixteen channels of acceleration data simultaneously.

PDT 80
Precision Drop Tester

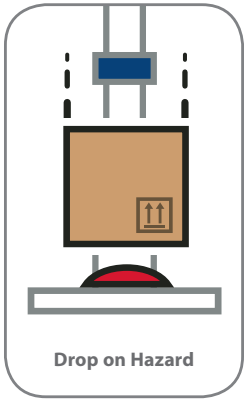
Lansmont Field-to-Lab®

APPLICATIONS



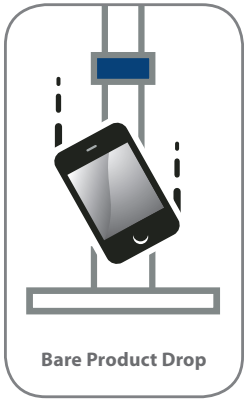
Controlled Orientation

Test procedures and industry standards specify the requirement for controlled orientation drops, resulting in test sample impacts on predetermined faces, corners and edges. Lansmont Precision Drop testers are built in accordance with ASTM D5276 requirements.



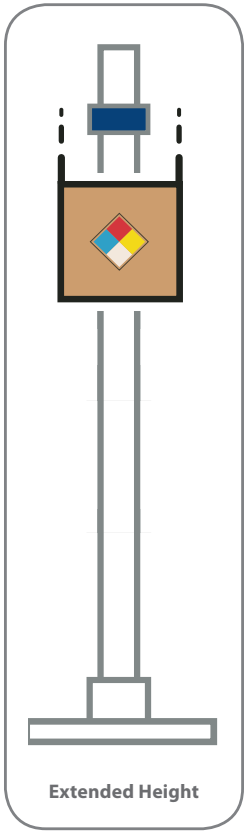
Hazard Drops

In reality, not all items are dropped on flat, laboratory-style floors. In fact, some small parcel distribution tests require drops to occur on a predetermined hazard.



Product Drops

Lansmont customers use drop testers to perform bare product drop testing to simulate in-use events that may occur once out of their protective packaging and in the hands of the consumer.

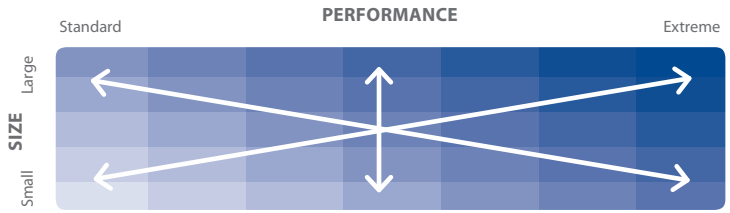


Extended Height

Dangerous goods packages undergo severe drop tests during certification testing. Other high performance products and packages also need to survive high energy impacts. Lansmont offers extended height drop testers to satisfy these testing applications. Custom drop height options are available to extend your machine's drop height range.

MADE TO ORDER

Not quite the equipment size or performance level that you need? If we do not already manufacture the test machine ideally suited for your company's testing applications, our engineering team can custom design a test system specific to your needs.



PDT 80
Precision Drop Tester

Lansmont Field-to-Lab®

SPECIFICATIONS

UTILITIES

Power -

Standard voltages:	110 VAC - 1 phase - 60 Hz. (10 amps)	220 VAC - 1 phase - 50 Hz. (5 amps)
Optional voltages:	100 VAC - 1 phase - 50 Hz. (10 amps)	200 VAC - 1 phase - 50 Hz. (5 amps)
	100 VAC - 1 phase - 60 Hz. (10 amps)	220 VAC - 1 phase - 60 Hz. (5 amps)
		200 VAC - 1 phase - 60 Hz. (5 amps)

Plant Air -

Pressure:	40 - 60 psi (2.8 - 4.1 bar)
Flow Rate:	0.5 scfm

MACHINE DIMENSIONS (standard machine)

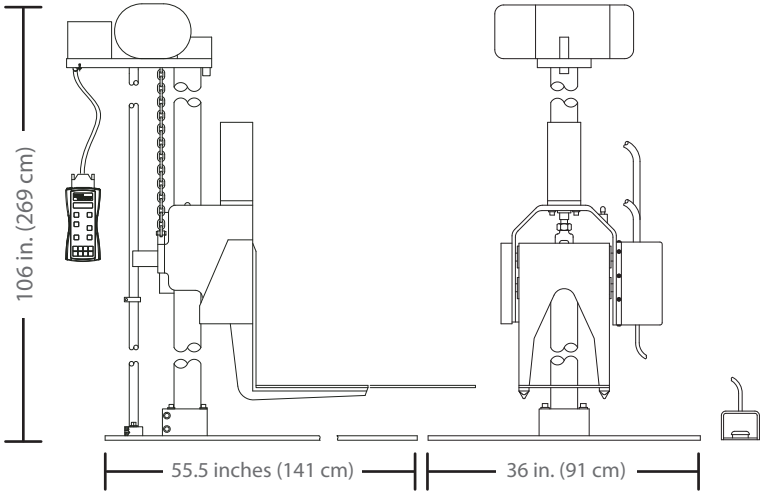
Height:	106 in. (269 cm)
Baseplate width:	36 in. (91 cm)
Baseplate length:	55.5 in. (141 cm)

CRATE INFORMATION (standard machine)

Height:	29 in. (74 cm)	
Width:	39 in. (99 cm)	
Length:	108 in. (274 cm)	
Shipping Weights:	Gross Weight	850 lbs. (386 kg)
	Net Weight	520 lbs. (236 kg)

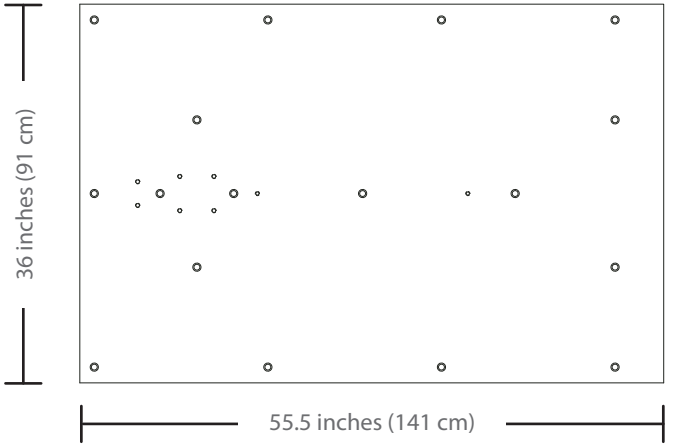
SYSTEM DRAWINGS

SIDE VIEW



FRONT VIEW

STANDARD BASEPLATE



12.12.12

PDT 300
Precision Drop Tester

Lansmont Field-to-Lab®

The transport and distribution environment holds numerous opportunities for packages to experience impacts and/or drops. As a result, shock is transmitted both into, and throughout, a given package. The products within the packaging respond to both the amplitude and frequency characteristics of the shock. How the various packaging components mitigate that shock determines how much shock is transmitted into the product held within. Lansmont Drop Test Systems are used to perform pre-shipment testing in an effort to design and verify cost-effective, optimized protective packaging solutions.

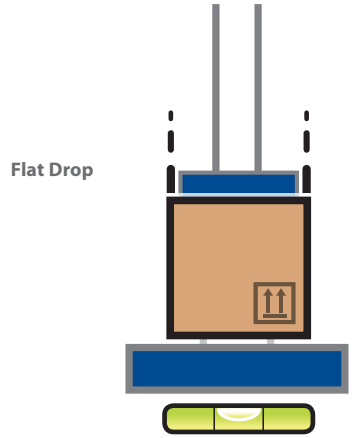
PERFORMANCE SPECIFICATIONS

Maximum Package Weight:	
Standard carriage	661 lbs. (300 kg)
XL carriage	661 lbs. (300 kg)
XXL carriage	500 lbs. (227 kg)
Maximum Package Size (front-to-back):	
Standard carriage	41.5 in. (105 cm)
XL carriage	74 in. (188 cm)
XXL carriage	118 in. (300 cm)
Drop Height Range:	
Standard carriage	1 - 72 in. (2.5 - 183 cm)*
XL carriage	1 - 72 in. (2.5 - 183 cm)
XXL carriage	1 - 72 in. (2.5 - 183 cm)

* Extended drop height available.

FLATNESS ACCURACY

Before each drop tester is shipped, its accuracy is verified to within +/- 2 degrees.



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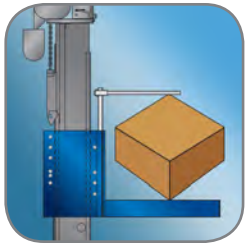
PDT 300
Precision Drop Tester

Lansmont Field-to-Lab®

FEATURES

Handheld Controller:

The rugged handheld controller provides all necessary functionality for using Lansmont's Precision Drop Test Systems. The user can select the desired drop height via the controller and the machine will automatically move the drop platen to this height setting. No tape measure or manual adjustment is needed. All important information about the drop tester or the current settings is easily read on the LED screen on the front of the controller pendant.



Edge and Corner Holding Fixture:

An Edge and Corner Holding fixture is included to assist with orienting large, bulky packages for testing. Oversized or custom E&C fixtures are available for special drop testing applications.

Electric Hoist:

Moving large packages by hand can be a pain. When positioning heavy and cumbersome packages during drop testing, the electric hoist positioning system does all the heavy lifting.

OPTIONS

Extended Carriages:

To accommodate testing of larger packages, drop carriages with extended length are available that may be better suited to your largest package size.

Steel Baseplates:

Steel Baseplates are available for the standard and extended carriage sizes. Baseplate dimensions vary depending on carriage size and impact area.

Test Partner Data Acquisition:

Lansmont's Test Partner sets the standard for data acquisition systems used for laboratory impact testing. Test Partner is a powerful combination of software and hardware specifically tailored to capture and analyze mechanical shock, drop, and impact events. It can acquire up to sixteen channels of acceleration data simultaneously.

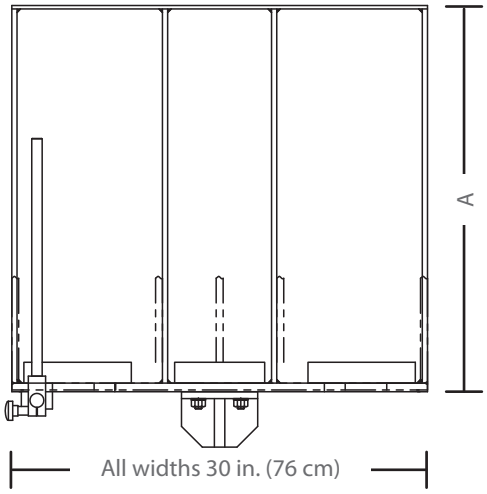
PDT 300
Precision Drop Tester

Lansmont Field-to-Lab®

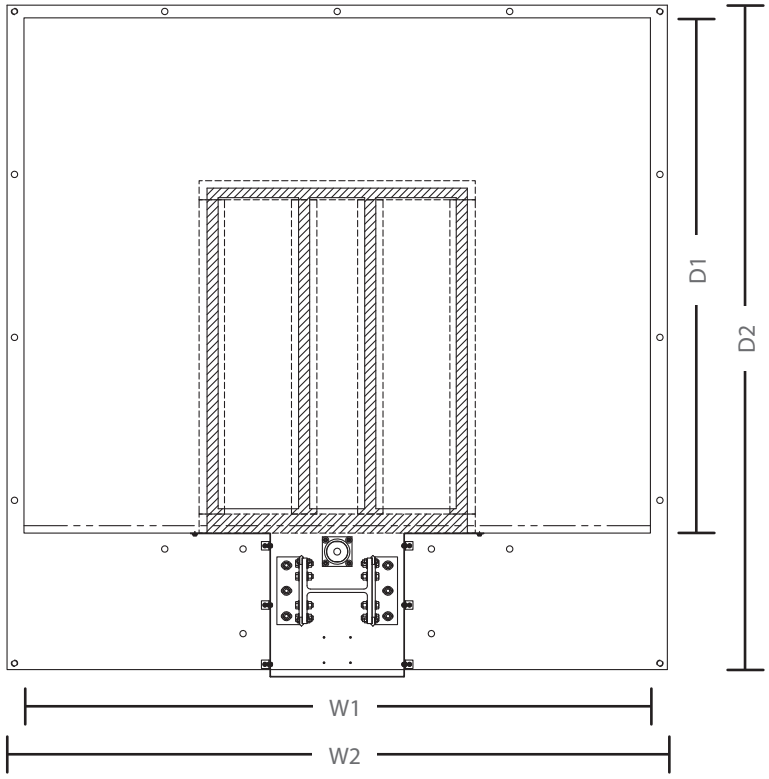
SIZES

		STEEL BASE OPTIONS	
Carriage	**Length (A)**	**Impact Area (W1 x D1)**	**Overall Dimensions (W2 x D2)**
Standard	27.7 in. (70 cm)	60 in. wide x 41.5 in. deep (152 cm x 105 cm)	64 in. wide x 60 in. deep (163 cm x 152 cm)
XL	40 in. (102 cm)	74 in. wide x 60 in. deep (188 cm x 152 cm) 84 in. wide x 78.8 in. deep (213 cm x 200 cm)	78 in. wide x 78.5 in. deep (198 cm x 199 cm) 88 in. wide x 97.3 in. deep (224 cm x 247 cm)
XXL	60 in. (152 cm)	84 in. wide x 78.8 in. deep (213 cm x 200 cm) 118 in. wide x 118 in. deep (300 cm x 300 cm)	88 in. wide x 97.3 in. deep (224 cm x 247 cm) 122 in. wide x 136.5 in. deep (310 cm x 347 cm)

CARRIAGE

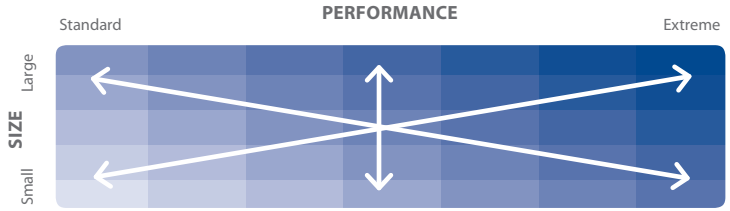


STEEL BASE



MADE TO ORDER

Not quite the equipment size or performance level that you need? If we do not already manufacture the test machine ideally suited for your company's testing applications, our engineering team can custom design a test system specific to your needs.



