National Accreditation Board for Testing and Calibration Laboratories

SCOPE OF ACCREDITATION

Laboratory Name :	QUALITY SOLUTIONS (INDIA), PLOT NO: X-4 , BPTP , SECTOR-76, FARIDABAD, HARYANA, INDIA		
Accreditation Standard	ISO/IEC 17025:2017		
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S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	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)	AC High Voltage at 50Hz	Using High voltage probe (Fluke) with DMM /Direct Method	1 kV to 5 kV	1.81 % to 0.67 %
2	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC High Voltage at 50Hz	Using High voltage probe (Fluke) with DMM /Direct Method	5 kV to 10 kV	0.93 % to 2.54 %
3	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	CAPACITANCE at 1kHz	Using LCR Q meter ,Model -4910 Make: Aplab ,/direct Method	1 nF to 1000 nF	2.31 % to 0.21 %
4	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	INDUCTANCE at 1 kHz	Using LCR -Q METER make: Aplab Model: 4910 / Direct Method	100 µH to 1 H	3.47%
5	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC CURRENT@50Hz	Using 51/2, Multifunction calibrator , Make : Zeal , Direct Method	2 A to 10 A	2.02 % to 0.33 %

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6	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC CURRENT@50Hz	Using 51/2, Multifunction calibrator , Make : Zeal , Direct Method	2 mA to 2000 mA	0.39 % to 1.27 %
7	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC CURRENT@50Hz	Using 51/2, Multifunction calibrator , Make : Zeal , Direct Method	200 µA to 2 mA	1.27 % to 0.39 %
8	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC voltage@50Hz	Using 51/2 Multi function calibrator, Zeal Make, Direct Method	200 mV to 200 V	0.21 % to 0.33 %
9	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC voltage@50Hz	Using 51/2 Multi function calibrator, Zeal Make, Direct Method	200 V to 1000 V	0.33 % to 0.23 %
10	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC VOLTAGE@50Hz	Using 51/2, Multifunction calibrator , Make : Zeal , Direct Method	5 mV to 200 mV	1.92 % to 0.21 %

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11	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC- High Current at 50 Hz	Using 5 1/2 Digit , Zeal Make,Multifunction calibrator with current coil / Direct Method	10 A to 100 A	1.87 % to 1.75 %
12	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC- High Current at 50 Hz	Using 5 1/2 Digit , Zeal Make,Multifunction calibrator with current coil / Direct Method	100 A to 1000 A	1.75 % to 0.64 %
13	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC High Voltage	Using High voltage probe (Fluke) with DMM /Direct Method	1 kV to 5 kV	4.37 % to 2.76 %
14	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC High Voltage	Using High voltage probe (Fluke) with DMM /Direct Method	5 kV to 10 kV	2.76%
15	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance (2 Wire)	Using 61/2 DMM, Model- 8846-A, Make : Fluke . Direct Method	1 ohm to 10 ohm	0.38 % to 0.05 %

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16	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance (2 Wire)	Using 6 1/2 DMM, Model : 8846-A , Make: Fluke : / Direct method	10 ohm to 100 ohm	0.05%
17	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance (2 Wire)	Using 6 1/2 DMM, Model : 8846-A , Make: Fluke : / Direct method	100 kohm to 2 Mohm	0.05 % to 0.14 %
18	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance (2 Wire)	Using 6 1/2 DMM, Model : 8846-A , Make: Fluke : / Direct method	100 ohm to 100 kohm	0.05%
19	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance (2 Wire)	Using 6 1/2 DMM, Model : 8846-A , Make: Fluke : / Direct method	2 Mohm to 200 Mohm	0.14 % to 2.40 %
20	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	Capacitance @1kHz	Using std. capacitance box(Discrete Method) / Direct Method	1 nF to 1 µF	6.18 % to 5.91 %
21	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC CURRENT	Using 51/2, Multifunction calibrator , Make : Zeal , Direct Method	2 A to 9 A	1.27 % to 0.24 %

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22	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC CURRENT	Using 51/2, Multifunction calibrator , Make : Zeal , Direct Method	2 mA to 2000 mA	0.22 % to 0.66 %
23	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC CURRENT	Using 51/2, Multifunction calibrator , Make : Zeal , Direct Method	200 µA to 2 mA	1.87 % to 0.22 %
24	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Std. Resistance Box (Discrete value) / Direct Method	0.001 ohm to 200 Mohm	4.06 % to 4.58 %
25	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using 51/2, Multifunction calibrator , Make : Zeal , Direct Method	1 mV to 200 mV	1.12 % to 0.12 %
26	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using 51/2, Multifunction calibrator , Make : Zeal , Direct Method	200 mV to 200 V	0.12 % to 0.13 %
27	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using 51/2, Multifunction calibrator , Make : Zeal , Direct Method	200 V to 1000 V	0.13%

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28	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC- High Current	Using 5 1/2 Digit , Zeal Make,Multifunction calibrator with current coil / Direct Method	10 A to 100 A	2.84 % to 1.18 %
29	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC- High Current	Using 5 1/2 Digit , Zeal Make,Multifunction calibrator with current coil / Direct Method	100 A to 900 A	1.18 % to 0.62 %
30	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	Inductance @1kHz	Using Std. Inductance decade box (Discrete values) By Direct Method	1 mH to 1 H	6.12%
31	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	J-Type	Using Universal calibrator by simulation method	-100 °C to 750 °C	1.33°C
32	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	K-Type	Using Universal calibrator by simulation method	-200 °C to 1350 °C	1.2°C

