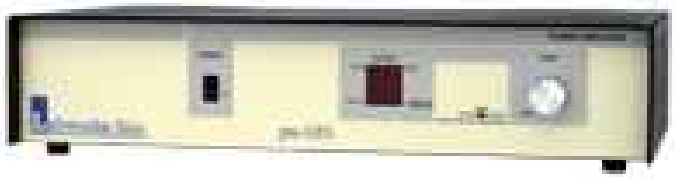
LW163.151-25 Modal Test System

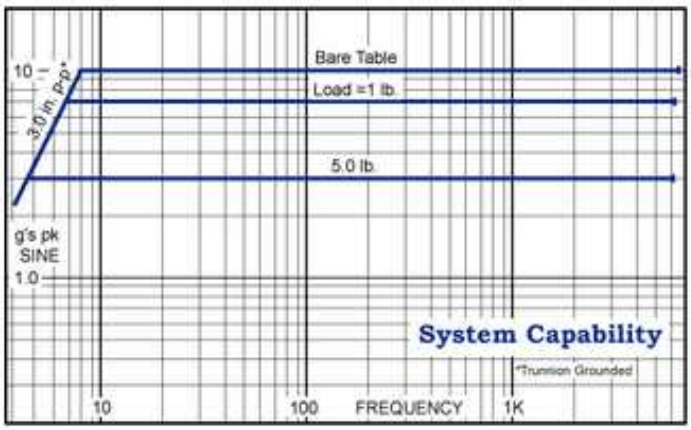


The LW163.151-25 system utilizes the Labworks MT-163 3"p-p thruster and convection cooled pa-151 linear power amplifier to form our lower force 3" permanent magnet field modal test system. The thruster's 3.0 inch stroke capability and low suspension spring rate makes this system ideal for many modal test applications. The thrusters armature features a through hole, and a single collett stinger attachment to accommodate both tension wire and stinger modal testing. The convection cooled PA-151 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 facillitates servoed test operation. Dual bar graphs display the system operating levels and internal and external interlock circuitry helps protect the system from accidental abuse.

General Specifications

Sine force	25 lbs force pk
Blocked Armature Sine Force	20 lbs force pk (>5 Hz) 10 lbs force pk (<1 Hz)
Random force	10 lbf rms random
Shock force	35 lbf pk shock
Frequency Range:	DC to 6500 Hz
Maximum Acceleration:	10 g pk, bare table 7 g pk, 1 lb. load 3.3 g pk, 5 lb. load
Maximum Displacement:	3.0 inch pk-pk
Cooling:	Amplifier: 2-Speed Fan Shaker: Cooling vacuum
Power Requirements:	300 VA @ 100*, 115*, 200, 230Vac, single phase 50/60 Hz

*special service req'd



System Components*

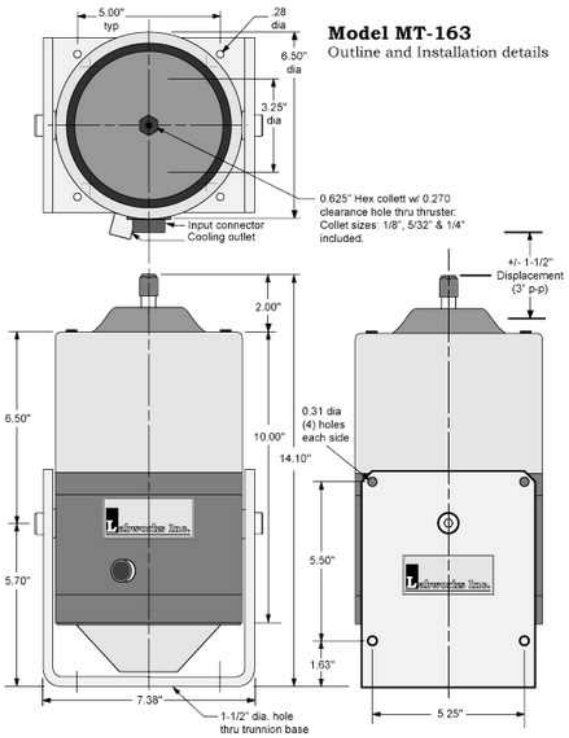
- MT-163 Modal Thruster
- PA-151 Linear Power Amplifier
- MS-129-163 Modal Stinger Kit
- Interconnect Cables and Hoses

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 Mounts

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 range[2] 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

[1]Please see systems ratings for additional specifications.

