National Accreditation Board for Testing and Calibration Laboratories

# SCOPE OF ACCREDITATION

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|---|---|
| **Laboratory Name :** | THE SOUTH INDIA TEXTILE RESEARCH ASSOCIATION (SITRA) CALIBRATION LABORATORY, 13/37, AVINASHI ROAD, AERODROME POST, COIMBATORE, TAMIL NADU, INDIA |
| **Accreditation Standard** | ISO/IEC 17025:2017 |
| **Certificate Number** | CC-2678 |
| **Page No** | 1 of 45 |
| **Validity** | 14/12/2024 to 13/12/2028 |
| **Last Amended on** | 24/12/2024 |

| S.No | Discipline / Group | Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrument | Calibration or Measurement Method or procedure | Measurement range and additional parameters where applicable(Range and Frequency) | * Calibration and Measurement Capability(CMC)(±) |
|---|---|---|---|---|---|
| Permanent Facility | | | | | |
| 1 | ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure) | RTD (PT-100) | Using Multi Function Calibrator by Direct Method | (-)200 °C to 200 °C | 0.28 °C |
| 2 | ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure) | RTD (PT-100) | Using Multi Function Calibrator by Direct Method | > 200 °C to 650 °C | 0.39 °C |
| 3 | ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure) | Thermocouple (B - Type) | Using Multi Function Calibrator by Direct Method | 600 °C to 1800 °C | 1.15 °C |
| 4 | ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure) | Thermocouple (E - Type) | Using Multi Function Calibrator by Direct Method | (-)200 °C to 1000 °C | 0.41 °C |
| 5 | ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure) | Thermocouple (J - Type) | Using Multi Function Calibrator by Direct Method | (-)200 °C to 1200 °C | 0.45 °C |
| 6 | ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure) | Thermocouple (K - Type) | Using Multi Function Calibrator by Direct Method | (-)200 °C to 1350 °C | 0.60 °C |
| 7 | ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure) | Thermocouple (N-Type) | Using Multi Function Calibrator by Direct Method | (-)100 °C to 1250 °C | 0.48 °C |

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| 8 | ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure) | Thermocouple (R-Type) | Using Multi Function Calibrator by Direct Method | 0 °C to 1750 °C | 1.30 °C |
| 9 | ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure) | Thermocouple (S-Type) | Using Multi Function Calibrator by Direct Method | 0 °C to 1750 °C | 1.26 °C |
| 10 | ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure) | Thermocouple (T-Type) | Using Multi Function Calibrator by Direct Method | (-)100 °C to 350 °C | 0.47 °C |
| 11 | ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source) | RTD (PT-100) | Using Multi Function Calibrator by Direct Method | (-)200 °C to 200 °C | 0.30 °C |
| 12 | ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source) | RTD (PT-100) | Using Multi Function Calibrator by Direct Method | > 200 °C to 600 °C | 0.41 °C |
| 13 | ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source) | Thermocouple (B - Type) | Using Multi Function Calibrator by Direct Method | 600 °C to 1800 °C | 0.96 °C |
| 14 | ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source) | Thermocouple (E - Type) | Using Multi Function Calibrator by Direct Method | (-)200 °C to 1000 °C | 0.41 °C |

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| 15 | ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source) | Thermocouple (J - Type) | Using Multi Function Calibrator by Direct Method | (-)200 °C to 1200 °C | 0.41 °C |
| 16 | ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source) | Thermocouple (K - Type) | Using Multi Function Calibrator by Direct Method | (-)200 °C to 1340 °C | 0.77 °C |
| 17 | ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source) | Thermocouple (N-Type) | Using Multi Function Calibrator by Direct Method | (-)200 °C to 1300 °C | 0.50 °C |
| 18 | ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source) | Thermocouple (R - Type) | Using Multi Function Calibrator by Direct Method | 0 °C to 1750 °C | 0.92 °C |
| 19 | ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source) | Thermocouple (S - Type) | Using Multi Function Calibrator by Direct Method | 0 °C to 1750 °C | 1.10 °C |
| 20 | ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source) | Thermocouple (T - Type) | Using Multi Function Calibrator by Direct Method | (-)100 °C to 400 °C | 0.60 °C |
| 21 | ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure) | Time | Using Time Totalizer by Comparison Method | 0.1 s to 60 s | 0.115 s to 0.135 s |

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| 22 | ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure) | Time | Using Time Totalizer by Comparison Method | 3600 s to 86400 s | 0.85 s to 20.01 s |
| 23 | ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure) | Time | Using Time Totalizer by Comparison Method | 60 s to 3600 s | 0.135 s to 0.85 s |
| 24 | FLUID FLOW-FLOW MEASURING DEVICES | Velocity (Anemometer, Air velocity meter) Medium Air | Using Anemometer in wind tunnel by comparison method | 0.5 m/s to 5 m/s | 12.2 % |
| 25 | FLUID FLOW-FLOW MEASURING DEVICES | Velocity (Anemometer, Air velocity meter) Medium Air | Using Anemometer in wind tunnel by comparison method | 5 m/s to 30 m/s | 2.2 % |
| 26 | MECHANICAL-ACCELERATION AND SPEED | Rotating equipment-Stirrer/Shaker/Agitator/ Rpm meter/ Centrifuges (non-contact type) | Using digital tachometer by Comparison Method | 10 rpm to 100 rpm | 1.37 rpm |
| 27 | MECHANICAL-ACCELERATION AND SPEED | Rotating equipment-Stirrer/Shaker/Agitator/ Rpm meter/ Centrifuges (non-contact type) | Using digital tachometer by Comparison Method | 100 rpm to 12000 rpm | 5.0 rpm |
| 28 | MECHANICAL-ACCELERATION AND SPEED | Tachometer (Non contact type) | Using digital tachometer and speed source by comparison method | 1000 rpm to 10000 rpm | 4.77 rpm |
| 29 | MECHANICAL-ACCELERATION AND SPEED | Tachometer (Non contact type) | Using digital tachometer and speed source by comparison method | 10000 rpm to 90000 rpm | 12.83 rpm |

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| 30 | MECHANICAL- ACCELERATION AND SPEED | Tachometer (Non contact type) | Using digital tachometer and speed source by comparison method | 90000 rpm to 99000 rpm | 58.82 rpm |
| 31 | MECHANICAL- ACCELERATION AND SPEED | Tachometer (Non-Contact type) | Using Digital Tachometer and speed source by Comparison Method | 10 rpm to 100 rpm | 1.25 rpm |
| 32 | MECHANICAL- ACCELERATION AND SPEED | Tachometer (Non-contact type) | Using digital tachometer and speed source by comparison method | 100 rpm to 1000 rpm | 4.09 rpm |
| 33 | MECHANICAL- ACCELERATION AND SPEED | Tachometer - Contact type | Using digital tachometer and speed source by comparison method | 1000 rpm to 6000 rpm | 5.28 rpm |
| 34 | MECHANICAL- ACCELERATION AND SPEED | Tachometer - Contact type | Using digital tachometer and speed source by comparison method | 100 rpm to 1000 rpm | 3.37 rpm |
| 35 | MECHANICAL- ACCELERATION AND SPEED | Tachometer - Contact type | Using digital tachometer and speed source by comparison method | 6000 rpm to 7000 rpm | 12.27 rpm |
| 36 | MECHANICAL- ACCELERATION AND SPEED | Tachometer- Contact type | Using Digital Tachometer and speed source by Comparison Method | 10 rpm to 100 rpm | 1.56 rpm |
| 37 | MECHANICAL- ACOUSTICS | Sound level meter (1 kHz) | Using Sound level calibrator by Direct Method | 94 dB and 114 dB | 0.67 dB |

