

Laboratory Acme Enterprises, 28 Saraswati, Ayodhya Nagar, Nagpur, Maharashtra
Accreditation Standard ISO/IEC 17025: 2005
Certificate Number CC-2632 **Page** 1 of 14
Validity 22.06.2018 to 21.06.2020 **Last Amended on** -

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
<u>ELECTRO TECHNICAL CALIBRATION</u>				
I.	SOURCE			
1.	DC Voltage [#]	1 mV to 200 mV 200 mV to 1000 V	4.15 to 0.12 % 0.12 to 0.25 %	Using 5 ½ Digit Multifunction Calibrator by Direct Method
2.	DC Current [#]	1 mA to 20 mA 20 mA to 10 A	0.20 to 0.16 % 0.16 to 0.24 %	Using 5 ½ Digit Multifunction Calibrator with Current Coil by Direct Method
3.	DC High Current [#]	20 A to 1000 A	1.98 to 1.10 %	Using 5 ½ Digit Multifunction Calibrator with current coil By Direct Method
4.	AC Voltage [#]	50 Hz to 60 Hz 100 mV to 20 V 20 V to 1000 V	1.4 to 0.32 % 0.32 to 0.25 %	Using 5 ½ Digit Multifunction Calibrator By Direct Method
5.	AC Current [#]	50 Hz to 60 Hz 0.2 mA to 10 mA 10 mA to 1 A 1 A to 10 A	0.71 to 0.26 % 0.26 to 0.40 % 0.40 to 0.43 %	Using 5 ½ Digit Multifunction Calibrator By Direct Method
6.	DC Resistance [#]	1Ω to 1 kΩ 1 kΩ to 1 MΩ 1 MΩ to 100 MΩ 100 MΩ to 1000 MΩ	1.4 to 0.12 % 0.12 to 0.15 % 0.15 to 1.15 % 1.15 to 2.37 %	Using Decade Resistance Box By Direct Method

Mamta Bharti
Convenor

Avijit Das
Program Director

Laboratory Acme Enterprises, 28 Saraswati, Ayodhya Nagar, Nagpur, Maharashtra

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number CC-2632 **Page** 2 of 14

Validity 22.06.2018 to 21.06.2020 **Last Amended on** -

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
7.	Capacitance [#]	1 kHz 1 nF to 100 nF 100 nF to 100 μ F	1.2 %	Using Decade Capacitance Box By Direct Method
8.	Inductance [#]	1 kHz 100 μ H to 1000 mH	2.93 %	Using Decade Inductance Box By Direct Method
9.	Temperature Simulation [#] (Calibrator, Indicators, Controllers, Scanners, Controllers of bath, Furnace, Oven) J Type K Type B Type R Type S Type	(-)200°C to 750°C (-)200°C to 1200°C 600°C to 1700°C 300°C to 1750°C 300°C to 1750°C	0.60°C 0.60°C 1.30°C 1.31°C 1.31°C	Using Universal Calibrator By Direct Method
II.	MEASURE			
1.	DC Voltage [#]	1 mV to 100 mV 100 mV to 1000 V	0.42 to 0.01 % 0.01 %	Using 6 ½ Digit Multimeter By Direct Method
2.	DC Current [#]	1 mA to 10 A	0.06 to 0.21 %	Using 6 ½ Digit Multimeter By Direct Method
3.	AC Voltage [#]	50 Hz to 1 kHz 2 mV to 100 mV 100 mV to 1000 V	2.42 to 0.12 % 0.12 to 0.10 %	Using 6 ½ Digit Multimeter By Direct Method
4.	AC Current [#]	50 Hz to 1 kHz 100 μ A to 10 mA 10 mA to 1 A 1 A to 10 A	0.38 to 0.24 % 0.24 to 0.18 % 0.18 to 0.40 %	Using 6 ½ Digit Multimeter By Direct Method

Mamta Bharti
Convenor

Avijit Das
Program Director

Laboratory Acme Enterprises, 28 Saraswati, Ayodhya Nagar, Nagpur,
Maharashtra

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number CC-2632

Page 3 of 14

Validity 22.06.2018 to 21.06.2020

Last Amended on -

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
5.	DC Resistance [#]	1 Ω to 1 k Ω 1 k Ω to 100 M Ω	0.7 % 0.7 to 1.1 %	Using 6 ½ Digit Multimeter By Direct Method
6.	Capacitance [#]	1 kHz 10 nF to 100 nF 100 nF to 100 μ F	2.91 to 2.81 % 2.81 to 2.51 %	Using LCR Meter By Direct Method
7.	Inductance [#]	1 kHz 1 mH to 1000 mH	0.44 to 0.39 %	Using LCR Meter by direct Method
8.	Stop Watch [#]	10 s to 1 Hr.	0.8 s to 2.51 s	Using Digital Stop Watch by Comparison Method

