

VIBRATION SYSTEM

ELECTRODYNAMIC VIBRATION TEST SYSTEMS

SEV 440 Series Shaker

- > SEV 440 - DSA 42K
- > SEV 440 - DSA 48K
- > SEV 440 - DSA 56K
- > SEV 440 - DSA 62K

The most critical tests in automotive and avionics are successfully carried out by this series of shakers. The customers' continuous duty test is the most unique feature in this category.

The mirror-imaged magnetic structure provides concentrated electromagnetic flux in the force generating area keeping the stray magnetic field at the minimum. The self-lubricated linear bearing system ideally guides the motion in the thrust axis.

The shaker armature is made of a magnesium alloy with a webbed structure to take care of force transmission. The armature is a wound coil of non-circular cross-section magnetic grade oxygen-free conductor capable to withstand high temperatures.

The shaker's electromagnet is energized by a solid-state field power supply interlocked electronically to the amplifier console and is placed within the console for saving space.

A unique, automatic pneumatic operated load compensation system employs latest micro-electronics & optical sensors built into the shaker which helps in realising nominal displacement at all payloads.

Exemplary safety interlocks ensure system safety, which are logged on to the most user-friendly microcontroller based intelligent logic unit to communicate the system status and operation.

Coupled with slip table, expander and controller, the system becomes most versatile for the TEST.



Saraswati Dynamics

SYSTEM APPLICATIONS

- AUTOMOTIVE COMPONENT TESTING
- ELECTRONIC ASSEMBLY TESTING
- STRESS SCREENING
- SINE, RANDOM & SHOCK TESTING
- DEFENCE
- AVIONIC TESTING
- TELECOMMUNICATION EQUIPMENTS
- CONSUMER ELECTRONICS

VIBRATION SYSTEM

Technical Performance Parameters

Model

Model SEV 440 / DSA 42K

SEV 440 series Shaker	Metric	American
Armature Diameter	440 mm	17.32 Inch
Sine force peak	3600 Kgf	7920 lbf
Random force rms*	3600 Kgf	7920 lbf
Shock force	7200 Kgf	15840 lbf
Bare table Acceleration	735 mt/s ²	75 'g'
Velocity	1.8 mt/s	5.92 ft/s
Displacement (p-p)	51 mm/ 76 mm	2 inch/ 3 inch
Effective mass of Armature	48 Kg	105.6 lb
Armature Resonance (±5%)	2.1 KHz	2.1 KHz
Useful frequency range	2.4 KHz	2.4 KHz
Suspension axial stiffness	8 Kg / mm	448 lb / in
Suspension Cross-axial stiffness	400 Kg / mm	22400 lb / in
Body Suspension resonance	< 5 Hz	< 5 Hz
Cooling air flow rate	51 M ³ /mt	1800 CFM
Stray Magnetic Field **	< 1 mT	< 10 gauss
Pneumatic Pay Load Capacity	600 Kg	1320 lb
Working ambient temperature range	0 – 45°C	32° – 113°F
Shaker dimensions (L x W x H)	1605 x 985 x 1245 (mm)	63.2 x 38.7 x 49 (Inch)

DSA series Amplifier	
Rated Output Voltage	140 V
Rated Output Current (Sine & Random)	300 A
Input Impedance	10 KΩ
Input Sensitivity	4 V rms
Module Efficiency	> 90 %
Signal to Noise Ratio	> 70 dB
Total Harmonic Distortion	0.5%
Working Ambient Temperature Range	5-45°C
Overall dimensions W x D x H (mm)	1205 x 800 x 1955

System Utilities & Safety

Power Requirement (3 Phase + N + E)	55 KVA
Pneumatic Supply Requirement	6 Bar/87 PSI for Shaker's internal load support (ILS) and Air suspension of the body.
Protection Interlocks	Main Input Over & Under Voltage, Over Current, Loss of Input Phase, Module Disable, Over Temperature Amplifier & Shaker, Cooling, Field fail and user safety interlock
Safety Norms	Comply with International Safety requirements for CE

* Force with payload equal to or greater than twice the armature mass.