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| 38 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | 3 Pin micrometer/ Bore micrometer (L.C: 1 µm) | Using Setting ring gauges by comparison method | 4 mm to 150 mm | 4.03 µm |
| 39 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Bevel protector/Degree protractor/Combination set L.C: 5' (Analog/Digital) | Using Video measuring machine by comparison method | 0 ° to 360 ° | 36.8 s of arc |
| 40 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Bore gauge (Transmission error only) | Using Electronic Dial Calibration Tester by Comparison Method | 0 to 1.5 mm | 2.16 µm |
| 41 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Bore gauge (Transmission error only) | Using universal length measuring machine by comparison method | 0 to 1.5 mm | 0.92 µm |
| 42 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Caliper (Analog/Dial/Digital) (L.C.: 0.01 mm) | Using Gauge block, Long gauge block, Caliper Checker & Digital Micrometer by Comparison method | 0 to 600 mm | 9.97 µm |
| 43 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Caliper (Analog/Dial/Digital) (L.C: 10 µm) | Using Caliper checker, Gauge block, Long Gauge block and Digital micrometer by Comparison Method | 0 to 1000 mm | 10.52 µm |

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| 44 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Caliper (Analog/Dial/Digital) (L.C: 5 µm) | Using caliper checker, Gauge block and Long gauge block by comparison method | 0 to 300 mm | 7.2 µm |
| 45 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Chamfer Gauge (Angle) | Using Video measuring machine by Direct method | Up to 90 ° | 14.86 s of arc |
| 46 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Chamfer Gauge (Linear) | Using Video measuring machine by Direct method | 0.5 mm to 10 mm | 4.50 µm |
| 47 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Coating thickness foil | Using Universal length measuring machine | 10 µm to 2 mm | 0.92 µm |
| 48 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Coating thickness gauge (L.C: 0.1 µm) | Using Coating thickness foil by Comparison Method | 10 µm to 2 mm | 2.18 µm |
| 49 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Cylindrical measuring pin | Using universal length measuring machine | 0.17 mm to 20 mm | 0.92 µm |

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| 50 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Depth Micrometer (Analog/Digital) (L.C: 0.001 mm) | Using Gauge Block, Long Gauge Block & Electronic probe by Comparison Method | 0 to 150 mm | 2.73 µm |
| 51 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Depth micrometer (Analog/Digital) (L.C: 0.01 mm) | Using Gauge block, Long gauge block & Electronic probe by comparison method | 0 to 300 mm | 5.14 µm |
| 52 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Dial Thickness Gauge (Analog/Digital) (L.C: 1 µm) | Using Gauge Block Set by Comparison Method | 0 to 12.7 mm | 1.39 µm |
| 53 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Electronic probe with digital indicator/LVDT (L.C: 0.0001 mm) | Using universal length measuring machine by comparison method | 0 to 25 mm | 1.36 µm |
| 54 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | External Micrometer (Analog/Digital) (L.C: 1 µm) | Using Gauge Block Set by Comparison Method | 0 to 100 mm | 1.06 µm |
| 55 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | External micrometer (Analog/Digital) (L.C: 10 µm) | Using Gauge block set & Long Gauge block by Comparison Method | 300 mm to 500 mm | 6.03 µm |

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**Accreditation Standard** ISO/IEC 17025:2017

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| 56 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | External Micrometer(Analog/ Digital) (L.C: 1 µm) | Using Gauge Block Set & Long Gauge Block by Comparison Method | 100 mm to 300 mm | 2.95 µm |
| 57 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Feeler Gauge | Using universal length measuring machine by Direct method | 0.03 mm to 1.0 mm | 0.92 µm |
| 58 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Groove micrometer (L.C: 0.001 mm) | Using Gauge block & Slip gauge accessories by comparison method | 5 mm to 30 mm | 3.17 µm |
| 59 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Height Gauge (Analog/Dial/Digital) (L.C: 10 µm) | Using Gauge Block & Long Gauge Block by Comparison Method | 0 to 1000 mm | 9.46 µm |
| 60 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Height measuring system/Electronic height gauge (L.C: 0.1 µm) | Using Gauge block, Long gauge block & Granite square by comparison method) | 0<br>to 1000 mm | 5.60 µm |
| 61 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Inside micrometer/Stick micrometer (L.C: 0.01 mm) | Using Gauge Block, Long Gauge Block & Universal length measuring machine by Comparison Method | 50 mm to 500 mm | 5.30 µm |

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| 62 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Internal dial caliper gauge/Groove dial gauge (L.C: 0.001 mm) | Using Gauge block, Long gauge block & Gauge block accessories by Comparison method | 5 mm to 150 mm | 1.48 µm |
| 63 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Lever type Dial Gauge (L.C: 0.001 mm) | Using Universal Length measuring Machine by Comparison method | 0 to 0.14 mm | 0.97 µm |
| 64 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Lever type Dial Gauge (L.C: 0.002 mm) | Using Universal Length measuring Machine by Comparison method | 0 to 0.2 mm | 1.1 µm |
| 65 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Lever type dial gauge (L.C: 0.01 mm) | Using Universal length measuring machine by comparison method | 0 to 3 mm | 3.10 µm |
| 66 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Limit Gauge (Angle) | Using Video measuring machine by Direct method | Up to 360 ° | 16.29 s of arc |
| 67 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Limit Gauge (Linear) | Using Video measuring machine by Direct method | Up to 400 mm | 13.42 µm |

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| 68 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Measuring Scale (L.C: 1 mm) | Using Scale & Tape Calibrator by Comparison Method | 0 to 1000 mm | 232 µm |
| 69 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Measuring Tape/Pie tape | Using Scale & Tape Calibrator By comparison method | 0 to 30000 mm | 386 *Sqrt(L) µm, where L in m |
| 70 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Micrometer setting rod | Using Gauge block , Long gauge block and Universal length measuring machine By comparison method | 25 mm to 500 mm | 2.52 µm |
| 71 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Pistol caliper (L.C 0.1mm) | Using Gauge block set By comparison method | 0 to 100 mm | 59.16 µm |
| 72 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Plain Plug Gauge / Air Plug Gauge / Setting Plug Gauge/ Segment gauges | Using Universal Length measuring Machine Gauge block and Long Gauge Block by Comparison method | 100 mm to 200 mm | 1.27 µm |
| 73 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Plain Plug Gauge / Air Plug Gauge / Setting Plug Gauge/Segment gauges | Using Universal Length measuring Machine and Long Gauge Block by Comparison method | 200 mm to 350 mm | 1.96 µm |

