

Laboratory

Tespa Calibration Centre, D-105, First Main Road, Anna Nagar East,  
Chennai, Tamil Nadu

Accreditation Standard

ISO/IEC 17025: 2005

Certificate Number

CC-2894

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Validity

19.11.2018 to 18.11.2020

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Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability ( $\pm$ )	Remarks
<b><u>ELECTRO-TECHNICAL CALIBRATION</u></b>				
<b>I.</b>	<b>SOURCE</b>			
1.	DC Voltage <sup>o</sup>	1 mV to 300 mV 300 mV to 3 V 3 V to 30 V 30 V to 300 V 300 V to 1000 V	0.14 % to 0.0036 % 0.0036 % 0.003 % 0.003 % 0.0034 %	Using Fluke 5520A MFC by Direct method
	DC Voltage <sup>*</sup>	1 mV to 450 mV 450 mV to 4.5 V 4.5 V to 30 V	1.98 % to 0.068 %	Using Handy Calibrator Yokogawa by direct method CA-150
2.	AC Voltage <sup>o</sup>	<b>45 Hz to 10 kHz</b> 3 mV to 30 mV 30 mV 300 mV 300 mV to 3 V 3 V to 30 V 30 V to 300 V 300 V to 1000 V	0.27 % to 0.045 % 0.045 % to 0.021 % 0.021 % to 0.02 % 0.021 % 0.021 % to 0.024 % 0.024 % to 0.04 %	Using Fluke 5520A MFC by Direct method
		<b>10 KHz to 50 kHz</b> 30 mV 300 Mv 300 mV to 3 V 3 V to 30 V 30 V to 100 V	0.14 % to 0.044 % 0.044 % to 0.04 % 0.04 % 0.04 %	
		<b>50 kHz to 100 kHz</b> 30 mV 300 mV 300 mV to 3 V 3 V to 30 V 30 V to 100 V	0.45 % to 0.11 % 0.11 % to 0.09 % 0.09 % to 0.11 % 0.11 % to 0.29 %	

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3.	DC Current <sup>s</sup>	190 $\mu$ A to 330 $\mu$ A	0.03 % to 0.032 %	Using Fluke 5520A MFC by Direct method
		330 $\mu$ A to 3.3 mA	0.034 %	
		3.3 mA to 33 mA	0.035 % to 0.021 %	
		33 mA to 300 mA	0.021 % to 0.014 %	
		300 mA to 3 A	0.015 % to 0.04 %	
		3 A to 10 A	0.04 % to 0.064 %	
		10 A to 20 A	0.064 % to 0.09 %	
	20 A to 1000 A	0.7 % to 0.32 %	Using Fluke 5520A MFC & 50T COIL by Direct method	
DC Current *	1 mA to 18 mA	0.8 % to 0.1 %	Using Handy Calibrator Yokogawa by Direct Method CA-150	
	18 mA to 22 mA			
4.	AC Current <sup>s</sup>	<b>45 Hz to 1 kHz</b>		Using Fluke 5520A MFC by Direct method
		100 $\mu$ A to 300 $\mu$ A	0.26 % to 0.2 %	
		300 $\mu$ A to 3.3 mA	0.2 % to 0.13 %	
		3.3 mA to 33 mA	0.13 % to 0.06 %	
		33 mA to 300 mA	0.06 %	
		300 mA to 3 A	0.06 % to 0.15 %	
		3 A to 10 A	0.15 % to 0.14 %	
	10 A to 20 A	0.1 % to 0.17 %		
<b>1 kHz to 5 kHz</b>		0.10 % to 3.5 %		
<b>50 Hz</b>	20A to 1000 A	0.93 % to 0.4 %	Using 5520A +50T coil by Direct method	

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5.	Resistance <sup>s</sup>	1 $\Omega$ to 10 $\Omega$ 10 $\Omega$ to 30 $\Omega$ 30 $\Omega$ to 300 $\Omega$ 300 $\Omega$ to 3 K $\Omega$ 3 k $\Omega$ to 30 k $\Omega$ 30 k $\Omega$ to 300 k $\Omega$ 300 k $\Omega$ to 3 M $\Omega$ 3 M $\Omega$ to 30 M $\Omega$ 30 M $\Omega$ to 300 M $\Omega$ 300 M $\Omega$ to 500 M $\Omega$	0.142 % to 0.018 % 0.018 % to 0.01 % 0.01 % to 0.005 % 0.005 % 0.005 % 0.005 % 0.005 % to 0.01 % 0.01 % to 0.04 % 0.04 % to 0.4 % 0.4 % to 1.9 %	Using Fluke 5520A MFC by Direct method
	Resistance <sup>*</sup>	1 $\Omega$ to 50 $\Omega$ 50 $\Omega$ to 450 $\Omega$ 450 $\Omega$ to 4.5 k $\Omega$ 4.5 k $\Omega$ to 45 k $\Omega$	8.94 % to 0.26 % 0.26 % to 0.58 % 0.58 % to 0.1 % 0.1 % to 0.23 %	Using Handy Calibrator Yokogawa by Direct Method CA-150
6.	Capacitance <sup>s</sup>	<b>1 kHz</b> 1 nF to 3 nF 3 nF to 30 nF 30 nF to 300 nF	1.7 % to 0.95 % 0.95 % to 0.40 % 0.41 %	Using Fluke 5520A MFC by Direct method
		<b>100 Hz</b> 0.7 $\mu$ F to 3 $\mu$ F 3 $\mu$ F to 30 $\mu$ F 30 $\mu$ F to 100 $\mu$ F	0.2 % to 0.45 % 0.45 % to 0.58 % 0.58 % to 0.86 %	
7.	Frequency <sup>s</sup>	1 Hz to 250 MHz	0.004 % to 0.0006 %	Using Fluke 5520A MFC by Direct Method
	Frequency <sup>*</sup>	110 Hz to 50 kHz	0.18 % to 2.6 %	Using Handy Calibrator Yokogawa by Direct Method CA-150
8.	AC Power <sup>s</sup> 1 $\phi$ @UPF,120/240 V, 0.01 A/20 A, 50 Hz	<b>50 Hz</b> 120 W to 4800 W	0.49%-0.15%	Using Fluke 5520A MFC by Direct method

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9.	Temperature Simulation <sup>§</sup> K Type J Type R Type	(-) 200 °C to 1350 °C (-) 200 °C to 1200 °C 1 °C to 1750 °C	0.5 °C 0.3 °C 1 °C	Using Fluke 5520A MFC by Direct method
	Temperature Indicator-RTD PT100	(-) 200 °C to 800 °C	0.3 °C	
	Temperature * RTD-PT100 (By Simulation Method)	(-) 100 °C to 850 °C	1.2 °C	Using Handy Calibrator Yokogawa by Direct Method CA-150
10.	Temperature * (By Simulation Method) Thermocouple			Using Handy Calibrator Yokogawa by Direct Method CA-150
	K Type	(-) 200 °C to 1300 °C	2.5 °C	
	E Type	(-)200 °C to 1000 °C	2.3 °C	
	J Type	(-)200 °C to 1200 °C	2.4 °C	
	T Type	(-)200 °C to 350 °C	2.4 °C	
	R Type	50 °C to 1400 °C	3.2 °C	
	S Type	50 °C to 1400 °C	3.2 °C	
B Type	700 °C to 1400 °C	3.2 °C		
11.	Oscilloscope <sup>§</sup> Amplitude (DC)	5 mV to 33 V	2.6 % to 0.34 %	Using Fluke 5520A MFC by Direct method
	Square wave	5 mV to 105 Vpp	2.5 % to 0.3 %	
	Time marker	2 ns to 5 s	0.12 %	
	Band Width	Up to 250 MHz	5.33 %	

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12.	High Resistance <sup>§</sup> (Insulation Tester)	100 k $\Omega$ to 1 M $\Omega$ 1 M $\Omega$ to 1G $\Omega$	6.3 % to 2.4 % 2.4 % to 2.5 %	Using Vaiseshika `8400HV by Direct Method
13.	Time <sup>§</sup>	1 sec to 7200 sec	0.42 sec to 4.23sec	Using Scope MUT4 Scot by Direct Method
II.	<b>MEASURE</b>			
1.	DC Voltage <sup>§</sup>	1 mV to 10 mV 10 mV to 100 mV 100 mV to 1 V 1 V to 10 V 10 V to 100 V 100 V to 1000 V	0.42 % to 0.05 % 0.05 % to 0.013 % 0.013 % to 0.01 % 0.01 % to 0.004 % 0.004 % to 0.0056 % 0.0056 % to 0.006 %	Using DMM HP34401A (6 ½ Digit) by Direct Method
	DC Voltage <sup>*</sup>	10 mV to 450 mV 450 mV to 4.5 V 4.5 V to 31.5 V	0.62 % to 0.04 % 0.04 % 0.04 % to 0.05 %	Using Yokogawa CA150 by Direct Method
2.	AC Voltage <sup>§</sup>	<b>50 Hz</b> 10 mV to 100 mV 100 mV to 1 V 1 V to 10 V 10 V to 100 V 100 V to 750 V	0.55 % to 0.12 % 0.12 % to 0.11 % 0.11 % to 0.08 % 0.08 % 0.08 % to 0.12 %	Using DMM HP34401A (6½ Digit) by Direct Method
		<b>1 kHz</b> 10 mV to 100 mV 100 mV to 1 V 1 V to 10 V 10 V to 100 V 100 V to 300 V	0.72 % to 0.2 % 0.2 % 0.2 % 0.14 % 0.2 % to 0.3 %	Using DMM HP34401A (6½ Digit) by Direct Method
3.	AC Current <sup>§</sup>	<b>50 Hz to 1 kHz</b> 500 mA to 3 A	0.21 % to 0.26 %	Using DMM HP34401A (6½ Digit) by Direct Method

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4.	DC Current <sup>§</sup>	1 mA to 10 mA 10 mA to 100 mA 100 mA to 1 A 1 A to 3 A	0.3 % to 0.085 % 0.085 % to 0.064 % 0.064 % to 0.12 % 0.12 % to 0.17 %	Using DMM HP34401A (6 ½ digit) by direct method
	DC Current <sup>*</sup>	1mA to 18mA 18mA to 90mA	0.8%-0.18% 0.18%-0.91%	Using Handy Calibrator Yokogawa by direct method CA-150
5.	Resistance <sup>§</sup>	10 $\Omega$ to 100 $\Omega$ 100 $\Omega$ to 1 K $\Omega$ 1 K $\Omega$ to 10 K $\Omega$  10 K $\Omega$ to 100 K $\Omega$ 100 K $\Omega$ to 1 M $\Omega$ 1 M $\Omega$ to 10 M $\Omega$ 10 M $\Omega$ to 100M $\Omega$	0.06 % to 0.02 % 0.02 % to 0.013 % 0.013 %  0.013 % 0.013 % 0.013 % to 0.05 % 0.05 % to 0.94 %	Using DMM HP34401A (6 ½ digit) by direct method
	Resistance <sup>*</sup>	10 $\Omega$ to 50 $\Omega$ 50 $\Omega$ to 450 $\Omega$ 450 $\Omega$ to 4.5 K $\Omega$ 4.5 K $\Omega$ to 45 K $\Omega$	0.93 % to 0.26 % 0.26 % to 0.08 % 0.08 % 0.08 % to 0.09 %	Using Handy Calibrator Yokogawa by direct method CA-150
6.	Frequency/ Period <sup>§</sup>	100 Hz to 300 kHz	0.013 %	Using DMM HP34401A (6½ Digit) by Direct Method
		50 Hz to 300 MHz	0.002 %	Using Intelligent Counter Gwinstek GFC-813 by Direct Method
	Frequency / Period <sup>*</sup>	110 Hz to 10 KHz	0.2 %	Using Intelligent Counter Gwinstek GFC-813
7.	Temperature Indicator RTD PT100 <sup>#</sup>	(-) 100 °C to 800 °C	1.2 °C	Using Yokogawa CA150 by direct method

