

## 110 LBF ELECTRODYNAMIC EXCITER DUAL-PURPOSE, PLATFORM WITH THROUGH-HOLE ARMATURE



Model 2110E

The Modal Shop 2110E electrodynamic exciter is a compact and powerful vibration shaker, providing up to 110 pounds pk sine force. A large armature (3.25 inch diameter platform table supporting payloads up to 10 lbs) makes the shaker ideal for traditional vibration control testing of components and subassemblies. The unit is also designed with a through-hole armature and includes a chuck and collet attachment, providing simple set-up with stingers for experimental modal analysis applications. When used in this configuration, these stingers greatly simplify test setup with an easy connection to the force sensor and test structure, and help decouple cross-axis force inputs, minimizing force measurement errors.

The shaker is supplied in a standard trunnion mounting base with EasyTurn™ handles, allowing operation through a large rotation for easy setup. It also facilitates bolting the shaker in place either with or without vibration isolation mounts. Features include a rugged suspension system which minimizes test fixture requirements and related fixture guidance problems. Its 1" (25.4 mm) stroke, wide frequency range (useable to 6500 Hz), and innovative dual-purpose platform table design support a very broad range of applications. The shaker field supply is integrated into the 2050E09-FS power amplifier and includes a cooling interlock to protect the shaker.

### **BENEFITS:**

- Innovative dual-purpose design integrates platform table for traditional vibration testing with a through-hole armature for modal studies.
- 3.25 inch diameter platform table supports payloads up to 10 lbs (4.5 kg).
- Through-hole armature with chuck and collet attachment provides simple setup with modal stingers.
- Trunnion base with EasyTurn™ handles provides flexibility and full rotation when positioning and aligning the shaker.
- 1.0 inch stroke and wide frequency range (to 6500 Hz) support broad range of applications.
- Forced air cooling sufficient to meet full shaker performance (110 lbf<sub>pk</sub>) specifications.

**SPECIFICATIONS:****PERFORMANCE:**

Output Force, sine pk, forced air cooling	110 lbf (489 N) <sup>[1]</sup>
Output Force, random RMS, forced air cooling	75 lbf (334 N) <sup>[1]</sup>
Output Force, shock pk (50 ms)	225 lbf (1000 N)
Stroke Length, continuous pk-pk	1.0 in (25.4 mm)
Stroke Length, between stops	1.03 in (26.2 mm)
Frequency Range, nominal	DC - 6,500 Hz <sup>[2]</sup>
Fundamental Resonance	>4,000 Hz <sup>[2]</sup>
Maximum Velocity	70 ips <sub>pk</sub> (1.8 m/s <sub>pk</sub> )
Maximum Acceleration, bare table	110 g <sub>pk</sub>
Maximum Acceleration, 1 lb load	55 g <sub>pk</sub>
Maximum Acceleration, 5 lb load	18 g <sub>pk</sub>
Maximum Acceleration, resonance	150 g <sub>pk</sub>
Maximum Acceleration, peak shock	200 g <sub>pk</sub>
Maximum Payload	10 lbs (4.5 kg)

**PHYSICAL:**

Platform Mounting Thread	5x 10-32 <sup>[3]</sup>
Armature Weight	1.0 lbs (0.45 kg)
Suspension Stiffness	90 lbf/in (15.8 N/mm)
Rated Drive Current, ambient air cooling	11 A rms
Rated Drive Current, forced air cooling	22 A rms
Stray Magnetic Field, 1.5" above table	<20 Gauss
Stray Magnetic Field, 1.0" from body	<25 Gauss
Cooling Air	100 cfm/15 in H <sub>2</sub> O <sup>[1]</sup>
Dimensions (H x W x D), nominal	11.7 x 12.5 x 6.5 in (297 x 318 x 165 mm) <sup>[4]</sup>
Weight, nominal	56 lbs (25 kg)
Operating Range	40-100°F (4-38°C), <85% RH
Field Power Supply	12V, 12A DC, nominal <sup>[5]</sup>

**SUPPLIED ACCESSORIES:**

Trunnion base with EasyTurn™ handles
Shaker cable, 8 ft (2.4 m), chuck with collets, 10-32 mounting adapter
2150G12 Modal Stingers, 1/16" diameter rod with 10-32 threaded end, pack of three
2155G12 Modal Stingers, 3/32" diameter rod with 10-32 threaded end, pack of three

**REQUIRED ACCESSORIES:**

2050E09-FS Power Amplifier, 900W, selectable voltage / current control / field power supply
CB-146 Cooling Package for the 2110E shaker, portable, 110V <sup>[5]</sup>

**SUGGESTED ACCESSORIES:**

2050A Lateral Excitation Stand
PCB 288D01 ICP® impedance head driving point sensor
PCB 208 series ICP® force sensors

[1] Full force range requires forced air cooling with 2050E09-FS power amplifier

[2] Load dependent, stated specifications based upon bare table

[3] Includes 10-32 to chuck/collet adapter for through-hole armature/stinger applications.

[4] Reference outline drawing for exact dimensions

[5] Power provided by the 2050E09-FS power amplifier

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