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| 74 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Plain Plug Gauge/Width gauge/Air plug gauge/Setting plug gauge/Segment gauges | Using Universal length measuring machine by comparison method | 1 mm to 100 mm | 0.80 µm |
| 75 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Plain Ring Gauge/ Setting Ring Gauge/ Air Ring Gauge | Using Universal Length Measuring Machine & Master setting ring gauge by comparison method | 150 mm to 320 mm | 2.51 µm |
| 76 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Plain Ring Gauge/ Setting Ring Gauge/ Air Ring gauge | Using Universal Length Measuring Machine & Master setting ring gauge by comparison method | 3 mm to 50 mm | 1.23 µm |
| 77 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Plain Ring Gauge/ Setting Ring Gauge/ Air Ring Gauge | Using Universal Length Measuring Machine & Master setting ring gauge by comparison method | 50 mm to 150 mm | 1.66 µm |
| 78 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Plunger type Dial Gauge (Analog/ Digital) (L.C: 0.001 mm) | Using Universal Length measuring Machine by Comparison method | 0 to 50 mm | 1.53 µm |
| 79 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Plunger type Dial Gauge (Analog/ Digital) (L.C: 0.01 mm) | Using Universal Length measuring Machine by Comparison method | 0 to 100 mm | 3.28 µm |

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| 80 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Radius gauge | Using Video measuring machine by Direct method | 0.6 mm to 25 mm | 4.71 µm |
| 81 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Scale Calibrator (L.C: 0.001 mm) | Using Gauge block & Long gauge block by Comparison Method | 0 to 1000 mm | 12.65 µm |
| 82 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Snap gauge (Fixed/Adjustable/Gap gauge) | Using Gauge Block & Long Gauge Block by Comparison Method | 300 mm to 500 mm | 2.42 µm |
| 83 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Snap gauge(Fixed/Adjustable/Dial snap/Gap gauge) | Using Gauge block & Long gauge block by Comparison method | 100 mm to 300 mm | 1.76 µm |
| 84 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Snap gauge(Fixed/Adjustable/Dial snap/Gap gauge) | Using Gauge Block & Long Gauge Block by Comparison Method | 2 mm to 100 mm | 1.26 µm |
| 85 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Standard wire gauge | Using Video measuring machine by Direct method | Up to 25 mm | 4.70 mm |

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| 86 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Surface Plate | Using Electronic Level by comparison method | Up to 3000 mm | 1.24xSqrt((L+W)/125) µm |
| 87 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Taper plain plug gauge | Using Universal length measuring machine & Video measuring system by comparison method | 0 to 100 mm | 1.40 µm |
| 88 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Taper plain plug gauge | Using Universal length measuring machine & Video measuring system by comparison method | 100 mm to 200 mm | 2.07 µm |
| 89 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Taper Scale | Using Video measuring machine by Direct method | 0.1 mm to 25 mm | 4.80 µm |
| 90 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Taper Thread Plug Gauge - Effective diameter | Using Universal Length measuring Machine, Gauge Block and Thread Measuring Wire by Comparison method | 100 mm to 112 mm | 2.0 µm |
| 91 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Taper Thread Plug Gauge - Effective diameter | Using Universal Length measuring Machine, Gauge block and Thread Measuring Wire by Comparison method | 7 mm to 100 mm | 1.7 µm |

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|---|---|---|---|---|---|
| 92 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Taper Thread Ring Gauge - Effective diameter | Using Universal Length measuring Machine and Master setting ring gauge by Comparison method | 12 mm to 87 mm | 2.1 µm |
| 93 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Template | Using Video measuring machine by Direct method | Up to 400 mm | 16.10 µm |
| 94 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Test Sieve/ Perforated plate/ Wire cloth | Using Video measuring machine by Direct method | 0.025 mm to 150 mm | 6.60 µm |
| 95 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Thread Measuring Wire | Using Universal Length measuring Machine by Comparison method | 0.17 mm to 6.35 mm | 0.73 µm |
| 96 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Thread pitch gauge(Angle) | Using Video measuring machine by Direct method | 0 ° to 60 ° | 17.63 s of arc |
| 97 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Thread Pitch Gauge(Linear) | Using Video measuring machine by Direct method | 0.2 mm to 6 mm | 4.51 µm |

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|---|---|---|---|---|---|
| 98 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Thread Plug Gauge - Major Diameter and Effective diameter | Using Universal Length Measuring Machine, Gauge block and Long Gauge Block & Thread measuring wire by Comparison method | 100 mm to 200 mm | 1.47 µm |
| 99 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Thread Plug Gauge - Major Diameter and Effective diameter | Using Universal Length Measuring Machine, Long Gauge Block & Thread measuring wire by Comparison method | 200 mm to 330 mm | 2.05 µm |
| 100 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Thread Plug Gauge/ Wear Check Plug Gauge - Major Diameter and Effective diameter | Using Universal Length Measuring Machine & Thread measuring wire by Comparison method | 1 mm to 100 mm | 0.98 µm |
| 101 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Thread Ring Gauge (Effective diameter) | Using Universal length measuring machine and Master setting ring gauge by comparison method | 200 mm to 320 mm | 2.58 µm |
| 102 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Thread Ring Gauge - Effective diameter | Using Universal Length measuring Machine and Master Setting Ring Gauge by Comparison method | 100 mm to 200 mm | 2.21 µm |

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**Accreditation Standard** ISO/IEC 17025:2017

**Certificate Number** CC-2678 

**Validity** 14/12/2024 to 13/12/2028 **Last Amended on** 24/12/2024

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| 103 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Thread Ring Gauge / Wear Check Ring Gauge - Effective diameter | Using Universal Length measuring Machine and Master Setting Ring Gauge by Comparison method | 2.5 mm to 100 mm | 1.40 µm |
| 104 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Ultrasonic thickness gauge (L.C: 0.01 mm) | Using Gauge Block by Comparison Method | 0 to 100 mm | 6.65 µm |
| 105 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Universal length measuring machine/ Length measuring machine (L.C: 0.01 µm) | Using Gauge block by comparison method | 0 to 100 mm | 0.59 µm |
| 106 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Vernier depth gauge (Analog/Dial/Digital) (L.C: 10 µm) | Using Gauge Block, Long Gauge Block & Electronic probe by Comparison Method | 0 to 300 mm | 8.02 µm |
| 107 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Vernier depth gauge (Vernier/Dial/Digital) (L.C: 10 µm) | Using Gauge Block, Long Gauge Block & Electronic probe by Comparison Method | 0 to 600 mm | 10.60 µm |
| 108 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Weld fillet gauge/Weld gauge (Angular) | Using Video measuring machine by Direct method | Up to 90 ° | 1 min 50 s of arc |

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|---|---|---|---|---|---|
| 109 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Weld fillet gauge/Weld gauge (Linear) | Using Video measuring machine by Direct method | Up to 50 mm | 4.98 µm |
| 110 | MECHANICAL- PRESSURE INDICATING DEVICES | Hydraulic Pressure / Dial and Digital Pressure Indicators, Pressure Transmitters/ Pressure transducers with or without indicators, Pressure Switches | Using Digital Pressure Calibrator with Hydraulic Pump and multifunction calibrator by comparison method as per DKD - R 6 -1 | 0 to 700 bar | 0.31 % rdg |
| 111 | MECHANICAL- PRESSURE INDICATING DEVICES | Hydraulic Pressure/Dial and Digital pressure indicators, Pressure Transmitters/ Pressure transducers with or without indicators, Pressure Switches | Using Digital Pressure Calibrator with Hydraulic Pump and multifunction calibrator by comparison method as per DKD - R 6 -1 | 0 to 200 bar | 0.44 % rdg |
| 112 | MECHANICAL- PRESSURE INDICATING DEVICES | Low pressure/Dial and digital pressure indicator, Transmitter/Transducers with or without indicators, Manometers and Pressure switches/Magnehelic /Differential/Compound gauge | Using Digital pneumatic calibrator with pneumatic pump and multifunction calibrator by comparison method as per DKD-R6-1&2 | -200 mbar to 200 mbar | 0.3 %rdg |

