National Accreditation Board for Testing and Calibration Laboratories

CERTIFICATE OF ACCREDITATION

MTMS ENGINEERS PVT LTD

has been assessed and accredited in accordance with the standard

ISO/IEC 17025:2017

"General Requirements for the Competence of Testing & Calibration Laboratories"

for its facilities at

303, 304, 305 - VISION 9 MALL, S. NO. 125/4, KUNAL ICON ROAD, PIMPLE SAUDAGAR, PUNE, MAHARASHTRA, INDIA

in the field of

CALIBRATION

Certificate Number: CC-2293

Issue Date: 06/12/2022 **Valid Until:** 05/12/2024

This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard & the relevant requirements of NABL.
(To see the scope of accreditation of this laboratory, you may also visit NABL website www.nabl-india.org)

Name of Legal Identity : MTMS ENGINEERS PVT LTD

Signed for and on behalf of NABL

N. Venkateswaran
Chief Executive Officer

SCOPE OF ACCREDITATION

Laboratory Name :	MTMS ENGINEERS PVT LTD, 303, 304, 305 - VISION 9 MALL, S. NO. 125/4, KUNAL ICON ROAD, PIMPLE SAUDAGAR, PUNE, MAHARASHTRA, 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 /Instrument	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
LOCATION 1-303, 304, 305 - VISION 9 MALL, S. NO. 125/4, KUNAL ICON ROAD, PIMPLE SAUDAGAR, PUNE, MAHARASHTRA, INDIA Permanent Facility					
1	MECHANICAL-HARDNESS TESTING MACHINES	Portable Brinell Hardness Tester By Indirect Method.	Using Standard Hardness Test Blocks, as per ASTM E110-14 & ASTM E 10-2018	10 / 3000 HBW	1.24%
2	MECHANICAL-HARDNESS TESTING MACHINES	Portable Rockwell Hardness Tester By Indirect Method.	Using standard hardness test blocks & Indenter as per ASTM E 110-14, ASTM E 18-2022	10 HRC to 70 HRC	0.38HRC
3	MECHANICAL-HARDNESS TESTING MACHINES	Portable Rockwell Hardness Tester By Indirect Method.	Using standard hardness test blocks & Indenter as per ASTM E 110-14, ASTM E 18-2022	20 HRA to 95 HRA	0.38HRA

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LOCATION 1-303, 304, 305 - VISION 9 MALL, S. NO. 125/4, KUNAL ICON ROAD, PIMPLE SAUDAGAR, PUNE, MAHARASHTRA, INDIA Site Facility					
1	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Extensometer (Clip-On Type, Video & Laser Extensometer)	Using Digital Dial and Extensometer Calibration Fixture as per IS 12872-2021, ISO 9513-2012 & ASTM E 83-2016	Up to 20 mm	1.9µm
2	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Long Travel Extensometer (Clip-On Type, Video & Laser Extensometer)	Using Linear Scale with DRO as per IS 12872-2021, ISO 9513-2012 & ASTM E 83-2016	0 to 500 mm	10µm
3	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Microscope	Using Glass Scale & Dial Caliper as per ASTM E -1951-2014	Up to 1000 X	0.001%
4	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Profile Projector (XY Travel)(Linear) L.C. 0.001 mm	Using Glass Scale, Angular Gauges & Dial Caliper as per JIS B 7184-2021 by comparison method	0 to 250 mm	19µm
5	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Profile Projector (Angular Scale) L.C. 1 Sec	Using Glass Scale, Angular Gauges & Dial Caliper as per JIS B 7184-2021 by comparison method	Up to 360 °	0.55 minutes of arc

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6	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Profile Projector (Magnification)	Using Glass Scale & Dial Caliper as per JIS B 7184-2021 by comparison method	Up to 200 X	0.05%
7	MECHANICAL-HARDNESS TESTING MACHINES	Brinell Hardness Tester By Indirect Method	Using Standard Hardness Test Blocks, as per IS 1500(2)-2021, ISO 6506(2)-2017 & ASTM E 10-2018	1 / 30 HBW	1.1%
8	MECHANICAL-HARDNESS TESTING MACHINES	Brinell Hardness Tester By Indirect Method	Using Standard Hardness Test Blocks, as per IS 1500(2)-2021, ISO 6506(2)-2017 & ASTM E 10-2018	10 / 1000 HBW	3.01%
9	MECHANICAL-HARDNESS TESTING MACHINES	Brinell Hardness Tester By Indirect Method	Using Standard Hardness Test Blocks, as per IS 1500(2)-2021, ISO 6506(2)-2017 & ASTM E 10-2018	10 / 3000 HBW	2.95%
10	MECHANICAL-HARDNESS TESTING MACHINES	Brinell Hardness Tester By Indirect Method	Using Standard Hardness Test Blocks, as per IS 1500(2)-2021, ISO 6506(2)-2017 & ASTM E 10-2018	10 / 500 HBW	1.6 %

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11	MECHANICAL-HARDNESS TESTING MACHINES	Brinell Hardness Tester By Indirect Method	Using Standard Hardness Test Blocks, as per IS 1500(2)-2021, ISO 6506(2)-2017 & ASTM E 10-2018	2.5 / 15.625 HBW	1.6%
12	MECHANICAL-HARDNESS TESTING MACHINES	Brinell Hardness Tester By Indirect Method	Using Standard Hardness Test Blocks, as per IS 1500(2)-2021, ISO 6506(2)-2017 & ASTM E 10-2018	2.5 / 187.5 HBW	1.37%
13	MECHANICAL-HARDNESS TESTING MACHINES	Brinell Hardness Tester By Indirect Method	Using Standard Hardness Test Blocks, as per IS 1500(2)-2021, ISO 6506(2)-2017 & ASTM E 10-2018	2.5 / 31.25 HBW	4.6%
14	MECHANICAL-HARDNESS TESTING MACHINES	Brinell Hardness Tester By Indirect Method	Using Standard Hardness Test Blocks, as per IS 1500(2)-2021, ISO 6506(2)-2017 & ASTM E 10-2018	2.5 / 62.5 HBW	2.53%
15	MECHANICAL-HARDNESS TESTING MACHINES	Brinell Hardness Tester By Indirect Method	Using Standard Hardness Test Blocks, as per IS 1500(2)-2021, ISO 6506(2)-2017 & ASTM E 10-2018	5 / 250 HBW	2.5%