** At 150 mm above armature with full field power (optional).

- The formal quotations reflect latest specifications and supersedes this printed pdf sheet/ catalogue.
- Head Expander or Load Support Platform and Combo base Horizontal Slip Table can be integrated if required for testing voluminous specimens.
- Armature top contains 17 nos. SS inserts. 01 at centre, 08 at 200mm PCD and 08 at 400 mm PCD



Saraswati Dynamics

VIBRATION SYSTEM

Technical Performance Parameters

Model

Model SEV 440 / DSA 48K

SEV 440 series Shaker	Metric	American
Armature Diameter	440 mm	17.32 Inch
Sine force peak	4200 Kgf	9240 lbf
Random force rms*	4200 Kgf	9240 lbf
Shock force	8400 Kgf	18480 lbf
Bare table Acceleration	882 mt/s ²	90 'g'
Velocity	1.8 mt/s	5.92 ft/s
Displacement (p-p)	51 mm/ 76 mm	2 inch/ 3 inch
Effective mass of Armature	48 Kg	105.6 lb
Armature Resonance (±5%)	2.1 KHz	2.1 KHz
Useful frequency range	2.4 KHz	2.4 KHz
Suspension axial stiffness	15 Kg / mm	840 lb / in
Suspension Cross-axial stiffness	500 Kg / mm	28000 lb / in
Body Suspension resonance	< 5 Hz	< 5 Hz
Cooling air flow rate	56.63 M ³ /mt	2000 CFM
Stray Magnetic Field **	< 1 mT	< 10 gauss
Pneumatic Pay Load Capacity	600 Kg	1320 lb
Working ambient temperature range	0 – 45°C	32° – 113°F
Shaker dimensions (L x W x H)	1605 x 985 x 1245 (mm)	63.2 x 38.7 x 49 (Inch)

DSA series Amplifier

Rated Output Voltage	140 V
Rated Output Current (Sine & Random)	350 A
Input Impedance	10 KΩ
Input Sensitivity	4 V rms
Module Efficiency	> 90 %
Signal to Noise Ratio	> 70 dB
Total Harmonic Distortion	0.5%
Working Ambient Temperature Range	5-45°C
Overall dimensions W x D x H (mm)	1205 x 800 x 1955

System Utilities & Safety

Power Requirement (3 Phase + N + E)	65 KVA
Pneumatic Supply Requirement	6 Bar/87 PSI for Shaker's internal load support (ILS) and Air suspension of the body.
Protection Interlocks	Main Input Over & Under Voltage, Over Current, Loss of Input Phase, Module Disable, Over Temperature Amplifier & Shaker, Cooling, Field fail and user safety interlock
Safety Norms	Comply with International Safety requirements for CE

* Force with payload equal to or greater than twice the armature mass.

** At 150 mm above armature with full field power (optional).

- The formal quotations reflect latest specifications and supersedes this printed pdf sheet/ catalogue.
- Head Expander or Load Support Platform and Combo base Horizontal Slip Table can be integrated if required for testing voluminous specimens.
- Armature top contains 17 nos. SS inserts. 01 at centre, 08 at 200mm PCD and 08 at 400 mm PCD



Saraswati Dynamics

VIBRATION SYSTEM

Technical Performance Parameters

Model

Model SEV 440 / DSA 56K

SEV 440 series Shaker	Metric	American
Armature Diameter	440 mm	17.32 Inch
Sine force peak	4800 Kgf	10560 lbf
Random force rms*	4800 Kgf	10560 lbf
Shock force	9600 Kgf	21120 lbf
Bare table Acceleration	1030 mt/s ²	105 'g'
Velocity	1.8 mt/s	5.92 ft/s
Displacement (p-p)	51 mm/ 76 mm	2 inch/ 3 inch
Effective mass of Armature	48 Kg	105.6 lb
Armature Resonance (±5%)	2.1 KHz	2.1 KHz
Useful frequency range	2.4 KHz	2.4 KHz
Suspension axial stiffness	15 Kg / mm	840 lb / in
Suspension Cross-axial stiffness	500 Kg / mm	28000 lb / in
Body Suspension resonance	< 5 Hz	< 5 Hz
Cooling air flow rate	85 M ³ / mt	3000 CFM
Stray Magnetic Field **	< 1 mT	< 10 gauss
Pneumatic Pay Load Capacity	600 Kg	1320 lb
Working ambient temperature range	0 – 45°C	32° – 113°F
Shaker dimensions (L x W x H)	1605 x 985 x 1245 (mm)	63.2 x 38.7 x 49 (Inch)

