

Laboratory	Samarth Calibration Laboratory, 114/1/1, General Block, M.I. D. C. , Bhosari, Pune, Maharashtra		
Accreditation Standard	ISO/IEC 17025:2005		
Discipline	Mechanical Calibration	Issue Date	31.05.2015
Certificate Number	C-0720	Valid Until	30.05.2017
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Quantity Measured / Instrument		Range/ Frequency	* Calibration Measurement Capability ($\pm$)	Remarks
I. DIMENSION				
1. CALIPER^s (Vernier/ Dial/Digital) L.C. : 0.01mmΦ		Upto 600 mm Upto 1000 mm	14.0 μ m 16.0 μ m	Using Caliper Checker & Length Bar by Comparison Method
2. HEIGHT GAUGE^s (Dial / Digital) L.C. ; 0.0001 mmΦ		Upto 1000 mm	3.0 μ m	Using Grade '0' Slip Gauge & Length Bar by Comparison Method
3. VERNIER HEIGHT^s GAUGE L.C. : 0.02 mm		Upto 600 mm Upto 1000mm	19.0 μ m 21.0 μ m	Using Grade '0' Slip Gauge, Digimatic Dial & Length Bar by Comparison Method
4. VERNIER DEPTH GAUGE^s (Dial / Digital) L.C. : 0.01mmΦ		Upto 600 mm	16.0 μ m	Using Grade '0' Slip Gauge Caliper Checker & Length Bar by Comparison Method
5 DEPTH MICROMETER^s L.C. : 0.01mm		Upto 300 mm Upto 600 mm	9.0 μ m 12.0 μ m	Using Grade '0' Slip Gauge & Length Bar by Comparison Method

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6.	EXTERNAL MICROMETER^s L.C.: 0.001mm	Up to 150 mm	2.0 μ m	Using Gr'0' Slip Gauge Set Slip by Comparison Method
	L.C. : 0.01 mm	Up to 100 mm Up to 300 mm Up to 600 mm Up to 1000 mm	3.5 μ m 4.2 μ m 7.0 μ m 11.0 μ m	Using Gr'0' Slip Gauge Set Slip & Length Bar by Comparison Method
7.	INTERNAL MICROMETER^s L.C : 0.01mm	Up to 25 mm - Head	2.0 μ m	Using Gr'0' Slip Gauge Set, Electronic Comparator with stand & ULM 600 mm by Comparison Method
	SETTING ROD (Interchange rod upto 500 mm)	2100 mm	9.0 μ m	
8.	HEIGHT MICROMETER^s L.C.: 0.001 mm^Φ	Up to 300 mm	4.2 μ m	Using Gr'0' Slip Gauge Set by Comparison Method
9.	MICROMETER HEAD^s L.C. : 0.0002 mm^Φ	0 to 25 mm	1.0 μ m	Using Gr'0' Slip Gauge Set by Comparison Method
10.	V- GROOVE MICROMETER^s L.C. : 0.001 mm^Φ	Up to 100 mm	4 μ m	Using Setting Master by Comparison Method

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11. DIAL GAUGE ^{\$} (Plunger Type) L.C. : 0.0005 mm	± 0.050 mm	0.75 μ m	Using Electronic Dial Tester by Comparison Method
L.C. : 0.001 mm	Up to 1 mm Up to 5 mm Up to 30 mm Up to 50 mm	1.5 μ m 2.0 μ m 3.0 μ m 4.0 μ m	Using Electronic Dial Tester by Comparison Method
L.C.: 0.01 mm	Up to 10 mm Up to 25 mm Up to 50 mm	3.0 μ m 4.0 μ m 6.0 μ m	Using Electronic Dial Tester ULM -600 by Comparison Method
12. LEVER TYPE DIAL ^{\$} L.C. : 0.0001 mm	Up to 0.10 mm	0.5 μ m	Using Electronic Dial Tester by Comparison Method
L.C.: 0.001 mm	Up to 0.14 mm	1.0 μ m	
L.C.: 0.002 mm	Up to 1 mm	2.0 μ m	
L.C. : 0.01 mm	Up to 2 mm	3.5 μ m	
13. TWO PIN DIAL GAUGE ^{\$} L.C. : 0.01 mm	Up to 75 mm	4.0 μ m	Using ULM -600 by Comparison Method
L.C. : 0.025 mm	Up to 150 mm	7.5 μ m	
14. BORE GAUGE ^{\$} (Transmission Only) L.C.: 0.001mm ^Φ	Up to 1.20 mm (Stroke Only)	2.0 μ m	Using Electronic Dial Tester by Comparison Method

