

Laboratory Euro Calibration Technique, No. 387, 2nd Floor, TIC Road,
 Varadharajapuram, Ambattur, Chennai, Tamil Nadu
Accreditation Standard ISO/IEC 17025: 2005
Certificate Number CC-2519 (In lieu of C-0770, C-0771) **Page** 1 of 7
Validity 05.12.2017 to 04.12.2019 **Last Amended on** 03.01.2018

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
<u>MECHANICAL CALIBRATION</u>				
I.	WEIGHTS			
1.	Mass ^s F1 Class weights and Coarser	1 mg 2 mg 5 mg 10 mg 20 mg 50 mg 100 mg 200 mg 500 mg 1 g 2 g 5 g 10 g 20 g 50 g 100 g 200 g	0.008 mg 0.008 mg 0.009 mg 0.01 mg 0.01 mg 0.011 mg 0.011 mg 0.011 mg 0.011 mg 0.011 mg 0.011 mg 0.011 mg 0.011 mg 0.011 mg 0.012 mg 0.014 mg 0.014 mg 0.0508 mg 0.0502 mg	Using E1 class standard weights ABBA method with Digital weighing Balances up to 80 g of d = 0.01 mg and up to 200 g of d = 0.1 mg.
	M1 Class weights and coarser	500 g 1 kg 2 kg	0.0043 g 0.0094 g 0.0118 g	Using F1 class weights and Digital Weighing Balance up to 3 kg with d = 10 mg.

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II.	WEIGHING SCALE AND BALANCE			
1.	Calibration of Electronic Weighing Balance # Class I and Coarser d = 0.001 mg and Coarser d = 0.01 mg and Coarser d = 0.1 mg and Coarser	0 to 20 g 0 to 80 g >80 to 200 g	0.008 mg 0.02 mg 0.05 mg	Using Standard weights (E1 Class)
	Calibration of Electronic Weighing # Balances of Class II d = 1 mg and Coarse d = 0.01 g and Coarser	>200 to 400 g >400 g to 3 kg	0.8 m 0.013 g	Using Standard weights (F2 and M1 Classes)
	Weighing Balance of Class IV # d = 5 g and Coarser	>3 to 100 kg	3.81 g	
III.	VOLUME			
1.	Calibration of Piston Pipettes §	10 μ l to 100 μ l >100 μ l to 1000 μ l >1000 μ l to 10000 μ l	0.38 μ l 0.4 to 11.1 μ l 11.7 μ l	Using Digital Balance up to 80 / 200 g Readability 0.01 / 0.1 mg and distilled water of known density as per Micro Pipettes as per IS 8655-6 & ISO/TR 20461

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2.	Glass Pipettes ^s (Graduated / Non graduated)	1 ml to 50 ml	0.015 ml	Using Digital Precision Balance and distilled water of known density as per ISO 4787 & ISO/TR 20461
3.	Glass Burette ^s	1 ml to 100 ml	0.02 ml	Using Digital Precision Balance and distilled water of known density as per ISO 4787 & ISO/TR 20461
4.	Measuring Cylinder / Volumetric Flask / Conical Flask / Beaker ^s	>1 ml to 100 ml >100 ml to 2000 ml	0.015 ml 0.4 ml	Using Digital Precision Balance and distilled water of known density as per ISO 4787 & ISO/TR 20461
IV.	PRESSURE INDICATING DEVICES			
1.	Hydraulic Pressure – Dial / Digital pressure gauges / Calibrators / Recorder / Indicators / Pressure Transmitters/ Switches [#]	0 bar to 700 bar	0.691 bar	Using Calibrated Digital Pressure Gauge of Different ranges and hydraulic comparator pump by Comparison Method as per (DKD-R-6-1)
2.	Pneumatic Pressure – Dial / Digital pressure gauges / Calibrators / Recorder / Indicators / Pressure Transmitters/ Switches [#]	0 to 20 bar	0.018 bar	Using Calibrated Digital Pressure gauge and Pneumatic comparator pump by Comparison Method as per (DKD-R-6-1)

