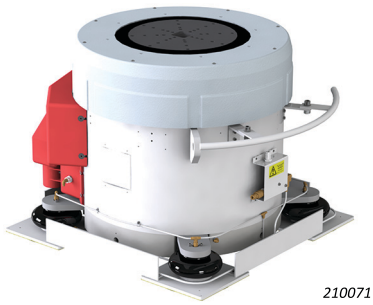
LDS® Vibration Test Solutions

LDS V8750 Shaker

The LDS V8750 shaker system takes the long-standing reliability of the LDS V875LS and enhances its capability, with outstanding shock performance, energy consumption savings (COOL mode), intuitive user interface, preventative maintenance system diagnostics and increased reliability with the inductive centring system (ICS). The V8750 shaker is available in various configurations: base mount, lin-e-air trunnion-mounted and combo slip table. Additional options include V-groove castors, air glides, thermal management systems and head expanders.

V8750 Base Mount Shaker



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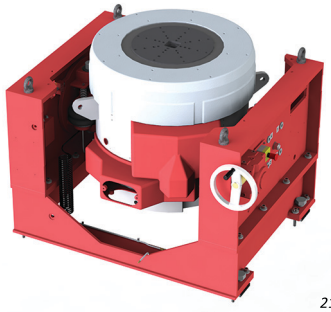
Lin-E-Air Trunnion-Mounted V8750 Shaker



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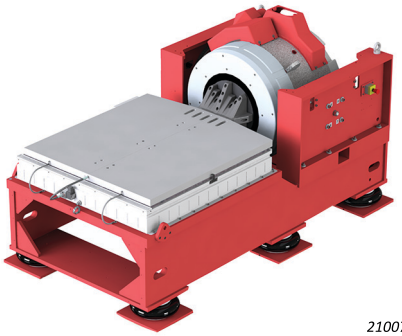
V8750 Combo-Mounted Shaker with HBT Slip Table



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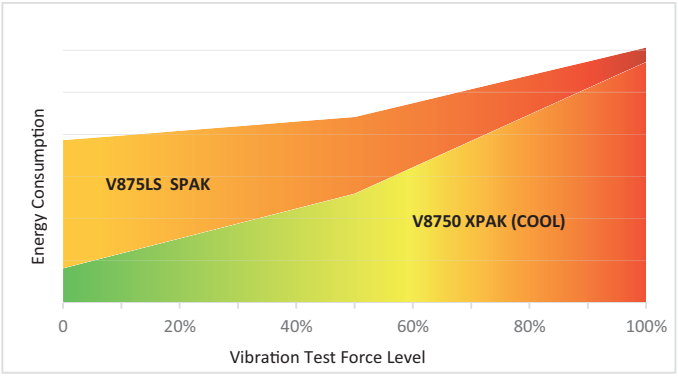
Key Performance Parameters

ARMATURE DIAMETER		440 mm (17.3 in)	640 mm (25.2 in)
Sine Force (peak)		35.6 kN (8000 lbf)	35.6 kN (8000 lbf)
Random Force (rms)*		35.6 kN (8000 lbf)	32.5 kN (7309 lbf)
Max. ½-sine Shock Force (peak)*	with XPA48K Amplifier	80.2 kN (18030 lbf)	75.0 kN (16862 lbf)
	with XPA88K Amplifier	140.0 kN (31475 lbf)	135.2 kN (30396 lbf)
Sine Acceleration (peak)†		1098 m/s^2 (112.0 g_n)	891 m/s^2 (90.9 g_n)
Random Acceleration (rms)		981 m/s^2 (100.0 g_n)	746 m/s^2 (76.1 g_n)
Sine Velocity (peak)		2.5 m/s (98.4 in/s)	2.5 m/s (98.4 in/s)
Shock Velocity (peak)		4.0 m/s (157.5 in/s)	4.0 m/s (157.5 in/s)
Displacement (peak - peak)‡		76.2 mm (3.0 in)	76.2 mm (3.0 in)
Required Amplifier		LDS XPA48K, LDS XPA88K	LDS XPA48K, LDS XPA88K

* Random and shock ratings assume a payload approximately twice the mass of the armature; shock pulse 2 ms
† With flush inserts, requires 2-point control for 640 armature
‡ Displacement can vary with payload and shaker orientation. Please contact HBK for advice on specific test requirements



