Laboratory	**QA Tech (A Division of GMP Technical Solutions Pvt. Ltd.), L-134, Phase-IIIB, Verna Industrial Estate, Verna Salcette, Goa**
Accreditation Standard	**ISO/IEC 17025: 2005**
Certificate Number	**CC-2357** **Page 1 of 8**
Validity	**29.03.2019 to 17.08.2019** **Last Amended on -**

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
	ELECTRO-TECHNICAL CALIBRATION			
I.	**SOURCE**			
1.	DC Voltage[$]	10 mV to 100 mV 100 mV to 100 V	0.07% to 0.01% 0.01%	Using WIKA CED 7000 by Director Method
2.	DC Current[$]	4 mA to 100mA	0.05% to 0.01%	Using WIKA CED 7000 by Director Method
3.	DC Current[♣]	4 mA to 20 mA 20 mA to 10 mA	0.85% 0.8 % to 0.6 %	Using WIKA CEP 6000 by Direct Method Using ZEAL MFC by Direct Method
4.	Resistance[$]	5 Ω to 400 Ω 400 Ω to 4kΩ 4 kΩ to 90 MΩ	0.4% to 0.005% 0.005% to 0.01% 0.15% to 1.3%	Using WIKA CED 7000 by Director Method Using Zeal Decade Box by Direct Method
5.	Frequency[$]	10 Hz to 10 kHz	0.15% to 0.3%	Using WIKA CEP 6000 by Direct Method
	Temperature Simulation[#] (Indicator, Controller, Recorder)			
	RTP - PT 100 Thermocouple Type E Type J Type K Type N Type R	(-) 200 °C to 800°C (-) 250 °C to 1000°C (-) 210 °C to 1200°C (-) 200 °C to 1372°C (-) 200 °C to 1300°C 0 to 1750°C	0.089°C 0.6°C 0.35°C 0.5°C 0.5°C 1.0°C	Using WIKA CED 7000 by Direct Method

Mohit Kaushik
Convenor

Alok Jain
Program Manager

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
	Type S Type T Type B	0 to 1750°C (-) 250 °C to 400°C 600 °C to 1820°C	1.0°C 0.75°C 0.9°C	
7.	Stopwatch #	15 sec to 1 hrs. 1 hrs to 24 hrs	0.8 sec 0.8 sec	Using ROBIC / SC-505
II.	**MEASURE**			
1.	DC Voltage$	20 mV to 100 mV 100 mV to 10V 10 V to 100 V 100 V to 1000 V	0.05% to 0.008% 0.008% 0.008% 0.008%	Using 6.5 DMM Fluke 8846A by Direct Method Using 6.5 DMM Fluke 8846A by Direct/ Comparison Method
2.	AC Voltage$	**50 Hz** 20 mV to 100 mV 100 mV to 1000 V	0.84% to 0.1% 0.1%	Using 6.5 DMM Fluke 8846A by Direct/ Comparison Method
3.	AC Current $	**50 Hz** 20 mA to 100 mA 100 mA to 10 A	0.3% to 0.13% 0.13% to 0.3%	Using 6.5 DMM Fluke 8846A by Direct/ Comparison Method
4.	DC Current$	4 mA to 100 mA 100 mA to 10 A	0.85% to 0.08% 0.08% to 0.2%	Using 6.5 DMM Fluke 8846A by Direct Method Using 6.5 DMM Fluke 8846A by Direct/ Comparison Method
		5 Ω to 400 Ω 400 Ω to 4 kΩ	0.1% to 0.004% 0.004% to 0.012%	Using WIKA CED 7000 by Direct Method
		4 kΩ to 1 MΩ 1 MΩ to 100 MΩ	0.012% to 0.12% 0.12% to 0.95%	Using 6.5 DMM Fluke 8846A by Direct Method

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
6.	Frequency[$]	10 Hz to 10 kHz	0.6%	Using 6.5 DMM Fluke 8846A by Direct Method
	Temperature Simulation[$]			
	RTP PT-100	(-) 200 °C to 800°C	0.09°C	Using WIKA CED 7000 by Direct Method
	Thermocouple			
	Type E	(-)250 °C to 1000°C	0.6°C	
	Type J	(-)210 °C to 1200°C	0.35°C	
	Type K	(-)200 °C to 1372°C	0.5°C	
	Type N	(-)200 °C to 1300	0.5°C	
	Type R	0 to 1750°C	0.9°C	
	Type S	0 to 1750°C	0.9°C	
	Type T	(-)250 °C to 400°C	0.8°C	
	Type B	600 °C to 1820°C	0.8°C	
8.	Stopwatch [#]	15 sec to 1 hrs. 1 hrs to 24 hrs	0.8 sec 0.8 sec	Using ROBIC / SC-505

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
	MECHANICAL CALIBRATION			
I.	**DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)**			
1.	External Micrometer[$] L.C.: 0.001mm L.C.: 0.01mm	 0 to 100 mm 0 to 200 mm	 2 µm 6.1 µm	Using Micrometer Check Set, Slip Gauge Set
2.	Caliper[$] (Vernier/Dial/ Digital) L.C.: 0.01 mm L.C.: 0.02 mm	 0 to 600 mm 0 to 1000 mm	 13.5 µm 22 µm	 Using Caliper Checker, Slip Gauge set Using Caliper Checker, Slip Gauge set, Master Setting Rod
3.	Plain Plug Gauge[$]	3 mm to 190 mm	5.5 µm	Using Comparator Stand with Electronic Probe & Slip Gauge Set
4.	Snap Gauge[$]	3 mm to 100 mm	3.2 µm	Using Slip Gauge Set
5.	Height Gauge[$] (Vernier, Dial, Digital) L.C.: 0.01mm	 0 to 600 mm	 13 µm	 Using Caliper Checker, Surface plate
6.	Plunger Type Dial Gauge[$] L.C.: 0.001mm L.C.: 0.01mm	 0 to 1 mm 0 to 25 mm	 3.1 µm 4.7 µm	 Using Electronic Dial Calibration Tester

