National Accreditation Board for Testing and Calibration Laboratories

SCOPE OF ACCREDITATION

Laboratory Name :	BANSAL CALIBRATION SERVICES, 49/39, SITE-IV, INDUSTRIAL AREA, SAHIBABAD, GHAZIABAD, UTTAR PRADESH, INDIA		
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S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrument	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
Permanent Facility					
1	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	A.C Power @ 50 Hz (UPF to +/-0.5) 100V-600V, 10A-1000A 1kW to 600 kW	Using Energy Logger By Direct Method	1 kW to 600 kW	3.2 % to 2.0 %
2	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	A.C Voltage @50Hz to 1kHz	Using Digital Multi Meter by Direct Method	100 mV to 1000 V	0.16 % to 0.14 %
3	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	A.C Voltage@ 50Hz to 1kHz	Using Digital Multi Meter by direct method	10 mV to 100 mV	0.72 % to 0.16 %
4	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	A.C. Current @ 50 Hz to 1 kHz	Using Multi Product Calibrator by Direct Method	300 µA to 30 mA	0.18 % to 0.055 %

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5	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	A.C. Current @50Hz to 1 kHz	Using Energy logger with I flex Cable by Direct Method	10 A to 1000 A	0.34 % to 1.7 %
6	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	A.C. Current @50Hz to 1kHz	Using Digital Multi Meter by Direct Method	1 A to 10 A	0.17 % to 0.25 %
7	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	A.C. Current @50Hz to 1kHz	Using Digital Multi Meter by Direct Method	100 µA to 100 mA	0.14 % to 0.16 %
8	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Energy (1Phase & 3 Phase)@50Hz (UPF to +/- 0.5) 100 V to 240 V, 0.5 A to 250 A	Using Energy Logger by Direct Method	50 W to 60 kW	1.5 % to 2.7 %
9	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Power Factor (Lead/Lag)	Using Energy Logger by Direct Method	0.20 PF to 1.00 PF	0.0069PF

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10	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	A.C Power (Active Power)@50Hz 10V-600V, 100mA-20A (UPF,0.5 Lead/Lag)	Using Multi Product Calibrator by Direct Method	1 W to 12 kW	0.2%
11	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	A.C. Current @ 50 Hz to 1 kHz	Using Multi Product Calibrator by Direct Method	30 µA to 300 µA	0.56 % to 0.18 %
12	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	A.C. Current @ 50 Hz to 1 kHz	Using Multi Product Calibrator by Direct Method	3 A to 20 A	0.15 % to 0.04 %
13	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	A.C. Current @ 50 Hz to 1 kHz	Using Multi Product Calibrator by Direct Method	30 mA to 3 A	0.055 % to 0.15 %
14	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	A.C. Current @ 50 Hz to 1 kHz	Using Product Calibrator with 50 turn Current Coil by Direct Method	20 A to 1000 A	1.0 % to 2.54 %
15	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current (50Hz-1 KHz)	Using Multi Product Calibrator by Direct Method	300 µA to 30 mA	0.18 % to 0.055 %

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16	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC voltage (50Hz to 1kHz)	Using Multi-Product Calibrator direct Method	1 mV to 300 mV	1.38 % to 0.17 %
17	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC voltage (50Hz-1 KHz)	Using Multi Product Calibrator by Direct Method	300 mV to 3 V	0.17 % to 0.027 %
18	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (50Hz-1kHz)	Using Multi Product Calibrator by Direct Method	3 V to 300 V	0.027 % to 0.0269 %
19	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (50Hz-1kHz)	Using Multi Product Calibrator by Direct Method	300 V to 1000 V	0.027 % to 0.037 %
20	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Capacitance @ 100 Hz	Using Multi Product Calibrator By Direct Method	10 µF to 100 µF	0.6 % to 0.8 %
21	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Power Factor (Lead & Lag)	Using Multi Product Calibrator By Direct Method	0.20 PF to 1.00 PF	0.008 PF to 0.008 PF

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22	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	D.C Current	Using Digital Multi Meter by Direct Method	1 A to 10 A	0.0801 % to 0.223 %
23	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	D.C Current	Using Digital Multi Meter by Direct Method	10 µA to 10 mA	0.15 % to 0.079 %
24	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	D.C Voltage	Using Digital Multi Meter by direct method	1 mV to 100 mV	0.0758 % to 0.0084 %
25	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	D.C Voltage	Using Digital Multi Meter by Direct Method	10 V to 1000 V	0.005 % to 0.008 %
26	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	D.C Voltage	Digital Multi Meter by Direct Method	100 mV to 10 V	0.0084 % to 0.005 %
27	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	D.C.Current	Using Digital Multi Meter by Direct Method	10 mA to 1 A	0.0794 % to 0.0801 %

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28	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance (2 Wire & 4 Wire)	Using Digital Multi Meter by Direct Method	100 Ohm to 1 kohm	0.016 % to 0.013 %
29	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance (2 Wire & 4 Wire)	Using Digital Microohm Meter by Direct Method	10 mohm to 100 mohm	0.96 % to 1.66 %
30	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance (2 Wire & 4 Wire)	Using Digital Multi Meter by Direct Method	1 Ohm to 10 Ohm	0.5 % to 0.06 %
31	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance (2 Wire & 4 Wire)	Using Digital Multi Meter by Direct Method	1 Mohm to 100 Mohm	0.06 % to 0.92 %
32	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance (2 Wire & 4 Wire)	Using Digital Multi Meter by Direct Method	1 mohm to 10 mohm	1.6 % to 0.96 %
33	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance (2 Wire & 4 Wire)	Using Digital Multi Meter by Direct Method	10 Ohm to 100 Ohm	0.06 % to 0.016 %

