

## BRÜEL & KJÆR® Modal and Measurement Exciters

### Vibration Exciter Type 4809

#### Uses

- Accelerometer calibration
- Vibration testing of small objects
- Mechanical impedance and mobility measurements
- Experimental modal analysis

#### Features

- Force rating: 45 N (10 lbf) sine peak, 60 N (13.5 lbf) with air cooling
- Frequency range: 10 Hz to 20 kHz
- First axial resonance frequency: 20 kHz
- Maximum displacement: 8 mm (0.32 in) peak-to-peak
- Maximum bare table acceleration:  $736 \text{ m/s}^2$  (75 g),  $981 \text{ m/s}^2$  (100 g) with air cooling
- Rugged construction
- Robust rectilinear guidance system
- Low cross motion and low distortion
- Optimized performance using Power Amplifier Type 2718
- High-quality cable with 4-pin Neutrik® speakON® connector to dual banana plugs included for connection to Type 2718



#### Description

Vibration Exciter Type 4809 is a small versatile exciter with an impressive performance. High quality materials result in long-term constructional reliability, and strict quality control ensures consistent high performance.

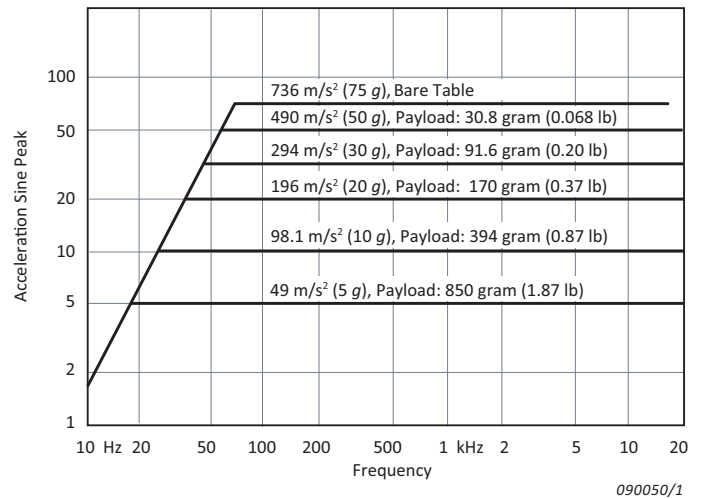
#### Driving the Exciter

Type 4809 can be driven without assisted cooling by any small power amplifier with a sufficient voltage rating and an input current of a maximum of 5 A RMS. Power Amplifier Type 2718 (75 VA) has been designed specifically to drive Type 4809, but Type 4809 can also be driven by any amplifier up to maximum input current of 7 A RMS with assisted air cooling.

#### Attaching the Exciter

A threaded insert is set into the table surface for attachment purposes. The insert is replaceable and acts as a mechanical fuse, protecting the moving element against damage. For most types of abusive treatment, the inner threads fail before the moving element is damaged. A continuous 8 mm (0.315 in) peak-to-peak displacement is possible. If the exciter should be over-driven, over-travel stops will prevent excessive displacements.

**Fig. 1** Sine performance curves for Vibration Exciter Type 4809 operating without assisted cooling



## COMPLIANCE WITH STANDARDS



The CE marking is the manufacturer's declaration that the product meets the requirements of the applicable EU directives



RCM mark indicates compliance with applicable ACMA technical standards – that is, for telecommunications, radio communications, EMC and EME



China RoHS mark indicates compliance with administrative measures on the control of pollution caused by electronic information products according to the Ministry of Information Industries of the People's Republic of China



WEEE mark indicates compliance with the EU WEEE Directive

**Temperature:** According to IEC 60068-2-1 & IEC 60068-2-2

**Operating Temperature:** 5 to 40 °C (41 to 104 °F)

**Storage Temperature:** -25 to +70 °C (-13 to +158 °F)

**Humidity:** According to IEC 60068-2-3

**Damp Heat:** 93% RH (non-condensing at 40 °C (104 °F))

## SPECIFICATIONS

## Rated Force:

- Without forced air cooling: 44.5 N (10 lbf) sine peak;
- With forced air cooling: 60 N (13.5 lbf) sine peak

