

Laboratory Perfect Utilities, C/003 Elenza Crest, Shindhu Bhavan Road, Off S. G. Highway, Ahmedabad, Gujarat
Accreditation Standard ISO/IEC 17025: 2005
Certificate Number CC-2768 (in lieu of C-0629, C-0630 & C-0631) **Page** 1 of 7
Validity 19.08.2018 to 18.08.2020 **Last Amended on** -

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
<u>ELECTRO-TECHNICAL CALIBRATION</u>				
I.	MEASURE			
1.	Digital Timer/ Stop Watch/ Digital Clock [#]	5 s to 24 hrs.	0.8 s to 4.37 s	Using Standard Stop Watch/ Digital Time Interval Meter by Comparison Method
II.	SOURCE			
1.	Temperature Simulation [#]			
	RTD Thermocouple	(-) 200 °C to 850 °C	0.56 °C	Using Universal Calibrator by Comparison Method
	B Type	450 °C to 1750 °C	0.89 °C	
	E Type	(-) 100 °C to 1000 °C	0.74 °C	
	J Type	0 to 760 °C	0.60 °C	
	K Type	0 to 1370 °C	0.64 °C	
	R Type	200 °C to 1750 °C	0.89 °C	
	S Type	0 to 1750 °C	0.91 °C	
	T Type	(-) 160 °C to 400 °C	0.54 °C	

Sangeeta Kunwar
 Convenor

Avijit Das
 Program Manager

Laboratory Perfect Utilities, C/003 Elenza Crest, Shindhu Bhavan Road, Off S. G. Highway, Ahmedabad, Gujarat

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number CC-2768 (in lieu of C-0629, C-0630 & C-0631) **Page** 2 of 7

Validity 19.08.2018 to 18.08.2020 **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.	Caliper ^s (Vernier/Dial/ Electronics) L.C.: 0.01 mm L.C.: 0.02 mm	0 to 300 mm 0 to 600 mm	12.0 μ m 18.2 μ m	Using Slip Gauge Set Grade "0" And Length Bars By Comparison Method
2.	External Micrometer ^s L.C.: 0.001 mm L.C.: 0.01 mm	0 to 25 mm Upto 150 mm	1.40 μ m 6.40 μ m	Using Slip Gauge Set Grade "0" By Comparison Method
3.	Depth Gauge ^s L.C.: 0.02 mm	0 to 300 mm	17.90 μ m	Using Slip Gauge Set Grade "0" By Comparison Method
4.	Height Gauge ^s L.C.: 0.01 mm L.C.: 0.02 mm	0 to 300 mm 0 to 600 mm	13.00 μ m 17.70 μ m	Using Slip Gauge Set Grade "0" By Comparison Method
5.	Dial Indicator Plunger Type ^s L.C.: 0.001 mm	0 to 25 mm	1.40 μ m	Using Slip Gauge Set Grade "0" And Granite Base Comparator By Comparison Method
6.	Thickness Gauge ^s L.C.: 0.01 mm	0 to 25 mm	7.80 μ m	Using Slip Gauge Set Grade "0" By Comparison Method
7.	Feeler Gauge ^s	0 to 1 mm	5.00 μ m	Using External Micrometer By Comparison Method

Sangeeta Kunwar
Convenor

Avijit Das
Program Manager

Laboratory Perfect Utilities, C/003 Elenza Crest, Shindhu Bhavan Road, Off S. G. Highway, Ahmedabad, Gujarat

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number CC-2768 (in lieu of C-0629, C-0630 & C-0631) **Page** 3 of 7

Validity 19.08.2018 to 18.08.2020 **Last Amended on** -

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
8.	Plain Plug Gauge ^s	0 to 150 mm	5.04 μ m	Using Slip Gauge Set, Dial Indicator & Comparator Stand By Comparison Method
9.	Mic Setting Rods ^s	Up to 125 mm	5.04 μ m	Using Slip Gauge Set, Dial Indicator & Comparator Stand By Comparison Method
II.	ACCELERATION AND SPEED			
1.	RPM of Centrifuge / RPM of Rotary Shaker/ Tachometer / Homogenizer*	12 rpm to 15000 rpm	0.07% rdg	Using Digital Tachometer By Comparison Method
III.	MASS			
1.	Weights ^s (F2 Class & Coarser)	1 mg 2 mg 5 mg 10 mg 20 mg 50 mg 100 mg 200 mg 500 mg 1 g 2 g 5 g 10 g 20 g 50 g 100 g 200 g	0.03 mg 0.03 mg 0.03 mg 0.03 mg 0.03 mg 0.03 mg 0.03 mg 0.03 mg 0.03 mg 0.03 mg 0.04 mg 0.04 mg 0.12 mg 0.12 mg 0.12 mg 0.34 mg 0.34 mg	Using E2 Class Standard Weight & Weighing Balance (Readability: 0.01 mg) as per OIML R-111

Sangeeta Kunwar
Convenor

Avijit Das
Program Manager

Laboratory Perfect Utilities, C/003 Elenza Crest, Shindhu Bhavan Road, Off S. G. Highway, Ahmedabad, Gujarat

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number CC-2768 (in lieu of C-0629, C-0630 & C-0631) **Page** 4 of 7

