MB Dynamics
TECHNOLOGY, TEST PROCESSES & ENGINEERING SERVICES

Vibration Exciter System
MB Energizer RED

Features:

- Quiet package: no exciter noise, no cooling required, optimized design for Squeak & Rattle (S&R) testing
- S&R background noise: running typical S&R random vibration profile of 0.36 g RMS, 8 to 100 Hz, microphone positioned 10" (250 mm) above mounting table; Sound Pressure Level (25 dBA); N10 time varying loudness: <0.1 sone
- Force: 90 lbf pk (400 N pk) forced-air cooled; 40 lbf pk (200 N pk) convection cooled
- Force: 75 lbf RMS (250 N RMS) forced-air cooled; 30 lbf RMS (125 N RMS) convection cooled
- Maximum stroke: 1.5" (38 mm) p-p
- Maximum acceleration: 30 g's pk, bare mounting table
- Bandwidth, full performance: DC to 6000 Hz
- Bandwidth, usable: DC to 9000 Hz
- Armature / mounting table weight: 3.4 lbs (1.6 kg)
- Large mounting table: 4" (100 mm) diameter, with 2" x 2" grid for fixtures (50 mm x 50 mm); ¼"-28 (M6) inserts
- Maximum payload: 13 lbs. (6 kg) vertical or horizontal (without optional air spring)
- Achieves full force with 10 lbs (4.5 kg) payload, vertical or horizontal
- Stiff load support with patented stiff, quiet flexures resist overturning moments due to offset or "high CG" payloads; horizontal CG offset ≤150 mm; safely supports non-centered unbalanced payloads
- Maximum overturning moment: 100 in-lbs. (11 Nm)
- Suspension driven-axis stiffness: 50 lbf/in. (8.8 kN/m)
- Suspension transverse stiffness: 2500 lbf/in. (425 kN/m)
- Lightweight shaker design with trunnion base: 80 lbs (36 kg); 18.5"L x 19"W x 18.5"H (470 mm x 483 mm x 470 mm) footprint when mounted inside trunnion base
- Energizer RED dimensions: 14"L x 12"W x 12.4"H (355 mm x 305 mm x 315 mm)
- CE marked
- Optional shaker cooling: auxiliary fan cooling package or factory air
- Optional portable, bolt-on inertial masses for heavy payload or high-g combinations

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Applications:

- Quiet operation for S&R evaluations and other external/ambient noise sensitive testing
- Robust construction for durability testing
- NVH testing
- Sensor manufacturing quality assurance testing
- In-laboratory R&D instrumentation verifications
- Recommended pairing with with MB500VI amplifier

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Parameter	
Maximum excitation force	Requires cooling, uncooled operation up to 50% of max. excitation force
Sine	400N pk
Random	250N RMS
Peak force (instantaneous)	1000N pk
Max. payload, excitation (both vertical and horizontal)	6 kg (12.5 bs.)
Max. payload with air spring, vertical	1.6 kg (3.4 lbs.)
Weight-Armature plus mounting table	N/A
Acceleration, 5 kg payload, uncooled	N/A
Acceleration, 15 kg payload, uncooled	N/A
Acceleration, 30 kg payload, uncooled	N/A
Accelerations with forced air cooling	2X uncooled
Mounting table diameter (standard)	100 mm (3.9")
Surface mounting pattern	50 mm x 50 mm (M6)
Inserts and bolt-hole pattern	M6 (1/4"-28), 50 mm x 50 mm
Frequency range (less with air spring)	DC to 6000 Hz
Operating background noise	Using a typical S&R test profile
Noise rating curve (NR)	NR16
Sound Pressure Level [dB(A)]*	<25 dB(A)
N10 Time Varying Loudness**	<0.1 sone
Stroke pk-pk	38 mm
Suspension driven-axis stiffness	8.8 kN/m (50 lb/in)
Suspension transverse-axis stiffness	425 kN/m (2500 lb/in)
Max. displacement at test item, pk-pk	38 mm (1.5")
Max. velocity, pk	1.3 m/s (51 in/sec)
Weight including trunnion and HMT mounting base	36 kg (79 lbs.)
Energizer mounting base footprint	470 mm x 483 mm (18.5" x 19")
Height to top of mounting table	315 mm (12.4")
CE mark	Yes
Power requirements	1000 watts, max.
Recommended amplifier	MB500VI
Amplifier input power	120 V or 220 V
Amplifier dimensions, 19" rack; taller cabinets availabile for PC & instruments	N/A
Weight of power amplifier	15 kg (33 lbs.)
Temperature and overtravel control	Optional

* A-weighted, FAST (125 ms) Sound Pressure level over the complete AUDIO frequency range from 20 Hz to 20 kHz

** N10 Time Varying Loudness in accordance with DIN45631/A1, measured in accordance with GMW14011

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