



NABL

Department of Science & Technology, India

SCOPE OF ACCREDITATION

Laboratory	Authentic Instrument & Automation Pvt. Ltd., 31, RIICO, Industrial Area, Jhotwara, Jaipur		
Accreditation Standard	ISO/IEC 17025:2005		
Discipline	Mechanical Calibration	Issue Date	13.04.2013
Certificate Number	C-0687	Valid Until	12.04.2015
Last Amended on	25.12.2013	Page	1 of 7

Quantity Measured/ Instrument	Range / Frequency	*Calibration Measurement Capability (\pm)	Remarks
<u>I. DIMENSION</u>			
1. Digital/ Dial/ Vernier Caliper ^s			
L.C. 0.01mm	Upto 300 mm Above 300 to 600 mm	10.00 μ m 17.00 μ m	Using Slip Gauge Set/ Accessories/ Length Bars/Length Bar Holder
L.C. 0.02 mm	Upto 300 mm Above 300 to 600 mm	16.00 μ m 19.00 μ m	
L. C. 0.05 mm	Upto 300 mm Above 300 to 600 mm	34.00 μ m 36.00 μ m	
2. Digital/ Dial/ Vernier Depth Caliper/ Gauge ^s			
L.C. 0.01 mm	Upto 300 mm	10.00 μ m	Using Slip Gauge Set / Length Bars & Surface Plate
L.C. 0.02 mm	Upto 300 mm	16.00 μ m	
L.C. 0.05 mm	Upto 300 mm	29.00 μ m	
3. Digital/ Dial/ Vernier Height Gauge ^s			
L.C. 0.01mm	Upto 300 mm Above 300 to 600 mm	10.00 μ m 16.00 μ m	Using Slip Gauge Set/ Length Bars & Surface Plate
L.C. 0.02 mm	Upto 300 mm Above 300 to 600 mm	16.00 μ m 19.00 μ m	
4. Digital/ External Micrometer ^s			
L.C. 0.001 mm	Upto 100 mm Above 100mm to 400 mm	1.30 μ m 3.40 μ m	Using Slip Gauge Set/ Length Bars/ Plain Parallel & Surface Plate
L. C. 0.01 mm	Above 0 to 400 mm	6.00 μ m	


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5. Depth Micrometer ^s L.C. 0.001 mm L.C. 0.01 mm	Upto 100 mm Upto 100 mm	2.40 μ m 6.40 μ m	Using Slip Gauge Set/ Length Bars
6. Internal Micrometer ^s L.C. 0.01 mm	Upto 600 mm	8.20 μ m	Using Slip Gauge Set/ Length Bars
7. Micrometer Setting Standard Rods ^s	Upto 300 mm Above 300mm to 550mm	8.00 μ m 10.00 μ m	Using Slip Gauge Set/ Dial Gauge
8. Plunger Type Dial Gauge ^s L.C. 0.001 mm L.C. 0.01 mm	Upto 10 mm Upto 50 mm Upto 100 mm	4.30 μ m 7.50 μ m 8.00 μ m	Using Slip Gauge Set/ Dial Calibration Tester
9. Lever Type Dial Gauge ^s L.C. 0.001mm, 0.002 mm	Upto 1 mm	3.00 μ m	Using Slip Gauge Set/ Dial Calibration Tester
10. Plain Plug Gauge ^s	Upto 100 mm	4.70 μ m	Using Digital Micrometer
11. Plain Ring Gauge ^s	3mm to 100 mm	4.00 μ m	Using Slip Gauge Set
12. Snap Gauge ^s	Upto 100 mm	2.00 μ m	Using Slip Gauge Set
13. Measuring/ Cylinder Pins/ Wires ^s	Upto 20 mm	2.60 μ m	Using Digital Micrometer

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14. Thread Plug Gauge ^s	Upto 100 mm	4.00 μ m	Thread Measuring Wire & Digital Micrometer
15. Dial/ Digital Thickness Gauge ^s L.C. 0.001 mm	Upto 10 mm	1.30 μ m	Using Slip Gauge Set
L.C. 0.01 mm	Upto 25 mm	6.00 μ m	
16. Bevel Protractor/ Angle Protractor ^s	Upto 360°	3.2 min of Arc	Using Angle Gauge blocks
17. Feeler Gauge ^s	Upto 3 mm	2.00 μ m	Using Digital Micrometer
18. Coating Thickness Foils ^s	Upto 1 mm	2.00 μ m	Using Digital Micrometer
19. Measuring Scale/ Steel Scale ^s	Upto 1000 mm	350 μ m	Using Profile Projector
20. Measuring Tape/ PI Tape ^s	Upto 50 m	120 $\sqrt{\frac{L}{200}}$ μ m	Using Profile Projector
21. Radius Gauge ^s	0.6mm to 25.0 mm	17.00 μ m	Using Profile Projector
22. V-Block ^s Parallelism, Flatness, Squareness	Upto 300 mm	8.00 μ m	Using Slip Gauge Set/ Master Cylinder/ Dial Gauge
23. Glass Scale ^s	Upto 100 mm Above 100mm to 300 mm	18.00 μ m 25.00 μ m	Using Profile Projector


