

<b>Laboratory</b>	<b>Shreta Lab Tech, 26, Corporation Complex, Patel Road, Ramnagar, Coimbatore, Tamil Nadu</b>		
<b>Accreditation Standard</b>	<b>ISO/IEC 17025: 2005</b>		
<b>Discipline</b>	<b>Mechanical Calibration</b>	<b>Issue Date</b>	<b>11.09.2015</b>
<b>Certificate Number</b>	<b>C-0732</b>	<b>Valid Until</b>	<b>10.09.2017</b>
<b>Last Amended on</b>	<b>24.09.2015</b>	<b>Page</b>	<b>1 of 6</b>

Quantity Measured/ Instrument	Range / Frequency	*Calibration Measurement Capability ( $\pm$ )	Remarks
<b>I. DIMENSION</b>			
<b>1. CALIPERS \$</b> (Vernier /Dial / Digital) LC: 0.01 mm <sup>Φ</sup> LC: 0.02 mm	Upto 1000 mm 1000 mm to 2000 mm	14.4 $\mu$ m 20.4 $\mu$ m	Using Gauge Blocks & Caliper Checker by Comparison Method
<b>2. DEPTH GAUGE \$</b> (Vernier/Dial/Digital) LC: 0.01 mm <sup>Φ</sup>	Upto 1000 mm	13.1 $\mu$ m	Using Gauge Blocks & Long Gauge Blocks by Comparison Method
<b>3. EXTERNAL MICROMETER \$</b> LC:0.001 mm LC:0.01 mm	Upto 600 mm Upto 1200 mm	2.7 $\mu$ m 12.7 $\mu$ m	Using Gauge Blocks by Comparison Method
<b>4. DEPTH MICROMETER \$</b> LC:0.01 mm	Upto 300 mm	10.2 $\mu$ m	Using Gauge Blocks by Comparison Method
<b>5. INTERNAL /STICK / TUBULAR MICROMETERS \$</b> LC:0.01 mm LC:0.001 mm	Upto 800 mm Upto 300 mm	7.3 $\mu$ m 7.2 $\mu$ m	Using Gauge Block & Micro Dial by Comparison Method
<b>6. PLUNGER DIAL GAUGES \$</b> LC: 0.001 mm LC:0.01 mm	Upto 5 mm Upto 100 mm	1.1 $\mu$ m 6.3 $\mu$ m	Using ULM by Comparison Method
<b>7. LEVER DIAL GAUGE \$</b> LC:0.001 mm LC:0.002 mm LC:0.01 mm	Upto 0.14 mm Upto 0.2 mm Upto 1 mm	1.2 $\mu$ m 1.6 $\mu$ m 6.3 $\mu$ m	Using ULM by Comparison Method

**Neeraj Verma**  
Convenor

**Avijit Das**  
Program Manager

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	<b>Quantity Measured/ Instrument</b>	<b>Range / Frequency</b>	<b>*Calibration Measurement Capability (<math>\pm</math>)</b>	<b>Remarks</b>
8.	<b>DIAL BORE GAUGE \$ (Transmission error)</b>	Upto 1 mm	1.8 $\mu\text{m}$	Using ULM by Comparison Method
9.	<b>VERNIER HEIGHT GAUGE / DIAL / DIGITAL \$ LC:0.01 mm <sup>Φ</sup></b>	Upto 1000 mm	11.3 $\mu\text{m}$	Using Gauge Blocks / Length bars by Comparison Method
10.	<b>SNAP GAUGE \$</b>	Upto 600 mm	5.2 $\mu\text{m}$	Using ULM / Gauge Blocks / Length bars by Comparison Method
11.	<b>FEELER GAUGE \$</b>	Upto 1 mm	1.9 $\mu\text{m}$	Using ULM / Gauge Blocks / Length bars by Comparison Method
12.	<b>CYLINDRICAL MEASURING PINS / WIRES \$</b>	Upto 20 mm	2.0 $\mu\text{m}$	Using ULM by Comparison Method
13.	<b>BEVEL PROTRACTOR / COMBINATION SET \$</b>	0°-90°- 0°	3 min of arc	Using Angle Gauge by Comparison Method
14.	<b>PLAIN / SEGMENTAL PLUG GAUGE \$</b>	1 mm to 500 mm	3.6 $\mu\text{m}$	Using ULM by Comparison Method
15.	<b>TAPER PLAIN PLUG GAUGE \$ (Diameter Only)</b>	1 mm to 300 mm	2.1 $\mu\text{m}$	Using ULM by Comparison Method
16.	<b>THREAD PLUG GAUGE \$ (For Effective Diameter Only)</b>	1 mm to 400 mm	2.7 $\mu\text{m}$	Using ULM by Comparison Method