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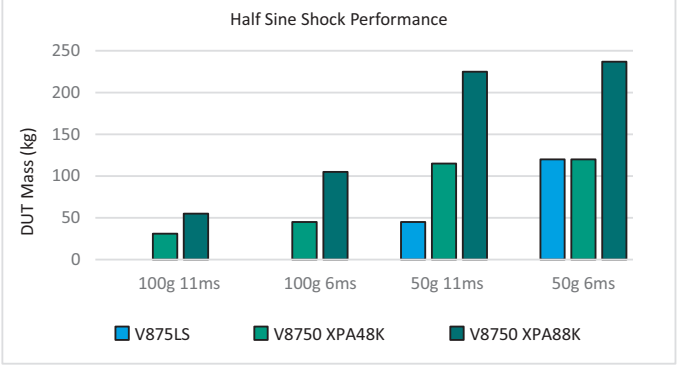

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Performance Parameters

ARMATURE DIAMETER	440 mm (17.3 in)	640 mm (25.2 in)
Usable Frequency Range*	5 Hz to 3000 Hz	
Effective Moving Mass (flush inserts)	32.4 kg (71.4 lb)	39.9 kg (88.0 lb)
Effective Moving Mass (raised inserts)	32.9 kg (72.5 lb)	40.6 kg (89.5 lb)
Armature Resonance (f_n)	2250 Hz (nominal)	2350 Hz (nominal)
Body Suspension Resonance	Lin-E-Air Suspension: <5 Hz Air Isolation Mounts: <10 Hz	
Overturning Moment Restraint	1493 Nm (13214 lbf in)	
Internal Load Support Capacity	600 kg (1323 lb)	
Shaker Body Mass	Base Mount: 2200 kg (4850 lb) Trunnion Mount: 2260 kg (4982 lb)	
Shaker Total Mass	Base Mount: 2230 kg (4916 lb) Trunnion Mount: 3000 kg (6459 lb)	
Stray Magnetic Field: Standard	<1.5 mT (15 gauss)	<2.0 mT (20 gauss)
Stray Magnetic Field Low Gauss Option	<0.8 mT (8 gauss)	

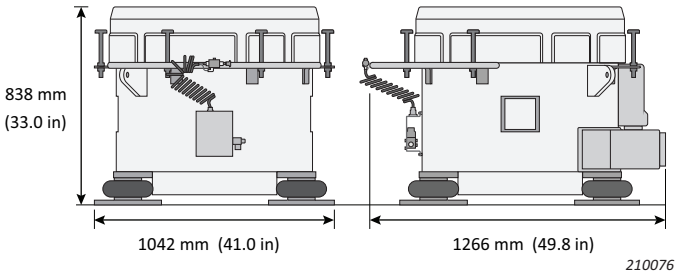
* Force will be reduced above 2500 Hz dependant upon payload and payload fixture dynamic response. Requires 2 point control for 640 armature.

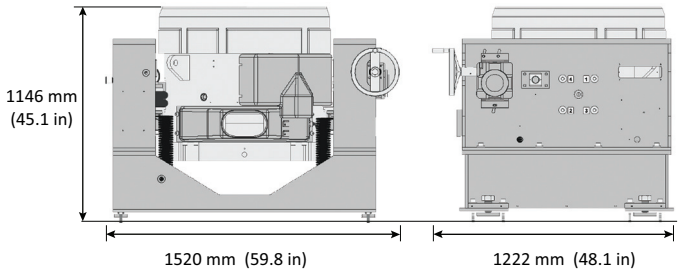
Combo slip tables are available with low pressure bearings (LPT) for compact test loads and hydrostatic bearings (HBT) for larger test loads with higher overturning moments. The following slip table sizes are available as standard:

- LPT600 / HBT600
- LPT750 / HBT750
- LPT900 / HBT900
- LPT1220 / HBT1220

For combo performance specifications, contact your local HBK representative.

Shaker Physical Characteristics





Dimension with body in mid-position and includes height of jacking pads

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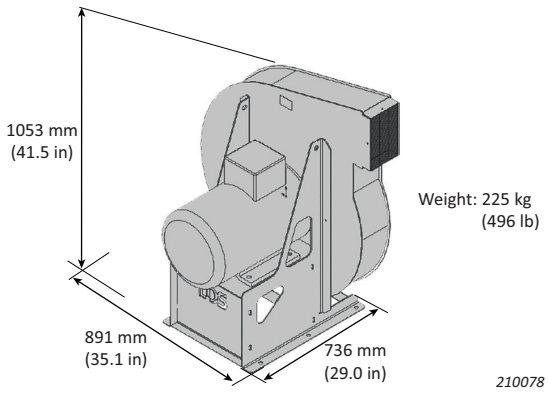
V8750 Armature Inserts

Flush or raised insert options available, stainless steel, M8, M10, or 3/8 UNC
1 insert at centre of armature
4 inserts on 101.6 mm (4 in) PCD*
8 inserts on 152.4 mm (6 in) PCD (flush only)
8 inserts on 203.2 mm (8 in) PCD
8 inserts on 304.8 mm (12 in) PCD
8 inserts on 406.4 mm (16 in) PCD
16 inserts on 609.6 mm (24 in) PCD (640 only)
* PCD = pitch circle diameter

