

EMA Damper Test Systems



TECH BRIEF

Applications: Characterization, Quality Assurance, NVH, RPC Road Profile Playback, mechanical Hardware-in-the-Loop (mHIL)

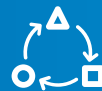
Models/Dynamic Force: 9kN, 18kN, 27kN

Peak Velocity: 4 m/sec

Frequency Response: 100Hz

Digital Encoder Resolution: 1 nm

Facility Requirements: 380-480, 50/60 Hz



Expand testing utility and harmonize lab maintenance and training with a versatile FlexTest controller.



Efficiently create, execute, and analyze a broad spectrum of tests with full-featured MTS Damper software.



Reduce maintenance and down time and increase system longevity with an enhanced linear electric load frame.



Simplify set up, engage active specimens, and achieve PLd rated safe-torque-off operation with EtherCAT communications.

EMA (Electro-Magnetic Actuation) Damper Test Systems offer a high-fidelity, cost-effective solution for single-specimen damper performance testing, supporting applications such as characterization, quality verification, and custom scenarios like NVH analysis, high-velocity testing, and road profile playback.

Electrically actuated EMA systems are renowned among damper R&D engineers, manufacturers, and OEMs for their high frequency response, programmability, and clean, quiet and efficient operation. Easy to set up and maintain, compact EMA systems are ideal for both test lab and trailer deployment.

EMA Gen 2 systems build on proven EMA performance with an array of customer-driven innovations that enhance test integrity, increase system utility, and improve operational efficiency and safety.

Available in 9, 18, and 27 kilonewton models, Gen 2 systems feature a more robust, easier-to-maintain design, including redesigned actuator bearings for improved longevity and larger end stop bumpers that prevent actuator damage. A new EtherCAT-enabled motor drive provides PLd-rated safe-torque-off protection.

Now standard on EMA Gen 2 systems, versatile FlexTest® controllers expand EMA testing utility with multi-channel control for adaptive dampers, RPC road profile playback, and advanced quality assurance features. This harmonizes EMA with all MTS damper equipment, enhancing efficiency in lab maintenance and training.

Also standard, full-featured MTS Damper software with enhanced waveform customization and data analysis provides the flexibility to pursue a broader spectrum of damper performance testing.

Standard Equipment

- Linear Electric Load Frame
- FlexTest Controller
- MTS Damper Software
- System PC and Monitor
- Drive Cabinet
- System Cables
- Clevis Grips

Optional Equipment

- Pneumatic Static Support
- Electric Crosshead Lift and Locks
- CE-Rated Safety Enclosure
- Vibration Isolation Kit
- NVH Package
- Quality Assurance Testing (software)

EMA Damper Test Systems

Compact, easy-to-set-up EMA systems optimize space while delivering high-fidelity damper performance testing, making them ideal for deployment in test labs and proving ground trailers.



EMA Specification ¹	Units	EMA-9kN	EMA-18kN	EMA-27kN
Dynamic Force	kN	8.9	17.8	26.7
	lbf	2000	4000	6000
Static Force	kN	2.1	4.2	6.2
	lbf	475	950	1400
Static Force with Static Load Compensation	kN	7	13	20
	lbf	1475	2950	4400
Peak Velocity	m/sec	4	4	4
	in/sec	157	157	157
Maximum Force at 3 m/s (480V)	kN	6	12	18
	lbs	1,350	2,700	4,050
Stroke	mm	203	203	254
	in	8	8	10
Frequency Response	Hz	100	100	100
Temperature Monitoring	Specimen Motor	Non-contacting IR with software monitoringv Non-contacting IR with process meter monitoring		
Digital Encoder Resolution	nm	1	1	1
Noise Level – Typical	dbA	65	65	65
Load Cell	kN	10kN	35kN	50kN
	lbf	2,200	5,500	11,000
Waveforms Supported	Type Software	Sine, Triangle, Square, Frequency Sweep, Sine-on-Sine, Custom Profile, RPC Payout MTS Damper Analysis Software		
Bearing Material	Type	Dry Linear Bearing – Maintenance Free Replacement Interval: 2-5 yrs		
Facility Requirements ²	Vac		380-480, 50/60 hz	
	kVA	135	135	270
Air Supply	SM ³ /min	0.65	1.3	1.9
	SCFM	23	45	68

¹ Specifications subject to change.

² Maximum performance achieved at 480 Vac.



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