

# VibroMet™ 500V Laser Doppler Vibrometer

## Specifications

Velocity Range	5 µm/s to 1000 mm/s
Vibration Frequency Range <sup>1</sup>	DC to >20kHz
Working Distance	1 cm to 5 m
Displacement Range	0.1 nm to 10 mm
Optics	<ul style="list-style-type: none"> <li>• Collimated (No Focusing Needed)</li> <li>• Variable Focus (1 m to 5 m)</li> </ul>
Surface Preparation	Typically none required
Signal Output	Analog Demodulated and 10.7 MHz FM
Dimensions – Laser Head	24 x 11.4 x 7.6 cm
Dimensions – Electronics Controller	30 x 22 x 6 cm
Weight – Laser Head	1.4 kg
Weight – Electronics Controller	3.9 kg
Low Pass Filters	1,2,5,10,20 kHz
Output Voltage (max)	± 8 Volts
Laser	780 nm, <15 mW, Class IIIb 650 nm, <1 mW, Class II
Power Requirement	110V at 60 Hz (220V option available)
Temperature Range	3 – 45°C

<sup>1</sup> Higher frequencies are also available. Please contact a MetroLaser Applications Engineer for more information.

Specifications are subject to change without notice.

VibroMet™ is a registered trademark of MetroLaser, Inc.  
SmartTable™ is a registered trademark of Newport Corporation.  
National Instruments™ is a registered trademark of National Instruments, Inc.

## About MetroLaser:

MetroLaser Inc. was founded in 1988 by Dr. James Trolinger and Dr. Cecil Hess to develop and commercialize new laser-based measurement and diagnostic technologies. From imaging diesel turbine combustion processes to measuring crystal growth onboard the Space Shuttle, MetroLaser's scientists deliver state-of-the-art optical diagnostic solutions to a broad range of applications and industries. MetroLaser has been awarded the National Small Business Prime Contractor of the Year award.

## Description

The VibroMet 500V is based on a patented electro-optical configuration developed by MetroLaser. The system consists of a remote laser sensor head and an electronic controller.

### Laser Sensor Head:

The remote laser sensor head includes an infrared laser diode for measurement, a red laser diode for aiming, an acousto-optic modulator and a high sensitivity photo-detector.

### Electronics Controller:

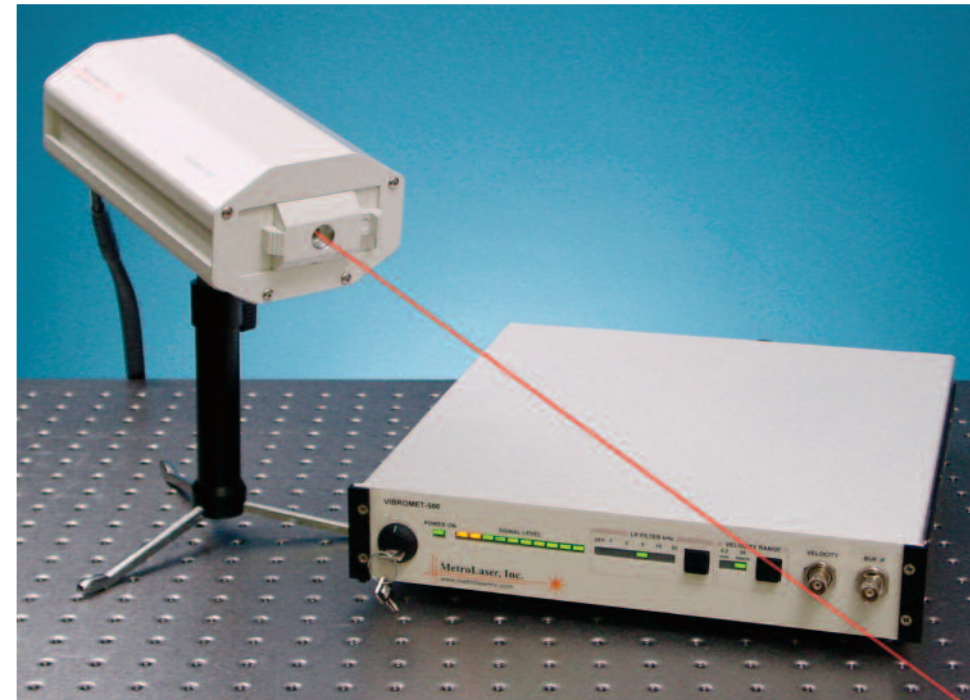
The electronic controller has both a demodulated velocity output and a 10.7 MHz frequency modulated signal output. The front of the controller has a signal strength indicator, two selectable velocity ranges and an array of low pass filter options.

