

Laboratory	Metrology Laboratory, Tata Motors Limited, Jamshedpur, Jharkhand		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Mechanical Calibration	Issue Date	03.06.2014
Certificate Number	C-0640	Valid Until	02.06.2016
Last Amended on	20.10.2014	Page	1 of 5

Quantity Measured/ Instrument	Range / Frequency	*Calibration Measurement Capability (\pm)	Remarks
I. DIMENSION			
1. ADJUSTABLE/ LIMIT SNAP GAUGES[§]	Up to 100 mm 100 mm to 250 mm	1.5 μ m 2.1 μ m	Using Gauge Block
2. SETTING RING GAUGE[§]	Up to 100 mm 100 mm to 250 mm	1.6 μ m 2.3 μ m	Using Universal Length Measuring Machine
3. BORE GAUGE SET[§]	Up to 250 mm (1mm travel)	1.2 μ m	Using Indicator Tester
4. DIAL GAUGE[§] (Plunger / Lever Type) L.C. : 0.001 / 0.002mm^Φ	0 to 10 mm	1.3 μ m	Using Indicator Tester
5. EXTERNAL MICROMETER[§] Digital / Mechanical L.C. : 0.001 mm^Φ	Upto 100 mm 100 mm to 250 mm	1.4 μ m 2.7 μ m	Using Gauge Block
6. CALIPERS[§] (Digital / Dial / Vernier) L.C.: 0.01 mm^Φ	Upto 1000 mm	9 μ m	Using Gauge Block
7. PLAIN PLUG GAUGE[§]	Up to 100 mm 100 mm to 250 mm	1.3 μ m 2.1 μ m	Universal Length Measuring Machine
8. WIDTH GAUGE[§]	Upto 50 mm	1.2 μ m	Using Universal Length Measuring Machine
9. THREAD RING GAUGE[§]	8 mm to 100 mm 100 mm to 180 mm	1.61 μ m 1.92 μ m	Using Universal Length Measuring Machine

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10. INSIDE MICROMETER^{\$} L.C.: 0.01mm ^Ø	Up to 600 mm	5.2 μ m	Using Gauge Block , ULM , Slip Gauge Binder
11. HEIGHT GAUGE[#] (Digital /Dial /Vernier) L.C.: 0.01 mm ^Ø	0 to 1000 mm	6.7 μ m	Using Gauge Block
12. RADIUS GAUGE^{\$}	0 to 25 mm Diameter	8 μ m	Using Profile Projector
13. ROUNDNESS/ ROUNDNESS MASTER^{\$}	Upto 20 mm dia Upto 50 mm dia Upto 100 mm dia Upto 200 mm dia	0.43 μ m 0.53 μ m 0.80 μ m 1.70 μ m	Using Form Testing Machine
14. CYLINDRICITY/ CYLINDRICITY MASTER^{\$}	Upto 100 mm Upto 200 mm Upto 500 mm Upto 750 mm	2.3 μ m 2.6 μ m 4.1 μ m 5.5 μ m	Using Form Testing Machine
15. STRAIGHTNESS/ STRAIGHTNESS MASTER^{\$}	Upto 100 mm Upto 200 mm Upto 500 mm Upto 750 mm	2.4 μ m 2.6 μ m 4.1 μ m 5.5 μ m	Using Form Testing Machine
16. BEVEL/ANGLE PROTRACTOR^{\$}	0° to 180° to 0°	3.0 min of arc	Using Gauge Block/ Sine Bar
17. PITCH GAUGE^{\$} Pitch	Upto 7 mm	7.7 μ m	Using Profile Projector
Angle		2 minute	

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18.	MEASURING PIN / MASTER ROLLER / THREAD MEASURING CYLINDERS^s	Upto 30 mm dia	1.0 μm	Using Universal Length Measuring Machine
19.	V-BLOCK - PARALLELISM / SQUATNESS OF FACES & VEE , SYMMETRICITY OF VEE^s	Upto 300 mm	5.4 μm 1.5 minute	Using Indi Square, Mandrel , Dial Gauge
20.	SPIRIT LEVEL^s	Upto 2 mm/m	5.4 $\mu\text{m/m}$	Using Electronic Level
21.	ELECTRONIC LEVEL^s L. C.: 0.001 mm/m^o	Upto 2 mm/m	5.0 $\mu\text{m/m}$	Using Gauge Blocks
22.	SURFACE PLATE[#]	For any length L & width W L & W in mm	$0.75 \sqrt{\frac{L+W}{150}} \mu\text{m}$ L& W in mm	Using Electronic Level
23.	COMPARATOR STAND^s (Flatness Of Base) Base Length	Upto 200 mm	6.4 μm	Using Dial Gauge
24.	ANGLE/BOX PLATE / GRANITE SQUARE^s Length	Upto 200 mm Length Upto 600 mm Length	8 μm 9 μm	Using CMM

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25. HEIGHT MASTER ^{\$}	5 mm to 300 mm	3.5 μ m	Using Gauge Block
26. RISER BLOCK ^{\$}	Upto 300 mm	3.6 μ m	Using Gauge Block
27. DIAL TYPE SNAP GAUGE ^{\$} L.C.: 0.001 mm	Upto 100 mm 100 mm to 250 mm	1.0 μ m 1.8 μ m	Using Gauge Block
28. PITCH MICROMETER ^{\$} (Anvils)	M 1 to M 6	8.2 μ m 1.5 minute	Using Profile Projector
29. DEPTH MICROMETER ^{\$} L.C.: 0.01mm	Upto 300 mm	3.3 μ m	Using Gauge Block
30. GAUGE BLOCKS ^{\$}	0 to 100 mm	(0.06 + 1.53L) μ m (L in m)	Using Gauge Block Calibrator
31. CLINOMETER ^{\$}	0° to 180° to 0°	16 sec of arc	Using Gauge Block
32. FEELER GAUGE ^{\$}	Upto 1 mm	2.3 μ m	Using Digimatic Micrometer
33. SLIP GAUGE ACCESSORIES ^{\$} (Binder)	Upto 60 mm Length	1.1 μ m	Using Form Testing Machine
34. THREAD PLUG GAUGE ^{\$}	Upto M 100 mm M100 to M250 mm	1.8 μ m 2.5 μ m	Using Universal Length Measuring Machine
35. GLASS SCALE ^{\$}	Upto 300 mm	13 μ m	Using Profile Projector
36. SINE BAR ^{\$}	100 mm to 300 mm	5 sec	Using Gauge Block, Angle Block

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II. TORQUE			
1. TORQUE WRENCHES ^{\$}	5 Nm to 20 Nm	0.30 %	Torque Wrench Calibrator
	20 Nm to 500 Nm	0.50 %	
	500 Nm to 2000 Nm	1.00 %	

* 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.

^o 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.