Laboratory	**Test Mech, 61/2, Surendra Nath Banerjee Road, Kolkata, West Bengal**			
Accreditation Standard	**ISO/IEC 17025: 2005**			
Certificate Number	**CC-2714**		**Page**	**1 of 6**
Validity	**28.05.2018 to 27.05.2020**		**Last Amended on**	**03.12.2018**

Sl.	**Quantity Measured / Instrument**	**Range/Frequency**	***Calibration Measurement Capability (±)**	**Remarks**
	ELECTRO-TECHNICAL CALIBRATION			
I.	**SOURCE**			
1.	Temperature Simulation[#] (Temperature Controller/Indicator/Recorder)			
	K Type J Type R type S Type	(-) 100 °C to 1350 °C (-)200 °C to 700 °C 1750 °C 1750 °C	1.2 °C 1.0 °C 1.0 °C 1.0 °C	Using Masibus MC-12 Temperature Calibrator by Direct Method
2.	RTD Type[#] PT100 Type	0 °C to 300 °C	0.50 °C	Using Masibus MC-12 Temperature Calibrator by Direct Method
II.	**MEASURE**			
1.	Temperature Simulation[#] (Temperature Controller/Indicator/Recorder)			
	K Type J Type R type S Type	(-) 100 °C to 1350 °C (-) 200 °C to 700 °C 1750 °C 1750 °C	1.2 °C 1.0 °C 1.0 °C 1.0 °C	Using Masibus MC-12 Temperature Calibrator by Direct Method
	RTD Type[#] PT100 Type	0 °C to 300 °C	0.50 °C	Using Masibus MC-12 Temperature Calibrator by Direct Method
2.	Timer/Stop Watch/Counter	20s to 10800 minute	1.64 sec	Using Stop Watch

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Convenor

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	MECHANICAL CALIBRATION			
I.	**DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)**			
1.	External Micrometer [#] L.C.: 0.001 mm L.C.: 0.01 mm	 0 to150 mm 150 mm to 300 mm 300 mm to 500 mm 500 mm to1000 mm	 10.6 µm 12.9 µm 16.9 µm 32.9 µm	Using Slip Gauges & Long Slip Gauges IS 2967
2.	Internal Micrometer[#] (Stick Type) L.C.: 0.001 mm L.C.: 0.01 mm	 0 to 500 mm 0 to 1000 mm	 18.4 µm 33.3 µm	Using Slip Gauge, Long Slip Gauge, Micron Dial Indicator IS 2966
3.	Vernier Caliper [#] (Dial/Digimatic) L.C.: 0.01 mm L.C.: 0.02 mm	 0 to 300 mm 300 mm to 600 mm 600 mm to 1000 mm	 18.1 µm 23.4 µm 63.4 µm	Using Slip Gauge, Long Slip Gauge IS 3651 Part 1 Part 2 & Part 3
4.	Vernier Depth Gauge[#] L.C.: 0.01 mm L.C.: 0.02 mm	 0 to 150 mm 150 mm to 300 mm	 12.0 µm 21.9 µm	Using Slip Gauge, Long Slip Gauge IS 4213
5.	Dial Gauges[$] (Lever Type) L.C.: 0.01 mm	 0 to 1 mm	 6.5 µm	Using Dial Calibration Tester IS 11498
6.	Dial Gauges[$] (Plunger Type) L.C.: 0.001 mm L.C.: 0.01 mm	 0 to 1 mm 0 to 25 mm	 7.3 µm 7.5 µm	Using Dial Calibration Tester IS 2092

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7.	Height Gauge[$] L.C.: 0.01 mm L.C.: 0.02 mm	 0 to 300 mm 300 mm to 600 mm 600 mm to 1000 mm	 15.3 µm 26.2 µm 39.6 µm	Using Slip Gauges, Long Slip Gauges IS 2921
8.	Feeler Gauge[$]	0.05 mm to 1 mm	5.7 µm	Using Digimatic Micrometer IS 3179
9.	Foils[$]	0.05 mm to 1 mm	5.7 µm	Using Digimatic Micrometer
10.	Snap Gauge[$]	3 mm to100 mm 100 mm to 300 mm	4.6 µm 11.1 µm	Using Slip Gauge IS 7876 & IS 3477
11.	Plain Plug Gauge[$]	3 mm to 100 mm	7.7 µm	Using Slip Gauge & Comparator IS 3455, IS 6137, IS 6244
12.	Coating Thickness Gauge[$]	10 mm to 1000 µm	6.54 µm	Using Std. Foils WI 30
13.	Micrometer Setting Rod[$]	25 mm to 1000 mm	10.9 µm	Using Slip Gauges & Long Gauge Blocks
14.	Brinell Microscope/ Poldi[$]	0 to 10 mm	57.3 µm	Using Glass Scale
15.	Dial Thickness Gauge[$] L.C.: 0.01 mm	 0 to 10 mm	 15.82 µm	Using Slip Gauges
16.	Bevel Protractor/ Combination Square Set[$]	(0 - 90º-0)	3 min. of arc	Using Angle Gauge Blocks IS 4239
17.	Depth Micrometer[$] L.C.: 0.001 mm	 0 to 150 mm 150 mm to 300 mm	 12.9 µm 16.8 µm	Using Slip Gauges & Long Gauge Blocks BS 6468

