PRODUCT DATA

V8-440 Shaker
Imperial

Performance Parameters*	
Armature Diameter	17.3 in
Sine Force (peak)	13000 lbf
Random Force (rms)†	14837 lbf
Maximum ½-sine Shock Force†	26607 lbf
Armature Resonance (f_n)	2.0 kHz
Usable Frequency Range	d.c. – 2.5 kHz
Mass of Moving Element – raised inserts	92.6 lb
Velocity (sine peak) – full-field	70.9 in/s
Acceleration (sine peak)	140 g
Acceleration (random rms)	100 g
Displacement (pk–pk) – continuous	2.5 in
LDS Amplifier	SPA 40–56 K

Environmental Data	
Working Ambient Temperature Range:	
Shaker and Fan	45 – 86° F
Amplifier	41 – 86° F
Acoustic Noise at 3.3 ft Distance:‡	
Shaker**	118 dBA
Amplifier	74 dBA
Fan	102 dBA
Total Heat Dissipation:	
Shaker to air (from body)	2.5 kW
Amplifier	6.4 kW
Fan	62 kW
Compressed Air Supply	100 lbf/in^2

The LDS V8-440 shaker is ideal for vibration and mechanical shock testing using sinusoidal, random or transient excitation. Systems are available in various forms to meet customers' exact requirements: mounted in an air isolation trunnion with body rotation gearbox (standard); combined with a horizontal oil-film slip table; or base-mounted for under-chamber operation.

Characteristics			
Suspension Axial Stiffness – nominal	114 lbf/in	Stray Magnetic Field††	<10 gauss
Suspension Cross-axial Stiffness – at insert level	158000 lbf/in	Max. Required Input, incl.: Amplifier, FPS and Fan	80.5 kVA
Suspension Rotational Stiffness	286000 lbf ft/rad	Cooling Airflow – Shaker	1950 ft^3/min
Shaker Body Mass (M_b)‡‡	7165 lb	Cooling Airflow – Amplifier	28.2 ft^3/s
Lin-E-Air Body Resonance	<5 Hz	Armature Insert – Centre	1
Air Isolation Mounts Resonance	<10 Hz	Armature Insert – 8 in PCD	8
Internal Load Support Capacity	1540 lb	Armature Insert – 16 in PCD	8

System Performance	with SPA 40K	with SPA 48K	with SPA 56K
Sine Force (peak)	9442 lbf	11330 lbf	13000 lbf
Max. Acceleration (sine peak)	102 g	122 g	140 g
Random Force (rms)	10598 lbf	12718 lbf	14837 lbf
Max. Acceleration (random rms)	85 g	100 g	100 g
Velocity (sine peak)	70.9 in/s	70.9 in/s	70.9 in/s

* Force and velocity ratings depend on the amplifier driving the shaker. The sine force, random force and velocity parameters detailed here are based on the shaker when driven by the SPA56K amplifier.
† Random and shock ratings assume a payload approximately twice the mass of the armature; shock pulse 2 ms. For advice on specific test requirements, contact Brüel & Kjær.
‡ Measured at a height of 63 in above floor level in enclosed cell
** Maximum noise when running at full level
†† Theoretical maximum, measured 6 in above table, full-field, at normal operating temperature, trunnion mounted
‡‡ Shaker is trunnion-mounted

Some of the features listed are available as standard, others as options. Please contact Brüel & Kjær for advice on the optimum specification to meet your system needs

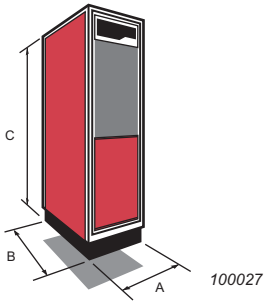
SPA-K Amplifier Characteristics

Power Range	40 – 56 kVA in 8 kVA increments
Signal-to-noise Ratio	>68 dB, with respect to 100 V rms output, 10 kΩ input termination and rated resistive load connected
Input Impedance	10 kΩ nominal
Total Harmonic Distortion	0.5 – 0.8% at rated output into rated resistive load
Input Sensitivity	1.0 V for 100 V rms output
Modulation Range	d.c. – 10 kHz
Switching Frequency	150 kHz
Efficiency	>90% (not including Field Power Supply)
Rated Output Voltage	100 V rms (sine)
Continuous Output Current	80 A rms (sine and random) per 8 kVA increment
Full Power Bandwidth	20 Hz – 3 kHz
Transient Output Current	240 A per 8 kVa increment for 100 ms
Module Efficiency	93%
Protection	Integral protection to prevent output devices from working outside their specification limits