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34	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	D.C Resistance For Insulation Tester @ 500 V	Using Resistance Box by Direct Method	100 Mohm to 200 Gohm	5.0%
35	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	D.C. Current	Using Multi Product Calibrator by Direct Method	10 µA to 300 µA	0.24 % to 0.0092 %
36	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	D.C. Current	Using Multi Product Calibrator with 50 turn current coil by Direct Method	20 A to 1000 A	1 % to 2.54 %
37	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	D.C. Current	Using Multi Product Calibrator by Direct Method	3 A to 20 A	0.066 % to 0.57 %
38	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	D.C. Current	Using Multi product Calibrator by direct method	3 mA to 300 mA	0.019 % to 0.014 %
39	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	D.C. Current	Using Multi Product Calibrator by Direct Method	300 mA to 3 A	0.014 % to 0.066 %

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40	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	D.C.Current	Using Multi Product Calibrator by Direct Method	300 µA to 3 mA	0.0092 % to 0.019 %
41	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Power 10 V to 1000V 100 mA to 20 A	Using Multi Product Calibrator By Direct Method	1 W to 20 KW	1.11 % to 0.3 %
42	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance (2 Wire & 4 Wire)	Using Multi Product Calibrator by Direct Method	1 Ohm to 100 Ohm	0.0056 % to 0.0104 %
43	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance (2 Wire & 4 Wire)	Using Multi Product Calibrator by Direct Method	1 Mohm to 1000 Mohm	0.046 % to 1.7 %
44	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance (2 Wire & 4 Wire)	Using Resistance Box by Direct Method	1 mohm to 10 mohm	1.42 % to 0.80 %
45	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance (2 Wire & 4 Wire)	Using Resistance Box by Direct Method	10 mohm to 100 mohm	0.80 % to 0.81 %

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46	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance (2 wire & 4 wire)	Using Multi Product Calibrator By Direct Method	100 Ohm to 1 Mohm	0.0037 % to 0.046 %
47	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using Multi Product Calibrator By Direct Method	1 mV to 300 mV	0.12 % to 0.0028 %
48	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using Multi Product Calibrator By Direct Method	3 V to 300 V	0.0018 % to 0.0030 %
49	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using Multi Product Calibrator By Direct Method	300 mV to 3 V	0.0028 % to 0.0018 %
50	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using Multi Product Calibrator By Direct Method	300 V to 1000 V	0.003 % to 0.0016 %
51	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	RTD PT100	Using Temperature Scanner by Direct Method	-200 °C to 800 °C	0.04°C

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52	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	T/C B Type	Using Temperature Scanner by Direct Method	600 °C to 1800 °C	1.09°C
53	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	T/C E Type	Using Temperature Scanner by Direct Method	-200 °C to 1000 °C	0.28°C
54	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	T/C J Type	Using Temperature Scanner by Direct Method	-200 °C to 1000 °C	0.33°C
55	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	T/C K type	Using Temperature Scanner by Direct Method	0 to 1350 °C	0.45°C
56	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	T/C N Type	Using Temperature Scanner by Direct Method	0 to 1300 °C	0.32°C
57	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	T/C R Type	Using Temperature Scanner by Direct Method	500 °C to 1750 °C	0.55°C

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58	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	T/c S Type	Using Temperature Scanner by Direct Method	500 °C to 1750 °C	0.62°C
59	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	T/C T type	Using Temperature Scanner by Direct Method	-200 °C to 390 °C	0.44°C
60	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	(Indicator/ Controller/RTD) RTD PT 100	Using Multi Product Calibrator by Direct Method	(-)200 °C to 800 °C	0.26°C
61	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	(Indicator/ Controller/RTD) T/C B Type	Using Multi Product Calibrator by Direct Method	600 °C to 1800 °C	0.48°C
62	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	(Indicator/ Controller/RTD) T/C E Type	Using Multi Product Calibrator by Direct Method	(-)200 °C to 1000 °C	0.57°C
63	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	(Indicator/ Controller/RTD) T/C TType	Using Multi product Calibrator by Direct Method	(-) 200 °C to 390 °C	0.39°C

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64	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Indicator/ Controller/RTD) T/C S Type	Using Multi Product Calibrator by Direct Method	500 °C to 1750 °C	0.53°C
65	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Digital Timer /Stop Watch	Using Digital Stop Watch by comparison method	90 min to 24 hr	0.42 s to 0.75 s
66	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Digital Timer/Stop watch	Using Digital Stop Watch by Comparison Method	10 s to 90 min	0.42s
67	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Frequency	Using Digital Multi Meter by direct/comparison method	10 Hz to 1 MHz	0.0742 % to 0.0170 %
68	ELECTRO-TECHNICAL-TIME & FREQUENCY (Source)	Frequency	Using Multi Product Calibrator by Direct Method	10 Hz to 1 MHz	0.0005 % to 0.0068 %
69	ELECTRO-TECHNICAL-TIME & FREQUENCY (Source)	Frequency	Using Multi Product Calibrator by Direct Method	10 Hz to 1 MHz	0.0005 % to 0.0068 %

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70	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Angle Plate / Precision Angle Plate Flatness of working face	Using Electronic Level Meter,Surface Plate by Comparison Method	Up to 300 mm	7.2µm
71	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Angle Plate / Precision Angle Plate Parallelism of Opposite face & Edge	Using Surface Plate, Dial Gauge by Comparison Method	Up to 300 mm	6.8µm
72	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Angle Plate / Precision Angle Plate Squareness of Working face	Using Surface Plate, Dial Gauge, Cylindrical Square, Gauge Block Set by Comparison Method	Up to 300 mm	8.1µm
73	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Bevel Angle Protractor / Inclinometer L.C.- 5 min.	Using Angle Gauge Set by Comparison Method	0°-90°- 0°	5.8min
74	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Caliper Vernier / Dial / Electronic L.C.- 0.01 mm	Using Caliper Checker, Gauge Block by Comparison Method	Up to 600 mm	12.9µm