DSA series Amplifier	
Rated Output Voltage	140 V
Rated Output Current (Sine & Random)	400 A
Input Impedance	10 KΩ
Input Sensitivity	4 V rms
Module Efficiency	> 92 %
Signal to Noise Ratio	> 70 dB
Total Harmonic Distortion	0.5%
Working Ambient Temperature Range	5-45°C
Overall dimensions W x D x H (mm)	1205 x 800 x 1955

System Utilities & Safety

Power Requirement (3 Phase + N + E)	76 KVA
Pneumatic Supply Requirement	6 Bar/87 PSI for Shaker's internal load support (ILS) and Air suspension of the body.
Protection Interlocks	Main Input Over & Under Voltage, Over Current, Loss of Input Phase, Module Disable, Over Temperature Amplifier & Shaker, Cooling, Field fail and user safety interlock
Safety Norms	Comply with International Safety requirements for CE

* Force with payload equal to or greater than twice the armature mass.

** At 150 mm above armature with full field power (optional).

- The formal quotations reflect latest specifications and supersedes this printed pdf sheet/ catalogue.
- Head Expander or Load Support Platform and Combo base Horizontal Slip Table can be integrated if required for testing voluminous specimens.
- Armature top contains 17 nos. SS inserts. 01 at centre, 08 at 200mm PCD and 08 at 400 mm PCD



Saraswati Dynamics

VIBRATION SYSTEM

Technical Performance Parameters

Model

Model SEV 440 / DSA 62K

SEV 440 series Shaker	Metric	American
Armature Diameter	440 mm	17.32 Inch
Sine force peak	6000 Kgf	13200 lbf
Random force rms*	6000 Kgf	13200 lbf
Shock force	12000 Kgf	26400 lbf
Bare table Acceleration	1225 mt/s ²	125 'g'
Velocity	1.8 mt/s	5.92 ft/s
Displacement (p-p)	51 mm/ 76 mm	2 inch/ 3 inch
Effective mass of Armature	48 Kg	105.6 lb
Armature Resonance (±5%)	2.1 KHz	2.1 KHz
Useful frequency range	2.4 KHz	2.4 KHz
Suspension axial stiffness	15 Kg / mm	840 lb / in
Suspension Cross-axial stiffness	500 Kg / mm	28000 lb / in
Body Suspension resonance	< 5 Hz	< 5 Hz
Cooling air flow rate	85 M ³ /mt	3000 CFM
Stray Magnetic Field **	< 1 mT	< 10 gauss
Pneumatic Pay Load Capacity	600 Kg	1320 lb
Working ambient temperature range	0 – 45°C	32° – 113°F
Shaker dimensions (L x W x H)	1605 x 985 x 1245 (mm)	63.2 x 38.7 x 49 (Inch)

DSA series Amplifier

Rated Output Voltage	150 V
Rated Output Current (Sine & Random)	450 A
Input Impedance	10 KΩ
Input Sensitivity	4 V rms
Module Efficiency	> 90 %
Signal to Noise Ratio	> 70 dB
Total Harmonic Distortion	0.5%
Working Ambient Temperature Range	5-45°C
Overall dimensions W x D x H (mm)	1205 x 800 x 1955

System Utilities & Safety

Power Requirement (3 Phase + N + E)	88 KVA
Pneumatic Supply Requirement	6 Bar/87 PSI for Shaker's internal load support (ILS) and Air suspension of the body.
Protection Interlocks	Main Input Over & Under Voltage, Over Current, Loss of Input Phase, Module Disable, Over Temperature Amplifier & Shaker, Cooling, Field fail and user safety interlock
Safety Norms	Comply with International Safety requirements for CE

* Force with payload equal to or greater than twice the armature mass.

** At 150 mm above armature with full field power (optional).

- The formal quotations reflect latest specifications and supersedes this printed pdf sheet/ catalogue.
- Head Expander or Load Support Platform and Combo base Horizontal Slip Table can be integrated if required for testing voluminous specimens.
- Armature top contains 17 nos. SS inserts. 01 at centre, 08 at 200mm PCD and 08 at 400 mm PCD



Saraswati Dynamics