Accreditation Standard	ISO/IEC 17025: 2005		
Certificate Number	CC-2597	Page	1 of 20
Validity	05.03.2018 to 04.03.2020	Last Amended on	13.04.2018

SI.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks			
	ELECTRO-TECHNICAL CALIBRATION						
Ι.	MEASURE						
1.	DC Voltage [#]	1 mV to 10 mV 10 mV to 100 mV 100 mV to 1000 V	0.5 % to 0.05% 0.05 % to 0.01% 0.01 % to 0.15%	Using Fluke 8846A, 6 ½ DMM By Direct Method			
2.	AC Voltage [#]	50Hz 10 mV to 100mV 100 mV to 1000V	1.0 % to 0.1% 0.1 %	Using Fluke 8846A, 6 ½ DMM By Direct Method			
3.	DC Current [#]	20 µA to 100 mA 100 mA to 10 A	0.27 % 0.27 % to 0.8%	Using Fluke 8846A, 6 ½ DMM By Direct Method			
4.	AC Current [#]	50Hz 10 μA to 100 mA 100 mA to 10 A	0.25 % 0.25 % to 1.0 %	Using Fluke 8846A, 6 ½ DMM By Direct Method			
5.	Frequency [#]	45 Hz to 1000 Hz	0.15 % to 0.29 %	Using Fluke 8846A, 6 ½ DMM By Direct Method			
6.	Capacitance [#]	1kHz 1 nF to 100 nF 100 nF to 1000 μF	1.35 % to 0.8 % 0.8 %	Using LCR Meter Aplab 4910 By Direct Method			
7.	Inductance [#]	1kHz 1 mH to 500 mH 500 mH to 10 H	1.2 % 1.2 %	Using LCR Meter Aplab 4910 By Direct Method			

Accreditation Standard	ISO/IEC 17025: 2005		
Certificate Number	CC-2597	Page	2 of 20
Validity	05.03.2018 to 04.03.2020	Last Amended on	13.04.2018

SI.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
8.	DC Resistance [#] (2Wire)	1 Ω to 10 Ω 10 Ω to 100 Ω 100 Ω to 100 ΜΩ 100 ΜΩ to 1GΩ	1.0 % to 0.5% 0.5 % to 0.1% 0.1 % to 0.5% 0.5 % to 2.33%	Using Fluke 8846A 6 ½ DMM By Direct Method
9.	DC Resistance [#] (4Wire)	0.1 mΩ to 1.0 Ω	0.6 %	Using Dig. Micro ohm meter Prestige By Direct Method
10.	Stop Watch/ Timer/ Hour Meter [#] (Mechanical/ Digital)	10 s to 600 s 600 s to 24 hrs	0.5 s 2 s	Using Digital Time Calibrator Make: Glaxo By Direct Method
11.	AC Power / Energy [#] 1ø & 3ø Cosø ±0.10 to 1	40 Hz to 60 Hz 40 V to 640 V 1 A to 150 A 40 W to 18 kW	0.65 %	Using 3ø Energy Logger By Direct Method
12.	DC High Voltage*	1.0 kV to 30kV	2.8%	Using HV Probe with DMM By Direct Method
13.	AC High Voltage*	1.0 kV to 30 kV 30 kV to 100 kV	1.9 % to 2.7 % 2.7 % to 3.6 %	Using HV Probe/Divider with DMM By Direct Method
14.	DC Current [*]	0 to 750 A	1.2 %	Using Fluke 8846A 6 ½ DMM With Std Shunt by Direct Method
15.	AC Current [◆]	50Hz 0 to1500 A	1.8 %	Using Fluke 8846A 6 ½ DMM With Std Shunt By Direct Method

Accreditation Standard	ISO/IEC 17025: 2005		
Certificate Number	CC-2597	Page	3 of 20
Validity	05.03.2018 to 04.03.2020	Last Amended on	13.04.2018

