APS 129 ELECTRO-SEIS®

Long stroke shaker with air bearing table



Applications

- ✓ calibration and test for seismic instruments like geophones and heavy seismic sensors
- ✓ seismic simulation for components

Range of use

- ✓ geological services, science, physics and seismic applications
- ✓ calibration and evaluation of accelerometers and other motion transducers

Features

- ✓ 133 N (30 lbf) or 186 N (42 lbf) force (sine peak)
- ✓ 254 mm x 254 mm (10 in x 10 in) air bearing table
- ✓ excellent waveform purity
- ✓ air bearing guidance and support system carries DUTs up to 23 kg (50 lbs) with very low transverse motion
- ✓ efficient electrodynamic drive produces sine, random or transient waveforms

Specifications

The APS 129 ELECTRO-SEIS® air bearing shaker is a long stroke, electrodynamic force generator specifically designed to be used for calibration and evaluation of accelerometers and other motion transducers. It provides excellent properties for low frequency excitation of such devices. The shaker consists of an air bearing drive attached to an air bearing mounting table that allows high payloads up to 23 kg (50 lbs) e.g. for the calibration of geophones and heavy seismic sensors.

Technical data

Shaker	APS 129	APS 129-HF High force
Force rating [1) 2)]	133 N (30 lbf)	186 N (42 lbf)
Displacement (peak - peak)	158 mm (6 in)	
Frequency range	DC … 200 Hz	
Direction of excitation	horizontal	
Moving table (weight)	8.5 kg (19 lbs)	
Payload, horizontal, max.	23 kg (51 lbs)	
DC coil resistance	4.4 Ω or 1.1 Ω	1.4 Ω
Air pressure (required)	4 bar…5 bar (60 psig…70 psig)	
Air flow (required)	650 l/h (0.4 cfm)	
Air quality	ISO 8573.1 Class 3	
Weight (net weight)	79 kg (174 lbs)	
Dimensions L × W × H	889 mm x 219 mm x 216 mm (35 in x 8.6 in x 8.5 in)	
Temperature range (in operation)	+5 °C…+40 °C, ±2 K (+41 °F…+104 °F, ±2 K)	

1) Sine peak
2) Interval mode of operation

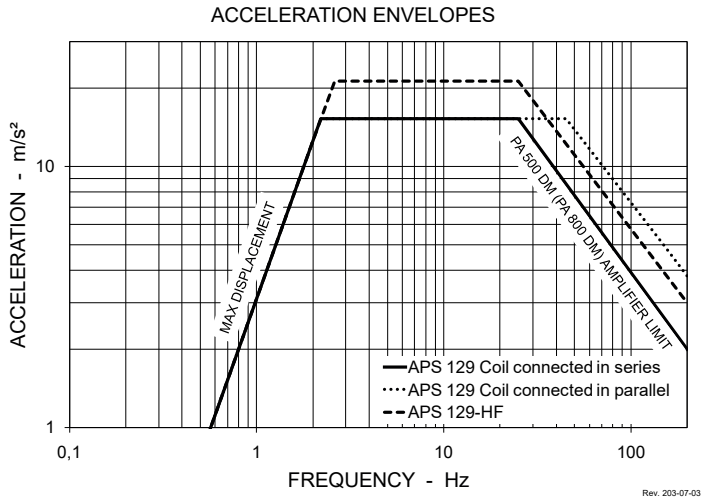
Accessories (optional)

Power amplifier	PA 500 DM / PA 800 DM
System interconnect cable	APS 0082-6E
Center position controller for vibration exciters	CPC
Vertical operation kit	APS 1291
Overtravel switch[3)]	APS 8543
Overtemperature switch	APS 8544

Additional accessories available
3) Cannot be installed, if the CPC is used.

Performance

Devices under test (DUTs) of up to 23 kg (50 lbs) can be driven to acceleration levels typical of those found in seismic specifications. Performance envelopes of the APS 129 shaker with the PA 500 DM power amplifier are given in the diagram below. These envelopes represent the maximum acceleration with bare table (no payload mounted) that can be achieved on the table.



Description and characteristics

The APS 129 ELECTRO-SEIS® shaker consists of an air bearing mounting table and air bearing assembly driven by an APS 113-AB ELECTRO-SEIS® long stroke air bearing shaker. The shaker imparts transverse base excitation to DUTs mounted on the table.

Static and dynamic loads normal to the table surface are transferred through a large area precision air bearing to a rigid guide bar of rectangular cross section. The drive unit and guide bar assembly are mounted on a common rigid base, ensuring correct alignment of all moving parts.

The standard hole pattern consists of 25 threaded holes in a 5 x 5 array. Optional metric threads and spacing are available.

The APS 113-AB drive unit employs permanent magnets and is configured such that the armature coil remains in a uniform magnetic field over the entire stroke range, ensuring a high degree of linearity. The self-cooled armature coil requires power from a matching power amplifier – the PA 500 DM.

Clean, water and oil free air for bearing operation is carried to the moving bearing housing by flexible PVC tubing, constrained to move with a rolling action.

The shaker may be used with optional accessory items to extend the areas of application:

APS 0109 - ZERO POSITION CONTROLLER - automatically controls the zero position of a vibration exciter irrespective of its payload.

Optional Configurations

APS 129-HF

All features of the basic APS 129 ELECTRO-SEIS® shaker are retained. The drive coil is made for 40 % increase in force with a 50 % duty cycle (30 min cycle).