

Laboratory Perfect Calibration Centre Pvt. Ltd., No. 40, 71st Cross, 5th Block, Rajaji Nagar, Bangalore, Karnataka

Accreditation Standard ISO/IEC 17025: 2005

Discipline Mechanical Calibration **Issue Date** 21.10.2014

Certificate Number C-0666 **Valid Until** 20.10.2016

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Quantity Measured/ Instrument	Range / Frequency	*Calibration Measurement Capability (\pm)	Remarks
I. DIMENSION			
1. SPIRIT LEVEL ^{\$} L. C. : 0.02 mm/m	Sensitivity : 0.01mm/m	8.0 μ m/m	Using Electronic Level & Tilting Table
2. SLIP GAUGE BLOCKS ^{\$}	0.5 mm to 25 mm Above 25 mm to 50 mm Above 50 mm to 100 mm	0.11 μ m 0.144 μ m 0.20 μ m	Using Slip Gauge Block Comparator & Grade '00' Slip Gauges
3. BEVEL PROTRACTOR ^{\$} L.C: 1' ^{$\Phi$}	0 - 360 $^{\circ}$	3.17'	Using Profile Projector
4. TEST SIEVES ^{\$}	0.010 mm to 10 mm 10 mm to 50 mm 50 mm to 100 mm	3.3 μ m 3.4 μ m 3.46 μ m	Using Profile Projector
5. RADIUS GAUGE ^{\$}	Upto 25 mm	3.32 μ m	Using Profile Projector
6. PITCH GAUGE ^{\$}	Upto 25 mm	3.4 μ m	Using Profile Projector
7. STEEL SCALE ^{\$} L.C: 0.5 mm ^{$\Phi$}	Upto 1000 mm	185 μ m	Using Profile Projector

Neeraj Verma
Convenor

Avijit Das
Program Manager

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8. VERNIER CALIPERS ^{\$} Dial / Digital L.C.: 0.01 mm ^Φ	Upto 300 mm Upto 600 mm	7.8 μ m 8.3 μ m	Using Caliper Checker '0' Grade slip Gauges Gauge Block Accessories
9. DEPTH VERNIER ^{\$} L. C. : 0.01 mm ^Φ	0 to 200 mm	7.7 μ m	Using Caliper Checker '0' Grade slip
10. HEIGHT GAUGE ^{\$} (Digital / Dial) L.C. : 0.01 mm ^Φ	0 to 300 mm 0 to 600 mm	7.5 μ m 8.7 μ m	Using Caliper Checker
11. EXTERNAL MICROMETER ^{\$} L. C. : 0.001 mm ^Φ	0 to 150 mm	1.6 μ m	Using "0" Grade Slip Gauges Gauge Block Accessories
12. DEPTH MICROMETER ^{\$} L. C. 0.01 mm	0 to 100 mm	6.8 μ m	Using "0" Grade Slip Gauges Gauge Block Accessories
13. INTERNAL MICROMETER ^{\$} L. C.: 0.01 mm	0 to 600 mm	5.8 μ m	Using "0" Grade Slip Gauges Gauge Block Accessories

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Program Manager

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	Quantity Measured/ Instrument	Range / Frequency	*Calibration Measurement Capability (±)	Remarks
14.	PLUNGER TYPE DIAL INDICATOR[§] L. C. 0.001 mm^φ	0 to 25 mm	2.8 μm	Using Dial Calibration Tester
15.	LEVER TYPE DIAL INDICATOR[§] L. C. 0.001 mm^φ	0 to 1 mm	2.8 μm	Using Dial Calibration Tester
16.	DIAL BORE GAUGE[§] (For Transmission Error)	0 to 1.5 mm	2.81 μm	Using Dial Calibration Tester
17.	DIAL THICKNESS GAUGE[§] L. C. 0.01 mm	0 to 50 mm	3.6 μm	Using Slip Gauges Grade "0"
18.	PISTOL CALIPER[§] L. C. 0.01 mm^φ	0 to 100 mm	10.5 μm	Using "0" Grade Slip Gauges
19.	SNAP GAUGE/ ADJUSTABLE SNAP GAUGE/ HEIGHT GAUGE/ GAP GAUGE[§]	0 to 200 mm	3.5 μm	Using "0" Grade Slip Gauges
20.	HEIGHT MEASURING SYSTEM[‡]	0 to 600 mm	3.8 μm	Using Caliper Checker
21.	SURFACE PLATE[‡]	3 m x 3 m	$0.9 \sqrt{\frac{L+W}{100}} \mu\text{m}$ L & W in mm	Using Electronic Level by Comparison Method