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75	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Coating Thickness Gauge least count 0.001 mm	Standard Thickness foil	50 µm to 1000 µm	6µm
76	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Combination Set / Angle Protractor L.C.- 1°	Using Angle Gauge Set by Comparison Method	0°-180°-0°	42.14min
77	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Comparator Stand Flatness of Working Table	Using Gauge Block Set, Dial Gauge, Optical Flat, Ele. Level Meter, Surface Plate by Comparison Method	400 X 400 mm	6.7µm
78	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Cylindrical Measuring Pin	Using ULMM by Direct Method	0.5 mm to 20 mm	1.44µm
79	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Depth Gauge Vernier / Dial / Electronic L.C.- 0.01 mm	Using Depth Micro Checker by Comparison Method	Up to 300 mm	8.8µm

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80	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Depth Micrometer (Analog / Digital) L.C.- 0.01 mm	Using Gauge Block Set, Depth Micro Checker, Surface Plate by Comparison Method	Up to 300 mm	4.7µm
81	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Dial Bore Gauge (Transmission Mechanism) L.C.- 0.001 mm	Using ULMM by Comparison Method	Up to 2 mm	4.2µm
82	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Dial Thickness Gauge L.C.- 0.01 mm	Using Gauge Block Set by Comparison Method	Up to 25 mm	5.0µm
83	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Engineering Square / Tri Square/ Right Angle Grade-1, 2, 3 2.Squareness	Using Ele. Level Meter, Surface Plate, Dial Gauge, Gauge Block Set, Cylindrical Square by Comparison Method	Up to 600 mm	6.64µm
84	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Engineering Square / Tri Square/ Right Angle Grade-1, 2, 3 (.Parallelism of Blade edge)	Using Ele. Level Meter, Surface Plate, Dial Gauge, Gauge Block Set, Cylindrical Square by Comparison Method	Up to 600 mm	8.61µm

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85	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Engineering Square / Tri Square/ Right Angle Grade-1, 2, 3 (Squareness of Internal Square)	Using Ele. Level Meter, Surface Plate, Dial Gauge, Gauge Block Set, Cylindrical Square by Comparison Method	Up to 600 mm	8.64µm
86	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	External Micrometer (Analog/Digital) L.C.- 0.001 mm	Using Gauge Block Set by Comparison Method	Upto 100 mm	1.20µm
87	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	External Micrometer (Analog/Digital) L.C.- 0.01 mm	Using Long Gauge Block by Comparison Method	100 mm to 500 mm	7.35µm
88	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Feeler Gauge	Using ULMM by Direct Method	0.01 mm to 1.00 mm	1.49µm
89	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Height Gauge Vernier / Dial / Electronic L.C.- 0.01 mm	Using Caliper Checker, Gauge Block, Surface plate by Comparison Method	Up to 600 mm	8.75µm

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90	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Inside Dial Caliper least count 0.01mm	Using Gauge Block Set, Gauge Block Accessories by Comparison Method	5 mm to 75 mm	8.6µm
91	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Internal Micrometer/Stick Micrometer (Tow Point) Analog/Digital, least count 0.001 mm	Using ULMM, Gauge Block Set, Gauge Block Accessories by Comparison Method	Up to 500 mm	5.0µm
92	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Lever Type Dial Gauge L.C. – 0.01 mm	Using ULMM by Comparison Method	0 mm to 1 mm	5.96µm
93	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Lever Type Dial Gauge L.C. – 0.001 mm	Using ULMM by Comparison Method	0 to 0.14 mm	1.83µm
94	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Lever Type Dial Gauge L.C. – 0.002 mm	Using ULMM by Comparison Method	0 to 0.2 mm	1.9µm

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95	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Measuring Scale/Steel Scale, least count 0.5/1 mm	Using Scale & Tape Calibration Machine by Direct Method	Up to 1000 mm	17.07µm
96	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Measuring Tape, least count 1 mm	Using Scale & Tape Calibration Machine by Direct Method	Up to 50 m	18.51xSqrt(L/1000) µm, L is in mm
97	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Parallel Thread Plug Gauge/Wear Check Plug Gauge, Pitch Día	Using ULMM, Thread Measuring Wire by Comparison Method	2 mm to 100 mm	1.72µm
98	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Parallel Thread Ring Gauge/ Wear Check Ring Gauge, Pitch Día	Using ULMM by Comparison Method	2 mm to 100 mm	1.74µm
99	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Plain Plug Gauge / O.D. Master / Width Gauge	Using ULMM by Comparison Method	1 mm to 100 mm	1.7µm

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100	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Plain Ring Gauge	Using ULMM by Comparison Method	4 mm to 100 mm	1.7µm
101	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Plunger Type Dial Gauge L.C.- 0.001 mm	Using ULMM, Gauge Block Set by Comparison Method	Up to 25 mm	1.6µm
102	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Radius Gauge	Using Profile Projector by Direct Method	0.6 mm to 25 mm	10µm
103	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Snap Gauge	Using Gauge Block Set, by Comparison Method	3 mm to 150 mm	3.1µm
104	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Straight Edge 1.Straightness of Working face 2.Parallelism of Working face Grade 0, 1, 2	Using Surface Plate, Dial Gauge, Gauge Block Set, Ele. Level Meter, by Comparison Method	2000 X 2000 mm	8.3µm/m

