Laboratory	**Accurate Calibration & Testing Center, 168, B-Wing, 1st Floor, Jai Ganesh Vision, Akurdi, Pune, Maharashtra**
Accreditation Standard	**ISO/IEC 17025: 2005**
Certificate Number	**CC-2188** **Page 1 of 11**
Validity	**26.10.2018 to 25.10.2020** **Last Amended on -**

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
	MECHANICAL CALIBRATION			
I.	**DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)**			
1.	2D Electronic Height Gauge$ L.C.: 0.0001 mmΦ Linearity Squareness	Upto 1000 mm	$2.5 + \frac{L}{1000}$ µm Where L is in mm	Using Length Bars
2.	2D Electronic Height Gauge♣ L.C.: 0.0001 mmΦ Linearity Squareness	Upto 1000 mm	$2.5 + \frac{L}{1000}$ µm Where L is in mm	Using Length Bars
3.	Angle Gauges$	Upto 90°	4" arc	Using Slip Gauge Blocks Grade-0, Sine Bar, Electronic Comparator
4.	Angle Plate / Box Angle Plate$ Parallelism/Flatness Squareness	Upto LxWxH = 350 mm x 200 mm x 250 mm	 8.6 µm 8.6 µm	Using Master Granite L-Square & Comparator
5.	Angular Graticule$ (Scale)	0° to 360°	12.6" arc	Using Vision Measuring Machine
6.	Bevel Protractor$ L.C.: 5′Φ	0°-90°-0°	4' arc	Using Angle Gauge Blocks
7.	Bore Gauge$ (For Transmission Accuracy Check Only)	Upto 1 mm	3.0 µm	Using Dial Calibration Tester

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8.	Coating Thickness Meter[$]	Upto 2 mm	4.5 µm	Using Master Foils
9.	Combination Set[$] L.C.: 1°	0°-90°-0°	43' arc	Using Angle Gauge Blocks
10.	Comparator Stand[$] (Flatness of Work Table)	Upto Dia.100 mm Upto 200 mm X 200 mm Upto 300 mm X 300 mm	0.3 µm 1.2 µm 4.5 µm	Using Optical Flat Using Electronic Comparator
11.	Cylindrical Squares / Granite L-Square[$] Squareness	Upto 600 mm	3.5 µm	Using Master Granite L-Square, Slip Gauge
12.	Cylindrical Setting Master[$] i) Diameter Measurement ii) Concentricity	 Dia. 1 mm to 100 mm > Dia. 100 mm to 200 mm Dia. 1 mm to 200 mm	 1.0 µm 1.5 µm 1.1 µm	Using Slip Gauge Set & Electronic Comparator
13.	Depth Gauge[$] (Dial, Digital, Vernier) L.C.: 0.01 mm[Φ]	Upto 300 mm	10.0 µm	Using Slip Gauge Set, Holding Fixture and Surface Plate
14.	Depth Micrometer[$] L.C.: 0.001 mm[Φ]	Upto 300 mm	7.0 µm	Using Slip Gauge Set, Holding Fixture and Surface Plate
15.	Dial Calibration Tester[$] L.C.: 0.0001 mm[Φ]	0 to 25 mm	0.75 µm	Using Electronic Comparator

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16.	Dial Gauge – Plunger Type[$] L.C.: 0.001 mm L.C.: 0.002 mm L.C.: 0.01 mm[Φ] L.C.: 0.0001 mm [Φ]	 Upto 2 mm Upto 5 mm Upto 25 mm Upto 50 mm	 1.0 µm 2.0 µm 3.0 µm 2.0 µm	Using Dial Calibration Tester Using Universal Length Measuring Machine
17.	Dial Gauge - Lever Type[$] L.C.: 0.001 mm[Φ]	 Upto 2 mm	 1.1 µm	Using Dial Calibration Tester
18.	Dial Snap Gauge[$] A) Instrumental Error/Parallelism, B) Flatness	Upto 200 mm	 3.0 µm 0.3 µm	Using Slip Gauge Set & Optical Flat
19.	Comparator With Stand / Comparator Dial/ Electronic Probe With DRO[$] L.C.: 0.00001 mm[Φ]	 0 to 20 µm 0 to 25 mm	 0.12 µm 0.4 µm	Using Slip Gauge Set
20.	Engineer's Square[$] - Squareness - Parallelism of Edges of Blade	Upto 600 mm	8.6 µm	Using Comparator, Granite-L Square, 2 D Electronic Height Gauge
21.	External Micrometer[$] L.C.: 0.001 mm[Φ]	0 to 150 mm >150 mm to 300 mm >300 mm to 600 mm >600 mm to 1000 mm	1.6 µm 5.0 µm 8.0 µm 11.0 µm	Using Slip Gauge Set & Length Bars