### Data Acquisition and Software:

MetroLaser offers optional data acquisition and analysis software and hardware for the VibroMet 500V. The data acquisition boards (16 bits, 200 kSamples/sec) for PCI or PCMCIA computer slots are from National Instruments™. The software acquires the velocity data from the VibroMet 500V, and displays the velocity, displacement, or acceleration spectrum of the vibrating target.

**Visible and Infrared Laser Radiation  
Avoid Direct Exposure  
Class II Laser Product at 650 nm  
Class IIIb Laser Product at 780 nm**

# VibroMet™ 500V Laser Doppler Vibrometer



## Non-Contact Vibration Measurement

- Ultra-High Sensitivity
- Large Dynamic Range
- Easy-to-use Point & Measure Operation
- Robust Field Tested Design

**MetroLaser, Inc.**

Irvine, California USA  
Tel: (949) 553-0688, Fax: (949) 553-0495, [www.MetroLaserLDV.com](http://www.MetroLaserLDV.com), [sales@metrolaserinc.com](mailto:sales@metrolaserinc.com)



**MetroLaser, Inc.**

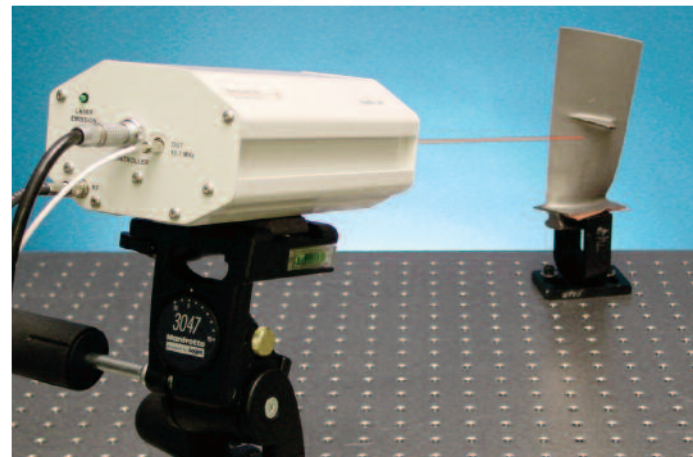


# Diverse VibroMet 500V Applications

## VibroMet™ 500V Key Benefits

MetroLaser's VibroMet™ 500V Laser Doppler Vibrometer is a compact, competitively priced, and easy-to-use precision instrument for non-destructive testing and non-contact vibration measurement of any surface.

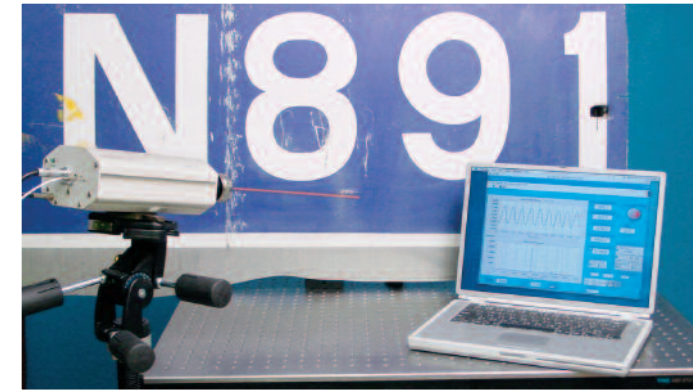
The VibroMet 500V is optimized for measurement distances from one centimeter to five meters, so there is no need for adjustments, lens accessories, or surface treatment, ensuring the highest level of measurement accuracy.



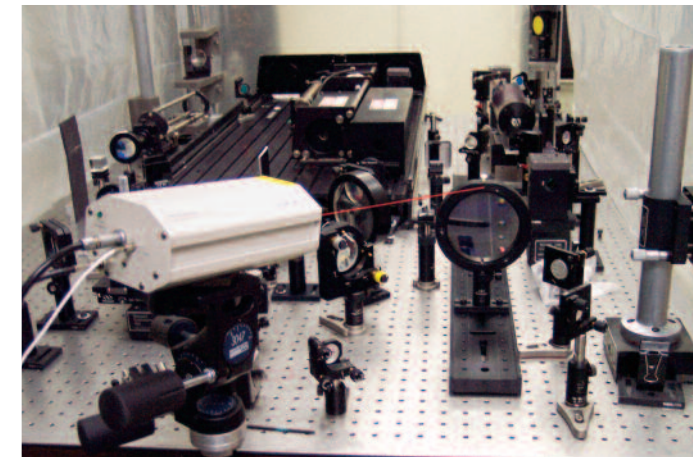
**Turbine Blades**  
Measuring vibration of a turbine blade.