Ancillaries

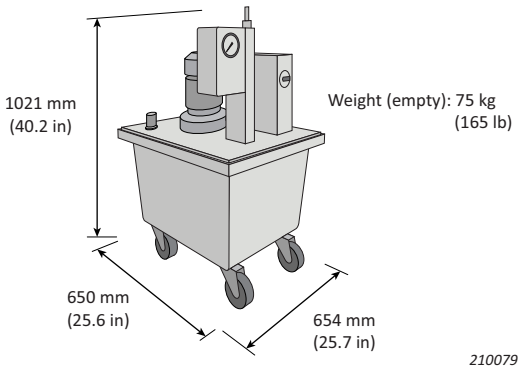
Cooling Fan

The V8750 fan is supplied with an inverter that enables the fan speed to be controlled automatically (COOL mode) or manually, to reduce power consumption and acoustic noise for lower level tests. The acoustic noise level can be further reduced by attaching a silencer to the fan outlet, or by placing the fan in an acoustic enclosure.



HBT Slip Table Hydraulic Unit

HBT slip tables use a stand-alone hydraulic pump for the bearings. With a LPT slip table, the hydraulic pump supply is installed inside the table.

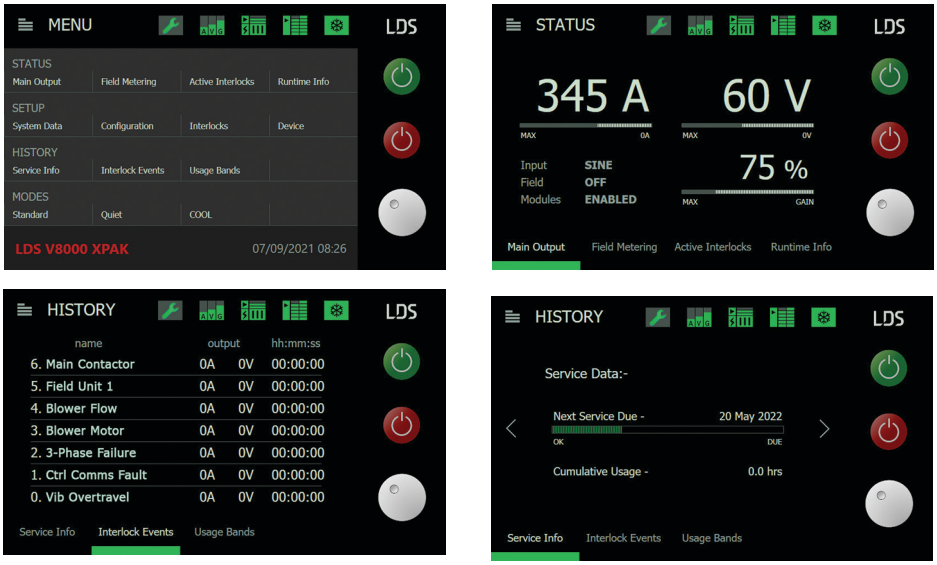


The Amplifier

The LDS XPAK Amplifier is available as 48 kVA for maximum sine and random performance, and as 88 kVA for enhanced shock performance.

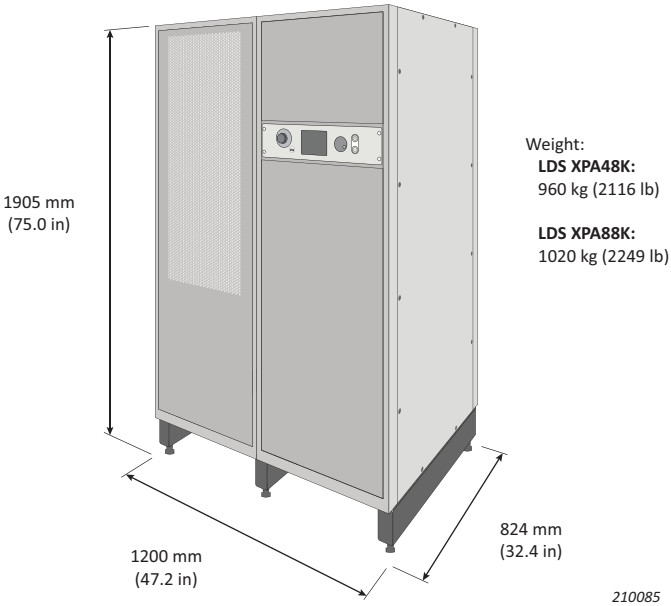
It has an intuitive touchscreen user interface displaying system performance characteristics such as interlocks, temperatures, voltage and current readings, power consumption and power savings – depending upon the mode selected: Standard, Quiet or COOL.

