

The SignalForce® LE-600 Series are proven, high performance shakers, which are available in several different configurations. They are available in three armature configurations, making them suitable for high acceleration testing, general purpose automotive, MIL-STD testing and for larger payloads and screening tests. These shakers utilize a double ended magnetic field structure for higher energy efficiency and less stray magnetic field, making them the ideal choice for testing sensitive electronics and guidance systems.



Standard Features

- Peak sine force: 6000 lbf (26.7 kN)
- Random force rms: 6000 lbf (26.7 kN)
- Velocity peak: 79 in/sec. (2.0 m/sec)
- Peak to peak displacement: 2.0 in (50.8 mm); 3.0 (76.2 mm) for LE-612-3
- Armature diameter: 13.25 in (337 mm) 17.3 in (440 mm), 25.5 (648 mm)

- Automatic load support
- Automatic armature centering
- Flexure and pogo bearing guidance
- Safety inter-locks and over-travel detection

Options

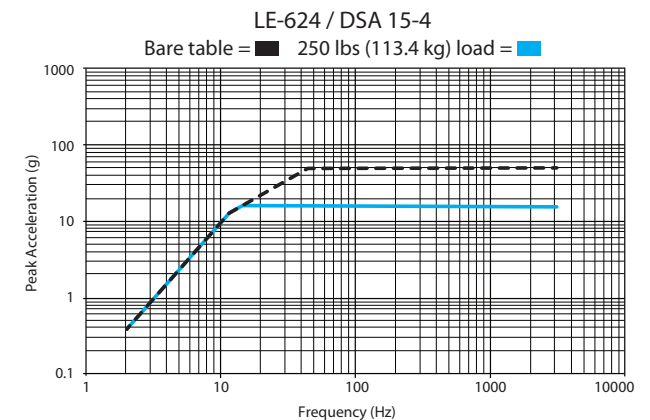
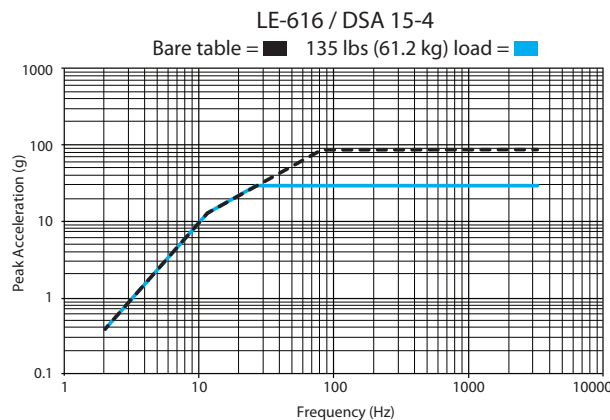
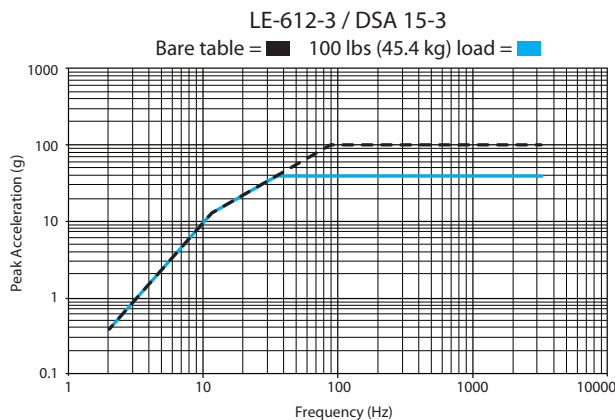
- Vertical isolation mounts (VI)
- Lin-E-Air isolated trunnions (VH)

- Monobase with slip tables for sequential three axis testing
- Air glides and guidance systems
- Metric or imperial threads
- Custom designed head expanders
- External guidance systems
- Climatic chamber interfaces and barriers

