C-Series "HP" Electro-Dynamic Shaker Systems

P-Series Power Amplifiers drive C-Series

Historically Large Installed Base

The MB Dynamics C10E, C40HP, C90HP and C150HP Electrodynamic Shakers comprise current deliverables in a long history of reliable and rugged shakers earning a well-deserved reputation for high performance, longevity, and dependability. They build upon MB's family of C-Series products (C10, C25, C40, C50, C60, C90, C125, C126, C150, C200, C210, C220) with a heritage spanning 50 years.

Versatile Shakers

The C-Series "HP" Shakers offer exceptionally high acceleration levels with stiff armatures, have 50mm of stroke (continuous duty), full performance SINE & RANDOM tests out to 3000 Hz (usable, at reduced levels, out to 4000 Hz), rugged armatures with no resonances below 2000 Hz, reliable for shock testing using classical pulses (half sine, sawtooth, etc.) as well as time history replication, force ratings from 5kN to 80kN, vertical & horizontal operation, direct-coupled, automatic payload recentering, and trunnion isolation.

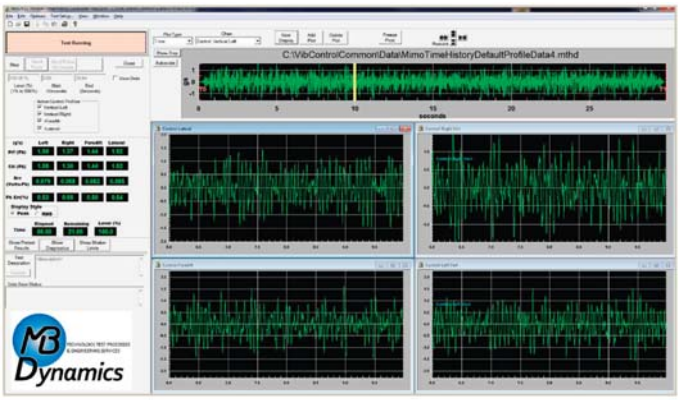
shakers. Amps are air-cooled, pulse width modulated using MOSFET technology, 85-90% efficient, 100 - 215 VRMS output, peak currents of 3X continuous-duty, 6 and 18 kVA power modules, usable bandwidth from DC – 5000 Hz, 0.2% distortion, direct coupled, 19" racks, integral shaker field supply, control panel with normal indicators and interlocks, and reliable. The high fidelity, low noise MOSFET design is used in the medical imaging field.

Total System Supplier

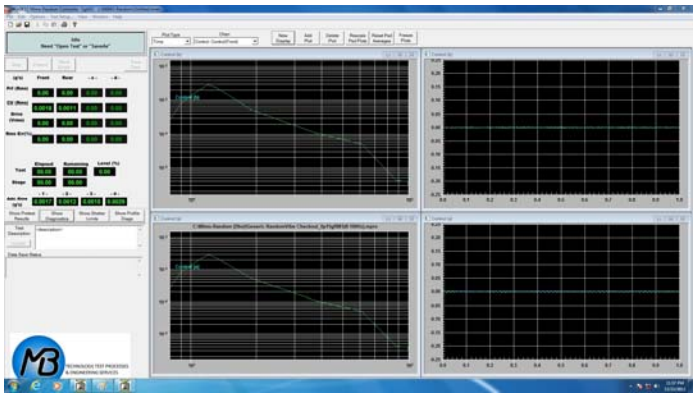
MB delivers turnkey vibration test systems including PC-based Win2K10 vibration and shock controllers MISO software or MIMO software(sine, random, shock, time history, sine-on-random, SRS, etc. up to 8-channels), special-purpose fixtures, head expanders (featuring the 2424 Ultra-Stiff with no troublesome resonances below 2250 Hz), oil-film slip table assemblies from 400mm up to 1200mm square of test item mounting area, *horizontal moving tables with patented flexures for extremely quiet operation yet highly resistant to overturning moments (No oil, No Oil Pump)* air-isolated common bases for the shaker and slip table, AGREE systems for combined environmental and vibration testing, data acquisition hardware & software, and

25865 Richmond Rd • Cleveland OH • 44146 • 216-292-5850 • fax: 216-292-5614 • email: mbd@mbdynamics.com • web: www.mbdynamics.com

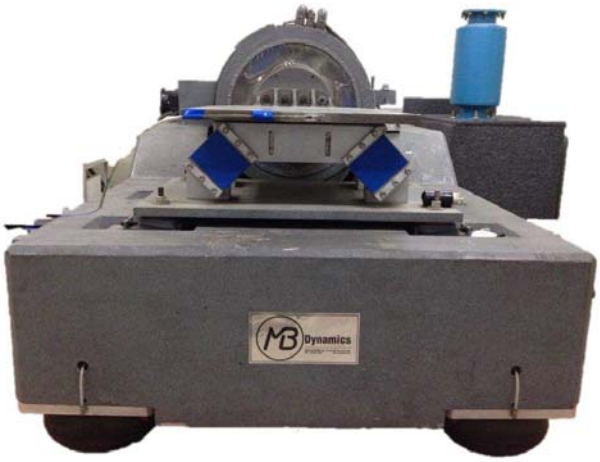
vibration and acoustic instrumentation and signal conditioning.



