

# VIBRATION SYSTEM

## ELECTRODYNAMIC VIBRATION TEST SYSTEMS

### SEV 360 Series Shaker

- > SEV 360 - DSA 24K
- > SEV 360 - DSA 36K
- > SEV 360 - DSA 40K

**T**hese range of shakers are designed for on-line production test schedules of all sectors of industry and special research-oriented tests in laboratories.

A 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 in 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 are designed for system safety, which are logged on to the most user-friendly microcontroller based intelligent logic unit to communicate system status and operation.

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



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### SYSTEM APPLICATIONS

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

# VIBRATION SYSTEM

## Technical Performance Parameters

# Model

## Model SEV 360 / DSA 24K

SEV 360 series Shaker	Metric	American
Armature Diameter	360 mm	14.17 Inch
Sine force peak	2000 Kgf	4400 lbf
Random force rms*	2000 Kgf	4400 lbf
Shock force	4000 Kgf	8800 lbf
Bare table Acceleration	657 mt/s <sup>2</sup>	67 'g'
Velocity	1.8 mt/s	5.92 ft/s
Displacement (p-p)	51 mm	2 inch
Effective mass of Armature	30 Kg	66 lb
Armature Resonance (±5%)	2.5 KHz	2.5 KHz
Useful frequency range	2.8 KHz	2.8 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	42.5 M <sup>3</sup> /mt	1500 CFM
Stray Magnetic Field **	< 1 mT	< 10 gauss
Pneumatic Pay Load Capacity	350 Kg	770 lb
Working ambient temperature range	0 – 45°C	32° – 113°F
Shaker dimensions (L x W x H)	1420 x 885 x 1165 (mm)	56 x 35 x 46 (Inch)

DSA series Amplifier	
Rated Output Voltage	100 V
Rated Output Current (Sine & Random)	190 A
Input Impedance	10 KΩ
Input Sensitivity	4 V rms
Module Efficiency	> 90 %
Signal to Noise Ratio	> 65 dB
Total Harmonic Distortion	0.5%
Working Ambient Temperature Range	5-45°C
Overall dimensions W x D x H (mm)	800 x 600 x 1955

### System Utilities & Safety

Power Requirement (3 Phase + N + E)	25 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 13 nos. SS inserts. 01 at centre, 04 at 141.4 mm PCD, 04 at 200mm PCD and 04 at 250mm PCD



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# VIBRATION SYSTEM

## Technical Performance Parameters

# Model

## Model SEV 360 / DSA 36K

SEV 360 series Shaker	Metric	American
Armature Diameter	360 mm	14.17 Inch
Sine force peak	2500 Kgf	5500 lbf
Random force rms*	2500 Kgf	5500 lbf
Shock force	5000 Kgf	11000 lbf
Bare table Acceleration	882 mt/s <sup>2</sup>	90 'g'
Velocity	1.8 mt/s	5.92 ft/s
Displacement (p-p)	51 mm	2 inch
Effective mass of Armature	31 Kg	68.2 lb
Armature Resonance (±5%)	2.5 KHz	2.5 KHz
Useful frequency range	2.8 KHz	2.8 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	42.5 M <sup>3</sup> /mt	1500 CFM
Stray Magnetic Field **	< 1 mT	< 10 gauss
Pneumatic Pay Load Capacity	350 Kg	770 lb
Working ambient temperature range	0 – 45°C	32° – 113°F
Shaker dimensions (L x W x H)	1420 x 885 x 1165 (mm)	56 x 35 x 46 (Inch)

### DSA series Amplifier

Rated Output Voltage	100 V
Rated Output Current (Sine & Random)	250 A
Input Impedance	10 KΩ
Input Sensitivity	4 V rms
Module Efficiency	> 90 %
Signal to Noise Ratio	> 65 dB
Total Harmonic Distortion	0.5%
Working Ambient Temperature Range	5-45°C
Overall dimensions W x D x H (mm)	800 x 600 x 1955

### System Utilities & Safety

Power Requirement (3 Phase + N + E)	40 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).

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- Head Expander or Load Support Platform and Combo base Horizontal Slip Table can be integrated if required for testing voluminous specimens.
- Armature top contains 13 nos. SS inserts. 01 at centre, 04 at 141.4 mm PCD, 04 at 200mm PCD and 04 at 250mm PCD



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# VIBRATION SYSTEM

## Technical Performance Parameters

# Model

## Model SEV 360 / DSA 40K

SEV 360 series Shaker	Metric	American
Armature Diameter	360 mm	14.17 Inch
Sine force peak	3200 Kgf	7040 lbf
Random force rms*	3200 Kgf	7040 lbf
Shock force	6400 Kgf	14080 lbf
Bare table Acceleration (o-p)	980 mt/s <sup>2</sup>	100 'g'
Velocity (o-p)	1.8 mt/s	5.92 ft/s
Displacement (p-p)	51 mm/ 65 mm	2 inch / 2.5 inch
Effective mass of Armature	32 Kg	70.4 lb
Armature Resonance (±5%)	2.5 KHz	2.5 KHz
Useful frequency range	2.8 KHz	2.8 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	42.5 M <sup>3</sup> /mt	1500 CFM
Stray Magnetic Field **	< 1 mT	< 10 gauss
Pneumatic Pay Load Capacity	350 Kg	770 lb
Working ambient temperature range	0 – 45°C	32 <sup>o</sup> – 113°F
Shaker dimensions (L x W x H)	1420 x 885 x 1165 (mm)	56 x 35 x 46 (Inch)

DSA series Amplifier	
Rated Output Voltage	100 V
Rated Output Current (Sine & Random)	280 A
Input Impedance	10 KΩ
Input Sensitivity	4 V rms
Module Efficiency	> 90 %
Signal to Noise Ratio	> 65 dB
Total Harmonic Distortion	0.5%
Working Ambient Temperature Range	5-45°C
Overall dimensions W x D x H (mm)	800 x 600 x 1955

### System Utilities & Safety

Power Requirement (3 Phase + N + E)	45 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.

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