Typical Applications

- Electronic components
- Aerospace
- Automotive

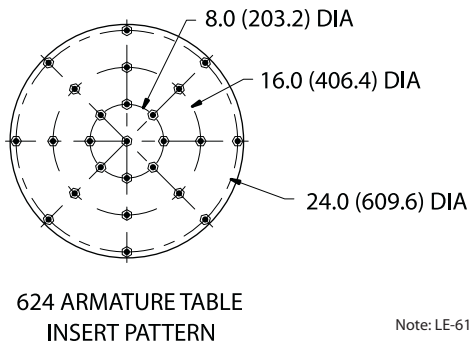
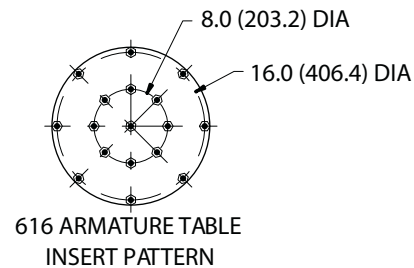
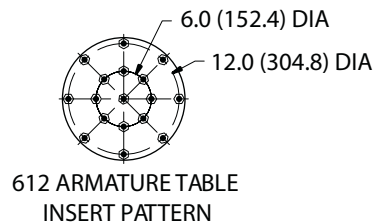
Sine Performance Envelopes



LE-612-3 / DSA15-3 LE-616 / DSA15-4 LE-624 / DSA15-4

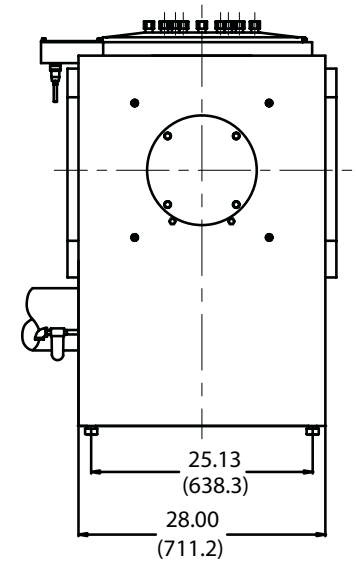
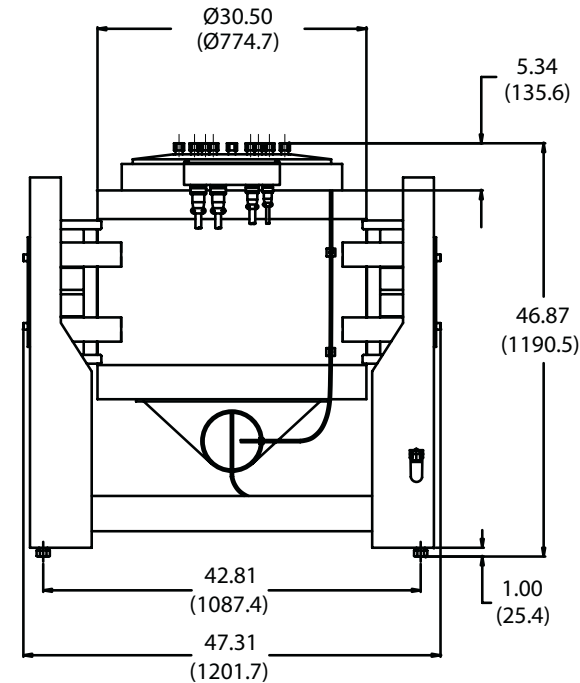
	Maximum Sine Force		Maximum Random Force		Maximum Shock Force		Armature Mass		Armature Diameter		Maximum Acceleration (bare table)		Maximum Velocity		Displacement Peak to Peak		Frequency Range	Armature Axial Resonance	Armature Suspension	Static Load Support		Stray Magnetic Field		Heat Dissipation (kW)			Facility Power Requirements*	Uncrated Shaker Mass	
	lbf	kN	lbf	kN	lbf	kN	lbs	kg	in	mm	g	m/s ²	ips	m/s	in	mm	Hz	Hz	Type	lbs	kg	gauss	mT	Shaker	Amplifier	Blower	kVA	lbs	kg
LE-612-3 / DSA15-3	6000	26.7	6000	26.7	13200	59	50	23	13.25	337	100	981	79	2	3	76.2	5-3000	2350	Beryllium copper loop flexures	1000	454	< 5	.5	13.5	3.9	1	45	5000	2268
LE-616 / DSA15-4	6000	26.7	6000	26.7	13200	59	70	32	17.3	440	86	843	71	1.8	2	50.8	5-3000	2100	Flat flexures	1000	454	< 5	.5	13.5	5.3	1	45	5000	2268
LE-624 / DSA15-4	6000	26.7	6000	26.7	13200	59	120	54.4	25.5	648	50	490	71	1.8	2	50.8	5-3000	2050	Flat flexures	1000	454	< 5	.5	13.5	5.3	1	45	5000	2268