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Convenor

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Program Director

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3	Pneumatic Low Pressure – Dial / Digital pressure gauges / Magnehelic Gauges and Manometers [#]	0 to 200 mmH ₂ O 0 to 345 mbar	0.721 mmH ₂ O 1.049 mbar	Using digital Manometer with Pneumatic Pump by Comparison Method as per DKD-R-6-1
4.	Vacuum Gauge - Dial/ Digital Vacuum Gauges with Pressure Transmitter and Indicator, Magnehelic Gauges [#]	(-)0.95 to 0 bar (-)130 to 0 mmH ₂ O (-)345 to 0 mbar	0.009 bar 0.742 mmH ₂ O 1.125 mbar	Using calibrated digital vacuum and Vacuum Pump by Comparison Method as per DKD-R-6-1
V.	ACCELERATION AND SPEED			
1.	RPM (Contact Type) [#] RPM (Non Contact Type) [#]	>10 rpm to 9000 rpm 15 rpm to 60000 rpm	2.21 rpm to 6.81 rpm 1.21 rpm to 4.8 rpm	Using Standard Tachometer by Comparison Method using a procedure based on SANAS TR 45-01
VI.	ACCOUSTICS			
1.	Sound Level Meter [#]	94 dB @ 1kHz 114 dB @ 1kHz	0.50 dB 0.67 dB	Using Sound Level Calibrator as Source By Direct Method using a procedure based on OIMIL-R 58

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<u>THERMAL CALIBRATION</u>				
I.	TEMPERATURE			
1.	Glass Thermometer [§]	(-) 30°C to 50°C 50°C to 250°C	0.15°C 0.23°C	Using Standard RTD-Pt100 / 6.5 Digit Multimeter 4 Wire Measurement / Low Temperature Bath by Comparison Method
	Glass Thermometer [*]	50°C to 250°C	0.23°C	Using Standard RTD-Pt100 / 6.5 Digit Multimeter 4 Wire Measurement / Low Temperature Bath by Comparison Method
2.	RTDs Thermocouples/ Temperature Indicator or Controller With Or Without Sensor / Temperature Gauges / Dry / Liquid Baths / Temperature Switches / Datalogger With Sensors / Temperature of Hygrometers & Humidity Indicators / Temperature Transmitter [*]	(-) 15°C to 50°C 50°C to 250°C 250°C to 400 °C	0.22 °C 0.23 °C 0.33 °C	Using Standard RTD-Pt 100 / 6.5 Digit Multimeter 4 Wire Measurement Low Temperature Bath / Portable Dry Block Calibrator by Comparison Method
		400°C to 800°C	1.82 °C	Using Standard R-type Thermocouple with 6.5 Digit Multimeter and Portable Dry Block Calibrator by Comparison Method

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3.	RTDs Thermocouples/ Temperature Indicator or Controller With Or Without Sensor / Temperature Gauges/ Dry / Liquid Baths / Temperature Switches / Datalogger With Sensors / Temperature of Hygrometers & Humidity Indicators / Temperature Transmitter ^s	(-) 30°C to 50°C 50°C to 250°C 250°C to 400 °C 400°C to 800°C 800°C to 1200°C	0.22 °C 0.23 °C 0.33 °C 1.82 °C 2.30 °C	Using Standard RTD-Pt 100 / 6.5 Digit Multimeter 4 Wire Measurement / Low Temperature Bath / Portable Dry Block Calibrator by Comparison Method Using Standard R-type Thermocouple with 6.5 Digit Multimeter and Portable Dry Block Calibrator by Comparison Method
4.	IR + Thermometer ^s	50°C to 500°C	3.11°C	Using IR + Thermometer with IR Calibrator by Comparison Method
5.	Indicator of Liquid Baths / Dry Block Heaters / Freezers / Ovens / Incubators / BOD Incubators / Furnaces Cold Chambers / Refrigerators / Autoclaves / Water baths / Environment Chambers / Centrifuge Chambers*	(-) 80°C to (-) 30°C (-) 30°C to 400°C 400°C to 1200°C	0.68°C 0.20 °C 2.30 °C	Using Standard RTD / R Type Thermocouple with 6.5 Digit Multimeter by comparison method- single point calibration

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6.	Freezers / Ovens/ Incubators / BOD Incubators / Cold Chambers / Environment Chambers*	(-)30°C to 250°C	2.21 °C	Using Standard RTDs with Multi Channel Recorder by comparison Method- multi point calibration
7.	Ovens / Furnaces*	250°C to 1200°C	2.90°C	Using Standard N Type Thermocouples with Multi Channel Recorder by comparison Method- multi point calibration
II.	SPECIFIC HEAT AND HUMIDITY			
1.	Digital / Analog Hygrometer / Hygrograph / Humidity & Temperature Datalogger / Humidity Sensor with / without Indicator [§]	15% Rh to 95% Rh @ 25°C 10°C to 50°C @ 50%Rh	1.57%Rh @ 25°C 0.27°C @ 50%Rh	Using Standard Humidity Probe- Precision Humidity Meter & Portable Humidity Chamber with Built In Digital Temperature / Humidity Indicator by Comparison method
2.	Humidity Chamber / Humidity Generator / Environmental Chambers / Climatic Chambers *	15%Rh to 95% Rh @ 25°C	1.7% Rh @ 25°C	Using Standard Humidity Probe with Precision Humidity Meter by comparison method – Single point calibration

* 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.

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