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	Temperature Indicator (By Simulation Method) – Thermocouple #			Using Yokogawa CA150 by direct method
	K Type	(-) 200 °C to 1300 °C	2.5 °C	
	E Type	(-) 200 °C to 900 °C	2.3 °C	
	J Type	(-) 200 °C to 1200 °C	2.5 °C	
	T Type	(-) 200 °C to 350 °C	2.3 °C	
	R Type	100 °C to 1400 °C	3.3 °C	
	S Type	100 °C to 1400 °C	3.4 °C	
	B Type	700 °C to 1400 °C	3.3 °C	
8.	Time#	1 sec to 7200 sec	0.42 s to 4.23 s	Using Time Interval Meter Scope MUT4 By Direct Method

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<b><u>MECHANICAL CALIBRATION</u></b>				
<b>1.</b>	<b>DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)</b>			
1.	Slip Gauges <sup>s</sup>	0.5 mm to 10 mm >10 mm to 25 mm >25 mm to 50 mm >50 mm to 75 mm >75 mm to 100 mm	0.2 $\mu$ m 0.2 $\mu$ m 0.24 $\mu$ m 0.32 $\mu$ m 0.5 $\mu$ m	Using Slip Gauge Calibrator Tesa Swiss (Resolution 0.01 $\mu$ m)&Gauge block "K" Grade
2.	External Micrometers <sup>s</sup> L.C.: 0.001 mm	Upto 25 mm >25 mm to 50 mm >50 mm to 75 mm >75 mm to 100 mm >100 mm to 200 mm >200 mm to 300 mm >300 mm to 400 mm >400 mm to 500 mm	1.5 $\mu$ m 1.6 $\mu$ m 2.5 $\mu$ m 2.6 $\mu$ m 6.0 $\mu$ m 8.0 $\mu$ m 10.0 $\mu$ m 12.0 $\mu$ m	Using Gauge Blocks & Long Gauge Blocks & Optical Flat & Parallel
3.	Ball Micrometer <sup>s</sup> L.C.: 0.001 mm	0 to 100 mm	2.5 $\mu$ m	Using Gauge Blocks
4.	Point Micrometer <sup>s</sup> L.C.: 0.001 mm	0 to 100 mm	2.5 $\mu$ m	Using Gauge Blocks
5.	Blade Micrometer <sup>s</sup> L.C.: 0.001 mm	0 to 100 mm	1.7 $\mu$ m	Using Gauge Blocks
6.	Flange Micrometer <sup>s</sup> L.C.: 0.001 mm	0 to 100 mm	2.77 $\mu$ m	Using Gauge Blocks
7.	Dial Thickness Gauge <sup>s</sup> L.C.: 0.001 mm	0 to 50 mm	1.5 $\mu$ m	Using Gauge Blocks