SI.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
II	SOURCE			
1.	DC Voltage [#]	1 mV to 10 mV 10 mV to 330 mV 330 mV to 1000 V	0.6 % to 0.04 % 0.04 % to 0.014 % 0.014 % to 0.01 %	Using Fluke Multi-product Calibrator 5502A By Direct Method
2.	AC Voltage [#]	50Hz 3 mV to 10 mV 10 mV to 100 mV 100 mV to 1000 V	0.90 % to 0.35 % 0.35 % to 0.06 % 0.06 %	Using Fluke Multi-product Calibrator 5502A By Direct Method
3.	DC Current [#]	20 μA to 190 μA 190 μA to 1.0 A 1 A to 10 A	0.3 % to 0.04 % 0.04 % 0.04 % to 0.1 %	Using Fluke Multi-product Calibrator 5502A By Direct Method
	DC Current ^{\$}	10 A to 1000 A	0.19% to 0.26%	Using Fluke Multi-product Calibrator 5502A With Current Coil By Direct Method
4.	AC Current [#]	50Hz 33 μA to 1 mA 1 mA to 10 A	0.55 % to 0.15 % 0.15 % to 0.1 %	Using Fluke Multi-product Calibrator 5502A By Direct Method
		10A to 1000A	0.37% to 0.13%	Using Fluke Multi-product Calibrator 5502A with Current Coil By Direct Method
5.	Frequency [#]	10 Hz to 45 Hz 45 Hz to 1000 Hz 1 kHz to 1000 kHz 1000 kHz to 2 MHz	0.12 % 0.08 % 0.08 % to 0.27 % 0.3 %	Using Fluke Multi-product Calibrator 5502A By Direct Method

Accreditation Standard	ISO/IEC 17025: 2005		
Certificate Number	CC-2597	Page	4 of 20
Validity	05.03.2018 to 04.03.2020	Last Amended on	13.04.2018

SI.	Quantity Measured /	Range/Frequency	*Calibration Measurement	Remarks
	Instrument		Capability (±)	
6.	Capacitance [#]	1kHz 100 pF to 100 μF 100 μF to 1000 μF 1 mF to 110 mF	1.4 % to 0.7 % 0.7 % to 0.6 % 0.6 % to 1.34 %	Using Fluke Multi-product Calibrator 5502A /Decade Capacitance Box By Direct Method
7.	Inductance [#]	1kHz 1 mH to 10 H	1.2 %	Using Decade Inductance Box By Direct Method
8.	DC Resistance [#] (4Wire)	0.1 mΩ 1.0 mΩ 10.0 mΩ 100.0 mΩ 1.0 Ω	0.62 % 0.21 % 0.21 % 0.21 % 0.61 %	Using Standard Resistance Box/Standard Resistor By Direct Method
9.	Resistance [#] (2Wire)	1 Ω to 10 Ω 10 Ω to 100 Ω 100 Ω to 1 MΩ 1 MΩ to 10 MΩ 10 MΩ to 1000 MΩ	1.0 % to 0.13 % 0.13 % to 0.05 % 0.05 % to 0.02 % 0.02 % to 0.15 % 0.16 % to 1.8 %	Using Fluke Multi-product Calibrator 5502A /Decade Resistance Box By Direct Method
10.	DC Resistance [#]	5kV 2 GΩ to 20 GΩ 100 GΩ to1000 GΩ	3.7 % 6.5 %	Using Standard mega Ohm Box By Direct Method
11.	Temperature Simulation (Indicator / Controller/Ro /Scanner)	# ecorder/Data Logger	0.05°C	Using Universal Calibrator – Radix/fluke MPC By Direct Method
	Thermocouple J - Type K - Type R - Type	20 °C to 750 °C 25 °C to 1200 °C 200 °C to 1500 °C	0.15 °C 0.17 °C 0.62 °C	

Accreditation Standard	ISO/IEC 17025: 2005		
Certificate Number	CC-2597	Page	5 of 20
Validity	05.03.2018 to 04.03.2020	Last Amended on	13.04.2018

