



Electro Dynamic Vibration Shaker (ES-6)

With Vertical Bench VT0606+ Horizontal LT0606

Technical Specification

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1 Application

Electro Dynamic Vibration Shaker adopted the 'double-magnetic circuit structure','self-generated skeleton action circles', 'Airborne Support' and 'roller bearings and linear guidance','trunnion isolation' advanced modern technology and special technology, can be completed in X, Y, Z three-axis sinusoidal vibration test and broadband random vibration tests, to be completed by the classical (half - sine, trapezoidal, sawtooth wave) pulse and shock response spectrum test. It widely used in national defense, weapons, aviation, aerospace, communications, electronics, electrical appliances, communications, home appliances and other fields.

2 Vibration System(ES-6)

2-1 Technical parameters

- (1) Rated Force: sine force 6000N; random force 6000N; shock force 6000N;
- (2) Frequency Range: 5 Hz to 3500Hz, Fixed frequency, sweep back and forth, sine, random, shock
- (3)Sweep-frequency Mode: linear, logarithmic, sweep back and forth, fixed frequency
- (4)Sweep-frequency Times: 1 to 32767.
- (5)Sweep-frequency Time: fixed frequency/single 1-3600mins, sweep-frequency curves can be displayed.
- (6)Max. Acceleration 1000m/s^2 (non load)
- (7)Max. Speed: 1.6m/s
- (8)Max. Displacement:25mmp-p (non load), double peak
- (9)Impact Displacement: 25mm
- (10)Weight of Moving Coil: 6.5kg
- (11)Vibration Directions: Vertical vibration
- (12)Vibration Wave: sine, random, shock
- (13)Diameter of the Moving Coil: $\Phi 230$ mm
- (14)Vibration System Dimension(mm): W826*H530*D720mm
- (15)Vibration System weight: 590kg

2-2 Vibration Components Details

- (1)Vibration Generator 1 set
- (2)Vibration Controller 1 set
- (3)Communication Connection Chamber 1 set
- (4)DA-6 Power Amplifier 1 set
- (5)Excitation Power 1 pc
- (6)Driver Software 1 set
- (7)Cooling System 1 set
- (8)Industrial Computer 1 set

- (9)Acceleration Sensor (include output line) 1 pc
- (10)Vibration Fixture 1 set (According to the test sample)
- (11)Vertical Bench Table can use the fixture directly on moving coil
- (12)Vertical Bench Table: VT-0606(Bench size: 600x600mm, max. Frequency 5~3500Hz);
Horizontal Bench Table: LT-0606(Bench size: 600x600mm, max. Frequency 5~3500Hz);

2-3 About The Vibration System

- (1) Double magnetic circuit structure to ensure high magnetic field intensity & reduce flux leakage;
Special degaussing structure can reduce flux leakage to below 1 mt
- (2) U-type spring ,rollers and linear bearing for strong resistance of deflecting load
- (3) Air spring are used for vibration isolation; Vibration system work steadily even with heavy load;
no need special foundation
- (4) Protection devices are provided for over-thermal, over-load, over-current, over-voltage, and
over-displacement of the vibration tester;
Electrical network protection devices for over-voltage, under-voltage, lacking phase;
Drive power , current-limiting , soft-start, over-temperature, short-current,module fault protecting
- (5) Can complete sine ,random , impact environmental tests
- (6) This system has little requires for voltage fluctuation, $\leq \pm 10\%$ is OK
- (7) This system has little requires for Grounding resistance, $\leq 4\Omega$ is OK
- (8) High reliability, especially suitable for long-time running

2-4 DA-6 Power Amplifier

2-4-1 Summarize:

This system adopts the sine pulse width modulation technology of digital power amplifier.Its working principle is: using the MOSFET field-effect's high frequency switch power, through digital circuit to amplify and restore the low-voltage signal which input by controller, Then the output the original signal to vibration tester's moving coil circuit,and drive vibration tester's extension table movement.

The main part of the digital power amplifier: the front control, power amplifier module, protection circuit, the power part and electric cabinet.

2-4-2.Feature:

2-4-2-1 Easy maintenance:

Interchangeable power module box, compact design, saving space, easy to maintenance.

2-4-2-2 LCD display:

Logic module adopts microcomputer CPU chip processor, LCD display function;Can be showed various system data in detail (The power amplify output True RMS value, with additional data display) and operation state and fault judgment.With remote control, remote measuring, remote communication function, friendly interface, easy operation.