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15.	DIAL CALIBRATION TESTER ^{\$} L.C. : 0.0001mm ^Φ	0 to 25 mm	0.7 μ m	Using Gr'0' Slip Gauge Set & Probe with DRO by Comparison Method
16.	FLOATING CARRIAGE MACHINE ^{\$} L.C. : 0.0001 ^Φ	0 to 200 mm	1.6 μ m	Using Gr'0' Slip Gauge, Setting Master, Plain Mandrel by Comparison Method
17.	DIAL THICKNESS GAUGE ^{\$} L.C.: 0.001 mm L.C.: 0.01 mm	Up to 10 mm Up to 25 mm	1.0 μ m 3.0 μ m	Using Gr'0' Slip Gauge Set by Comparison Method
18.	PISTOL CALIPER ^{\$} L.C. : 0.10 mm	Up to 50 mm	30 μ m	Using Gr'0' Slip Gauge Set by Comparison Method
19.	DIAL SNAP GAUGE ^{\$}	Upto 100 mm Upto 300 mm	2.0 μ m 4.0 μ m	Using Gr'0' Slip Gauge Set by Comparison Method
20.	COMPARATOR W STAND ^{\$} L.C. : 0.0001 mm ^Φ	Up to 25 mm	0.6 μ m	Using Gr'0' Slip Gauge Set & Probe with DRO by Comparison Method
	FLATNESS OF BASE	500 mm X 500 mm	2.20 μ m	

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	Quantity Measured / Instrument	Range/ Frequency	* Calibration Measurement Capability (±)	Remarks
21.	PROBE WITH DRO^s L.C.: 0.0001 mm^Φ	Up to 10 mm Up to 25 mm	0.4 μm 0.6 μm	Using Gr'0' Slip Gauge Set by Comparison Method
22.	GAUGE BLOCKS^s L. C.: 0.5 mm to 100 mm	Upto 20 mm >20 mm to 50 mm >50 mm to 100 mm	0.07 μm 0.09 μm 0.11 μm	Using Slip Gauge , Calibrator and "K" Grade Slip by Comparison Method
23.	THREAD MEASURING WIRES / 3 WIRE SET/ MEASURING PINS^s	0.170 mm to 6.35 mm Ø 25 mm	0.65 μm 0.9 μm	Using Electronic Comparator with Stand by Comparison Method
24.	THREAD MEASURING PRISM^s	A/B/C/D	1.2 μm	Using Electronic Comparator with Stand by Comparison Method
25.	CYLINDRICAL MASTERS^s	Upto to Ø25 mm Ø25 mm to Ø100 mm >Ø 100 mm to Ø200 mm	1.1 μm 1.5 μm 2.4 μm	Using Gr'0' Slip Gauge Set & Electronic Comparator with stand by Comparison Method
26.	PLAIN RING GAUGE/ SETTING RING GAUGE^s	Ø 3 mm to 50 mm Ø 50 mm to 100 mm Ø 100 mm to 400 mm Ø 400 mm to 500 mm	1.0 μm 1.6 μm 2.0 μm 4.2 μm	Using ULM 600 Machine by Comparison Method
27.	STRAIGHT EDGE^s	Upto 1000 mm	$3.51 \sqrt{\frac{L}{100}} \mu\text{m}$ L is in mm	Using Spirit Level by Comparison Method