Fig. 1 *XPAK Amplifier intuitive touch screen user interface*



The XPAK amplifier uses CAN bus communications from the shaker via the pneumatics control unit to provide continuous monitoring of the system performance. This data is available to you in real time via the amplifier's touchscreen interface. To support preventive maintenance and fault detection, the data is also stored in the amplifier for subsequent analysis.

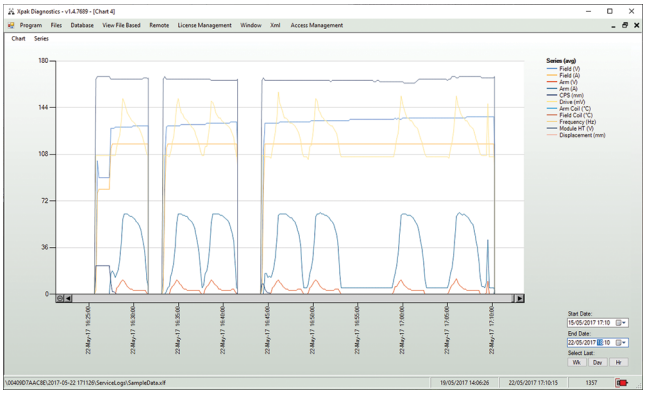
Fig. 2 *Physical characteristics of the XPAK Amplifier*



In Quiet mode, the system can be run with the fan switched off for short periods at low force to minimise acoustic noise. This is particularly useful for squeak and rattle test applications.

In COOL mode, the amplifier actively monitors the system parameters to reduce the power consumption required for a particular test. This can significantly reduce running costs.

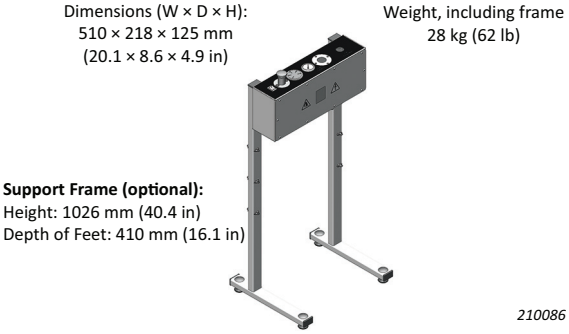
Fig. 3 *Internal diagnostics within the XPAK Amplifier*



Pneumatics Control Unit

The pneumatics control unit also includes an emergency stop, pneumatics controls for lin-e-air and internal load support, and indicators for armature position and internal load support pressure.

Fig. 4 *Physical characteristics of the pneumatics control unit*



Environmental Data

WORKING AMBIENT TEMPERATURE RANGE	
Shaker	+7 to 30 °C (+45 to 86 °F)
XPAK Amplifier	+5 to 30 °C (+41 to 86 °F)
MAXIMUM ACOUSTIC NOISE AT 1 m (3.3 ft) DISTANCE*	
Shaker	108 dBA
XPAK Amplifier	74 dBA
Cooling Fan	102 dBA
Cooling Fan with Silencer	99 dBA
Cooling Fan in Acoustic Enclosure	<80 dBA
TOTAL HEAT DISSIPATION	
Shaker to Air (from body)	1.7 kW
XPA48K Amplifier	8.7 kW
XPA88K Amplifier	10.5 kW
Cooling Fan	57.0 kW
COOLING AIRFLOW	
Shaker via Cooling Fan	1.0 m^3/s (2119 ft^3/min)
XPA48K Amplifier	0.8 m^3/s (1695 ft^3/min)
XPA88K Amplifier	1.1 m^3/s (2331 ft^3/min)

* Maximum acoustic noise levels do not take into account any noise that may be generated due to payloads attached to the vibration testing system

Safety

Complies with:

- Machinery: 2006/42/EC
- Low voltage: 2014/35/EU
- EMC: 2014/30/EU
- Designed in accordance with EN 61010-1:2010

Electrical and Compressed Air Supply

GENERAL	
Voltage 3-phase (standard)	380 to 480 V, 50/60 Hz
Compressed Air Supply	6.9 bar (100 lbf/in^2)
TOTAL ELECTRICAL REQUIREMENTS AMPLIFIER AND FAN (STEADY STATE)	
XPA48K Amplifier	60 kVA
XPA88K Amplifier	60 kVA (Type C MCB) 68 kVA (Type B MCB)
TOTAL ELECTRICAL REQUIREMENTS ANCILLARIES (STEADY STATE)	
HBT Hydraulic Unit (3-phase)	1.5 kVA
LPT Hydraulic Unit (single phase)	180 VA
Pneumatics Control Unit (single phase)	32 VA

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