Health and Safety

Complies and designed in accordance with these EU directives:	Machinery: 2006/42/EC
	Low voltage: 2006/95/EC
	EMC: 2004/108/EC
	EN 61010 – 1:2001

SPA-K Amplifier Dimensions



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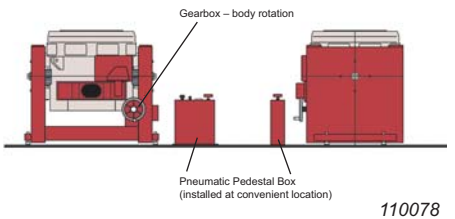
Dimension A (in)	21.1
Dimension B (in)	33
Dimension C (in)	74
Weight (lb)	1345

V8-440 Shaker Dimensions

Trunnion Mounted



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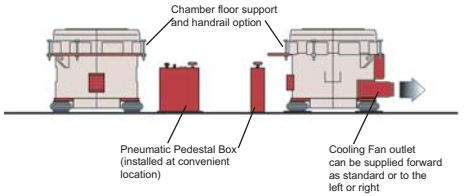
Height (in)	52
Width (in)	66.6
Depth (in)	44.8
Weight (lb)	9546

Base Mounted



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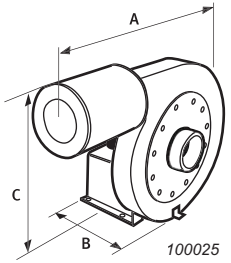
Height (in)	48.2
Width (in)	43.4
Depth (in)	52.8
Weight (lb)	7055

Cooling Fan + Optional Silencer and Pneumatic Box Dimensions



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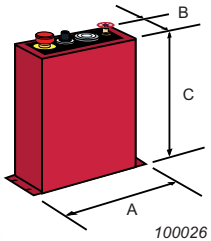

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Fan:	50 Hz	60 Hz
Dimension A (in)	54.4	49.3
Dimension B (in)	30.3	24.1
Dimension C (in)	41.5	34.5
Weight (lb)	496	437

Pneumatic Pedestal Box*:	
Dimension A (in)	18.5
Dimension B (in)	5.6
Dimension C (in)	19.8
Weight (lb)	44

* Pneumatic Pedestal Box includes Emergency stop, Lin-E-Air suspension air control valve, armature position indicator and load support control

Shaker Options

Armature Insert Selection:	
M 8	◆
3/8″ UNC	◆
Mounting Selection:	
Trunnion mounted with Lin-E-Air suspension	◆
Base mounted	◆
Base mounted with air glide	●
Other Options:	
Combo base	●
Slip table	●
Silencer, for shaker cooling fan	●
Chamber floor support	●

Key:
◆ Standard – Available on shortest delivery
● Option – Stocked item, available on short delivery

Make Our Experience Your Advantage

From application engineering, installation and training through to maintenance, spares and repairs, Brüel & Kjær offers a total service approach to keep your system operating efficiently and reliably. All LDS systems (standards and specials) are designed and manufactured to ISO 9001 standard. Brüel & Kjær offers a comprehensive range of vibration, measurement and analysis equipment. Please consult our website for details.

Brüel & Kjær reserves the right to change specifications and accessories without notice. 2013-04 BP 2313 – 12

HEADQUARTERS: Brüel & Kjær Sound & Vibration Measurement A/S · DK-2850 Nærum · Denmark
Telephone: +45 7741 2000 · Fax: +45 4580 1405 · www.bksv.com · info@bksv.com

Local representatives and service organisations worldwide

Brüel & Kjær