[2]Load dependent.

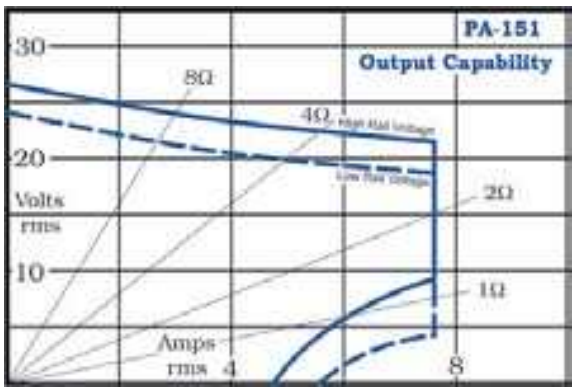
The MT-163 Modal Thruster's compact size and extra long stroke armature make it well suited for all types of modal testing. The MT-163 Thruster has a compression collet stinger attachment and features a central through-hole suitable for modal stinger and pre-tensioned wire testing applications. The MT-163 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 throught the thruster and trunnion base in virtually any thruster angle position.

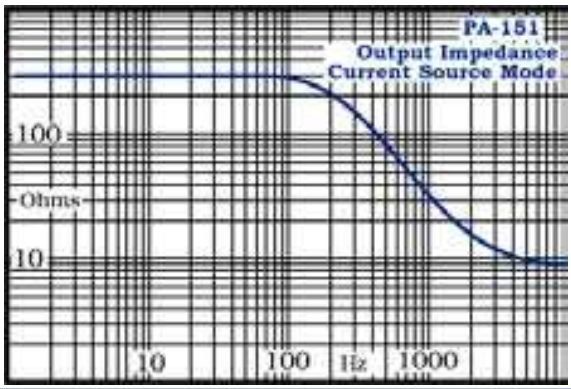
Reliability is assured through the use of the unique, dual linear ball bearing armature suspension design. This design provides for very low axial stiffness while retaining very high lateral stiffness. Cushioned rolling components insure against unwanted harmonics and distortion. The Thrusters low force 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-151 Linear Power Amplifier

- **Output: 25V or 20V, 180 VA**
- **Direct coupled linear output**
- **Output voltage and current meters**
- **Voltage and Current source modes**
- **Convection cooling, no fans**
- **Light weight, desktop amplifier**

The Labworks PA-151 Linear Power Amplifier is a high quality, convection-cooled, direct-coupled audio amplifier primarily intended for use with small vibration systems. Although this amplifier has been designed to directly drive low impedance loads, it can be used in any application requiring continuous duty, high quality, audio power.
PA-151 Amplifiers feature protection from both over current and over temperature insuring long term reliability. The amplifier circuitry uses soft start technology for load protection and has external interlock capabilities as well as output voltage and current bar graphs. A voltageproportional-to-output-current signal output is provided for modal test and other applications requiring force monitoring. A unique dynamic output drive circuit provides high random peak output current for increased random and shock vibration system





General Specifications*

Output voltage	25 or 20 V rms
Output current	7.5 A rms
Max. cont. dissipation	180 W
Frequency response	
Voltage Source: DC to 10 KHz	-1 dB
Current Source: DC to 2 KHz	-2 dB @ 4Ω
Max. voltage gain	28 dB
Max. current gain	22 A/V
Cooling	Natural convection
Input impedance	10 kΩ
Meters	
Volts	9 segment bar graph
Amps	9 segment bar graph
Interlock circuit	
External, user	F.C. switch or TTL, F.C.
Input power	300 VA max
Voltage	100-120, 200-240 V,1Ø
Frequency	48 to 62 Hz
Dimensions	3.5" H x 17" W x 13" D
Weight	19 lbs

1 Switch selectable internal rail voltage allows impedance matching to load requirements
2 Specifications subject to change. Call factory for latest specifications.

Amplifier Options

- Rack panel cabinet
- BNC signal cables