12.12.12

PDT 300
Precision Drop Tester

Lansmont Field-to-Lab®

SPECIFICATIONS

UTILITIES

Power -

Standard voltages:	110 VAC - 1 phase - 60 Hz. (10 amps)	220 VAC - 1 phase - 50 Hz. (5 amps)
Optional voltages:	100 VAC - 1 phase - 50 Hz. (10 amps)	200 VAC - 1 phase - 50 Hz. (5 amps)
	100 VAC - 1 phase - 60 Hz. (10 amps)	220 VAC - 1 phase - 60 Hz. (5 amps)
		200 VAC - 1 phase - 60 Hz. (5 amps)

Plant Air -

Pressure:	40 - 60 psi (2.7 - 4.1 ATM)
Flow Rate:	0.5 scfm

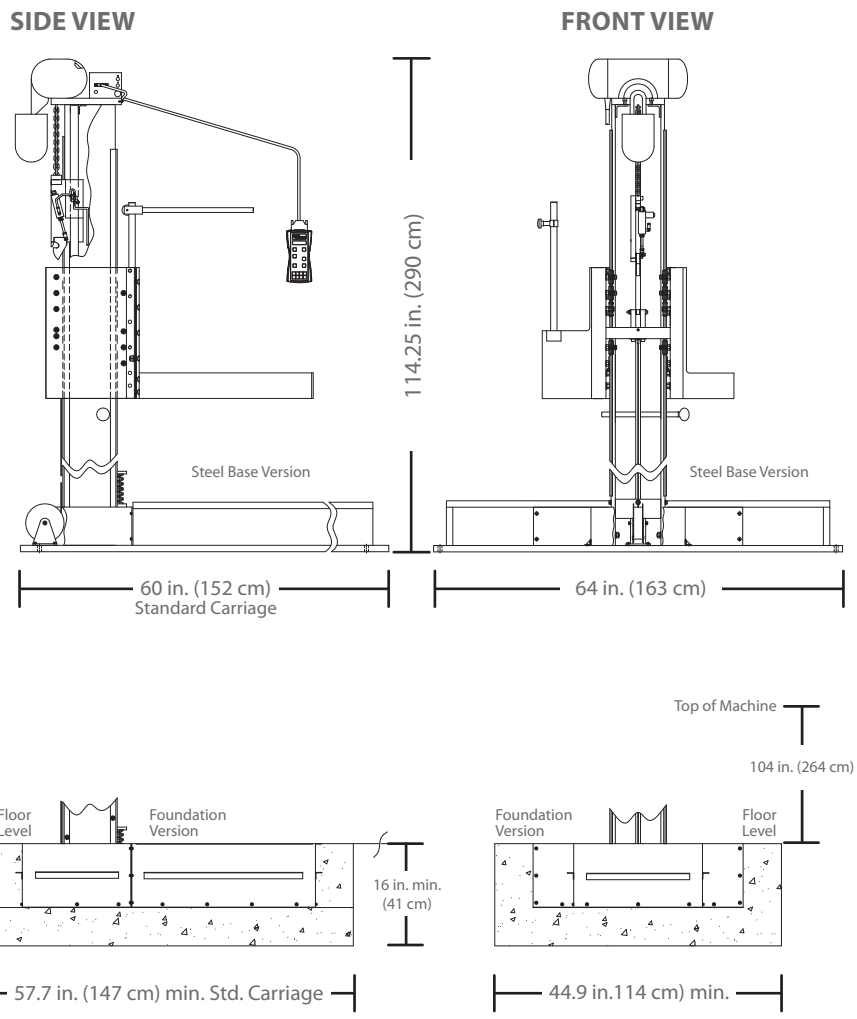
MACHINE DIMENSIONS (standard configuration)

Height:	Base Width:	Base Length:
114.25 in. (290 cm)	64 in. (163 cm)	60 in. (152 cm)

CRATE INFORMATION (standard configuration)

	Height:	Width:	Length:	Shipping Weight:
With Steel Base (1 crate)	50 in. (127 cm)	89 in. (226 cm)	130 in. (330 cm)	7500 lbs. (3401 kg)
With Foundation Base (3 crates)				
I-Beam	29 in. (73.7 cm)	26 in. (66 cm)	120 in. (304 cm)	900 lbs. (408 kg)
Carriage	36 in. (91 cm)	54 in. (137 cm)	40 in. (102 cm)	700 lbs. (318 kg)
Forms	18 in. (45.7 cm)	40 in. (102 cm)	55 in. (140 cm)	330 lbs. (150 kg)

SYSTEM DRAWINGS (standard configuration)



12.12.12

PDT 700
Precision Drop Tester

Lansmont Field-to-Lab®

The transport and distribution environment holds numerous opportunities for packages to experience impacts and/or drops. As a result, shock is transmitted both into, and throughout, a given package. The products within the packaging respond to both the amplitude and frequency characteristics of the shock. How the various packaging components mitigate that shock determines how much shock is transmitted into the product held within. Lansmont Drop Test Systems are used to perform pre-shipment testing in an effort to design and verify cost-effective, optimized protective packaging solutions.

PERFORMANCE SPECIFICATIONS

Maximum Package Weight:

Standard Carriage	1,540 lb. (700 kg)
Extended Carriage	Contact Lansmont

Maximum Package Size (front-to-back):

Standard Carriage	79.5 in. (202 cm)
Extended Carriage	Contact Lansmont

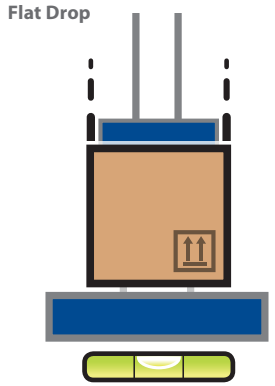
Drop Height Range:

Standard Carriage	1-48 in. (2.5-122 cm)*
Extended Carriage	Contact Lansmont

* Extended drop height available.

FLATNESS ACCURACY

Before each drop tester is shipped, its accuracy is verified to within +/- 2 degrees.



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12.12.12

PDT 700
Precision Drop Tester

Lansmont Field-to-Lab®

FEATURES

Handheld Controller:

The rugged handheld controller provides all necessary functionality for using Lansmont's Precision Drop Test Systems. The user can select the desired drop height via the controller and the machine will automatically move the drop platen to this height setting. No tape measure or manual adjustment is needed. All important information about the drop tester or the current settings is easily read on the LED screen on the front of the controller pendant.

Edge and Corner Holding Fixture:

An Edge and Corner Holding fixture is included to assist with orienting large, bulky packages for testing. Oversized or custom E&C fixtures are available for special drop testing applications.

Electric Hoist:

Moving large packages by hand can be a pain. When positioning heavy and cumbersome packages during drop testing, the electric hoist positioning system does all the heavy lifting.

OPTIONS

Extended Carriages:

To accommodate testing of larger packages, drop carriages with extended length are available that may be better suited to your largest package size.

Steel Baseplates:

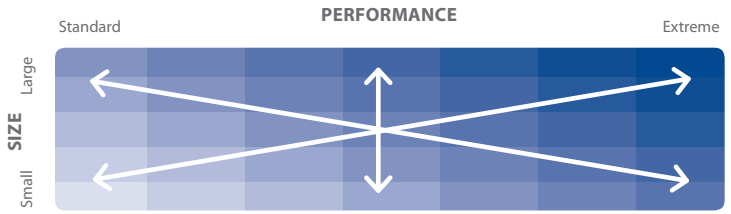
Steel Baseplates are available for the standard and extended carriage sizes. Baseplate dimensions vary depending on carriage size and impact area.

Test Partner Data Acquisition:

Lansmont's Test Partner sets the standard for data acquisition systems used for laboratory impact testing. Test Partner is a powerful combination of software and hardware specifically tailored to capture and analyze mechanical shock, drop, and impact events. It can acquire up to sixteen channels of acceleration data simultaneously.

MADE TO ORDER

Not quite the equipment size or performance level that you need? If we do not already manufacture the test machine ideally suited for your company's testing applications, our engineering team can custom design a test system specific to your needs.



12.12.12

PDT 700
Precision Drop Tester

Lansmont Field-to-Lab®

SPECIFICATIONS

UTILITIES

Power -

Standard voltages:	110 VAC - 1 phase - 60 Hz. (15 amps)	220 VAC - 1 phase - 50 Hz. (7.5 amps)
Optional voltages:	100 VAC - 1 phase - 60 Hz. (10 amps)	200 VAC - 1 phase - 50 Hz. (7.5 amps)
	100 VAC - 1 phase - 50 Hz. (10 amps)	200 VAC - 1 phase - 60 Hz. (7.5 amps)
		220 VAC - 1 phase - 60 Hz. (7.5 amps)

Plant Air -

Pressure:	50 – 100 psi (3.5 – 7.0 kg/cm^2)
Flow Rate:	3 scfm (0.1 scmm)

MACHINE DIMENSIONS (standard configuration)

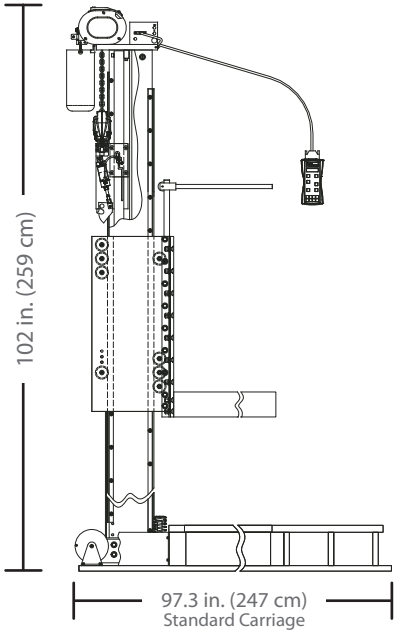
Height:	Base Width:	Base Length:
102 in. (259 cm)	83 in. (211 cm)	97.3 in. (247 cm)

CRATE INFORMATION (standard configuration)

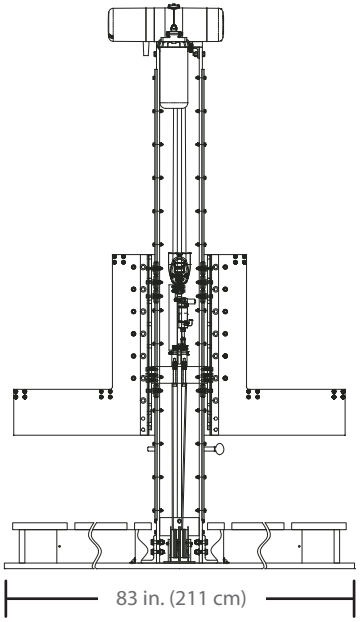
Height:	Width:	Length:	Shipping Weight:
50 in. (127 cm)	89 in. (226 cm)	130 in. (330 cm)	10,000 lb. (4,545 kg)

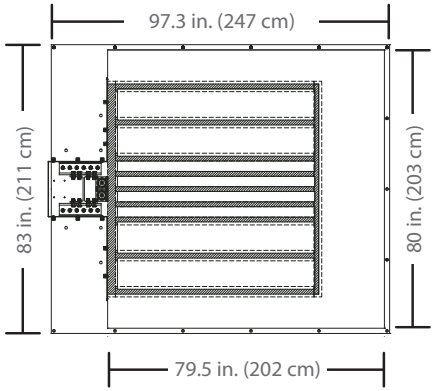
SYSTEM DRAWINGS (standard configuration)

SIDE VIEW



FRONT VIEW





12.12.12

QR 3000
Quick Release Drop Tester

Lansmont Field-to-Lab®

The transport and distribution environment holds numerous opportunities for packages to experience impacts and/or drops. As a result, shock is transmitted both into, and throughout, a given package. The products within the packaging respond to both the amplitude and frequency characteristics of the shock. How the various packaging components mitigate that shock determines how much shock is transmitted into the product held within. Lansmont Drop Test Systems are used to perform pre-shipment testing in an effort to design and verify cost-effective, optimized protective packaging solutions.