SI.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
	S – Туре T – Туре В –Туре N –Туре	200 °C to 1500 °C 30 °C to 400 °C 450 °C to 1800 °C 40 °C to 1300 °C	0.69°C 0.4°C 0.8°C 0.71°C	
12.	AC Power/Energy [#] 1 ø & 3 ø Phase	50Hz 15V to 300 V 30.5mA to 20A 0.087PF to UPF 0 to 6000 W 50Hz 63V to 300 V 80mA to 20A UPF 0 to 18000 W	0.19% to 1.2% 0.19% to 1.2%	Using 1ø Power MPC source By Direct Method & 3ø Power Energy Calibration Source By Direct Method
13.	Power Factor [#]	±0.50 to UPF ±0.087 to UPF	0.015 PF 0.003 PF	Using 3ø Power Energy Calibration Source & 1ø Power MPC By Direct Method
14.	Turn Ratio Meter [#]	(11 to 220) Turn Ratio	0.7% to 0.3%	Using Ratio Calibration Standard By Direct Method
15.	DC Power [#]	10V to 200V/1A to 5A 10 W to 1.0 kW	0.3%	Using Fluke Multi-product Calibrator 5502A By Direct Method

Laboratory	xcellent Services, B-34 & 35, Ganpati Paradise, Central Spi /idhyadhar Nagar, Jaipur, Rajasthan		, Central Spine,
Accreditation Standard	ISO/IEC 17025: 2005		
		_	

Certificate NumberCC-2597Page6 of 20Validity05.03.2018 to 04.03.2020Last Amended on 13.04.2018

SI.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks			
	MECHANICAL CALIBRATION						
I.	DIMENSION (BASIC M	EASURING INSTRUME	NT, GAUGE ETC.)				
1.	Caliper ^{\$} (Vernier/Dial/Dig.) L.C.: 0.01 mm	0 to 600 mm	11.0µm	Using Caliper Checker/ Slip Gauge Set by Comparison Method			
2.	Height Gauge ^{\$} (Vernier/ Dial/Digital) L.C.: 0.01mm	0 to 600 mm	9.0 µm	Using Caliper Checker/ Puppy Dial by Comparison Method			
3.	External Micrometer ^{\$} (Dig. / Mech.) L.C.: 0.001mm	0 to 300 mm	1.2 μm	Using Slip Gauge Set By Comparison Method			
4.	Internal Micrometer ^{\$} (Dig./Mech.) L.C.: 0.01mm	50 mm to 600 mm	5.0 μm	Using Slip Gauge Set & Caliper Checker By Comparison Method			
5.	Dial Thickness Gauge [®] L.C.: 0.001mm	0 to 25 mm	1.3 µm	Using Slip Gauge Set By Comparison Method			
6.	Feeler Gauge ^{\$}	Up to 1 mm	2.2 μm	Using Digital Micrometer By Comparison Method			

Accreditation Standard	ISO/IEC 17025: 2005		
Certificate Number	CC-2597	Page	7 of 20
Validity	05.03.2018 to 04.03.2020	Last Amended on	13.04.2018

SI.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
7.	Plain Plug Gauge/Pin Sizer Rod ^{\$}	1 mm to 150mm	3.5µm	Using Gauge Block Comparator Stand With Dial Gauge By Comparison Method
8.	Snap Gauge ^{\$} (Dial/Digital)	Up to 300mm	3.3 µm	Using Slip Gauge Set By Comparison Method
9.	Test Sieves ^{\$}	20 µm to150 mm	9.0 µm	Using Profile Projector/ Dig. Vernier Caliper By Comparison Method
10.	Depth Gauge ^{\$} (Dig./Dial/Vernier) L.C.: 0.01mm	0 to 300mm	8.0 µm	Using Slip Gauge Set By Comparison Method
11.	Measuring Scale ^{\$} L.C.: 1mm	0 to1000mm	117µm	Using Scale And Tape Measuring Machine By Comparison Method
12.	Measuring Tape/ Pi Tape ^{\$} L.C.: 1mm	0 to 30000 mm	117L μm (Where L is length of tape in Meter)	Using Scale And Tape Measuring Machine
13.	Radius Gauge ^{\$}	Up to 100 mm	7.0 µm	Using Profile Projector By Comparison Method