2-4-2-3 Complete protection function:

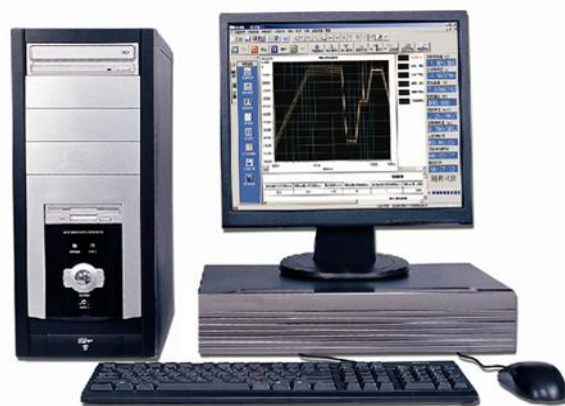
The power amplifier set up protection of power grid overvoltage, power grid undervoltage, power grid lack of phase, logic fault, power module, power temperature module,output overcurrent, output overvoltage,driving power, the table's displacement, table temperature, etc. Any failure occurs, shut down output,with sound and lighting alarm at the same time. Except the above protection, also has poor RMS value the protection, and emergency stop protection.

2-4-3 Parameters:

Dimension: W550xH1300xD720mm

2-5 Digital Vibration Controller

Vibration controller is the latest design by our company that adopts international advanced distributed system architecture, and its core is the latest TMS320 series 32-bit floating-point high-speed processor of TI company. Test report is automatically generated in Microsoft Word. During or after the testing, the test report can be edited, and then generated automatically or manually.



2-5-1 Hardware Specification

2-5-1-1 Input:

- (1)1 channels
- (2)Resolution : 24-bit analog-to-digital conversion (ADC)
- (3)Input impedance : 220 k Ω
- (4) Built-in charge amplifier and ICP constant-current source, the voltage & ICP acceleration sensor can be directly connected
- (5)Signal to noise ratio: >100dB

2-5-1-2 Output:

- (1)1 channel
- (2) Resolution : 16-bit digital-to-analog conversion (DAC)
- (3)Amplitude accuracy: 2mV
- (4) Output impedance : 30 Ω

2-5-2 Controlling Software Specification

2-5-2-1 Sinusoidal performance index

- (1)Control Mode : sinusoidal waveform controlling
- (2) Frequency Range: 1.0 to 5000hz (1.0 to 12000hz is optional)
- (3)Control Dynamic Range : 100dB
- (4)Closed-Loop Time: 10ms

(5)Control Accuracy: $\pm 1\text{dB}$

(6) Frequency Resolution: 0.01%

(7) Sweep Velocity: linear sweep 0 to 6000hz/s; logarithmic sweep 0 ~ 100 Oct/min

(8)Wave Distortion: $<0.3\%$

2-5-2-2 Random Wave

(1)Control Mode : PSD

(2)Frequency Range: DC to 4800Hz,(DC to 11000Hz is optional)

(3)Resolution: Max.1600 lines

(4)Control Dynamic Range : 90dB

(5)Closed-Loop Time: typically 100ms

(6)Control Accuracy: $\pm 1\text{dB}$

2-5-2-3 Shock Wave

(1)Control Mode : waveform can be controlled

(2)Shock Mode: half-sine wave

(3)Frequency Range: DCto22000Hz

(4)Frame: Max.32K

(5)Duration Time : 0.5-3000ms

(6)Compensation Mode: pre-pulse, after-pulse, pre/after-pulse

2-6 Technical Parameter Of Fan

(1) Power: 0.75kw

(2) Flow: 0.1 m³/s

(3) Wind Pressure: 1.0 kpa

(3)Dimension: W620*H1125*D705

3 Power

AC380V 50/60Hz 3 ϕ 5 Lines;

