



# Configuration and System Performance

## V875-440 imperial SHAKER

### Performance Parameters

Armature diameter	17.3 in
Sine force peak (stabilised)	8000 lbf
Random force rms	8000 lbf
Half sine peak bump force <sup>3</sup>	24000 lbf
Armature resonance ( $f_n$ )	2650 Hz
Useful frequency range	DC - 3000 Hz
Mass of moving element	69.7 lb
Velocity sine peak - full field	70.9 in/s
Acceleration sinepeak	100 $g_n$
Acceleration random rms	75 $g_n$
Displacement (cont.) pk-pk	20 in

LDS amplifier SPA8-40K

### Characteristics

Suspension axial stiffness 2000 lbf/in

Suspension cross-axial stiffness 34000 lbf/in

Suspension rotational stiffness  
3000000 lbf.in/rad

Lin-E-Air body resonance < 5 Hz

Shaker body mass 4980 lb

Internal load support capability 1323 lb  
Stray magnetic field<sup>2</sup> < 1.0 mT

Low gauss option<sup>2</sup> < 0.8 mT

Cooling air flow Shaker 1400 ft<sup>3</sup>/min

Cooling air flow Amplifier 1380 ft<sup>3</sup>/min

Compressed air supply required 100 psi

Total electrical requirements  
Amplifier, FPS and blower 64.8 kVA

### Environmental Data

#### Working ambient temperature range

Shaker	32 ° to 86 °F
Amplifier	34 ° to 86 °F

#### Acoustic noise at 1 metre distance<sup>3</sup>

Shaker <sup>4</sup>	108 dBA
Amplifier	72 dBA
Blower	99 dBA

#### Total heat dissipation

Shaker - radiated from body	0.87 kW
Amplifier	4.9 kW
Blower	25.0 kW

- 1 Measured at 6 inch above armature table, full field
- 2 Measured at a distance of 39 inch and 63 inch above floor level in enclosed cell
- 3 Due to the complex nature of shock pulses, LDS has sophisticated software to evaluate the performance. Please contact your local representative.
- 4 Max. noise when running at full level bare table performance

### V875-440 Shaker Options

Alternative armature size ☐  
Armature Insert Selection M8 ☒  
3/8"UNC/UNF ☐

#### Mounting Selection

Trunnion mounted with Lin-E-Air isolation and body rotation gearbox ☒  
Base mounted ☐  
Base mounted with airslide mobility ☐  
Base mounted with V-groove casters ☐  
Combination shaker/slip-table base ☐  
Seismic base slip table ☐  
Low gauss kit ☐  
Silencer, shaker cooling fan -3 dBA reduction ☐  
Acoustic enclosure -8 dBA ☐  
Chamber floor support option ☐  
Thermal barrier ☐

#### Key

- Standard - available on shortest delivery
- Option - stocked item available on short delivery
- Special option - non-stocked item



Systems are available in various forms to meet a customers exact requirements - mounted in an air isolation trunnion with body rotation gearbox (standard item), combined with a horizontal oil-film slip table, or base mounted for under chamber operation.

System Performance	V875-440 SPA8K	V875 -440 SPA16K	V875-440 SPA24K	V875-440 SPA32K	V875-440 SPA40K
Sine Force (pk)	1736 lbf	3471 lbf	5207 lbf	6942 lbf	8000 lbf
Max Acceleration Sine (pk)	24.9 $g_n$	49.8 $g_n$	74.7 $g_n$	99.6 $g_n$	100 $g_n$
Random Force (rms)	2316 lbf	4631 lbf	6924 lbf	8000 lbf	8000 lbf
Max Acceleration Random (rms)	33.2 $g_n$	66.5 $g_n$	75 $g_n$	75 $g_n$	75 $g_n$
Velocity (pk) - full field	70.9 in/s	70.9 in/s	70.9 in/s	70.9 in/s	70.9 in/s





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## SPA-K Series Amplifier Characteristics

<b>Power range</b>	8 - 40 kVA in 8 kVA increments
<b>Total harmonic distortion</b>	Typically 0.15 % when measured into resistive load
<b>Input impedance</b>	10 kOhm nominal
<b>Input sensitivity</b>	1 V rms input for 100 V rms output (Differential Input). Compatible with all standard controllers
<b>Signal-to-noise ratio</b>	> 68 dB
<b>Amplifier efficiency</b>	> 90 %
<b>Switching frequency</b>	150 kHz
<b>Modulation range</b>	DC to 10 kHz
<b>Rated output voltage</b>	100 V rms (sine)
<b>Continuous output current</b>	80 A rms (sine and random) per 8 kVA increment
<b>Transient output current</b>	240 A for 100 ms per 8 kVA increment
<b>Full power bandwidth</b>	20 Hz to 3 kHz

**Module efficiency** 93 %

**Protection** Integral protection to prevent the output devices working outside their specification limits

**Safety** Complies with the Essential Health and Safety requirements of the Machinery Directive 98/37/EC and the Low Voltage Directive 73/23/EEC

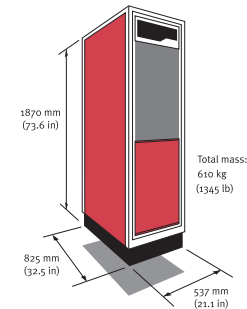
**EMC** EN50081-2 Emissions  
EN50082-2 Immunity

Some of the features listed are available as standard, others as options. Please contact LDS for advice on the optimum specification to meet your system needs. Specifications are correct at the time of publication. LDS reserves the right to amend specifications without prior notice.

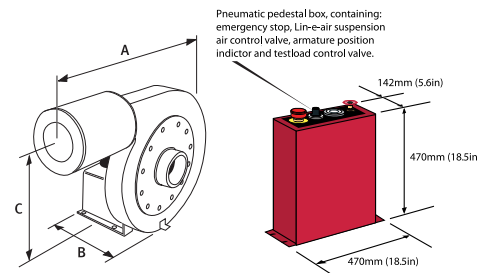
## Make our experience your advantage

From application engineering, installation and training through to maintenance, spares and repairs, LDS offer 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. LDS offers a comprehensive range of vibration, measurement and analysis equipment. Please consult our website for details.

## SPA-K Amplifier with integral FPS



## V875-440 Shaker Cooling Fan

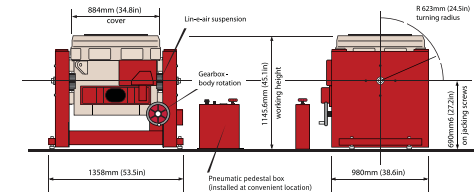


## Cooling Fan - V875-440

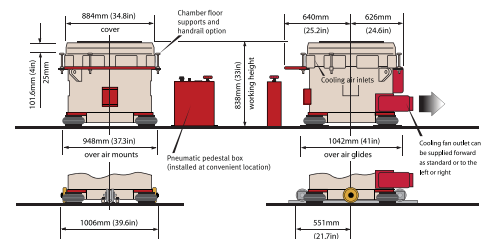
	Weight	dim A (mm)	dim B (mm)	dim C (mm)
<b>V875 - 50 Hz</b>	400 lb	52.0	24.0	44.0
<b>V875 - 60 Hz</b>	379 lb	47.8	21.8	39.0

## V875-440 Series Shaker

V875-440 Trunnion Mounted  
Total mass: 6459 lb



V875-440 Base Mounted  
Total mass: 4916 lb



## Armature Insert pattern - V875-440

Armature	pcd in	pcd in	pcd in	pcd in	pcd in
Centre	4	8	12	16	
Inserts	1	4	8	8	8

\* Optional insert pattern - 8 inserts on 152.4 mm pcd

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