Accreditation Standard	ISO/IEC 17025: 2005		
Certificate Number	CC-2597	Page	8 of 20
Validity	05.03.2018 to 04.03.2020	Last Amended on	13.04.2018

Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
Dial Indicator/ Dial Gauge ^{\$} (Analog/Dial/Digital) L.C.: 0.001mm	Up to 100mm	3.0 μm	Using Dial Calibrator & Slip Gauge Set By Comparison Method
Lever/Puppy Dial ^{\$} L.C.: 0.001mm [¢]	Up to 1 mm	3.5 μm	Using Dial Calibrator & Slip Gauge Set By Comparison Method
Bore Gauge ^s (Dial/Digital) L.C.: 0.001mm [¢]	0 to 1 mm	3.5 µm	Using Dial Calibrator/ Dig Indicator By Comparison Method
Coating Thickness Gauge/Coat Meter ^{\$} L.C.: 0.1µm	Up to 705 μm	3.5 µm	Using Standard Foil By Comparison Method
Standard Foil ^{\$}	Up to 2000 μm	2.0 μm	Using Digital Micrometer By Comparison Method
Ultrasonic Thickness Gauge ^{\$}	Up to 100 mm	58.0 µm	Using Slip Gauge Set By Comparison Method
Bevel/ Angle Protector / Combination Set ^{\$} (Angle) L.C. 1Minute	0° - 180° - 0°	4.0 Arc minute	Using Angle Gauge By Comparison Method
	Quantity Measured / Instrument	Quantity Measured / InstrumentRange/FrequencyDial Indicator/ Dial GaugesUp to 100mmLoc: 0.001mmUp to 100mmLever/Puppy Dials L.C.: 0.001mmUp to 1 mmBore Gauges (Dial/Digital) L.C.: 0.001mm0 to 1 mmBore Gauges (Dial/Digital) L.C.: 0.001mm0 to 1 mmStandard FoilsUp to 705 μ mStandard FoilsUp to 2000 μ mUltrasonic Thickness Gauges L.C.: 0.1µmUp to 100 mmBevel/ Angle Protector (Angle) L.C. 1Minute0° - 180° - 0°	Quantity Measured / InstrumentRange/Frequency*Calibration Measurement Capability (±)Dial Indicator/ Dial Gauge % (Analog/Dial/Digital) L.C.: 0.001mmUp to 100mm3.0 µmLever/Puppy Dial % L.C.: 0.001mm %Up to 1 mm3.5 µmBore Gauge % (Dial/Digital) L.C.: 0.001mm %Up to 1 mm3.5 µmBore Gauge % (Dial/Digital) L.C.: 0.001mm %0 to 1 mm3.5 µmCoating Thickness Gauge/Coat Meter % L.C.: 0.1µmUp to 705 µm3.5 µmStandard Foil %Up to 2000 µm2.0 µmUltrasonic Thickness Gauge % (Angle) L.C. 1MinuteUp to 100 mm58.0 µm

Accreditation Standard	ISO/IEC 17025: 2005		
Certificate Number	CC-2597	Page	9 of 20
Validity	05.03.2018 to 04.03.2020	Last Amended on	13.04.2018

SI.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
22.	Profile Projector [#] Dimension Magnification Angle	0-100mm 10X, 20X, 50X, 100X, 0-360 ⁰	3.0µm 0.2% 22 sec.	Using Glass Scale, Gauge Block & Dig. Vernier Caliper and Angle Gauge By Comparison Method
23.	Straight Edge [#] Straightness	Up to 3000mm	{5.1+1.5(L-1)} μm (Where L is length of straight edge in Meter)	Using Electronic Level by Comparison Method
24.	Surface Plate [#] (Flatness)	Up to size (2000 mm x 2000 mm)	(5.5+4.5LW) μm (Where L & W is Length in meter)	Using Electronic Level by Comparison Method
25.	Flakiness Index/ Elongation -Index Apparatus ^{\$}	Up to 100 mm	30 μm	Using Digital Vernier Caliper by Comparison Method
II.	ACCELERATION AND	SPEED		
1.	Tachometer [#] (Non Contact) (Contact)	90,000RPM 25,000RPM	2 %rdg.	Using Tachometer Calibrator/ Dig Tachometer By Comparison Method