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33	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	PT-100/ RTD	Using Universal calibration by simulation method	50 °C to 490 °C	1.30°C
34	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	R-Type	Using universal calibrator by simulation method	200 °C to 1700 °C	1.63°C
35	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Frequency	Using 6 1/2, DMM, Model : 8846 A, Make: Fluke / Direct Method	50 Hz to 200 kHz	0.01 % to 0.006 %
36	ELECTRO-TECHNICAL-TIME & FREQUENCY (Source)	Time Interval	Using Time calibrator / Direct Method:	1 s to 999 s	6.62 % to 0.07 %
37	MECHANICAL-ACCELERATION AND SPEED	Tachometer / RPM measurement - contact Type	Using Digital Tachometer (Non contact Tachometer with RPM source) by Comparison method / By Using SANAS TR45-02	10 RPM to 100 RPM	2.0RPM

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38	MECHANICAL-ACCELERATION AND SPEED	Tachometer / RPM measurement - contact Type	Using Digital Tachometer (Non contact Tachometer with RPM source) by Comparison method / By Using SANAS TR45-02	100 RPM to 1000 RPM	2.4RPM
39	MECHANICAL-ACCELERATION AND SPEED	Tachometer / RPM measurement - contact Type	Using Digital Tachometer (Non contact Tachometer with RPM source) by Comparison method / By Using SANAS TR45-02	1000 RPM to 8000 RPM	4.0RPM
40	MECHANICAL-ACCELERATION AND SPEED	Tachometer / RPM measurement - Non contact Type	Using Digital Tachometer (Non contact Tachometer with RPM source) by Comparison method / By Using SANAS TR45-02	10 rpm to 1000 rpm	2.3rpm
41	MECHANICAL-ACCELERATION AND SPEED	Tachometer / RPM measurement - Non contact Type	Using Digital Tachometer (Non contact Tachometer with RPM source) by Comparison method / By Using SANAS TR45-02	1000 RPM to 10000 RPM	4.9RPM

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42	MECHANICAL-ACCELERATION AND SPEED	Tachometer / RPM measurement - Non contact Type	Using Digital Tachometer (Non contact Tachometer with RPM source) by Comparison method / By Using SANAS TR45-02	10000 RPM to 50000 RPM	6.2RPM
43	MECHANICAL-ACOUSTICS	Sound Level meter@1kHz	USing sound level calibrator , direct method	114 @1kHz dB	0.43dB
44	MECHANICAL-ACOUSTICS	Sound Level meter@1kHz	Using Sound calibrator by comparison method	94 @1kHz dB	0.43dB
45	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Air Ring Gauge	Using LMM	100 mm to 180 mm	2.49µm
46	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Air Ring Gauge	Using Length measuring M/C	3 mm to 100 mm	2.7µm

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47	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Angle Gauges	Using Sine bar , Electronics Probe, Lever dial , Surface plate , Gauge Block(0-Grade)	0 ° to 180 °	10 sec of arc
48	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Angle Plate / Box Angle Plate (Flatness , Parallelism, Sqaureness)	Using Surface plate , Master cylinder , Lever Dial , Height gauge , Jacks	Upto 450 mm	13.0µm
49	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Bevel / Degree Protectors LC= 0.01°/ 5 minutes	Using Angle gauges set,Dial indicator, Height Gauge, Master Cylinder and surface plate	0 ° to 180 degree	3.8minutes of arc
50	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Bore Gauges (2 Point) Transmission Accuracy Check) LC=0.001 mm	Using Length measuring M/C	upto 2 mm	0.81µm
51	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Caliper (Vernier , Dial , Digital) LC=0.01 mm	Using Length Bar , Gauge Block(0-Grade) , Digital Micrometer	0 to 1000 mm	14.43µm

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52	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Caliper (Vernier , Dial , Digital) LC=0.01 mm	Using Caliper checker , Gauge Block(0-Grade)	0 to 300 mm	10.18µm
53	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Caliper (Vernier , Dial , Digital) LC=0.01 mm	Using Caliper checker , Gauge Block(0-Grade) , Digital Micrometer	0 to 600 mm	13.2µm
54	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Caliper (Vernier , Dial , Digital) LC=0.02 mm	Using Length Bar , Gauge Block(0-Grade) , Digital Micrometer	0 to 1000 mm	17.0µm
55	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Caliper (Vernier , Dial , Digital) LC=0.02 mm	Using Length Bar , Gauge Block(0-Grade) , Digital Micrometer	0 to 1800 mm	28.4µm
56	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Coating Thickness Gauge LC=0.1/1 micron	Using Coating/ Master Foils	0 to 0.8 mm	4.0µm

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57	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Combination set LC= 1°	Using Angle Gauges	0 degree to 180 degree	36minutes of arc
58	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Cylindrical Setting Standard	Using Length measuring M/C	0.5 mm to 100 mm	1.3µm
59	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Cylindrical Setting Standard	Using Length measuring M/C , Gauge Block (0 Grade)	100 mm to 150 mm	1.62µm
60	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Cylindrical Setting Standard	Using Length measuring M/C , Setting Plug	100 mm to 200 mm	2.0µm
61	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Depth Micrometer L.C =0.001 mm	Using Gauge Blocks (0-Grade), Surface Plate	0 to 150 mm	3.9µm

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62	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Depth Micrometer L.C =0.001 mm	Using Gauge Blocks (0-Grade),Surface Plate	0 to 25 mm	2.5µm
63	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Dial Caliper - External , LC= 0.01 mm	Using Gauge Block (0- Garde)	0 to 50 mm	1.4µm
64	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Dial caliper- Internal	Using Digital Micrometer	10 mm to 150 mm	8.3µm
65	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Dial Indicator (Lever Type)) L.C =0.001 mm	Using Length Measuring M/C	0 to 0.14 mm	0.99µm
66	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Dial Indicator (Lever Type)) L.C =0.002 mm	Using Length Measuring M/C	0 to 0.60 mm	2.0µm