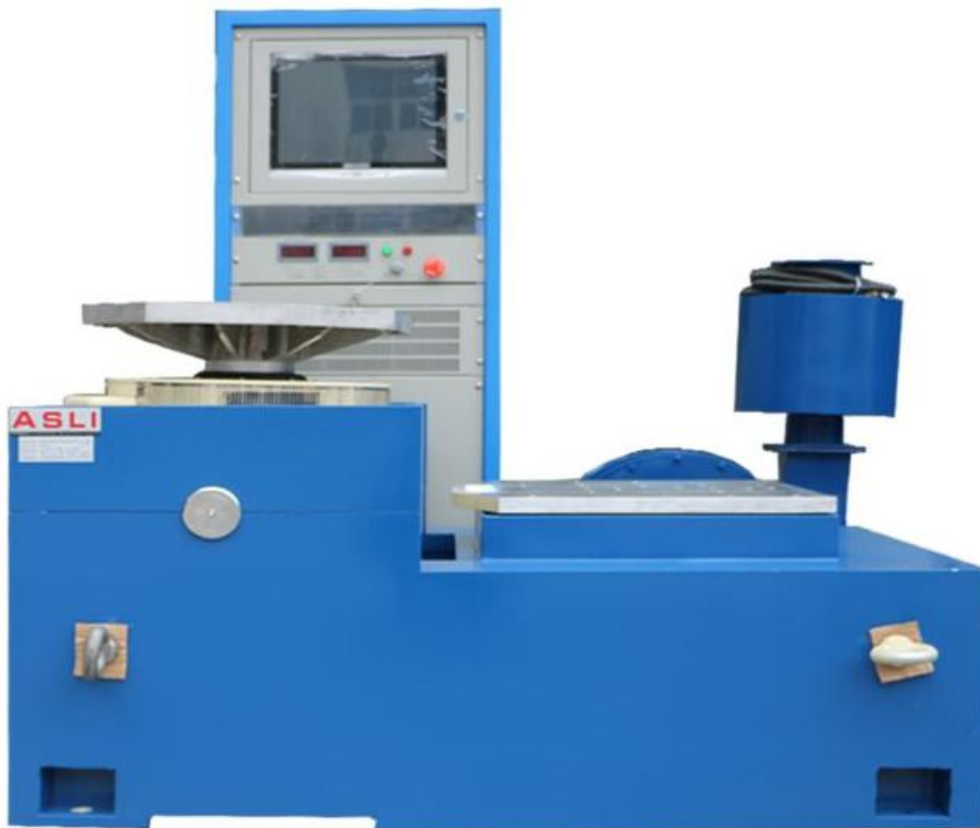
4 Install Requirement

(1)Users should prepare forklifts & shifting tools for moving the equipment as it is very heavy, also please be sure the door is big enough to let in the equipment

(2)The operating environment of the machine should be under room temperature and with good ventilation.

We strongly suggest to install air conditioner in the working area. The space distance of the machine's left/right/back side must be Min. 700mm, the front must be Min. 1500mm.

5 Picture for Reference:





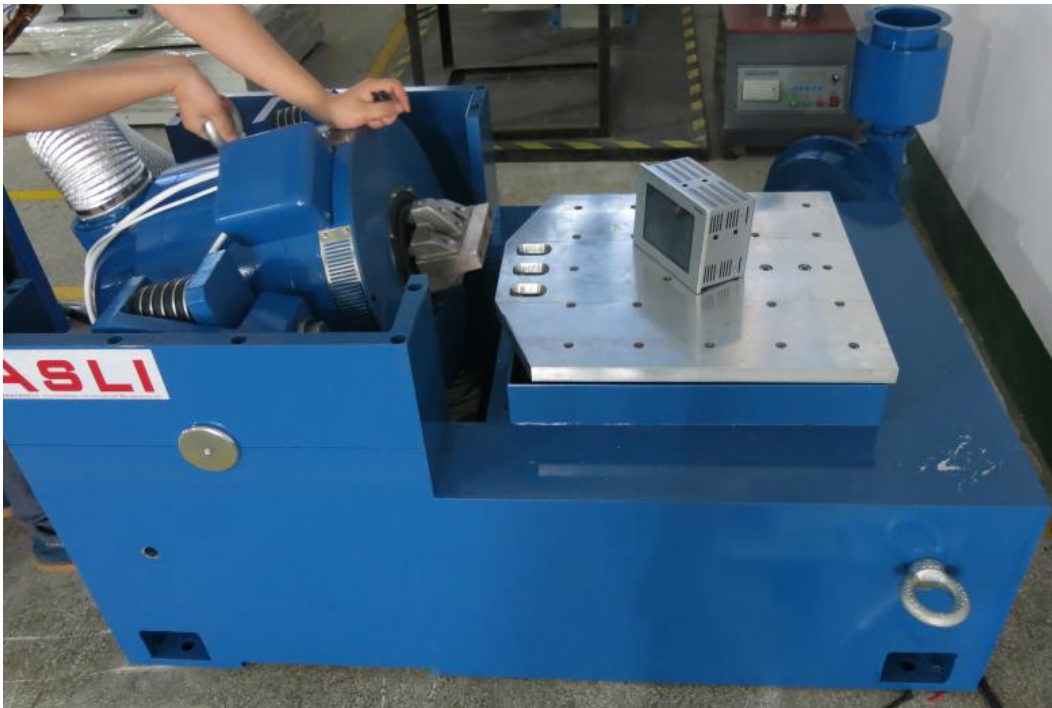
(ASLi Vibration tester in customer's Lab.)



(Customer training in ASLi factory)



(Whole Set Vibration Shaker : Vertical +Horizontal)



(Connect Vertical Bench to Horizontal Bench)

Packing Detail:



Engineer Training In Customer's Factory:

