Laboratory	**Mast Aviation Pvt. Ltd., 152-D, First Floor, Udyog Bhavan, Sonawala Road, Goregaon (East), Mumbai, Maharashtra**
Accreditation Standard	**ISO/IEC 17025: 2005**
Certificate Number	**CC-2278** **Page 1 of 6**
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Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
	ELECTRO-TECHNICAL CALIBRATION			
I.	**SOURCE**			
1.	DC Voltage[$]	1 mV to 1000 V	2.26 % to 0.15 %	Using 5 ½ Multifunction Calibrator by Direct Method
2.	AC Voltage[$]	**50 Hz** 1 mV to 1000 V	2.33 % to 0.24 %	Using 5 ½ Multifunction Calibrator by Direct Method
3.	DC Current[$]	1 mA to 10 A 10 A to 1000 A	0.35 % to 0.25 % 0.25 % to 1.15 %	Using 5 ½ Multifunction Calibrator by Direct Method
4.	AC Current[$]	**50 Hz** 1 mA to 10 A 10 A to 1000 A	 0.29 % to 0.32 % 0.32 % to 1.25 %	Using 5 ½ Multifunction Calibrator by Direct Method
5.	DC Resistance[$]	0.001 Ω to 0.1 Ω 0.1 Ω to 100 kΩ 100 kΩ to 100 MΩ 100 MΩ to 1 GΩ	5.95 % to 2.26 % 2.26 % to 0.06 % 2.31 % to 2.26 % 2.26 % to 5.78 %	Using Decade Resistance Box by Direct Method Using Megaohm Box by Direct Method
6.	Frequency[$]	45 Hz to 1000 Hz	0.53 % to 0.27 %	Using 5 ½ Multifunction Calibrator by Direct Method
7.	Temperature Simulation[#]			Using Hand Held Calibrator by Direct Method
	Thermocouple R-Type S-Type K-Type	 0 °C to 1700 °C 0 °C to 1700 °C 0 °C to 1200 °C	 1.66 °C 1.52 °C 0.97 °C	

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Program Director

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
	N-Type J-Type RTD	0 °C to 1200 °C 0 °C to 1200 °C (-) 100 °C to 800 °C	0.89 °C 0.71 °C 0.50 °C	
II.	**MEASURE**			
1.	DC Voltage[$]	1 mV to 100 mV 100 mV to 1000 V	0.45 % to 0.01 % 0.01 %	Using 6 ½ Digital Multimeter by Direct Method
2.	AC Voltage[$]	**10 Hz to 10 kHz** 1 mV to 100 mV 100 mV to 10 V 10 V to 1000 V	 4.97 % to 0.44 % 0.44 % to 0.12 % 0.10 %	Using 6 ½ Digital Multimeter by Direct Method
3.	DC Current[$]	100 µA to 10 A	0.09 % to 0.19 %	Using 6 ½ Digital Multimeter by Direct Method
4.	AC Current[$]	**10 Hz to 1 kHz** 100 µA to 10 A	 0.33 % to 0.27 %	Using 6 ½ Digital Multimeter by Direct Method
5.	DC Resistance[$]	1 Ω to 10 Ω 10 Ω to 1 MΩ 1 MΩ to 10 MΩ 10 MΩ to 100 MΩ 100 MΩ to 1 GΩ	0.38 % to 0.05 % 0.05 % to 0.01 % 0.01 % to 0.05 % 0.05 % to 0.94 % 0.94 % to 2.8 %	Using 6 ½ Digital Multimeter by Direct Method
6.	Frequency[$]	10 Hz to 500 kHz	0.04 % to 0.01 %	Using 6 ½ Digital Multimeter by Direct Method
7.	Stop Watch[$]	10 s to 6 hrs	0.1 s to 21 s	Using Stop Watch by Comparison Method