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67	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Dial Indicator (Lever Type)) L.C =0.01 mm	Using Length Measuring M/C	0 to 1.0 mm	1.41µm
68	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Dial Indicator (Plunger type) L.C =0.01 mm	Using Length Measuring M/C	0 to 100 mm	1.67µm
69	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Dial Indicator (Plunger) L.C =0.001 mm	Using Length Measuring M/C	0 to 50 mm	1.1µm
70	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Dial Indicator (Plunger) L.C =0.001 mm	Using Length Measuring M/C	0 to 25 mm	1.4µm
71	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Dial Thickness Gauge LC=0.01 mm	Using Gauge Blocks (0- Grade)	0 to 50 mm	7.0µm

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72	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Dial Thickness Gauge LC=0.1 mm	Using Gauge blocks (0-Garde)	0 to 100 mm	11.5µm
73	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Dial Thickness Gauge / Dial Caliper LC=0.001 mm	Using Gauge blocks (0-Garde)	0 to 12 mm	0.8µm
74	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Electronics Level LC= 0.01 mm/mtr	Using Robust Tilting Table , Electronics level	upto 10 mm/mtr	7.75µm/mtr
75	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Engineer Square/ Cylindrical Square - Squareness	Using Surface plate , Master cylinder , Gauge Block (0-Grade)	upto 600 mm	11.30µm
76	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	External Micrometer (Digital/Plain/Analog/ Blade/Pitch/Pointed Flange/ Groove) L.C =0.001 mm	Using Gauge Blocks (0-Grade) , Optical flat, Set of Optical Parallels	0 to 150 mm	1.60µm

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77	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	External Micrometer (Digital/Plain/Analog/ Blade/Pitch/Pointed Flange/ Groove) L.C =0.001 mm	Using Gauge Blocks (0-Grade) , Optical flat, set of 4 Optical Parallels	0 to 25 mm	1.27µm
78	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	External Micrometer (Digital/Plain/Analog/ Blade/Pitch/Pointed Flange/ Groove) L.C =0.01 mm	Using Length Bar , Gauge Blocks (0-Grade) , Optical flat, set of 4 Parallels	1000 mm to 1800 mm	26.0µm
79	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	External Micrometer (Digital/Plain/Analog/ Blade/Pitch/Pointed Flange/ Groove) L.C =0.01 mm	Using Length Bar , Gauge Blocks (0-Grade) , Optical flat, set of 4 Optical Parallels	150 mm to 1000 mm	10.70µm
80	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Feeler gauge/ Coating Foils	Using Length measuring M/C	Up to 3 mm	0.80µm
81	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Hegman Gauge	Using Electronics Probe , Surface plate	Upto 100 µm	2.3µm

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82	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Height Gauge (Vernier , Dial , Digital) 0.01 mm	Using Caliper checker , Surface plate , Lever Dial	0 to 300 mm	7.9µm
83	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Height Gauge (Vernier , Dial , Digital) 0.01 mm	Using Caliper checker , Surface plate , Lever Dial	0 to 600 mm	9.2µm
84	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Height Gauge (Vernier , Dial , Digital) 0.02 mm	Using Length , Surface plate , Lever Dial	0 to 1000 mm	13.63µm
85	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Height Master (Pitch Block Accuracy)	Using Linear height 2d , Surface plate , Gauge block (0-Grade)	0 to 600 mm	7.7µm
86	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Internal /Stick Micrometer L.C =0.001 mm	Using Gauge block-O grade with accessories and Caliper checker	50 mm to 500 mm	7.0µm

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87	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Internal /Stick Micrometer L.C =0.01 mm	Using G blocks (0-Grade)with acc.+ Caliper checker	5 mm to 500 mm	8.80mm
88	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Linear / Electronics-2 D Height Gauge (LC=0.0001 mm)	Using Length Bar, Gauge Block (0 Grade) , Surface plate, Master Cylinder	0 to 600 mm	5.90µm
89	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Measuring Pins	Using Length measuring M/C	0.1 mm to 20 mm	0.82µm
90	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Metric Steel scales	Using Scale & Tape calibration unit	0 to 2000 mm	200 sqrt L/1000 (Where L is in mm)µm
91	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Metric Steels/ Woven Metallic / Fiber Tapes	Using Scale & Tape calibration unit	0 to 50 meter	200 sqrt L/1000 (Where L is in mm)µm

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92	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Micrometer Head L.C =0.001 mm	Using LMM	0 to 50 mm	1.1µm
93	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Micrometer Setting Rod /Length Bar	Using Length Measuring M/C, 0-Grade slip gauges , Setting Plug	100 mm to 200 mm	2.97µm
94	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Micrometer Setting Rod /Length Bar	Using Length Bar ,Plunger Dial with Comparator stand	200 mm to 500 mm	7.07µm
95	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Micrometer Setting Rod /Length Bar	Using Length Measuring M/C	25 mm to 100 mm	1.3µm
96	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Micrometer Setting Rod /Length Bar	Using Length Bar ,Plunger Dial with Comparator stand	500 mm to 1000 mm	12.75µm

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97	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Pie Tape	Using Scale & Tape calibration unit	15 mm to 320 mm	117 L/1000 (L is in mm)µm
98	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Plain Ring Gauge(Setting /Master)	Using LMM	100 mm to 180 mm	2.9µm
99	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Plain Ring Gauge(Setting /Master)	Using Length measuring M/C	3 mm to 100 mm	1.67µm
100	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Plain Plug Gauge	Using Length measuring M/C	1 mm to 100 mm	1.1µm
101	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Plain Plug Gauge	Using LMM	100 mm to 270 mm	2.8µm

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102	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Plain/ Magnetic V Block (Flatness , Perpendicularity)	Using Surface plate , Lever dial , Test Mandrels , Cylindrical Work piece, Height gauge for Holding	Upto 200 mm	8.0µm
103	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Plain/ Magnetic V Block (Parallelism)	Using Surface plate , Lever dial , Test Mandrels , Cylindrical Work piece, Height gauge for Holding	Upto 200 mm	5.0µm
104	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Profiel / Form Gauges (Linear Dim.)	Using Profile Projector	Upto 200 mm	5.8µm
105	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Profile / Form Gauges (Angle measurement)	Using Profile Projector	Upto 60 deg.	2.4min.of arc
106	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Radius Gauge	Using Profile Projector	0.6 mm to 100 mm	4.72µm

