

### Typical System Application

The Shock and Bump (SB) series machines are used to evaluate design through realistic testing of components, circuits, hybrids, and complete assemblies. Five (5) standard models are available with additional customized machines to meet special requirements.

All models are pneumatically powered for accurate, repeatable laboratory and production impact testing. Pulse generators permit half sine, sawtooth, and square wave pulse shapes which meet military and industrial specifications, or individual test requirements. Generated waveforms comply with typical military specifications, including ISO, MILSTD-810 and customized methods.

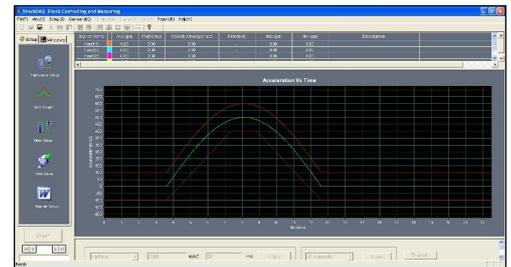
These Shock machines are used for commercial and military applications, testing a wide variety of products from disk drives to wristwatches, spark plugs to automotive sensors.



SB700-1000 (Two Cylinders)  
SB1200 (Four Cylinders)



SB400-600 (One Cylinder)



Half Sine Waveform

### Features

- DUT mounting table  
Made from light weight Aircraft Aluminum with high strength and uniformity anwith 4 guide rods for excellent stability.
- High precision guide  
Chromium plated high precision guide rod and sliding bearing assemblies ensure long life.
- Second shock brake  
Reliable Hydraulic-friction brake prevents undesired second shock.
- Mounting Table Drive System  
The high frequency and velocity air cylinder with pilot actuated valve ensures a short shock distance with the same shock terminal velocity which is generated by a 1.5 meters free drop shock machine. A precision software controlled displacement transducer ensures repeatable drop height.
- Shock absorption base  
Configured with two-way damping and large air bags reduces the shock force transferred to the floor thus removing a dedicated seismic base requirement.
- Waveform Generators  
Permit Half Sine, Trapezoid and Sawtooth wave generation.
- Automatic Shock control  
Shock Testing is controlled by the ASK01 touch screen controller and a MIS02 control and measurement system. Refer to respective data sheets for further information.
- Optional Features  
Higher bump frequency and shock energy are available on the SB shock machine.



**Specification Table**

Specification		SB 400	SB 500	SB 600	SB 700	SB 800	SB -1000	SB -1200	
<b>Parameters for Shock Testing</b>									
Table Size (mm X mm)		400	500	600	700	800	1000	1200	
Table mass (kg)		70	115	165	205	290	470	645	
Standard Payload (kg)		50	100	200	300	500	600	800	
Shock level	g	10-1500	10-1500	10-900	10-600	10-500	10-350	10-300	
	Half Sine*								
	Trapezoid								15-100
Pulse Duration (ms)		15-100			15-100				
Shock Distance (mm)	Half Sine	0.8-60	1-60	1.2-60	2-60	3-60	3.5-60	4-60	
	Trapezoid	6-25							
	Sawtooth	6-20							
Max Velocity Changing without Load (m/s)		0-520			0-550				
Max Velocity Changing with Standard Load (m/s)		12	11.8	9.2	8.6	8.2	7.8	7.6	
Continue Shocks per minute with or without load at max velocity change		8.8	8.6	6.7	6.3	5.9	5.6	5.5	
		4							
<b>Parameters for Bump Testing</b>									
Wave Form		Half Sine							
Accelerometer (g)		4-200	3-150	3-120	3-100	4-80	5-80	5-60	
Pulse Duration (ms)		1.5-30	2-30	3-30		4-30	5-30	5-30	
Shock Distance (mm)		0-200							
Bumps per minute without load		1-110		1-100		1-80	1-70	1-60	
Bumps per minute with Standard Load		1-90		1-80		1-60			
Max Velocity Changing without Load (m/s)		3.8	3.8	3.6	3.2	3	2.6	2.4	
Max Velocity Changing with Standard Load (m/s)		3.2	3.2	3.1	2.7	2.5	2.1	1.9	
<b>Physical Size and Weight</b>									
Machine Weight (kg)		2300	2500	3500	4000	4500	7000	12500	
Machine Size LXD <sub>H</sub> (mm)		740X730X 1120	740X730X 1120	800X840X 1200	1340X950 X1090	1400X1100 X1150	1650X1300 X1250	1740X1380 X1270	
<b>Environment</b>									
Compressed Air Pressure (kg/cm <sup>2</sup> )		7-8							
Compressed Air Flow for Shock Only (m <sup>3</sup> /minute)		0.8			1.6			2.0	
Compressed Air Flow for Bump (m <sup>3</sup> /minute)		1.6	2.0		3.2		4.0		
Compress Air Tank required for Bump		no	no	no	(A 3m <sup>3</sup> air tank is required.)				
Power consumption (kVA)	Machine	2	2	2	2	2	2	2	
	Compressor	11	15	15	22	22	30	30	
Temperature Range		0°C-40°C							
Humidity		≤90% (25°C) non-condensing							
<b>ASK01 Pneumatic Shock Controller and MIS02 Measurement System</b>									
ASK01 + MIS02		Shock and Bump control, Measurement and test report formation							
<b>Compliant Standard</b>									
GB/T2423.5, GB/T2423.6, IEC60068-2-27, IEC60068-2-29, JIG497-2000, GJB360 and GJB150.18 (equivalent to MILSTD-810).									

**Notes:**

- 1. If the Bump velocity change is larger than 2m/s, the Cycles per minute may be less than the specification noted in table above.**
- 2. In Bump mode, if the velocity change is less than 0.65m/s, a Mechanical Limitation Device (MLD) is required to keep bump reliability and/or repeatability.**
- 3. The max g level in Shock mode is based without a load. The max g level with a load, or increasing the weight of the load will reduce the max g level. This is due to the limitation of the Max Velocity.**
- 4. If the Velocity Change is less than 0.3m/s, in Shock and Bump mode, the reliability and/or stability of repeatability will lessen.**

\* The minimum g level can extend to 5g if the lateral acceleration (normal 3g which is caused by machine body swing on the isolation air bags and dampers) can be ignored.

*All the features make the SB a reliable and affordable system for your applications.*

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