Validity 19.08.2018 to 18.08.2020 **Last Amended on** -

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
IV.	WEIGHING SCALE AND BALANCE			
1.	Electronic Weighing Balance *	Up to 60 g Up to 220 g	0.1 mg 0.26 mg	Using E2 Class Standard Weights (Readability : 0.01 mg) (Readability : 0.1 mg) & Calibration of Electronic Weighing Balance of Class I And Coarser as per OIML R-76-1
		Up to 10 kg	0.6 g	Using E2 Class & M1 Standard Weights (Readability : 1 g) & Calibration of Electronic Weighing Balance of Class III And Coarser as per OIML R-76-1
V.	VOLUME			
1.	Micro Pipettes ^s	10 μ l to 100 μ l @ 27 °C	0.31 μ l	Using Weighing Balance (Readability : 0.01 mg) Gravimetric Method based on ISO 8655 Part 6
		100 μ l to 1000 μ l @ 27 °C	1.40 μ l	
		1000 μ l to 5000 μ l @27 °C	0.58 ml	
VI.	PRESSURE INDICATING DEVICES			
1.	Pressure (Hydraulic) Analogue / Digital Pressure Indicator / Recorder/ Transmitter/ Pressure Indicator of Switch #	0 to 350 bar	0.20 bar	Using Digital Pressure Gauge, Universal Calibrator & Pressure Comparator by Comparison Method as per DKD R6-1

Sangeeta Kunwar
Convenor

Avijit Das
Program Manager

Laboratory Perfect Utilities, C/003 Elenza Crest, Shindhu Bhavan Road, Off S. G. Highway, Ahmedabad, Gujarat

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number CC-2768 (in lieu of C-0629, C-0630 & C-0631) **Page** 5 of 7

Validity 19.08.2018 to 18.08.2020 **Last Amended on** -

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
2.	Vaccum Indicator/ Recorder / Transmitter / Switch Indicator [#]	(-) 0.9 bar to 0 bar	0.06 bar	Using Digital Pressure Gauge, Universal Calibrator & Pressure Comparator by Comparison Method
3.	Pneumatic Magnehelic Gauge/ Manometer [#]	0 to 98.06 mbar	0.15 mbar	Using Digital Pressure Gauge, & Pressure Comparator by Comparison Method

Laboratory Perfect Utilities, C/003 Elenza Crest, Shindhu Bhavan Road, Off S. G. Highway, Ahmedabad, Gujarat

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number CC-2768 (in lieu of C-0629, C-0630 & C-0631) **Page** 6 of 7

Validity 19.08.2018 to 18.08.2020 **Last Amended on** -

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
<u>THERMAL CALIBRATION</u>				
I.	TEMPERATURE			
1.	Temperature Sensor with or Without Indicator/ Data Logger/ Scanners/ Transmitters/ Thermometer ^{\$}	(-) 80 °C to 25 °C	0.29 °C	Using Standard PRT with Indicator/ Universal Calibrator and Ultra Low Temp. Bath
2.	Temperature Sensor with or Without Indicator/ Data Logger/ Scanners/ Transmitters/ Thermometer [#]	(-) 25 °C to 140 °C 140 °C to 400 °C	0.26 °C 0.49 °C	Using Standard PRT with Indicator/ Universal Calibrator and Dry Block Calibrator
3.	Temperature Indicator with / without Sensor/ Temperature Data Logger / Scanners/ Transmitter [#]	400 °C to 600 °C	1.97 °C	Using S-Type Thermocouple / Universal Calibrator and Dry Block Calibrator
4.	Temperature Indicator of Oven, Freezers, Chambers, Deep Freezer, Water Bath, Incubator, HPLC, Refrigerator [*]	(-) 80 °C to 400 °C	0.49 °C	Using Standard PRT with Indicator Single Sensor Calibration

Sangeeta Kunwar
Convenor

Avijit Das
Program Manager

Laboratory Perfect Utilities, C/003 Elenza Crest, Shindhu Bhavan Road, Off S. G. Highway, Ahmedabad, Gujarat

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number CC-2768 (in lieu of C-0629, C-0630 & C-0631) **Page** 7 of 7

Validity 19.08.2018 to 18.08.2020 **Last Amended on** -

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
5.	Temperature Indicator with Sensor of Muffle Furnace*	200 °C to 1200 °C	2.66 °C	Using Standard Thermocouple with Single Sensor Calibration
6.	Deep Freezer, Refrigerator, Oven Chamber, Water Bath*	(-) 80 °C to 250 °C	4.07 °C	Using Multipoint Temperature Data Logger
7.	Thermo Hygrometer and Temperature Indicator with Inbuilt Sensor [§]	0 to 50 °C	1.30 °C	Using Standard PRT with Indicator & Low Temperature Chamber
II.	SPECIFIC HEAT & HUMIDITY			
1.	Thermo Hygrometer / RH Indicators / RH Sensors/ Transmitters [§]	22% , 32%, 45%, 55%, 65%, 75%, 85%, 95% @ 25 °C	1.73 % RH @ 25 °C	Using Standard Thermo Hygrometer and Saturated Salts
2.	Humidity Thermohygrometer / RH Indicators / RH Sensors/Transmitter [#]	20% to 95% RH @ 25 °C	1.74 % RH @ 25°C	Using Standard Thermo Hygrometer and Humidity Calibrator
3.	Humidity Chambers, Stability Chamber*	15% to 95% RH	4.49 % RH @ 23 °C	Using Multipoint Thermo Hygro Data Logger

* 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.

Sangeeta Kunwar
Convenor

Avijit Das
Program Manager