Modal systems from 4 kN to 15 kN

Specially to meet the requirements for **modal and structure analysis**, **TIRA** offers a range of modal systems from 4 kN up to 15 kN. These shakers are characterized by **high cross axial stiffness** and permit a max. displacement of up to 100 mm (pk-pk) due to **TMC control**.

TMC is an electronic armature position control system for precisely coupling the modal shaker to the specimen. The armature datum level adjustment allows the operator to offset the nominal position of the armature in relation to the body. The axial stiffness can also be adjusted electronically.

A standard feature on all modal shakers is a swivel-frame. This allows a great variety of coupling options.

Modal shaker S 55240-M/LSS

System	TV 55240-M/LSS	TV 56263-M/LSS	TV 56280-M/LSS	TV 51010-M/LSS	TV 57315-M/LSS
Shaker	S 55240-M/LSS	S 56263-M/LSS	S 56280-M/LSS	S 51010-M/LSS	S 57315-M/LSS
Amplifier	A 1 01 3 023 T	A 1 02 3 023 T	A 1 02 3 023 T	A 3 01 3 045 T	A 3 01 3 045 T
Blower	TB 0310	TB 9	TB 9	TB 120	TB 120
Rated peak force (N) $Sine_{pk}$ / $Random_{RMS}$	4000/3400	6300/4300	8000/6000	11000/9000	15000/11000
Frequency range (Hz)	5 - 2000	5 - 2000	5 - 2000	5 - 2000	5 - 2000
Max. displacement (mm)[1] Pk - Pk	100	100	100	100	100
Max. velocity (m/s) Sine/Random	2.0/2.0	2.0/2.0	2.0/2.0	2.0/2.0	2.0/2.0
Effective moving mass (kg)	11.0	12.0	12.0	14.0	18.0
Main resonance frequency (Hz)	>2500	>2500	>2500	>2500	>2500
Weight with trunnion (kg)	800	850	850	1200	1200
Coupling (Thread ø/mm)	M10	M10	M10	M10	M10
Max. power consumption at 400 V (kVA) incl. Blower	7.7	14.6	16	28.2	38

[1] only with foundation mounting

TIRA Vibration Test Systems – Modal systems

Modal systems from 100 N to 2.7 kN

These exciters are specifically designed for **modal and structure analysis**. Modal shakers up to 400 N are excited by permanent magnets, with **lightweight** rare earth magnets provided for mobile use. These shakers are characterized by **high cross-axial stiffness**. From 1000 N onwards, modal systems permit a max. displacement of 50.8 mm due to **TMC control**. TMC is an **electronic armature position control system** for precisely coupling the modal shaker to the specimen. The armature datum adjustment allows the operator to offset the nominal position of the armature in relation to the body. The axial stiffness can also be adjusted electronically.

A standard feature on all modal shakers is a swivel-frame. This allows a great variety of coupling options.

The Modal system TV 51130-MSC is a special development of TIRA to increase the mobility. The 350 N vibration exciter has an integrated air cooling to make an external cooling unit unnecessary.

System	TV 51110-M	TV 51120-M	TV 51130-MSC	TV 51140-M
Shaker	S 51110-M	S 51120-M	S 51130-MSC	S 51140-M
Amplifier	BAA 120	BAA 500	BAA 500-MSC	BAA 1000
Blower	–	TB 0080	internal	TB 0140
Rated peak force (N) $Sine_{pk}$ / $Random_{RMS}$	100/70	200/140	350/200	400/311
Frequency range (Hz)	5 - 5000	5 - 5000	5 - 500	5 - 5000
Max. displacement (mm) Pk - Pk	13	13	9	20
Max. velocity (m/s) Sine/Random	1.5/1.5	1.5/1.5	1.3/1.3	1.5/1.5
Suspension stiffness (N/mm)	8	8	70	5
Effective moving mass (kg)	0.23	0.23	0.5	0.4
Main resonance frequency (Hz) (free-swinging)	>6000	>6000	>4000	>2300
Weight with trunnion (kg)	12	12	27	18
Coupling (Thread ø/mm)	M6	M6	M8	M6
Max. power consumption at 230 V (kVA) Amplifier/Blower	0.08/-	0.35/0.46	0.35 (inkl. Gebläse)	1.22/1.4

System	TV 5220-M	TV 50303-M	TV 50350-M
Shaker	S 5220-M	S 50303-M	S 50350-M
Amplifier	BAA 1000-ET	A 1 01 1 003 T	A 1 01 1 004 T
Blower	TB 0140	TB 0200	TB 0310
Rated peak force (N) $Sine_{pk}$ / $Random_{RMS}$	1000/650	2000/1000	2700/2000
Frequency range (Hz)	5 - 5000	5 - 3000	5 - 3000
Max. displacement (mm) Pk - Pk	50.8	50.8	50.8
Max. velocity (m/s) Sine/Random	1.5/1.5	1.5/1.5	1.5/1.5
Suspension stiffness (N/mm)	[1]	[1]	[1]
Effective moving mass (kg)	1.3	2.2	2.3
Main resonance frequency (Hz)	>3000	>3000	>3000
Weight with trunnion (kg)	122	280	280
Coupling (Thread ø/mm)	M8	M8	M8
Max. power consumption at 230/400 V (kVA) Amplifier/Blower	2.1/2.4	5 (incl. Blower)	6 (incl. Blower)

[1] Electronic 0 – point regulation with adjustable stiffness

Modal shaker S 51120-M

Modal shaker S 51130-MSC