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16	MECHANICAL-HARDNESS TESTING MACHINES	Brinell Hardness Tester By Indirect Method	Using Standard Hardness Test Blocks, as per IS 1500(2)-2021, ISO 6506(2)-2017 & ASTM E 10-2018	5 / 750 HBW	1.15%
17	MECHANICAL-HARDNESS TESTING MACHINES	Indirect Verification of Rockwell Ball Indenter	Using standard hardness test blocks & Indenter as per IS 1586(2)-2018, ISO 6508(2)-2015 & ASTM E 18-2022	10 HRBW to 100 HRBW	0.40HRBW
18	MECHANICAL-HARDNESS TESTING MACHINES	Indirect Verification of Rockwell Diamond Indenter	Using standard hardness test blocks & Indenter as per IS 1586(2)-2018, ISO 6508(2)-2015 & ASTM E 18-2022	10 HRC to 70 HRC	0.65HRC
19	MECHANICAL-HARDNESS TESTING MACHINES	Portable Brinell Hardness Tester By Indirect Method.	Using Standard Hardness Test Blocks, as per ASTM E110-14 & ASTM E 10-2018	10 / 3000 HBW	1.24%
20	MECHANICAL-HARDNESS TESTING MACHINES	Portable Rockwell Hardness Tester By Indirect Method.	Using standard hardness test blocks & Indenter as per ASTM E 110-14, ASTM E 18-2022	10 HRC to 70 HRC	0.38HRC

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21	MECHANICAL-HARDNESS TESTING MACHINES	Portable Rockwell Hardness Tester By Indirect Method.	Using standard hardness test blocks & Indenter as per ASTM E 110-14, ASTM E 18-2022	20 HRA to 95 HRA	0.38HRA
22	MECHANICAL-HARDNESS TESTING MACHINES	Rockwell Hardness Tester By Indirect Method	Using standard hardness test blocks & Indenter as per IS 1586(2)-2018, ISO 6508(2)-2015 & ASTM E 18-2022	20 HR 15YW to 100 HR 15YW	0.5HR 15YW
23	MECHANICAL-HARDNESS TESTING MACHINES	Rockwell Hardness Tester By Indirect Method.	Using standard hardness test blocks & Indenter as per IS 1586(2)-2018, ISO 6508(2)-2015 & ASTM E 18-2022	10 HRBW to 100 HRBW	0.35HRBW
24	MECHANICAL-HARDNESS TESTING MACHINES	Rockwell Hardness Tester By Indirect Method.	Using standard hardness test blocks & Indenter as per IS 1586(2)-2018, ISO 6508(2)-2015 & ASTM E 18-2022	10 HRC to 70 HRC	0.37HRC
25	MECHANICAL-HARDNESS TESTING MACHINES	RockwelL Hardness Tester By Indirect Method.	Using standard hardness test blocks & Indenter as per IS 1586(2)-2018, ISO 6508(2)-2015 & ASTM E 18-2022	10 HRLW to 100 HRLW	1.1HRLW

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26	MECHANICAL-HARDNESS TESTING MACHINES	Rockwell Hardness Tester By Indirect Method.	Using Standard Hardness Test block as per IS 1586(2) 2018 & ISO 6508-(2) 2015 & ASTM E -18 2022	10 HRRW to 100 HRRW	0.5HRRW
27	MECHANICAL-HARDNESS TESTING MACHINES	Rockwell Hardness Tester By Indirect Method.	Using standard hardness test blocks & Indenter as per IS 1586(2)-2018, ISO 6508(2)-2015 & ASTM E 18-2022	20 HRA to 95 HRA	0.38HRA
28	MECHANICAL-HARDNESS TESTING MACHINES	RockwelL Hardness Tester By Indirect Method.	Using Standard Hardness Test block as per IS 1586(2)-2018 & ISO 6508-(2)-2015 & ASTM E -18-2022	40 HRD to 77 HRD	1.0HRD
29	MECHANICAL-HARDNESS TESTING MACHINES	RockwelL Hardness Tester By Indirect Method.	Using standard hardness test blocks & Indenter as per IS 1586(2)-2018, ISO 6508(2)-2015 & ASTM E 18-2022	70 HREW to 100 HREW	0.8 HREW
30	MECHANICAL-HARDNESS TESTING MACHINES	Rockwell Superficial Hardness Tester By Indirect Method.	Using standard hardness test blocks & Indenter as per IS 1586(2)-2018, ISO 6508(2)-2015 & ASTM E 18-2022	10 HR 45 TW to 72 HR 45 TW	0.48HR 45TW

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31	MECHANICAL-HARDNESS TESTING MACHINES	Rockwell Superficial Hardness Tester By Indirect Method.	Using Standard Hardness Test block as per IS 1586(2)-2018 & ISO 6508-(2)-2015 & ASTM E -18-2022	20 HR 45 N to 77 HR 45 N	0.40HR 45 N
32	MECHANICAL-HARDNESS TESTING MACHINES	Rockwell Superficial Hardness Tester By Indirect Method.	Using standard hardness test blocks & Indenter as per IS 1586(2)-2018, ISO 6508(2)-2015 & ASTM E 18-2022	29 HR 30 TW to 82 HR 30 TW	0.75 HR 30TW
33	MECHANICAL-HARDNESS TESTING MACHINES	Rockwell Superficial Hardness Tester By Indirect Method.	Using standard hardness test blocks & Indenter as per IS 1586(2)-2018, ISO 6508(2)-2015 & ASTM E 18-2022	42 HR 30 N to 86 HR 30 N	0.38HR 30N
34	MECHANICAL-HARDNESS TESTING MACHINES	Rockwell Superficial Hardness Tester By Indirect Method.	Using standard hardness test blocks & Indenter as per IS 1586(2)-2018, ISO 6508(2)-2015 & ASTM E 18-2022	67 HR 15 TW to 93 HR 15 TW	0.43HR 15TW
35	MECHANICAL-HARDNESS TESTING MACHINES	Rockwell Superficial Hardness Tester By Indirect Method.	Using Standard Hardness Test block as per IS 1586(2)-2018 & ISO 6508-(2)-2015 & ASTM E -18-2022	70 HR 15 N to 94 HR 15 N	0.35HR 15N