PERFORMANCE SPECIFICATIONS

Weight Capacity:	25 – 3000 lbs. (11 – 1361 kg)
Utilities:	Voltage 100 – 240 VAC
Frequency:	50 Hz – 60 Hz
Lifting Device:	Customer Supplied
Weight of QR–3000:	22 Lbs. (10 kg)

QR 3000
Quick Release Drop Tester

Lansmont Field-to-Lab®

Lansmont's QR 3000 drop tester simulates the drops and impacts that occur in distribution. It is especially suited to very large, heavy payloads which cannot be tested on conventional drop test machines. The QR 3000 can perform free-fall drops (flat, edge, and corner) on packages of virtually any size and shape.

The QR 3000 consists of a quick-release mechanism, lifting ring, and foot switch for initiating the drop. Straps wrapped around the test item form a sling that is attached to the lifting ring, which is placed in the jaws of the quick-release mechanism. The quick-release mechanism and package are then lifted to a pre-determined height by a forklift, winch, or other lifting device (not included). The foot switch activates a solenoid in the drop mechanism, causing the latch jaws to open and the package to fall.

The QR 3000 is reliable and safe. It will securely hold the test load if there is any loss of power. In addition, the foot switch is protected inside a metal guard enclosure to avoid accidental activation of the switch. If you are testing large, heavy, or unconventional packages, the QR 3000 may be the perfect solution.

9.7.12

Upgrade Options: Drop Equipment

Lansmont Field-to-Lab®

MAIN ASSEMBLY | HYDRAULICS/PNEUMATICS | **CONTROLS** | ACCESSORIES

Handheld Controller

Drop Testing performed in the laboratory is a hands-on activity, requiring user interaction with loading and unloading of test samples, as well as controlling the operation of the test system throughout that activity. In an effort to improve test system productivity, efficiency and reliability, Lansmont developed a new Handheld Controller. The new Handheld Controller provides all necessary functionality for simple, intuitive and efficient testing when using Lansmont's Precision Drop Test Systems. The Controller provides many enhancements over earlier generation controllers while remaining backwards compatible with existing PDT-ED version handhelds. Users already familiar with the PDT-ED controller can easily transition to the new Handheld to enjoy the new features that improve and enhance testing activities. Upgrading existing Drop Test Systems equipped with the earlier PDT-ED generation controller is an easy plug-and-play exercise, requiring a simple user setup and calibration routine before resuming your testing.

Handheld Features and Benefits:

- LED indicators step System Operators through standard drop sequences.
- Improved interactive alphanumeric display, simultaneously showing both current and desired platen height.
- Quicker method for entering numbers (drop height).
- A single drop function enables one drop from whatever height the platen is currently set.
- Easily switch between handheld control and footswitch operation with applicably equipped test systems.
- A step function allows operators to define a step size and then add or subtract the step to/from the current set drop height at any time with a simple press of a button.
- Lighter weight, cushioned housing and improved durability.
- Backwards compatible with PDT-ED controllers for plug-and-play upgrades (simple one-time setup and calibration required).

2.7.12

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Compression Test Systems

Lansmont
Field-to-Lab®

Squeezer
Compression Tester

Lansmont Field-to-Lab®

Severe compressive forces occur when packaged-products are stacked during transit or storage. To evaluate the performance of packages, components, and materials under such loads, Lansmont offers a full line of Compression Testers. Lansmont Compression Testers comply with industry standard package testing specifications including ASTM, ISTA, ISO, and MIL-STD.

PERFORMANCE SPECIFICATIONS

Maximum Package Dimensions:

Length	30 in. (76 cm)
Width	30 in. (76 cm)
Height	48 in. (122 cm)

Contact Lansmont for larger configurations.

Verified Force Range:
500 – 5,000 lbs.
(2.22 – 22.2 kN)

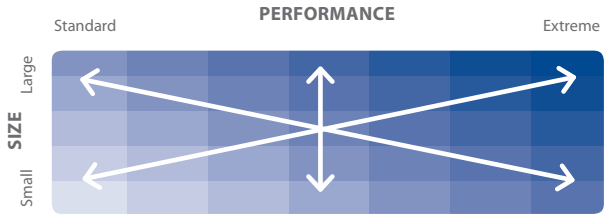
Positioning Speeds

Platen positioning speed	27.6 in./min. (70 cm/min.)
Test speed range	0.1 to 0.51 in./min. (1.27 cm/min.)

Testing Modes:
Constant rate
Constant load

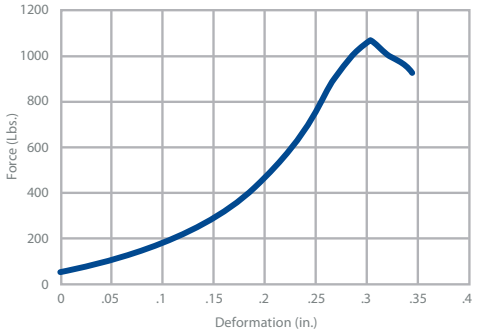
MADE TO ORDER

Not quite the equipment size or performance level that you need? If we do not already manufacture the test machine ideally suited for your company's testing applications, our engineering team can custom design a test system specific to your needs.

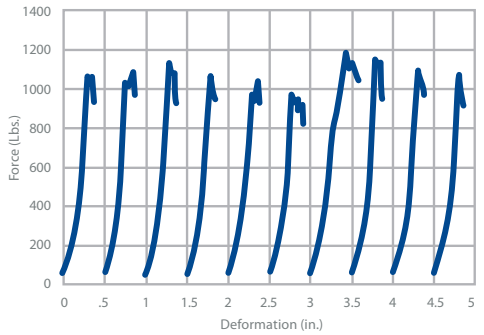


SQUEEZER READER DATA SCREENS

Constant rate test data:
Force vs. Deformation



Summary plot:
Force vs. Deformation



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11.8.13

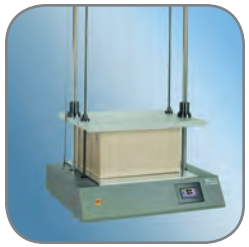
Squeezer
Compression Tester

Lansmont Field-to-Lab®

FEATURES

Touchscreen Controller:

The Squeezer uses a digital control system for all machine control and data acquisition. The controls are operated through a touch screen display located on the front panel of the machine. All machine setup, data collection, and data export functions are handled though this backlit, color LCD touch screen.



Self-Contained Design:

The self-contained Squeezer design includes a base cabinet that encloses the drive motors, load cell, instrumentation, and control electronics. Electrical power is the only utility needed. Simply plug the machine into an outlet and begin testing!

Precise Control:

The smooth, accurate motion of the Squeezer during testing is the result of using precision ball screws to apply compression forces. Force is measured using a parallelogram-type load cell. Deflection is measured using a precision shaft encoder.

OPTIONS

Fixed/Floating Platen:

The Fixed/Floating platen option gives you increased flexibility in your testing applications. In the floating orientation, the platen is free to swivel during testing via a "monoball" bearing. In the fixed orientation, adjustable limit stops are used to lock out the lower platen so it is in a fixed orientation during testing.

Oversized Platen:

To accommodate larger box designs, the Squeezer can be built with an Oversized Platen. This increases the maximum package footprint dimensions to 30 x 44 in. (76 x 112 cm). An Oversized Fixed/Floating platen option is available as well.

Machine Test Stands:

Machine Test Stands provide a stable steel surface to position the machine (standard height is 30 inches (76 cm)). Test Stands are available in two different widths: 42.5 in. (108cm) or 72.5 in. (184 cm) Large Test Stands also provide a work surface for specimen preparation or staging.

Temperature/ Relative Humidity Sensor:

The optional probe mounts to the back of the Squeezer near to where test specimens sit during testing. The sensor can effectively measure in a 0 – 100°F temperature and 0 – 100% relative humidity range.

Squeezer
Compression Tester

Lansmont Field-to-Lab®

SPECIFICATIONS

UTILITIES

Power –

Standard voltages:	110 VAC – 1 phase – 60 Hz. (10 amps)
	220 VAC – 1 phase – 50 Hz. (5 amps)
Optional voltage:	220 VAC – 1 phase- 60 Hz. (5 amps)

OPERATING ENVIRONMENT

60-80°F (15.6-26.7°C) 20-60% RH

MACHINE DIMENSIONS (standard machine)

Height:	67 in. (170 cm)
Width:	42.5 in. (108 cm)
Depth:	36.6 in. (93 cm)

TEST STAND DIMENSIONS

	Small test stand	Large test stand
Height:	30 in. (76 cm)	Height: 30 in. (76 cm)
Width:	42.5 in.(108 cm)	Width: 72.5 in. (184 cm)
Depth:	30 in. (76 cm)	Depth: 30 in. (76 cm)

CRATE INFORMATION (standard machine, no test stand)

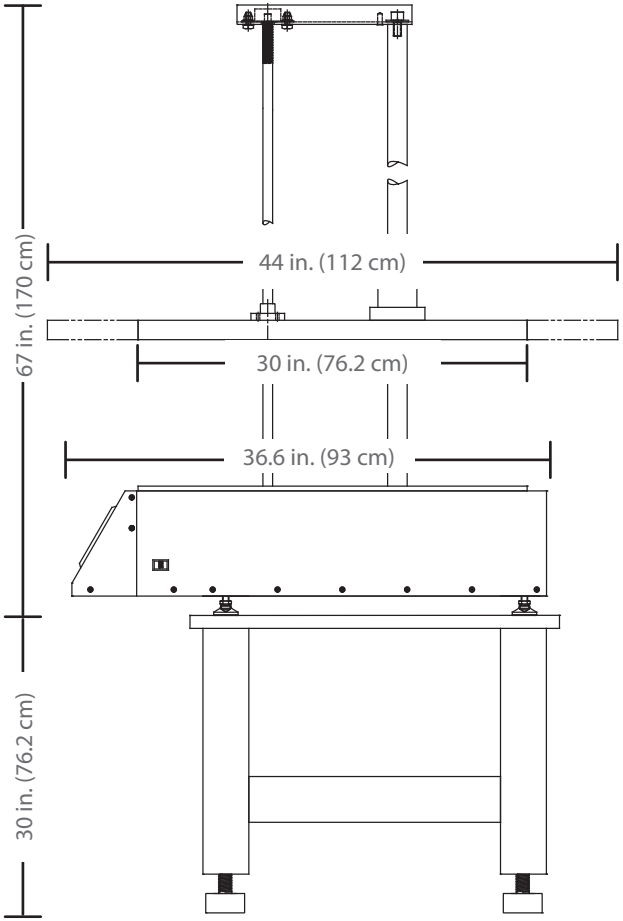
Height:	83 in. (211 cm)
Width:	55 in. (140 cm)
Depth:	55 in. (140 cm)

WEIGHTS

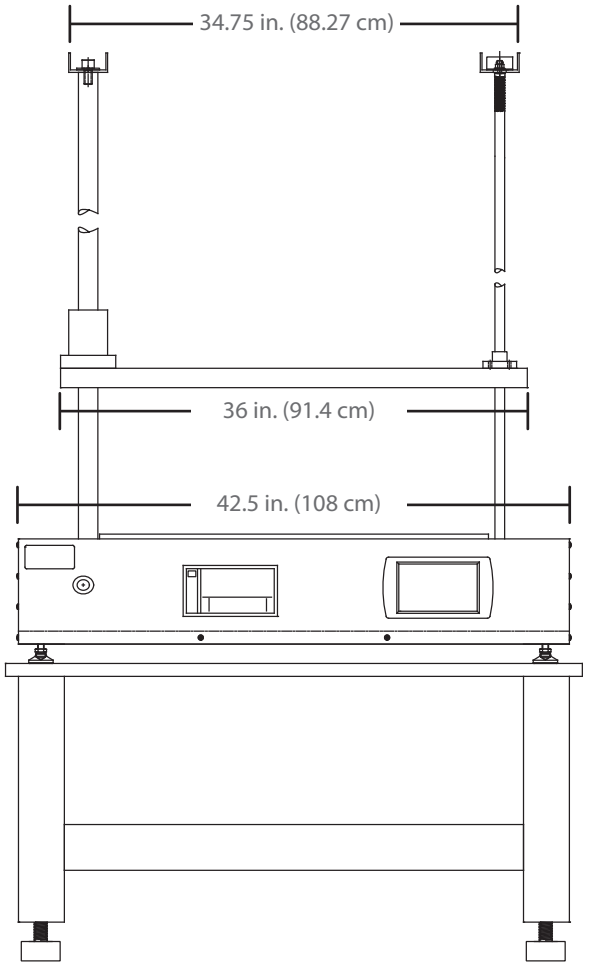
Gross weight:	1300 lbs. (590 kg)
Net weight:	725 lbs. (329 kg)

