

Laboratory **Advanced Calibration Laboratory Services, H. No. 5-5-35/209,
Plot No. 11, Survey No. 378 & 380, Prakash Nagar, Kukatpally Village,
Balanagar Mandal, Telangana**

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

Certificate Number **CC-2312**

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Validity **06.08.2018 to 05.08.2020**

Last Amended on -

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
<u>ELECTRO-TECHNICAL CALIBRATION</u>				
I.	SOURCE			
1.	DC Voltage #	1 mV to 200 mV 200 mV to 1000 V	1.6 % to 0.13 % 0.13 % to 0.23 %	Using Zeal 5.5 Digit MFC by Direct Method
2.	AC Voltage #	50 Hz 1 mV to 200 mV 200 mV to 1000 V	2.5 % to 0.35 % 0.35 % to 0.25 %	Using Zeal 5.5 Digit MFC by Direct Method
3.	DC Current #	1 mA to 2000 mA 2 A to 9.5 A 10 A to 750 A	1.5 % to 0.4 % 0.4 % to 0.6 % 1.52 %	Using Zeal 5.5 Digit MFC by Direct Method With Current Coil
4.	AC Current #	50 Hz 1 mA to 200 mA 200 mA to 2 A 2 A to 9.5 A 10 A to 900 A	2 % to 1.2 % 1.2 % 1.2 % to 1.45 % 1.45 %	Using Zeal 5.5 Digit MFC by Direct Method With Current Coil
5.	Discrete DC Resistance #	100 $\mu\Omega$ 1 m Ω 10 m Ω 100 m Ω 1 Ω	0.68 % 0.92 % 0.6 % 0.6 % 0.71 %	Using 4 Wire Low Resistance Standard by Direct Method
6.	Decade Resistance #	1 Ω to 100 M Ω 100 M Ω to 1 G Ω	1.03 % to 1.2 % 1.2 % 3.3 %	Using Decade Resistance Box by Direct Method

Ashish Kakran
Convenor

Avijit Das
Program Manager

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7.	AC Capacitance #	1 kHz 1 nF to 1000 nF 1000 nF to 100 µF	2.25 % to 2.0 % 2.0 % to 2.14 %	Using Decade Capacitance Box by Direct Method
8.	AC Power/ AC Energy #	250 V 5 A 0.5 Lead / Lag to UPF 590 W to 1.25 kW (1Φ) 1.74 kW to 3.75 kW (3Φ)	2.8 % to 0.56 %	Using 3Φ Power Energy Meter Calibrator by Direct Method
9.	Power Factor #	0.5 to UPF Lead / Lag	0.01 PF	Using 3Φ Power Energy Meter Calibrator by Direct Method
10.	Frequency #	45 Hz to 1 KHz	1.2 % to 0.024 %	Using Zeal 5.5 Digit MFC by Direct Method
	Temperature Simulation #			
	J-Type	(-) 200 °C to 700 °C	0.71 °C	Using Radix Universal Calibrator by Direct Method
	K-Type	(-) 200 °C to 1350 °C	0.70 °C	
	R-Type	50 °C to 1700 °C	3.6 °C	
	S-Type	50 °C to 1700 °C	3.2 °C	
	T-Type	(-) 200 °C to 400 °C	0.71 °C	
	N-Type	(-) 200 °C to 1200 °C	0.70 °C	
	RTD/PT 100	(-) 100 °C to 600 °C	0.59 °C	
II	MEASURE			
1.	DC Voltage [§]	1 mV to 100 mV 100 mV to 1000 V	0.42 % to 0.02 % 0.02 % to 0.01 %	Using Fluke 8846A 6 ½ DMM by Direct Method
2.	AC Voltage [§]	50 Hz to 1 KHz 2 mV to 100 mV 200 mV to 1000 V	5 % to 0.12 % 0.12 % to 0.1 %	Using Fluke 8846A 6½ DMM by Direct Method