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|---|---|---|---|---|---|
| 113 | MECHANICAL- PRESSURE INDICATING DEVICES | Pneumatic Pressure /Dial and Digital Pressure indicators, Pressure Transmitters/ Pressure transducers with indicators, Pressure Switches & Differential /Compound pressure gauges. | Using Digital Pneumatic Calibrator and Pneumatic Pump by comparison method as per DKD - R 6 -1 | 0 to 10 bar | 0.28 % rdg |
| 114 | MECHANICAL- PRESSURE INDICATING DEVICES | Pneumatic pressure /Dial and Digital pressure indicators, Transmitters / transducers with indicators ,Manometers and Pressure Switches/Magnehelic /Differential/Compound pressure gauges | Using digital pneumatic calibrator and pneumatic pump by comparison method as per DKD - R 6 -1 | 0 to 2 bar | 0.35 %rdg |
| 115 | MECHANICAL- PRESSURE INDICATING DEVICES | Pneumatic Pressure/ Dial and Digital Pressure indicators, Pressure Transmitters/ Pressure transducers with indicators, Pressure Switches & Differential /Compound pressure gauges | Using Digital Pneumatic Calibrator and Pneumatic Pump by comparison method as per DKD - R 6 -1 | 0 bar to 40 bar | 0.26 %rdg |

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|---|---|---|---|---|---|
| 116 | MECHANICAL- PRESSURE INDICATING DEVICES | Vacuum /Dial and Digital Vacuum indicators, Transmitters/Transducers with indicators, Manometers and Vacuum Switches/Magnehelic /Differential/Compound gauges | Using Digital Pneumatic Calibrator and Pneumatic Pump by comparison method as per DKD - R 6 -1&2 | (-)0.80 bar to 0 bar | 0.85 % rdg |
| 117 | MECHANICAL- VOLUME | Glassware Pipettes, Burettes, Volumetric flask, Measuring cylinder & Beaker | Using Electronic Weighing Balance with Readability of 0.01 mg/0.1mg. Procedure as per IS 18235:2023 Standard | 1 ml to 10 ml | 0.13 ml |
| 118 | MECHANICAL- VOLUME | Glassware Pipettes, Burettes, Volumetric flask, Measuring cylinder & Beaker | Using Electronic Weighing Balance with Readability of 0.01 mg & 0.1mg. Procedure as per IS 18235:2023 Standard | 10 ml to 100 ml | 0.16 ml |
| 119 | MECHANICAL- VOLUME | Glassware Pipettes, Burettes, Volumetric flask, Measuring cylinder & Beaker | Using Electronic Weighing Balance with Readability of 1 mg. Procedure as per IS 18235:2023 Standard | 100 ml to 500 ml | 0.84 ml |

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|---|---|---|---|---|---|
| 120 | MECHANICAL-VOLUME | Piston Operated volumetric apparatus, Micropipettes | Using Precision Weighing Balances (Readability = 0.001mg) and Procedures based on ISO 8655-6:2022 -04 part 6 Standard, ISO 8655-2:2022-04 part 2 Standard and ISO TR 20461:2023-02 Standard. | 0.5 µl to 10 µl | 0.07 µl |
| 121 | MECHANICAL-VOLUME | Piston Operated volumetric apparatus, Micropipettes | Using Precision Weighing Balances (Readability = 0.001mg) and Procedures based on ISO 8655-6:2022 -04 part 6 Standard, ISO 8655-2:2022-04 part 2 Standard and ISO TR 20461:2023-02 Standard. | 10 µl to 100 µl | 0.21 µl |
| 122 | MECHANICAL-VOLUME | Piston Operated volumetric apparatus, Micropipettes | Using Precision Weighing Balances (Readability = 0.001mg) and Procedures based on ISO 8655-6:2022 -04 part 6 Standard, ISO 8655-2:2022-04 part 2 Standard and ISO TR 20461:2023-02 Standard. | 100 µl to 500 µl | 0.43 µl |

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|---|---|---|---|---|---|
| 123 | MECHANICAL-VOLUME | Piston Operated volumetric apparatus, Micropipettes | Using Precision Weighing Balances (Readability = 0.01mg) and Procedures based on ISO 8655-6:2022 -04 part 6 Standard, ISO 8655-2:2022-04 part 2 Standard and ISO TR 20461:2023-02 Standard. | 1000 µl to 5000 µl | 6.36 µl |
| 124 | MECHANICAL-VOLUME | Piston Operated volumetric apparatus, Micropipettes | Using Precision Weighing Balances (Readability = 0.001mg) and Procedures based on ISO 8655-6:2022 -04 part 6 Standard, ISO 8655-2:2022-04 part 2 Standard and ISO TR 20461:2023-02 Standard. | 500 µl to 1000 µl | 1.03 µl |
| 125 | MECHANICAL-VOLUME | Piston Operated volumetric apparatus, Micropipettes | Using Precision Weighing Balances (Readability = 0.01mg) and Procedures based on ISO 8655-6:2022 -04 part 6 Standard, ISO 8655-2:2022-04 part 2 Standard and ISO TR 20461:2023-02 Standard. | 5000 µl to 10000 µl | 11.03 µl |

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|---|---|---|---|---|---|
| 126 | MECHANICAL- VOLUME | Volumetric flask, Measuring cylinder & Beaker | Using Electronic Weighing Balance with Readability of 1 mg & 10 mg. Procedure as per IS 18235:2023 Standard | 500 ml to 5000 ml | 8.45 ml |
| 127 | MECHANICAL- WEIGHING SCALE AND BALANCE | Electronic Weighing Balance (Class I & coarser, Readability: 0.001 mg) | Using E1 accuracy class standard weights and procedure as per OIML R-76-1 guidelines | 0 to 21 g | 0.01 mg |
| 128 | MECHANICAL- WEIGHING SCALE AND BALANCE | Electronic Weighing Balance (Class II & coarser, Readability: 100 mg) | Using E2 accuracy class standard weights and procedure as per OIML R-76-1 guidelines | 0 to 50 kg | 86.06 mg |
| 129 | MECHANICAL- WEIGHING SCALE AND BALANCE | Electronic Weighing Balances (Class I & coarser, Readability: 0.1 mg) | Using E1 accuracy class standard weights and procedure as per OIML R-76-1 guidelines. | 40 g to 210 g | 0.09 mg |
| 130 | MECHANICAL- WEIGHING SCALE AND BALANCE | Electronic Weighing Balances (Class I & coarser, Readability: 1 mg) | Using E2 accuracy Class standard Weights and procedure as per OIML R-76-1 guidelines. | 0 to 1 kg | 0.79 mg |
| 131 | MECHANICAL- WEIGHING SCALE AND BALANCE | Electronic Weighing Balances (Class II & coarser, Readability: 10 mg) | Using E2 accuracy Class standard Weights and procedure as per OIML R-76-1 guidelines. | 0 to 10 kg | 12.02 mg |