SYSTEM DRAWINGS – STANDARD CONFIGURATION

SIDE VIEW



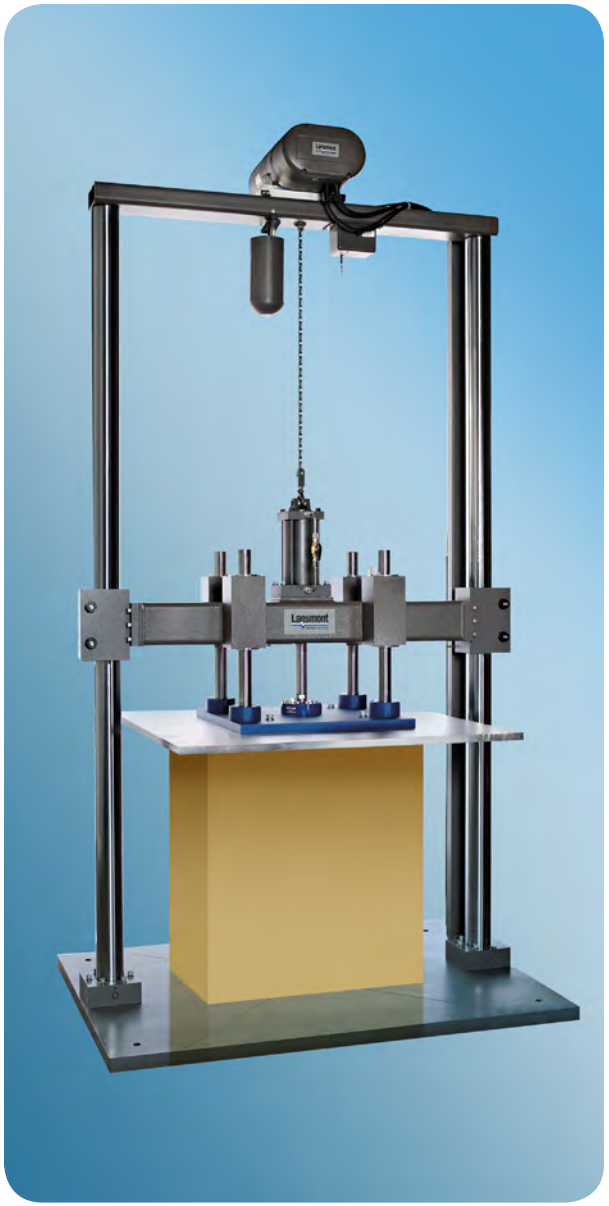
FRONT VIEW



11.8.13

122-15
Compression Tester

Lansmont Field-to-Lab®



Severe compressive forces occur when packaged-products are stacked during transit or storage. To evaluate the performance of packages, components, and materials under such loads, Lansmont offers a full line of Compression Testers. Lansmont Compression Testers comply with industry standard package testing specifications including ASTM, ISTA, ISO, and MIL-STD.

PERFORMANCE SPECIFICATIONS

Maximum Package Dimensions:

Length	48 in. (122 cm)
Width	48 in. (122 cm)
Height	78 in. (198 cm)

Contact Lansmont for larger configurations.

Verified Force Range:

1,500 - 15,000 lbs.
(6.67 - 66.7 kN)

Contact Lansmont for extended range options.

Positioning Speeds:

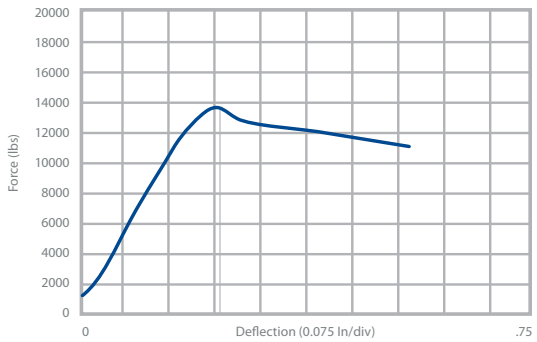
Cross-head	16 ft./min. (4.88 m/min.)
Test speed	0.5 in./min. (1.27 cm/min.)

Testing Modes:

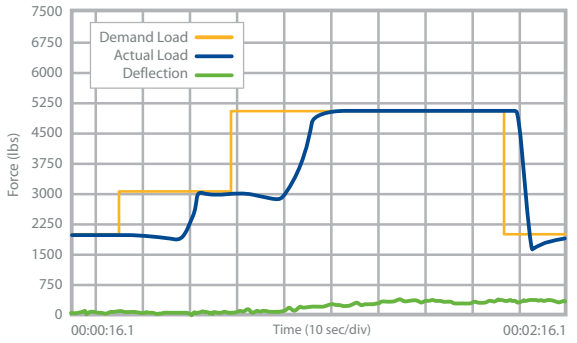
- Constant deflection rate
- Ramp to load and release
- Load profile simulation
- Deflection profile simulation

TEST PROFILES

Constant rate test profile



Constant load test profile



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10.29.13

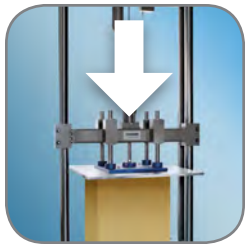
122-15
Compression Tester

Lansmont Field-to-Lab®

FEATURES

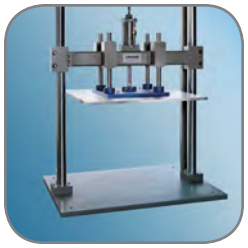
TouchTest Compression 3 Controller:

The intuitive TTC3™ control software integrates the machine control functions with the data capture, analysis, and reporting features. TTC3™ allows users to export test data to Windows™ applications. Networking features allow quick and easy transmission of test results via e-mail. TTC3™ has a full range of testing capabilities including Constant Deflection Rate, Ramp to Load and Release, Stacking Simulation, and Deflection profile compression tests.



Top Load Design:

Our "Top Load" machine design applies the compression force from above during compression testing, providing a more realistic simulation of the compressive loads that packaging experiences when stacked.



Low Profile Baseplate:

The compression system baseplate has a low profile for added convenience and safety when loading or unloading large packages or unitized loads during testing.

OPTIONS

Fixed/Floating Platen:

The Fixed/Floating platen option gives you increased flexibility in your testing applications. In the floating orientation, the platen is free to swivel during testing via a "monoball" bearing. In the fixed orientation, adjustable limit stops are used to lock out the lower platen so it is in a fixed orientation during testing.

Package Test Stands:

To make testing single packages on a large compression tester more convenient, we offer package tests stands. These heavy duty steel tables can be placed on the machine baseplate to make the "base" surface a more convenient height for the user.

Low Range Load Platform:

For testing applications that utilize the lower end of the force range, we offer Low Range Load Platforms. These precision recording structures more accurately measure compressive forces on smaller packages.

Temperature/ Relative Humidity Sensor:

The optional probe mounts to the back of the Squeezer near to where test specimens sit during testing. The sensor can effectively measure in a 0 – 100°F temperature and 0 – 100% relative humidity range.

122-15
Compression Tester

Lansmont Field-to-Lab®

APPLICATIONS

Many variables affect the compression performance of your packaging. How many boxes will be in a unit load and how will we stack them? Will our packages be shipped on pallets? What happens if boxes overhang the pallet? How does the climate influence the stacking performance? These are important questions to consider when designing your packaging. Lansmont Compression Test Systems allow you to evaluate how your packaging designs "stack up" to compressive loads and environmental conditions.

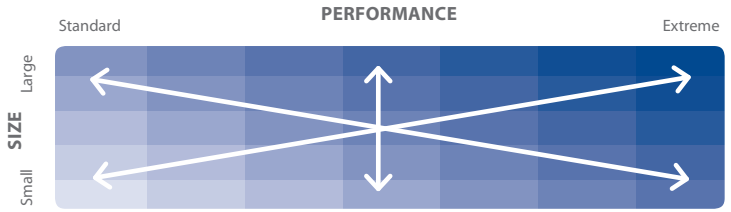
Testing a Unit Load
Lansmont's Model 122-15 Compression Tester is specifically designed to efficiently and accurately evaluate the performance of unit loads under compressive forces.

Testing Individual Packages
For testing smaller items such as individual packages, an optional package test stand can be used with the Model 122-15. A Low Range Load Platform is another useful option for accurately evaluating low level force inputs.

Climatized Testing
Temperature and relative humidity can greatly impact compression performance of your packaging designs. To replicate these conditions during testing, Lansmont Compression Test Systems can be installed inside a climate-controlled space.

MADE TO ORDER

Not quite the equipment size or performance level that you need? If we do not already manufacture the test machine ideally suited for your company's testing applications, our engineering team can custom design a test system specific to your needs.



122-15
Compression Tester

Lansmont Field-to-Lab®

SPECIFICATIONS

UTILITIES

Power -

Standard voltages:	110 VAC - 1 phase - 60 Hz. (20 amps) 220 VAC - 1 phase - 50 Hz. (10 amps)
Optional Voltage:	220 VAC - 1 phase - 60 Hz. (10 amps)

MACHINE DIMENSIONS (standard machine)

Height:	125.5 in. (319 cm)
Width:	66 in. (168 cm)
Length:	48 in. (122 cm)

PACKAGE TEST STAND DIMENSIONS

Sizes (width x length):	24 x 24 in. (61 x 61 cm) 30 x 30 in. (76 x 76 cm) 36 x 36 in. (91 x 91 cm)

All test stands are 30 in. (76 cm) tall.

CRATE INFORMATION (standard machine)

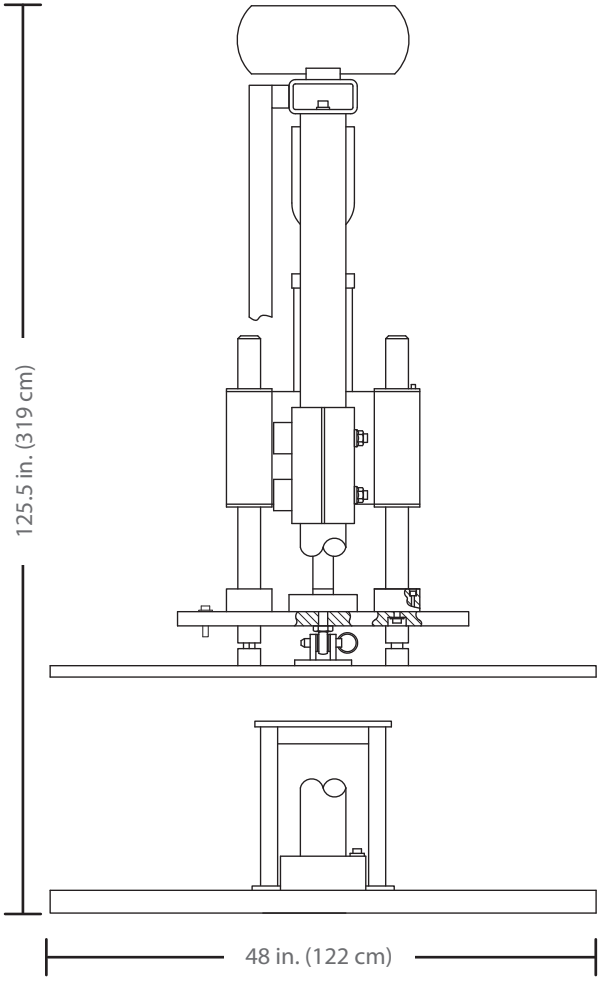
Height:	74 in. (188 cm)
Width:	75 in. (190.5 cm)
Length:	169 in. (429 cm)

WEIGHTS

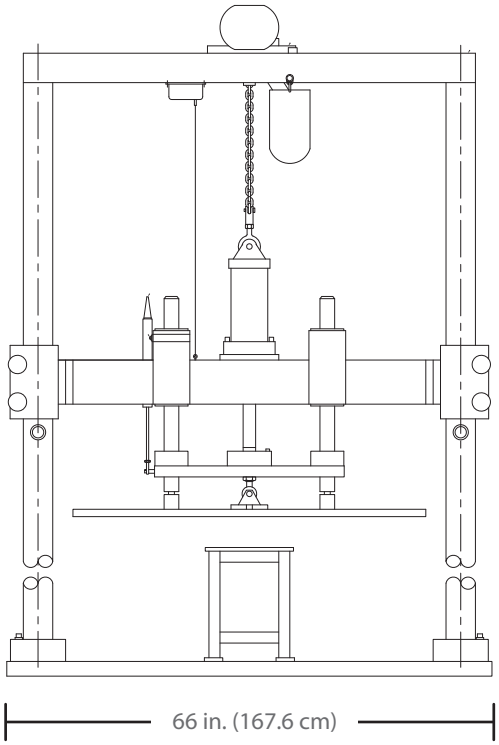
Gross weight	8500 lbs. (3855 kg)
Net weight	6775 lbs. (3073 kg)

