

MODEL 2100E11

100 LBF MODAL SHAKER

- Through-hole armature with chuck and collet attachment provides simple set-up with modal stingers
- Lightweight and portable – weighing just 33 lb (15 kg)
- Trunnion base provides flexibility when choosing best exciter location(s)
- 1 in stroke and broad frequency range supply adequate input energy for most modal test applications
- Forced air cooling sufficient to meet full shaker performance (100 lbf / 440N) specifications

MODAL SHAKER

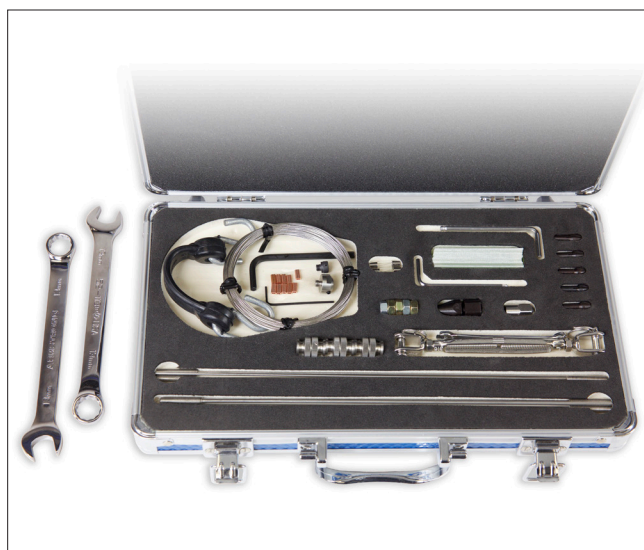
For many modal test applications, an electrodynamic shaker system is best suited for creating an appropriate input forcing function. Distributing adequate input force energy across the test structure and obtaining accurate and reliable input force measurements is critical for successful modal testing. This requires a shaker that is highly portable, rugged and easy to set-up in order to position in the best exciter location while minimizing any unwanted interaction between the exciter and test structure.

The Modal Shop 2100E11, a lightweight, electrodynamic modal exciter, is capable of providing 100 lbf (440 N) of peak force excitation in a small footprint weighing just 33 pounds (15 kg). With a 1 in stroke for solid low-frequency performance and useful high-frequency range beyond 5400 Hz, the 2100E11 is suitable for structural testing and experimental modal analysis applications, including single and multiple inputs (SIMO and MIMO) using random, burst random, sine dwell or chirp excitation signals.

The 2100E11 modal exciter is supplied in a trunnion base allowing full rotation for easy set-up. The through-hole armature design with chuck and collet attachment is ideal for use with either traditional modal stinger rods or piano wire stingers. These stingers greatly simplify test set-up with an easy connection to the force sensor and test structure, helping decouple cross-axis force inputs and minimizing input force measurement errors while using the modal shaker. For horizontal force inputs, the 2100E11 adapts directly to The Modal Shop's 2050A lateral excitation shaker stand.

SPECIFICATIONS	
Performance	
Output Force, sine pk, ambient air cooling	50 lbf (220 N)
Output Force, sine pk, forced air cooling	100 lbf (440 N) ^[1]
Stroke Length, pk-pk	1.0 in (25.4 mm) ^[2]
Frequency Range, nominal	DC - 5,400 Hz ^[3] ^[4]
First Resonance Frequency, nominal	>3600 Hz ^[4]
Maximum Acceleration, bare table	102 g (1000 m/s ²) pk
Maximum Velocity	62.4 ips (1.6 m/s) pk
Protection Features	Over-travel limit switch Over-current (in-line fuse)
Physical	
Maximum Current	10 A RMS
DC Resistance, armature, nominal	3.8 Ω ^[5]
Armature Suspension System	8 pcs composite beam flexures
Effective Armature Mass	1 lb (0.44 kg)
Dimensions (H x W x D), nominal	12 x 12 x 8 in (30.5 x 30.5 x 20.3 cm) ^[6]
Weight	33 lb (15 kg)
Operating Range	41 - 95 °F (5 - 35 °C), < 85% RH
Supplied Accessories	
Trunnion base with EasyTurn™ handles	
Shaker cable 20 ft	
Chuck with collets	
10-32 mounting adaptor	
Variety of rod and piano wire stinger kits (Models 2150G12, 2155G12 and K2160G)	
Suggested Accessories	
2100E21-400	SmartAmp™ Power Amplifier 400 W, 92% efficient, continuous gain adjustment
2100E18	Power Amplifier
PCB 288D01	ICP® impedance head driving point sensor
PCB 208	PCB 208 series ICP® force sensors
2050A	Lateral Excitation Stand
2100E13	Modal Accessory Kit, for use with 2050A excitation stand

- [1] Full force range requires optional forced air cooling with 2100E18 Power Amplifier
 [2] Overtravel limit switch at 26 mm
 [3] Frequency range based upon ISO 5344 recommended useful range of 1.5 times first resonance frequency
 [4] Load dependent
 [5] Room temperature, 68 °F (20 °C)
 [6] Reference outline drawing for exact dimensions



2100E11-001 Shaker Accessory Kit

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The Modal Shop, Inc. offers structural vibration and acoustic sensing systems and services for various applications in design and test laboratories as well as manufacturing plants. An extensive sound and vibration rental program, precision calibration systems, and both modal and vibration shakers are designed to simplify test phases. Non Destructive Testing Systems help manufacturers provide 100% quality inspection of metal components. The Modal Shop, Inc. is a subsidiary of PCB Piezotronics, Inc., and PCB® is a wholly owned subsidiary of MTS Systems Corporation.

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