

LW163.141-60 Modal Test System

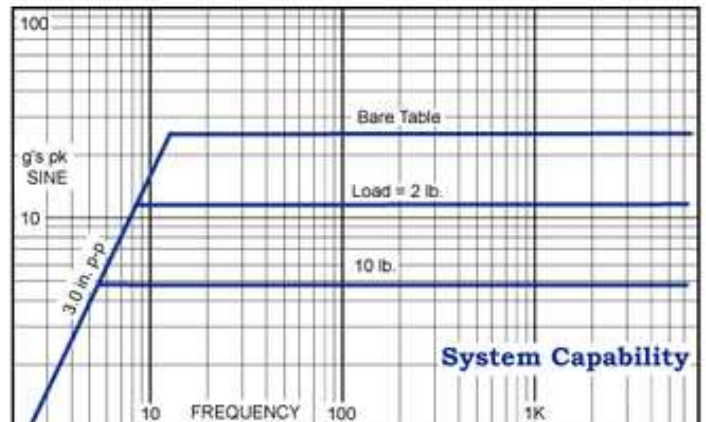


The LW163.141-60 system utilizes the Labworks MT-163 3"p-p thruster and pa-141 linear power amplifier to form our highest force 3" stroke permanent magnet field modal test system. The thruster's 3.0 inch stroke capability and low suspension spring rate makes this system ideal for most modal test applications. The thrusters armature features a through hole, and a single collet stinger attachment to accommodate both tension wire and stinger modal testing. The PA-141 amplifier is direct coupled to the shaker to give the maximum performance at both low and high frequencies and can be easily switched from voltage source mode to current source mode for force input testing applications. The standard voltage-proportional-to-current amplifier signal output facilitates servoed test operation. Dual bar graphs display the system operating levels and internal and external interlocks help protect the system from accidental abuse.

General Specifications

Sine force	60 lbs force pk
Blocked Armature Sine Force	60 lbs force pk
Random force	25 lbf rms random
Shock force	70 lbf pk shock
Frequency Range:	DC to 6500 Hz
Maximum Acceleration:	24 g pk, bare table 17 g pk, 1 lb. load 8 g pk, 5 lb. load
Maximum Displacement:	3.0 inch pk-pk
Cooling:	Amplifier: 2-Speed Fan Shaker: Cooling vacuum
Power Requirements:	3,000 VA @ 100*, 110*, 200, 220, or 240V, single phase 50/60 Hz

*special service req'd



System Components*

- MT-163 Modal Thruster
- PA-141 Linear Power Amplifier
- MS-129-163 Modal Stinger Kit
- Interconnect Cables and Hoses
- CB-152-163 Cooling Vacuum

System Options*

- VL-144/VL-145 Vibration Controller
- SC-121 Sine Servo Controller
- SG-135 Manual Sine Controller
- Amplifier Rack Mount Brackets
- Rack Cabinet
- Accelerometer Package
- SI-163 Base Isolation Mount

MT-163 Modal Thruster

- 60 pounds pk sine force
- 3.0 inch stroke
- Armature Collett sizes:
1/32", 1/16", 5/32", 1/14"
- 1/4" Through-Hole
- Low stray magnetic field
- Frequency range² DC-6,500 Hz.
- Trunnion mounting base
- Stinger Kit



General Specifications

Performance

Sine force	
Natural cooling	30 lbf pk
With blower	60 lbf pk
Max displacement	3.0 in
Max velocity	120 ips pk
Acceleration	
Bare table	24 g pk
1 lb load	17 g pk
5 lb load	8 g pk
Max acceleration	
Resonat	200 g pk
Frequency range ²	DC-6500 Hz
Fundamental resonance ²	4000-5000 Hz
Stray magnetic field	
Measured 1.5" above collet	<8 gauss
Measured 1.0" from body	<20 gauss
Cooling	100 CFM/15 in H2O