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28.	MICROMETER STICKS / LENGTH BAR ^{\$}	Upto 300 mm 300 mm to 600 mm 600 mm to 1000 mm	1.4 μ m 2.7 μ m 4.2 μ m	Using Electronic Comparator with Stand Gr'0' Slip Gauge Set by Comparison Method Length Bar & ULM – 600 by Comparison Method
29.	RISER BLOCK ^{\$}	300 mm	2.8 μ m	Using Probe with DRO
30.	CALIPER CHECKER / STEP GAUGE / MICROCHECKER ^{\$}	600 mm 1000 mm	4.0 μ m 6.0 μ m	Using Gr'0' Slip Gauge Set & Electronic Lever Probe & Length Bar by Comparison Method
31.	FEELER GAUGE SET/ FOILS COATING THICKNESS ^{\$}	Upto 1 mm	2.5 μ m	Using Digimatic Micrometer by Comparison Method
32.	COAT THICKNESS METER ^{\$}	Upto 2 mm	3.2 μ m	Using Master Foils by Comparison Method
33.	RADIUS GAUGE SET / RADIUS TEMPLATE ^{\$}	Upto 75 mm (For Radius)	17.5 μ m	Using Profile Projector by Comparison Method
34.	THREAD PITCH GAUGE ^{\$} For Angle For Pitch	55°&60° 0.3 mm to 8mm	24.5 min .of arc 25 μ m	Using Profile Projector by Comparison Method
35.	C.D / P.C.D GAUGE ^{\$}	Upto 500 mm	5.4 μ m	Using Using Sylac 2 D Machine by Comparison Method
36.	MEASURING SCALE / TAPER SCALE ^{\$}	Upto 1000 mm	75 μ m	Using Scale & Tape Calibrator by Comparison Method

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37.	MEASURING TAPE ^{\$}	Upto 50 m	$75 \sqrt{\frac{L}{1000}}$ L is in mm	Using Scale & Tape Calibrator by Comparison Method
38.	PRECISION GLASS SCALE ^{\$}	Upto 300 mm	5.5 μ m	Using Profile Projector by Comparison Method
39.	PLAIN PLUG GAUGE / PADDLE / WIDTH TYPE/ FLUSH PIN GAUGE ^{\$}	Up to $\varnothing$ 100 mm Up to $\varnothing$ 300 mm Up to $\varnothing$ 500 mm	1.5 μ m 3.2 μ m 7.4 μ m	Using Gr'0' Slip Gauge Set / Electronic Comparator & ULM 600 by Comparison Method
	PLAIN MANDREL (Run out & Straightness)	Up to 1000 mm	5.4 μ m	Using Bench Calibrator by Comparison Method
40.	PLAIN SNAP GAUGE ^{\$}	Upto 200 mm 200 mm to 300 mm 300 mm to 500 mm	2.1 μ m 5.1 μ m 6.1 μ m	Using Gr'0' Slip Gauge Set & ULM-600 by Comparison Method
41.	TAPER PLUG GAUGE ^{\$}	For angle Up to 300 mm	7 sec of arc 2.2 μ m	Using ULM-600 by Comparison Method
42.	TAPER MANDREL ^{\$}	For angle Up to 300 mm	7 sec of arc 2.2 μ m	Using Bench Calibrator by Comparison Method
43.	TAPER RING GAUGE ^{\$}	For angle Up to 300 mm	7 sec of arc 2.2 μ m	Using ULM -600 by Comparison Method
44.	TAPER THREAD PLUG GAUGE ^{\$} (Effective Diameter Only)	Up to 100 mm Up to 300 mm	3.7 μ m 3.7 μ m	Using FCDM & ULM-600 by Comparison Method

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45.	TAPER THREAD RING GAUGE ^s (Effective Diameter Only)	Up to 100 mm Up to 300 mm	2.5 μ m 3.1 μ m	Using ULM -600 by Comparison Method
46.	THREAD PLUG GAUGE ^s (Effective Diameter Only)	Up to 100mm Up to 300 mm	3.7 μ m 3.5 μ m	Using FCDM & ULM -600 by Comparison Method
47.	THREAD RING GAUGE ^s (Effective Diameter Only)	Up to 100 mm Up to 300 mm	2.0 μ m 2.0 μ m	Using ULM -600 by Comparison Method
48..	BEVEL PROTECTOR ^s L.C.: 1 min ^o	0° - 90° - 0°	1.4 min of arc	Using Sine Bar, Gr' 0 ' Slip Gauge Angle Gauge Set by Comparison Method
49.	COMBINATION SET / DEGREE PROTRACTOR ^s L.C.: 1°	0° to 180°	17.4 min of arc	Using Sine Bar, Gr' 0 ' Slip Gauge Angle Gauge Set by Comparison Method
50.	ANGLE PLATE / SQUARE MASTER / GRANITE L SQUARE ^s (Flatness / Squareness / Parallelism)	600 X 400 mm	7.0 μ m	Using Ele. Probe with DRO , Sylvac 2D Height Machine Granite L Square by Comparison Method
51.	ELECTRONIC LEVEL / SPIRIT LEVEL ^s L.C.: 1 μ m /m ^o L.C.: 10 μ m /m L.C.: 20 μ m /m	2 mm /m 60 μ m /m 100 μ m /m	4.8 μ m /m 10 μ m /m 16.8 μ m /m	Using Base Length Upto 300 mm by Comparison Method