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105	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Surface Plate	Using Electronic Level Meter by Direct Method	3 m x 3 m	0.49Sqrt((L+W)/125) µm, L & W is in mm
106	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Surface Roughness Tester	Using Surface Roghness Master 3 Ra Values	12.5 µm	3µm
107	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Tape and scale Calibration Machine	Glass Scale Least Count 0.01 mm	0 to 1000 mm	6.2µm
108	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Taper Scale/Ruler	Using Profile Projector by Direct Method	Up to 1000 mm	58.32µm
109	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Test Sieves 1.Aperature Size	Using Digital Caliper by Direct Method	0.5 mm to 125 mm	13.1µm

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110	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Test Sieves 1.Aperature Size	Using VMM by Direct Method	0.03 mm to 0.5 mm	5.92µm
111	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Thickness Foil	Using ULMM by Direct Method	0.01 to 2 mm	2.0 µm
112	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Thread Measuring Wire	Using ULMM by Direct Method	0.17 mm to 6.35 mm	1.4µm
113	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Thread Pitch Gauge	Using Profile Projector by Direct Method	0.4 mm to 6.0 mm	8.0µm
114	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Tool Maker Microscope (Travelling Only) Linear measurement	Using Glass Scale, Eye Piece by Comparison Method	X, Y = 25X25 mm	2.86µm for Axis Movement

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115	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Ultrasonic Thickness Gauge L.C.- 0.1 mm	Using Steel Gauge Block Set by Comparison Method	Up to 200 mm	71µm
116	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	V-Block (Squareness)	Using Test Mandrel, Dial Gauge, Surface Plate, Cylindrical Square by Comparison Method	Up to 150 mm	8.12µm
117	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	V-Block Parallelism	Using Test Mandrel, Dial Gauge, Surface Plate, Cylindrical Square by Comparison Method	Up to 150 mm	7.2µm
118	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	V-Block Symmetricity	Using Test Mandrel, Dial Gauge, Surface Plate, Cylindrical Square by Comparison Method	Up to 150 mm	9.89µm
119	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Wire Gauge	Using VMM by Direct Method	0 to 10 mm	6.5µm

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120	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Length Measuring Machine L.C.- 0.0001 mm	Using Gauge Block Set, Optical Flat by Comparison Method	Up to 100 mm	1.3µm
121	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Metallurgical Microscope Magnification	Using Glass Scale, Eye Piece by Comparison Method	5X,10X, 20X, 40X, 50X, to 60X, 80X,100X	0.50%
122	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Micrometer Head L.C. - 0.001 mm	Using ULMM by Comparison Method	0 to 25	2.6µm
123	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Micrometer Setting Standard/Length Bar	Using ULMM, Gauge Block, Length Bar, Optical Flat by Comparison Method	25 mm to 500 mm	6.13µm
124	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Profile Projector Angular	Using Angle Gauge by Comparison Method	Up to 360 °	11.04s
125	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Profile Projector Linear (Least Count -0.001 mm)	Using Glass Scale by Comparison Method	Up to 300 mm	3.26µm
126	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Profile Projector Magnification	Using Glass Scale,Gauge Block Set, Digital Caliper by Comparison Method	5X,10X,20X,50X,100 X	1.25%

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127	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Stereo Zoom Microscope Magnification-8X to 80X, Eyepiece 10X	Using Glass Scale, Eye Piece by Comparison Method	8 X to 80 X	0.50 %for Magnification
128	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Vertical Single Axis Measuring Machine L.C.- 0.0001 mm	Using Caliper Checker, Gauge Block Set, Length Bar by Comparison Method	Up to 600 mm	11.9µm
129	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Vision Measurement Machine Angular Measurement	Using Angle Gauge by Comparison Method	Up to 360 °	9.5s
130	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Vision Measurement Machine Linear Measurement	Using Gauge Block Set, Glass Scale by Comparison Method	300X200X200 mm	6.3µm
131	MECHANICAL-HARDNESS TESTING MACHINES	Verification of Brinell Hardness Testing Machine	Using Standard Block as per IS: 1500-2:2021 Indirect Method	HBW 10/3000	1.70%
132	MECHANICAL-HARDNESS TESTING MACHINES	Verification of Brinell Hardness Testing Machine	Using Standard Block as per IS: 1500-2:2021 Indirect Method	HBW 2.5/187.5	1.68%
133	MECHANICAL-HARDNESS TESTING MACHINES	Verification of Brinell Hardness Testing Machine	Using Standard Block as per IS: 1500-2:2021 Indirect Method	HBW 5/750	1.33%

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134	MECHANICAL-HARDNESS TESTING MACHINES	Verification of Rockwell Hardness Testing Machine	Using Standard Block as per IS: 1586-2:2018 Indirect Method	HRBW	1.79HRBW
135	MECHANICAL-HARDNESS TESTING MACHINES	Verification of Rockwell Hardness Testing Machine	Using Standard Block as per IS: 1586-2:2018 Indirect Method	HRC	1.30HRC
136	MECHANICAL-HARDNESS TESTING MACHINES	Verification of Vickers Hardness Testing Machine	Using Standard Block as per IS: 1501-2:2020 Indirect Method	HV 0.5	3.48%
137	MECHANICAL-HARDNESS TESTING MACHINES	Verification of Vickers Hardness Testing Machine	Using Standard Block as per IS: 1501-2:2020 Indirect Method	HV 1	3.21%
138	MECHANICAL-HARDNESS TESTING MACHINES	Verification of Vickers Hardness Testing Machine	Using Standard Block as per IS: 1501-2:2020 Indirect Method	HV10	2.0%
139	MECHANICAL-PRESSURE INDICATING DEVICES	Pressure Gauge hydraulic (Digital/ Dial)	Using Digital Pressure Gauge with hydraulic comparator pump (Water based) Based on DKD-R6-1	0 to 700 bar	0.35bar

