LE-1316-3
Electrodynamic Shaker

The SignalForce® LE-1316-3 shaker is a high performance/high efficiency air cooled shaker offering control capabilities for frequencies up to 3 kHz. This shaker uses a rigid armature design combined with dual axial bearings to provide high quality dynamic response and cross axis restraint. The design provides high lateral and torsional stiffness to provide maximum stability and support. The cooling blowers are equipped with noise reduction silencers.

Standard Features

- Peak sine force: 13500 lbf (60.0 kN)
  (15000 lbf (66.7 kN) EF model – max 5 min. runtime)
- Random force rms: 13500 lbf (60.0 kN)
  (15000 lbf (66.7 kN) EF model– max 5 min. runtime)
- Velocity peak: 79 in/sec. (2.0 m/sec)
- Peak to peak displacement: 3.0 in. (76.2 mm)
- Armature diameter: 17.3 in. (440 mm)
- Dual bearing axial guidance
- Safety interlocks
- Overtravel detection
- Automatic armature centering

Options

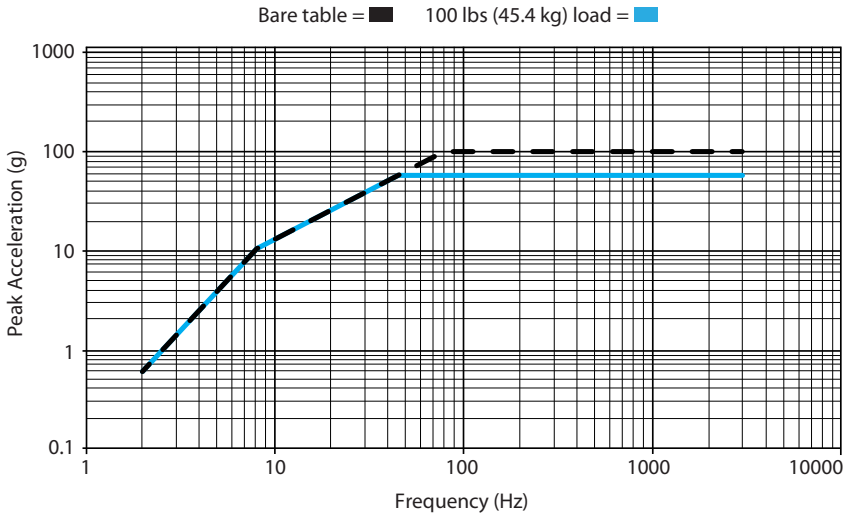
- Isolated trunnions (VH) with Lin-E-Air isolation
- Monobase with slip tables for sequential three axis testing
- Air glides for repositioning
- External guidance systems
- Climatic chamber interfaces and barriers
- High velocity shock (Requires LE-DSA15 IGBT amplifier option)

Typical Applications

- Automotive assemblies
- Consumer electronics
- Materials analysis

Sine Performance Envelope

LE-1316-3 / DSA 10-100K



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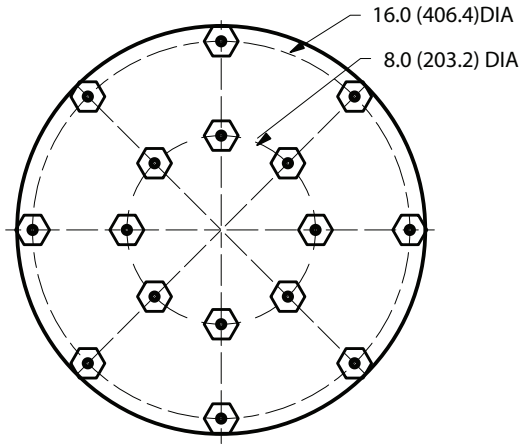
LE-1316-3 / DSA 10-70K / DSA 10-80K / DSA 10-100K