* kVA based on power draw to run full capacity of shaker – not amplifier capacity.



3/8-16 UNC-3B
REPLACEABLE SS INSERTS
STANDARD

Note: LE-616 and LE-624 recommended for use in VI configuration.



Environmental Characteristics

Ambient Working Temperature Range

Shaker	+40F to +100F (+4C to +38C)
Amplifier	+32F to +104F (+0C to +40C)

Heat Dissipation

Shaker	13.5 kW
Amplifier*	3.9 kW (3 Module) 5.3 kW (4 Module)
Blower	1 kW

Acoustic Noise @ 1m

Shaker	108 dBA
Amplifier	75 dBA
Blower	92 dBA

Humidity

Shaker	<95% non-condensing
Amplifier	<95% non-condensing

Facility Requirements

Blower cooling air flow	1300 CFM (36.8 m3/min)
Amplifier cooling air flow*	690 CFM (19.5 m3/min) (3 Module) 920 CFM (26.1 m3/min) (4 Module)

Compressed air supply	1 CFM at 90 psi (0.03 m3/min at 6.2 Bar)
Power supply range	208 – 480 VAC, (3) phase
Total electrical requirements	See table

Amplifier Characteristics

Rated Power*	45 kVA (3 Module) 60 kVA (4 Module)
Efficiency	95%
Switching Frequency	50 kHz
Input Impedance	1.5 V rms for full output (10 K ohm input impedance)
Voltage Output	200 V rms
Current Output*	249 A rms (3 Module) 332 A rms (4 Module)
Distortion	(at rated output) THD < 0.5% from DC to 1500 Hz 0.75% from 1500 to 2000 Hz 1.0% from 2000 to 3000 Hz
Noise & Hum	> 70 dB below full output, with shorted input
Weight*	785 lbs (357 kg) (3 Module) 820 lbs (373 kg) (4 Module)

Performance Notes

1. Random force rating based on flat spectrum from 20–2000 Hz, with 100 lbs (45.4 kg) non-resonant load. Ratings comply or exceed ISO 5344. For the LE-616-3 the random rating is based on a 140 lbs (63.5 kg) non-resonant load.
 2. Shock pulses will yield different performance characteristics based on duration of the pulse. Consult application specialist to evaluate specific shock pulses.
 3. Heavy payloads may reduce available pk-pk displacement.
 4. Stray magnetic field measured at full field 6 inches (152.4 mm) above armature table.
 5. Shaker weight is variable based on mounting configuration.
 6. At maximum force bare table. Acoustic noise from a test will depend on test load and profiles run.
 7. Wet bulb temp not to exceed 80° F (27° C).
 8. Max performances shown are for no more than 10 minutes of operation.
 9. For continuous duty, the levels stated need to be reduced to 80%.
- Specifications are subject to change without notice.

Amplifier Dimensions

Height	68.5" (1740 mm)
Width	22" (561 mm)
Depth	50.5" (1283 mm)

Blower Dimensions

Height	33" (826 mm)
Width	27" (673 mm)
Depth	32" (808 mm)

EMI shielded console, air cooled screens, and 3-phase line filtering standard.
* Multiple listing reflects amplifier models – small to large.