X-Act 325
Universal Shaker

MB DYNAMICS
Sound & Vibration Testing Technology

Water-cooled universal shaker for vibration tests and modal analysis

The X-Act 325 is a universal electromagnetic shaker with a force of 300N sine pk and a maximum displacement of 25mm pk-pk. Unlike conventional shaker systems, the X-Act 325 can be cooled with air or water as standard. The much more efficient water cooling allows the X-Act 325 to operate continuously and quietly at high excitation forces where otherwise only bigger, more expensive and noisier air-cooled shakers can be used. The compact dimensions and low weight enable mobile use and ease the positioning and alignment of the system. For component testing, an exchangeable shaker table with a diameter of 115mm and integrated M6 threaded inserts is used. For modal analysis the vibration table is simply exchanged for a collet chuck. Due to the low weight of the moving element, interactions with the structure to be examined are minimized while maximizing the peak accelerations. A through-hole in the moving element also allows the use of pretensioned wires to introduce the generated dynamic forces into the structure under investigation. When using a stinger, the length of the stinger can be adjusted by clamping it in a chuck. Due to the high radial stiffness and rigidity the X-Act 325 is significantly less sensitive to transvers forces compared than typical modal shaker systems.



Figure 1: X-Act 325 shaker with 115mm mounting table for component testing

Features & Advantages:

- Universally applicable for vibration testing and modal analysis
- Light and portable, weight approx. 18kg
- Compact design
- Excitation force: 300N sine peak
- Water cooling enables quiet continuous operation with high excitation forces
- Air cooling also possible
- Max. Vibration displacement: 25mm pk-pk
- Frequency range: DC-3000Hz, usable up to 5kHz
- Robust design, low maintenance, reliable and durable
- Integrated temperature monitoring
- Can be used in a temperature range from -40°C to +80°C
- Remote control and monitoring of the shaker and power amplifier
- Low stray magnetic fields

Typical applications:

- Structural and modal analysis
- Material and component testing
- Active vibration compensation

Options / Accessories:

- Mounting tables in different sizes
- External air spring to support large and heavy test specimens



Figure 2: X-Act 325 shaker with collet and stinger for modal testing

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Technical data:

***X-Act* 325 shaker**	
Max. dynamic excitation force	
Sine	300N pk
Random	180N RMS
Shock, Time History	450N instantaneous peak
Max. displacement	25mm pk-pk
Max. velocity	1m/s
Max. acceleration with 110mm mounting table*	
bare table, Sine	25g pk
bare table, Shock	38g pk, instantaneous peak
1kg payload, Sine	13g pk
1kg payload, Shock	20g pk, instantaneous peak
2kg payload, Sine	9g pk
2kg payload, Shock	14g pk, instantaneous peak
Max. acceleration with collet, no load*	
Sinus	42g pk
Shock	64g pk, instantaneous peak
Frequency range*	3Hz-3000Hz, usable up to 5000Hz (optional DC-3000Hz)
Diameter mounting table	115mm, other sizes on request
Moving mass with collet, modal analysis	0,7kg
Moving mass with 115mm test table, vibration test	1,2kg
Axial stiffness	Approx. 10N/mm
Max. payload, without external air spring	2kg
Max. payload, with external air spring	Approx. 25kg
Max. coil current	16A RMS / 40A pk (instantaneous)
Coil resistance	1Ohm
Max. thermal power loss	290 Watt
Temperature monitoring	Yes, integrated temperature sensor
Integrated cooling	Water cooling or pressure air
Temperature range, with water cooling	-40°C to +80°C
Dimensions X-Act 325 (Diameter * Height)	115mm ø * 343mm
Dimensions with trunnion base	171mm * 200mm * 376mm
Weight including trunnion base	Approx. 18 kg

* Load dependent



