

**Laboratory** Cali-Labs Pvt. Ltd., HX-21, E-7, Arera Colony, Bhopal, Madhya Pradesh  
**Accreditation Standard** ISO/IEC 17025:2005  
**Discipline** Mechanical Calibration **Issue Date** 30.06.2015  
**Certificate Number** C-0079 **Valid Until** 29.06.2017  
**Last Amended on** 21.07.2015 **Page** 1 of 4

Quantity Measured/ Instrument	Range / Frequency	*Calibration Measurement Capability ( $\pm$ )	Remarks
<b>I. DIMENSION</b>			
<b>1. EXTERNAL MICROMETER<sup>§</sup></b> L.C.: 0.01mm	0 to 50 mm	6.0 $\mu$ m	Using Slip Gauge Set by Comparison Method
<b>2. DIGITAL MICROMETER<sup>§</sup></b> L.C.: 0.001mm	0 to 25 mm	1.8 $\mu$ m	Using Slip Gauge Set by Comparison Method
<b>3. DIGITAL/ VERNIER/DIAL CALIPER<sup>§</sup></b> L.C.: 0.01mm <sup>φ</sup>	0 to 150 mm 0 to 300 mm	9.0 $\mu$ m 11.0 $\mu$ m	Using Slip Gauge Set by Comparison Method
<b>4. HEIGHT GAUGE<sup>§</sup></b> L.C.: 0.01 mm <sup>φ</sup>	0 to 600 mm	14.6 $\mu$ m	Using Slip Gauge Set by Comparison Method
<b>5. STEEL SCALE<sup>§</sup></b>	Upto 1000 mm	20.0 $\mu$ m	Using Length Measuring Machine by Comparison Method
<b>6. STEEL MEASURING TAPE<sup>§</sup></b>	0 to 50 m	20 $\sqrt{L}$ $\mu$ m L in meter	Using Length Measuring Machine by Comparison Method
<b>7. DIAL THICKNESS GAUGE<sup>§</sup></b> L.C.:0.01mm	0 to 25 mm	6.0 $\mu$ m	Using Slip Gauge Set by Comparison Method
<b>8. FEELER / LEAF GAUGE<sup>§</sup></b>	0.01 mm to 2 mm	3.0 $\mu$ m	Using Digital Micrometer by Comparison Method

**Naveen Jangra**  
**Convenor**

**Avijit Das**  
**Program Manager**

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<b>II. ACCELERATION &amp; SPEED</b>			
1. TACHOMETER / RPM <sup>§</sup>	Upto 1000 rpm 1000 rpm to 20000 rpm	0.25 % 0.21 %	Using non contact Tachometer by Comparison Method
<b>III. DENSITY</b>			
1. HYDROMETER <sup>§</sup>	0.7 sp gr. to 1.0 sp gr. 1.0 sp gr. To 1.8 sp gr.	0.001 sp. gr. 0.0016 sp. gr.	Using Hydrometer
<b>IV. MASS</b>			
1. WEIGHTS <sup>§</sup> Accuracy Class M1 & Coarser	10 kg 5000 g 2000 g 1000 g 500 g	74 mg 68 mg 15 mg 8 mg 6 mg	Using Standard Mass and Weighing Balances
Accuracy Class F2 & Coarser	200 g 100 g 50 g  20 g 10 g 5 g 2 g 1 g 500 mg 200 mg 100 mg 50 mg 20 mg 10 mg 5 mg 2 mg 1 mg	0.38 mg 0.23 mg 0.15 mg  0.1 mg 0.1 mg 0.1 mg 0.1 mg 0.1 mg 0.1 mg 0.1 mg 0.1 mg 0.02 mg 0.02 mg 0.02 mg 0.02 mg 0.02 mg	

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2. ELECTRONIC WEIGHING BALANCE <sup>#</sup>	Upto 20 g 20 g to 200 g 200 g to 2 kg 1 kg to 30 kg	0.08 mg 0.0004 g 0.04 g 1 g	Using Standard Mas
3. SPRING BALANCE <sup>\$</sup>	Upto 30 kg	20 g	Using Standard Mas
<b>V. VOLUME</b>			
1. VOLUME / MICRO PIPETTE, PIPETTE, BURETTE, MEASURING CYLINDER, VOLUMETRIC FLASK, CONICAL FLASK <sup>\$</sup>	10 $\mu$ l to 100 $\mu$ l 100 $\mu$ l to 10 ml 10 ml to 1000 ml 1000 ml to 2000 ml	0.52 $\mu$ l 0.50 $\mu$ l 0.05 ml 0.11 ml	Using Distilled Water and Balances as per ISO:8655 and ISO:4787
<b>VI. PRESSURE AND VACUUM</b>			
1. PRESSURE GAUGES/ DIGITAL PRESSURE GAUGE/ PRESSURE INDICATOR <sup>#</sup>	0.1 kg/cm <sup>2</sup> to 2 kg/cm <sup>2</sup> 2.5 kg/cm <sup>2</sup> to 35 kg/cm <sup>2</sup>  35 kg/cm <sup>2</sup> to 600 kg/cm <sup>2</sup>	0.8 % of rdg 0.8 % of rdg  0.8 % of rdg	Using Digital Pressure Gauge by Direct Comparison Method  Using Digital Pressure Gauge
<b>V. FORCE</b>			
1. UNIAXIAL STATIC TESTING MACHINES* Compression	100 kN to 500 kN	0.58 %**	Using Proving Rings of class I

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Quantity Measured/ Instrument	Range / Frequency	*Calibration Measurement Capability ( $\pm$ )	Remarks
Tension	1 N to 50 N	0.83 %**	Using Standard Weights
	100 N to 10 kN	0.85 %**	Using Proving Rings of Class 1
	10 kN to 100 kN	0.55 %**	

\* Measurement Capability is expressed as an uncertainty ( $\pm$ ) at a confidence probability of 95%

\$ Only in Permanent Laboratory

\* Only for Site Calibration

# The laboratory is also capable for site calibration however, the uncertainty at site depends on the prevailing actual environmental conditions and master equipment used.

\*\* Relative accuracy error has not been considered for CMC estimation.

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