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
	MECHANICAL CALIBRATION			
I.	**DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)**			
1.	Caliper[$] Vernier, Dial, Digital L.C.: 0.01 mm	0 to 600 mm	13.0 µm	Using Caliper Checker, External Micrometer & Slip Gauge by Comparison Method
2.	Height Gauge[$] Vernier, Dial, Digital L.C.: 0.01 mm	0 to 600 mm	13.0 µm	Using Caliper Checker & Surface plate by Comparison Method
3.	Depth Gauge[$] (Vernier, Dial) L.C. 0.02 mm	0 to 250 mm	15.6 µm	Using Caliper Checker, Slip Gauge Set & Surface Plate by Comparison Method
4.	External Micrometer[$] L.C. 0.001 mm	0 to 100 mm	1.6 µm	Using Slip Gauge Set by Comparison Method
5.	Depth Micrometer[$] L.C.: 0.01 mm	0 to 200 mm	7.0 µm	Using Slip Gauge Set & Surface Plate by Comparison Method
6.	Dial Gauge[$] (Plunger Type) L.C.: 0.001 mm	0 to 25 mm	4.1 µm	Using Electronic Dial Calibration Tester by Comparison Method
7.	Dial Gauge[$] (Lever Type) L.C.: 0.001 mm	0 to 2 mm	4.1 µm	Using Electronic Dial Calibration Tester by Comparison Method
8.	Bore Gauge[$] (Transmission)	0 to 2 mm	4.0 µm	Using Electronic Dial Calibration Tester by Comparison Method

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
9.	Digital Dial[$] L.C.: 0.001 mm	0 to 50 mm	1.0 µm	Using Slip Gauge Set by Comparison Method
10.	Feeler Gauge[$]	0 to 1 mm	3.0 µm	Using Digital Micrometer by Comparison Method
11.	Bevel Protractor[$] L.C.: 5 min	0-90-0°	2.8 min	Using Angle Gauge Set by Comparison Method
II.	**PRESSURE INDICATING DEVICES**			
1.	Pressure Gauge[#]	0 to 35 bar 0 to 700 bar	0.02 bar 0.42 bar	Using Digital Pressure Calibrator as per DKD-R-6-1
2.	Vacuum Gauge[#]	(-) 0.85 bar to 0 bar	0.01 bar	Using Digital Pressure Calibrator as per DKD-R-6-2
III.	**TORQUE GENERATING DEVICES**			
1.	Torque Wrench[$] Type I (Class A, B & C) Type II (Class A, B & C)	10 Nm to 1000 Nm	1.51 %	Using Torque Sensor with Indicator as per IS/ISO 6789:2003

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Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
		THERMAL CALIBRATION		
I.	**TEMPERATURE**			
1.	Temperature Sensor with or without Indicator (RTD, Thermocouple)[$]	(-) 20 °C to <250 °C 250 °C to 650 °C >650°C to 1200°C	0.15 °C 0.23 °C 2.35 °C	Using SSPRT, 6.5 DMM, Temperature Bath by Comparison Method Using S Type Thermocouple, Digital Recorder, Temperature Bath by Comparison Method
2.	Glass Thermometer[$]	25 °C to 250 °C	0.16 °C	Using SSPRT, 6.5 DMM, Oil Bath by Comparison Method
3.	Temperature Liquid Baths, Dry Temperature Blocks, Incubators, Ovens, Muffle Furnace etc.[$]	(-) 20 °C to 0 °C >0 °C to 650 °C >650 °C to <1000 °C 1000 °C to 1200 °C	0.1 °C 0.2 °C 1.9 °C 2.35 °C	Using SSPRT, 6.5 DMM by Single Point Calibration Using S Type Thermocouple, Digital Recorder by Single Point Calibration
4.	Temperature Sensor with or without Indicator (RTD, Thermocouple)[♣]	(-) 20 °C to <250 °C 250 °C to 650 °C >650 °C to 1200 °C	0.16 °C 0.23 °C 2.35 °C	Using SSPRT, 6.5 DMM, Temperature Bath by Comparison Method Using S Type Thermocouple, Digital Recorder, Temperature Bath by Comparison Method

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Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
5.	Temperature Liquid Baths, Dry Temperature Blocks, Incubators, Ovens, Muffle Furnace etc.♣	(-) 20 °C to 0 °C >0 °C to 650 °C >650 °C to <1000 °C 1000 °C to 1200 °C	0.1 °C 0.2 °C 2.03 °C 2.35 °C	Using SSPRT, 6.5 DMM by Single Point Calibration Using S Type Thermocouple, Digital Recorder by Single Point Calibration
6.	Temperature Uniformity Survey of Incubators, Ovens, Muffle Furnace etc.♣	200 °C to 1200 °C	15.5 °C	Using N Type (minimum 9) Thermocouple, Digital Recorder by Nine Point Calibration

*** 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.

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