SYSTEM DRAWINGS – STANDARD CONFIGURATION

SIDE VIEW



FRONT VIEW



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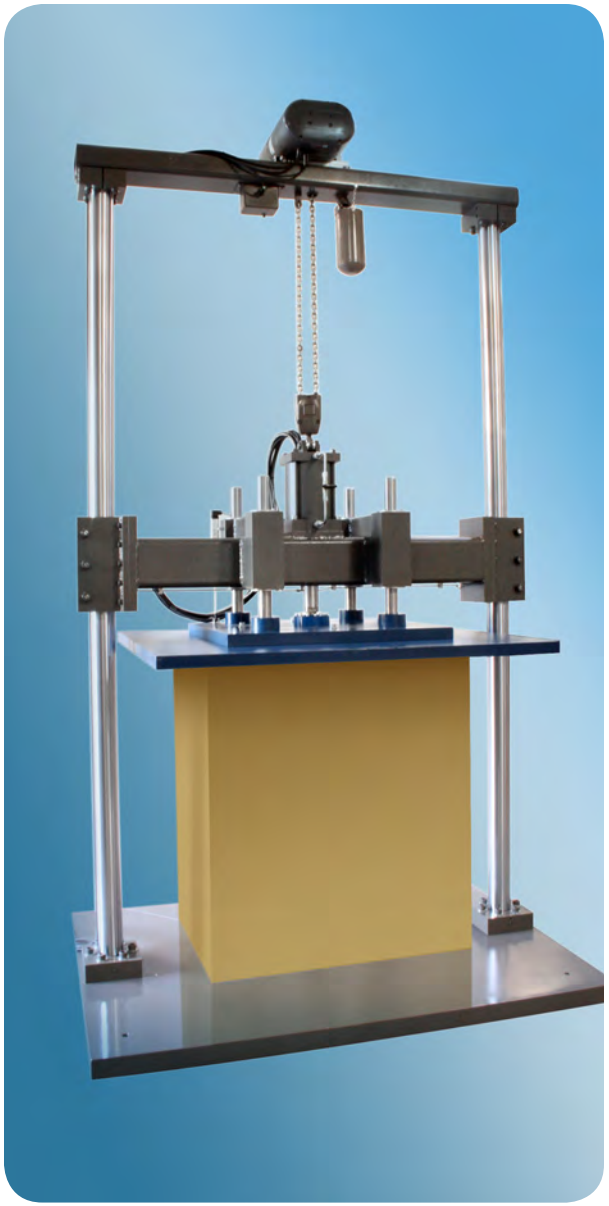
152
Compression Tester

Lansmont Field-to-Lab®



Severe compressive forces occur when packaged-products are stacked during transit or storage. To evaluate the performance of packages, components, and materials under such loads, Lansmont offers a full line of Compression Testers. Lansmont Compression Testers comply with industry standard package testing specifications including ASTM, ISTA, ISO, and MIL-STD.

PERFORMANCE SPECIFICATIONS

Maximum Package Dimensions:

Length	60 in. (152 cm)
Width	60 in. (152 cm)
Height	84 in. (213 cm)

Contact Lansmont for larger configurations.

Verified Force Range:

152-30K	152-50K
3,000 - 30,000 lbs. (13.3 - 133 kN)	5,000 - 50,000 lbs. (22.2 - 222 kN)

Contact Lansmont for extended range options.

Positioning Speeds:

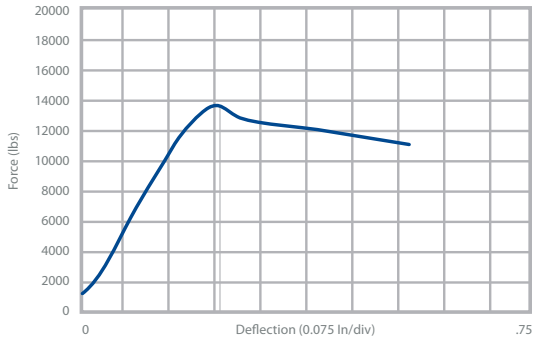
Cross-head	16 ft./min. (4.88 m/min.)
Test speed	0.5 in./min. (1.27 cm/min.)

Testing Modes:

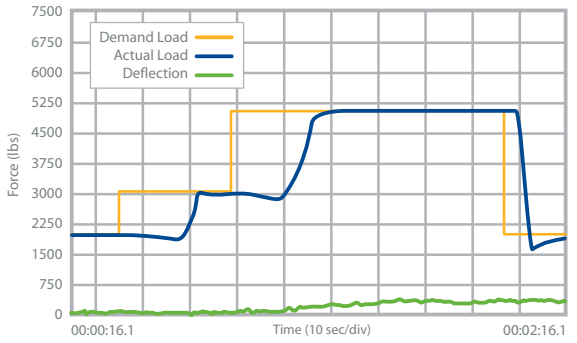
- Constant deflection rate
- Ramp to load and release
- Load profile simulation
- Deflection profile simulation

TEST PROFILES

Constant rate test profile



Constant load test profile



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152 Compression Tester

Lansmont Field-to-Lab®

FEATURES

TouchTest Compression 3 Controller:

The intuitive TTC3™ control software integrates the machine control functions with the data capture, analysis, and reporting features. TTC3™ allows users to export test data to Windows™ applications. Networking features allow quick and easy transmission of test results via e-mail. TTC3™ has a full range of testing capabilities including Constant Deflection Rate, Ramp to Load and Release, Stacking Simulation, and Deflection profile compression tests.

Top Load Design:

Our "Top Load" machine design applies the compression force from above during compression testing, providing a more realistic simulation of the compressive loads that packaging experiences when stacked.

Low Profile Baseplate:

The compression system baseplate has a low profile for added convenience and safety when loading or unloading large packages or unitized loads during testing.

OPTIONS

Fixed/Floating Platen:

The Fixed/Floating platen option gives you increased flexibility in your testing applications. In the floating orientation, the platen is free to swivel during testing via a "monoball" bearing. In the fixed orientation, adjustable limit stops are used to lock out the lower platen so it is in a fixed orientation during testing.

Package Test Stands:

To make testing single packages on a large compression tester more convenient, we offer package tests stands. These heavy duty steel tables can be placed on the machine baseplate to make the "base" surface a more convenient height for the user.

Low Range Load Platform:

For testing applications that utilize the lower end of the force range, we offer Low Range Load Platforms. These precision recording structures more accurately measure compressive forces on smaller packages.

Temperature/ Relative Humidity Sensor:

The optional probe mounts to the back of the Squeezer near to where test specimens sit during testing. The sensor can effectively measure in a 0 – 100°F temperature and 0 – 100% relative humidity range.

152
Compression Tester

Lansmont Field-to-Lab®

APPLICATIONS

Many variables affect the compression performance of your packaging. How many boxes will be in a unit load and how will we stack them? Will our packages be shipped on pallets? What happens if boxes overhang the pallet? How does the climate influence the stacking performance? These are important questions to consider when designing your packaging. Lansmont Compression Test Systems allow you to evaluate how your packaging designs "stack up" to compressive loads and environmental conditions.

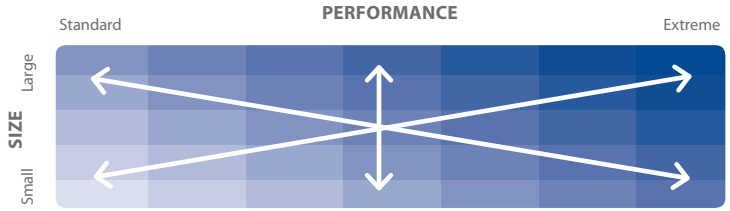
Testing a Unit Load
Lansmont's Model 152 Compression Tester is specifically designed to efficiently and accurately evaluate the performance of unit loads under compressive forces.

Testing Individual Packages
For testing smaller items such as individual packages, an optional package test stand can be used with the Model 152. A Low Range Load Platform is another useful option for accurately evaluating low level force inputs.

Climatized Testing
Temperature and relative humidity can greatly impact compression performance of your packaging designs. To replicate these conditions during testing, Lansmont Compression Test Systems can be installed inside a climate-controlled space.

MADE TO ORDER

Not quite the equipment size or performance level that you need? If we do not already manufacture the test machine ideally suited for your company's testing applications, our engineering team can custom design a test system specific to your needs.



152
Compression Tester

Lansmont Field-to-Lab®

SPECIFICATIONS

UTILITIES	152-30K	152-50K
Power -		
Standard voltages:	115-220 VAC 1 phase 50-60 Hz. 15-30 amps	115-220 VAC 1 phase 50-60 Hz. 15-30 amps

MACHINE DIMENSIONS (standard machine)		
Height:	146 in. (371 cm)	146 in. (371 cm)
Width:	80 in. (203 cm)	80 in. (203 cm)
Length:	60 in. (152 cm)	60 in. (152 cm)

PACKAGE TEST STAND DIMENSIONS

Sizes (width x length): 24 x 24 in. (61 x 61 cm)
30 x 30 in. (76 x 76 cm)
36 x 36 in. (91 x 91 cm)

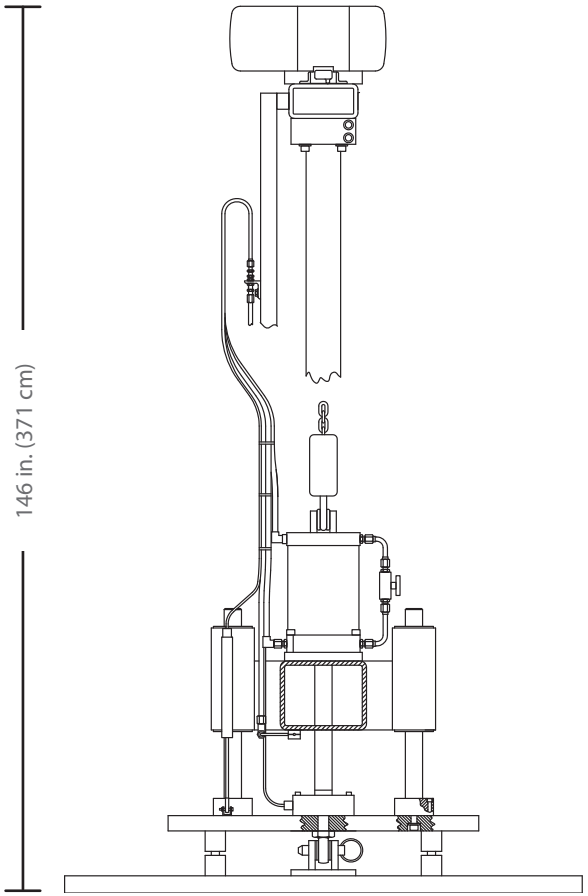
All test stands are 30 in. (76 cm) tall.

CRATE INFORMATION (standard machine)		
Height:	74 in. (188 cm)	74 in. (188 cm)
Width:	75 in. (190.5 cm)	75 in. (190.5 cm)
Length:	169 in. (429 cm)	169 in. (429 cm)

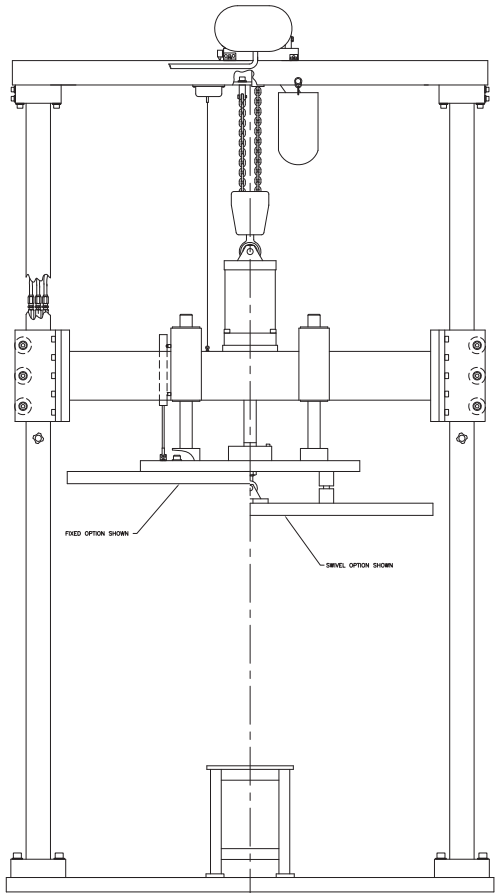
WEIGHTS		
Gross weight	9000 lbs. (4082 kg)	9500 lbs. (4309 kg)

SYSTEM DRAWINGS – STANDARD CONFIGURATION

SIDE VIEW



FRONT VIEW



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Upgrade Options: Compression

Lansmont Field-to-Lab®

MAIN ASSEMBLY | HYDRAULICS/PNEUMATICS | **CONTROLS** | ACCESSORIES

TouchTest™ Compression – TTC3 Control System

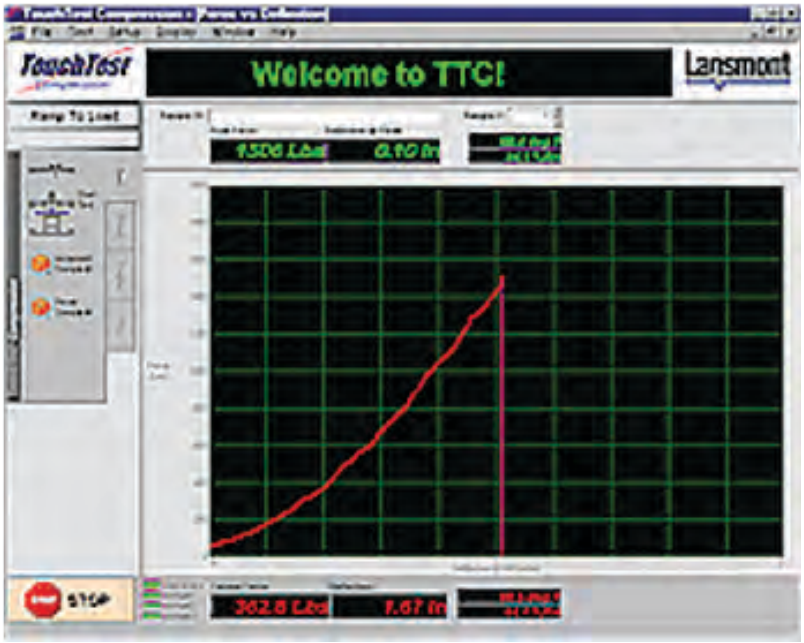
Based on the extremely popular TouchTest Compression control system, TTC3 adds many new and powerful features. Among these features are the ability to integrate compression test results with all of your favorite Windows™ applications, network features that allow quick and easy transmission of test results via e-mail, extremely simple set-up of standard compression tests, and a high level of programmability for creating custom test profiles.