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8.	Depth Micrometer <sup>§</sup> L.C.: 0.001mm	0 to 300 mm	7.5 $\mu$ m	Using Gauge Blocks & Depth Checker
9.	Depth Vernier Caliper <sup>§</sup> L.C.: 0.01 mm	0 to 300 mm	12.53 $\mu$ m	Using Gauge Blocks & Depth Checker
10.	Groove Dial Gauge <sup>§</sup> L.C.: 0.01 mm	0 to 150 mm	7.31 $\mu$ m	Using Tesa Prestter Gauge
11.	Plain Plug Gauges / Width Gauges <sup>§</sup>	1 mm to 100 mm >100 mm to 200 mm >200 mm to 300 mm	1.1 $\mu$ m 2.0 $\mu$ m 2.5 $\mu$ m	Using Metroscope
12.	Thread Plug Gauges <sup>§</sup>	2mm to 100 mm >100 mm to 200 mm	1.6 $\mu$ m 2.0 $\mu$ m	Using Metroscope
13.	Plain Ring gauges <sup>§</sup>	1mm to 100 mm >100 mm to 200 mm >200 mm to 300 mm	1.0 $\mu$ m 1.4 $\mu$ m 3.0 $\mu$ m	Using Metroscope
14.	Thread Ring Gauges <sup>§</sup>	2 mm to 100 mm	2.0 $\mu$ m	Using Metroscope
15.	Vernier Caliper <sup>§</sup> L.C.: 0.01 mm	0 to 300 mm >300 mm to 600 mm	13.0 $\mu$ m 17.0 $\mu$ m	Using Caliper Checker
16.	Plunger Dial Gauges <sup>§</sup> L.C.: 0.001 mm	Upto 10 mm	2.6 $\mu$ m	Using Dial Gauge Calibrator
		Upto 50 mm	3.5 $\mu$ m	Using Metroscope
17.	Lever Dial Gauges <sup>§</sup> L.C.: 0.001 mm	0 to 0.2 mm	1.0 $\mu$ m	Using Dial Gauge Calibrator
18.	Lever Dial Gauges <sup>§</sup> L.C.: 0.01 mm	0 to 1.4 mm	4.0 $\mu$ m	Using Dial Gauge Calibrator

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19.	Height Gauges <sup>\$</sup> L.C.: 0.01 mm	Upto 300 mm Upto 600 mm Upto 1000 mm	10.0 $\mu$ m 12.0 $\mu$ m 14.0 $\mu$ m	Using Micro-Hite / Long Gauge Blocks
20.	Electronic Height Gauges <sup>\$</sup> L.C.: 0.1 $\mu$ m	Upto 300 mm Upto 600 mm Upto 1000 mm	3.0 $\mu$ m 5.0 $\mu$ m 7.0 $\mu$ m	Using Gauge Blocks & Long Gauge Blocks / Square Blocks
21.	Snap Gauges / Gap Gauges <sup>\$</sup>	3 mm to 100 mm	2.0 $\mu$ m	Using ULM / Gauge Blocks
		>100 mm to 300 mm	3.5 $\mu$ m	Using CMM
22.	Engineers Square <sup>\$</sup> I) Flatness II) Squareness	Upto 600 mm	6.0 $\mu$ m	Using CMM
23.	Straight Edge <sup>\$</sup>	Upto 600 mm	6.0 $\mu$ m	Using CMM
24.	V-Block <sup>\$</sup> (Straightness & Angle)	Upto 600 mm	6.2 $\mu$ m 18 arc/sec	Using CMM
25.	Angle Plate <sup>\$</sup> (Flatness, Parallelism, Squareness )	Upto 600 mm	6.2 $\mu$ m	Using CMM
26.	Combination Set / Bevel Protractor <sup>\$</sup> L.C.: 5'	0 to 180° 0 to 360°	0°0'17" 0°0'9.62"	Using CMM
27.	Foils <sup>\$</sup>	5 $\mu$ m to 5000 $\mu$ m	0.62 $\mu$ m	Using ULM
28.	Taper Thread Plug Gauge <sup>\$</sup>	6 mm to 50 mm	3.6 $\mu$ m	Using ULM and Measuring pin