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36	MECHANICAL-HARDNESS TESTING MACHINES	Test Force of Brinell Hardness Tester	Using Dynamometers & Load cell with Indicator, as per IS 1500(2)-2021, ISO 6506(2)-2017, ASTM E 10-2018	61.29 N to 29421 N	0.20%
37	MECHANICAL-HARDNESS TESTING MACHINES	Test Force of Rockwell & Rockwell Superficial Hardness Tester	Using Dynamometers & Load cell with Indicator, as per IS 1586(2)-2018, ISO 6508(2)-2015, ASTM E 18-2022	29.42 N to 1471 N	0.18%
38	MECHANICAL-HARDNESS TESTING MACHINES	Test Force of Vickers & Micro-Vickers Hardness Tester	Using Dynamometers & Load cell with Indicator, as per IS 1501(2)-2020, ISO 6507(2)-2018, ASTM E 384-2017, ASTM E 92-2017	0.9807 N to 980.7 N	0.36%
39	MECHANICAL-HARDNESS TESTING MACHINES	Verification of Depth Measuring System of Rockwell Hardness Tester	Using Depth Measuring calibrator as per IS 1586(2)-2018, ISO 6508(2)-2015 & ASTM E 18-2022	0 to 0.2 mm	2µm

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40	MECHANICAL-HARDNESS TESTING MACHINES	Verification of Hysteresis for Rockwell Hardness Testing Machine	Using readout of Rockwell, as per IS 1586(2)-2018, ISO 6508(2)-2015, ASTM E 18-2022	130 +/- 1.0 for ball scal	0.5HR
41	MECHANICAL-HARDNESS TESTING MACHINES	Verification of Indentation Measuring System of Brinell Hardness Testing Machine	Using Glass Scale as per IS 1500(2)-2021, ISO 6506(2)-2017, ASTM E 10-2018	0 to 7 mm	0.65%
42	MECHANICAL-HARDNESS TESTING MACHINES	Verification of Indentation Measuring System of Micro-vickers Hardness Testing Machine	Using Glass Scale as per IS 1501(2)-2020, ISO 6507(2)-2018, ASTM E 384-2017 & ASTM E 92-2017	0 to 1 mm	0.65%
43	MECHANICAL-HARDNESS TESTING MACHINES	Verification of Leeb (Dynamic) Hardness Tester by Indirect Method	Using Standard Hardness Test blocks as per ASTM A 956-2017 & ISO 16859-(2)-2015	D Scale	6.28HLD
44	MECHANICAL-HARDNESS TESTING MACHINES	Verification of Micro - Vickers Hardness Tester By Indirect Method	Using Standard Hardness Test Blocks as per IS 1501-(2)-2020, ISO 6507-(2)-2018 & ASTM E 384-2017	HV 0.01	3.12%

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45	MECHANICAL-HARDNESS TESTING MACHINES	Verification of Micro - Vickers Hardness Tester By Indirect Method	Using Standard Hardness Test Blocks as per IS 1501-(2)-2020, ISO 6507-(2)-2018 & ASTM E 384-2017	HV 0.025	2.45%
46	MECHANICAL-HARDNESS TESTING MACHINES	Verification of Micro - Vickers Hardness Tester By Indirect Method	Using Standard Hardness Test Blocks as per IS 1501-(2)-2020, ISO 6507-(2)-2018 & ASTM E 384-2017	HV 0.05	4.2%
47	MECHANICAL-HARDNESS TESTING MACHINES	Verification of Micro - Vickers Hardness Tester By Indirect Method	Using Standard Hardness Test Blocks as per IS 1501-(2)-2020, ISO 6507-(2)-2018 & ASTM E 384-2017	HV 0.1	1.5%
48	MECHANICAL-HARDNESS TESTING MACHINES	Verification of Micro - Vickers Hardness Tester By Indirect Method	Using Standard Hardness Test Blocks as per IS 1501-(2)-2020, ISO 6507-(2)-2018 & ASTM E 384-2017	HV 0.2	0.80%
49	MECHANICAL-HARDNESS TESTING MACHINES	Verification of Micro - Vickers Hardness Tester By Indirect Method	Using Standard Hardness Test Blocks as per IS 1501-(2)-2020, ISO 6507-(2)-2018 & ASTM E 384-2017	HV 0.3	0.77%

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50	MECHANICAL-HARDNESS TESTING MACHINES	Verification of Micro - Vickers Hardness Tester By Indirect Method	Using Standard Hardness Test Blocks as per IS 1501-(2)-2020, ISO 6507-(2)-2018 & ASTM E 384-2017	HV 0.5	0.54%
51	MECHANICAL-HARDNESS TESTING MACHINES	Verification of Testing Cycle of all Types of Hardness Tester	Using Stop Watch as per IS 1586-(2)-2018 & ISO 6508-(2)-2015 & ASTM E 18-2022 / IS 1500-(2)-2021 & ISO 6506-(2)-2017 & ASTM E 10-2018 / IS 1501-(2)-2020 & ISO 6507-(2)-2018 & ASTM E 384-2017 & ASTM E 92-2017	Up to 180 s	1.0s
52	MECHANICAL-HARDNESS TESTING MACHINES	Vickers Hardness Tester By Indirect Method	Using Standard Hardness Test Blocks as per IS 1501-(2)-2020, ISO 6507-(2)-2018 & ASTM E 92-2017	HV 1	0.64%
53	MECHANICAL-HARDNESS TESTING MACHINES	Vickers Hardness Tester By Indirect Method	Using Standard Hardness Test Blocks as per IS 1501-(2)-2020, ISO 6507-(2)-2018 & ASTM E 92-2017	HV 10	0.65%

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54	MECHANICAL-HARDNESS TESTING MACHINES	Vickers Hardness Tester By Indirect Method	Using Standard Hardness Test Blocks as per IS 1501-(2)-2020, ISO 6507-(2)-2018 & ASTM E 92-2017	HV 100	1.1%
55	MECHANICAL-HARDNESS TESTING MACHINES	Vickers Hardness Tester By Indirect Method	Using Standard Hardness Test Blocks as per IS 1501-(2)-2020, ISO 6507-(2)-2018 & ASTM E 92-2017	HV 20	2.0%
56	MECHANICAL-HARDNESS TESTING MACHINES	Vickers Hardness Tester By Indirect Method	Using Standard Hardness Test Blocks as per IS 1501-(2)-2020, ISO 6507-(2)-2018 & ASTM E 92-2017	HV 3	2.5%
57	MECHANICAL-HARDNESS TESTING MACHINES	Vickers Hardness Tester By Indirect Method	Using Standard Hardness Test Blocks as per IS 1501-(2)-2020, ISO 6507-(2)-2018 & ASTM E 92-2017	HV 30	0.26%
58	MECHANICAL-HARDNESS TESTING MACHINES	Vickers Hardness Tester By Indirect Method	Using Standard Hardness Test Blocks as per IS 1501-(2)-2020, ISO 6507-(2)-2018 & ASTM E 92-2017	HV 5	0.69%

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59	MECHANICAL-HARDNESS TESTING MACHINES	Vickers Hardness Tester By Indirect Method	Using Standard Hardness Test Blocks as per IS 1501-(2)-2020, ISO 6507-(2)-2018 & ASTM E 92-2017	HV 50	1.8%
60	MECHANICAL-IMPACT TESTING MACHINE	Charpy & Izod Plastic Impact Testing Machine	Using Clinometer, Master Load Cell, Height Gauge as per ISO 13802-2015, ASTM D 256-10-2018, ASTM D 6110-10-2018	Up to 50 J	0.90 J
61	MECHANICAL-IMPACT TESTING MACHINE	Charpy Impact Testing Machine	Using Clinometer, Master Load Cell , Height Gauge and Reference block as per ASTM E 23-2018 & IS 3766-1997, ISO 148-(2)-2016 by Direct and Indirect method	Up to 750 J	0.65%
62	MECHANICAL-IMPACT TESTING MACHINE	Izod Impact Testing Machine	Using Clinometer, Master Load Cell, Height Gauge as per BS 131-(4)-1972, ISO 148-(2)-2016 & ASTM E23-2018	Up to 750 J	0.99%

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63	MECHANICAL-PRESSURE INDICATING DEVICES	Pressure Hydraulic - Dial / Digital Pressure Gauge, Pressure Transducer / Transmitters	Using Digital Pressure Gauge 6.5 DMM / Process Calibrator as per DKD-R-6-1-2016 & NABL 129.	0 to 700 bar	0.8 %rdg
64	MECHANICAL-UTM, TENSION CREEP AND TORSION TESTING MACHINE	Erichsen Cupping Machine	Using Dial Gauge by Comparison Method IS 10175-(1)-2018 & ISO 20482-2013	Up to 20 mm	0.004mm
65	MECHANICAL-UTM, TENSION CREEP AND TORSION TESTING MACHINE	Verification Force Measuring System of Uniaxial Testing Machine : In Reverse Direction - Compression Mode	Using Dynamometers & Load cell with Indicator , as per IS 1828-(1)-2022, ASTM E4-2021 (Class A)	Up to 3000 kN	0.36 %
66	MECHANICAL-UTM, TENSION CREEP AND TORSION TESTING MACHINE	Verification Force Measuring System of Uniaxial Testing Machine (Class A Only) - Compression Mode	Using Dynamometers & Load cell with Indicator , as per ASTM E4-2021 (Class A)	1 N to 3000 kN	0.20%
67	MECHANICAL-UTM, TENSION CREEP AND TORSION TESTING MACHINE	Verification Force Measuring System of Uniaxial Testing Machine (Class A Only) - Tension Mode	Using Dynamometers & Load cell with Indicator , as per ASTM E4-2021 (Class A)	Up to 1000 kN	0.32%

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68	MECHANICAL-UTM, TENSION CREEP AND TORSION TESTING MACHINE	Verification Force Measuring System of Uniaxial Testing Machine - Compression Mode	Using Dynamometers & Load cell with Indicator , as per 1828-(1)-2022 & ISO 7500-(1)-2018	1 N to 1000 kN	0.22%
69	MECHANICAL-UTM, TENSION CREEP AND TORSION TESTING MACHINE	Verification Force Measuring System of Uniaxial Testing Machine - Compression Mode	Using Dynamometers & Load cell with Indicator , as per 1828-(1)-2022 & ISO 7500 - (1)-2018	1 N to 3000 kN	0.22%
70	MECHANICAL-UTM, TENSION CREEP AND TORSION TESTING MACHINE	Verification Force Measuring System of Uniaxial Testing Machine - Tension Mode	Using Dynamometers & Load cell with Indicator , as per 1828-(1)-2022 & ISO 7500-(1)-2018	1 N to 1000 kN	0.19%
71	MECHANICAL-UTM, TENSION CREEP AND TORSION TESTING MACHINE	Verification of Cross Head Travel of Uniaxial Testing Machine - Displacement	Using Linear Scale with DRO as per ASTM E 2309-2020	Up to 500 mm	0.90mm
72	MECHANICAL-UTM, TENSION CREEP AND TORSION TESTING MACHINE	Verification of Speed of Cross Head of Uniaxial Testing Machine	Using Displacement Calibrator and Stop Watch as per ASTM E 2658-2015	0 to 500 mm/min	0.25mm/min

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73	MECHANICAL-WEIGHING SCALE AND BALANCE	Electronic Weighing Balance with readability 0.1 g (Class II and Coarser)	Using Standard Weights of class F1 as per OIML R-76-1-2006	>200 g to 3 kg	0.68g
74	MECHANICAL-WEIGHING SCALE AND BALANCE	Electronic Weighing Balance with readability 1g (Class III and Coarser)	Using Standard Weights of class F1 as per OIML R-76-1-2006	>3 kg to 20 kg	1.16g

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LOCATION 2 - B4, NARSINH RESIDENCY, FLAT NO. B-4,1ST FLOOR,SURVEY NO. 81/2A/1A,MAIN ROAD, NEW SANGVI., PUNE, MAHARASHTRA, INDIA Permanent Facility					
1	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current @ 50 Hz	By Using SHUNT with 6 ½ digit Digital Multimeter by direct measurement	10 A to 100 A	2.97 % to 1.78 %
2	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current @ 50 Hz	By Using shunt with 6 ½ digit Digital Multimeter by direct measurement	100 A to 1000 A	1.78 % to 1.45 %
3	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current @ 50 Hz to 1 kHz	Using 6 ½ digit Digital Multimeter by direct method	1 A to 10 A	0.65 % to 3.00 %
4	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current @ 50 Hz to 1 kHz	Using 6 ½ digit Digital Multimeter by direct method	10 µA to 400 mA	1.17 % to 0.71 %

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5	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current @ 50 Hz to 1 kHz	Using 6 ½ digit Digital Multimeter by direct method	400 mA to 1 A	0.71 % to 0.65 %
6	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage @ 50 Hz to 1 kHz	BY Using 6 ½ digit Digital Multimeter by direct method	1 mV to 100 V	5.87 % to 0.53 %
7	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage @ 50 Hz to 1 kHz	BY Using 6 ½ digit Digital Multimeter by direct method	100 V to 1000 V	0.53 % to 0.3 %
8	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current @ 50 Hz	Using 5 ½ Multifunction Calibrator with current coil by direct method	10 A to 1000 A	1.00 % to 1.96 %
9	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current @ 50Hz to 1 kHz	Using 5 ½ Multifunction Calibrator by direct method	0.2 mA to 2 mA	1.72 % to 1.74 %