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107	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Sine Bar -Angular Measuremnets	Using Angle Gauges , Electronics Probe, Lever dial , Surface plate , Height gauge, Gauge Block(0-Grade)	upto 300 mm	13.8sec. of arc
108	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Snap Gauge	Using LMM	100 mm to 180 mm	2.8µm
109	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Snap Gauge	Using Length measuring M/C	3 mm to 100 mm	1.82µm
110	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Spirit Level LC (0.02 mm/mtr)	Using Robust Tilting Table , Electronics level , Dial indicator(lever) , Height gauge, surface plate	Upto 300 mm (Base length) mm	7.90µm/mtr
111	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Straight Edge (I-Section) - Straightness, Parallelism	Using Electronics Level	Upto 6000 X 50 mm	0.7 sqrt L+W/125 (L & W is in mm)µm

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112	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Surface Plate , Comparator Stand (Granite & Cast Iron) -Flatness Deviation	Using Electronics level	Up to 6000 X 6000 mm	0.7 sqrt L+W /125 (L ,W is in mm)µm
113	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Test Mandrels-Straight (Straightness & Run out)	Using Bench Center ,Dial Indicator (Lever)	upto 500 mm	8.4µm
114	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Test Sieves - Aperture size	Using Profile projector	0.04 mm to 4.0 mm	2.52µm
115	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Test Sieves - Aperture size	Using Digital caliper	4.0 mm to 125 mm	23.0µm
116	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Thread Pitch Gauge/ Micrometer- Flank Angle	Using Profile Projector	UPTO 60 degree	0.2min.of arc

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117	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Thread Pitch Gauge/ Micrometer- Pitch accuracy	Using Profile Projector	0.25 mm to 6.0 mm	2.80µm
118	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Thread plug/ WCP Gauge-Effective Diameter	Using Length measuring M/C ,	1 mm to 100 mm	1.68µm
119	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Thread plug/ WCP Gauge-Effective Diameter	Usimh LMM	100 mm to 180 mm	2.39µm
120	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Thread Ring/ Wear checking Ring Gauge-Effective Dia.	Using Length measuring M/C.	3 mm to 100 mm	1.86µm
121	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Three Pin Micrometer LC=0.001 mm	Using set of Ring gauges	15 mm to 65 mm	3.9µm

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122	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Ultrasonic Thickness Gauge LC= 0.001 mm	Using Gauge Block-0-Grade	1.2 mm to 100 mm	70.4µm
123	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Vernier Depth Gauge LC=0.001 mm	Using Length Bar Grade -0 Gauge Block ,Lever dial Surface plate , Holding fixture	0 to 200 mm	9.2µm
124	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Caliper Checker /Check Master	Using Caliper checker / Length Bar (As a comparator ,Linear height 2D)+, Surface Plate	0 to 600 mm	8.0µm
125	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Dial calibration Tester LC=0.001 mm	Using Electronics Probe , Gauge Block (0-Grade)	0 to 25 mm	2.15µm
126	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Electronics Probe LC= 0.01/0.1 micron	Using Gauge Block, Slip Gauges (0-Grade) . Surface Plate	0 to 25 mm	1.33µm
127	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Gauge Block Comparators LC=0.01 micron	Using Gauge Block set -Slip gauges (K-Grade) ,	0 to 100 mm	0.10µm

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128	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Gauge Block Accessories - Flatness	Using Optical Flat, Surface Plate , Electronics probe	Upto 250 mm	0.3 µm
129	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Gauge Block Accessories - Parallelism	Using Optical Flat, Surface Plate , Electronics probe	Upto 250 mm	2.6µm
130	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Gauge Block- Slip gauges	Using Gauge Block set (K-Grade)& Gauge Block Calibrator	0.5 mm to 10 mm	0.13µm
131	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Gauge Block- Slip gauges	Using Gauge Block set (K-Grade)& Gauge Block Calibrator	25 mm to 50 mm	0.27µm
132	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Gauge Block- Slip gauges	Using Gauge Block set (K-Grade)& Gauge Block Calibrator	50 mm to 100 mm	0.49µm
133	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Gauge Blocks- Slip gauges	Using Gauge Block set (K-Grade)& Gauge Block Calibrator	10 mm to 25 mm	0.16µm
134	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Optical Flat Type A - Flatness	Using Master Optical Flat, Monochromatic light source	UPTO 50 mm	0.11µm

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135	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Optical Parallel - Flatness , Parallelism	Using Master Flat, Monochromatic light source , Two Probe comparator	Upto 50 mm	0.11µm
136	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Roughness Master (Ra value)	Using Surface Roughness Tester	Ra-2.92 µm	0.18µm
137	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Spline Plug . Ring Gauge - Diameter over pin	Using Length measuring M/C+Measuring Pins	10 mm to 100 mm	3.50µm
138	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Surface Roughness Tester(Portable) (Ra = 3.20 ,2.9 value) Two Point only	Using Roughness Master	Ra-2.94 ,3.20 µm	0.42µm
139	MECHANICAL-DUROMETER	Rubber Hardness Tester 100 shore A , LC=1 shore A	Using Weighing balance having d=0.1 g (for Spring Balance)	Upto 100 Shore A	1.5Shore A
140	MECHANICAL-DUROMETER	Rubber Hardness Tester 100 shore D , LC=1 shore D	Using Weighing balance having d=0.1 g (for Spring Balance)	Upto 100 shore D	1.2shore D
141	MECHANICAL-MOBILE FORCE MEASURING SYSTEM	Push Pull gauge/ Force gauge (In Push Pull mode)	Using Dead weight and loading hangers as per VDI/VDE-2624	5 N to 1000 N PULL Mode 500 N PUSH Mode	1N

