

Cube™



The CUBE™ simulates real-world vibration with complete, simultaneous control of the amplitude and phase of all 6 Degrees of Freedom. Offering simultaneous or sequential excitation of test articles in Sine, Random and Time Wave Form Replication, the CUBE™ sets the standard for multi-axis vibration testing.



Transportation canister testing with dual CUBEs



CUBE with head expander

Features

- Available in force ratings of 3,000 to 14,000 lbf. in each axis
- Six patented Integrated Shakers provide precise, simultaneous or sequential control of all 6 Degrees of Freedom to beyond 500 Hz (Model 4)
- Excellent replication of measured data to higher frequencies than ever before (Model 4)
- Fluid film bearings assure long life and low maintenance
- Small footprint allows more systems to be put into the lab
- Available Head Expanders increase the mounting surface according to your test article requirements
- 5 active mounting surfaces allow simultaneous unit testing

Applications

- Replication of recorded motions
- Squeak and rattle testing of seats, instrument panels, and other interior components
- Durability and suspension testing
- Simulation of engine block motion for engine mounted components and exhaust systems
- Tire or spindle coupled four post road simulation with simultaneous vertical, lateral and longitudinal loading as well as application of braking and steering torques
- Multi-axis screening of electronic components and modules
- Military under wing component testing
- Transportation canister testing (dual Cubes)

Specifications

Force Ratings	Per Actuator	Per Axis
Peak Sine Force	7,000 lbf (31 kNf)	14,000 lbf (62 kNf)
RMS Random Force	3,500 lbf (42 kN) rms	7,000 lbf (31 kN) rms
Head Expanders	Dimensions	Mass
CEH – 60 Square	60 x 60 x 6 in tall 152.4 x 152.4 x 15.2 cm tall	525 lbs (240 kg)
CEH – 66 Hex	66 x 66 hexagonal x 7.25 in tall 167.6 x 167.6 hexagonal x 18.4 cm tall	585 lbs (266 kg)
Hydraulic Power Required		
Hydraulic Power	70 gpm (270 lpm) @ 3000 PSI	
Electrical Power	125 hp equivalent	
Cooling Water	41 gpm (158 lpm) < 80° F (26° C)	
Thermal Protection		
Standard	24.8° F to 149° F (-4° C to 65° C)	
With Thermal Barriers	-40° F to 249° F (-40° C to 121° C)	
Heat Load Into a Thermal Chamber		
At -40° F (-40° C)	5.9 kW	
At 249° F (121° C)	-3.5 kW	



System (DV: Dual Valve / LS: Long Stroke)	2-DV	2-DV-LS	3	3-LS	4
Top Mounting Surface	32 in x 32 in 0.81 m x 0.81 m	32 in x 32 in 0.81 m x 0.81 m	32 in x 32 in 0.81 m x 0.81 m	32 in x 32 in 0.81 m x 0.81 m	32 in x 32 in 0.81 m x 0.81 m
Side Mounting Surface	32 in x 20 in 0.81 m x 0.51 m	32 in x 24 in 0.81 m x 0.61 m	32 in x 20 in 0.81 m x 0.51 m	32 in x 24 in 0.81 m x 0.61 m	32 in x 20 in 0.81 m x 0.51 m
Table Mass	1200 lbs 544 kg	1430 lbs 648 kg	1200 lbs 544 kg	1430 lbs 648 kg	1120 lbs 508 kg
Table First Mode Frequency	300 Hz	300 Hz	300 Hz	300 Hz	450 Hz
Operational Frequency Range					
Test Frequency Bandwidth	0-250 Hz	0-250 Hz	0-250 Hz	0-250 Hz	0-500 Hz
Peak Sine Acceleration rolls off above	130 Hz	100 Hz	250 Hz	250 Hz	450 Hz
Translation Performance Vertical					
Displacement - P-P Dynamic	1.8 in 46 mm	3.8 in 97 mm	1.8 in 46 mm	3.8 in 97 mm	1.8 in 46 mm
Velocity - Peak	30 ips 0.76 m/sec	30 ips 0.76 m/sec	38 ips 0.97 m/sec	38 ips 0.97 m/sec	38 ips 0.97 m/sec
Translation Performance Lateral					
Displacement - P-P Dynamic	1.8 in 46 mm				
Velocity - Peak	30 ips 0.76 m/sec	30 ips 0.76 m/sec	38 ips 0.97 m/sec	38 ips 0.97 m/sec	38 ips 0.97 m/sec
Longitudinal Displacement					
Displacement - P-P Dynamic	1.8 in 46 mm				
Velocity - Peak	30 ips 0.76 m/sec	30 ips 0.76 m/sec	38 ips 0.97 m/sec	38 ips 0.97 m/sec	38 ips 0.97 m/sec
Rotational Performance					
Roll Displacement	+/-6 degrees	+/-4 degrees	+/-6 degrees	+/-4 degrees	+/-6 degrees
Pitch Displacement	+/-6 degrees	+/-4 degrees	+/-6 degrees	+/-4 degrees	+/-6 degrees
Yaw Displacement	+/-6 degrees	+/-4 degrees	+/-6 degrees	+/-4 degrees	+/-6 degrees



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