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10	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current @ 50Hz to 1 kHz	Using 5 ½ Multifunction Calibrator by direct method	2 A to 10 A	0.86 % to 1.00 %
11	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current @ 50Hz to 1 kHz	Using 5 ½ Multifunction Calibrator by direct method	2 mA to 20 mA	1.74 % to 0.52 %
12	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current @ 50Hz to 1 kHz	Using 5 ½ Multifunction Calibrator by direct method	20 mA to 200 mA	0.52 %
13	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current @ 50Hz to 1 kHz	Using 5 ½ Multifunction Calibrator by direct method	200 mA to 2000 mA	0.52 % to 0.86 %
14	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage @ 50Hz to 1 kHz	Using 5 ½ Multifunction Calibrator by direct method	0.2 V to 2 V	0.86 % to 0.46 %
15	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage @ 50Hz to 1 kHz	Using 5 ½ Multifunction Calibrator by direct method	1 mV to 200 mV	2.04 % to 0.86 %

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16	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage @ 50Hz to 1 kHz	Using 5 ½ Multifunction Calibrator by direct method	2 V to 20 V	0.46%
17	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage @ 50Hz to 1 kHz	Using 5 ½ Multifunction Calibrator by direct method	20 V to 200 V	0.46%
18	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage @ 50Hz to 1 kHz	Using 5 ½ Multifunction Calibrator by direct method	200 V to 1000 V	0.46 % to 0.68 %
19	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Current	Using 6 ½ digit Digital Multimeter by direct method	1 A to 10 A	0.33 % to 2.25 %
20	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Current	Using 6 ½ digit Digital Multimeter by direct method	10 µA to 400 mA	0.366 % to 0.27 %
21	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Current	By Using Shunt with 6 ½ digit Digital Multimeter by direct measurement	10 A to 100 A	2.25 % to 1.49 %

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22	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Current	BY Using Shunt with 6 ½ digit Digital Multimeter by direct measurement	100 A to 1000 A	1.49 % to 1.43 %
23	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Current	Using 6 ½ digit Digital Multimeter by direct method	400 mA to 1 A	0.27 % to 0.33 %
24	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC resistance	By Using 6 ½ digit Digital Multimeter by direct method	1 Ohm to 100 Mohm	0.36 % to 1.75 %
25	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC resistance	By Using 6 ½ digit Digital Multimeter by direct method	100 Mohm to 1 Gohm	1.75 % to 3.44 %
26	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Voltage	Using 6 ½ digit Digital Multimeter by direct method	1 mV to 100 V	0.51 % to 0.04 %
27	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Voltage	Using 6 ½ digit Digital Multimeter by direct method	100 V to 1000 V	0.04 % to 0.01 %

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28	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using 5 ½ Multifunction Calibrator by direct method	0.1 mA to 2 mA	0.26 % to 0.63 %
29	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using 5 ½ Multifunction Calibrator by direct method	10 A to 1000 A	0.75 % to 1.93 %
30	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using 5 ½ Multifunction Calibrator by direct method	2 A to 10 A	0.35 % to 0.75 %
31	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC current	Using 5 ½ Multifunction Calibrator by direct method	2 mA to 20 mA	0.63 % to 0.38 %
32	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using 5 ½ Multifunction Calibrator by direct method	20 mA to 200 mA	0.38 % to 0.35 %
33	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC current	Using 5 ½ Multifunction Calibrator by direct method	200 mA to 2000 mA	0.35%

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34	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using decade Resistance box by direct method	100 Mohm to 1 Gohm	1.10 % to 2.47 %
35	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Decade Resistance box by direct method	1 Ohm to 10 Ohm	0.43%
36	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Decade Resistance box by direct method	10 Mohm to 100 Mohm	1.60 % to 1.10 %
37	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Decade Resistance box by direct method	10 Ohm to 10 Mohm	0.43 % to 1.60 %
38	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using 5 ½ Multifunction Calibrator by direct method	0.2 V to 2 V	1.45 % to 0.34 %
39	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using 5 ½ Multifunction Calibrator by direct method	1 mV to 200 mV	1.53 % to 1.45 %

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40	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using 5 ½ Multifunction Calibrator by direct method	2 V to 20 V	0.34%
41	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using 5 ½ Multifunction Calibrator by direct method	20 V to 200 V	0.34 % to 0.18 %
42	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using 5 ½ Multifunction Calibrator by direct method	200 V to 1000 V	0.18 % to 0.62 %
43	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	J type	Using Temperature Simulator by direct method	0 °C to 1160 °C	0.82°C
44	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	K type	Using Temperature Simulator by direct method	0 °C to 1200 °C	0.93°C
45	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	N type	Using Temperature Simulator by direct method	0 °C to 1200 °C	1.09°C

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46	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	R type	Using Temperature Simulator by direct method	150 °C to 1700 °C	2.47°C
47	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	RTD PT 100	Using Temperature Simulator by direct method	-200 °C to 800 °C	1.16°C
48	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	S type	Using Temperature Simulator by direct method	150 °C to 1650 °C	3.12°C
49	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	T type	Using Temperature Simulator by direct method	-200 °C to 400 °C	0.93°C
50	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Frequency	Using 6 ½ Digital Multimeter By Direct Method	45 Hz to 1000 Hz	0.69%
51	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Time	Using Time Interval Meter by comparison method	1 s to 24 hr	0.14 s to 22 s

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52	ELECTRO-TECHNICAL-TIME & FREQUENCY (Source)	Frequency	Using 5 ½ Multifunction Calibrator by direct method	45 Hz to 1000 Hz	0.32 % to 0.29 %
53	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Bevel Protector L.C. 5 Min	Using Profile Projector by Comparison Method	0 ° to 360 °	5.5 minutes of arc
54	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Bore Gauge (Transmission Error only) L.C. 1 µm	Using Dial Calibration Tester by Comparison method	0 to 1.2 mm	2.6µm
55	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Caliper (Dial / Digital / Vernier) L.C. 10 µm	Using Caliper checker , Gauge blocks by Comparison method	0 to 600 mm	14.8µm
56	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Caliper (Dial / Digital / Vernier) L.C. 10 µm	Using Length Bar set & Gauge Block Set by Comparison Method	0 to 1000 mm	15.3µm