Accreditation Standard	ISO/IEC 17025: 2005		
Certificate Number	CC-2597	Page	10 of 20
Validity	05.03.2018 to 04.03.2020	Last Amended on	13.04.2018

SI.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
111.		ON INSTRUMENTS)		
1.	Profile Projector [#] Dimension	0-100mm	3.0µm	Using Glass Scale, Gauge Block & Dig. Vernier Caliper and Angle
	Magnification	10X, 20X, 50X, 100X,	0.2%	Gauge By Comparison
	Angle	0-360 ⁰	22 sec.	Method
2.	Microscope*	Magnification up to 400X	0.2 %	Using Glass Scale & Dig. Vernier Caliper By Comparison Method
3.	Extensometer*	0 to 10mm	6.2µm	Using Dig. Dial Gauge with Stand Head And Vernier Caliper as per IS-12872, ISO-9513 and ASTM-E83 By Comparison Method
IV.		IG DEVICES	JJ	
1.	Pressure Pneumatic Dial and Digital Pressure Gauge, Pressure Transmitters [#]	0 to 0.3 bar >0.3 bar to 2 bar	0.007 bar 0.006 bar	Using Digital Pressure Indicator with pneumatic pump By Direct Method based on DKD-R-6-1
2.	Pressure Hydraulic Dial and Digital Pressure Gauge, Pressure Transmitters [#]	0 to 60 bar > 60 bar to 600 bar	0.04 bar 0.23 bar	Using Digital Pressure Indicator with Hydraulic Pump By Direct Method based on DKD-R-6-1

Accreditation Standard	ISO/IEC 17025: 2005		
Certificate Number	CC-2597	Page	11 of 20
Validity	05.03.2018 to 04.03.2020	Last Amended on	13.04.2018

SI.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
3.	Pressure Hydraulic Dial and Digital Pressure Gauge, Pressure Transmitters [#]	(-) 0.9 bar to 0 bar	0.006 bar	Using Digital Pressure Indicator with Hydraulic pump By Direct Method based on DKD-R-6-1
V.	ACOUSTICS			
1.	Sound Level Indicators [#]	94 dB 114 dB	0.8 dB 0.8 dB	Using Sound Level Generator By Direct Method
VI.	VOLUME		······································	
1.	Volumetric Glassware ^{\$}	10 μl to100μl >100 μl to1000μl >1ml to10ml >10ml to100ml >100ml to1000ml >1000ml to 2000ml	0.03µl 0.24µl 0.44µl 2.47µl 25.0µl 0.075ml	Using Standard Weights of Accuracy Class E2, & F1, Precision Balance L.C: 0.01 mg (10 µl to 10 ml), L.C: 0.1 mg (>10 ml to 100 ml), L.C:10 mg (>100 ml to 1000ml), L.C: 100 mg (> 1000 ml to 2000 ml), distilled Water of know density Based on ISO 8655 & IS/ISO 4787 By Gravimetric method

Accreditation Standard	ISO/IEC 17025: 2005		
Certificate Number	CC-2597	Page	12 of 20
Validity	05.03.2018 to 04.03.2020	Last Amended on	13.04.2018