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142	MECHANICAL-PRESSURE INDICATING DEVICES	Hydraulic Pressure gauges/ Switches /Transmitters/ Transducers	Using Digital Pressure Gauge with Hydraulic comparator by comparison method , as per DKDR6-1	0 to 1000 bar	3.79bar
143	MECHANICAL-PRESSURE INDICATING DEVICES	Hydraulic Pressure gauges/ Switches /Transmitters/ Transducers	Using Digital Pressure Gauge with Hydraulic comparator by comparison method , as per DKDR6-1	0 to 200 bar	1.25bar
144	MECHANICAL-PRESSURE INDICATING DEVICES	Hydraulic Pressure gauges/ Switches /Transmitters/ Transducers	Using Digital Pressure Gauge with Hydraulic comparator by comparison method , as per DKDR6-1	0 to 30 bar	0.35bar
145	MECHANICAL-PRESSURE INDICATING DEVICES	Hydraulic Pressure gauges/ Switches /Transmitters/ Transducers	Using Test Gauge with Hydraulic comparator by comparison method , as per DKDR6-1	0 to 4 bar	0.29bar
146	MECHANICAL-PRESSURE INDICATING DEVICES	Negative Pressure-Vacuum gauges	Using Digital pressure gauge/ Vacuum pump By comparison method as per DKDR6-1	(-) 0.8 bar to 0	0.012bar

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147	MECHANICAL-PRESSURE INDICATING DEVICES	Pneumatic Pressure gauges/ Switches /Transmitters/ Transducers	Using Digital Pressure Gauge with Pneumatic comparator by comparison method , as per DKDR6-1	0 to 30 bar	0.35bar
148	MECHANICAL-PRESSURE INDICATING DEVICES	Pneumatic Pressure gauges/ Switches /Transmitters/ Transducers/Magneh elic gauge/ Manometers	Using Digital manometer by comparison method , as per DKDR6-1	0 to 0.34 bar	0.016bar
149	MECHANICAL-TORQUE GENERATING DEVICES	Torque Wrench Type 1 , Class B,C,D,E & Type 2, Class A,B,D,E	Using Torque transducers and indicator , Using Digital torque wrench calibration system as per ISO 6789:2017	1 Nm to 10 Nm	3.45%
150	MECHANICAL-TORQUE GENERATING DEVICES	Torque Wrench Type 1, Class B,C,D,E & Type 2, Class A,B,D,E	Using Torque transducers and indicator , Using Digital torque wrench calibration system as per ISO 6789:2017	10 Nm to 1000 Nm	1.89%

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151	MECHANICAL-VOLUME	Glass ware (Pipettes/ Burette/Measuring cylinder/Volumetric flask/ Beaker/Jar/Conical flask)	Using Weighing balance of LC=0.01mg and distilled water of known density as per ISO 4787,ISO /TR20461	1 ml to 10 ml	0.03ml
152	MECHANICAL-VOLUME	Glass ware (Pipettes/ Burette/Measuring cylinder/Volumetric flask/ Beaker/Jar/Conical flask)	Using Weighing balance of LC=0.1mg and distilled water of known density as per ISO 4787,ISO /TR20461	10 ml to 100 ml	1.2ml
153	MECHANICAL-VOLUME	Glass ware (Pipettes/ Burette/Measuring cylinder/Volumetric flask/ Beaker/Jar/Conical flask)	Using Weighing balance of LC=1mg and distilled water of known density as per ISO 4787,ISO /TR20461	100 ml to 500 ml	2.90ml
154	MECHANICAL-VOLUME	Glass ware (Pipettes/ Burette/Measuring cylinder/Volumetric flask/ Beaker/Jar/Conical flask)	Using Weighing balance of LC=10mg and distilled water of known density as per ISO 4787,ISO /TR20461	1000 ml to 2000 ml	11.55ml

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155	MECHANICAL-VOLUME	Glass ware (Pipettes/ Burette/Measuring cylinder/Volumetric flask/ Beaker/Jar/Conical flask)	Using Weighing balance of LC=100mg and distilled water of known density as per ISO 4787,ISO /TR20461	2000 ml to 10000 ml	50.25ml
156	MECHANICAL-VOLUME	Glass ware (Pipettes/ Burette/Measuring cylinder/Volumetric flask/ Beaker/Jar/Conical flask)	Using Weighing balance of LC=10mg and distilled water of known density as per ISO 4787,ISO /TR20461	500 ml to 1000 ml	5.77ml
157	MECHANICAL-VOLUME	Micro-Pipettes	Using weighing balance LC=0.01 mg and distilled water of known density as per ISO 8655-6, ISO/TR 20461	100 µl to 1000 µl	6µl
158	MECHANICAL-VOLUME	Micro-Pipettes	Using weighing balance LC=0.01 mg and distilled water of known density as per ISO 8655-6, ISO/TR 20461	1000 µl to 5000 µl	9.4µl
159	MECHANICAL-WEIGHING SCALE AND BALANCE	Spring Balance 0 to 100 kg , d= 100 g	Using F1 class weights as per OIML R-76	0 to 100 kg	80g

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160	MECHANICAL-WEIGHING SCALE AND BALANCE	Spring Balance 0 to 50 kg , d= 10 g	Using F1& M1 class weights as per OIML R-76	0 to 50 kg	8g
161	MECHANICAL-WEIGHING SCALE AND BALANCE	Weighing Balances 0 to 200 kg ,Readability d= 20 g (Accuracy class =Ordinary -1111)	Using Standard weights F1 , M1 class	0 to 200 kg	19g
162	MECHANICAL-WEIGHING SCALE AND BALANCE	Weighing Balances 1 mg to 42 g , Readability d=0.01mg (Accuracy class =Special (1)	Using Standard weights E1 class (1 mg to 200 g)	1 mg to 42 g	0.06mg
163	MECHANICAL-WEIGHTS	Calibration of weight of Accuracy Class M1 and coarser -5kg	Using standard weights of class F1, weighing balance with LC=0.1g	5 kg	115mg
164	MECHANICAL-WEIGHTS	Calibration of weight sof M1 Class and coarser-1 kg	Using standard weights of class F1, weighing balance with LC=10mg	1 kg	12mg
165	MECHANICAL-WEIGHTS	Calibration of weights Class M1 and coarser -50 kg	Using standard weights of class F1, weighing balance with LC=1g	50 kg	1.0g