Mamta Bharti
Convenor

Avijit Das
Program Director

Laboratory Acme Enterprises, 28 Saraswati, Ayodhya Nagar, Nagpur, Maharashtra

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number CC-2632 **Page** 4 of 14

Validity 22.06.2018 to 21.06.2020 **Last Amended on** -

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
<u>MECHANICAL CALIBRATION</u>				
1.	DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)			
1.	Plain Plug Gauge ^s	Upto 100 mm	3.6 μ m	Using Gauge Block Set / Dial Comparator by Comparison Method as per IS 3455
2.	Vernier Caliper ^s (Dial/Digital/Analog) L.C. 0.01 mm L.C. 0.01 mm L.C. 0.02 mm	0 to 600 mm 0 to 1000 mm 0 to 1500 mm	13.5 μ m 17 μ m 19 μ m	Using Caliper Checker / Long Gauge Block by Comparison Method as per IS 3651
3.	Height Gauge ^s (Dial/Digital/Analog) L.C. 0.01 mm L.C. 0.02 mm	0 to 600 mm 0 to 1000 mm	13.5 μ m 19 μ m	Using Caliper Checker / Long Gauge Block by Comparison Method as per IS 2916
4.	External Micrometer ^s L.C. 0.001 mm L.C. 0.01 mm L.C. 0.01 mm	0 to 100 mm 100 mm to 500 mm 600 mm to 1000 mm	1.1 μ m 7.5 μ m 13 μ m	Using Gauge Block / Long Gauge Block by Comparison Method as per IS 2967
5.	Micrometer Setting ^s Standard	25 mm to 275 mm 275 mm to 975 mm	8 μ m 8.3 μ m	Using Long Gauge Block set / Gauge Block Set/Dial Gauge by Comparison Method as per IS 2967

Mamta Bharti
Convenor

Avijit Das
Program Director

Laboratory Acme Enterprises, 28 Saraswati, Ayodhya Nagar, Nagpur, Maharashtra

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number CC-2632 **Page** 5 of 14

Validity 22.06.2018 to 21.06.2020 **Last Amended on** -

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
6.	Plunger Dial [§] L.C. 0.001 mm	0 to 25 mm	6 μ m	Using Dial Calibration Tester by Comparison Method as per IS 2092
7.	Lever Dial [§] L.C. 0.01 mm L.C. 0.002 mm L.C. 0.001 mm	0 to 0.8 mm 0 to 0.2 mm 0 to 0.14 mm	6 μ m 1.8 μ m 1.8 μ m	Using Dial Calibration Tester by Comparison Method as per IS 11498
8.	Dial Bore Gauge [§] (Transmission Error) L.C. 0.001 mm	Upto 1 mm	2.0 μ m	Using Dial Calibration Tester by Comparison Method
9.	Feeler Gauge [§]	Upto 1 mm	3.5 μ m	Using Digital Micrometer by Comparison Method as per IS 3179
10.	Measuring Scale [§] L.C. 1 mm	0 to 1000 mm	142 μ m	Using Scale & Tape Calibrator by Comparison Method as per IS 1481
11.	Measuring Tape / Pie Tape [§] L.C. 1 mm	0 to 50 Mtr	142 \sqrt{L} μ m L in mm	Using Scale & Tape Calibrator by Comparison Method as per IS 1269

Mamta Bharti
Convenor

Avijit Das
Program Director

Laboratory Acme Enterprises, 28 Saraswati, Ayodhya Nagar, Nagpur, Maharashtra

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number CC-2632 **Page** 6 of 14

