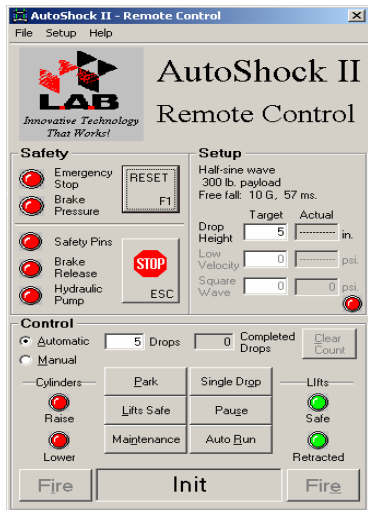


The Totally Automated Windows-based Shock Test System from Industry Leader L. A. B. Equipment, Inc.



AutoShock-II™ is a fully automated series of shock test systems used to measure and identify product fragility levels and evaluate protective packaging. These systems perform a wide variety of half sine, square or saw-tooth waveform impacts. With the simulation of real world shock pulses and impact energy levels, manufacturers can systematically test and optimize product design and packaging. L. A. B. Equipment, Inc.'s fully automated computer controlled shock and data analysis test systems are the critical path to accomplish this.

AutoShock-II™ is a Windows based, fully automated shock test system. User-friendly controls are designed to interface to a variety of data acquisition and analysis software systems. This unique feature of the **AutoShock-II™**, allows access to best-in-class data acquisition and analysis software. Whether you purchase one of L.A.B.'s



acquisition systems or other recommended systems, the **AutoShock-II™** will effectively interface.

AutoShock-II™, state-of-the-art braking and balanced lift mechanisms allow for a low friction, repeatable, and rebound free impact. The nitrogen braking system is a safe, reliable and a cost effective way to arrest a wide variety of payloads. The balanced hydraulic lift system is unique to the industry. It allows a minimum of column and bearing wear, while effortlessly providing a very effective method to accurately position a wide array of payloads.

AutoShock-II™'s low profile impact absorbing base allows for a lower overall system height, more accessible loading, and better test configuration. The base is cast iron on Models AS-II.24 and AS-II.36. Square wave cylinders are recessed into the base for improved performance and to provide optimal system accessibility. **AutoShock-II™** meets or exceeds OEM, ASTM, MIL-STD, IEC, and ISO required test standards.

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Standard Features

- **State-of-the-art Windows based PC control system with intuitive remote control interface** automates procedures and reduces test times. The operator simply enters conditions and **AutoShock-II™** converts them into specific machines instructions and performs the test.
- **A multiple post guidance system** with balanced hydraulic lift cylinders provides automatic, chatter-free positioning and alignment of the shock table.
- **An automated shock drop calculator** simplifies the determination of drop heights and pressures to quickly achieve the operator's requested shock pulses. Drop heights and pressures can be stored and retrieved.
- **High performance cast or welded aluminum tables** produce optimum table strength and stiffness with minimal table noise, eliminating the need for over-filtering of shock test data.
- **A state-of-the art braking system** eliminates secondary impact rebounds and provides a secure and reliable method of holding table position prior to the drop.
- **Square wave/ Trapezoidal shock pulse programmers** provide automated waveform switching between short duration half sine and square wave shock pulses, with consistent repeatability to streamline damage boundary testing.
- **L. A. B's unique balanced square wave programmer system** provides balanced impact across the product and table. Uniform placement of impact cylinders on the low profile high strength base, provides the greatest possible impact uniformity.
- **A full range of safety features** including brakes that engage if power is lost or communications with the remote control are interrupted; a safety horn that sounds before equipment movement; a 24 volt output for an additional safety device such as a warning light; dual emergency stop buttons for mounting on or near the machine and at the operator's station; an additional emergency stop input such as options below, or an additional stop button
- **Universal integration** with a wide array of data acquisition systems allows the user to select a preferred system or use L.A. B's.
- **Detailed and intuitively designed manuals and documentation** include concise details on installation, safety, and maintenance. This makes **AutoShock-II™** simple to configure.

Optional Features:

- **Automated, high speed data acquisition and analysis systems** to meet your precise requirements, to capture all necessary shock test data; and to produce damage boundary curves (DBC), shock response spectrums(SRS), FFT, and many other types of data analysis
- **Expanded shock carriages** (see the configurations chart for dimensions)
- **High performance magnesium table** for low noise and highest possible resolution
- **Safety interlock system** with pressure sensitive emergency stop mats to prevent table drops if the perimeter is intruded upon; 24 volt warning lights
- **Acceleration kit** for performing shock pulses requiring velocities greater than achievable with a free fall test (see chart on next page)
- **Elastomer half sine kit** for performing a wide range of long duration half sine pulses of up to 50 ms with acceleration up to 300 g's; one kit is required for each dual waveform programmer
- **Low impulse kit**, required for performing shock tests with a velocity change less than 1.5 m/s (5 feet/sec.)
- **Dual mass shock amplifiers** for testing relatively small specimens at very short duration and high acceleration; the amplifier is a precision auxiliary shock table that is bolted to the top of the primary shock table. The 89 X 89 mm (3.5" X 3.5") model is for g pulses up to several thousand g's with durations of .1 to 1 ms. The 305 X 305 mm (12" X 12") model is for performing high g pulses with durations of .2 to 1 ms. An elastomer half sine kit is required for the primary shock table.
- **Lead mold for making pellets for saw-tooth pulses**; the pellets are crushed in testing, but are recyclable
- **Electric furnace** for melting lead for saw-tooth pulse pellets
- **Voltage adaptation** to meet local requirements
- **CE Certification** and marking available
- **Installation support and application training**