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29.	Measuring Pin <sup>s</sup>	0.1 mm to 20 mm	0.64 $\mu$ m	Using ULM
30.	Measuring Wire <sup>s</sup>	0.17 mm to 6.00 mm	0.64 $\mu$ m	Using ULM
31.	Surface Roughness Master <sup>s</sup>	Ra 7 $\mu$ m Rz 25 $\mu$ m Rmax 25 $\mu$ m	10 % 10 % 10 %	Using Surface Roughness tester
32.	Feeler Gauge / Thickness Gauge <sup>s</sup>	0.03 mm to 2 mm	1.8 $\mu$ m	Using Electronic Micrometer
33.	Radius Gauge <sup>s</sup>	0.4 mm to 25 mm	3.5 $\mu$ m	Using Video Measuring Machine
34.	Pitch Gauge <sup>s</sup>	0.4 mm to 4 mm	3.5 $\mu$ m	Using Video Measuring Machine
35.	Caliper Checker / Step Gauge / Check Master / Depth Micro Checker / Internal Micro Checker <sup>s</sup>	0 to 600 mm	5.0 $\mu$ m	Using Micro-Hite & Gauge Blocks
36.	Stick Micrometer <sup>s</sup>	5 mm to 100 mm	8.0 $\mu$ m	Using Metroscope
37.	Extension Rod For Stick Micrometer <sup>s</sup>	Upto 600 mm	4.0 $\mu$ m	Using Metroscope
38.	Dial Calibrator <sup>s</sup> L.C.: 0.0001 mm	Upto 25 mm	1.0 $\mu$ m	Using Dial Calibrator Electronic Probe
39.	Bore Gauge Transmission 1.5 mm <sup>s</sup>	Upto 300 mm	1.8 $\mu$ m	Using Dial Gauge Calibrator

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40.	Bore Gauge Transmission 2.0 mm <sup>s</sup>	300 mm to 500 mm	2.2 $\mu$ m	Using Dial Gauge Calibrator
41.	Sine Bar <sup>s</sup> i) Center Distance ii) Flatness & Parallelism	Upto 500 mm	6.0 $\mu$ m	Using CMM
42.	Probe (LVDT) <sup>s</sup>	Upto 10 mm	1.0 $\mu$ m	Using Metroscope
43.	Roundness of Gauges <sup>s</sup>	Upto 200 mm	0.50 $\mu$ m	Using Roundness Measuring machine
44.	3 Point Micrometer <sup>s</sup> L.C.: 0.001 mm	>6 mm to 20 mm >20 mm to 50 mm >50 mm to 100 mm	6.0 $\mu$ m 7.0 $\mu$ m 8.0 $\mu$ m	Using Master Ring Gauges
45.	Steel Rule <sup>s</sup> L.C.: 0.5 mm	Upto 1000 mm	246.0 $\mu$ m	Using Tape Scale Calibrator
46.	Steel Tape <sup>s</sup> L.C.: 1 mm	3 m 10 m 30 m	150 $\sqrt{L}$ L in meter	Using Tape Scale Calibrator
47.	Long Gauge Block <sup>s</sup>	100 mm to 300 mm 300 mm to 500 mm	2.38 $\mu$ m 4.44 $\mu$ m	Using ULM and Long Gauge Block
48.	Surface Plate <sup>*</sup>	Upto 1000 mm 1000 mm x 2000 mm 2000 mm x 5000 mm	1.88 $\sqrt{\frac{(L+W)}{150}}$ $\mu$ m L & W in mm	Using Electronic Level

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49.	Universal Length Measuring Machine* (Metroscope) L.C.: 0.1 $\mu$ m	Upto 100 mm 100 mm to 500 mm	0.6 $\mu$ m 4.0 $\mu$ m	Using Gauge Block Grade K
50.	Co-Ordinate Measuring Machine (CMM)* L.C.: 0.1 $\mu$ m	500 mm x 500 mm x 500 mm	4.8 $\mu$ m	Using Long Gauge Block Grade O
51.	Slip Gauge Calibrator* L.C.: 0.01 $\mu$ m	Upto 100 mm	0.16 $\mu$ m	Using 'K' Grade Gauge Block
52.	Video Measuring Machine/Profile Projector* (L.C.: 0.1 $\mu$ m) (L.C.: 1")	300 mm x 200 mm	3.0 $\mu$ m 12"	Using Linear and Angular Gauge Blocks / Glass Grid
53.	Tape Scale Calibrator* L.C.: 0.005 mm	0 to 1000 mm	8.0 $\mu$ m	Using Gauge Block & Long Gauge Blocks
54.	Electronic Height Gauge* L.C.: 0.1 $\mu$ m	0 to 350 mm 0 to 600 mm 0 to 900 mm 0 to 1000 mm	3.0 $\mu$ m 5.0 $\mu$ m 6.0 $\mu$ m 8.0 $\mu$ m	Using Long Gauge Blocks & Square Blocks
II.	<b>PRESSURE INDICATING DEVICES</b>			
1.	Hydraulic Pressure: Dial / Digital Pressure Gauge, Pressure Switch #	0 to 700 bar	0.49 bar	Using Digital Pressure Indicator with Hydraulic Pump