TTC3 comes in a benchtop version, which includes computer, CRT monitor, interface, and all interconnecting cables. You provide the bench or cart for the computer, everything else is the same!

If you currently have an older Lansmont compression test system, the new TTC3 controller has been designed to easily retro-fit your existing machine, enabling you to have the latest state-of-the-art compression tester without the investment of an entirely new compression tester. The upgrade even includes a brand new hydraulic power supply, insuring your machine is better than new.

Features

- Full range of test capabilities, including Constant Deflection Rate Compression Testing, Ramp to Load and Release Compression Testing, Load Profile - Stacking Simulation Test, and Deflection Profile Test
- Windows™ simplicity
- Network ready
- SystemStation and Bench-Top version
- Easily upgradeable to existing machines



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Impact Test Systems

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Inclined Impact Testers

Lansmont Field-to-Lab®

152 - 4K

213 - 6K

During shipping and handling, large packages such as pallet loads or crates will experience some bumps and bruises. Lansmont Inclined Impact Testers are ideal for testing your packaged-product's ability to withstand the types of impacts that occur in the distribution environment. Lansmont Inclined Impact Testers comply with industry standard package testing specifications such as ASTM, ISTA, ISO, and MIL-STD.

PERFORMANCE SPECIFICATIONS

	152-4K	213-6K
Carriage Size (L x W)	60 x 60 in. (152 x 152 cm)	84 x 84 in. (213 x 213 cm)
Backstop Size (W x H)	84 x 76 in. (213 x 193 cm)	96 x 96 in. (244 x 244 cm)
Velocity	7 ft./sec. (2.1 m/sec.)	7 ft./sec. (2.1 m/sec.)
Payload Capacity	4000 lb. (1814 kg)	6000 lb. (2721 kg)

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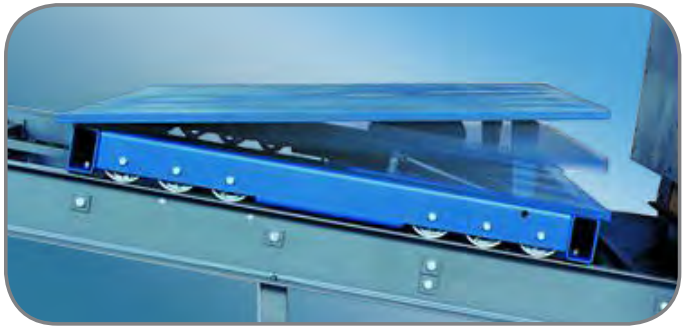
2.28.12

Inclined Impact Testers

Lansmont Field-to-Lab®

FEATURES



Articulated Specimen Loading:

Allows the carriage to be loaded with a level top surface for safety and convenience. After the test specimen is loaded, the top of the carriage is lowered into its testing configuration and drop sequences happen in the conventional method. Lansmont's pneumatic articulation system is fast, safe, and reliable.

Hand-held Control:

All machine functions are controlled through a hand-held control pendant, allowing machine operator the ability to position the carriage from different points around the machine.

OPTIONS

Integrated Safety Interlocks:

Allows for operators to use optional safety systems, such as pressure sensitive safety mats or photocell light curtains, which disable the test system when triggered. A positive lockout safety pin also prevents the carriage from moving when inserted.

Impact Speed Meter:

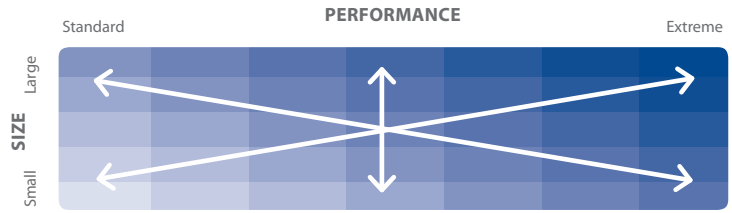
Allows carriage impact velocities to be measured. Simple LCD display shows Impact Velocity in English or Metric units and is compliant with ASTM and ISTA standards.

Test Partner Data Acquisition:

Lansmont's Test Partner sets the standard for data acquisition systems used for laboratory impact testing. Test Partner is a powerful combination of software and hardware specifically tailored to capture and analyze mechanical shock, drop, and impact events. It can acquire up to sixteen channels of acceleration data simultaneously.

MADE TO ORDER

Not quite the equipment size or performance level that you need? If we do not already manufacture the test machine ideally suited for your company's testing applications, our engineering team can custom design a test system specific to your needs.



Inclined Impact Testers

Lansmont Field-to-Lab®

SPECIFICATIONS

UTILITIES	152-4K	213-6K
Power -		
Standard voltages:	208-230 VAC 1 phase 50-60 Hz. 25 amps	208-230 VAC 1 phase 50-60 Hz. 25 amps
Plant air:	80 psi (5.6 kg/cm²)	80 psi (5.6 kg/cm²)

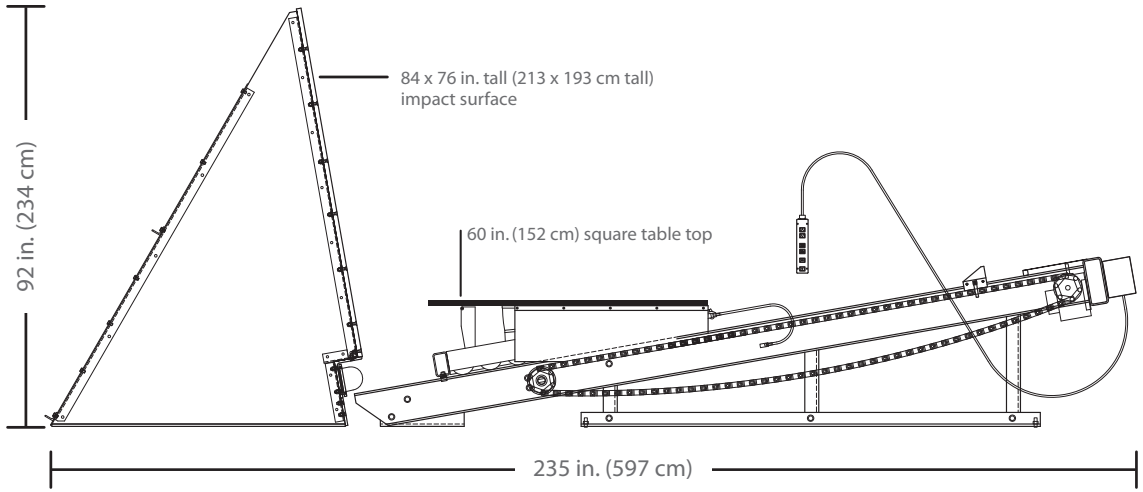
PHYSICAL		
Table size	60 in. (152 cm) square	84 in. (213 cm) square
Backstop dimensions	84 x 76 in. tall (213 x 193 cm tall)	96 in. (244 cm) square
Velocity	7 ft./sec. (2.1 m/sec)	7 ft./sec. (2.1 m/sec)
Payload capacity	4000 lbs. (1814 kg)	6000 lbs. (2721 kg)

MACHINE ENVELOPE (standard machine)		
Height:	8 ft. (2.4 m)	9.5 ft. (2.9 m)
Width:	8 ft. (2.4 m)	9 ft. (2.7 m)
Length:	20 ft. (6.1 m)	24 ft. (7.3 m)

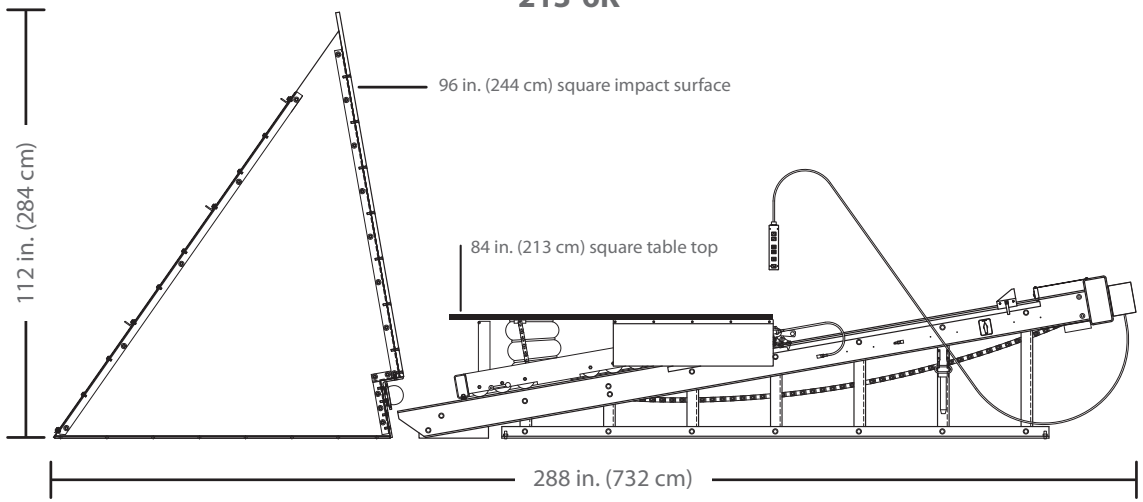
SHIPPING WEIGHT		
Gross weight	12,500 lbs. (5669 kg)	16,000 lbs. (7258 kg)

SYSTEM DRAWINGS – STANDARD CONFIGURATION – SIDE VIEW

152-4K



213-6K



2.28.12

Mechanical Shakers

Lansmont
Field-to-Lab®

Mechanical Shakers

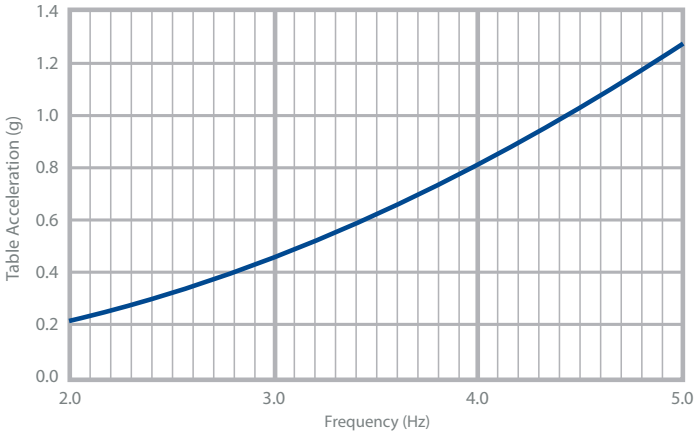
Lansmont Field-to-Lab®

MS 400 with Tall Fence

Packaged-products must withstand vibration and impact dynamic energy while being transported. Mechanical shakers are a low cost testing equipment option for challenging the integrity of your packaging designs. Lansmont Mechanical Shakers comply with repetitive shock requirements as referenced in industry standard testing specifications including ASTM, ISTA, ISO, and MIL-STD.

Lansmont MS 400/MS 2000 Table Performance

Acceleration vs. Frequency - with 1 in. fixed displacement table control



MS 2000 with Low Fence

PERFORMANCE SPECIFICATIONS

	MS 400	MS 2000	
Test Bed Size	48 in. square (122 cm square)	60 in. square (152 cm square)	84 in. square (213 cm square)
Option Fence Size (L x H)	36 in. (91 cm) on one side	48 in. (122 cm) on one side	48 in. (122 cm) on one side
Payload Capacity	400 lb. (181 kg)	2,000 lb. (909 kg)	2,000 lb. (909 kg)
Frequency Range	2.0 – 5.0 Hz	2.3 - 4.7 Hz (2.0 – 5.0 Hz programmable)	2.3 - 4.7 Hz (2.0 – 5.0 Hz programmable)
Motion	circular-synchronous, vertical-linear, 30° out-of-phase (optional)	circular-synchronous, vertical-linear, 30° out-of-phase (optional)	circular-synchronous, vertical-linear, 30° out-of-phase (optional)
Maximum Acceleration	1.25 g	1.25 g	1.25 g
Displacement	1 in. (2.54 cm) fixed	1 in. (2.54 cm) fixed	1 in. (2.54 cm) fixed

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4.20.12

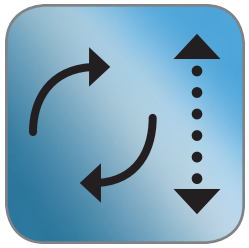
Mechanical Shakers

Lansmont Field-to-Lab®

FEATURES

Handheld Controller:

The handheld controller is a lightweight, ergonomic control box designed for hand-held operation. All control features of the MS 400 and MS 2000 Package Shakers are incorporated into the design including Power On/Off, test setup, and Start/Stop functions. An LCD screen displays all pertinent test information—rotary speed, frequency, test durations, and acceleration level.