Validity 22.06.2018 to 21.06.2020 **Last Amended on** -

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
12.	Bevel Protractor ^{\$} L.C. 5 Min	0 to 90 ^o	6.7 min	Using Angle Gauge Blocks by Comparison Method as per IS4239
13.	Combination Set L.C. 60 Min ^{\$}	0 to 90 ^o	38 min	Using Angle Gauge Blocks by Comparison Method
14.	Internal Micrometer / Stick Micrometer ^{\$} L. C.: 0.01 mm	50 to 63 mm / (Head) 50 to 1000 (Overall Length)	8.4 μ m 10.5 μ m	Using Gauge Block Set / Long Gauge Block/Dial Gauge by Comparison Method as per IS 2984
15.	Coating Thickness Gauge ^{\$} L.C. 0.001 mm	0.015 to 12 mm	4 μ m	Using Master Thickness Foils set by Comparison Method
16.	Extensometer [#] L.C. 0.001 mm L.C. 0.01 mm	0 to 2 mm 0 to 3 mm	2.5 μ m 2.5 μ m	Using Dial Calibration Tester with Micrometer Anvil L.C. 0.2 μ m by Comparison Method
17.	Depth Gauge ^{\$} L.C. 0.01 mm	0 to 300 mm	17.5 μ m	Using Gauge Block Set / Long Gauge Block by Comparison Method
18.	Pistol Caliper ^{\$} L.C. 0.1 mm	0 to 50 mm	71 μ m	Using Gauge Block Set by Comparison Method

Mamta Bharti
Convenor

Avijit Das
Program Director

Laboratory Acme Enterprises, 28 Saraswati, Ayodhya Nagar, Nagpur, Maharashtra

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number CC-2632 **Page** 7 of 14

Validity 22.06.2018 to 21.06.2020 **Last Amended on** -

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
19.	Dial Thickness Gauge [§] L.C. 0.001 mm	0 to 10 mm	7.1 μ m	Using Gauge Block Set by Comparison Method
20.	Ultrasonic Thickness Gauge [§] L.C. 0.1 mm	0 to 100 mm	133 μ m	Using Gauge Block by Comparison Method
21.	Radius Gauge Set [§]	R 0.4 to R 40	13.5 μ m	Using Profile Projector by Comparison Method as per IS 5273
22.	Test Sieves [§]	0.032 mm to 10 mm 10 mm to 125 mm	4.2 μ m 42 μ m	Using Profile Projector & Digital Caliper by Comparison Method as per IS 460
23.	Tape & Scale Calibrator [#] L.C. 0.005 mm	0 to 1000 mm	14.1 μ m	Using Long Gauge Block Set by Comparison Method
II. Dimension (Precision Instruments)				
1.	Profile Projector [#] L.C / 0.001 mm	Linear 0 to 300 mm Magnification 10X to 100 X Anguler 0 to 360°	9.9 μ m 1.5 % 2 Min	Using Glass Scale/Digital Caliper/Angle Gauge Set by Comparison Method as per (JIS B 7184)

Mamta Bharti
Convenor

Avijit Das
Program Director

Laboratory Acme Enterprises, 28 Saraswati, Ayodhya Nagar, Nagpur, Maharashtra

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number CC-2632 **Page** 8 of 14

Validity 22.06.2018 to 21.06.2020 **Last Amended on** -

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
III.	ACCELERATION & SPEED			
1.	RPM Measurement Tachometer (Contact / Non Contact) / Centrifuge [#]	18 rpm to 3000 rpm 3000 rpm to 90000 rpm	16 rpm 86 rpm	Using Digital Tachometer / Rotating Source by Comparison Method
IV.	PRESSURE INDICATING DEVICES			
1.	Vacuum Gauge [#] (Analog/Digital Gauge/Transmitter/ Switches)	(-)0.80 to 0 bar	0.11 Bar	Using Digital Vacuum Gauge & Hand Pump Comparator by Comparison Method as per DKD-R-6-2
2.	Pneumatic Pressure [#] (Analog/Digital Gauge/Transmitter/Switches)	0 to 1 bar 0 to 7 bar	0.11 bar 0.11 bar	Using Digital Pressure Gauge with Pneumatic Comparator by Comparison Method as per DKD-R-6-1
3.	Hydraulic Pressure [#] (Analog/Digital Gauge/Transmitter/ Switches)	0 to 70 bar 0 to 700 bar	0.67 bar 1.33 bar	Using Digital Pressure Gauge with Hydraulic Comparator by Comparison Method as per DKD-R-6-1
V.	WEIGHTS			
1.	Calibration of F2 Class & coarser [§]	1 mg 2 mg 5 mg 10 mg 20 mg	0.02 mg 0.02 mg 0.02 mg 0.02 mg 0.02 mg	Using standard weights of E2 class and balance of Readability: 0.01 mg & 0.1 mg by substitution Method through ABBA