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
18.	Dial Bore Gauge [$] (Transmission Error only) L.C.: 0.01 mm	1 mm	7.1 µm	Using Dial Calibration Tester Micrometer Drum WI -39
19.	Extensometer[$] L.C.: 0.001 mm L.C.: 0.01 mm	0 to 2 mm 0 to 3 mm	24.4 µm 24.4 µm	Using micrometer Drum IS 12872
20.	Engineer's Square[$]	50 mm to 450 mm	14.0 µm	Using Master Cylinder and Square Gauge Block as per IS 2103
21.	Test Sieve[$]	32 µm to 1 mm	102.5 µm	Using Brinell Microscope
II.	**DIMENSION (PRECISION INSTRUMENTS)**			
1.	Profile Projector[♣] Linear Angular Magnification	 0 to 200 mm 0 to 360^{O} 10 X to 100 X	 13.0 µm 2.1 min. of arc 0.50 %	Using Angle Gauge Set, Slip Gauge, Glass Scale JIS B 7184:1999
III.	**ACOUSTICS**			
1.	Sound Level Meter[$]	35 dB to 135 dB	18 dBA	Using Sound Level Calibrator
IV.	**WEIGHING SCALE AND BALANCES**			
1.	Weighing Balances[♣]	0 to 200 g (readability: 0.01g) 0 to 30 kg (readability: 5g)	0.62 mg 6.0 g	Using F1 Class Standard Weights Calibration of weighing balances of Class II and coarser as per OIML R -76 -1
V.	**ACCELERATION AND SPEED**			
1.	RPM Non- Contact Type/Centrifuge[♣]	100 RPM to 5000 RPM	3.5 %	Using Tachometer

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
2.	Speed of Machine Linear Type /Testing Machine♣	0 to 1000mm/min 0 to 10 milles/hr	5.5%	Using Vernier Caliper/ Tape And Stop Watch by Comparison Method
VI.	**UTM, TENSION CREEP AND TORSION TESTING MACHINE**			
1.	Static Uniaxial Testing Machine♣ (UTM, CTM, TTM)			
	Compression	50 N to 1000 kN	0.6 %	Using Force Proving Instruments IS 1828 (Part 2): 2015
	Tension	0.5 N to 10 N 10 N to 50 N 50 N to 50 kN	0.91 % 0.91 % 0.6 %	Using Force Proving Instruments & Dead Weights IS 1828 (Part 2): 2015
VII.	**HARDNESSS TESTING MACHINES**			
1.	Rockwell & Rockwell Superficial Hardness Testing Machine♣	HRA HRB HRC HR15N HR30N HR45N HR15T HR30T HR45T	1.4 HRA 2.3 HRB 0.8 HRC 1.875 HR15N 0.9 HR30N 2.2 HR45N 1.3 HR15T 1.1 HR30T 1.5 HR45T	Using Std. Hardness Blocks IS 1586 (Part 2): 2012 (Indirect Method)
2.	Vickers Hardness Testing Machine♣	HV 0.5 HV1 HV5 HV10 HV20 HV30	 13.6 HV1 6.1 HV5 9.2 HV10 4.6 HV20 4.3 HV30	Using Std. Hard-Ness Blocks IS: 1501(Part2): 2013 (Indirect Method)

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3.	Brinell Hardness Testing Machine♣	HBW 2.5 / 187.5 HBW 5 / 75 HBW 10 / 3000	4.7 % 2.1 % 2 %	Std. Hard-Ness Blocks IS: 1500(Part 2):2013 (Indirect Method)
VIII.	**IMPACT TESTING MACHINE**			
1.	Impact Testing Machine♣			Using Clinometer, Load Cell, Height Gauge, Various Gauges & M/S. INSTR. ISO: 148 (Part 2) 2008, IS: 3766-2004.
	Charpy	0 to 300 J	2.15 J	
	Izod	0 to 168 J	1.24 J	BS131 (Part - 4)-1972
	Izod (Plastic)	0 to 50 J	0.85 J	ASTM D256-10

*** Measurement Capability is expressed as an uncertainty (±) 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.

Rajeshwar Kumar
Convenor

Avijit Das
Program Manager