Circular-Synchronous and Vertical-Linear Motion:

Standard Package Shaker systems are configured to perform either circular-synchronous (rotary) and vertical-linear (vertical only)

Variable-Speed DC Motor and Synchronous Belt Drive:

Package Shakers come standard with a variable-speed DC motor, driving a synchronous belt, which provides quiet, smooth operation of the test system.

OPTIONS

Integrated Safety Interlocks:

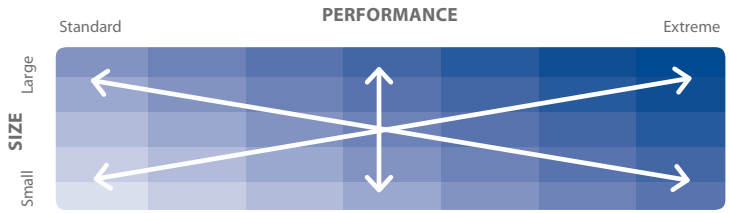
Allows for operators to use optional safety systems, such as pressure sensitive safety mats or photocell light curtains, which disable the test system when triggered. A positive lockout safety pin also prevents the carriage from moving when inserted.

Tall Fence:

Package Shakers configured with a hi-end fence allows both for containment of test items on test bed, as well as an impacting surface when performing circular-synchronous or out-of-phase testing.

MADE TO ORDER

Not quite the equipment size or performance level that you need? If we do not already manufacture the test machine ideally suited for your company's testing applications, our engineering team can custom design a test system specific to your needs.



Mechanical Shakers

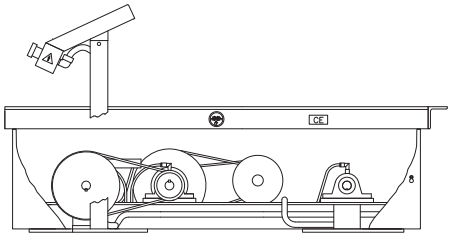
Lansmont Field-to-Lab®

SPECIFICATIONS

PHYSICAL	MS 400	MS 2000	
Table Sizes	48 in. square (122 cm square)	60 in. square (152 cm square)	84 in. square (213 cm square)
Displacement	1.0 in. (2.54 cm) fixed	1.0 in. (2.54 cm) fixed	1.0 in. (2.54 cm) fixed
Frequency Range	2.0 – 5.0 Hz	2.3 - 4.7 Hz	2.3 - 4.7 Hz
Max. Acceleration	1.25 g Peak	1.25 g Peak	1.25 g Peak
Motions	Circular-Synchronous, Vertical-Linear, 30° out-of-phase	Circular-Synchronous, Vertical-Linear, 30° out-of-phase	Circular-Synchronous, Vertical-Linear, 30° out-of-phase
Machine Envelope	54 in. x 60 in. (137.2 cm x 152.4 cm)	66 in. x 72 in. (168 cm x 183 cm)	90 in. x 96 in. (229 cm x 244 cm)
Machine Capacity	400 lbs. (181 kg)	2000 lbs. (907 kg)	2000 lbs. (907 kg)
CRATE INFORMATION			
Dimensions	48 in. table (122 cm) 72"L x 62"W x 61"H 183 L x 157 W x 155 H cm	60 in. table (152 cm) 84" x 75"W x 96"H 213 L x 191 W x 244 H cm	84 in. table (213 cm) 105"L x 95"W x 96"H 267 L x 241 W x 244 H cm
Gross (shipping) weight	1300 lbs. (590 kg)	2550 lbs. (1157 kg)	3000 lbs. (1361 kg)
Net weight	800 lbs. (363 kg)	1950 lbs. (885 kg)	2100 lbs. (953 kg)
UTILITIES			
Power -			
Voltage	240 VAC +/- 10%	240 VAC +/- 10%	
Frequency	50 Hz – 60 Hz	50 Hz – 60 Hz	
Phase	Single Phase	Single Phase	
Current	20A	25A	

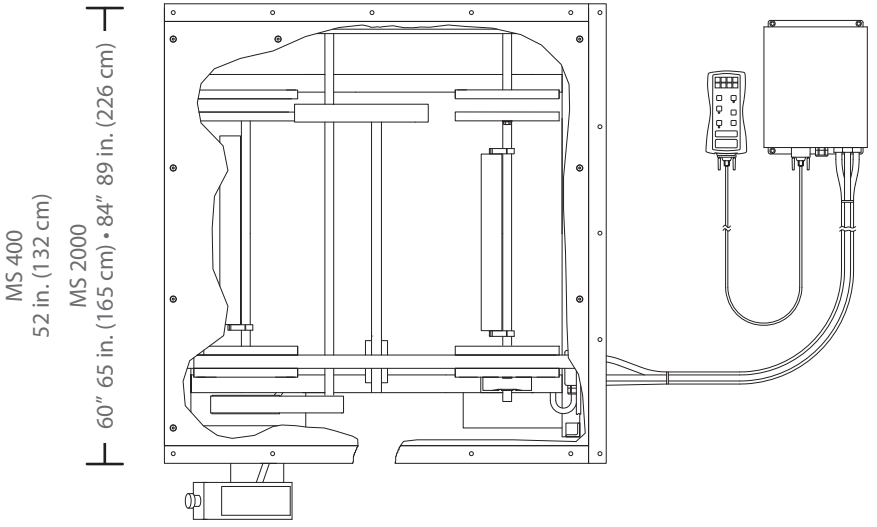
SYSTEM DRAWINGS – STANDARD CONFIGURATION

SIDE VIEW



MS 400
15.8 in. (40.1 cm)
MS 2000
17.8 in. (45.2 cm)

TOP VIEW



Service and Support

Lansmont
Field-to-Lab®

Equipment Operator Certification

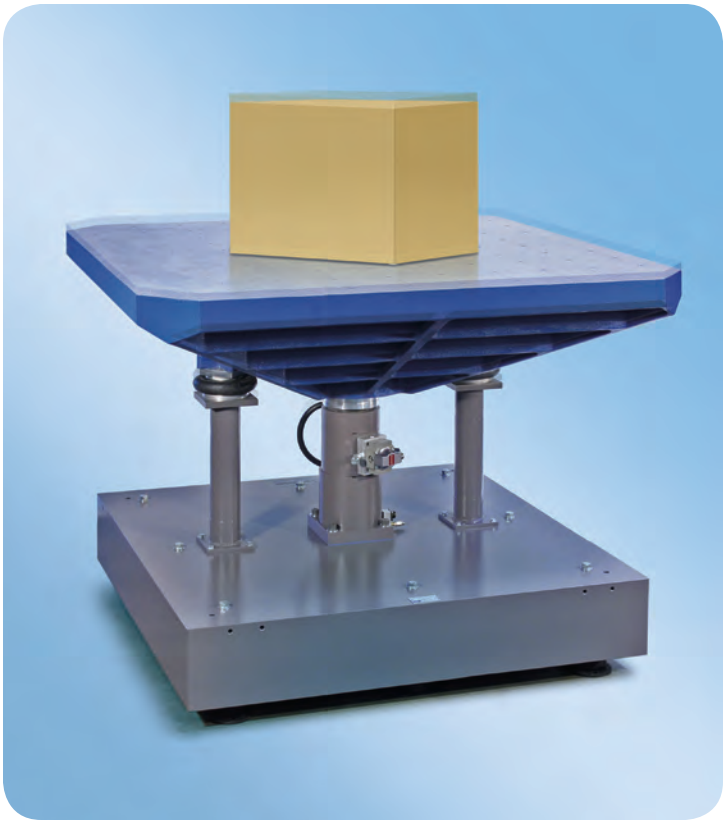
Lansmont Field-to-Lab®

When we increase knowledge, everyone wins.

Equipment Operator Certification offered through our Lansmont Knowledge Network gives you the necessary knowledge, confidence, and support to make optimum use of your sophisticated test equipment. With certification, you will increase the value of your testing activity, improve your decision-making skill, and achieve greater success.

Engineered to perfection

Achieving Lansmont Equipment Operator Certification will give you an edge. Getting the most out of your company's test equipment starts by preparing your employees to operate the equipment with pertinent and applied instruction. Equipment Operator Certification teaches them how to safely and effectively operate and maintain test equipment. They will learn the sources of dynamic hazards and how they can use Lansmont test systems to protect their products against those hazards. Ultimately, the goal is to add more value and greater confidence to your company's testing function. Companies with quality programs will appreciate Lansmont's ability to transfer knowledge and help participants meet quality requirements.



Certification course overview:

- *Basic dynamics and associated environmental hazards*
- *Product fragility*
- *Test equipment/system overview*
- *Basic equipment and software operation*
- *System setup and test selection*
- *Specimen mounting, fixturing and monitoring*
- *Common, relevant industry test standards*
- *Safety concerns and requirements*
- *Preventative maintenance and calibration requirements*

Lessons from the school of hard knocks

Lansmont has helped customers shake and break things for decades. Our Knowledge Network instructors are experienced engineers with real-world testing experience. They will share practical and useful information to enhance your capabilities, increase the value and validity of your testing program, and improve your ability to make trustworthy decisions with your test equipment.

Your place or ours

Courses delivered at your facility integrate classroom concepts with your equipment, and encourage broader involvement with your resident team of professionals. To avoid the expense of travel, consider letting our seasoned professionals bring you hands-on instruction using your equipment and products at your location.

On the other hand, some employees find it hard to balance training and the entanglements of work. In that case, we suggest meeting at our place. Away from the distractions of daily responsibilities, certification courses held at Lansmont facilities are relaxed, focused and productive. Using our facilities, we'll deliver hands-on training with access to Lansmont tools and equipment. You'll benefit from networking and knowledge exchange opportunities with world-class dynamics design and application experts.

Lansmont Knowledge Network™

Data Analysis > Certification > Consulting

It has been said that knowledge is power. Knowledge also brings certainty, conviction and clarity—the building blocks of engineering. Lansmont's Knowledge Network provides these benefits through expert data analysis, certification, and consulting. Perhaps you need a confident, professional, and accountable assessment of your collected data, or training to improve your internal decision-making skill, or a fully engaged consultant to wrestle with a hard problem, or a way to reduce your workload. Lansmont's Knowledge Network promises to give you the confidence to make decisions that improve products, packages and your future.

Lansmont Data Analysis: Ask an expert

In the past, you have trusted Lansmont instruments and test equipment to provide the data you needed to make your own decisions. Now, you can trust Lansmont data specialists to interpret your data and provide you with even greater confidence. Working with Lansmont, your field data can be seamlessly uploaded to Lansmont, where our expert data specialists provide event verification, analysis, and an authoritative summary of critical event data. You will receive a comprehensive report with a clear recommendation based on Lansmont's expert analysis of measurement results. When you know more, it's easy to choose the right course of action.

Expert consulting: From a helping hand to full project support

These days, everyone is doing more work with fewer resources. Do you need a helping hand with an unfamiliar or infrequently conducted test? Or perhaps you need comprehensive help to design, analyze and summarize test and measurement results. Either way, a Lansmont Knowledge Network consultant can provide the support you need to make decisions you can trust.

5.18.12

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SaverXware Training

Lansmont Field-to-Lab®

Get the most from Lansmont SAVER™ products.

SaverXware training offered through our Lansmont Knowledge Network gives you the necessary knowledge, confidence, and support to make optimum use of your sophisticated field instrument. By actively participating in SaverXware training, you will increase the value of your measurement and monitoring activities, improve your decision-making skill, and achieve greater success.

Lansmont SAVER™ instruments prove that powerful things come in small packages. Our SAVER™ products are "best in class" Field Data Recorders that combine everything you need into a single small package. These self-powered instruments provide internal tri-axial accelerometer, temperature and humidity sensors, USB connectivity, and the ability to turn them loose to operate in the field unattended. To fully exploit all the inherent capability and value associated with our SAVER™ products, Lansmont offers training, intended to deliver customer confidence associated with the operation of the products. Ultimately, the goal is to add more value and greater confidence to your measurement and monitoring functions. Companies with quality programs will appreciate Lansmont's ability to transfer knowledge and help participants meet quality requirements.

Certification course overview:

- *SAVER™ Instruments Family Overview*
- *Instrument Installation and Mounting Considerations*
- *SaverXware™ Installation*
- *Data Acquisition Programming Setup*
- *Analysis Overview*
- *Data Summary and Reporting*
- *Data Analysis Center Services and Deliverables*

Optional multiple-day training includes instruction and consultation associated with company-specific measurement needs.

