

Laboratory Metrology Lab, Tata Motors Limited, Chinhat Industrial Area,
Deva Road, Lucknow, Uttar Pradesh

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number CC-2407 (in lieu of C-0540)

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Validity 23.08.2017 to 22.08.2019

Last Amended on 29.03.2019

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
<u>MECHANICAL CALIBRATION</u>				
I.	DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)			
1.	Length Bar [§]	Upto 300 mm > 300 mm to 500 mm	3.0 μ m 5.0 μ m	Using CMM
2.	Limit Snap Gauge [§]	3 mm to 35 mm > 35 mm to 95 mm	1.3 μ m 2.0 μ m	Using Slip Grade 0 by Comparison Method
3.	Adjustable Snap Gauge [§]	3 mm to 95 mm	3.0 μ m	Using Slip Grade 0 by Comparison Method
4.	Setting Ring / Air Ring [§]	3 mm to 205 mm	3.0 μ m	Using CMM
5.	Taper Ring Gauge [§]	Upto Morse Taper 6	3.0 μ m	Using CMM
6.	Plain Plug Gauge / Cylindrical Master / Mandrel [§]	0.5 mm to 65 mm Above 65 mm to 100 mm	1.25 μ m 2.0 μ m	Using Slip Gauge and Comparators
7.	Taper plug Gauge / Mandrel [§]	Upto Morse Taper 6 dia 63.4 mm	3.0 μ m	Using CMM
	Vernier Caliper [§] L.C.: 0.01 mm	Upto 200 mm 200 mm to 450 mm	12.0 μ m 14.08 μ m	
	L.C.: 0.02 mm	Upto 300 mm 300 mm to 750 mm	18.0 μ m 20.0 μ m	
9.	Gear tooth Vernier [§]	80 mm to 100 mm	18.0 μ m	Using Slip Gauge Grade 0 and Measuring Pin

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Program Director

Laboratory

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10.	Pistol caliper ^{\$} L.C.: 0.1 mm	0 to 100 mm	70.0 μ m	Using Slip Gauge
11.	External Micrometer ^{\$} L.C.: 1 μ m	Upto 150 mm Upto 200 mm	1.67 μ m 2.49 μ m	Using Slip Gauge
12.	External Micrometer ^{\$} L.C.: 10 μ m	Upto 150 mm Upto 200 mm	6.0 μ m 8.0 μ m	Using Slip Gauge
13.	Inside Micrometer ^{\$} (Plain & Digital) L.C.: 0.01 mm L.C.: 0.001 mm	5 mm to 50 mm 5 mm to 50 mm	4.0 μ m 4.0 μ m	Using Slip gauge and Accessories Set Grade 0
14.	Depth Micrometer ^{\$} L.C.: 0.01 mm	0 to 300 mm	8.0 μ m	Using Slip Gauge
15.	Point Micrometer ^{\$} L.C.: 0.01 mm L.C.: 0.001 mm	0 to 100 mm 0 to 100 mm	7.0 μ m 2.0 μ m	Using Slip Gauge
16.	Blade micrometer ^{\$} L.C.: 0.01 mm	0 to 50 mm	4.0 μ m	Using Slip Gauge
17.	Thread micrometer ^{\$} L.C.: 0.01 mm	0 to 50 mm	10.0 μ m	Using Slip Gauge
18.	Dial Gauge-Plunger Type ^{\$} L.C.: 1.0 μ m L.C.: 10 μ m	0 to 1.0 mm 0 to 25 mm 0 to 50 mm	1.3 μ m 3.0 μ m 6.1 μ m	Using Dial Calibration Tester(I checker)

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19.	Dial Gauge- Lever Type [§] L.C.: 2 μ m L.C.: 10 μ m	0 to 0.2 mm 0 to 1 mm	2.0 μ m 6.0v	Using Dial Calibration Tester (I checker)
20.	Dial Comparator [§] L.C.: 1 μ m L.C.: 0.5 μ m	\pm 0.05 mm \pm 0.03 mm	1.5 μ m 1.5 μ m	Using Dial Calibration Tester (I checker)
21.	Dial Snap Gauge [§]	0 to 100 mm	3.0 μ m	Using Slip Gauge
22.	Dial Bore Gauge [§] (Travel Only)	Moving range anvil Upto 1.0 mm	2.0 μ m	Using Dial Calibration Tester (I checker)
23.	Bevel Protractor [§] L.C.: 5 minute L.C.: 1 Minute	0° - 90° -0° 0° - 90°-0°	5 min 2 min	Using Angle gauge Block
24.	Angle Gauge Measurement [§]	0° - 90°	9 sec of arc	Using CMM
25.	Cylindrical Square Master [§]	0 to 300 mm	3.0 μ m	Using CMM
26.	Rectangular Square Master [§]	0 to 500 mm	10 μ m	Using CMM
27.	Vee Block [§] (Plain/ Magnetic) Flatness Squareness	Up to 125 mm x 150 mm x 200 mm	5.00 μ m 5.00 μ m	Using CMM, Mandrel, Cylindrical Square
28.	Engg. Square [§] (Squareness of blade)	50 mm to 450 mm	10.00 μ m	Using CMM, Cylindrical Square, Micrometer, Slip Gauge

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29.	Height Gauge [§] (Microprocessor Controlled)	0 to 1000 mm	10.00 μ m	Using Long Series Gauge Block
30.	Comparator Stand [§]	50 mm to 300 mm	2.0 μ m	Using CMM
31.	Feeler Gauge [§]	0.03 mm to 1 mm	3.00 μ m	Using Digital Micrometer
32.	Sine Bar [§]	Upto 300 mm	4.0 min of arc	Using CMM & Angle Gauge Block
33.	Sine Center [§]	Upto 300 mm	4.0 min of arc	Using CMM & Angle Gauge Block
34.	Master Step Gauge [§]	0 mm to 600 mm	5.00 μ m	Using CMM
35.	Roughness Measurement [§]	Ra= 3.17 μ m	9% Ra value	Using Surfcom (Roughness measuring Instrument)
36.	Vernier Height Gauge [§] (Dial/ Digital) L.C.: 0.01 mm L.C.: 0.02 mm	0 to 600 mm 0 to 1000 mm	25.0 μ m 27.0 μ m	Using Long slip Gauge Block, Lever type Dial Gauge, Surface Plate
37.	Thread Plug Gauge [§] (Metric) (Only Pitch dia)	3 mm to 40 mm	5.0 μ m	Using Floating Carriage/Three wire Set
38.	Slip Gauge [§] Accessories Set for 0 to 300 mm size	Base Height 25 mm	3.0 μ m	Using CMM

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39.	Surface Plate [§]	2000 mm x 2000 mm	$2.1 \sqrt{\frac{L+W}{125}}$	Using Electronic Level (Wylar make) with Software
40.	Angle Plate/ Box Angle Plate [§] (Squareness & Flatness)	100 mm to 450 mm	11.00 μ m	Using Electronic Level, Cylindrical Square, Slip Gauge
41.	Bench Centre [§] Coaxiality Parallelism	100 mm to 1000 mm (Between center)	6.0 μ m 6.0 μ m	Using Standard Mandrels, Dial Gauge, Comparator Stand
42.	CMM Calibration* L.C: 0.0001mm	X-1200 mm Y-1000 mm Z-600 mm	5.8 μ m	Using Length Gauge as per IS 15635/ISO 10360

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

[§]Only in Permanent Laboratory

*Only for Site Calibration