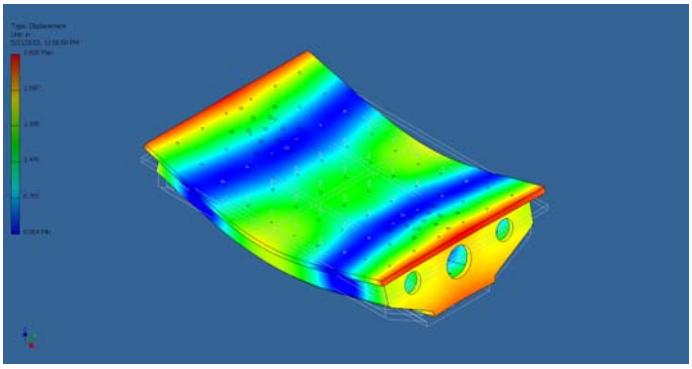
MIMO Control software - 4 axis



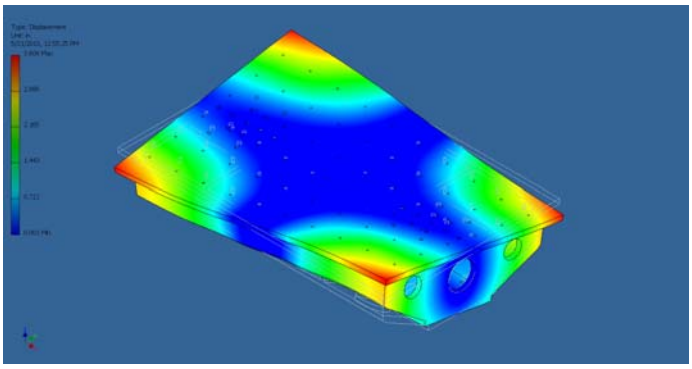
MIMO Control software - 2 axis



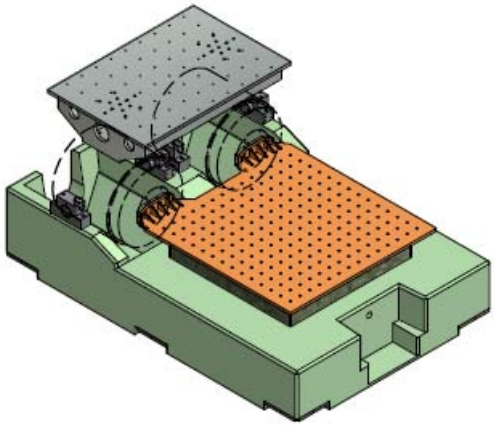
Horizontal moving tables with patented flexures for extremely quiet operation yet highly resistant <u>to overturning moments (No oil, No Oil Pump)</u>



5940 (1.5m x 1.0m) Head Expander, 1st Flexure Mode, 584Hz



5940 (1.5m x 1.0m) Head Expander, 1st Torsional Mode, 524Hz



Dual Shaker configuration for large mounting table

Whether in a small or large lab, an MB vibration test system is the preferred choice for busy people on limited budgets. Combine that with MB's applications experience and you have an "HP" system that provides superior performance for many years to come.

MB Dynamics Innovating and Delivering Solutions ...Vibration and Shock

Traditional Single-Axis Shakers
Maximum Ratings

C-SERIES SHAKERS	P-SERIES AMPLIFIERS			FORCE RATINGS			Max Accel g's pk	SINE Velocity ips pk	SHOCK Velocity ips pk	30g 11ms Payload	Cont. Duty Stroke in pk-pk	Full Perform. Freq. Range Hz	ARMATURE			
	kVA Rating	Coupling DC/Match	Configuration MF=Max Force MV=Max Velocity	SINE[1] lbs pk	RANDOM[2] lbs rms	SHOCK lbs pk							Axial Res. Hz	Wt lbs	Outer Bolt Circle inches	Diam. inches
C150HP	72 kVA 48 kVA	DC DC	MF & MV MF & MV	17,500 10,000	15,000 9,000	35,000 16,000	150 90	70 70	70 70	800 450	2	2-3 k	2,400	100	16	17.25
C90HP	48 kVA 36 kVA	DC DC	MF & MV MF & MV	10,000 9,000	8,500 6,000	17,000 15,000	120 120	70 70	70 70	500 420	2	2-3 k	2,550	42	12	13.25
C40HP	18 kVA	DC	MF & MV	5,000	4,000	8,000	110	70	70	200	2	2-3 k	2,550	42	12	13.25
C10E	6 kVA	DC	MF & MV	1,200	950	2,400	68	70	70	60	1	2-3 k	3,000	17.50	8.00	9.25

PM-SERIES SHAKERS	MB and P-SERIES AMPLIFIERS			FORCE RATINGS			Max Accel g's pk	SINE Velocity ips pk	SHOCK Velocity ips pk	30 g 11 ms payload	Max Stroke in pk-pk	Freq. Range Hz	ARMATURE			
	Model	Coupling DC/Match		SINE[1] lbs pk	RANDOM[2] lbs rms	SHOCK lbs pk							Res. Hz	Weigh t lbs	Bolt Cricle inches	Diam. inches
PM500HP	PVL	DC		500*	250*	500	80	55	55	10	2	DC-3 k	2,800	6.2	3.5	4.1
PM250HP	MB1000VI	DC		250*	125*	250	80	55	55	5	2	DC-3.5 k	3,000	3.1	3.5	4.1
PM100A	MB500VI	DC		100*	50*	100	106	70	70	2	0.5	DC-7 k	6,000	0.94	2.25	2.7
PM50A	MB500VI	DC		50*	25*	50	80	70	70	1	0.5	DC-10 k	8,000	0.62	2.25	2.7
PM25A	MB500VI	DC		25*	12*	25	50	70	70	0.3	0.5	DC-10 k	8,000	0.5	2.25	2.7

Specifications subject to change without notice 06/09

**Derate PM Sine force ratings by 50% if no forced air used*

[1] assumes 1 octave/min sweep rate in full-performance frequency range with pure mass payload equal to the armature weight

[2] assumes 20-2000 Hz flat, equalized PSD with pure mass payload weighing 5 times the armature weight. Vibration response contains 3 sigma peaks