

Laboratory	LSD Calibration Services, 116-A, Jwalaheri Market, Paschim Vihar, New Delhi		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Mechanical Calibration	Issue Date	26.11.2015
Certificate Number	C-1004	Valid Until	25.11.2017
Last Amended on	10.12.2015	Page	1 of 4

Quantity Measured/ Instrument	Range / Frequency	*Calibration Measurement Capability (\pm)	Remarks
I. DIMENSION			
1. CYLINDRICAL SETTING MASTERS \$	Upto 60 mm	3.8 μ m	Using Dial Comparator with stand, Slip Gauge Grade '0' by Comparison Method
2. MEASURING PINS \$	Upto 25 mm	2.2 μ m	Using Digital Micrometer by Comparison Method
3. MICROMETER SETTING STANDARD \$	Upto 60 mm > 60 mm to 100 mm >100 mm to 150 mm	3.8 μ m 4.1 μ m 4.5 μ m	Using Dial Comparator with stand, Slip Gauge Grade '0' by Comparison Method
4. THREAD MEASURING PRISMS \$	Upto 6.5 mm	2.1 μ m	Using Digital Micrometer by Comparison Method
5. FEELER GAUGE SET \$	Upto 2 mm	2.1 μ m	Using Digital Micrometer by Comparison Method
6. LENGTH BARS \$	Upto 60 mm >60 mm to 100 mm >100 mm to 150 mm	3.8 μ m 4.1 μ m 4.5 μ m	Using Dial Comparator with stand, Slip Gauge Grade '0' by Comparison Method
7. V BLOCK \$ Flatness, Parallelism, Symmetricity	300 mm x 200 mm x 200 mm	8.9 μ m 8.2 μ m 9.8 μ m	Using Lever Dial Gauge, Gauge Blocks, Surface Plate, Mandrel

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8. PLAIN PLUG GAUGES \$	\varnothing 1 mm to \varnothing 60 mm > \varnothing 60 mm to \varnothing 100 mm > 100 mm to 150 mm	4.1 μ m 4.1 μ m 4.5 μ m	Using Dial Comparator with stand, Slip Gauge Grade '0' by Comparison Method
9. SNAP GAUGES \$ (Gap Gauges)	Upto 200 mm	3.6 μ m	Using Grade '0' Gauge Blocks by Comparison Method
10. FLUSH PIN GAUGES \$	Upto 60 mm > 60 mm to 100 mm > 100 mm to 150 mm	3.8 μ m 4.1 μ m 4.5 μ m	Using Dial Comparator with stand, Slip Gauge Grade '0' by Comparison Method
11. THREAD PLUG GAUGE / WEAR CHECK PLUG GAUGE	M 1 TO M 25 >M 25 TO M 100	3.0 μ m 6.9 μ m	Using Digital Micrometer / Thread Measuring Wires
12. CALIPERS \$ (Vernier / Dial / Digital) L.C. : 0.01 mm Φ	Upto 600 mm	12.5	Using Caliper Checker & Slip Gauge, Grade '0' by Comparison Method
L.C.: 0.01 mm Φ	> 600 mm to 1500 mm	20.0 μ m	Using Length Bars by Comparison Method
13. HEIGHT GAUGES \$ (Vernier/Dial / Digital) L.C. : 0.01 mm Φ	Upto 600 mm	12.7 μ m	Using Caliper Checker by Comparison Method

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14. DEPTH GAUGES \$ (Vernier/Dial / Digital) L.C. : 0.01 mm Φ	Upto 150 mm	12.1 μ m	Using Caliper Checker & Slip Gauge, Grade '0' by Comparison Method
15. EXTERNAL MICROMETER \$ (Analog/ Dial / Digital) L.C. : 0.001 mm Φ L.C. : 0.001 mm Φ	0 to 100 mm > 100 mm to 150 mm	2.5 μ m 3.1 μ m	Using Grade '0' Gauge Blocks by Comparison Method
16. DEPTH MICROMETER \$ (Analog Dial / Digital) L.C. : 0.001 mm Φ	Upto 100 mm	3.0 μ m	Using Grade '0' Gauge Blocks by Comparison Method
17. PLUNGER DIAL GAUGE \$ L.C. : 0.001 mm Φ	0 to 30 mm	3.2 μ m	Using Comparator Stand and Slip Gauge by Comparison Method
18. LEVER TYPE DIAL GAUGE \$ L.C. : 0.001 mm Φ	0 to 2 mm	3.2 μ m	Using Comparator Stand and Slip Gauge by Comparison Method
19. DIAL THICKNESS GAUGE \$ LC : 0.001 mm Φ	0 to 50 mm	1.8 μ m	Using Grade "0" Gauge Blocks by Comparison Method

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20. INSIDE MICROMETER [§] L.C.: 0.001 mm [°] L.C.: 0.01 mm [°]	0 to 500 mm 0 to 1200 mm	8.5 μ m 22.4 μ m	Using Length Bars by Comparison Method
21. PRESSURE GAUGE [§]	0 to 400 Kg/cm ²	5.81 Kg/cm ²	Using Digital Pressure Gauge by Comparison Method
22. SURFACE PLATE [°]	Upto mm 1000 x 1000 above 1000 mm x 1000 mm	6.2 $2.1 \times \left(\sqrt{\frac{L+W}{100}} \right) \mu\text{m}$ L & W in mm Length L, width W, Base Length = 100 mm	Straight Edge Method Spirit Level
23. PROFILE PROJECTOR [#] L.C. : 0.001 mm / Linear : Magnification: L.C. : Upto 1 min	0 to 200 mm 5X, 10X, 20X, 50X 0 to 360 [°]	7.7 μ m 1.1 % 6 min of arc	Using Slip Gauge / Digital Caliper / Angle gauge
24. BENCH CENTRE [#] PARALLELISM CO-AXIAL	Upto 500 mm	8.0 μ m 8.0 μ m	Using Strength Mandrel, Lever Dial Gauge 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

[#]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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