Laboratory	**Electrometer Corporation , 34, Main Patel Nagar Road, New Delhi**		
Accreditation Standard	**ISO/IEC 17025: 2005**		
Discipline	**Mechanical Calibration**	**Issue Date**	**01.12.2016**
Certificate Number	**C-0622**	**Valid Until**	**30.11.2018**
Last Amended on	**09.12.2016**	**Page**	**1 of 6**

Quantity Measured/ Instrument	Range / Frequency	*Calibration Measurement Capability (±)	Remarks
I. DIMENSION (Basic Measuring Instrument, Gauge etc.)			
1. CALIPER $			
(Vernier / Dial/ Digital)			
L.C.:- 0.01 mm	0 to 300 mm	8.0 µm	Using "0" Grade Gauge Block. Grade "0" Long Gauge Blocks
	0 to 1000 mm	17.0 µm	
L.C.: 0.02 mm	0 to 300 mm	15.0 µm	
	0 to 600 mm	15.0 µm	
	0 to 1000 mm	17.0 µm	
2. VERNIER / DIAL / DIGIMATIC DEPTH GAUGE$			
L.C.: 0.01 mm Φ	0 to 300 mm	8.0 µm	Using "0" Grade Gauge Block, Grade "0" Long Gauge Blocks
3. EXTERNAL MICROMETER $			
L.C.: 0.001 mm	0 to 100 mm	1.7 µm	Using "0" Grade Gauge Block
L.C.: 0.01 mm Φ	0 to 100 mm	6.0 µm	
	100 to 200 mm	6.0 µm	
	200 to 300 mm	7.0 µm	
4. INTERNAL MICROMETER$			
L.C.: 0.01 mm	50 to 600 mm	8.0 µm	Using "0" Grade Gauge Block , Dial Gauge. Grade "0" Long Gauge Blocks , Surface Plate
5. DEPTH MICROMETER$			
L.C.: 0.01 mm	0 to 25 mm	5.0 µm	Using "0" grade gauge block , Grade "0" long Gauge Blocks
	0 to 100 mm	5.0 µm	
	0 to 300 mm	6.0 µm	

Vishal Shukla
Convenor

Avijit Das
Program Manager

	Quantity Measured/ Instrument	Range / Frequency	*Calibration Measurement Capability (±)	Remarks
6.	**DIAL GAUGE / DIAL INDICATOR[$]** **(Plunger type)**			
	L.C.: 0.001 mm	0 to 25 mm	1.7 µm	Using "0" Grade Gauge Block
	L.C.: 0.01 mm	0 to 50 mm	6.0 µm	
7.	**DIAL GAUGE [$]** **(Lever type)**			
	L.C.: 0.002 mm	0 to 0.2 mm	1.3 µm	Using "0" Grade Gauge Block
	L.C.: 0.01 mm	0 to 1 mm	3.0 µm	
8.	**VERNIER HEIGHT GAUGE[$]**			
	L.C.: 0.02 mm	0 to 600 mm	16.00 µm	Using "0" Grade Gauge Block, 0" Long Gauge Blocks, Surface Plate
9.	**DIGIMATIC HEIGHT GAUGE[$]**			
	L.C.: 0.01 mm	0 to 600 mm	10 µm	Using "0" Grade Gauge Block, 0" Long Gauge Blocks, Surface Plate
10.	**BORE GAUGE[$]** **(Transmission mechanism)**			
	L.C.: 0.01 mm	0 to 2 mm	2.5 µm	Using "0" Grade Gauge Block, Gauge Block Accessories
11.	**FEELER GAUGE[$]**	0.05 to 1.0 mm	3.0 µm	Using Digimatic Outside Micrometer
12.	**SETTING ROD / LENGTH BAR[$]**	25 mm to 200 mm	4.0 µm	Using "0" Grade Gauge Block, Grade "0" Long Gauge Blocks And Digimatic Dial Indicator, Surface Plate
		200 mm to 500 mm	7.0 µm	