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|---|---|---|---|---|---|
| 132 | MECHANICAL- WEIGHTS | Accuracy class F1 & coarser | Using E1 accuracy class standard weights and electronic weighing balance with readability of 0.001 mg. Procedure as per OIML R-111-1 guidelines. | 1 g | 0.01 mg |
| 133 | MECHANICAL- WEIGHTS | Accuracy class F1 & coarser | Using E2 accuracy class standard weights and electronic weighing balance with readability of 1 mg. Procedure as per OIML R-111-1 guidelines. | 1 kg | 1.17 mg |
| 134 | MECHANICAL- WEIGHTS | Accuracy class F1 & coarser | Using E1 accuracy class standard weights and electronic weighing balance with readability of 0.001 mg. Procedure as per OIML R-111-1 guidelines. | 1 mg | 0.006 mg |
| 135 | MECHANICAL- WEIGHTS | Accuracy class F1 & coarser | Using E1 accuracy class standard weights and electronic weighing balance with readability of 0.001 mg. Procedure as per OIML R-111-1 guidelines. | 10 g | 0.01 mg |

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|---|---|---|---|---|---|
| 136 | MECHANICAL- WEIGHTS | Accuracy class F1 & coarser | Using E2 accuracy class standard weights and electronic weighing balance with readability of 10 mg. Procedure as per OIML R-111-1 guidelines. | 10 kg | 10.88 mg |
| 137 | MECHANICAL- WEIGHTS | Accuracy class F1 & coarser | Using E1 accuracy class standard weights and electronic weighing balance with readability of 0.001 mg. Procedure as per OIML R-111-1 guidelines. | 10 mg | 0.01 mg |
| 138 | MECHANICAL- WEIGHTS | Accuracy class F1 & coarser | Using E2 accuracy class standard weights and electronic weighing balance with readability of 0.1 mg. Procedure as per OIML R-111-1 guidelines. | 100 g | 0.16 mg |
| 139 | MECHANICAL- WEIGHTS | Accuracy class F1 & coarser | Using E1 accuracy class standard weights and electronic weighing balance with readability of 0.001 mg. Procedure as per OIML R-111-1 guidelines. | 100 mg | 0.01 mg |

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| 140 | MECHANICAL-WEIGHTS | Accuracy class F1 & coarser | Using E1 accuracy class standard weights and electronic weighing balance with readability of 0.001 mg. Procedure as per OIML R-111-1 guidelines. | 2 g | 0.01 mg |
| 141 | MECHANICAL-WEIGHTS | Accuracy class F1 & coarser | Using E1 accuracy class standard weights and electronic weighing balance with readability of 0.001 mg. Procedure as per OIML R-111-1 guidelines. | 2 mg | 0.003 mg |
| 142 | MECHANICAL-WEIGHTS | Accuracy class F1 & coarser | Using E1 accuracy class standard weights and electronic weighing balance with readability of 0.001 mg. Procedure as per OIML R-111-1 guidelines. | 20 g | 0.01 mg |
| 143 | MECHANICAL-WEIGHTS | Accuracy class F1 & coarser | Using E1 accuracy class standard weights and electronic weighing balance with readability of 0.001 mg. Procedure as per OIML R-111-1 guidelines. | 20 mg | 0.01 mg |

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| 144 | MECHANICAL- WEIGHTS | Accuracy class F1 & coarser | Using E2 accuracy class standard weights and electronic weighing balance with readability of 0.1 mg. Procedure as per OIML R-111-1 guidelines. | 200 g | 0.12 mg |
| 145 | MECHANICAL- WEIGHTS | Accuracy class F1 & coarser | Using E1 accuracy class standard weights and electronic weighing balance with readability of 0.001 mg. Procedure as per OIML R-111-1 guidelines. | 200 mg | 0.01 mg |
| 146 | MECHANICAL- WEIGHTS | Accuracy class F1 & coarser | Using E1 accuracy class standard weights and electronic weighing balance with readability of 0.001 mg. Procedure as per OIML R-111-1 guidelines. | 5 g | 0.01 mg |
| 147 | MECHANICAL- WEIGHTS | Accuracy class F1 & coarser | Using E1 accuracy class standard weights and electronic weighing balance with readability of 0.001 mg. Procedure as per OIML R-111-1 guidelines. | 5 mg | 0.003 mg |

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| 148 | MECHANICAL- WEIGHTS | Accuracy class F1 & coarser | Using E2 accuracy class standard weights and electronic weighing balance with readability of 0.1 mg. Procedure as per OIML R-111-1 guidelines. | 50 g | 0.14 mg |
| 149 | MECHANICAL- WEIGHTS | Accuracy class F1 & coarser | Using E1 accuracy class standard weights and electronic weighing balance with readability of 0.001 mg. Procedure as per OIML R-111-1 guidelines. | 50 mg | 0.004 mg |
| 150 | MECHANICAL- WEIGHTS | Accuracy class F1 & coarser | Using E1 accuracy class standard weights and electronic weighing balance with readability of 0.001 mg. Procedure as per OIML R-111-1 guidelines. | 500 mg | 0.01 mg |
| 151 | MECHANICAL- WEIGHTS | Accuracy class F2 & coarser | Using E2 accuracy class standard weights and electronic weighing balance with readability of 10 mg. Procedure as per OIML R-111-1 guidelines. | 2 kg | 9.49 mg |

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| 152 | MECHANICAL- WEIGHTS | Accuracy class F2 & coarser | Using E2 accuracy class standard weights and electronic weighing balance with readability of 0.1 g. Procedure as per OIML R-111-1 guidelines. | 20 kg | 119.77 mg |
| 153 | MECHANICAL- WEIGHTS | Accuracy class F2 & coarser | Using E2 accuracy class standard weights and electronic weighing balance with readability of 10 mg. Procedure as per OIML R-111-1 guidelines. | 5 kg | 10.51 mg |
| 154 | MECHANICAL- WEIGHTS | Accuracy class F2 & coarser | Using E2 accuracy class standard weights and electronic weighing balance with readability of 0.1g as per OIML R-111-1 | 50 kg | 120.02 mg |
| 155 | MECHANICAL- WEIGHTS | Accuracy class F2 & coarser | Using E2 accuracy class standard weights and electronic weighing balance with readability of 1 mg. Procedure as per OIML R-111-1 guidelines. | 500 g | 0.92 mg |

