

NOISE AND VIBRATION LAB LABORATORY



Noise & Vibration Laboratory of FCRI is well equipped for in-plant/site studies with the state of the art equipments/instruments. These range from basic transducers to sophisticated analyzers from M/s Bruel & Kjaer, Denmark, M/s CEL Instruments UK., M/s Larsen Davis Corporation, USA, M/s PCB Electronics, USA, M/s Acoutrionics, Netherlands and etc. FCRI engineers have been trained at some of the prestigious institutions/laboratories abroad and have been carrying out testing/research and field assignments for various industries/establishments.

NABL ACCREDITATION DETAILS

Sl. No.	Parameter / Measured Quantity		Range		Best Measurement capability
1	Acoustic pressure Sound pressure level		94 & 114dB @ 1kHz 124dB @ 250Hz		0.4dB
2			94, 104 & 114dB 31.5Hz to 16kHz octave band centre frequency		0.2dB
3			30dB to 130dB 31.5Hz to 16kHz octave band centre frequency		1.22dB
4	Acoustic power		125Hz to 16kHz		2.0dB
			125Hz to 16kHz		3.0dB
5	Vibration	Acceleration (RMS)	0.1 - 200m/s ²	5Hz - 5kHz	2.8%
		Velocity (RMS)	1 - 1000mm/s		2.8%
		Displacement(pk)	0.01 to 10mm		2.8%
6	Vibration	Accelerometer / vibration sensor	1g @160Hz (sensitivity)		1.7%
			Frequency response 5Hz5kHz		2.9%
7	Vibration	Vibration exciter	1g - 10g @ 80 & 160Hz		2.1%
8	Speed		100 - 10000 rpm		1.4 rpm
			10000 - 25000 rpm		3.7 rpm

Facilities

The following capabilities and services are offered by the Noise & Vibration Laboratory

Industrial / Environmental / Traffic Noise surveys

Valve noise measurement and its abatement

Determination of noise emission values of various equipment

Machine vibrations monitoring

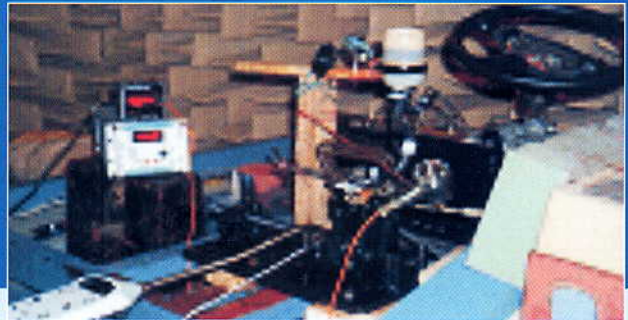
Strain Measurements

Dynamic response of structure

Acoustic Test Facility at FCRI

FCRI has a Hemi Anechoic Chamber in accordance with ISO Standards to cater the following needs.

- Determination of sound power level of noise sources as per the standards ISO 3745 and ISO 3744.
- Measurement of aerodynamic noise generated by control valves as per the standard ISA 75.07/1987
- Determination of noise emission values as per various International and National standards.



Vibration Test Facility

The major applications of this facility are:

- Environmental testing of objects and structures
- Fatigue testing of specimens.
- Resonance searching.
- Study of dynamic properties of structures & structural models
- Calibration of accelerometers.

FCRI has proposed for a new vibration test facility with higher force rating and with more static payload capacity. This facility will be commercially available, with in this financial year (2007-08). The technical specification of the shaker system is indicated below.

	Existing Shaker system	Propose Shaker system
Force rating	: Sine 2040 kgf (pk) Random 2040 kgf (rms) Shock 4080 kgf (pk)	Sine 6000 kgf (pk) Random 6000 kgf (rms) Shock 12000 kgf (pk)
Frequency range	: 5Hz to 2.5kHz	5Hz to 2.5kHz
Maximum bare table acceleration	: 95 g peak	90 g peak
Maximum velocity	: Sine 1.8 m/s (pk) Shock 2.4 m/s (pk)	Sine 1.8 m/s (pk) Shock 2.9 m/s (pk)
Maximum displacement	: 51 mm pk to pk	63 mm pk to pk
Maximum static pay load support (Vertical axis)	: 454 kg	700 kg
Vertical table size	: 610 mm x 610mm	1015 mm x 1015mm
Horiz ontal table size	: 915 mm x 915 mm	1500 mm x 1500 mm

Test capabilities of the system are given below:

- Environmental tests on electrical & electronic items on vibration as per the Standard IS 9000 (Part VIII)/1981.
- Seismic qualification tests as per the Standard IEEE-344
- Vibration test as per OIML R 185/1993
- Exploratory vibration test as per ANSI B 16.41
- Shock testing as per IS 9001 Part 17 Sec 1/1985
- Vibration testing as per QM - 333 and QM-351.
- Vibration testing as per JSS 55555
- Vibration tests for automobile parts as per JIS D 1601/1995
- Vibration testing as per various MIL standards