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17. TAPER THREAD PLUG GAUGE \$	1 mm to 280 mm	3.0 μm	Using ULM by Comparison Method
18. PLAIN MASTER SETTING RING GAUGE \$	1 mm to 400 mm	1.9 μm	Using ULM by Comparison Method
19. TAPER PLAIN RING GAUGE \$	1 mm to 100 mm	2.4 μm	Using ULM by Comparison Method
20. THREAD RING GAUGE \$	1 mm to 320 mm	2.7 μm	Using ULM by Comparison Method
21. RADIUS GAUGE \$	Upto 50mm	5.2 μm	Using Video Measuring System by Comparison Method
22. PITCH GAUGE \$	Upto 6 mm	3.8 μm	Using Video Measuring System by Comparison Method
23. INSIDE DIAL CALIPER \$ LC:0.001 mm <sup>Φ</sup>	Upto 200 mm	7.0 μm	Using ULM by Comparison Method
24. 2D – HEIGHT MASTER\$ LC:0.0001 mm <sup>Φ</sup>	Upto 800 mm	1.4 μm	Using Length bars & Gauge Blocks by Comparison Method
25. SURFACE PLATE \$	3000 mm X 3000 mm	$3.0 \sqrt{\frac{L+W}{100}} \mu\text{m}$	Using Spirit Level by Comparison Method
26. PISTOL CALIPER \$ LC:0.1 mm	Upto 300 mm	70.2 μm	Using Gauge Blocks by Comparison Method

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27. UNIVERSAL LENGH MEASURING MACHINE \$ LC:0.0001 mm	Upto 150 mm	0.3 $\frac{+L}{400}$	Using Gauge Blocks & Master Ring Gauges by Comparison Method
28. LENGTH BARS \$	Upto 500 mm	2.6 $\mu\text{m}$	Using ULM & Length bars by Comparison Method
29. SETTING ROD \$	Upto 100 mm Above 100 mm to 500 mm Above 500 mm to 1200 mm	1.6 $\mu\text{m}$ 1.9 $\mu\text{m}$ 4.2 $\mu\text{m}$	Using ULM , Slip Gauge & Length Bars by Comparison Method
30. V-BLOCK \$ Flatness, Parallelism, Symmetricity	150 mm	4.2 $\mu\text{m}$ 6.0 $\mu\text{m}$	Using Test Mandrel & Lever Dial Gauge by Comparison Method
31. BENCH CENTRE \$ Parallelity Co-axiality centre	Centre Height 300mm admin between centre's 300 mm	6.0 $\mu\text{m}$	Using Mandrel / Precision Dial Indicator by Comparison Method
32. MICROMETER HEAD \$	Upto 100 mm	1.5 $\mu\text{m}$	Using ULM by Comparison Method
33. SINE BAR \$	Upto 200 mm	19 Arc Sec	Using Slip Gauge / Angle Block & Sine Table by Comparison Method
34. COMPARATOR STAND \$ (Flatness Only)	Upto 300 mm	4.3 $\mu\text{m}$	Using LVDT Probe by Comparison Method

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35. SCALE \$	Upto 1000 mm	0.3 $\mu$ m	Using Video Measuring Machine by Comparison Method
36. SPIRIT LEVEL \$ SENSITIVITY : 0.02 mm / mtr	Upto 300 mm	20 $\mu$ m / mtr	Using Electronic Level / Sine Table by Comparison Method
37. MEASURING TAPE \$	Upto 5000 mm	-	Using Video Measuring Machine by Comparison Method
38. DIGITAL INDICATOR / LVDT / ELECTRONIC PROBE \$	Upto 10 mm	0.74 $\mu$ m	Using ULM by Comparison Method
39. BENCH CENTRE *	Upto 500 mm	5.0 $\mu$ m	Using Master Mandrel by Comparison Method
40. PROFILE PROJECTOR / TOOL MICROSCOPE / VISION MEASURING MACHINE * LINEAR ANGULAR MAGNIFICATION	200 mm X 150 mm 3600 Upto 50 X	4.0 $\mu$ m 17 Arc Sec 4.0 $\mu$ m	Using Gauge Blocks & Angle Gauge Blocks by Comparison Method
41. SURFACE PLATE *	3000 mm X 3000 mm	$3.0 \sqrt{\frac{L+W}{100}} \mu$ m	Using Spirit Level by Comparison Method

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<b>II. PRESSURE &amp; VACUUM</b>			
1. <b>HYDRAULIC DIGITAL &amp; DIAL PRESSURE GAUGES/ PRESSURE TRANSMITTERS TRANSDUCERS #</b>	0 to 1000 kg/cm <sup>2</sup>	0.7 % rdg.	Using Hydraulic comparison screw pump & Digital Indicator by Comparison Method
<b>III. TORQUE</b>			
1. <b>HAND TORQUE TOOLS, TORQUE WRENCHES \$ TYPE- I (Class A,B,C,) &amp; TYPL- II (Class A &amp; B)</b>	300 Nm to 3000 Nm	1.4 % rdg	Using Torque Calibration with Transducer & Indicator and Fixture by Comparison Method

\* Measurement Capability is expressed as an uncertainty ( $\pm$ ) at a confidence probability of 95%

\$Only in Permanent Laboratory

\*Only for Site Calibration

<sup>o</sup> 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.

# 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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