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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)(±) |
|---|---|---|---|---|---|
| 156 | THERMAL- SPECIFIC HEAT & HUMIDITY | Humidity chamber, Environmental chamber (Single Position only) | Using Temperature & Humidity meter with sensor by comparison method at 50%RH | 10 °C to 50 °C | 1.26 °C |
| 157 | THERMAL- SPECIFIC HEAT & HUMIDITY | Humidity chamber, Environmental chamber (Single Position only) | Using Temperature & Humidity meter with sensor by comparison method at 25°C | 30 %rh to 70 %rh | 4.36 %rh |
| 158 | THERMAL- SPECIFIC HEAT & HUMIDITY | Humidity/ Analog/ Digital thermo hygrometers, Humidity sensors, Data loggers | Using Temperature & Humidity Generator and Temperature & Humidity meter with Sensor by Comparison Method at 25°C | 30 %rh to 70 %rh | 4.36 %rh |
| 159 | THERMAL- SPECIFIC HEAT & HUMIDITY | Temperature of Humidity/Analog/Digital thermo hygrometers, Data loggers | Using Temperature & Humidity Generator and Temperature & Humidity meter with Sensor by Comparison Method @50%RH | 10 °C to 50 °C | 1.26 °C |
| 160 | THERMAL- TEMPERATURE | Liquid in Glass Thermometer | Using Liquid bath and SSPRT with multifunction calibrator by comparison method | (-)50 °C to 50 °C | 0.20 °C |
| 161 | THERMAL- TEMPERATURE | Liquid in Glass Thermometer | Using Liquid bath and SSPRT with multifunction calibrator by comparison method | >50 °C to 250 °C | 0.27 °C |

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|---|---|---|---|---|---|
| 162 | THERMAL- TEMPERATURE | RTD Sensor /Thermocouple with or without indicator/Controller Thermometer, Temperature gauge, Temperature switches, Temperature indicator/Controller/ Recorder/Transmitte r with sensor | Using Liquid bath, SSPRT with multifunction calibrator by comparison method | (-)60 °C to 50 °C | 0.20 °C |
| 163 | THERMAL- TEMPERATURE | Temperature indicator of Dry block (Single position calibration) | Using S-Type Thermocouple with multifunction calibrator by comparison method | > 150 °C to 1200 °C | 2.14 °C |
| 164 | THERMAL- TEMPERATURE | Temperature indicator with sensor of Liquid bath, Dry block (Single position calibration) | Using SSPRT with multifunction calibrator by comparison method | 50 °C to 250 °C | 0.18 °C |
| 165 | THERMAL- TEMPERATURE | Temperature sensor with indicator of Deep freezer/ Liquid bath (Single position calibration) | Using SSPRT with multifunction calibrator by comparison method | (-)60 °C to 50 °C | 0.14 °C |

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|---|---|---|---|---|---|
| 166 | THERMAL- TEMPERATURE | Temperature/ RTD Sensor /Thermocouple with or without indicator/Controller, Thermometer, Temperature gauge, Temperature switches, Temperature Indicator/Controller/ Recorder/Transmitter with sensor | Using Liquid bath, Dry block, SSPRT with multifunction calibrator by comparison method | 50 °C to 400 °C | 0.50 °C |
| 167 | THERMAL- TEMPERATURE | Temperature/ Thermocouple with or without indicator/Controller, Temperature switches, Temperature indicator/Controller/ Recorder/Transmitter with sensor | Using Dry block calibrator, S-Type thermocouple with multifunction calibrator by comparison method | > 400 °C to 1200 °C | 2.18 °C |
| 168 | THERMAL- TEMPERATURE | Temperature/IR thermometer, Non-Contact thermometer & Pyrometer | Using Black body source and Pyrometer by comparison method (Emissivity=0.950) | 50 °C to 500 °C | 3.07 °C |
| 169 | THERMAL- TEMPERATURE | Temperature/IR thermometer,Non-Contact thermometer & Pyrometer | Using Black body source and Pyrometer by comparison method (Emissivity=0.950) | > 500 °C to 1200 °C | 5.07 °C |

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|---|---|---|---|---|---|
| Site Facility | | | | | |
| 1 | ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure) | RTD (PT-100) | Using Multi Function Calibrator by Direct Method | (-)200 °C to 200 °C | 0.28 °C |
| 2 | ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure) | RTD (PT-100) | Using Multi Function Calibrator by Direct Method | > 200 °C to 650 °C | 0.39 °C |
| 3 | ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure) | Thermocouple (B - Type) | Using Multi Function Calibrator by Direct Method | 600 °C to 1800 °C | 1.15 °C |
| 4 | ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure) | Thermocouple (E - Type) | Using Multi Function Calibrator by Direct Method | (-)200 °C to 1000 °C | 0.41 °C |
| 5 | ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure) | Thermocouple (J - Type) | Using Multi Function Calibrator by Direct Method | (-)200 °C to 1200 °C | 0.45 °C |
| 6 | ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure) | Thermocouple (K - Type) | Using Multi Function Calibrator by Direct Method | (-)200 °C to 1350 °C | 0.60 °C |
| 7 | ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure) | Thermocouple (N-Type) | Using Multi Function Calibrator by Direct Method | (-)100 °C to 1250 °C | 0.48 °C |

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|---|---|---|---|---|---|
| 8 | ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure) | Thermocouple (R-Type) | Using Multi Function Calibrator by Direct Method | 0 °C to 1750 °C | 1.30 °C |
| 9 | ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure) | Thermocouple (S-Type) | Using Multi Function Calibrator by Direct Method | 0 °C to 1750 °C | 1.26 °C |
| 10 | ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure) | Thermocouple (T-Type) | Using Multi Function Calibrator by Direct Method | (-)100 °C to 350 °C | 0.47 °C |
| 11 | ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source) | RTD (PT-100) | Using Multi Function Calibrator by Direct Method | (-)200 °C to 200 °C | 0.30 °C |
| 12 | ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source) | RTD (PT-100) | Using Multi Function Calibrator by Direct Method | > 200 °C to 600 °C | 0.41 °C |
| 13 | ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source) | Thermocouple (B - Type) | Using Multi Function Calibrator by Direct Method | 600 °C to 1800 °C | 0.96 °C |
| 14 | ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source) | Thermocouple (E - Type) | Using Multi Function Calibrator by Direct Method | (-)200 °C to 1000 °C | 0.41 °C |

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|---|---|---|---|---|---|
| 15 | ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source) | Thermocouple (J - Type) | Using Multi Function Calibrator by Direct Method | (-)200 °C to 1200 °C | 0.41 °C |
| 16 | ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source) | Thermocouple (K - Type) | Using Multi Function Calibrator by Direct Method | (-)200 °C to 1340 °C | 0.77 °C |
| 17 | ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source) | Thermocouple (N-Type) | Using Multi Function Calibrator by Direct Method | (-)200 °C to 1300 °C | 0.50 °C |
| 18 | ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source) | Thermocouple (R - Type) | Using Multi Function Calibrator by Direct Method | 0 °C to 1750 °C | 0.92 °C |
| 19 | ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source) | Thermocouple (S - Type) | Using Multi Function Calibrator by Direct Method | 0 °C to 1750 °C | 1.10 °C |
| 20 | ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source) | Thermocouple (T - Type) | Using Multi Function Calibrator by Direct Method | (-)100 °C to 400 °C | 0.60 °C |
| 21 | ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure) | Time | Using Time Totalizer by Comparison Method | 0.1 s to 60 s | 0.115 s to 0.135 s |