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
7.	Dial Gauge[$] (Lever) L.C.: 0.001mm L.C.: 0.01mm	 0 to 0.14 mm 0 to 1.5 mm	 3.1 µm 4.7 µm	Using Electronic Dial Calibration Tester
8.	Feeler Gauge[$]	Upto 1 mm	3.1 µm	Using Digital Micrometer
9.	Thread Plug Gauge[$] (Major & Effective Diameter)	M 2 mm to M 100 mm	4 µm	Using FCDM with Electronic Probe with DRO, Three Wire Set
10.	Taper Thread Plug Gauge[$]	M 2 mm to M 100 mm	5.9 µm	Using FCDM with Electronic Probe with DRO, Three Wire Set
11.	Depth Gauge [$] (Vernier, Dial, Digital) L.C.: 0.02mm	0 to 300 mm	15.2 µm	Using Depth Micro Checker
12.	Depth Micrometer[$] L.C.: 0.10 µm	0 to 300 mm	10 µm	Using Depth Micro Checker with Gauge Block
13.	Bore Gauge[$] (Transmission Error) L.C.: 0.001 mm	0 to 1 mm	7.2 µm	Using Electronic Dial Calibration Tester
14.	Micrometer Setting Rod[$]	Up to 175 mm	5.5 µm	Using Comparator Stand with Electronic Probe & Slip Gauge Set
II.	**ACCELERATION AND SPEED**			
1.	Digital Tachometer, Centrifuge [#] (Non Contact Mode)	100 rpm to 10000 rpm	16 rpm	Using Digital Tachometer by Comparison Method

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
III.	**PRESSURE INDICATING DEVICES**			
1.	Vacuum-Dial Gauges, Digital Gauges, Transmitters[$]	(-) 0.9 bar to 0 bar	0.0008 bar	Using Process Calibrator CPH 6000 by Comparison Method based on DKD-R-6-1
2.	Pressure Hydraulic-Dial Gauges, Digital Gauges, Transmitters[$]	0 to 20 bar 20 bar to 100 bar 100 bar to 600 bar	0.005 bar 0.025 bar 0.14 bar	Using Process Calibrator CPH 6000 With Pressure Pump by Comparison Method based on DKD-R-6-1
3.	Low Pressure Pneumatic Dial Gauges, Digital Gauges, Transmitters[$]	0 to 100 mbar	0.1 mbar	Using Low Pressure Controller CPC 2000 by Comparison Method based on DKD-R-6-1
4.	Vacuum-Dial Gauges, Digital Gauges, Transmitters[♣]	(-) 0.8 bar to 0 bar	0.01 bar	Using Digital Pressure Gauge DPI 104 by Comparison Method based on DKD-R-6-1
5.	Pressure Hydraulic-Dial Gauges, Digital Gauges, Transmitters[♣]	0 to 20 bar 20 bar to 70 bar 70 bar to 350 bar 350 bar to 600 bar	0.05 bar 0.12 bar 0.13 bar 0.32 bar	Using Digital Pressure Gauge DPI 104 with Pressure Pump by Comparison Method based on DKD-R-6-1
6.	Low Pressure Pneumatic Dial Gauges, Digital Gauges, Transmitters[♣]	0 to 70 mbar	0.05 mbar	Using Low Pressure Indicator Huber With Low Pressure Pump by Comparison Method based on DKD-R-6-1

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
	THERMAL CALIBRATION			
I.	**TEMPERATURE**			
1.	Temperature Indicator With Sensor, RTD Sensor, Temp Transmitters, Dial Temperature Gauge[#]	(-) 30°C to 650°C	0.54°C	Using SPRT & PRT probe With Indicator, MFC Liquid Bath, Dry Well Bath by Comparison Method
2.	Glass Thermometer[$]	0 to 150°C	0.18°C	Using SPRT & PRT probe With Indicator, Liquid Bath by Comparison Method
3.	Dry Block Calibrator[$]	(-) 30 °C to 650°C	0.56°C	Using SPRT & PRT probe With Indicator by Comparison Method (Single Point Calibration)
4.	Thermocouple[#]	(-) 30 °C to 650°C	0.75°C	Using SPRT & PRT probe With Indicator, MFC Liquid Bath, Dry Well Bath by Comparison Method
5.	Temperature Indicator of Oven, Incubators, Autoclave, Water Bath, Deep Freezers[♣]	(-) 30 °C to 350°C	0.2°C	Using PRT With Indicator by Comparison Method

Laboratory	**QA Tech (A Division of GMP Technical Solutions Pvt. Ltd.), L-134, Phase-IIIB, Verna Industrial Estate, Verna Salcette, Goa**		
Accreditation Standard	**ISO/IEC 17025: 2005**		
Certificate Number	**CC-2357**	**Page**	**8 of 8**
Validity	**29.03.2019 to 17.08.2019**	**Last Amended on**	**-**

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
II.	**SPECIFIC HEAT & HUMIDITY**			
1.	Digital Humidity & Temperature Indicator With Sensor, Humidity Chamber, Temperature & RH Transmitter#	5 °C to 50°C @50 % RH 15 %RH to 90 % RH @25°C	0.33°C 1 %RH	Using SPRT & PRT probe With Indicator, Thermo Hygrometer, RH Generator by Comparison Method

*** Measurement Capability is expressed as an uncertainty (±) 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.

Mohit Kaushik
Convenor

Alok Jain
Program Manager