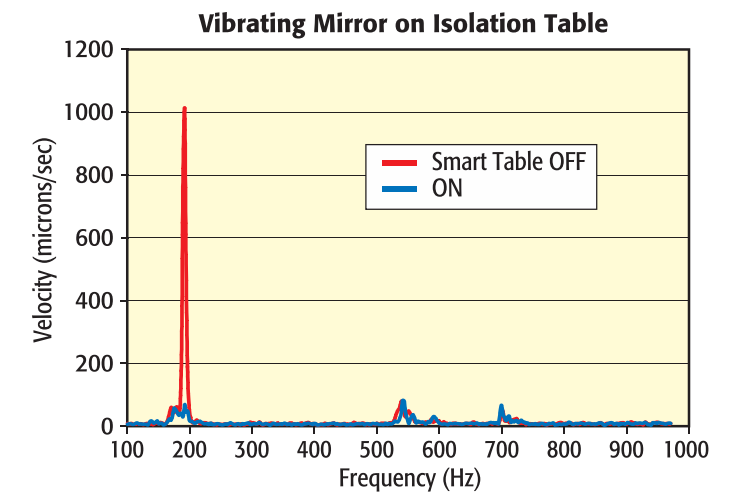
**Computer Components**  
Measuring vibration of a computer disk drive.



**Aerospace**  
Measuring vibrations of an aircraft's vertical stabilizer.



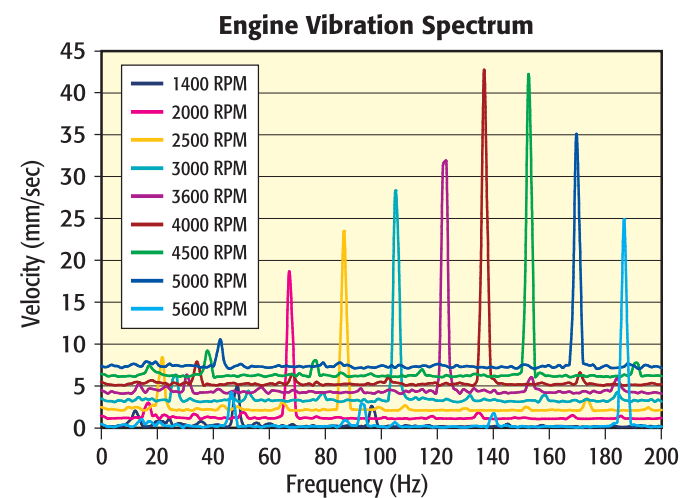
**Optics & Photonics**  
Quantifying vibrations in mounted optical components.



Vibrations detected at the edge of a mirror kinematically mounted on a vibration isolation SmartTable™.



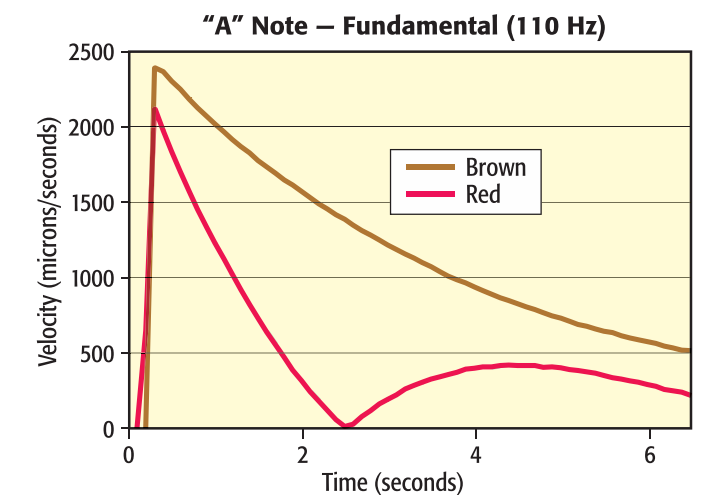
**Automotive**  
Characterizing automotive engines to quantify vehicle noise & vibrations.



Velocity and frequency data of an automobile engine as the RPMs are ramped up.



**Musical Instruments**  
Measuring acoustic decay time of identical guitars made from different wood.



The brown guitar has a longer acoustic vibration decay time.

Courtesy of Taylor Guitars