

SD-2420-235M/SPA103/ACU402

Typical System Application

The **Model SD-2420-235M** Series Vibration test system is a versatile wide bandwidth electro-dynamics vibration test system. It is designed to test from small to medium sized payloads, and its design features meet the testing requirements of the automotive, aviation, military, medical and electronic manufacturing industries.

The model is capable of a Random RMS force of 2,420 lbf and Sine Vector Force rating of 2,420 lbf in the frequency of 5 Hz to 3,000 Hz under controlled conditions. The system consists of a model SD-2420-235M shaker and is driven by the Model SPA103 power amplifier and a 4 KW cooling blower.

Unique Armature Design

The unique reinforced armature structure design is state-of-the-art, providing increased reliability and unsurpassed performance. The armature structure has been re-designed to optimize its rigidity and force transmissibility. Designed for continuous duty and ideal for research and development, production, stress screening and qualification testing, the ruggedized armatures can endure severe vibration and shock forces as well as extreme temperature conditions. The premier magnesium construction adds strength yet is more light weight.

How to select the suitable model

It is critical to consider the size and position of the test article and the total moving mass of the payload as well as the payload's inertial and overturning moments when selecting a system for your application. It is recommended the force selected should be 1.2 times the theoretical value, to insure appropriate safety margins. For assistance selecting the best system for your needs, please contact our sales representative.

High FRF & Wide UF

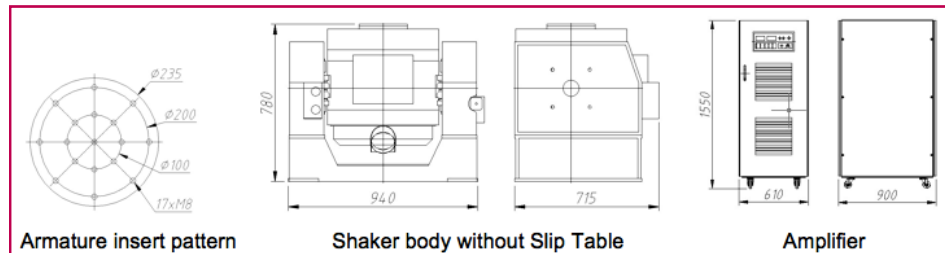
The new shaker design significantly raises the Fundamental Resonance Frequency and Useable Frequency of the shaker systems.

Efficient Air Cooling

The SD-2420-235M shaker system is totally air cooled for easy installation and economical operation.

Air-Isolated Rotating Trunnion

All shakers have a standard rotating trunnion for easy 90° rotation between the horizontal and vertical test axes. A user friendly labor-saving worm wheel is designed for this rotation. Trunnion is pneumatically isolated providing high stability and allows for direct mounting onto



SYSTEM OPTIONS

- Slip Table Configuration
- V-Groove Caster and Rail System
- Table Inserts
- Head Expander
- Thermal Barrier
- Load Support Air Compensator
- Air Caster
- Pneumatic Centering Controller, PCC-1



conventional industrial concrete floors. All shakers are optionally available with an integrated or stand-alone slip table assembly.

D-Class Switching Amplifier

The state-of-art modular switching amplifiers are 100% air-cooled with redundant safety systems and system interlocks insuring performance that is reliable and stable. All amplifiers adopt IGBT power modules of high quality.

Safety

Products comply with European tests standards and ISO regulations.

TECHNICAL SPECIFICATIONS

Shaker SD-2420-235M			
Sine (Pk)	1,100 kgf (2,420 lbf)	Armature Effective Nominal Weight	11 kg (24.2 lbs)
Random (RMS)	1,100 kgf (2,420 lbf)	Vertical Load Support	300 kg (660 lbs)
Shock (Pk)	2,200 kgf (4,840 lbf)	Table Diameter	235 mm (9.3")
Usable Frequency	5 to 3,000 Hz	Load Attachment Points (Standard)	17 Stainless Steel Inserts of M8 (5/16 UNC option)
Max. Displacement (p-p)	51mm (2")	Degauss coil	Standard
Maximum Velocity	2 m/s (78.7 in/s)	Stray Flux Density @6 inch (152mm) above table	< 1 mT (10 gauss)
Maximum Acceleration	100 g	Overall Dimensions	940mmL x 715mmD x 780mmH (37"L x 28.1"D x 30.7"H)
Fundamental Resonance Frequency (Bare Table)	2,500 Hz (nom.) +/- 5%	Weight of Shaker (Uncrated)	1,000 kg (2,200 lbs)
Body Suspension Natural Frequency (Thrust Axis)	Less than 3 Hz	Compressed Air Requirement	0.69 Mpa (100 psi)

System Environmental Requirement		Blower	ACU402	Power Amplifier	SPA103
Operating Room Temperature	0 to 40 degree C	Blower Power (Full Load)	4 kW (5 HP)	Rated Output Capacity	10 kVA
Humidity	0 to 85%, non condensing	Air Flow Rate	0.33 m ³ /s (700 CFM)	Signal to Noise Ratio	Greater than 65 dB
System Continuous Duty	Not less than 7 hours at the full ratings	Air Pressure	0.0035 Mpa (0.51 PSI)	Amplifier Efficiency	Greater than 90%
Amplifier Power Requirement, including blower motor	380/415/480 VAC, 50 Hz, 3 Ph, 22 kVA (60 Hz as an option)			Interlock Protection (to prevent the output devices from working outside their specified limits)	<ul style="list-style-type: none"> • Input Over/under voltage • Logic fault • Output Over Voltage/ Current • Control power • Shaker Oil pressure • Module O/T • Door Interlock • Shaker Temp

NOTE: Standard vibration systems consist of an electro-dynamic exciter, a state-of-the-art air-cooled switching power amplifier with field power supply and cooling unit. Optional items including slip tables, head expanders, accelerometers and vibration controller can be added upon request.

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