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166	MECHANICAL-WEIGHTS	Calibration of weights of Accuracy Class M1 and coarser -10 kg	Using standard weights of class F1, weighing balance with LC=0.1g	10 kg	100mg
167	MECHANICAL-WEIGHTS	Weight of F1 class and coarser-100mg	Using standard weights of E1 class & weighing balance of LC=0.01mg.	100 mg	0.01mg
168	MECHANICAL-WEIGHTS	Weight of F1 class and coarser-200mg	Using standard weights of E1 class & weighing balance of LC=0.01mg.	200 mg	0.01mg
169	MECHANICAL-WEIGHTS	Weight of F1 class and coarser-20mg	Using standard weights of E1 class & weighing balance of LC=0.01mg.	20 mg	0.01mg
170	MECHANICAL-WEIGHTS	Weight of F1 class and coarser-50mg	Using standard weights of E1 class & weighing balance of LC=0.01mg.	50 mg	0.01mg
171	MECHANICAL-WEIGHTS	Weight of F1 class and coarser=1 g	Using standard weights of E1 class & weighing balance of LC=0.01mg.	1 g	0.03mg
172	MECHANICAL-WEIGHTS	Weight of F1 class and coarser=10 g	Using standard weights of E1 class & weighing balance of LC=0.01mg.	10 g	0.01mg

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173	MECHANICAL-WEIGHTS	Weight of F1 class and coarser=100 g	Using standard weights of E1 class & weighing balance of LC=0.1mg.	100 g	0.09mg
174	MECHANICAL-WEIGHTS	Weight of F1 class and coarser=2 g	Using standard weights of E1 class & weighing balance of LC=0.01mg.	2 g	0.02mg
175	MECHANICAL-WEIGHTS	Weight of F1 class and coarser=20 g	Using standard weights of E1 class & weighing balance of LC=0.01mg.	20 g	0.11mg
176	MECHANICAL-WEIGHTS	Weight of F1 class and coarser=200 g	Using standard weights of E1 class & weighing balance of LC=0.1mg.	200 g	0.15mg
177	MECHANICAL-WEIGHTS	Weight of F1 class and coarser=5 g	Using standard weights of E1 class & weighing balance of LC=0.01mg.	5 g	0.01mg
178	MECHANICAL-WEIGHTS	Weight of F1 class and coarser=50 g	Using standard weights of E1 class & weighing balance of LC=0.1mg.	50 g	0.14mg
179	MECHANICAL-WEIGHTS	Weight of F1 class and coarser=500 mg	Using standard weights of E1 class & weighing balance of LC=0.01mg.	500 mg	0.09mg

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180	MECHANICAL-WEIGHTS	Weight of F2 class and coarser-10mg	Using standard weights of E1 class & weighing balance of LC=0.01mg.	10 mg	0.01mg
181	MECHANICAL-WEIGHTS	Weight of F2 class and coarser-1mg	Using standard weights of E1 class & weighing balance of LC=0.01mg.	1 mg	0.01mg
182	MECHANICAL-WEIGHTS	Weight of F2 class and coarser-2mg	Using standard weights of E1 class & weighing balance of LC=0.01mg.	2 mg	0.01mg
183	MECHANICAL-WEIGHTS	Weight of F2 class and coarser-5mg	Using standard weights of E1 class & weighing balance of LC=0.01mg.	5 mg	0.01mg
184	MECHANICAL-WEIGHTS	Weight of M1 class and coarser=2kg	Using standard weights of F1 class & weighing balance of LC=0.01g.	2 kg	10mg
185	MECHANICAL-WEIGHTS	Weight of M1 class and coarser=500 g	Using standard weights of F1 class & weighing balance of LC=0.01g.	500 g	2mg
186	THERMAL-SPECIFIC HEAT & HUMIDITY	Humidity controller/ Indicator with sensor/ Thermo Hygrometer	USing Digital Temp RH indicator with sensor & Humidity chamber	30 % RH@25°C to 90%RH@25°C	2.1 %RH @25°C

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187	THERMAL-SPECIFIC HEAT & HUMIDITY	Temperature of Humidity controller/ Indicator with sensor/ Thermo Hygrometer	Using Digital Temp/ RH Indicator with sensor & Humidity Chamber (By Comparison Method)	15 °c to 45 °c	1.2°c
188	THERMAL-TEMPERATURE	RTD / Thermocouples With or without Controller / Indicator/ Data Logger / Recorder, Temperature Transmitter, Temperature Gauge, Glass Thermometer, Digital Thermometer	Using RTD with indicator Oil bath (By Comparison Method)	> 50 °c to 200 °c	0.7°C
189	THERMAL-TEMPERATURE	RTD/ Thermocouples With or without Controller / Indicator/ Data Logger / Recorder, Temperature Transmitter, Temperature Gauge, Digital Thermometer	Using R type thermocouple with indicator /Dry Block Furnace (By Comparison Method)	> 200 °c to 600 °c	1.9°c

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190	THERMAL-TEMPERATURE	RTD/ Thermocouples With or without Controller / Indicator/ Data Logger / Recorder, Temperature Transmitter, Temperature Gauge, Glass Thermometer, Digital Thermometer	Usinf RTD with indicator/ methanol liquid bath/oil bath - by comparison method	-30 °c to 50 °c	0.4°c
191	THERMAL-TEMPERATURE	Thermocouples With or without Controller / Indicator/ Data Logger / Recorder, Temperature Transmitter, Temperature Gauge,	Using R , Type thermocouple with indicator(Dry block furnace)-By comparison method	> 600 °C to 1200 °C	2.4°C