	Quantity Measured/ Instrument	Range / Frequency	*Calibration Measurement Capability (±)	Remarks
13.	**STEEL SCALE / TAPE[$]** **L.C.: 0.5 mm**	0 to 1000 mm	364 √L, L is in m	Using Steel Scale Calibrator, Microscope Connected to DRO
14.	**DIAL THICKNESS GAUGE[$]** **L.C.: 0.01 mm**	0 to 25 mm	1.0 µm	Using "0" Grade Gauge Block
15.	**GROOVE MICROMETER[$]** **L.C.: 0.001 mm [Φ]**	0 to 100 mm	1.9 µm	Using "0" Grade Gauge Block
16.	**PLAIN PLUG GAUGE[$]**	Up to 25 mm	2.5 µm	Using Gauge Blocks, Digital Dial Gauge, Surface Plate
17.	**MEASURING PIN[$]**	1 mm to 25 mm	2.5 µm	Using Digital External Micrometer
18.	**INTERNAL CALIPER[$]** **(Dial Digital)**	Upto 100 mm	8.0 µm	Using "0" Grade Gauge Block
19.	**SNAP GAUGE[$]**	5 mm to 100 mm >100 to 200 mm >200 to 300 mm	2.3 µm 3.4 µm 8.4 µm	Using "0" Grade Gauge Block
II.	**ACCELERATION AND SPEED**			
1.	**RPM[$]**	2700 rpm Upto 30000 rpm Upto 60000 rpm	0.1 % 0.1 % 0.08 %	Using Fluke 5080A

	Quantity Measured/ Instrument	Range / Frequency	*Calibration Measurement Capability (±)	Remarks
III.	**VOLUME**			
1.	**CALIBRATION OF PISTON PIPETTE$**	10 µl to 100 µl > 100 µl to 500 µl > 500 µl to 5000 µl	0.1 µl 0.4 µl 0.7 µl	Using Digital Balance upto 200 g readability 0.01 mg and distilled water of known density
2.	**GLASSWARE$**	1 ml to 25 ml > 25 ml to 100 ml > 100 ml to 200 ml	0.5 µl 1.3 µl 8.0µl	Using Digital Precision Balance and Distilled Water of known density as per ISO 4787 & ISO / TR 20461
3.	**GLASS BURETTE$**	1 ml to 25 ml > 25 ml to 100 ml	0.5 µl 1.3 µl	
4.	**MEASURING CYLINDER / VOLUMETRIC FLASK$**	5 ml to 100 ml > 100 ml to 2000 ml	4.5 µl 60.0 µl	
IV.	**PRESSUE INDICATING DEVICES**			
1.	**Hydraulic Pressure / Dial and Digital Pressure Gauge / Pressure Indication system & Pressure Transmitter #**	0 bar to 2.5 bar 2.5 bar to 20 bar 20 bar to 700 bar	0.15 bar 0.19 bar 0.63 bar	Using Digital Manometer
2.	**PNEUMATIC POSITIVE PRESSURE$ (BP Apparatus, Mercury Manometer, Pressure Transmitter / Transducer)**	0 to 1330 mbar	3.32 mbar	Using Mercury Manometer
3.	**PNEUMATIC NEGATIVE PRESSURE$ (Manometer, Vacuum Gauge / Transmitter / Transducer)**	0 to (-870 mbar)	2.45 mbar	Using Mercury Manometer

	Quantity Measured/ Instrument	Range / Frequency	*Calibration Measurement Capability (±)	Remarks
V.	**WEIGHTS**			
1.	**MASS[$]**	1 mg	0.016 mg	Using Weights of accuracy
	Class F2 Accuracy and	2 mg	0.018 mg	class E2 and Digital Balance
	Coarser	5 mg	0.020 mg	up to 200 g readability
		10 mg	0.022 mg	0.01 mg by
		20 mg	0.024 mg	Substitution Method &
		50 mg	0.026 mg	ABBA Weighing cycle as
		100 mg	0.028 mg	per OIML R 111
		200 mg	0.030 mg	
		500 mg	0.032 mg	
		1 g	0.034 mg	
		2 g	0.040 mg	
		5 g	0.046 mg	
		10 g	0.048 mg	
		20 g	0.050 mg	
		50 g	0.050 mg	
		100 g	0.060 mg	
		200 g	0.13 mg	
	Class M1 Accuracy and	500 g	7.10 mg	Using Weights of accuracy
	coarser	1 kg	7.64 mg	class E2 and Digital Balance
		2 kg	8.94 mg	up to 3 kg readability 0.01 g

Quantity Measured/ Instrument	Range / Frequency	*Calibration Measurement Capability (±)	Remarks
VI. WEIGHING SCALE AND BALANCE			
1. CALIBRATION OF WEIGHING BALANCE#			
D=0.01 mg and coarser	0 to 200 g	0.13 mg	Using Standard weights (E2 class)
D= 1 mg and coarser	>200 g to 1 kg	3.24 mg	
D= 10 mg and coarser	>1 kg to 3 kg	12.16 mg	

*** Measurement Capability is expressed as an uncertainty (±) 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.

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.