

Laboratory Standards Laboratory, Cummins India Limited, Kothrud, Pune, Maharashtra
Accreditation Standard ISO/IEC 17025: 2005
Certificate Number CC-2502 **Page** 1 of 3
Validity 26.12.2017 to 25.12.2019 **Last Amended on** -

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
<u>MECHANICAL CALIBRATION</u>				
1.	DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)			
1.	Calipers ^s (Vernier, Dial, Digital) L.C.: 0.01 mm L.C.: 0.020 mm	0 to 300 mm 0 to 600 mm	13 μ m 23 μ m	Using Slip Gauge/ Length Bar/ Caliper Checker By Comparison Method
2.	External Micrometer ^s L.C.: 0.001 mm	0 to 50 mm 50 mm to 100 mm	1.2 μ m 1.5 μ m	Using Slip Gauges By Comparison Method
3.	Plain Plug Gauge, OD Master ^s	0.5 mm to 60 mm 60 mm to 200 mm	1.0 μ m 1.8 μ m	Using Electronic Comparator, Slip Gauge Set By Comparison Method
4.	Plain Ring Gauge ^s	\varnothing 5 mm to \varnothing 100 mm \varnothing 100 mm to \varnothing 200 mm	1.6 μ m 2.1 μ m	Using ULM Master Ring By Comparison Method
5.	Lever Dial ^s L.C.: 0.01 mm	0 to 1 mm	6.0 μ m	Using Dial Calibration Tester By Comparison Method
6.	Plunger Dial ^s L.C.: 0.001 mm L.C.: 0.01 mm L.C.: 0.001 mm (Electronic)	0 to 1 mm 0 to 10 mm 0 to 25 mm	1.5 μ m 6.5 μ m 6.5 μ m	Using Dial Calibration Tester By Comparison Method
7.	Step Gauge / Length Bars ^s	Up to 1000 mm	$\left(3.6 + \frac{L}{150}\right) \mu$ m	Using CMM By Comparison Method

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 Convenor

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 Program Director

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8.	Spherical Radius Masters [§]	Up to 25 mm 25 mm to 100 mm	3.9 μ m	Using Contour Profile Measuring Machine
9.	Cylindrical Master [§] Roundness Straightness Cylindricity	Up to \varnothing 350 mm Up to 450 mm Up to \varnothing 90 mm	0.18 μ m 1.8 μ m 2.2 μ m	Using Roundness Straightness & Cylindricity Measuring Machine
10.	Roughness Standard [§]	Up to 6 μ m (Ra)	6.5 %	Using Surface Roughness Measuring Machine
11.	Roughness Measuring Machine [§] (Portable)	Up to 6 μ m	6 %	Using Roughness Master
12.	Electronic Comparator [§] L.C.: 0.0001 mm	0 to 60 mm 0 to 200 mm	0.5 μ m 1.0 μ m	Using Slip Gauges
13.	ULM [§] L.C.: 0.1 μ m	Up to 100 mm	0.9 μ m	Using Slip Gauges
14.	3-D Coordinate Measuring Machine [§] L.C.: 0.1 μ m	Up to 1000 mm	$\left(1.8 + \frac{L}{250}\right) \mu$ m	Using Step Gauge and Sphere
15.	Contour Profile Measuring Machine [§]	Vertical Pickup \pm 25 mm Spherical Radius 25 mm	1.8 μ m	Using Gauge Blocks & Radius Master

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16.	Roundness, Straightness, Cylindricity Measuring Machine [§] Roundness Accuracy Vertical Straightness Cylindricity Accuracy (for 500 mm Length)	\varnothing 350 and Length 500 mm	0.1 μ m 1.3 μ m 1.8 μ m	Using Glass Hemisphere & Master Cylinder

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

[§] Only in Permanent Laboratory

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