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57	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Coating Thickness Gauge L.C. 0.1µm	Using Thickness Foils as per Comparison Method	0 to 2 mm	5.92µm
58	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Combination Set L.C 1 °	Using Profile Projector by Comparison Method	0 ° to 360 °	35minutes of arc
59	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Depth Gauge (Vernier / Dial / Digital) L.C.: 10 µm	Using Gauge Blocks & Length Bar set & surface plate by Comparison Method	0 to 300 mm	12.04µm
60	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Depth Gauge (Dial / Digital / Vernier) L.C. 0.01 mm	Using Gauge Blocks , Surface plate by Comparison Method	0 to 150 mm	12µm
61	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Depth Micrometer L.C. 10 µm	Using Gauge Blocks & Length Bar set & surface plate by Comparison Method	0 to 300 mm	12.02µm

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62	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Depth Micrometer L.C. 10 µm	Using Gauge Block, Surface Plate by Comparison Method	0 to 150 mm	11.3µm
63	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Dial Gauge (Plunger Type) L C. 1 µm	Using Dial Calibration Tester , Gauge Block , Electronic Probe by Comparison Method.	0 to 25 mm	2.4µm
64	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Dial Thickness Gauge L.C. 1 µm	Using Gauge Blocks by Comparison Method	0 to 10 mm	3.0µm
65	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Electronic Probe L.C. 0.1 µm	Using Gauge Block, Comparator Stand by Comparison method	0 to 25 mm	1.1µm
66	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Extension Rods of Internal Micrometer	Using Gauge Block Set, Long Gauge Block, Electronic probe with Comparator Stand by Comparison Method	50 mm to 300 mm	14.2µm

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67	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	External Micrometer L.C. 1 µm	Using Gauge Blocks & Length Bar set by Comparison Method	150 mm to 300 mm	6.17µm
68	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	External Micrometer L.C. 1 µm	Using Gauge Blocks & Length Bar set by Comparison Method	300 mm to 500 mm	10.81µm
69	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	External Micrometer L.C. 10 µm	Using Gauge Blocks & Length Bar set by Comparison Method	500 mm to 1000 mm	21.65µm
70	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	External Micrometer L.C. 1 µm	Using Gauge Blocks by Comparison Method	0 to 150 mm	2.8µm
71	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Feeler Gauge	Using Electronic Probe , Comparison stand by Comparison Method	0.03 mm to 2 mm	3.0µm

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72	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Form Gauge - Angle Measurement	Using Profile Projector by Comparison Method	0 to 360 °	5minutes of arc
73	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Form Gauge - Linear Measurement	Using Profile Projector by Comparison Method	0 to 150 mm	12µm
74	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Height Gauge (Dial / Digital & Vernier) L.C. 10 µm	Using Caliper Checker, Gauge blocks , Surface plate by Comparison Method	0 to 600 mm	15.2µm
75	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Inclinometer / Clinometer LC – 1 min	Using Sine bar and Gauge block set by Comparison Method	Up to 180 °	1.1minutes of arc
76	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Internal Micrometer - Micrometer Head (L.C.: 0.001 mm)	Using Gauge Block Set, Comparator Stand with electronic probe by Comparison Method	50 mm to 100 mm	10µm

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77	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Lever Type Dial Gauge L.C. 1 µm	Using Dial Calibration Tester , Gauge Block and Surface Plate by Comparison Method	0 to 1 mm	2.4µm
78	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Measuring Scale / Steel Rule L.C. 0.5 mm	Using Profile Projector by Comparison Method	0 to 300 mm	150µm
79	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Measuring Pin	Using Comparator stand , Electronic Probe , Gauge block by Comparison Method	0.1 mm to 20 mm	3.6µm
80	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Micrometer Head L.C. 0.5 µm	Using Comparator stand , Electronic Probe & Gauge Block by Comparison Method	0 to 25 mm	3.3µm
81	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Micrometer Setting Rod	Using Electronic Probe, Gauge Block , Comparison Stand by Comparison Method	25 mm to 1000 mm	20µm

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82	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Plain Plug Gauge	Using Electronic Probe , Comparator stand by Comparison Method	3 mm to 125 mm	3.27µm
83	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Radius Gauge / Radius Parameter	Using Profile Projector by comparison method	Up to 40 mm	5.22µm
84	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Snap Gauge	Using Gauge Blocks by Comparison Method	3 mm to 150 mm	3.01µm
85	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Test Sieves	Using Profile Projector by Comparison Method	0.032 mm to 10 mm	8.86µm
86	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Test Sieves	Using Vernier caliper by Comparison Method	10 mm to 125 mm	148.3µm

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87	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Thickness Foils	Using Comparator stand , Electronic Probe , Gauge block by Comparison Method	0 to 2 mm	3.2µm
88	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Thread Pitch Gauge - Angle Measurement	Using Profile Projector by Comparison Method	55° & 60°	5minutes of arc
89	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Thread Pitch Gauge - Pitch Measurement	Using Profile Projector by Comparison Method	0.17 mm to 7 mm	12µm
90	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Thread Plug Gauge (Effective, Minor & Major Diameter)	Using Digital Floating Carriage Diameter Measuring Machine by Comparison Method	2 mm to 100 mm	5.13µm
91	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Tracing Paper / Templates for Radius Measurement	Using Profile Projector by Comparison Method	R 0.2 mm to 25 mm	12µm

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92	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Tracing Paper / Templates - Angle Measurement	Using Profile Projector by Comparison Method	0 ° to 360 °	5.5minutes of arc
93	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Tracing Paper / Templates - Linear Measurement	Using Profile Projector by Comparison Method	0 to 150 mm	12 µm
94	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Ultrasonic Thickness Gauge L.C. 0.1 mm	Using Gauge Block as per Comparison Method	0 to 100 mm	58µm
95	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Verification of Diameter / Radius of Penetrator / Punch of Erichsen Cupping Machine	Using Profile Projector by Comparison Method	Upto 20 mm	12 µm
96	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Vickers / Knoop / Rockwell / Brinell Diamond Cone Indentor - Ball Diameter Measurement	Using Profile Projector by Comparison Method	Ø1 mm to Ø12.7 mm	12µm

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97	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Vickers / Knoop / Rockwell Diamond Cone Indentor - Angle Measurement	Using Profile Projector as per Comparison Method	120° & 136°	5minutes of arc
98	MECHANICAL-DUROMETER	Verification of Durometer - Shore A	Using Durometer Calibrator as per ASTM D2240-15(2021) & ISO 18898-2016	0 to 100 Shore	0.84%
99	MECHANICAL-DUROMETER	Verification of Durometer - Shore D	Using Durometer Calibrator as per ASTM D2240-15(2021) & ISO 18898-2016	0 to 100 Shore	0.84%
100	MECHANICAL-FORCE PROVING INSTRUMENTS	Load Cell - Compression & Tension Mode	Using Master Dead weight testing machine along with Newtonian Stainless steel weights as per IS 4169-2014, ISO 376-2011 & ASTM ASTM E 74 by Comparison Method	Upto 1000 N	0.1%
101	MECHANICAL-MOBILE FORCE MEASURING SYSTEM	Push Pull Tester	Using Push Pull Gauge Calibration Machine as per VDI / VDE - 2624	0 to 1000 N	0.5%