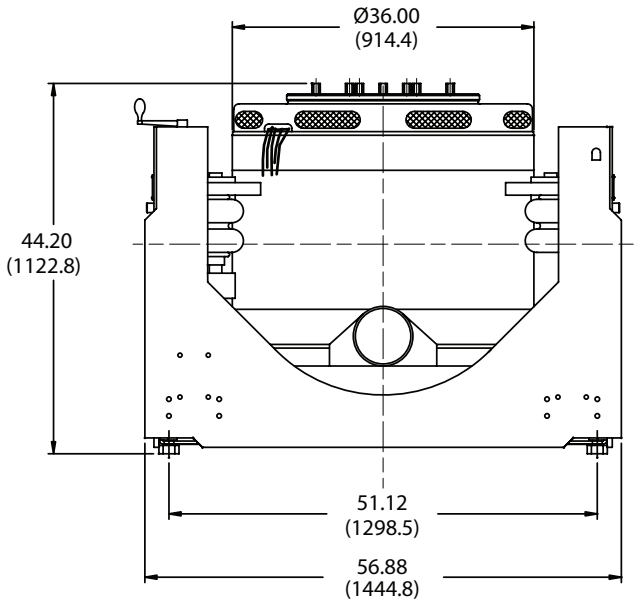
	Maximum Sine Force		Maximum Random Force rms		Maximum Shock Force		Armature Mass		Armature Diameter		Maximum Acceleration (bare table)		Maximum Velocity		Displacement Peak to Peak		Frequency Range	Armature Axial Resonance	Armature Suspension	Static Load Support		Stray Magnetic Field		Facility Power Requirements	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	kVA	lbs	kg
LE-1316-3 / DSA 10-70K	11000	48.9	11000	48.9	24200	108	135	61.2	17.3	440	81.5	799.2	79	2	3	76.2	5-3000	2040	Beryllium copper loop flexures	1500	680	< 5	.5**	102	7000	3175
LE-1316-3 / DSA 10-80K	12000	53.4	12000	53.4	26400	117	135	61.2	17.3	440	88.9	871.8	79	2	3	76.2	5-3000	2040	Beryllium copper loop flexures	1500	680	< 5	.5 **	112	7000	3175
LE-1316-3 / DSA 10-100K	13500	60	13500	60	29700	132	135	61.2	17.3	440	100	981	79	2	3	76.2	5-3000	2040	Beryllium copper loop flexures	1500	680	< 5	.5**	132	7000	3175
LE-1316-3EF / DSA 10-100K	15000*	66.7*	15000*	66.7*	29700	132	135	61.2	17.3	440	100	981	79	2	3	76.2	5-3000	2040	Beryllium copper loop flexures	1500	680	< 5	.5**	132	7000	3175

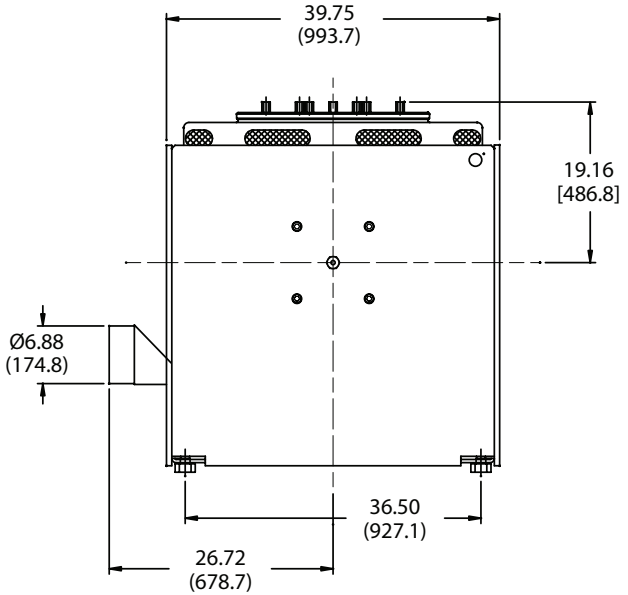
* Max runtime of 5 minutes. ** At 6 inches (152.4 mm) above table.

ARMATURE TABLE INSERT PATTERN



3/8-16 UNC-3B
REPLACEABLE SS INSERTS STANDARD
1/2-13 (OPTIONAL), M8 X 1.25 (OPTIONAL)
M10 X 1.5 (OPTIONAL)





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Environmental Characteristics

Ambient Working Temperature Range

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

Heat Dissipation

Shaker	22 kW
Amplifier*	9.24 / 10.56 / 13.2 kW
Blower	15 kW

Acoustic Noise @ 1m

Shaker	115 dBA
Amplifier	80 dBA
Blower	75 dBA with silencer

Humidity

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

Facility Requirements

Blower cooling air flow	1700 CFM (48.14 m3/min)
Amplifer cooling air flow*	1610 CFM (45.60 m3/min) 1840 CFM (52.10 m3/min) 2300 CFM (65.13 m3/min)
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*	70 / 80 / 100 kVA
Efficiency	95%
Switching Frequency	50 kHz
Input Impedance	1.5 V rms for full output (10 K ohm input impedance)
Voltage Output	125 V rms
Current Output*	581 / 664 / 830 A rms
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*	925 lbs (420 kg) 960 lbs (436 kg) 1030 lbs (468 kg)

EMI shielded console, air cooled screens, and 3-phase line filtering standard.
* Multiple listing reflects amplifier size – small to large. (70 / 80 / 100 kVA)

Amplifier Dimensions

Height	68.5″ (1740 mm)
Width	22.1″ (561 mm)
Depth	50.5″ (1283 mm)

Blower Dimensions
(with silencer)

Height	41.5″ (1054 mm)
Width	32.25″ (819 mm)
Depth	78.25″ (1988 mm)

Performance Notes

1. Random force rating based on flat spectrum from 20–2000 Hz, with 250 lbs (113.4 kg) non-resonant load. Ratings comply or exceed ISO 5344.
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).

Specifications are subject to change without notice.