**Frequency Range:** 10 Hz to 20 kHz bare table

**Axial Resonant Frequency:** 20 kHz bare table

## Max. Bare Table Acceleration:

- Without air cooling: 736 m/s<sup>2</sup> (75 g)
- With air cooling: 1000 m/s<sup>2</sup> (102 g)

**Max. Displacement:** 8 mm (0.315 in) peak-to-peak

**Max. Velocity:** 1.65 m/s (65 in/s) peak

**Dynamic Weight of Moving Element:** 60 g (0.132 lb)

**Dynamic Flexure Stiffness:** 12 N/mm (69 lbf/in)

**Maximum Input Current:** 5 A RMS; 7 A RMS with forced air cooling

## Current-to-Force Ratio:

- ~0.16 A/N (peak-peak)
- ~6.4 N/A (peak-peak)

## Stray Magnetic Field:

- $20 \times 10^{-3}$  Tesla at table face
- $8 \times 10^{-3}$  Tesla at 12.7 mm (0.5 in) above table face

**Coil Impedance:** Approximately 2 Ω at 500 Hz (bare table)

**Table Diameter:** 29 mm (1.14 in)

**Fastening Thread:** 5 × 5/16" – 18 UNC for M5 and 10–32 UNF inserts

## WEIGHT AND DIMENSIONS

**Weight:** 8.3 kg (18.3 lb)

**Diameter:** 149 mm (5.87 in)

**Height:** 143 mm (5.63 in)

## Type 4809 Vibration Exciter

includes the following accessories:

- 1 × WL-1325: Cable, 4-pin Neutrik speakON connector to two banana plugs, 5 m (16.4 ft)
- 4 × YS-0810: Thread Inserts (M5)
- 4 × YS-0811: Thread Inserts (10–32 UNF)
- 1 × QA-0061: Insert Mounting Tool
- 1 × QA-0029: Tap for 10–32 UNF
- 1 × DB-1416: Hose Connection
- 2 × YM-0414: Nuts
- 5 × YQ-2960: Steel Studs, 10–32 UNF

## Optional Accessories

## TRUNNION

WA-0308 Trunnion

## POWER AMPLIFIER

Type 2718 Power Amplifier (75 VA)

## STRINGERS

**Note:** Other stingers are available, please ask your sales representative.

WZ-0066 Nylon Stinger Kit

- 10 × stingers, length 50 mm
- 10 × stingers, length 120 mm

UA-1596

Five 2.5 mm Push/Pull Steel Stingers, including:

- 10 × adaptors, diameter 2.5 mm to 10–32 UNF
- 5 × steel rods, length 200 mm, diameter 2.5 mm
- 10 × fastening screws

UA-1597

Five 3.0 mm Push/Pull Steel Stingers, including:

- 10 × adaptors, diameter 3.0 mm to 10–32 UNF
- 5 × steel rods, length 200 mm, diameter 3.0 mm
- 10 × fastening screws

## FORCE TRANSDUCERS AND IMPEDANCE HEAD

Type 8230 CCLD Force Transducer (+44/–44 N range)

Type 8230-001 CCLD Force Transducer (+220/–220 N range)

Type 8230-002 CCLD Force Transducer (+2200/–2200 N range)

Type 8230-003 CCLD Force Transducer (+22000/–2200 N range)

Type 8230-C-003 Charge Force Transducer (+22200/–2200 N range)

Type 8231-C Charge Force Transducer (+110000/–2200 N range)

Type 8001 Impedance Head

## ADAPTORS, CABLES, AND STUDS

DB-1443 Adaptor, Male 10–32 UNF to Male ¼"–28 UNF

WL-1325 Cable, 4-pin Neutrik speakON connector to two banana plugs, available in 2 m (6.6 ft), 5 m (16.4 ft) or 10 m (32.8 ft) lengths

UA-0125 Mounting Equipment (including isolated studs YP-0150 and non-isolated studs YQ-2960)

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