SI.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
VII.	DENSITY AND VISCOS	SITY		
1.	Hydrometer ^{\$}	0.700 g/ml to 1.000g/ml 1.000 g/ml to 2.000g/ml	0.0018 g/ml 0.0020 g/ml	Using Standard Hydrometer and Standard Liquid By Comparison Method
VIII.	WEIGHTS			
1.	Weights [®] (Conventional Mass for calibration of accuracy class F2 and coarser weights)	1mg 2mg 5mg 10mg 20mg 50mg 100mg 200mg 500mg	0.02mg 0.02mg 0.02mg 0.02mg 0.02mg 0.02mg 0.02mg 0.02mg 0.02mg 0.08mg	Using Standard Weights of Accuracy Class E2, Precision Balance resolution: 0.01mg by substitution Method ABBA weight Cycle based on OIML R-111
	Conventional Mass for calibration of accuracy class F1 and coarser weights	1g 2g 5g 10g 20g	0.013mg 0.013mg 0.02mg 0.02mg 0.02mg	Using E2 Class Weights & Precision Balance resolution: 0.1mg by substitution Method ABBA weight Cycle based on OIML R-111
		50g 100g 200g	0.085mg 0.13mg 0.13mg	Using F1 Class Weights & Precision Balance resolution: 10mg by substitution Method ABBA weight Cycle based on OIML R-111

Shally Sharma Convenor

Accreditation Standard	ISO/IEC 17025: 2005		
Certificate Number	CC-2597	Page	13 of 20
Validity	05.03.2018 to 04.03.2020	Last Amended on	13.04.2018

SI.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
	Weights (Conventional Mass for calibration of accuracy class M1 and coarser weights)	500g 1kg 2kg	0.020g 0.020g 0.020g	Using F1 Class Weights & Precision Balance resolution: 100 mg by substitution Method ABBA weight Cycle based on OIML R-111
		5kg 10kg	0.089g 0.089g	
		20kg	0.442g	Using M1 Class Weights & Precision Balance resolution: 500 mg by substitution Method ABBA weight Cycle based on OIML R-111
IX.	WEIGHING SCALE AN	DBALANCE		
1.	Weighing Balance [#] Readability:0.01mg Readability: 0.1mg Readability: 1.0 mg Readability: 10mg Readability: 0.1g Readability:1.0g / 5.0g	< 120g 120g to 220g 220g to 600g 600g to 2000g 2kg to 30kg 30kg to 120kg	0.03mg 0.06mg 2.0mg 12.0mg 0.24g 7.3g	Using Weight of Accuracy Class E2, F1 & M1 Based on OIML R-76

Accreditation Standard	ISO/IEC 17025: 2005		
Certificate Number	CC-2597	Page	14 of 20
Validity	05.03.2018 to 04.03.2020	Last Amended on	13.04.2018

SI.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
Х.	FORCE PROVING INST	RUMENTS		
1.	Force Proving Instruments ^{\$} Compression & Tension (Class 0.5)	10 N to 5000 N	0.038%	Using Dead Weight Force Standard Machine as per IS 4169 & ISO 376
	Force Proving Instruments ^{\$} Compression & Tension (Class 1)	5kN to 100kN	0.056%	Using Comparator Force Standard Machine By Comparison Method as per IS 4169 & ISO 376
XI.	MOBILE FORCE MEAS	URING SYSTEM		
1.	Push Pull Gauge ^{\$} (Push & Pull Mode) L.C: 5 N L.C: 1 N	50 N to 500 N 200 N to 2000 N	0.91 % 0.98 %	Using Dead Weight Force Standard Machine & Frame Fixtures and Hanger As per ADI/VDE 2624 Blatt 2.1/Part 2.1
XII.	UTM, TENSION CREEF	P AND TORSION TESTI	NG MACHINE	
1.	Uniaxial Static Testing Machines [*] -Tension -Compression	20 N to 200 kN 0.5 kN to 1000 kN	0.5 % 0.5 %	Using Proving Rings / Load Cell with Display Based on IS:1828(Part-I)

Accreditation Standard	ISO/IEC 17025: 2005		
Certificate Number	CC-2597	Page	15 of 20
Validity	05.03.2018 to 04.03.2020	Last Amended on	13.04.2018