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140	MECHANICAL-PRESSURE INDICATING DEVICES	Pressure Gauge hydraulic (Digital/ Dial)	Using Digital Pressure Gauge with hydraulic comparator pump (Water based) Based on DKD-R6-1	0 to 70 bar	0.19bar
141	MECHANICAL-PRESSURE INDICATING DEVICES	Pressure Gauge hydraulic (Digital/Dial)	Using Digital Pressure Gauge with hydraulic comparator pump (Water based) Based on DKD-R6-1	0 to 7 bar	0.17bar
142	MECHANICAL- --SELECT GROUP--	(Indicator/ Controller/RTD) T/C J Type	Using Multi Product Calibrator by Direct Method	(-)200 °C to 1000 °C	0.30°C
143	MECHANICAL- --SELECT GROUP--	(Indicator/ Controller/RTD) T/C K Type	Using Multi Product Calibrator by Direct Method	0 °C to 1350 °C	0.42°C
144	MECHANICAL- --SELECT GROUP--	(Indicator/ Controller/RTD) T/C N Type	Using Multi Product Calibrator by Direct Method	0 °C to 1300 °C	0.31°C
145	MECHANICAL- --SELECT GROUP--	(Indicator/ Controller/RTD) T/C R Type	Using Multi Product Calibrator by Direct Method	500 °C to 1750 °C	0.46°C
146	THERMAL-TEMPERATURE	Glass Thermometer/ Dial Temperature Gauge	Using SPRT & Precision Temperature Scanner, Liquid bath by Comparison method	-30 °C to 125 °C	0.72°C

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147	THERMAL-TEMPERATURE	RTD / Thermocouple, with or without indicator/ data logger/Temperature scanner/Temperature Recorder/Digital Thermometer	Using SPRT & Precision Temperature Scanner, Liquid bath by Comparison method	-30 °C to 125 °C	0.29°C
148	THERMAL-TEMPERATURE	RTD / Thermocouple, with or without indicator/ data logger/Temperature/ scanner/Temperature Recorder/Digital Thermometer	Using S-type thermocouple with Precision scanner, Dry block calibrator by comparison method	>500 °C to 800 °C	1.98°C
149	THERMAL-TEMPERATURE	RTD / Thermocouple, with or without indicator/ data logger/Temperature/ scanner/Temperature Recorder/Digital Thermometer	Using S Type Thermocouple with precision temperature Scanner, Dry block calibrator by Comparison method	800 °C to 1200 °C	2.76°C
150	THERMAL-TEMPERATURE	RTD / Thermocouple, with or without indicator/ data logger/Temperature/ scanner/Temperature Recorder/Temperature/Digital Thermometer	Using SPRT & Precision scanner, Dry block calibrator by Comparison Method	125 °C to 500 °C	0.60°C

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151	THERMAL-TEMPERATURE	Temperature Indicator with sensor of Freezers, Oven, Environment Chamber, Incubator, Liquid Bath, Dry Block Furnace, Tray Dryer	Using SPRT & Precision Scanner, S-type Thermocouple with Precision scanner By Comparison Method Single Position Calibration(At measuring Point DUC) by Comparison method	-30 °C to 500 °C	0.74°C
152	THERMAL-TEMPERATURE	Temperature Indicator with sensor of Freezers, Oven, Environment Chamber, Incubator, Liquid Bath, Dry Block Furnace, Tray Dryer, Autoclave.	Using S-type thermocouple with Precision scanner By Comparision Method Single Position Calibration(At measuring Point DUC)	600 °C to 1200°C	2.82 °C

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Site Facility					
1	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	A.C High Voltage@50Hz	Using HV Probe with DMM by direct method	1 kV to 25 kV	6.73 % to 1.95 %
2	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	A.C Power @ 50 Hz (UPF to +/-0.5) 100V-600V, 10A-1000A 1kW to 600 kW	Using Energy Logger By Direct Method	1 kW to 600 kW	3.2 % to 2.0 %
3	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	A.C Voltage @50Hz to 1kHz	Using Digital Multi Meter by Direct Method	100 mV to 1000 V	0.16 % to 0.14 %
4	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	A.C Voltage@ 50Hz to 1kHz	Using Digital Multi Meter by direct method	10 mV to 100 mV	0.72 % to 0.16 %

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5	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	A.C. Current @ 50 Hz to 1 kHz	Using Multi Product Calibrator by Direct Method	300 µA to 30 mA	0.18 % to 0.055 %
6	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	A.C. Current @50Hz to 1 kHz	Using Energy logger with I flex Cable by Direct Method	10 A to 1000 A	0.34 % to 1.7 %
7	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	A.C. Current @50Hz to 1kHz	Using Digital Multi Meter by Direct Method	1 A to 10 A	0.17 % to 0.25 %
8	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	A.C. Current @50Hz to 1kHz	Using Digital Multi Meter by Direct Method	100 µA to 100 mA	0.14 % to 0.16 %
9	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Energy (1Phase & 3 Phase)@50Hz (UPF to +/- 0.5) 100 V to 240 V, 0.5 A to 250 A	Using Energy Logger by Direct Method	50 W to 60 kW	1.5 % to 2.7 %