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Site Facility					
1	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC High Voltage at 50Hz	Using High voltage probe (Fluke) with DMM /Direct Method	1 kV to 5 kV	1.81 % to 0.67 %
2	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC High Voltage at 50Hz	Using High voltage probe (Fluke) with DMM /Direct Method	5 kV to 10 kV	0.93 % to 2.54 %
3	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	Energy meter	Using Accu-check Calibrator	1 x240V, 3X240 V. 50Hz Ba to Vref= 240 V, 50 Hz (3 p4w	0.30%
4	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC High Voltage	Using High voltage probe (Fluke) with DMM /Direct Method	1 kV to 5 kV	4.37 % to 2.76 %
5	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC High Voltage	Using High voltage probe (Fluke) with DMM /Direct Method	5 kV to 10 kV	2.76%

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6	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	J-Type	Using Universal calibrator by simulation method	-100 °C to 750 °C	1.33°C
7	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	K-Type	Using Universal calibrator by simulation method	-200 °C to 1350 °C	1.2°C
8	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	PT-100/ RTD	Using Universal calibration by simulation method	50 °C to 490 °C	1.30°C
9	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	R-Type	Using universal calibrator by simulation method	200 °C to 1700 °C	1.63°C
10	ELECTRO-TECHNICAL-TIME & FREQUENCY (Source)	Time Interval	Using Time calibrator / Direct Method:	1 s to 999 s	6.62 % to 0.07 %

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11	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Air Gauge Unit	Using Setting Ring gauge	Upto +/-100 µm	2.1µm
12	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Bench Center (Coaxiality / Run out , Parallelism	Using Test Mandrel (Taper / Straight) , Lever dial	Upto 3000 mm	8.3µm
13	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Gear Rolling Tester	Using Gauge Block (0- Grade)+ Plunger Dial	Upto 500 mm	3.7µm
14	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Linear / Electronics-2 D Height Gauge (LC=0.0001 mm)	Using Length Bar, Gauge Block (0 Grade) , Surface plate, Master Cylinder	0 to 600 mm	5.90µm
15	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Microscope (LC 0.1/0.01 mm)	Using Glass scale	0 to 1 mm	7.9µm

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16	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Straight Edge (I-Section) - Straightness, Parallelism	Using Electronics Level	Upto 6000 X 50 mm	0.7 sqrt L+W/125 (L & W is in mm)µm
17	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Surface Plate , Comparator Stand (Granite & Cast Iron) -Flatness Deviation	Using Electronics level	Up to 6000 X 6000 mm	0.7 sqrt L+W /125 (L ,W is in mm)µm
18	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Dial calibration Tester LC=0.001 mm	Using Electronics Probe , Gauge Block (0-Grade)	0 to 25 mm	2.15µm
19	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Electronics Probe LC= 0.01/0.1 micron	Using Gauge Block, Slip Gauges (0-Grade) . Surface Plate	0 to 25 mm	1.33µm
20	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Gauge Block Comparators LC=0.01 micron	Using Gauge Block set -Slip gauges (K-Grade) ,	0 to 100 mm	0.10µm
21	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Profile Projector - Angle , LC=1 sec.	Using Angle gauges	0 degree to 360 degree	6.1sec.

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22	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Profile Projector - Linear . LC=0.001 mm	Using Glass scale	0 to 200 mm	1.90µm
23	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Profile Projector - Magnification	Using Gauge Block (0-Grade) , Digital Caliper	10 X % to 100X %	0.02%
24	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Universal / Length measuring M/C , LC=0.1micron	Using Gauge Block (K- Grade)	0 to 100 mm	0.33µm
25	MECHANICAL-HARDNESS TESTING MACHINES	Verification of Brinell Hardness Tester - HBW 10/3000	Using Hardness Blocks IS1500-2013-2	HBW 10/3000	2.0%
26	MECHANICAL-HARDNESS TESTING MACHINES	Verification of Vickers Hardness Tester -HV 5	Using Hardness Blocks	HV-5 HV	4.2%
27	MECHANICAL-PRESSURE INDICATING DEVICES	Hydraulic Pressure gauges/ Switches /Transmitters/ Transducers	Using Digital Pressure Gauge with Hydraulic comparator by comparison method , as per DKDR6-1	0 to 1000 bar	3.79bar

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28	MECHANICAL-PRESSURE INDICATING DEVICES	Hydraulic Pressure gauges/ Switches /Transmitters/ Transducers	Using Digital Pressure Gauge with Hydraulic comparator by comparison method , as per DKDR6-1	0 to 200 bar	1.25bar
29	MECHANICAL-PRESSURE INDICATING DEVICES	Hydraulic Pressure gauges/ Switches /Transmitters/ Transducers	Using Digital Pressure Gauge with Hydraulic comparator by comparison method , as per DKDR6-1	0 to 30 bar	0.35bar
30	MECHANICAL-PRESSURE INDICATING DEVICES	Hydraulic Pressure gauges/ Switches /Transmitters/ Transducers	Using Test Gauge with Hydraulic comparator by comparison method , as per DKDR6-1	0 to 4 bar	0.29bar
31	MECHANICAL-PRESSURE INDICATING DEVICES	Negative Pressure-Vacuum gauges	Using Digital pressure gauge/ Vacuum pump By comparison method as per DKDR6-1	(-) 0.8 bar to 0	0.012bar
32	MECHANICAL-PRESSURE INDICATING DEVICES	Pneumatic Pressure gauges/ Switches /Transmitters/ Transducers	Using Digital Pressure Gauge with Pneumatic comparator by comparison method , as per DKDR6-1	0 to 30 bar	0.35bar

