

Water-cooled vibration systems from 60 kN to 300 kN

TIRA water-cooled shakers are hydrostatically guided and cooled by a closed-loop water cooling system. The external cooling unit also provides the guidance lubricant for the hydrostatic bearings which enable a frictionless guidance of the armature. Water-cooled vibration test systems have the advantage of generating very high forces to test heavy payloads at high acceleration. Payloads of up to 2500 kg are possible.

A built-in fully automatic, pneumatic operated load compensation system allows the realization of the nominal vibration displacement, even with heavy test loads.

- Up to 76.2 mm (3 inch) displacement
- Shaker water circuit with overpressure

- Dual Bearing-System for enhancement of cross axial stiffness and reduction of wear
- Automatic permanent conductance monitoring of the cooling water
- Automatic centering of the AIT-System and the armature
- AIT-System fixable to use the full displacement also at low frequencies
- Power save function (Field power reduction)



Shaker S 59389/AIT-440

System	TV 59360/AIT-440	TV 59374/AIT-440	TV 59389/AIT-440	TV 59410/AIT-440	TV 59416/AIT-590	TV 59420/AIT-590	TV 59430/AIT-840
Shaker	S 59360/AIT-440	S 59374/AIT-440	S 59389/AIT-440	S 59410/AIT-440	S 59416/AIT-590	S 59420/AIT-590	S 59430/AIT-840
Amplifier	A 5 40 3 158	A 5 40 3 180	A 5 40 3 203	A 5 40 3 225	A 5 85 3 293	A 5 85 3 338	A 5 00 3 360/ext. FPS
Cooling Unit	C 59410	C 59410	C 59410	C 59410	C 59430	C 59430	C 59430
Rated peak force (N) Sine _{pk} / Random _{RMS} / Shock _{pk} ¹	60000/60000/180000	74000/74000/222000	89000/89000/267000	100000/89000/300000	168000/168000/504000	200000/168000/600000	300000/270000/900000
Frequency range (Hz)	5 - 2400	5 - 2400	5 - 2400	5 - 2400	5 - 2000	5 - 2000	5 - 1800
Max. displacement Pk-Pk(mm) Sine/Random/Shock	50.8/50.8/50.8 ²	50.8/50.8/50.8 ²	50.8/50.8/50.8 ²	50.8/50.8/50.8 ²	50.8/50.8/50.8	50.8/50.8/50.8	50.8/50.8/50.8 ²
Max. velocity (m/s) Sine/Random/Shock	2.0/2.0/3.0	2.0/2.0/3.0	2.0/2.0/3.0	2.0/2.0/3.0	2.0/2.0/3.0	2.0/2.0/3.0	2.0/2.0/3.0
Max. acceleration (g) Sine/Random/Shock ¹	100/90/250	100/90/250	100/90/250	100/90/250	100/100/250	100/100/250	70/70/250
Suspension stiffness (N/mm)	175	175	175	175	250	250	450
Effective moving mass (kg)	58	58	58	58	125	125	275
Max. weight tested (kg)	910	910	910	910	1300 (7 bar)	1300 (7 bar)	2500
Main resonance frequency (Hz)	2100	2100	2100	2100	1700	1700	1500
Weight (kg)	4500	4500	4500	4500	8450	8450	18500
Stray magnetic field (mT)	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Armature (ø/mm)	440	440	440	440	590	590	840
Max. power consumption at 400V (kVA) incl. Blower	100	120	143	167	249	290	360 (FPS:140)
Interlocks	Temperature, overtravel, overcurrent, compressed air, water flow rate, differential pressure, conductance	Temperature, overtravel, overcurrent, compressed air, water flow rate, differential pressure, conductance	Temperature, overtravel, overcurrent, compressed air, water flow rate, differential pressure, conductance	Temperature, overtravel, overcurrent, compressed air, water flow rate, differential pressure, conductance	Temperature, overtravel, overcurrent, compressed air, water flow rate, differential pressure, conductance	Temperature, overtravel, overcurrent, compressed air, water flow rate, differential pressure, conductance	Temperature, overtravel, overcurrent, compressed air, water flow rate, differential pressure, conductance

¹Theoretical maximum shock value. Depends on payload, amplifier, shock and shock width

²Optionally displacement of 76.2 mm (3 inch), impact by moving to static mass and frequency is possible