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10	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Power Factor (Lead/Lag)	Using Energy Logger by Direct Method	0.20 PF to 1.00 PF	0.0069PF
11	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	A.C Power (Active Power)@50Hz 10V-600V, 100mA-20A (UPF,0.5 Lead/Lag)	Using Multi Product Calibrator by Direct Method	1 W to 12 kW	0.2%
12	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	A.C. Current @ 50 Hz to 1 kHz	Using Multi Product Calibrator by Direct Method	30 µA to 300 µA	0.56 % to 0.18 %
13	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	A.C. Current @ 50 Hz to 1 kHz	Using Multi Product Calibrator by Direct Method	3 A to 20 A	0.15 % to 0.04 %
14	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	A.C. Current @ 50 Hz to 1 kHz	Using Multi Product Calibrator by Direct Method	30 mA to 3 A	0.055 % to 0.15 %

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15	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	A.C. Current @ 50 Hz to 1 kHz	Using Product Calibrator with 50 turn Current Coil by Direct Method	20 A to 1000 A	1.0 % to 2.54 %
16	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current (50Hz-1 KHz)	Using Multi Product Calibrator by Direct Method	300 µA to 30 mA	0.18 % to 0.055 %
17	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC voltage (50Hz to 1kHz)	Using Multi-Product Calibrator direct Method	1 mV to 300 mV	1.38 % to 0.17 %
18	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC voltage (50Hz-1 KHz)	Using Multi Product Calibrator by Direct Method	300 mV to 3 V	0.17 % to 0.027 %
19	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (50Hz-1kHz)	Using Multi Product Calibrator by Direct Method	3 V to 300 V	0.027 % to 0.0269 %
20	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (50Hz-1kHz)	Using Multi Product Calibrator by Direct Method	300 V to 1000 V	0.027 % to 0.037 %

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21	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Capacitance @ 100 Hz	Using Multi Product Calibrator By Direct Method	10 µF to 100 µF	0.6 % to 0.8 %
22	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Power Factor (Lead & Lag)	Using Multi Product Calibrator By Direct Method	0.20 PF to 1.00 PF	0.008 PF to 0.008 PF
23	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	D.C Current	Using Digital Multi Meter by Direct Method	1 A to 10 A	0.0801 % to 0.223 %
24	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	D.C Current	Using Digital Multi Meter by Direct Method	10 µA to 10 mA	0.15 % to 0.079 %
25	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	D.C High Voltage	Using HV Probe with DMM by direct method	1 kV to 30 kV	4.85 % to 3.54 %
26	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	D.C Voltage	Using Digital Multi Meter by direct method	1 mV to 100 mV	0.0758 % to 0.0084 %

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27	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	D.C Voltage	Using Digital Multi Meter by Direct Method	10 V to 1000 V	0.005 % to 0.008 %
28	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	D.C.Current	Using Digital Multi Meter by Direct Method	10 mA to 1 A	0.0794 % to 0.0801 %
29	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance (2 Wire & 4 Wire)	Using Digital Multi Meter by Direct Method	100 Ohm to 1 kohm	0.016 % to 0.013 %
30	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance (2 Wire & 4 Wire)	Using Digital Microohm Meter by Direct Method	10 mohm to 100 mohm	0.96 % to 1.66 %
31	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance (2 Wire & 4 Wire)	Using Digital Multi Meter by Direct Method	1 Ohm to 10 Ohm	0.5 % to 0.06 %
32	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance (2 Wire & 4 Wire)	Using Digital Multi Meter by Direct Method	1 Mohm to 100 Mohm	0.06 % to 0.92 %

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33	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance (2 Wire & 4 Wire)	Using Digital Multi Meter by Direct Method	1 mohm to 10 mohm	1.6 % to 0.96 %
34	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance (2 Wire & 4 Wire)	Using Digital Multi Meter by Direct Method	10 Ohm to 100 Ohm	0.06 % to 0.016 %
35	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	D.C Resistance For Insulation Tester @ 500 V	Using Resistance Box by Direct Method	100 Mohm to 200 Gohm	5.0%
36	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	D.C. Current	Using Multi Product Calibrator by Direct Method	10 µA to 300 µA	0.24 % to 0.0092 %
37	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	D.C. Current	Using Multi Product Calibrator with 50 turn current coil by Direct Method	20 A to 1000 A	1 % to 2.54 %
38	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	D.C. Current	Using Multi Product Calibrator by Direct Method	3 A to 20 A	0.066 % to 0.57 %

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39	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	D.C. Current	Using Multi product Calibrator by direct method	3 mA to 300 mA	0.019 % to 0.014 %
40	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	D.C. Current	Using Multi Product Calibrator by Direct Method	300 mA to 3 A	0.014 % to 0.066 %
41	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	D.C.Current	Using Multi Product Calibrator by Direct Method	300 µA to 3 mA	0.0092 % to 0.019 %
42	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Power 10 V to 1000V 100 mA to 20 A	Using Multi Product Calibrator By Direct Method	1 W to 20 KW	1.11 % to 0.3 %
43	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance (2 Wire & 4 Wire)	Using Multi Product Calibrator by Direct Method	1 Ohm to 100 Ohm	0.0056 % to 0.0104 %
44	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance (2 Wire & 4 Wire)	Using Multi Product Calibrator by Direct Method	1 Mohm to 1000 Mohm	0.046 % to 1.7 %

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45	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance (2 Wire & 4 Wire)	Using Resistance Box by Direct Method	1 mohm to 10 mohm	1.42 % to 0.80 %
46	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance (2 Wire & 4 Wire)	Using Resistance Box by Direct Method	10 mohm to 100 mohm	0.80 % to 0.81 %
47	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance (2 wire & 4 wire)	Using Multi Product Calibrator By Direct Method	100 Ohm to 1 Mohm	0.0037 % to 0.046 %
48	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using Multi Product Calibrator By Direct Method	1 mV to 300 mV	0.12 % to 0.0028 %
49	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using Multi Product Calibrator By Direct Method	3 V to 300 V	0.0018 % to 0.0030 %
50	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using Multi Product Calibrator By Direct Method	300 mV to 3 V	0.0028 % to 0.0018 %