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|---|---|---|---|---|---|
| 22 | ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure) | Time | Using Time Totalizer by Comparison Method | 3600 s to 86400 s | 0.85 s to 20.01 s |
| 23 | ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure) | Time | Using Time Totalizer by Comparison Method | 60 s to 3600 s | 0.135 s to 0.85 s |
| 24 | MECHANICAL-ACCELERATION AND SPEED | Rotating equipment-Stirrer/Shaker/Agitator/ Rpm meter/ Centrifuges (non-contact type) | Using digital tachometer by Comparison Method | 10 rpm to 100 rpm | 1.37 rpm |
| 25 | MECHANICAL-ACCELERATION AND SPEED | Rotating equipment-Stirrer/Shaker/Agitator/ Rpm meter/ Centrifuges (non-contact type) | Using digital tachometer by Comparison Method | 100 rpm to 12000 rpm | 5.0 rpm |
| 26 | MECHANICAL-ACCELERATION AND SPEED | Tachometer (Non contact type) | Using digital tachometer and speed source by comparison method | 1000 rpm to 10000 rpm | 4.77 rpm |
| 27 | MECHANICAL-ACCELERATION AND SPEED | Tachometer (Non contact type) | Using digital tachometer and speed source by comparison method | 10000 rpm to 90000 rpm | 12.83 rpm |
| 28 | MECHANICAL-ACCELERATION AND SPEED | Tachometer (Non contact type) | Using digital tachometer and speed source by comparison method | 90000 rpm to 99000 rpm | 58.82 rpm |
| 29 | MECHANICAL-ACCELERATION AND SPEED | Tachometer (Non-Contact type) | Using Digital Tachometer and speed source by Comparison Method | 10 rpm to 100 rpm | 1.25 rpm |

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|---|---|---|---|---|---|
| 30 | MECHANICAL-ACCELERATION AND SPEED | Tachometer (Non-contact type) | Using digital tachometer and speed source by comparison method | 100 rpm to 1000 rpm | 4.09 rpm |
| 31 | MECHANICAL-ACCELERATION AND SPEED | Tachometer - Contact type | Using digital tachometer and speed source by comparison method | 1000 rpm to 6000 rpm | 5.28 rpm |
| 32 | MECHANICAL-ACCELERATION AND SPEED | Tachometer - Contact type | Using digital tachometer and speed source by comparison method | 100 rpm to 1000 rpm | 3.37 rpm |
| 33 | MECHANICAL-ACCELERATION AND SPEED | Tachometer - Contact type | Using digital tachometer and speed source by comparison method | 6000 rpm to 7000 rpm | 12.27 rpm |
| 34 | MECHANICAL-ACCELERATION AND SPEED | Tachometer- Contact type | Using Digital Tachometer and speed source by Comparison Method | 10 rpm to 100 rpm | 1.56 rpm |
| 35 | MECHANICAL-ACOUSTICS | Sound level meter (1 kHz) | Using Sound level calibrator by Direct Method | 94 dB and 114 dB | 0.67 dB |
| 36 | MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Height measuring system/Electronic height gauge (L.C: 0.1 µm) | Using Gauge block, Long gauge block & Granite square by comparison method) | 0 to 1000 mm | 5.60 µm |
| 37 | MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Scale Calibrator (L.C: 0.001 mm) | Using Gauge block & Long gauge block by Comparison Method | 0 to 1000 mm | 12.65 µm |

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| 38 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Standard wire gauge | Using Video measuring machine by Direct method | Up to 25 mm | 4.70 mm |
| 39 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Surface Plate | Using Electronic Level by comparison method | Up to 3000 mm | 1.24xSqrt((L+W)/125) µm |
| 40 | MECHANICAL- DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.) | Universal length measuring machine/ Length measuring machine (L.C: 0.01 µm) | Using Gauge block by comparison method | 0 to 100 mm | 0.59 µm |
| 41 | MECHANICAL- PRESSURE INDICATING DEVICES | Hydraulic Pressure / Dial and Digital Pressure Indicators, Pressure Transmitters/ Pressure transducers with or without indicators, Pressure Switches | Using Digital Pressure Calibrator with Hydraulic Pump and multifunction calibrator by comparison method as per DKD - R 6 -1 | 0 to 700 bar | 0.31 % rdg |
| 42 | MECHANICAL- PRESSURE INDICATING DEVICES | Hydraulic Pressure/Dial and Digital pressure indicators, Pressure Transmitters/ Pressure transducers with or without indicators, Pressure Switches | Using Digital Pressure Calibrator with Hydraulic Pump and multifunction calibrator by comparison method as per DKD - R 6 -1 | 0 to 200 bar | 0.44 % rdg |

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|---|---|---|---|---|---|
| 43 | MECHANICAL- PRESSURE INDICATING DEVICES | Low pressure/Dial and digital pressure indicator, Transmitter/Transducers with or without indicators, Manometers and Pressure switches/Magnehelic /Differential/Compound gauge | Using Digital pneumatic calibrator with pneumatic pump and multifunction calibrator by comparison method as per DKD-R6-1&2 | -200 mbar to 200 mbar | 0.3 %rdg |
| 44 | MECHANICAL- PRESSURE INDICATING DEVICES | Pneumatic Pressure /Dial and Digital Pressure indicators, Pressure Transmitters/ Pressure transducers with indicators, Pressure Switches & Differential /Compound pressure gauges. | Using Digital Pneumatic Calibrator and Pneumatic Pump by comparison method as per DKD - R 6 -1 | 0 to 10 bar | 0.28 % rdg |
| 45 | MECHANICAL- PRESSURE INDICATING DEVICES | Pneumatic pressure /Dial and Digital pressure indicators, Transmitters / transducers with indicators ,Manometers and Pressure Switches/Magnehelic /Differential/Compound pressure gauges | Using digital pneumatic calibrator and pneumatic pump by comparison method as per DKD - R 6 -1 | 0 to 2 bar | 0.35 %rdg |

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|---|---|---|---|---|---|
| 46 | MECHANICAL- PRESSURE INDICATING DEVICES | Pneumatic Pressure/ Dial and Digital Pressure indicators, Pressure Transmitters/ Pressure transducers with indicators, Pressure Switches & Differential /Compound pressure gauges | Using Digital Pneumatic Calibrator and Pneumatic Pump by comparison method as per DKD - R 6 -1 | 0 bar to 40 bar | 0.26 %rdg |
| 47 | MECHANICAL- PRESSURE INDICATING DEVICES | Vacuum /Dial and Digital Vacuum indicators, Transmitters/Transducers with indicators, Manometers and Vacuum Switches/Magnehelic /Differential/Compound gauges | Using Digital Pneumatic Calibrator and Pneumatic Pump by comparison method as per DKD - R 6 -1&2 | (-)0.80 bar to 0 bar | 0.85 % rdg |
| 48 | MECHANICAL- UTM, TENSION CREEP AND TORSION TESTING MACHINE | Tensile testing machines | Using Newton Weights F1 Class as per IS 1828 (part 1)- 2022 / ISO 7500-1 - 2018 | 10 N to 100 N | 1.1 % |
| 49 | MECHANICAL- UTM, TENSION CREEP AND TORSION TESTING MACHINE | Tensile testing machines | Using standard Tension Proving Ring & Load cell IS 1828 (part 1)- 2022 / ISO 7500-1 - 2018 | 100 N to 10.0 kN | 0.58 % |