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Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability ( $\pm$ )	Remarks
2.	Pneumatic Pressure: Dial / Digital Pressure Gauge, Pressure Switch <sup>#</sup>	0 to 35 bar	0.06bar	Using Digital Pressure Gauge Calibrator
<b><u>MOBILE FACILITY</u></b>				
1.	<b>DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)</b>			
1.	External Micrometers L.C.: 0.001 mm	Upto 25mm >25 mm to 50 mm >50 mm to 75 mm >75 mm to 100 mm	1.5 $\mu$ m 1.6 $\mu$ m 2.5 $\mu$ m 2.6 $\mu$ m	Using Gauge Block
2.	Plain Plug Gauges	1 mm to 100 mm	1.6 $\mu$ m	Using Horizontal Measuring Bench
3.	Thread Plug Gauges	2 mm to 100 mm	1.6 $\mu$ m	Using Horizontal Measuring bench & Three Wires
4.	Plain Ring Gauges	2 mm to 100 mm	1.6 $\mu$ m	Using Horizontal Measuring Bench
5.	Vernier Caliper L.C.: 0.01 mm	Upto 300 mm >300 mm to 600 mm	13.0 $\mu$ m 17.0 $\mu$ m	Using Caliper Checker
6.	Plunger Dial Gauge L.C.: 0.001	Upto 10 mm Upto 50 mm	1.0 $\mu$ m 4.0 $\mu$ m	Using Dial Gauge Calibrator & Horizontal Measuring Bench
7.	Lever Type Dial Gauge L.C.: 0.00 1mm	1.4 mm	1.2 $\mu$ m	Using Dial Gauge Calibrator

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8.	Height Gauges L.C.: 0.01mm	Upto 300 mm Upto 600 mm	10.0 $\mu$ m 14.0 $\mu$ m	Using Micro Hite / Long Gauge Block
9.	Electronic Height Gauge L.C.: 0.1 $\mu$ m	Upto 300 mm Upto 600 mm	4.2 $\mu$ m 6.0 $\mu$ m	Using Gauge Block & Long Gauge Block
10.	3 Point Micrometer L.C.: 0.001 mm	>6 mm to 20 mm >20 mm to 50 mm >50 mm to 100 mm	3.8 $\mu$ m 4.7 $\mu$ m 10.0 $\mu$ m	Using Master Ring Gauges

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Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability ( $\pm$ )	Remarks
<b><u>THERMAL CALIBRATION</u></b>				
<b>I.</b>	<b>TEMPERATURE</b>			
1.	RTD/TC Temperature Sensors with and Without Indicators, Dial Thermometers, Temperature Indicators/ Controllers/Recorders with Sensor, Temperature Gauges, Temperature Switches <sup>§</sup>	(-) 20 °C to 50 °C  > 50 °C to 600 °C	0.24 °C  0.48 °C	Using Ref. SSPRT – PT100 sensor , DMM HP34401A , Liquid bath  Using Ref. SSPRT – PT100 sensor , DMM HP34401A , Dry block
2.	Glass Thermometer <sup>§</sup>	(-)20 °C to 150 °C	0.65 °C	Using Ref. SSPRT – PT100 sensor , DMM HP34401A , Liquid bath
3.	RTD/TC Temperature Sensors with and without Indicators, Dial Thermometers, Temperature Indicators/Controllers/Recorders with Sensor, Temperature Gauges , Temperature Switches <sup>*</sup>	50 °C to 600 °C	0.48 °C	Using Ref. SSPRT – PT100 sensor , DMM HP34401A, Dry block

\* 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.

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