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24. Test Sieves ^s	Upto 10 mm	18.00 μ m	Using Profile Projector
	10 mm to 100 mm	25.00 μ m	Using Digital Vernier Caliper
25. Coating Thickness Gauge ^s	Above 10mm to 1000 mm	3.00 μ m	Using Standard Coating Foils
26. Pitch Gauge ^s	6 mm	19.00 μ m	Using Profile Projector
27. Air Gauge Unit ^s	40 mm	4.40 μ m	Master Ring Gauge
28. Bore Gauge ^s	Upto 150 mm	6.00 μ m	Using Slip Gauge Set/
29. Ford Cup ^s	Linear Dimension	16.00 μ m	Using Digital Caliper/ Profile Projector
	Orific Dimension	16.00 μ m	
30. Surface Plate/ Dial Comprator Stand*	Upto 1000mm x 1000 mm	$1.4 \sqrt{\frac{L+W}{100}} \mu$ m	Using Straight Edge & Slip Gauges/ Level
31. Profile Projector [#]	Linear	0 to 300 mm	Using Slip Gauge Set/ Angle Gauge Block/ Digital Caliper/ Glass Scale
	Angular	0 to 360°	
	Magnification	Upto 100 X	
II. ACOUSTICS			
1. Sound Level Meter ^s	94 dB	0.97 dB	Using Sound Level Calibrator
	114 dB	1.12 dB	
III. TORQUE			
1. Torque Wrench ^s	Upto 10 Nm	2.47%	Using Torque Calibration Tester
	Upto 100 Nm	2.17%	
	Upto 875 Nm	1.37%	


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<u>IV. PRESSURE & VACUUM</u>			
1. Vacuum Gauges ^s	-50 mmHg to -650 mmHg	1.36% FS	Using Digital Vacuum Gauge By Comparison Method
2. Industrial Pressure Gauges (Pneumatic) Hydraulic*	1 bar to 6 bar	1.21% FS	Using Digital Pressure Gauge By Comparison Method
	7 bar to 70 bar	0.30% FS	
	70 bar to 700 bar	0.20% FS	
3. Industrial Pressure Gauges (Hydraulic) [#]	1 bar to 700 bar	0.31% FS	Using Digital Pressure Gauge By Comparison Method
4. Low Pressure/ Maghnehalic Gauge [#]	0 to 1000 mmWc	0.31% FS	Using Digital Low Pressure Indicator By Comparison Method
<u>V. ACCELERATION & SPEED</u>			
1. Tachometer/ RPM Meter [#]	10RPM to 100000 RPM	2.20% to 0.08%	Using Digital Tachometer by Comparison Method
<u>VI. MASS</u>			
1. Weights ^s (Conventional Mass)	1 mg to 500 mg	0.06 mg	Using Standard Weights of F-1 Class & Precision Balance
	1 g to 10 g	0.15 mg	
	20 g	0.20 mg	
	50 g	0.20 mg	
	100 g	0.25 mg	
	200 g	0.34 mg	


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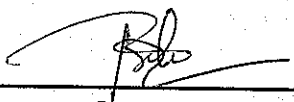
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Weights ^s (Conventional Mass)	500 g	0.2 g	Using Standard Weights of M1 Class and Precision Balance
	1 kg	0.3 g	
	2 kg	0.5 g	
	5 kg	0.8 g	
	10 kg	1.1 g	
	20 kg	1.5 g	
2. Weighing Balance [#]	1 mg to 500 mg	0.10 mg	Using Standard Weights of (F1 & M1) Class
	1 g to 200 g	0.30 mg	
	500 g to 1 kg	1.5 mg	
	2 kg to 10 kg	15 mg	
	20 kg to 100 kg	75 g	
<u>VII. VOLUME</u>			
1. Micro Pipettes ^s	10 μ l to 100 μ l	0.40 μ l	Using Standard Weights/ Precision Balance & By Gravimetric Method Ref. Temperature 27°C
	100 μ l to 1000 μ l	0.50 μ l	
2. Pipettes/ Burettes/ Measuring Flask/ Measuring Cylinder ^s	1 ml to 50 ml	1.70 μ l	
	50 ml to 1000 ml	0.20 ml	
<u>VIII. DENSITY</u>			
1. Hydrometer ^s	0.700 g/ml to 0.900 g/ml	0.0014 g/ml	Using Standard Hydrometer


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<u>IX. FORCE & HARDNESS</u>			
1. Brinell Hardness Tester*	HBW 10/3000	2.90%	Using Reference Block (Indirect Method)
2. Rockwell Hardness Tester*	HRC/ HRB	1.30%	Using Reference Block (Indirect Method)
3. Push Pull Gauge/ Spring Balance/ Tension Gauge ^s	1 kg to 50 kg	30 g	Using Standard Weights of (F1 & M1) Class
4. Universal Testing Machine / Compression Testing Machine* (Compression)	20 kN to 900 kN	0.93%	Using Force Proving Instrument (Class 1)
(Tension)	0.2 kN to 25 kN	1.28%	

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

^s 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

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