

VIBRATION SAMPLE MEASUREMENT



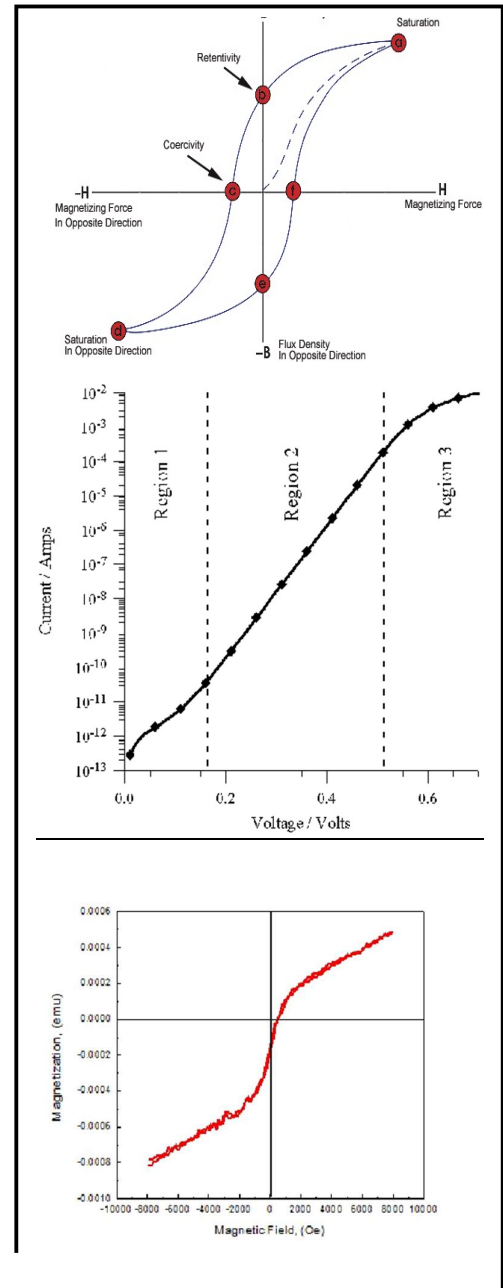
ABOUT THE SYSTEM

The vibrating sample magnetometer measures the magnetization of a small sample of magnetic material placed in an external magnetizing field by converting the dipole field of the sample into an ac electrical signal. A sample is placed inside a uniform magnetic field to magnetize the sample. The sample is then physically vibrated sinusoidally, typically through the use of piezoelectric material. The systems use linear actuators in the vibrating assembly. The magnetic flux through a nearby pickup coil varies sinusoidally. The induced voltage in the pickup coil is proportional to the sample's magnetic moment, but does not depend on the strength of the applied magnetic field. In this setup, the induced voltage is measured through the use of a lock-in Amplifier using the piezoelectric signal as its reference signal. By measuring in the field of an external electromagnet, it is possible to obtain the hysteresis curve of a material. The VSM is designed by our company are most advanced in its specifications and can undertake various tests needed by researchers.

MODEL: VSM -100

Various Tests Performed by this Model

- MH curve
- Initial magnetisation curve
- Isothermal magnetisation
- Current vs Voltage at various magnetic field
- Hall voltage vs Magnetic field



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TECHNICAL SPECIFICATION

The Advance VSM test software perform important functions of the measurement automatically without any human interventions. Following are highlights of important functions:

- Simultaneous measurement of Magnetic field and Magneto Resistance.
- Automatic measurement of Voltage/ Current and Temperature under varying magnetic field.
- Air cooling system for electromagnet and power supply (Adjustable Temp between 10 to 35.C)
- Representation of data and graphs in automatic scale.
- Online math work for different calculations using sample dimensions to calculate MR.
- Data in standard ASCII Format exportable to standard software's like excel origin etc.

VSM	Specifications
Magnetic Field	Field 1.5 Tesla
Magnetic field uniformity	Better than ± 10 gauss
Pole gap	Variable 0-60 mm
Measurement range	0.0001 emu to 100 emu
Sample size	6 mm to 10 mm
Sensitivity	Micro emu
MR	
Voltage Range	10 nV – 100 V
Resolution/ Accuracy	0.1 Nv/ 0.1%
Current Range	± 2 nA to ± 100 mA
Resolution/ Accuracy	100fA to ± 10 μ A / 0.04 to 0.1 %
Magneto Resistance Range	0.01m Ω - 1T Ω
Locking Amplifier	SRS830
Frequency range	DC – 107 Khz
Resolution	0.1 nV
Function generator	DC – 107 Khz
Resolution	0.1 Hz
Basic Accuracy	0.012%/
Input	Dual Phase
Temperature	100RT
Temperature range	96°K – 273°K
Resolution	0.1°K
Accuracy	1°K
Test Specimen	Two/Four Probe

MARINE INDIA

Regd Off – A-3/25B Green Apartment Paschim Vihar New Delhi – 110063, INDIA
Off Works – 7/23 2nd Floor Kirti Nagar Industrial Area New Delhi – 110015, INDIA

Ph/Fax: +91 – 11- 41428187, +91 – 9810289961

Email: sales@marineindia.com, info@marineindia.com

www.marineindia.com