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22.	Feeler Gauge / Shims (Foils) Of Coating Thickness Gauge / Thickness Standard[$]	Upto 2 mm	1.5 µm	Using Electronic Comparator with stand
23.	Gauge Block Calibrator[$] L.C.: 0.01 µm[Φ]	0.5 mm to 100 mm	(0.035+L/3000) µm Where L is in mm	Using Gauge Block "Grade K"
24.	Height Gauge[$] (Vernier, Dial, Electronic) L.C.: 0.01 mm[Φ]	Upto 600 mm Upto 1000 mm	13.0 µm 15.0 µm	Using Caliper Checker & Length Bars
25.	Inside Dial Caliper-2 Points[$] L.C.: 0.001 mm[Φ]	2.5 mm to 150 mm	5.0 µm	Using Slip Gauge Set Accessories & Caliper Checker
26.	Lever Type Electronic Probe With DRO[$] L.C.: 0.0001 mm[Φ]	Upto 2 mm	1.0 µm	Using Dial Calibration Tester
		0.17 mm to 20 mm	0.5 µm	
		0.17 mm to 6.35 mm	0.5 µm	
28.	Measuring Scale[$]	0 to 1000 mm	144 µm	Using Scale & Tape Calibrator
29.	Measuring Tape[$]	Upto 1 m >1 m to 50 m with step of 1 m	144 µm $144\sqrt{\frac{L}{1000}}$ µm Where L is in mm	Using Scale & Tape Calibrator

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30.	Micrometer Head[$] L.C.: 0.0002 mm[Φ]	0 to 25 mm	0.7 µm	Using Electronic Comparator
31.	Pistol Caliper[$] L.C.: 0.1 mm[Φ]	Upto 65 mm	66.0 µm	Using Slip Gauge Set
32.	Plain Plug Gauge / Setting Master Plug Gauge/Width Gauge[$]	0 to 100 mm > 100 mm to 200 mm > 200 mm to 300 mm	1.6 µm 2.2 µm 3.0 µm	Using Slip Gauge Set & Electronic Comparator
33.	Plain Ring Gauges / Setting Ring Gauge[$]	2.5 mm to 100 mm > 100 mm to 200 mm	2.3 µm 2.5 µm	Using Universal Length Measuring Machine
34.	Plain Taper Plug Gauge[$] Diameter	Upto 150 mm Half included Angle Upto 30° Included Angle Upto 60°	2.7 µm 17" arc	Using Universal Length Measuring Machine
35.	Plain Taper Ring Gauge[$] Diameter	Upto 150 mm Half included Angle Upto 30° Included Angle Upto 60°	2.6 µm 41"arc	Using Universal Length Measuring Machine
36.	Radius Gauge Set[$]	0.6 mm to 40 mm	6.4 µm	Using Vision Measuring Machine
37.	Sine Bar / Sine Center[$] Linear (Parallelism & Cd) Angular	100 / 200 / 300 mm	3.0 µm 6"arc	Using 2D Electronic Height Gauge, Slip Gauge Blocks Grade-0, Angle Gauges & Electronic Comparator