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II. PRESSURE AND VACUUM

1.	PRESSURE GAUGE/ SWITCH VALVES TRANSMITTER, TRANSDUCER WITH INDICATOR, COMPOUND GAUGE/ MANOMETER^{\$}	0 to 40 bar 0 to 700 bar	0.25% rdg 0.17% rdg	Using Pressure and Vacuum Calibrator
2.	VACUUM GAUGE/ SWITCH VALVES TRANSMITTER, TRANSDUCER WITH INDICATOR, COMPOUND GAUGE^{\$}	0 to -0.9 bar	1.1% rdg	Using Pressure and Vacuum Calibrator
3.	PRESSURE GAUGE/ SWITCH VALVES TRANSMITTER, TRANSDUCER WITH INDICATOR, COMPOUND GAUGE/ MANOMETER[*]	0 to 15 bar 0 to 700 bar	0.35% rdg 0.27% rdg	Using Pressure and Vacuum Calibrator
4.	VACUUM GAUGE/ SWITCH VALVES TRANSMITTER, TRANSDUCER WITH INDICATOR, COMPOUND GAUGE[*]	0 to -0.9 bar	0.73 % rdg	Using Pressure and Vacuum Calibrator

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III. TORQUE				
1. TORQUE WRENCH[§] (Type I-Class B,C,D, E & Type II-Class A,B, D, E)	0.2 Nm to 2 Nm	3.2%	Using Electronic Torque Tester As per Is/ISO 6789 : 2003	
	2 Nm to 20 Nm	1.6%		
	20 Nm to 200 Nm	1.6%		
	200 Nm to 2000 Nm	1.6%		
2. TORQUE SENSOR/ TRANSDUCER WITH INDICATOR[§]	0.1 Nm to 2.0 Nm	0.34%	Using 100mm beam Using 1000 mm beam As per BS 7882: 2008	
	2.0 Nm to 1500 Nm	0.20%		
IV. HARDNESS				
1 RUBBER HARDNESS TESTER[§] (Durometer Spring Force Only) Shore A	20 to 100 Shore A	1.27 Shore A	Using Button Type Load Cell with indicator	
	Shore D	0 to 100 Shore D		0.61 Shore D
V. FORCE				
1, PUSH PULL FORCE GAUGE[§]	0 to 100 N	0.06 %	Using SS Standard Weights with Loading Frame	
	100 N to 500 N	0.09 %		
	500 N to 1500 N	0.11 %		
2. STATIC UNIAXIAL TESTING MACHINES* COMPRESSION	1 kN to 50 kN	0.40%	Using Force Proving Instruments (Load Cell With Indicator)	
	100 kN to 1000 kN			
Neeraj Verma Convenor		Avijit Das Program Manager		

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TESNION	2 kN to 50 kN	0.60%	Using Class 0 & 1
VI. MASS			
1. CALIBRATION OF BALANCES			
For Readability 0.01 mg 0.1 mg 1 mg	0 to 200 g	0.05 mg 0.15 mg 2.50 mg	Using Standard Weights E2 Class
For Readability 1 mg 10mg	0 to 2000 g	2.0 mg 25 mg	Using Standard Weights E2 & F2 Class
For Readability 100 mg	0 to 50 kg	150 mg	Using Standard Weights F2 & M2 Class
For Readability 1 g 10g	0 to 100 kg	2 g 15 g	Using Standard Weights M2 Class
For Readability 10g ≤100g	0 to 600 kg	25 g 150 g	Using Standard Weights M2 Class
VII. DENSITY			
1. DENSITY HYDROMETER	0.650 to 0.700 0.700 to 0.750 0.750 to 0.800 0.800 to 0.850 0.850 to 0.900 0.900 to 0.950	0.0009 g/cm ³ 0.0009 g/cm ³ 0.0009 g/cm ³ 0.0009 g/cm ³ 0.0009 g/cm ³ 0.0009 g/cm ³	Using Standard Hydrometers & Liquids Of appropriate

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	0.950 to 1.000	0.0009 g/cm ³	
	1.000 to 1.050	0.0009 g/cm ³	
	1.050 to 1.100	0.0009 g/cm ³	
	1.100 to 1.150	0.0017 g/cm ³	
	1.150 to 1.200	0.0017 g/cm ³	
	1.200 to 1.300	0.0017 g/cm ³	
	1.300 to 1.400	0.0017 g/cm ³	
	1.400 to 1.500	0.0017 g/cm ³	
	1.500 to 1.600	0.0017 g/cm ³	
	1.600 to 1.700	0.0017 g/cm ³	
	1.700 to 1.800	0.0017 g/cm ³	
	1.800 to 1.900	0.0017 g/cm ³	
	1.900 to 2.000	0.0017 g/cm ³	
2. ALCOHOLMETER	94% to 104%	0.0008 g/cm ³	Using Standard Alcoholmeters & Liquids of appropriate densities
VIII. SPEED AND ACCELERATION			
1. SPEED TACHOMETER ^s	240 rpm to 99999 rpm	0.06%	Using Standard Tachometer Calibrator
2. VIBRATION METER ^s			Using Vibration Meter By Comparison Method
20 to 500 Hz			
ACCELERATION	2.5 g to 0.1 g(pk)	3.4%	
VELOCITY	155 to 1.0 mm/s (pk)	3.4%	
DISPLACEMENT	1 to 0.01 mm		
36 Hz			
ACCELERATION	10g	3.4%	
VELOCITY	158 mm/s	3.4%	
DISPLACEMENT	0.6 mm	3.6%	

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3 RPM [‡]	100 rpm to 50000 rpm	0.61%	Using Tachometer

* Measurement Capability is expressed as an uncertainty (\pm) 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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