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3.	AC High Voltage*	50 Hz 1 KV to 30 KV	6.3 %	Using Zeal HV Probe With 4½ DMM by Direct Method
4.	DC Current §	0.1mA to 100 mA 100 mA to 10 A	0.5 % to 0.08 % 0.08 % to 0.27 %	Using Fluke 8846A 6½ DMM by Direct Method
5.	AC Current §	50 Hz to 1 KHz 0.1 mA to 100 mA 100 mA to 10 A	0.5 % to 0.2 % 0.2 % to 0.29 %	Using Fluke 8846A 6½ DMM by Direct Method
6.	Resistance §	10 Ω to 100 Ω 100 Ω to 100 kΩ 100 kΩ to 1 GΩ	0.36 % to 0.02 % 0.02 % to 2.2 % 2.2 % to 3.7 %	Using Fluke 8846A 6½ DMM by Direct Method
7.	Frequency §	10 Hz to 1000 kHz	0.35 % to 3.2 %	Using Fluke 8846A 6½ DMM by Direct Method
8.	Time #	5 Sec to 3600 Sec	0.13 Sec to 6.3 Sec	Using Time Interval Meter by Comparison Method
	Temperature Simulation§			
	K-Type	(-) 200 °C to 1350 °C	0.73 °C	Using Radix Universal Calibrator by Direct Method
	J-Type	(-) 200 °C to 750 °C	0.70 °C	
	S-Type	50 °C to 1700 °C	2.05 °C	
	R-Type	50 °C to 1700 °C	1.94 °C	
	E-Type	(-) 200 °C to 900 °C	0.68 °C	
	T-Type	(-) 200 °C to 400 °C	0.48 °C	
	N-Type	(-) 200 °C to 1200 °C	0.70 °C	
	RTD/PT 100	(-) 100 °C to 800 °C	0.59 °C	

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<u>MECHANICAL CALIBRATION</u>				
I.	DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)			
1.	External Micrometer [§] (Analog, Dial & Digital) L.C.: 0.001 mm L.C.: 0.01 mm	Up to 100 mm 100 mm to 500 mm Up to 1000 mm	2.2 μ m 9.2 μ m 12.5 μ m	Using Slip Gauge Grade "0" & Long Gauge Blocks "0" Grade by Comparison Method IS:2967
2.	Setting Rods [§]	Up to 300 mm Above 300 mm to 1000 mm	4.5 μ m 10.5 μ m	Using ULM / Digital Height Gauge With Lever Dial by Comparison Method
3.	Caliper [§] (Vernier, Dial & Digital) L.C.: 0.01 mm	Up to 600 mm Above 600 mm to 1500 mm	10.5 μ m 17.6 μ m	Using Caliper Checker/ Gauge Blocks & Long Gauge Blocks by Comparison Method IS:3651(Part-II) IS:3651(Part-I)
4.	Depth Gauge [§] (Vernier, Dial & Digital) L.C.: 0.01 mm	Up to 600 mm Above 600 mm to 1000 mm	12.9 μ m 13.0 μ m	Using Caliper Checker/ Gauge Blocks & Long Gauge Blocks by Comparison Method IS:4213
5.	Depth Micrometer [§] (Vernier, Dial & Digital) L.C.: 0.01 mm	Up to 300 mm	9.8 μ m	Using Gauge Blocks & Long Gauge Blocks by Comparison Method BS:6468