SI.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
	Compression Testing Machine [*] -Compression (Class-I accuracy)	400 kN to 2000 kN	0.5 %	Using Proving Rings / Load Cell with Display (Class-I) accuracy) As per IS 1828 (Part-I)
XIII.	HARDNESS TESTING	MACHINES		
1.	Rockwell Hardness Testing Machine [◆]	HRBW HRC	0.96 HRBW 0.96 HRC	Using Standard Hardness Blocks Based on IS 1586-2
2.	Vickers Hardness Testing Machine [◆]	HV5 HV10 HV30	2.69% 2.49% 1.80%	Using Standard Hardness Blocks Based on IS 1501-2
3.	Brinell Hardness Testing Machine [◆]	HBW5/750 HBW 10/3000	2.47 % 1.42 %	Using Standard Hardness Blocks Based on IS 1500-2
XIV.	DUROMETER			
1.	Rubber Hardness Tester ^{\$}	0 to 100 Shore A 0 to 100 Shore D	0.5 Shore A 0.5 Shore D	Using Rubber Hardness Tester Calibrator As per ISO 18898 & ASTM D 2240

Lat	ooratory	Excellent Services, B-34 & 35, Ganpati Paradise, Central Spine, Vidhyadhar Nagar, Jaipur, Rajasthan				
Aco	creditation Standard	ISO/IEC 17025: 200	5			
Cei	tificate Number	CC-2597		Page	16 of 20	
Val	idity	05.03.2018 to 04.03	.2020	Last Ame	ended on 13.04.2018	
SI.	Quantity Measured / Instrument	Range/Frequency	*Calibration M Capability (±)	easurement	Remarks	

XV.	TORQUE MEASURIN	G DEVICES		
1.	Torque Wrenches ^{\$} Analog/Digital Type II Class A,B,C, D,E,F	5 Nm to 50 Nm 50 Nm to 200 Nm 200 Nm to 1000 Nm	1.8% rdg. 1.6% rdg. 1.0% rdg.	Using Torque Wrench Calibration System As per IS 6789

Laboratory	Excellent Services, B-34 & 35, Ganpati Paradise, Central Spine, Vidhyadhar Nagar, Jaipur, Rajasthan

Accreditation Standard	ISO/IEC 17025: 2005		
Certificate Number	CC-2597	Page	17 of 20
Validity	05.03.2018 to 04.03.2020	Last Amended on	13.04.2018

SI.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks		
	THERMAL CALIBRATION					
I.	TEMPERATURE					
1.	RTD's, Thermocouples without controller/ indicator/ Digital Thermometer, Temperature Transmitter, Data Logger /Recorder ^{\$}	(-)30 °C to 50 °C 50 °C to 250 °C 250 °C to 650 °C	0.19 °C 0.35 °C 0.45 °C	Using SPRT Sensor with Super DAQ Scanner Fluke 1586A, Liquid Bath & Dry Block Furnace, Universal Calibrator by Comparison Method		
2.	RTD's, Thermocouples with Controller/ Indicator/ Temperature Gauge, Digital Thermometer, Temperature Transmitter, Data logger /Recorder ^{\$}	(-)30 °C to 50 °C 50 °C to 250 °C 250 °C to 650 °C	0.15 °C 0.13 °C 0.15 °C	Using SPRT Sensor with Super DAQ Scanner Fluke 1586A, Liquid Bath & Dry Block Furnace by Comparison Method		
3.	RTD's, Thermocouples without controller/ indicator/ Temperature Gauge, Digital Thermometer, Temperature Transmitter, Data logger /Recorder ^{\$}	650 C to 900 C 900 C to1200 C	1.7 C 2.2 C	Using S-Type Thermocouple, Super DAQ Scanner Fluke 1586A, Dry Block Furnace by Comparison Method		

Accreditation Standard	ISO/IEC 17025: 2005		
Certificate Number	CC-2597	Page	18 of 20
Validity	05.03.2018 to 04.03.2020	Last Amended on	13.04.20