Mamta Bharti
Convenor

Avijit Das
Program Director

Laboratory Acme Enterprises, 28 Saraswati, Ayodhya Nagar, Nagpur, Maharashtra

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number CC-2632

Page 9 of 14

Validity 22.06.2018 to 21.06.2020

Last Amended on -

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
		50 mg 100 mg 200 mg 500 mg	0.03 mg 0.03 mg 0.03 mg 0.03 mg	cycles
	Calibration of F1 Class & coarser ^s	1 g 2 g 5 g 10 g 20 g 50 g 100 g 200 g	0.03 mg 0.03 mg 0.06 mg 0.06 mg 0.06 mg 0.08 mg 0.2 mg 0.2 mg	Using standard weights of E2 class and balance of Readability: 0.01 mg & 0.1 mg by substitution Method through ABBA cycles
	Calibration of F2 Class & coarser ^s	500 g 1 kg 2 kg 5 kg	3 mg 3 mg 10 mg 20 mg	Using F1 class standard weights and balance of readability: 0.1mg/ 1 mg by substitution Method through ABBA cycles
	Calibration of M1 Class & coarser ^s	10 kg 20 kg	0.1 g 0.2 g	Using F1 class standard weights and balance of readability: 10 mg/ 0.1 g by substitution Method through ABBA cycles

Mamta Bharti
Convenor

Avijit Das
Program Director

Laboratory Acme Enterprises, 28 Saraswati, Ayodhya Nagar, Nagpur, Maharashtra

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number CC-2632 **Page** 10 of 14

Validity 22.06.2018 to 21.06.2020 **Last Amended on** -

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
VI.	WEIGHING SCALE AND BALANCE			
	Electronic Weighing Balance class 1 and coarser [#] d \geq 0.01 mg d \geq 0.1 mg	1 mg to 60 g 10 mg to 200 g	0.00059 g 0.0006 g	Using E2 class standard weights 1 mg to 200 g as per OIML R-76
	Electronic Weighing Balance class 2 and coarser [#] d \geq 1 mg d \geq 10 mg d \geq 0.1 g d \geq 5 g	50 mg to 1 kg 0.5 g to 6 kg 20 g to 20 kg 100 g to 50 kg	0.008 g 0.05 g 0.8 g 3.4 g	Using F1 class standard weights upto 50 kg as per OIML R-76
VII.	VOLUME			
1.	Micro Pipettes ^{\$}	50 μ l \leq V \leq 1000 μ l	2.2 μ l	Using weighing balance of d:0.01 mg & 0.1 mg & distilled water ,based on Gravimetric method as per ISO 8655-6
2.	Volume Glassware ^{\$} (Pipettes, Volumetric Flask, Measuring Cylinder, Test Tubes, Burettes, Conical Flask, Dispensette)	1 ml < V \leq 100 ml 100 ml < V \leq 1000 ml 1000 ml < V \leq 5000 ml	0.02 ml 0.06 ml 0.62 ml	Using weighing balance of d: 0.1 mg, 1mg, 10 mg & distilled water , based on Gravimetric method as per ISO 4787

Mamta Bharti
Convenor

Avijit Das
Program Director

Laboratory Acme Enterprises, 28 Saraswati, Ayodhya Nagar, Nagpur, Maharashtra

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number CC-2632 **Page** 11 of 14

Validity 22.06.2018 to 21.06.2020 **Last Amended on** -

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
VIII.	UTM, Tension Creep and Torsion Testing Machine			
1.	Tensile / Universal / Uniaxial / Spring Testing Machine* (Class – 1)	50 N to 2000 N 2 kN to 50 kN	0.89 % 0.70%	Using Load cell & Proving Ring of Class 1 As per IS 1828 Part 1 2015
2.	Universal Testing Machine CTM / UTM Uniaxial / Spring / Flexural Testing Machine* (Class – 1)	10 kN to 1000 kN	0.70%	Using Load cell & Proving Ring of Class 1 As per IS 1828 Part 1 2015
3.	Compression Testing Machine / CTM* (Class-1) (Only Compression)	1000 kN to 3000 kN	0.83%	Using Proving Ring of Class 1 As per IS 1828 Part 1 2015
IX.	HARDNESS TESTING MACHINES			
1.	Rockwell Hardness Testing Machine*	HRB HRC	1 HRB 1 HRC	Using Hardness Block by indirect Method as per IS 1586 (Part 2) 2012
X.	IMPACT TESTING MACHINE			
1.	Impact Testing Machine (Charpy)	300 J	2.90 J	Using Charpy Gauges, Load cell, Clinometer, Vernier caliper etc by direct method as per IS 148-2 2016

