SYSTEM SELECTION NOTES

The system ratings are prepared as per the directions of ISO document 5344.

The following information assists in selecting a suitable configuration for your intended application.

To frame out ratings of a vibration system based upon test application calls for extensive calculations and analysis as all parameters are interlinked closely with specimen mass, dimension, frequency range and test axes playing a vital role. The selection of a suitable Vibration Test System is the most important aspect of application engineering. An electrodynamic shaker system consists of various sub-systems that perform independent functions but affect the overall performance of the system.

- **Selecting A Vibration System**

System force requirement is estimated using the following formula:
Force (F) = Mass (m) × Acceleration (a)
where:
Force (F) is in Kgf.
Mass (m) is the total mass i.e. armature mass+mass of test specimen+ fixture mass+ payload support mass.
Acceleration (a) is the peak value in 'g' (acceleration due to gravity) which is equal to 9.80665 m/s.*2*

- **Sine Ratings**

Sine force rating is computed with the test loads provided the maximum acceleration level for shaker.
'Endurance'
by sweeping is an appropriate method for simulating the effect of stresses experienced by specimen.
The value of displacement is associated with a corresponding value of acceleration in such a manner that the magnitude of vibration is same at the cross-over frequency. The frequency range is thus programmed and swept continuously changing from constant displacement to constant acceleration and vice-versa at the cross-over frequency.

- **Random Ratings**

The force ratings are based on flat spectrum of 100 Hz to 2000 Hz with a 20 db/decade roll-off from 100 down to 20 Hz, with loads equal to or greater than twice the armature mass.

- **Shock Ratings**

The shock capability of the system is determined by the test profile such as pulse duration, pulse amplitude, pre and post pulse percentage etc.

- **Standard Cable Sets**

All system are defined with standard 5 metre length cable. Alternative length cable sets can be provided on request, however, the system performance reduces with additional length.

Range of Vibration systems for selection

Shaker-Amplifier	Armature		Sine Force		Random Force		Acceleration (g)	Displacement (p-p) mm	Velocity (m/s)	Payload (Kg)
	Diameter (mm)	Wight (kg)	kgf	lbf	kgf	lbf				
Air Cooled series										
• SEV 125/ SPA 500V	125	1.5	70	155	50	110	40	15	1.0	12
• SEV 125/ SPA 1K	125	1.7	100	220	70	154	60	20	1.2	12
• SEV 125/ SPA 2K	125	1.9	150	330	105	231	80	20	1.2	12
• SEV 140/ SPA 2K	140	3	100	220	70	154	33	25	1.4	12
• SEV 140/ SPA 3K	140	3	200	440	140	308	67	25	1.4	20
• SEV 140/ SPA 4K	140	3.5	300	660	200	440	90	25	1.4	20
• SEV 180/ DSA 4K	180	8	400	880	280	620	50	38	1.6	150
• SEV 180/ DSA 6K	180	8	600	1320	400	880	75	38	1.6	150
• SEV 180/ DSA 8K	180	9	800	1760	490	1078	90	38	1.6	150
• SEV 240/ DSA 8K	240	14	700	1540	700	1540	50	38	1.7	250
• SEV 240/ DSA 10K	240	13	1000	2200	1000	2200	75	38	1.7	250
• SEV 240/ DSA 15K	240	15	1500	3300	1500	3300	100	38/51	1.7	250
• SEV 400/ DSA 16K	400	30	1200	2640	1200	2640	40	51	1.8	350
• SEV 400/ DSA 24K	400	30	1800	3960	1800	3960	60	51	1.8	350
• SEV 400/ DSA 32K	400	30	2200	4840	2200	4840	72	51	1.8	350
• SEV 360/ DSA 24K	360	30	2000	4400	2000	4400	67	51	1.8	350
• SEV 360/ DSA 36K	360	31	2500	5500	2500	5500	90	51	1.8	350
• SEV 360/ DSA 40K	360	32	3200	7040	3200	7040	100	51/ 65	1.8	350
• SEV 440/ DSA 42K	440	48	3600	7920	3600	7920	75	51/ 76	1.8	600
• SEV 440/ DSA 48K	440	48	4200	9240	4200	9240	90	51/ 76	1.8	600
• SEV 440/ DSA 56K	440	48	4800	10560	4800	10560	105	51/ 76	1.8	600
• SEV 440/ DSA 62K	440	48	6000	13200	6000	13200	125	51/ 76	1.8	600
Water Cooled series										
• SEW 435/ DSA 120K	435	80	8000	17600	8000	17600	100	51	2.0	950
• SEW 500/ DSA 140K	500	100	10000	22000	10000	22000	100	51	2.0	1500
• SEW 590/ DSA 196K	590	150	16000	35200	16000	35200	100	38/ 51	2.0	3000
• SEW 635/ DSA 240K	635	170	18000	39600	18000	39600	100	51	2.0	3000
• SEW 765/ DSA 280K	765	240	24000	52800	24000	52800	70/100	51	2.0	4000

Notes :
1) Rated Modular Power Amplifiers are available for higher velocity and shock requirements and for other brand Shakers on request.
2) Air-blower-system is provided with hose-pipe for Air-cooled shakers and for the Water-cooled shakers, the Water-cooling-system is configured in movable rack console containing heat exchanger and water line status display.
3) Power Amplifier is configured with a Microcontroller based Digital-Logic-Unit as a user-interfaced panel which has feather touch controls and a backlit alphanumeric display.
4) Selection matrix for payload attachments can be referred from the respective literature. Customized sizes of attachments like Slip Table, Head Expanders & Load Bearing platforms are available on request.
5) The formal quote provided by the company or an authorized distributor, supersedes the above printed specifications used in general testing applications.