iMPULSE X-Wings35™ Shaker Series 40 kN – 200 kN

With over 50 years of experience, Acutronic is a market leader in developing and manufacturing highly precise and reliable dynamic test systems. Our products, ranging from multi-axis rate tables and centrifuges to custom motion test and simulation solutions, are designed for ultra-high performance and quality.

The iMPULSE X-Wings35™ Series of vibration test systems continues our tradition of supporting customers who are committed to ensuring product lifecycle safety. Our test equipment is essential for evaluating and qualifying products to ensure system safety, intended to be used in a wide range of applications such as construction tools, vehicle components, or medical devices. These products must withstand extreme mechanical stress, shock and vibration throughout their lifespan. This reliability is achieved through rigorous environmental simulation testing during both development and production.

Testing methods, refined over decades with manufacturers, OEMs, and accredited laboratories, are embedded in global standards*, proving their effectiveness. Critical products support daily life and drive innovation across industries such as manufacturing, medical devices, chemical processes, aerospace, defense, and energy systems.

***Examples include ISO, BS, MIL, IEC, AECTP and ASTM:**

IEC 60068	General standards for Environmental Simulation
IEC 68 3-3	Seismic Loads // Earthquake Simulation
ISO 16750	Loads for Road Vehicles
IEC 60721	Transport Loads: Road Transport, Rail Transport
IEC 61373	Loads for Rail Vehicles
ISO 19453-6	Loads for E-Mobility Vehicles

Acutronic's advanced vibration testing systems ensure these products meet the highest standards of safety, reliability, and performance, delivering results users can all trust.

Unique Design Elements and Performance Characteristics:

- **AcuVibe Commander:** Provides user-friendly and safe operation of the PLC through sleek graphical interface
- **iPS – intelligent Power Saving mode:** Optimizes power consumption with cost savings up to 85%
- **EtherCat Communication:** Ensures high-speed, real-time data exchange for precise control and monitoring
- **Scalable Interlocks and Input Management:** Provides flexible and secure system integration
- **Automatic Body Centering Controlled by PLC:** Enhances accuracy and efficiency in test setups
- **Automatic Armature Centering Controlled by PLC:** Ensures optimal alignment and performance
- **Position Measurement Accuracy of 0.1mm:** Offers superior precision compared to traditional limit switches
- **Datalogging in the PLC:** Facilitates comprehensive data collection and analysis
- **IoT Ready:** Enables seamless integration with modern IoT ecosystems for advanced monitoring and control
- **In-Axis Cable Routing:** Minimizes interference and enhances system reliability

UN 38.3.	Transport Loads for Dangerous Goods // Li-Ion Battery Systems
MIL-STD 810 G	Environmental Engineering Considerations and Laboratory Tests
AECTP 400	Mechanical Environmental Test according to NATO Standards
ASTM	American Society US Transportation Standards for Rail, Road, Air, Sea

Specification / System	40 – 400A	60 – 450A	90 – 450W	140 – 600W	200 – 650W
Armature diameter	400 mm	450 mm	450 mm	600 mm	650 mm
Force Sine	40 kN	60 kN	90 kN	140 kN	200 kN
Force Random[1]	40 kN rms	60 kN rms	90 kN rms	140 kN rms	200 kN rms
Shock Force[2]	120 kN	180 kN	270 kN	420 kN	600 kN
Frequency Range	5-2500 Hz	5-2500 Hz	5-2500 Hz	5-2500 Hz	5-2500 Hz
Acceleration Sine	1000 m/s^2	1000 m/s^2	1000 m/s^2	1000 m/s^2	1000 m/s^2
Acceleration Random	1000 m/s^2 rms	1000 m/s^2 rms	1000 m/s^2 rms	1000 m/s^2 rms	1000 m/s^2 rms
Acceleration Shock	2000 m/s^2	2000 m/s^2	2000 m/s^2	2000 m/s^2	2000 m/s^2
Velocity Sine[3]	2 m/s	2 m/s	2 m/s	2 m/s	2 m/s
Velocity Random	3 m/s	3 m/s	3 m/s	3 m/s	3 m/s
Velocity Shock[4]	3.5 m/s	3.5 m/s	3.5 m/s	3.5 m/s	3.5 m/s
Displacement Sine[5]	76 mm; 3 in	76 mm; 3 in	76 mm; 3 in	76 mm; 3 in	76 mm; 3 in
Displacement Shock	76 mm; 3 in	76 mm; 3 in	76 mm; 3 in	76 mm; 3 in	76 mm; 3 in
Max Payload (static)	600 kg	600 kg	600 kg	800 kg	1000 kg
Cooling type	Air	Air	Water	Water	Water

Head expander[6] (mm x mm) [in]	■ SQ600 600 x 600 [24“]	● OC600 600 x 600 [24“]	■ SQ800 800 x 800 [32“]	● OC800 800 x 800 [32“]	■ SQ1000 1000 x 1000 [40“]	● OC1000 1000 x 1000 [40“]	■ SQ1200 1200 x 1200 [48“]
40 – 400A	X	X	X	X			
60 – 450A			X	X			
90 – 450W			X	X	X[7]	X[7]	X[7]
140 – 600W			X	X	X	X	X[7]
200 – 650W					X	X	X[7]

Sliptable[6] (mm x mm) [in]	■ H-ST600 600 x 600 [24“]	■ H-ST800 800 x 800 [32“]	■ H-ST1000 1000 x 1000 [40“]	■ H-ST1200 1200 x 1200 [48“]	■ H-ST1400 1400 x 1400 [56“]	■ H-ST1600 1600 x 1600 [64“]
40 – 400A	X	X	X			
60 – 450A	X	X	X			
90 – 450W		X	X	X		
140 – 600W			X	X	X	X
200 – 650W			X	X	X	X

Technical data subject to change.

^1 In accordance to DIN ISO 5344 :2016

^2 Half-sine shock

^3 Long term high velocity at high displacement has a derating as eddy currents can occur and heat up the armature

^4 In order to perform the shock test with 11ms @ 100g, the peak velocity of about 3.5m/s will be achieved.

^5 The displacement is not limited by the sine displacement but the mechanical limit. Long term sine tests at large displacements will increase wear and tear substantially!

^6 Standard combination / other combination on request

^7 requires external guidance

The specifications identified in this data sheet are representative of standard systems. To satisfy customer specific requirements ACUTRONIC is able to design systems with specifications that are increased or decreased relative to standard systems.