

**Laboratory** Hari Shankar Singhania Elastomer and Tyre Research Institute,  
Hasetri, Plot No. 437, Hebbal Industrial Area, Mysuru, Karnataka

**Accreditation Standard** ISO/IEC 17025: 2005

**Certificate Number** CC-2776

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**Validity** 25.07.2018 to 24.07.2020

**Last Amended on** -

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability ( $\pm$ )	Remarks
<b><u>MECHANICAL CALIBRATION</u></b>				
<b>I. PRESSURE INDICATING DEVICES</b>				
1.	Pressure-Hydraulic <sup>s</sup> (Dial Pressure Gauge, Digital Pressure Gauges, Pressure Calibrator, Pressure Transducers and Pressure Transmitter with Indicators)	2 bar to 690 kg/cm <sup>2</sup>	0.017 %	Using Hydraulic Dead Weight Tester based on DKD-R6-1
2.	Pressure-Hydraulic <sup>#</sup> (Dial Pressure Gauge, Digital Pressure Gauges, Pressure Calibrator, Pressure Transducers and Pressure Transmitter with Indicators)	0 bar to 690 bar	0.11 %	Using Digital Pressure Calibrator 0-700 & Hydraulic Pump based on DKD-R6:1
3.	Pressure-Pneumatic <sup>#</sup> (Dial Pressure Gauge, Digital Pressure Gauges, Pressure Calibrator, Pressure Transducers and Pressure Transmitter with Indicators)	0 bar to 30 bar	0.1 %	Using Pneumatic Pump & Digital Pressure Calibrator based on DKD-R6-1

**Shally Sharma**  
Convenor

**Anuja Anand**  
Program Director

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<b>II.</b>	<b>DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)</b>			
1.	Digital Vernier <sup>s</sup>	0 to 150 mm 0 to 300 mm 300 to 1000 mm	8 $\mu$ m 12 $\mu$ m 19 $\mu$ m	Using 'K/O' Slip Gauge Set
2.	External Micrometer <sup>s</sup>	0 to 25 mm	1.9 $\mu$ m	Using 'K/O' Slip Gauge Set
<b>III.</b>	<b>UTM, TENSION CREEP AND TORSION TESTING MACHINE</b>			
1.	Verification of Uniaxial Testing Machine <sup>*</sup>	<b>Compression:</b> 0.25 kN to 1 kN 1 kN to 100 kN <b>Tension:</b> 1 kN to 100 kN	0.3 % 0.2 % 0.2 %	Using : "0" Class load cells with digital indicator as per IS 1828 (Part – I)
<b>IV.</b>	<b>SPEED AND ACCELERATION</b>			
1.	RPM indicator/Indicator of Centrifuge <sup>*</sup>	60 rpm to 1000 rpm 1000 rpm to 3000 rpm 3000 rpm to 5000 rpm	1.6% reading 1.1 % reading 1.1% reading	Using Digital Tachometer
<b>V.</b>	<b>WEIGHING SCALE AND BALANCE</b>			
1.	Non-Automatic Weighing Balance/Scale <sup>#</sup> d = 0.01 mg d = 0.001 g d = 0.01 g)	0 to 200 g 0 to 1 kg 0 to 5 kg	0.06 mg 4 mg 20 mg	Using E1/E2 Accuracy Class Standard Weights as per OIML-R-76-1

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2.	Glass Pipette / Measuring <sup>s</sup> Cylinder/ Volumetric Flask	1ml to10ml 10ml to100ml 100ml to200ml 200ml to1000ml	2.30 $\mu$ l 2.32 $\mu$ l 3 $\mu$ l 13 $\mu$ l	Using Digital Balance and Distilled Water of known Density as per As per ISO 4787

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<b><u>THERMAL CALIBRATION</u></b>				
<b>I.</b>	<b>TEMPERATURE</b>			
<b>1.</b>	PRT/RTD with / without indicator (Analog/Digital) Digital Thermometers/ Temperature indicators/ Controllers of bath, oven and chamber <sup>#</sup>	(-) 80°C to 100°C 100 °C to 300°C 300 °C to 650 °C	0.05 °C 0.07 °C 0.10 °C	Using SPRT, Liquid Bath , Dry Block Calibrator & Digital Thermometer readout by comparison method
<b>2.</b>	Thermocouples with/without indicator (Analog/Digital) Temperature recorders/ Temperature data logger with temperature sensors <sup>#</sup>	(-)80°C to 100°C 100 °C to 650°C 650 °C to1200 °C	0.06 °C 0.10 °C 1.90 °C	Using Standard R-Type Thermocouple with CJC Probe, SPRT, Liquid Bath, Dry Block Calibrator & Digital Thermometer readout by comparison method
<b>3.</b>	Liquid in Glass Thermometer <sup>s</sup>	(-)40 °C to 200 °C 200 °C to 300 °C	0.05 °C 0.06 °C	Using SPRT , Liquid Bath & Digital Thermometer readout by comparison method

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4.	Calibration of Heating Oven /Environmental Chamber/ Climatic Chamber / Furnace/ Freezer Temperature Uniformity Mapping* (Multi Position )	(-)40 °C to 250°C	0.50 °C	Using Calibrated RTDs(9 Nos.) with Multi Channel Data Acquisition System & DAQ Software by Multi Position Calibration Method
II.	<b>SPECIFIC HEAT AND HUMIDITY</b>			
1.	Calibration of Relative humidity / Temperature Indicators of Humidity Chamber, Environmental Chamber, Climatic Chamber, Hygrometer, Humidity Sensors and Probes <sup>§</sup>	15 to 95 % Rh at RT	0.85% Rh at RT	Using RH Calibrator, Rh/Temperature Sensor/ Probe with digital indicator By comparison Method

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

<sup>§</sup>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.

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