Validity

Last Amended on 13.04.2018

SI.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
4.	Glass Thermometer ^{\$}	(-)30 °C to 50 °C 50 °C to 250 °C	0.15 C 0.17 C	Using SPRT Sensor with Super DAQ Scanner Fluke 1586A, Liquid bath& oil bath by Comparison Method
5.	Infrared Thermometer/ Pyrometer/optical Thermometer [#]	50 °C to 500 °C 500 °C to1300 °C	2.7 [°] C 3.5 [°] C	Using Infrared Thermometer & Black Body Source By Comparison Method
6.	Digital & Analog Thermo Hygrometer /RH Sensor/RH Transmitters with Controller /Indicator /Recorder/Data Logger/ Dry and wet Bulb Thermometer ^{\$}	20 %RH to 95 %RH @25 °C 5 °C to 50 °C	1.2 %RH 0.24 [°] C	Using Standard Rotronics RH Sensor with Temp & Humidity Generator By Comparison Method
7.	Temperature Transmitter, RTD's, Thermocouples with & without controller/ indicator/data logger/ Recorder, Glass Thermometer, Temperature Gauge, Digital Thermometer*	50 °C to 250 °C	0.35 °C	Using SPRT Sensor with Super DAQ Scanner Fluke 1586A, Liquid Bath & Dry Block Furnace By Comparison Method

Accreditation Standard	ISO/IEC 17025: 2005			
Certificate Number	CC-2597	Page	19 of 20	
Validity	05.03.2018 to 04.03.2020	Last Amended on	13.04.2018	

SI.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
8.	Temperature Transmitter, RTD's , Thermocouple with & without controller/ indicator/data logger /Recorder, Temperature Gauge, Digital Thermometer	250 °C to 650 °C 650 °C to1200 °C	0.18 C 2.5 °C	Using SPRT Sensor with Super DAQ Scanner Fluke 1586A Dry Block Furnace by Comparison Method Using S-Type Thermocouple, Super DAQ Scanner Fluke 1586A, Dry Block Furnace by Comparison Method
9.	Temperature Indicator of Deep Freezer [♣]	(-)80 °C to Ambient	0.2 C	Using SPRT Sensor with Super DAQ Scanner Fluke
	Temperature Indicator of BOD Incubator [●]	0 °C to 60 °C	0.2 °C	By Comparison Method
	Temperature Indicator of Liquid/ Water Bath/ Dry Block Furnace [*]	(-) 40 [°] C to 250 [°] C	0.2 °C	Calibration
	Temperature Indicator of Oven/Thermal Stability [*]	Ambient to 25 ° °C	0.2 [°] C	
10.	Temperature Indicator of Muffle Furnace [*]	50 C to 650 C 650 C to1200 C	0.19 °C 1.9 °C	Using SPRT Sensor & S -Type Thermocouple with indicator Single Position Calibration

Accreditation Standard	ISO/IEC 17025: 2005		
Certificate Number	CC-2597	Page	20 of 20
Validitv	05.03.2018 to 04.03.2020	Last Amended on	13.04.2018

Validity

SI. Quantity Measured / *Calibration Measurement Remarks Range/Frequency Instrument Capability (±) 1.7 C 11. (-) 30 C to 25 C Deep Freezers, Using RTD Sensor with 25 °C to 250 °C 1.7 °C Freezers, Cold Super DAQ Scanner Fluke Chamber, Furnace* 1586A By Comparison Method Multi position Calibration 250 °C to 900 °C 4.0[°]C Using N-Type Thermocouple with Super DAQ Scanner Fluke 1586A By Comparison Method Multi Position Calibration 12. 20 %RH to 90 %RH Humidity Indicator 1.6 %RH Using Standard RH Sensor With Sensor of @25 C With Indicator (Single Humiditv Position Calibration) By Calibrator/Generator **Comparison Method** Chamber*

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. [•]Laboratory can also calibrate instruments/devices of coarser resolution / least count within the

accredited range using same reference standard/ master equipment under the scope of accreditation.