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51	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using Multi Product Calibrator By Direct Method	300 V to 1000 V	0.003 % to 0.0016 %
52	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	RTD PT100	Using Temperature Scanner by Direct Method	-200 °C to 800 °C	0.04°C
53	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	T/C B Type	Using Temperature Scanner by Direct Method	600 °C to 1800 °C	1.09°C
54	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	T/C E Type	Using Temperature Scanner by Direct Method	-200 °C to 1000 °C	0.28°C
55	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	T/C J Type	Using Temperature Scanner by Direct Method	-200 °C to 1000 °C	0.33°C
56	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	T/C K type	Using Temperature Scanner by Direct Method	0 to 1350 °C	0.45°C

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57	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	T/C N Type	Using Temperature Scanner by Direct Method	0 to 1300 °C	0.32°C
58	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	T/C R Type	Using Temperature Scanner by Direct Method	500 °C to 1750 °C	0.55°C
59	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	T/c S Type	Using Temperature Scanner by Direct Method	500 °C to 1750 °C	0.62°C
60	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	T/C T type	Using Temperature Scanner by Direct Method	-200 °C to 390 °C	0.44°C
61	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	(Indicator/ Controller/RTD) RTD PT 100	Using Multi Product Calibrator by Direct Method	(-)200 °C to 800 °C	0.26°C
62	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	(Indicator/ Controller/RTD) T/C B Type	Using Multi Product Calibrator by Direct Method	600 °C to 1800 °C	0.48°C

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63	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	(Indicator/ Controller/RTD) T/C E Type	Using Multi Product Calibrator by Direct Method	(-)200 °C to 1000 °C	0.57°C
64	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	(Indicator/ Controller/RTD) T/C TType	Using Multi product Calibrator by Direct Method	(-) 200 °C to 390 °C	0.39°C
65	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Indicator/ Controller/RTD) T/C S Type	Using Multi Product Calibrator by Direct Method	500 °C to 1750 °C	0.53°C
66	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Digital Timer /Stop Watch	Using Digital Stop Watch by comparison method	90 min to 24 hr	0.42 s to 0.75 s
67	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Digital Timer/Stop watch	Using Digital Stop Watch by Comparison Method	10 s to 90 min	0.42s
68	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Frequency	Using Digital Multi Meter by direct/comparison method	10 Hz to 1 MHz	0.0742 % to 0.0170 %

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69	ELECTRO-TECHNICAL-TIME & FREQUENCY (Source)	Frequency	Using Multi Product Calibrator by Direct Method	10 Hz to 1 MHz	0.0005 % to 0.0068 %
70	ELECTRO-TECHNICAL-TIME & FREQUENCY (Source)	Frequency	Using Multi Product Calibrator by Direct Method	10 Hz to 1 MHz	0.0005 % to 0.0068 %
71	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Comparator Stand Flatness of Working Table	Using Gauge Block Set, Dial Gauge, Optical Flat, Ele. Level Meter, Surface Plate by Comparison Method	400 X 400 mm	6.7µm
72	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Surface Plate	Using Electronic Level Meter by Direct Method	3 m x 3 m	0.49Sqrt((L+W)/125) µm, L & W is in mm
73	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Tape and scale Calibration Machine	Glass Scale Least Count 0.01 mm	0 to 1000 mm	6.2µm

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74	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Tool Maker Microscope (Travelling Only) Linear measurement	Using Glass Scale, Eye Piece by Comparison Method	X, Y = 25X25 mm	2.86µm for Axis Movement
75	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Length Measuring Machine L.C.- 0.0001 mm	Using Gauge Block Set, Optical Flat by Comparison Method	Up to 100 mm	1.3µm
76	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Metallurgical Microscope Magnification	Using Glass Scale, Eye Piece by Comparison Method	5X,10X, 20X, 40X, 50X, to 60X, 80X,100X	0.50%
77	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Profile Projector Angular	Using Angle Gauge by Comparison Method	Up to 360 °	11.04s
78	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Profile Projector Linear (Least Count -0.001 mm)	Using Glass Scale by Comparison Method	Up to 300 mm	3.26µm
79	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Profile Projector Magnification	Using Glass Scale,Gauge Block Set, Digital Caliper by Comparison Method	5X,10X,20X,50X,100 X	1.25%

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80	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Stereo Zoom Microscope Magnification-8X to 80X, Eyepiece 10X	Using Glass Scale, Eye Piece by Comparison Method	8 X to 80 X	0.50 %for Magnification
81	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Vertical Single Axis Measuring Machine L.C.- 0.0001 mm	Using Caliper Checker, Gauge Block Set, Length Bar by Comparison Method	Up to 600 mm	11.9µm
82	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Vision Measurement Machine Angular Measurement	Using Angle Gauge by Comparison Method	Up to 360 °	9.5s
83	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Vision Measurement Machine Linear Measurement	Using Gauge Block Set, Glass Scale by Comparison Method	300X200X200 mm	6.3µm
84	MECHANICAL-HARDNESS TESTING MACHINES	Verification of Brinell Hardness Testing Machine	Using Standard Block as per IS: 1500-2:2021 Indirect Method	HBW 10/3000	1.70%
85	MECHANICAL-HARDNESS TESTING MACHINES	Verification of Brinell Hardness Testing Machine	Using Standard Block as per IS: 1500-2:2021 Indirect Method	HBW 2.5/187.5	1.68%
86	MECHANICAL-HARDNESS TESTING MACHINES	Verification of Brinell Hardness Testing Machine	Using Standard Block as per IS: 1500-2:2021 Indirect Method	HBW 5/750	1.33%