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102	MECHANICAL-TORQUE MEASURING DEVICES	Torque Sensor	Using torque calibration system with lever arm along with Newtonian Weights . As per BS : 7882:2017	0 to 2000 Nm	1%
103	THERMAL-TEMPERATURE	Liquid in glass Thermometer, Temperature Gauge, Dial thermometer	Using RTD Sensor and 6 ½ digit DMM, Liquid bath by comparison method	25 °C to 250 °C	0.70°C
104	THERMAL-TEMPERATURE	RTD / Thermocouple with and without indicator, Temperature Gauge	RTD Sensor with 6 ½ digit DMM & Dry Bath by comparison method	-25 °C to 120 °C	0.14°C
105	THERMAL-TEMPERATURE	RTD Sensor / Thermocouple with and without indicator, Temperature Gauges	RTD with 6 ½ digit DMM & Dry Bath by comparison method	120 °C to 250 °C	1.01°C
106	THERMAL-TEMPERATURE	RTD Sensor / Thermocouple with and without indicator, Temperature Gauges	RTD with 6 ½ digit DMM & Dry Bath by comparison method	250 °C to 400 °C	1.02°C

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107	THERMAL-TEMPERATURE	Temperature Indicator with sensor of chamber, oven or furnace, Dry Bath	R Type Thermocouple with 6 ½ digit DMM (Single Position) by comparison method	400 °C to 600 °C	1.94°C
108	THERMAL-TEMPERATURE	Temperature Indicator with sensor of chamber, oven or furnace, Dry Bath	R Type Thermocouple with 6 ½ digit DMM (Single Position) by comparison method	600 °C to 1200 °C	2.7°C
109	THERMAL-TEMPERATURE	Temperature Indicator with sensor of oven, furnace	RTD Sensor with 6 ½ digit DMM (Single Position) By Comparison method	50 °C to 400 °C	1.17°C
110	THERMAL-TEMPERATURE	Temperature Indicator with sensor of Refrigerator, Cold Chamber	RTD Sensor with 6 ½ digit DMM (Single Position) By Comparison method	-80 °C to 25 °C	0.69°C
111	THERMAL-TEMPERATURE	Temperature Indicator with sensor of thermal chamber, Dry / oil Bath	RTD Sensor with 6 ½ digit DMM (Single Position) By Comparison method	-80 °C to 400 °C	0.36°C
112	THERMAL-TEMPERATURE	Thermocouple with and without indicator	R Type Thermocouple with 6 ½ digit DMM & Dry Bath by comparison method	400 °C to 600 °C	2.03°C

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113	THERMAL-TEMPERATURE	Thermocouple with and without indicator	R Type Thermocouple with 6 ½ digit DMM & Dry Bath by comparison method	600 °C to 1200 °C	2.7°C

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LOCATION 2 - B4, NARSINH RESIDENCY, FLAT NO. B-4,1ST FLOOR,SURVEY NO. 81/2A/1A,MAIN ROAD, NEW SANGVI., PUNE, MAHARASHTRA, INDIA Site Facility					
1	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current @ 50 Hz	By Using SHUNT with 6 ½ digit Digital Multimeter by direct measurement	10 A to 100 A	2.97 % to 1.78 %
2	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current @ 50 Hz	By Using shunt with 6 ½ digit Digital Multimeter by direct measurement	100 A to 1000 A	1.78 % to 1.45 %
3	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current @ 50 Hz to 1 kHz	Using 6 ½ digit Digital Multimeter by direct method	1 A to 10 A	0.65 % to 3.00 %
4	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current @ 50 Hz to 1 kHz	Using 6 ½ digit Digital Multimeter by direct method	10 µA to 400 mA	1.17 % to 0.71 %

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5	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current @ 50 Hz to 1 kHz	Using 6 ½ digit Digital Multimeter by direct method	400 mA to 1 A	0.71 % to 0.65 %
6	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage @ 50 Hz to 1 kHz	BY Using 6 ½ digit Digital Multimeter by direct method	1 mV to 100 V	5.87 % to 0.53 %
7	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage @ 50 Hz to 1 kHz	BY Using 6 ½ digit Digital Multimeter by direct method	100 V to 1000 V	0.53 % to 0.3 %
8	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current @ 50 Hz	Using 5 ½ Multifunction Calibrator with current coil by direct method	10 A to 1000 A	1.00 % to 1.96 %
9	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current @ 50Hz to 1 kHz	Using 5 ½ Multifunction Calibrator by direct method	0.2 mA to 2 mA	1.72 % to 1.74 %

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10	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current @ 50Hz to 1 kHz	Using 5 ½ Multifunction Calibrator by direct method	2 A to 10 A	0.86 % to 1.00 %
11	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current @ 50Hz to 1 kHz	Using 5 ½ Multifunction Calibrator by direct method	2 mA to 20 mA	1.74 % to 0.52 %
12	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current @ 50Hz to 1 kHz	Using 5 ½ Multifunction Calibrator by direct method	20 mA to 200 mA	0.52 %
13	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current @ 50Hz to 1 kHz	Using 5 ½ Multifunction Calibrator by direct method	200 mA to 2000 mA	0.52 % to 0.86 %
14	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage @ 50Hz to 1 kHz	Using 5 ½ Multifunction Calibrator by direct method	0.2 V to 2 V	0.86 % to 0.46 %
15	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage @ 50Hz to 1 kHz	Using 5 ½ Multifunction Calibrator by direct method	1 mV to 200 mV	2.04 % to 0.86 %

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16	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage @ 50Hz to 1 kHz	Using 5 ½ Multifunction Calibrator by direct method	2 V to 20 V	0.46%
17	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage @ 50Hz to 1 kHz	Using 5 ½ Multifunction Calibrator by direct method	20 V to 200 V	0.46%
18	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage @ 50Hz to 1 kHz	Using 5 ½ Multifunction Calibrator by direct method	200 V to 1000 V	0.46 % to 0.68 %
19	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Current	Using 6 ½ digit Digital Multimeter by direct method	1 A to 10 A	0.33 % to 2.25 %
20	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Current	Using 6 ½ digit Digital Multimeter by direct method	10 µA to 400 mA	0.366 % to 0.27 %
21	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Current	By Using Shunt with 6 ½ digit Digital Multimeter by direct measurement	10 A to 100 A	2.25 % to 1.49 %