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52.	SINE BAR /SINE CENTER/ SINE TABLE ^{\$}	Roller Distance Up to 300 mm	$\pm 4.4 \mu\text{m}$	Using Sine Bar, Gr '0' Slip Gauge Probe with DRO by Comparison Method
		Up to 90°	8.6 sec of arc	Using Angle Gauge Block by Comparison Method
53.	ANGLE GAUGE BLOCK ^{\$}	Up to 90°	8.4 sec of arc	Using Sine Bar, Gr '0' Slip Gauge & Probe with DRO by Comparison Method
54.	V- BLOCK ^{\$} (Parallelism Symmetricity Squareness)	Up to 500 mm	4.5 μm 5.9 μm 8.0 μm	Using Probe with DRO Straight Mandrel & Sylvac 2D Machine by Comparison Method
55.	ENGINEER'S SQUARE ^{\$} (Parallelism Squareness)	Up to 500 mm	4.5 μm 8.0 μm	Using Probe with DRO & Sylvac 2D M/c by Comparison Method
56.	SPLINE PLUG GAUGE ^{\$}	0 to 100 mm	4.2 μm	Using FCDM by Comparison Method
57.	SPLINE RING GAUGE ^{\$}	10 mm to 100 mm	2.5 μm	Using Gr.0 Slip Gauge by Comparison Method

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58.	PROFILE PROJECTOR*			
	a) Linear X-Y L.C.0.001 mm ^Φ	0 to 200 mm	4.4 μ m	Using Precision Glass Scale by Comparison Method
	b) Angular	0° to 360°	2 min of arc	Using Angle Gauge by Comparison Method
	c) Magnification	10 X to 100X	1.8%	Using Slip Gauge & Digimatic caliper by Comparison Method
58.	SURFACE PLATE*	3000 x 3000 mm	3.86 $\sqrt{(L+W)/B}$ μ m (B=Bridge Length) Where L & W - mm	Using Spirit Level by Comparison Method
60.	SINGLE AXIS MEASURING MACHINE* (In Horizontal Direction) L.C.: 0.0001mm ^Φ	Upto 100 mm	1.0 μ m	Using Gr'0' Slip Gauge Set by Comparison Method
61.	ELECTRONIC HEIGHT GAUGE* L.C.: 0.0001 mm ^Φ	0 to 600 mm	2.0 μ m	Using Gr'0' Slip Gauge Set & Length Bar by Comparison Method
		0 to 1000 mm	3.2 μ m	
62.	BENCH CENTER*	0 to 300 mm	8.6 μ m	Using Digimatic Dial Parallel & Taper Mandrel by Comparison Method

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63.	SCALE & TAPE CALIBRATOR* L.C.: 0.001 mm ^Φ	Upto 1000 mm	40 μ m	Using Slip Gauge / Length Bar & Digimatic Dial by Comparison Method
64.	CONTOUR MACHINE* L.C. : 0.0001 mm ^Φ (Only for contour measurement)	Up to 100 mm	1.5 μ m	Using Contour Specimen by Comparison Method
65.	VIDEO MEASURING MACHINE* L.C: 0.0001 mm ^Φ	Upto 200 mm	4.0 μ m	Using Precision Glass Scale Angle Gauge Block by Comparison Method
66.	SURFACE PLATE*	3000 X 3000 mm	$0.76 \times \sqrt{(L+W)} / B \mu$ m (B=Bridge Length) Where L & W mm	Using Electronic Level 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

^Φ 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.

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