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Standard AutoShock-II™ Configurations:

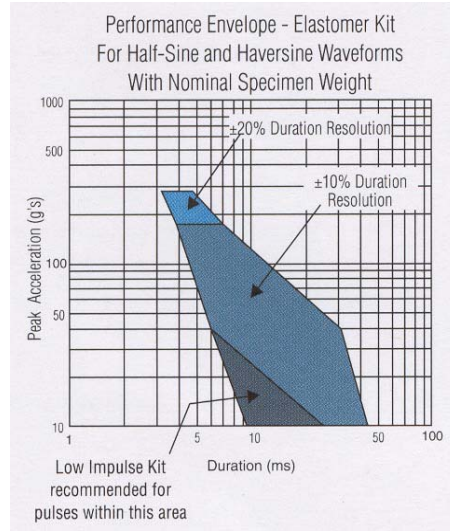
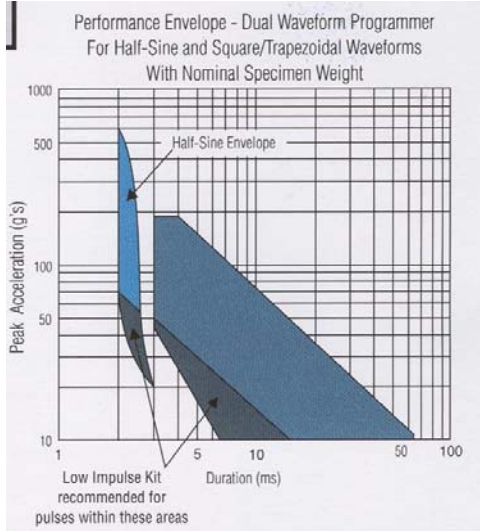
	AS-II 24x32	AS-II 36	AS-II 36x42	AS-II 48	AS-II 48x60	AS-II 60
Table Size	61 cm x 81 cm (24" x 32")	91 cm x 91 cm (36" x 36")	91 x 107 cm (36" x 42")	122 x 122 cm (48" x 48")	122 x 152 cm (48" x 60")	152 x 152 cm (60" x 60")
Seismic Base Weight	1,700 kg (3,800 lbs)	2,300 kg (5,000 lbs)	4,050 kg (8,929 lbs)	5,800 kg (12,850 lbs)	7,000 kg (1,543 lbs)	8,200 kg (18,000 lbs)
Nominal Specimen Weight	90 kg (200 lbs)	140 kg (300 lbs)	205 kg (452 lbs)	270 kg (600 lbs)	335 kg (739 lbs)	400 kg (900 lbs)
Maximum Specimen Weight	600 kg (1,300 lbs)	600 kg (1,300 lbs)	600 kg (1,300 lbs)	900 kg (2,000 lbs)	900 kg (2,000 lbs)	900 kg (2,000 lbs)
Machine Weight	2,300 kg (5,150 lbs)	3,200 kg (7,065 lbs)	4,500 kg (9,921 lbs)	5,800 kg (12,685 lbs)	7,100 kg (15,653 lbs)	8,400 kg (18,425 lbs)
Machine Dimensions	1.22 m x .86 m x 2.75 m (48" x 34" x 108")	1.63 m x 1.07 m x 2.75 m (64" x 42" x 108")	1.63 m x 1.22 m x 2.75 m (64" x 48" x 108")	1.93 m x 1.63 m x 2.80 m (76" x 64" x 110")	1.93 m x 1.63 m x 2.85 m (90" x 64" x 112")	2.30 m x 1.63 m x 2.85 m (90" x 64" x 112")

Standard Performance Specifications:

	AS-II 24x32	AS-II 36	AS-II 36x42	AS-II 48	AS-II 48x60	AS-II 60
Pulse Duration	1.0 ms – 65 ms	2.0 ms – 65 ms	3.0 ms – 65 ms	3.0 ms – 65 ms	3.0 ms – 65 ms	3.0 ms – 65 ms
Max. Free Fall Velocity Change: Half-sine, Trapezoidal, Squarewave	7.3 m/s (24 ft/s)	7.0 m/s (23 ft/s)	7.0 m/s (23 ft/s)	7.0 m/s (23 ft/s)	7.0 m/s (23 ft/s)	7.0 m/s (23 ft/s)
Max. Accelerated Fall Velocity Change: Half-sine, Trapezoidal, Squarewave	12.2 m/s (40 ft/s)	11.6 m/s (38 ft/s)	11.6 m/s (38 ft/s)	11.6 m/s (38 ft/s)	11.6 m/s (38 ft/s)	11.3 m/s (37 ft/s)
Max. Acceleration	600 g	600 g	600 g	600 g	600 g	500 g
Utility Requirements:	Single-phase and 3-phase electric power, 80 – 100 psi air utility, and a 2200 psi nitrogen supply					

Notes: Due to constant product improvement, specifications may be modified without notice. All L. A. B. products are precision manufactured in the USA, using the finest available materials.

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Shock Drop Calculator

Input Parameters

Specimen Weight lb.

Fixture Weight lb.

Wave Form

Velocity Option: Free Fall Low Velocity Fall Accelerated Fall

Acceleration G

Duration msec.

Change in Velocity in./sec.

Calculated Values

Drop Height in.

Low Velocity Cylinder Pressure psi

Square Wave Cylinder Pressure psi