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22	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Current	BY Using Shunt with 6 ½ digit Digital Multimeter by direct measurement	100 A to 1000 A	1.49 % to 1.43 %
23	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Current	Using 6 ½ digit Digital Multimeter by direct method	400 mA to 1 A	0.27 % to 0.33 %
24	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC resistance	By Using 6 ½ digit Digital Multimeter by direct method	1 Ohm to 100 Mohm	0.36 % to 1.75 %
25	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC resistance	By Using 6 ½ digit Digital Multimeter by direct method	100 Mohm to 1 Gohm	1.75 % to 3.44 %
26	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Voltage	Using 6 ½ digit Digital Multimeter by direct method	1 mV to 100 V	0.51 % to 0.04 %
27	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Voltage	Using 6 ½ digit Digital Multimeter by direct method	100 V to 1000 V	0.04 % to 0.01 %

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28	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using 5 ½ Multifunction Calibrator by direct method	0.1 mA to 2 mA	0.26 % to 0.63 %
29	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using 5 ½ Multifunction Calibrator by direct method	10 A to 1000 A	0.75 % to 1.93 %
30	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using 5 ½ Multifunction Calibrator by direct method	2 A to 10 A	0.35 % to 0.75 %
31	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC current	Using 5 ½ Multifunction Calibrator by direct method	2 mA to 20 mA	0.63 % to 0.38 %
32	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using 5 ½ Multifunction Calibrator by direct method	20 mA to 200 mA	0.38 % to 0.35 %
33	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC current	Using 5 ½ Multifunction Calibrator by direct method	200 mA to 2000 mA	0.35%

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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)(±)
34	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using decade Resistance box by direct method	100 Mohm to 1 Gohm	1.10 % to 2.47 %
35	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Decade Resistance box by direct method	1 Ohm to 10 Ohm	0.43%
36	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Decade Resistance box by direct method	10 Mohm to 100 Mohm	1.60 % to 1.10 %
37	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Decade Resistance box by direct method	10 Ohm to 10 Mohm	0.43 % to 1.60 %
38	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using 5 ½ Multifunction Calibrator by direct method	0.2 V to 2 V	1.45 % to 0.34 %
39	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using 5 ½ Multifunction Calibrator by direct method	1 mV to 200 mV	1.53 % to 1.45 %

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40	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using 5 ½ Multifunction Calibrator by direct method	2 V to 20 V	0.34%
41	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using 5 ½ Multifunction Calibrator by direct method	20 V to 200 V	0.34 % to 0.18 %
42	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using 5 ½ Multifunction Calibrator by direct method	200 V to 1000 V	0.18 % to 0.62 %
43	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	J type	Using Temperature Simulator by direct method	0 °C to 1160 °C	0.82°C
44	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	K type	Using Temperature Simulator by direct method	0 °C to 1200 °C	0.93°C
45	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	N type	Using Temperature Simulator by direct method	0 °C to 1200 °C	1.09°C

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46	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	R type	Using Temperature Simulator by direct method	150 °C to 1700 °C	2.47°C
47	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	RTD PT 100	Using Temperature Simulator by direct method	-200 °C to 800 °C	1.16°C
48	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	S type	Using Temperature Simulator by direct method	150 °C to 1650 °C	3.12°C
49	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	T type	Using Temperature Simulator by direct method	-200 °C to 400 °C	0.93°C
50	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Frequency	Using 6 ½ Digital Multimeter By Direct Method	45 Hz to 1000 Hz	0.69%
51	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Time	Using Time Interval Meter by comparison method	1 s to 24 hr	0.14 s to 22 s

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52	ELECTRO-TECHNICAL-TIME & FREQUENCY (Source)	Frequency	Using 5 ½ Multifunction Calibrator by direct method	45 Hz to 1000 Hz	0.32 % to 0.29 %
53	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Surface Plate	Using Electronic Level by Comparison method	3000 (L) X 3000 (W) mm	3.2xsqrt{(L+W)/75} µm, where L and W are in mm
54	THERMAL-TEMPERATURE	Liquid in glass Thermometer, Temperature Gauge, Dial thermometer	Using RTD Sensor and 6 ½ digit DMM, Liquid bath by comparison method	25 °C to 250 °C	0.70°C
55	THERMAL-TEMPERATURE	RTD / Thermocouple with and without indicator, Temperature Gauge	RTD Sensor with 6 ½ digit DMM & Dry Bath by comparison method	-25 °C to 120 °C	0.14°C
56	THERMAL-TEMPERATURE	RTD Sensor / Thermocouple with and without indicator, Temperature Gauges	RTD with 6 ½ digit DMM & Dry Bath by comparison method	120 °C to 250 °C	1.01°C

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57	THERMAL-TEMPERATURE	RTD Sensor / Thermocouple with and without indicator, Temperature Gauges	RTD with 6 ½ digit DMM & Dry Bath by comparison method	250 °C to 400 °C	1.02°C
58	THERMAL-TEMPERATURE	Temperature Indicator with sensor of chamber, oven or furnace, Dry Bath	R Type Thermocouple with 6 ½ digit DMM (Single Position) by comparison method	400 °C to 600 °C	1.94°C
59	THERMAL-TEMPERATURE	Temperature Indicator with sensor of chamber, oven or furnace, Dry Bath	R Type Thermocouple with 6 ½ digit DMM (Single Position) by comparison method	600 °C to 1200 °C	2.7°C
60	THERMAL-TEMPERATURE	Temperature Indicator with sensor of oven, furnace	RTD Sensor with 6 ½ digit DMM (Single Position) By Comparison method	50 °C to 400 °C	1.17°C
61	THERMAL-TEMPERATURE	Temperature Indicator with sensor of Refrigerator, Cold Chamber	RTD Sensor with 6 ½ digit DMM (Single Position) By Comparison method	-80 °C to 25 °C	0.69°C
62	THERMAL-TEMPERATURE	Temperature Indicator with sensor of thermal chamber, Dry / oil Bath	RTD Sensor with 6 ½ digit DMM (Single Position) By Comparison method	-80 °C to 400 °C	0.36°C

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63	THERMAL-TEMPERATURE	Thermocouple with and without indicator	R Type Thermocouple with 6 ½ digit DMM & Dry Bath by comparison method	400 °C to 600 °C	2.03°C
64	THERMAL-TEMPERATURE	Thermocouple with and without indicator	R Type Thermocouple with 6 ½ digit DMM & Dry Bath by comparison method	600 °C to 1200 °C	2.7°C

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