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87	MECHANICAL-HARDNESS TESTING MACHINES	Verification of Rockwell Hardness Testing Machine	Using Standard Block as per IS: 1586-2:2018 Indirect Method	HRBW	1.79HRBW
88	MECHANICAL-HARDNESS TESTING MACHINES	Verification of Rockwell Hardness Testing Machine	Using Standard Block as per IS: 1586-2:2018 Indirect Method	HRC	1.30HRC
89	MECHANICAL-HARDNESS TESTING MACHINES	Verification of Vickers Hardness Testing Machine	Using Standard Block as per IS: 1501-2:2020 Indirect Method	HV 0.5	3.48%
90	MECHANICAL-HARDNESS TESTING MACHINES	Verification of Vickers Hardness Testing Machine	Using Standard Block as per IS: 1501-2:2020 Indirect Method	HV 1	3.21%
91	MECHANICAL-HARDNESS TESTING MACHINES	Verification of Vickers Hardness Testing Machine	Using Standard Block as per IS: 1501-2:2020 Indirect Method	HV10	2.0%
92	MECHANICAL-PRESSURE INDICATING DEVICES	Pressure Gauge hydraulic (Digital/ Dial)	Using Digital Pressure Gauge with hydraulic comparator pump (Water based) Based on DKD-R6-1	0 to 700 bar	0.35bar

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93	MECHANICAL-PRESSURE INDICATING DEVICES	Pressure Gauge hydraulic (Digital/ Dial)	Using Digital Pressure Gauge with hydraulic comparator pump (Water based) Based on DKD-R6-1	0 to 70 bar	0.19bar
94	MECHANICAL-PRESSURE INDICATING DEVICES	Pressure Gauge hydraulic (Digital/Dial)	Using Digital Pressure Gauge with hydraulic comparator pump (Water based) Based on DKD-R6-1	0 to 7 bar	0.17bar
95	MECHANICAL- --SELECT GROUP--	(Indicator/ Controller/RTD) T/C J Type	Using Multi Product Calibrator by Direct Method	(-)200 °C to 1000 °C	0.30°C
96	MECHANICAL- --SELECT GROUP--	(Indicator/ Controller/RTD) T/C K Type	Using Multi Product Calibrator by Direct Method	0 °C to 1350 °C	0.42°C
97	MECHANICAL- --SELECT GROUP--	(Indicator/ Controller/RTD) T/C N Type	Using Multi Product Calibrator by Direct Method	0 °C to 1300 °C	0.31°C
98	MECHANICAL- --SELECT GROUP--	(Indicator/ Controller/RTD) T/C R Type	Using Multi Product Calibrator by Direct Method	500 °C to 1750 °C	0.46°C

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99	THERMAL-TEMPERATURE	Calibration of Freezers, Oven, Chamber, Liquid Bath, Furnace, Incubator/ Autoclave (for non-medical purposes only).	Using RTD (minimum 9 Nos.) with precision scanner By Comparision Method (Multi Position Calibration)	- 30 °C to 400 °C	4.6 °C
100	THERMAL-TEMPERATURE	Calibration of Oven, Chamber, Furnace	Using N-type thermocouple (minimum 9 Nos.) with precision scanner By Comparision Method (Multi position calibration)	>400 °C to 1000 °C	7.0 °C
101	THERMAL-TEMPERATURE	RTD / Thermocouple, with or without indicator/ data logger/Temperature scanner/Temperature Recorder/Digital Thermometer	Using SPRT & Precision Temperature Scanner, Liquid bath by Comparison method	-30 °C to 125 °C	0.29°C
102	THERMAL-TEMPERATURE	RTD / Thermocouple, with or without indicator/ data logger/Temperature/ scanner/Temperature Recorder/Digital Thermometer	Using S-type thermocouple with Precision scanner, Dry block calibrator by comparison method	>500 °C to 800 °C	1.98°C

SCOPE OF ACCREDITATION

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S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrument	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
103	THERMAL-TEMPERATURE	RTD / Thermocouple, with or without indicator/ data logger/Temperature/ scanner/Temperature Recorder/Digital Thermometer	Using S Type Thermocouple with precision temperature Scanner, Dry block calibrator by Comparison method	800 °C to 1200 °C	2.76°C
104	THERMAL-TEMPERATURE	RTD / Thermocouple, with or without indicator/ data logger/Temperature/ scanner/Temperature Recorder/Temperature/Digital Thermometer	Using SPRT & Precision scanner, Dry block calibrator by Comparison Method	125 °C to 500 °C	0.60°C
105	THERMAL-TEMPERATURE	Temperature Indicator with sensor of Freezers, Oven, Environment Chamber, Incubator, Liquid Bath, Dry Block Furnace, Tray Dryer	Using SPRT & Precision Scanner, S-type Thermocouple with Precision scanner By Comparison Method Single Position Calibration(At measuring Point DUC) by Comparison method	-30 °C to 500 °C	0.74°C

SCOPE OF ACCREDITATION

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S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrument	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
106	THERMAL-TEMPERATURE	Temperature Indicator with sensor of Freezers, Oven, Environment Chamber, Incubator, Liquid Bath, Dry Block Furnace, Tray Dryer, Autoclave.	Using S-type thermocouple with Precision scanner By Comparision Method Single Position Calibration(At measuring Point DUC)	600 °C to 1200°C	2.82 °C

*** CMCs represent expanded uncertainties expressed at approximately the 95% level of confidence, using a coverage factor of k = 2.**