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10.10.12

Calibration Services

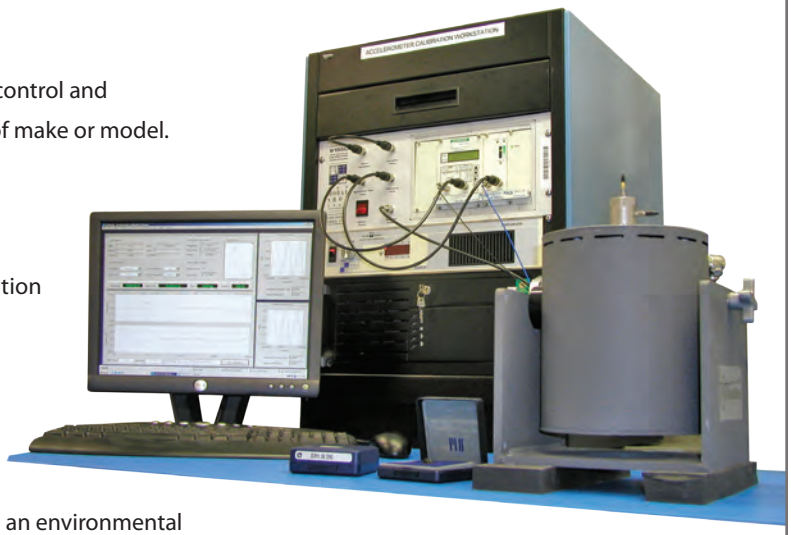
Lansmont Field-to-Lab®

ACLASS ACCREDITED CALIBRATION

Lansmont offers comprehensive calibration capabilities, servicing all Lansmont test and measurement instruments, as well as individual accelerometers. Our calibration lab, located within our Monterey, California corporate headquarters, is equipped with quality hardware to support our efforts. Our state-of-the-art facility delivers ACLASS Accredited ISO/IEC 17025:2005 and ANSI/NCSL Z540-1-1994 professional calibration services.

Our facility work stations are each designed with a specific task in mind. All stations have access to an environmental chamber where we pre-condition electronic assemblies and calibrate our SAVER Instruments' climatic sensors.

The Accelerometer Calibration Station
is an integrated system designed to calibrate all of our customer control and response accelerometers with speed and efficiency – regardless of make or model.



The Electronics Testing/Calibration Station
has been configured to support Lansmont test equipment and control systems. We quickly perform functional test and verification of vibration controls, as well as calibrate Test Partner Data Acquisition systems.

The Instruments Calibration Station
is designed to thoroughly test, calibrate and verify the proper operation of Lansmont Field Instruments. The station combines an environmental chamber, electro-dynamic shaker system and a Lansmont Model 23 programmable shock test system; configured with calibration controls in a single, ergonomically designed work station.

Envirotronics environmental chamber

One source for all your calibration needs

Our goal is to provide quality, turnkey services with an expedited turn-around in order to maximize your up-time without sacrificing quality!

For more information, or to initiate the calibration of your Lansmont equipment, please contact: **Susan Hoag, Instruments Coordinator** at (831) 655-6640 or email at Susan_Hoag@lansmont.com.

8.23.12

Service and Support

Lansmont Field-to-Lab®

Why do you need a service and support plan?

In short, to ensure your equipment is properly maintained and calibrated, and to get the technical support that makes the most of your investment and gives you peace of mind.

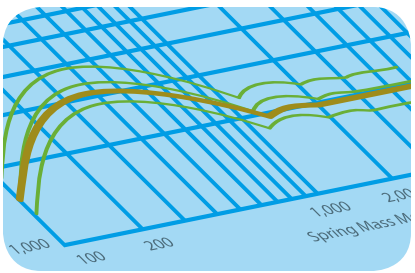
Service and Support Plans

Like a well-tuned race car, getting the most from your Lansmont equipment requires it be maintained regularly and that you, the operator, understand how to get the best out of it. Lansmont has developed two plans to provide equipment service and technical support: the Standard plan or our all-inclusive Premier plan.

Lansmont equipment is durable. Even the equipment we manufactured in our first decade of operation is still in service and is capable of providing the highest degree of precision and reliability. Routine maintenance and calibration is necessary for all precision equipment to ensure its accuracy and proper functioning. A Lansmont service and support plan provides necessary maintenance and calibration to ensure the accuracy, reliability and validity of the results you trust.

Even when equipment is operating well, testing is not always straightforward. You may have questions about how to use a Lansmont machine for a new application or need help diagnosing a problem. Lansmont technical support is the best in the business. These are your technical peers, well-versed in equipment use, diagnostics and even application of testing methodologies. A service and support plan gives you unlimited access to technical support, with a guaranteed response time of less than two hours, because when you need support…you usually need it now, not tomorrow.

Services	Standard plan	Premier plan
Annual Preventative Maintenance	√	√
Annual Calibration Service	√	√
Repair and/or Replacement		√
Support		
Routine Software/Firmware Upgrades as Required	√	√
Consumable Parts	√	√
Technical Support (phone, fax, email)	√	√
On-site Tech Support		√
Travel and Lodging for Tech Support		√
Labor and Warranted Parts		√



What's included in the plan?

Lansmont has a plan to best meet your specific needs, from a routine maintenance plan to one that virtually eliminates the worry of costly repairs.

With the **Standard plan**, customers receive the benefits of technical support from a Lansmont Field Service Engineer and the plan includes all consumable parts required for scheduled on-site annual maintenance/calibration services as well as software/firmware upgrades. The Standard plan protects your investment by extending your equipment's useful life and ensures precision and proper functioning through maintenance and calibration of software and equipment. It reduces the likelihood of significant repairs and identifies problems early. By bundling together the services your equipment requires, we are able to pass significant cost savings to you.

The **Premier plan** includes all of the benefits of the Standard plan, and protects you from the unexpected expenses of a major repair and/or replacement and for parts that fail past the term of the warranty. The Premier plan provides customers with added confidence that their equipment will serve their needs years after the standard warranty has expired. All warranted parts and labor, including travel expenses for a Lansmont Field Service Engineer to repair your equipment, are covered in the Premier plan.

What if I have older Lansmont equipment? Can I still purchase a service and support plan?

The Standard plan is available to any Lansmont customer for any Lansmont equipment configuration, regardless of the age of equipment. In fact, older equipment stands to benefit most from regular inspection, service and calibration. The Premier plan can be purchased to cover older Lansmont equipment after inspection and certification by a Lansmont engineer. The long-lasting durability of Lansmont equipment makes it possible for us to offer this service plan on older equipment.

How do I get covered?

Call our toll-free number 1-800-LANSMONT, and a customer service assistant will get you covered today!

Service and Support Plan Benefits:

Annual Preventative Maintenance and Calibration Services

- Ensures the equipment is maintained and working properly.
- On-site equipment preventative maintenance service by a Lansmont Field Service Engineer.
- Routine software/firmware upgrades as required.
- Includes consumable parts with scheduled maintenance.
- Provides a detailed report of services performed and recommendations to maintain optimal equipment performance.
- Ensures the components of the equipment are operating within specification.
- Includes customer copies of all calibration certificates.
- Offers traceable calibration certificates to customers via web site or online database.

Software/Firmware Maintenance

- Software revision updates to maintain equipment uptime, as required.
- Update firmware version during service visit, as required.

Consumable Parts

- Replace parts during routine maintenance that require replacement within one year of normal wear and tear.

Technical Support Plan

- Unlimited phone and email support
  - 8 AM – 5 PM PST, Monday-Friday except Holidays
  - Response time within 2 hours from initial request for assistance. If request received after 4 PM PST it will be addressed the next business day.
- Technical support provided until issue resolved.

Labor and Warranted Parts

- Includes on-site services and repairs performed by a Lansmont Field Service Engineer.
- Includes parts that are covered under the terms of the standard warranty. (Premier)

Travel

- Includes travel expenses incurred by a Lansmont Field Service Engineer to perform on-site preventative maintenance, calibration services and resolve equipment issues. (Premier)

9.7.12

Data Analysis Services

Lansmont Field-to-Lab®

What do you need to know?

Are you making design decisions about product durability or protective packaging to improve in-transit and in-use performance of your company's products? Are you involved with asset protection, machine health monitoring or measuring other environmental variables that can affect your company's valuable assets? In the past, you may have trusted Lansmont instruments and test equipment to provide the data you needed to make your own decisions. Now, you can trust Lansmont data specialists to interpret your data and provide you with even greater confidence.

Ask an expert

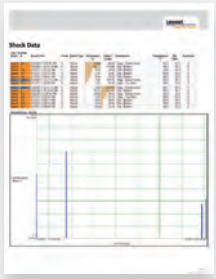
Lansmont data specialists are experts at acquiring, analyzing and summarizing data; if you need help defining parameters or protocols, we can help. Our specialists are experienced at filtering and interpreting relevant information—so you can be entirely confident in their ability to provide unambiguous, defensible decisions from collected data. When you know more, it's easy to choose the right course of action.

When a test environment is unfamiliar, trust Lansmont

Variety may be the spice of life, but it also increases the risk within testing. Going into unfamiliar territory increases complexity and difficulty in test design and interpretation. Lansmont data specialists are managing measurement studies and evaluating results all day, every day. They can help you design and interpret test results when you need to venture into unfamiliar territory. So add some spice, but trust Lansmont to shoulder the risk.

Improve testing validity and save time

Your field data can be seamlessly uploaded to Lansmont, where our expert data specialists begin event verification and analysis. They will summarize the crucial shock and vibration events, define and trend temperature and humidity extremes, create representative shock and vibration summaries and eliminate insignificant data and false events. In about a week, you will receive a comprehensive report with a clear recommendation based on Lansmont's expert analysis of measurement results.



Sample reports available.

Comprehensive data analysis report: Everything you need to know

If the best presents come in small packages, treat yourself to this decision-making jewel. In a few short pages, the most relevant evaluations are provided in a professional summary containing the following data analysis:

- Shock, impact and orientation summary, listing the top 10 shock events and conclusions
- Vibration summary, with the top 10 vibration events, frequency analysis and conclusions
- Time histories of critical events
- Temperature and humidity extremes and trends
- Summary statistical analyses
- Instrument description
- Measurement setup details
- Instrument loading configuration (description with pictures)

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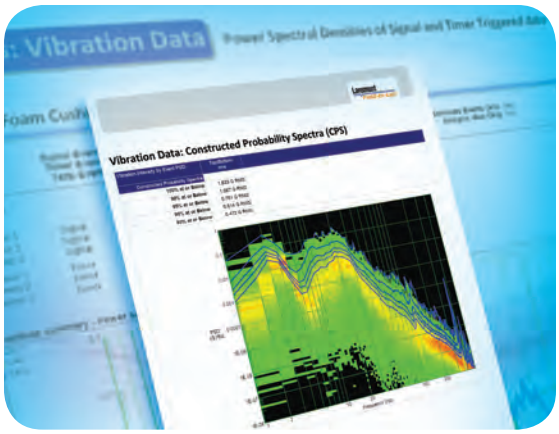

Choosing the proper parameters is as easy as choosing Lansmont

If desired, Lansmont can provide setup assistance to help define and refine critical test parameters to meet your measurement needs and objectives. Working with you, we can take the guesswork out of setup, and alleviate accuracy concerns.

- Sample Size
- Sample Rate
- Wake-up Interval
- Trigger Levels
- Memory Allocation
- Data Retention Settings

Go or no go? Pass or fail?

Lansmont understands that you need valid, defensible, trustworthy evidence to make decisions in the complicated package and transport environment. Our Lansmont data specialists certify their answers so you can proceed with confidence. Our summary report removes measurement ambiguity and clearly communicates the results and implications of the data evaluation. With a lot riding on what the data means, a Lansmont data specialist provides objective, independent, authoritative analysis you can trust.

Lansmont Knowledge Network™

Data Analysis > Certification > Consulting

It has been said that knowledge is power. Knowledge also brings certainty, conviction and clarity—the building blocks of engineering. Lansmont's Knowledge Network can provide these benefits through expert data analysis, training and consulting. Perhaps you need a confident, professional, and accountable assessment of your collected data, or training to improve your internal decision-making skill, or a fully engaged consultant to wrestle with a hard problem or reduce your work load. Lansmont's Knowledge Network promises to give you the confidence to make decisions that improve products, packages and your future.

Lansmont training: Empower yourself

When we increase knowledge, everyone wins. Robust standard and custom training programs offered through our Lansmont Knowledge Network can breathe new life into your existing test equipment, improve the value of your testing activity, and increase your confidence and decision-making skill. From entry-level operator instruction to advanced testing applications training, Lansmont can suggest comprehensive programs that meet your unique knowledge needs. Whatever your challenge, you will know more when you get the training you need.

Expert consulting: From a helping hand to full project support

These days, everyone is doing more work with fewer resources. Do you need a helping hand with an unfamiliar or infrequently conducted test? Perhaps you need comprehensive help to design, analyze and summarize test and measurement results. Either way, a Lansmont Knowledge Network consultant can provide the support you need to make decisions you can trust.

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Nov 2013