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|---|---|---|---|---|---|
| 50 | MECHANICAL- WEIGHING SCALE AND BALANCE | Electronic Weighing Balance (Class I & coarser, Readability: 0.001 mg) | Using E1 accuracy class standard weights and procedure as per OIML R-76-1 guidelines | 0 to 21 g | 0.01 mg |
| 51 | MECHANICAL- WEIGHING SCALE AND BALANCE | Electronic Weighing Balance (Class II & coarser, Readability: 100 mg) | Using E2 accuracy class standard weights and procedure as per OIML R-76-1 guidelines | 0 to 50 kg | 86.06 mg |
| 52 | MECHANICAL- WEIGHING SCALE AND BALANCE | Electronic Weighing Balances (Class I & coarser, Readability: 0.01 mg) | Using E1 accuracy class standard weights and procedure as per OIML R-76-1 guidelines. | 0 to 210 g | 0.03 mg |
| 53 | MECHANICAL- WEIGHING SCALE AND BALANCE | Electronic Weighing Balances (Class I & coarser, Readability: 0.1 mg) | Using E1 accuracy class standard weights and procedure as per OIML R-76-1 guidelines. | 40 g to 210 g | 0.09 mg |
| 54 | MECHANICAL- WEIGHING SCALE AND BALANCE | Electronic Weighing Balances (Class I & coarser, Readability: 1 mg) | Using E2 accuracy Class standard Weights and procedure as per OIML R-76-1 guidelines. | 0 to 1 kg | 0.79 mg |
| 55 | MECHANICAL- WEIGHING SCALE AND BALANCE | Electronic Weighing Balances (Class II & coarser, Readability: 10 mg) | Using E2 accuracy Class standard Weights and procedure as per OIML R-76-1 guidelines. | 0 to 10 kg | 12.02 mg |

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| 56 | MECHANICAL- WEIGHING SCALE AND BALANCE | Electronic Weighing Balances (Class IIII, Readability: 10 g) | Using E2 & F2 accuracy Class standard weights and procedure as per OIML R-76-1 guidelines. | 0 to 150 kg | 8.57 g |
| 57 | MECHANICAL- WEIGHING SCALE AND BALANCE | Electronic Weighing Balances (Class IIII, Readability: 100 g) | Using E2, F2 & M1 accuracy Class standard Weights and procedure as per OIML R-76-1 guidelines. | 300 kg to 1000 kg | 78.38 g |
| 58 | MECHANICAL- WEIGHING SCALE AND BALANCE | Electronic Weighing Balances (Class IIII, Readability: 20 g) | Using E2 & F2 accuracy Class standard Weights and procedure as per OIML R-76-1 guidelines. | 150 kg to 300 kg | 15.15 g |
| 59 | THERMAL- SPECIFIC HEAT & HUMIDITY | Humidity chamber, Environmental chamber (Single Position only) | Using Temperature & Humidity meter with sensor by comparison method at 50%RH | 10 °C to 50 °C | 1.26 °C |
| 60 | THERMAL- SPECIFIC HEAT & HUMIDITY | Humidity chamber, Environmental chamber (Single Position only) | Using Temperature & Humidity meter with sensor by comparison method at 25°C | 30 %rh to 70 %rh | 4.36 %rh |
| 61 | THERMAL- TEMPERATURE | Deep Freezer, Incubator, Water bath, Oven, Chamber, Autoclave (Non medical purpose only)- Multiposition calibration | Using RTD Sensor (minimum 9 sensors)with Data logger by comparison method | -80 °C to 250 °C | 2.18 °C |

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|---|---|---|---|---|---|
| 62 | THERMAL-TEMPERATURE | Liquid in Glass Thermometer | Using Liquid bath and SSPRT with multifunction calibrator by comparison method | >50 °C to 250 °C | 0.27 °C |
| 63 | THERMAL-TEMPERATURE | Oven, Chamber, Furnace (Multiposition calibration) | Using N type Thermocouple (minimum 9) with Data logger by comparison method | 250 °C to 1200 °C | 4.03 °C |
| 64 | THERMAL-TEMPERATURE | Temperature Indicator of Autoclave (Non medical purpose only), Chamber, Oven, Water bath, Incubator (Single position calibration) | Using SSPRT with multifunction calibrator by comparison method | 50 °C to 250 °C | 0.20 °C |
| 65 | THERMAL-TEMPERATURE | Temperature Indicator of Deep Freezer, Incubator, Water bath, Oven (Single position calibration) | Using SSPRT with multifunction calibrator by comparison method | (-)80 °C to 50 °C | 0.59 °C |
| 66 | THERMAL-TEMPERATURE | Temperature indicator of Dry block (Single position calibration) | Using S-Type Thermocouple with multifunction calibrator by comparison method | > 150 °C to 1200 °C | 2.14 °C |
| 67 | THERMAL-TEMPERATURE | Temperature indicator with sensor of Liquid bath, Dry block (Single position calibration) | Using SSPRT with multifunction calibrator by comparison method | 50 °C to 250 °C | 0.18 °C |

# SCOPE OF ACCREDITATION

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| **Laboratory Name :** | THE SOUTH INDIA TEXTILE RESEARCH ASSOCIATION (SITRA) CALIBRATION LABORATORY, 13/37, AVINASHI ROAD, AERODROME POST, COIMBATORE, TAMIL NADU, INDIA | | |
| **Accreditation Standard** | ISO/IEC 17025:2017 | | |
| **Certificate Number** | CC-2678 | **Page No** | 44 of 45 |
| **Validity** | 14/12/2024 to 13/12/2028 | **Last Amended on** | 24/12/2024 |

| 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)(±) |
|---|---|---|---|---|---|
| 68 | THERMAL- TEMPERATURE | Temperature Indicator with sensor of Oven, Furnace (Single position calibration) | Using S-Type Thermocouple with multifunction calibrator by comparison method | > 250 °C to 1200 °C | 2.02 °C |
| 69 | THERMAL- TEMPERATURE | Temperature sensor with indicator of Deep freezer/ Liquid bath (Single position calibration) | Using SSPRT with multifunction calibrator by comparison method | (-)60 °C to 50 °C | 0.14 °C |
| 70 | THERMAL- TEMPERATURE | Temperature/ RTD Sensor /Thermocouple with or without indicator/Controller, Thermometer, Temperature gauge, Temperature switches, Temperature Indicator/Controller/ Recorder/Transmitter with sensor | Using Liquid bath, Dry block, SSPRT with multifunction calibrator by comparison method | 50 °C to 400 °C | 0.50 °C |
| 71 | THERMAL- TEMPERATURE | Temperature/ Thermocouple with or without indicator/Controller, Temperature switches, Temperature indicator/Controller/ Recorder/Transmitter with sensor | Using Dry block calibrator, S-Type thermocouple with multifunction calibrator by comparison method | > 400 °C to 1200 °C | 2.18 °C |
| 72 | THERMAL- TEMPERATURE | Temperature/IR thermometer, Non-Contact thermometer & Pyrometer | Using Black body source and Pyrometer by comparison method (Emissivity=0.950) | 50 °C to 500 °C | 3.07 °C |

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|---|---|---|---|---|---|
| 73 | THERMAL-TEMPERATURE | Temperature/IR thermometer,Non-Contact thermometer & Pyrometer | Using Black body source and Pyrometer by comparison method (Emissivity=0.950) | > 500 °C to 1200 °C | 5.07 °C |

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