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6.	Height Gauge [§] L.C.: 0.01 mm	Up to 1000 mm	11.0 μ m	Using Caliper Checker & Long Gauge Blocks by Comparison Method IS:2921
7.	Cylindrical Measuring Pins [§]	\varnothing 20 mm	0.5 μ m	Using ULM by Direct Method IS:11103
8.	Plain Plug Gauge [§]	\varnothing 2 mm to \varnothing 100 mm	2.1 μ m	Using ULM by Direct Method IS:4349
9.	Thread Plug Gauge [§]	\varnothing 2 mm to 300 mm	2.3 μ m	Using ULM by Direct Method IS:4218:2001 IS:2334:2001
10.	Plain Ring Gauge [§]	\varnothing 3 mm to 100 mm	1.9 μ m	Using ULM by Direct Method IS:3485 IS:3455
11.	Thread Ring Gauge [§]	\varnothing 3 mm to 100 mm	2.2 μ m	Using ULM by Direct Method IS:4218 IS:2334
12.	Feeler Gauge [§]	Up to 2 mm	1.8 μ m	Using Digital Micrometer by Direct Method IS:3179
13.	Dial Gauge-Plunger Dial/Electronic [§] L.C.: 0.001 mm L.C.: 0.01 mm	Up to 5 mm Up to 50 mm	1.5 μ m 2.5 μ m	Using ULM by Direct Method IS:2092
14.	Dial Gauge-Lever Type Dial / Digital [§] L.C.: 0.001 mm	Up to 2 mm	1.5 μ m	Using ULM by Direct Method IS:11498

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15.	Bore Dial Gauge [§] (Transmission only)	Ø10 mm to 300 mm Measuring Range 2 mm	1.5 μ m	Using ULM by Direct Method JISB:7515
16.	Internal Groove Dial Gauges/Dial Caliper Gauge [§] L.C.: 0.01 mm	Up to 100 mm	7.9 μ m	Using ULM by Direct Method
17.	External Groove Dial Gauges/Dial Caliper Gauge [§] L.C.: 0.01 mm	Up to 100 mm	8.9 μ m	Using Gauge Blocks by Comparison Method
18.	Groove Micrometer [§] L.C.: 0.01 mm	5 mm to 50 mm	5.8 μ m	Using Gauge Blocks and Long Gauge Blocks by Comparison Method
19.	Stick Micrometer With Extensions [§] L.C.: 0.01 mm	0 to 1000 mm	5.0 μ m	Using Gauge Blocks and Long Gauge Blocks by Comparison Method IS:2966
20.	Height Master [§] L.C.: 0.001mm	Up to 300 mm	8.5 μ m	Using Gauge Blocks and Long Gauge Blocks by Comparison Method IS:13907/ISO:7863
21.	Caliper Checker [§]	Up to 1000 mm	7.5 μ m	Using Long Gauge Blocks by Comparison Method
22.	Pistol Caliper [§]	0 to 100 mm	60.0 μ m	Using Gauge Blocks by Comparison Method
23.	Thread Measuring Wire [§]	0.14 mm to 6.3 mm	0.4 μ m	Using ULM by Direct Method IS:6311

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24.	2D Height Gauge [#] Resolution 0.1 μ m	0 to 1000 mm	$(2.6+(L/150)) \mu$ m (L in mm)	Using Long Gauge Blocks by Comparison Method IS:2921
25.	Co-ordinate Measuring Machine [#] Resolution 0.1 μ m	up to 1200 mm	$(3.0+(L/140)) \mu$ m (L in mm)	Using Long Gauge Blocks by Comparison Method IS:15635/ ISO 10360-2
26.	Surface Plate [#] (Grade "1" Coarser)	5000 mm x 5000 mm	$3.0 \sqrt{\frac{(L+W)}{100}} \mu$ m (L & W in mm)	Using Precision Sprit Level IS:2285 IS:12937
27.	Universal Length [#] Measuring Machine	Up to 300 mm	$(0.6+(L/100)) \mu$ m (L in mm)	Using Gauge Blocks by Direct Method
II.	PRESSURE INDICATING DEVICES			
1.	Pressure Gauge [#] (Hydraulic)	0 to 350 bar 0 to 700 bar 0 to 1000 bar	0.071 bar 1.06 bar 1.6 bar	Using DKD-R6-1 by Comparison Method
2.	Pressure Gauge [#] (Pneumatic)	0 to 20 bar	0.08 bar	Using DKD-R6-1 by Comparison Method
3.	Vacuum Gauge [#]	0 to (-) 1 bar	11 mbar	Using DKD-R6-1 by Comparison Method

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

^SOnly in Permanent Laboratory

^AOnly 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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