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38.	Spirit Level / Frame Level$ L.C.: 0.01 mm/m Φ Electronic Level L.C.: 0.001 mm/m Φ	Range = ± 2 mm/m	2.4µm/m	Using Electronic Comparator
39.	Straight Edge$ Straightness	Upto 1000 mm	$2.9\sqrt{\frac{L}{120}}$ µm Length, L is in mm	Using Electronic Level, Electronic Comparator and Surface plate
40.	Straight Edge♣ Straightness	Upto 5000 mm	$2.9\sqrt{\frac{L}{120}}$ µm Length, L is in mm	Using Electronic Level
41.	Surface Plate ♣ Granite Cast Iron	Upto 4000 mm x 4000 mm	$1.0\sqrt{\frac{L+W}{120}}$ µm Length, L is in mm Width, W is in mm	Using Electronic Level
42.	Surface Roughness Specimen /Master $	Ra 7 µm Rz 25 µm Rmax 25 µm	6.0 % 6.0 % 6.0 %	Using Surface Roughness Tester
43.	Surface Roughness Tester $	Ra 6 µm Rz 23 µm Rmax 23 µm	7.2 %	Using Surface Roughness Specimens - 3 Different Ra Values
44.	Taper Thread Ring Gauge$ (Effective Diameter Only)	Upto 110 mm	2.3 µm	Using Universal Length Measuring Machine
45.	Test Sieves$	32µm to 50 mm > 50 mm to 125 mm	5.6 µm 37.5 µm	Using Vision Measuring Machine, Digital Caliper

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46.	Thickness Gauge [$] (Dial & Electronic) L.C.: 0.001 mm[Φ] L.C.: 0.01 mm[Φ]	 Upto 1 mm Upto 10 mm	 1.0 µm 3.2 µm	Using Slip Gauge Set
47.	Thread Pitch Gauge[$] Flank angle Pitch	 55 º, 60º, 0.3 mm to 8.0 mm	 13.0" arc 5.6 µm	Using Vision Measuring Machine
48.	Thread Plug Gauge[$] (Effective Diameter Only)	Upto 100 mm > 100 mm to 200 mm	3.6 µm 2.5 µm	Using FCDM, Cylindrical Setting Masters & Thread Measuring Wires Using Universal Length Measuring Machine & Thread Measuring Wires
49.	Thread Ring Gauge[$] (Effective Diameter Only)	3 mm to 100 mm >100 mm to 200 mm	2.2 µm 2.8 µm	Using Universal Length Measuring Machine, T-Stylus
50.	Ultrasonic Thickness Gauge[$]	Upto 200 mm	60 µm	Using Step Master
51.	V-Block[$] Parallelism Symmetricity Squareness	Upto 150 mm	 6.8 µm 6.8 µm 8.3 µm	Using Master Cylinders, Comparator & 2D Electronic Height Gauge
52.	Caliper[$] (Vernier, Dial, Electronic) L.C.: 0.01 mm[Φ]	Upto 600 mm Upto 1000 mm	13.0 µm 15.0 µm	Using Caliper Checker & Length Bars as per

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53.	Internal Micrometer- 2 Points$ L.C.: 0.001 mmΦ	25 mm (Transverse of Micrometer Head) Upto 2100 mm (With Interchangeable Setting Rod Not More than 400 mm)	8.9 µm	Using Slip Gauge Set Accessories & Caliper Checker
54.	Floating Carriage Dia. Measuring Machine$ L.C.: 0.0001 mmΦ	0 to 200 mm	1.6 µm	Using Cylindrical Setting Masters, Electronic Comparator, Optical Flat, Measuring Pin, Slip Gauge Blocks
55.	Linear Glass Scale (Graticule) / Glass Grid$ L.C.: 0.001mmΦ	0 to 200 mm	3.3 µm	Using Vision Measuring Machine (based on Edge Detection)
56.	Gauge Block Calibrator$ L.C.: 0.01 µmΦ	0.5 mm to 100 mm	(0.035+L/3000) µm Where L is in mm	Using Gauge Block "Grade K
57.	Gauge Block$ Central Length Deviation Parallelism	0.5 mm to 25 mm > 25 mm to 50 mm > 50 mm to 75 mm > 75 mm to 100 mm	0.10 µm 0.11 µm 0.13 µm 0.17 µm	Using Gauge Block Comparator & Reference "K" Grade Gauge Block Set
58.	Micrometer Setting Standard / Length Bar / Long Gauge Block$	0 to 150 mm > 150 mm to 300 mm > 300 mm to 400 mm > 400 mm to 700 mm > 700 mm to 1000 mm	0.8 µm 1.42 µm 1.5 µm 3.0 µm 3.5 µm	Using Slip Gauge Set, Elec. Comparator and Length Bars