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33	MECHANICAL-PRESSURE INDICATING DEVICES	Pneumatic Pressure gauges/ Switches /Transmitters/ Transducers/Magnehelic gauge/ Manometers	Using Digital manometer by comparison method , as per DKDR6-1	0 to 0.34 bar	0.016bar
34	MECHANICAL-UTM, TENSION CREEP AND TORSION TESTING MACHINE	Uniaxial Static Testing M/C - Compression Mode	Using Force proving instruments . Load cell	5 kN to 1000 kN	0.77%
35	MECHANICAL-UTM, TENSION CREEP AND TORSION TESTING MACHINE	Uniaxial Static Testing M/C -Tension Mode	Using Load cell.	1 kN to 10 kN	0.77%
36	MECHANICAL-WEIGHING SCALE AND BALANCE	Weighing Balances 0 to 1000 g ,Readability d= 1 mg (Accuracy class =Ordinary -1111)	Using Standard weights F1 class	0 to 1000 g	3.4mg
37	MECHANICAL-WEIGHING SCALE AND BALANCE	Weighing Balances 0 to 200 kg ,Readability d= 20 g (Accuracy class =Ordinary -1111)	Using Standard weights F1 , M1 class	0 to 200 kg	19g

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38	MECHANICAL-WEIGHING SCALE AND BALANCE	Weighing Balances 0 to 3200 g ,Readability d= 10 mg (Accuracy class =Ordinary -1111)	Using Standard weights of F1 class	0 to 3200 g	12.60mg
39	MECHANICAL-WEIGHING SCALE AND BALANCE	Weighing Balances 0 to 50 kg , Readability d= 1 g (Accuracy class =High(11)	Using Standard weights F1 class	0 to 50 kg	1.4g
40	MECHANICAL-WEIGHING SCALE AND BALANCE	Weighing Balances 0 to 1200 g , Readability d= 10mg (Accuracy class =High(11)	Using Standard weights F1 class	0 to 1200 g	12.6mg
41	MECHANICAL-WEIGHING SCALE AND BALANCE	Weighing Balances 0 to 15 kg ,Readability d= 0.1 g (Accuracy class =Ordinary -1111)	Using Standard weights F1 class	0 to 15 kg	0.20g
42	MECHANICAL-WEIGHING SCALE AND BALANCE	Weighing Balances > 42 g to 200 g , Readability, d=0.1 mg , Accuracy class-Special-1	Using Standard weights E1 class (1 mg to 200 g)	42 g to 200 g	0.13mg

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43	MECHANICAL-WEIGHING SCALE AND BALANCE	Weighing Balances 1 mg to 42 g , Readability d=0.01mg (Accuracy class =Special (1)	Using Standard weights E1 class (1 mg to 200 g)	1 mg to 42 g	0.06mg
44	THERMAL-SPECIFIC HEAT & HUMIDITY	Humidity Chamber/ Environmental Chamber	Using Digital Hygrometer (Single Position Calibration)	30% RH @25°C to 90% RH @25°C	2.8% RH @25°C
45	THERMAL-TEMPERATURE	Dry block Furnace / Muffle / Industrial Furnace-Single Position	Using R , Type Thermocouple with Indicator- Single Position	200 °C to 1200 °C	2.4°C
46	THERMAL-TEMPERATURE	Dry Block Furnace/ Muffle Furnace/ Industrial Furnace –Thermal Mapping -9 Point (Multi position)	Using Data logger with N-Type Thermocouple -9 point.	> 600 °C to 1200 °C	5.8°C
47	THERMAL-TEMPERATURE	Dry Block Furnace/ Muffle Furnace/ Industrial Furnace –Thermal Mapping -9 Point (Multi position)	Using Data Logger With N Type Thermocouple-9 Point	>300 °C to 600 °C	3.8°C

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48	THERMAL-TEMPERATURE	Environment Chamber, Furnaces, Freezers, Oven, Vacuum Oven, BOD Incubator, Incubator, Centrifuge Chamber, Cold Room, Hot Room, Autoclave, Aging Oven-Single Position	Using PT-100X1 Simplex , 4 Wire RTD sensor with indicator-Single Position	(-)80 °C to 300 °C	1.3°C
49	THERMAL-TEMPERATURE	Environment Chamber, Furnaces, Freezers, Oven, Vacuum Oven, BOD Incubator, Incubator, Centrifuge Chamber, Cold Room, Hot Room, Autoclave, Aging Oven-Thermal Mapping 9 Points	Data logger with RTD sensors (Multi position -9 Points)	-30 °C to 300 °C	1.3°C
50	THERMAL-TEMPERATURE	RTD / Thermocouples With or without Controller / Indicator/ Data Logger / Recorder, Temperature Transmitter, Temperature Gauge, Glass Thermometer, Digital Thermometer	Using RTD with indicator Oil bath (By Comparison Method)	> 50 °c to 200 °c	0.7°C

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51	THERMAL-TEMPERATURE	RTD/ Thermocouples With or without Controller / Indicator/ Data Logger / Recorder, Temperature Transmitter, Temperature Gauge, Digital Thermometer	Using R type thermocouple with indicator /Dry Block Furnace (By Comparison Method)	> 200 °c to 600 °c	1.9°c
52	THERMAL-TEMPERATURE	RTD/ Thermocouples With or without Controller / Indicator/ Data Logger / Recorder, Temperature Transmitter, Temperature Gauge, Glass Thermometer, Digital Thermometer	Usinf RTD with indicator/ methanol liquid bath/oil bath - by comparison method	-30 °c to 50 °c	0.4°c
53	THERMAL-TEMPERATURE	Thermocouples With or without Controller / Indicator/ Data Logger / Recorder, Temperature Transmitter, Temperature Gauge,	Using R , Type thermocouple with indicator(Dry block furnace)-By comparison method	> 600 °C to 1200 °C	2.4°C

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