Mamta Bharti
Convenor

Avijit Das
Program Director

Laboratory Acme Enterprises, 28 Saraswati, Ayodhya Nagar, Nagpur, Maharashtra

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number CC-2632 **Page** 12 of 14

Validity 22.06.2018 to 21.06.2020 **Last Amended on** -

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
<u>THERMAL CALIBRATION</u>				
I.	TEMPERATURE			
1.	RTDs & Thermocouple with & without Indicators / Dial Thermometer [§]	(-)40°C to 25°C	0.31°C	Using Refrigerated Temp Bath with master SSPRT sensor & 6 ½ Digit Multimeter by Comparison Method
2.	RTDs & Thermocouple with & without Indicators / Dial Thermometer [§]	25°C to 250°C	0.32°C	Using Temp Oil & Bath with master SSPRT sensor & 6 ½ Digit Multimeter by Comparison Method
3.	RTDs & Thermocouple with & without Indicators / Dial Thermometer [§]	>250°C to 600°C	0.64°C	Using Dry Bath with master SSPRT sensor & 6 ½ Digit Multimeter by Comparison Method
4.	Thermocouple with & without Indicators / Dial Thermometer [§]	600°C to 1200°	2.02°C	Using Dry Bath with master S Type sensor & 6 ½ Digit Multimeter by Comparison Method
5.	Glass, Dial & Digital Thermometer & Temperature Gauge [§]	(-)10°C to 25°C 25°C to 250°C	0.43°C 0.66°C	Using Refrigerated Temp Bath, with master SSPRT sensor & 6 ½ Digit Multimeter by Comparison Method

Mamta Bharti
Convenor

Avijit Das
Program Director

Laboratory Acme Enterprises, 28 Saraswati, Ayodhya Nagar, Nagpur, Maharashtra

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number CC-2632 **Page** 13 of 14

Validity 22.06.2018 to 21.06.2020 **Last Amended on** -

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
6.	RTDs & Thermocouple with & without Indicators / Dial Thermometer*	40 ⁰ C to 250 ⁰ C	0.32 ⁰ C	Using Oil & Bath with master SSPRT sensor & universal calibrator
7.	RTDs & Thermocouple with & without Indicators / Dial Thermometer*	250 ⁰ C to 600 ⁰ C	0.64 ⁰ C	Using Dry Bath with master SSPRT sensor & Universal calibrator by Comparison Method
8.	RTDs & Thermocouple with & without Indicators / Dial Thermometer*	600 ⁰ C to 1200 ⁰	2.02 ⁰ C	Using Dry Bath with master S Type sensor & Universal calibrator by Comparison Method
9.	Temperature Indicator /Controller of Bath,Deep Freezer,Incubator*	(-)40 ⁰ C to 50 ⁰ C	0.31 ⁰ C	Using master sensor SSPRT & Universal Calibrator by Comparison Method
10.	Temperature Indicator /Controller of Oven,Furnace,Muffle Furnace*	250 ⁰ C to 600 ⁰ C 600 ⁰ C to 1200 ⁰	0.64 ⁰ C 2.20 ⁰ C	Using master sensor S type & Universal Calibrator by Comparison Method
11.	Dial & Digital Thermometer & Temperature Gauge*	40 ⁰ C to 600 ⁰ C	0.64 ⁰ C	Using Oil and Dry Bath with master SSPRT & Universal Calibrator by Comparison Method

Mamta Bharti
Convenor

Avijit Das
Program Director

Laboratory Acme Enterprises, 28 Saraswati, Ayodhya Nagar, Nagpur, Maharashtra

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number CC-2632 **Page** 14 of 14

Validity 22.06.2018 to 21.06.2020 **Last Amended on** -

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
II.	SPECIFIC HEAT AND HUMIDITY			
1.	Humidity / Temperature Indicator, Hygrometer [#]	40% to 95% @25°C 20°C to 60°C @ 50% RH	2.10% RH 0.54°C	Using RH-Temperature Indicator with chamber by Comparison Method

* Measurement Capability is expressed as an uncertainty (\pm) at a confidence probability of 95%

\$ Only in Permanent Laboratory

* Only for Site Calibration

The laboratory is also capable for site calibration however, the uncertainty at site depends on the prevailing actual environmental conditions and master equipment used.

Mamta Bharti
Convenor

Avijit Das
Program Director