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59.	Degree Protractor[$] L.C.: 1°	0°-360°	43' arc min	Using Angle Gauge Blocks
60.	Scale & Tape Calibration Machine[$] L.C.: 0.0001 mm[Φ]	Upto 1000 mm	50 µm	Using Slip Gauge Blocks & Length Bars
61.	Thread Measuring Prisms[$]	A/B/C/D	1.0 µm	Using Electronic Comparator & Vision Measuring Machine
62.	Caliper Checker / Step Gauge / Internal Micro Checker[$]	0 to 370 mm 0 to 670 mm 0 to 1070 mm	6.4 µm 6.6 µm 6.9 µm	Using Mitutoyo 2D Electronic Height Gauge & Length Bars, Gauge Blocks
63.	Depth Micro Checker[$]	0 to 300 mm	3.5 µm	Using Mitutoyo 2D Electronic Height Gauge & Length Bars, Gauge Blocks
64.	Plain Snap Gauge[$]	Upto 300 mm	3.0 µm	Using Slip Gauge Set
65.	Taper Thread Plug Gauge[$] (Effective Diameter Only)	Upto 100 mm > 100 mm to 200 mm	4.0 µm 2.5 µm	Using FCDM, Cylindrical Setting Masters & Thread Measuring Wires Universal Length Measuring Machine SIP 302m & Thread Measuring Wires
66.	Taper Scale / Taper Bore Gauge[$]	Upto 60 mm	5.6 µm	Using Vision Measuring Machine

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
67.	Scale & Tape Calibration Machine♣ L.C.: 0.0001 mmΦ	Upto 1000 mm	50 µm	Using Slip Gauge Blocks & Length Bars
68.	Profile Projector Charts$ i) Angle ii) Linear iii) Radius	 0 to 360° 0 to 200 mm 0 to 200 mm	 197" arc sec 14.0 µm 66.0 µm	Using Vision Measuring Machine
II.	**DIMENSION (PRECISION INSTRUMENTS)**			
1.	Optical Flat$ Flatness	Diameter 10 mm to 100 mm, Thickness 8 mm to 50 mm	0.15 µm	Using Reference Optical Flat as per IS 5440
2.	Length Measuring Machine$ (Horizontal) L.C.: 0.0001 mmΦ	Upto 300 mm	1.5 µm	Using Slip Gauge Blocks
3.	Profile Projector / Optical Microscope / Tool Makers Microscope / Brinell Microscope / Vision Measuring Machine♣ a) Linear X,Y Axis L.C.: 0.0001 mmΦ b) Angular c) Magnification	 0 to 200 mm 0° to 360° 0° to 360° Upto 1000X	 2.7 µm 5" arc sec 13.1" arc sec 0.5%	Using Linear Glass Scale Angle Gauges Angular Graticule Linear Glass Scale & Digital Caliper

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
4.	Length Measuring Machine♣ (Horizontal) L.C.: 0.0001 mmΦ	Upto 300 mm	1.5 µm	Using Slip Gauge Blocks
III.	**TORQUE GENERATING DEVICES**			
1.	Torque Wrenches$ Type – I Class A,B,C,D,E Type- II Class A,B,C,D,E,F,G	0 to 1000 Nm	1.21 %	Using Digital Torque Calibration System with Four Torque Transducers
IV.	**ACOUSTICS**			
1.	Sound Level Meter$	94 dB & 114 dB	0.51 dB	Using Sound Level Meter by comparison
V.	**HARDNESS TESTING MACHINES**			
1.	Calibration of Shore 'A' And Shore 'D' Hardness Tester$	0 to 100 Shore Unit 0 to 100 Shore Unit	0.51 Shore A 0.51 Shore D	Using Shore Hardness Tester Calibrator As per ASTM D 2240
2.	Verification of Force of Shore 'A', Shore 'D' Hardness Tester Calibrator$	0 to 100 Shore 'A' 0 to 100 Shore 'D'	0.46 Shore-Unit	As per ASTM D 2240

*** Measurement Capability is expressed as an uncertainty (±) at a confidence probability of 95%**
$Only in Permanent Laboratory
♣Only for Site Calibration
Φ 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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