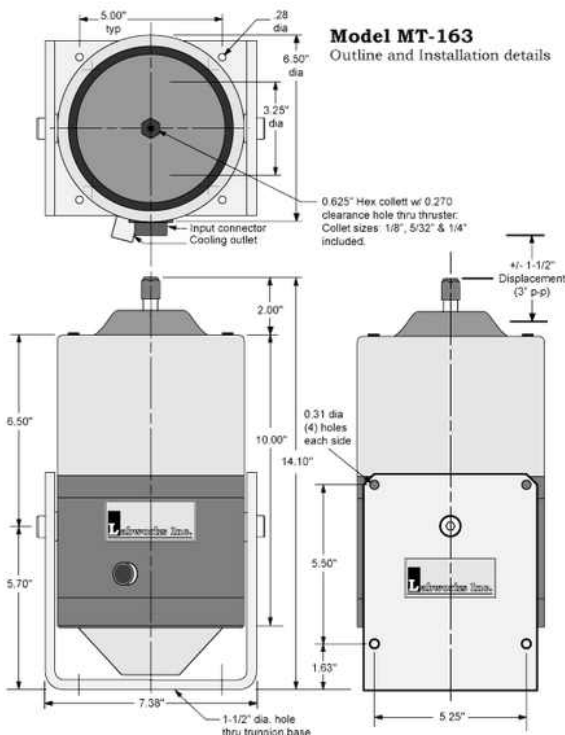
Physical

Armature weight		2.5 lb
Suspension stiffness	3.3 lb/in	
Rated armature current, Arms		
Natural cooling: -1, -2	15 A, 9 A	
With blower: -1, -2	30 A, 18 A	
Dimensions	14.1"H x 7.5"W x 6.5"D	
Shaker weight	54 lbs	

¹Please see systems ratings for additional specifications.

²Load dependent.

Model MT-163
Outline and Installation details



The MT-163 Modal Thruster's compact size and extra long stroke armature make it well suited for all types of modal testing. The MT-163 Thruster has a compression collet stinger attachment and features a central through-hole suitable for modal stinger and pre-tensioned wire testing applications. The MT-163 trunnion base facilitates bolting the shaker in place for rigid applications or the use of adjustable mounting feet. Four mounting holes located on each side of the universal trunnion base provide a convenient method for hanging the thruster for suspended applications and a large hole through the base bottom allows long stinger rods and wires to pass completely through the thruster and trunnion base in virtually any thruster angle position.

Reliability is assured through the use of the unique, dual linear ball bearing armature suspension design. This design provides for very low axial stiffness while retaining very high lateral stiffness. Cushioned rolling components insure against unwanted harmonics and distortion. The Thrusters low force recentering spring helps to keep the armature centered for low compliance test setups. When combined with the correct Labworks linear power amplifier, the resulting system is unmatched for reliability, performance and cost.

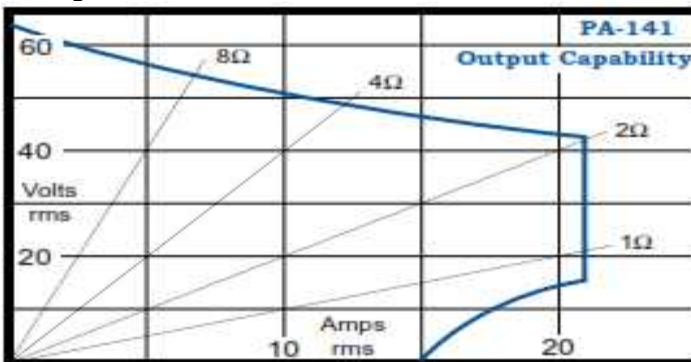
PA-141 Linear Power Amplifier



- Output: 50V, 1000 VA
- Direct coupled linear output
- Voltage and current source mode
- External interlock circuitry
- Optional shaker field supplies



The Labworks PA-141 Linear Power Amplifier has two operational modes. The amplifier can be used as either a wide-band, highly damped voltage source, or as a high impedance current source. Optional, internal DC field power supplies can be supplied for use with Labworks ET-140 and ET-127 Shakers. These options provide the convenience of a single chassis, as well as fully integrated power-up and cooling interlocks.



General Specifications*

Output voltage	50 V rms
Output current	20 A rms
Max. cont. dissipation	900 W
Frequency response	
DC input: DC to 10 KHz	-6 dB
AC input: 1.0 to 10 KHz	-6 dB
Max. voltage gain	36 dB
Cooling	2-speed fan, automatic
Input impedance	10 kΩ
Volts, pk	19 segment ± 5 %
Amps, rms	19 segment ± 5 %
Interlock circuit	
External, user	F.O. switch or TTL
Shaker, internal, optional	cooling
Optional field power	1000 W max
Input power	2000 VA (3000 w/field)
Voltage	208 or 230 Vac, 1∅
Frequency	48 to 62 Hz
Dimensions	7" H x 19" W x 17" D
Weight	48 lbs

*Specifications subject to change. Call factory for latest specifications.

CB-152

Delux, Long Life, Quiet,
Cooling Vacuum



Std: LW140-110 Opt: ET-139
LW139-75 ET-126
LW126-25 ET-132
LW160-60 ET-160
LW161-25 ET-161

General Specifications

Blower Type:	Suction (vacuum turbine)
Flow @ Pressure:	35 cfm @ 30" H ₂ O
Motor:	250 W, Brushless
Power:	115/230 Vac, 50 or 60 Hz (Specify)
Intake:	.75" and .63" dia.
Noise Level:	< 71 dB @ 1 M
Hose Length:	7.5', flexible vacuum
Blower Weight:	30 lbs.
Minimum Blower Life:	> 25,000 Hrs
Dimensions:	11H x 9.5W x 11L in.