

Laboratory Metrology & Calibration Lab, APMF, CSIR-NAL, National Aerospace Laboratories, Bangalore, Karnataka

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number CC-2704

Page 1 of 4

Validity 28.05.2018 to 27.05.2020

Last Amended on --

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
<u>MECHANICAL CALIBRATION</u>				
I.	DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)			
1.	Gauge Blocks [§]	0.5 mm to 100 mm	$0.075 + \frac{L}{1000} \mu\text{m}$ L in mm	Using Gauge Block Comparator & 'K' Grade Gauge Blocks by Comparison Method
2.	Long Gauge Blocks [§]	> 100 mm to 500 mm	2.5 μm	Using ULM & 'K' Grade Gauge Blocks By Comparison Method
3.	Caliper [§] (Vernier/Dial/Digital) LC: 10 μm^{Φ}	0 to 300 mm 0 to 600 mm	11 μm 21 μm	Using Gauge Blocks and Long Gauge Blocks By Comparison Method
4.	Depth Gauge [§] (Vernier/ Digital) LC: 10 μm^{Φ}	0 to 300 mm	10 μm	Using Gauge Blocks and Long Gauge Blocks By Comparison Method
5.	Height Gauge [§] (Vernier /Dial/Digital) LC: 10 μm^{Φ}	0 to 600 mm	10 μm	Using Height Measuring System By Comparison Method

Shally Sharma
Convenor

Alok Jain
Program Director

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Page 2 of 4

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6.	External Micrometer [#] (Mech./Dial/Digital) LC: 1 μ m ^Φ LC: 10 μ m ^Φ	0 to 100 mm > 100mm to 500 mm	1.5 μ m 12.2 μ m	Using Gauge Blocks By Comparison Method
7.	Dial Gauge-Plunger Type ^{\$} LC: 1 μ m ^Φ	0 to 25 mm 0 to 80 mm	1.5 μ m 1.5 μ m	Using Dial Calibration Tester / ULM By Comparison Method
8.	Dial Gauge-Lever Type ^{\$} LC: 1 μ m ^Φ	0 to 0.2 mm	1.5 μ m	Using Dial Calibration Tester by Comparison Method
9.	Three Pin Internal Micrometer ^{\$} (Mech/Dial/Digital) LC: 1 μ m ^Φ	Ø 6 mm to Ø 100mm	2.5 μ m	Using ULM With Fixture By Comparison Method
10.	Bevel Protractor ^{\$} LC: 1 Arc min ^Φ	0 to 360 °	3' Arc min.	Using Angle Gauge Blocks By Comparison Method
11.	Electronic Probe / LVDT System ^{\$} L.C: 0.1 μ m ^Φ	25 mm	0.6 μ m	Using Universal Measuring M/c By Comparison Method

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Page 3 of 4

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12.	Plain Plug Gauge [§]	\varnothing 3mm to \varnothing 100mm	1.2 μ m	Using Universal Measuring M/c By Comparison Method
13.	Plain/Setting Ring Gauge [§]	\varnothing 3mm to \varnothing 200mm	2.0 μ m	Using Universal Measuring M/c By Comparison Method
14.	Thread Plug Gauge [§]	\varnothing 4 mm to \varnothing 100 mm	2.5 μ m	Using Universal Measuring M/c and Thread Measuring Cylinders By Comparison Method
15.	Thread Ring Gauge [§]	\varnothing 4mm to \varnothing 200mm	3.0 μ m	Using Universal Measuring M/c By Comparison Method
16.	Cylindrical Measuring Pin [§]	Up to \varnothing 20mm	0.60 μ m	Using Universal Measuring M/c By Comparison Method
17.	Micrometer Setting Rod [§]	25 mm to 500mm	2.7 μ m	Using Universal Measuring M/c By Comparison Method
18.	Thread Measuring Cylinder [§]	\varnothing 0.17 mm to \varnothing 6.35mm	0.4 μ m	Using Universal Measuring M/c By Comparison Method
19.	Height Gauge [#] L.C: 0.1 μ m	Up to 1000 mm	5.4 μ m	Using Step Gauge / Gauge blocks by Comparison Method

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Page 4 of 4

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20.	Surface Plate [#]	4000 mm X 4000mm	$1.2 \sqrt{\frac{(W + L)}{B}} \mu\text{m}$ Where (L&W in mm)	Using Electronic Level

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

^{\$}Only in Permanent Laboratory

[#] The laboratory is also capable for site calibration however, the uncertainty at site depends on the prevailing actual environmental conditions and master equipment used.

^Ø 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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