NABL

National Accreditation Board for Testing and Calibration Laboratories

Department of Science & Technology, India

CERTIFICATE OF ACCREDITATION

HI-TECH LABORATORY & SERVICES

has been assessed and accredited in accordance with the standard

ISO/IEC 17025:2005

"General Requirements for the Competence of Testing & Calibration Laboratories"

for its facilities at

Shivani Complex, C-4, Vidya Vihar Opp. To Barkatullah University, Bhopal

in the field of

MECHANICAL CALIBRATION

(You may also visit NABL website www.nabl-india.org to view the scope of accreditation)

Certificate Number C-0600

Issue Date 25/01/2012

Valid Until 24/01/2014

This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard & the additional requirements of NABL.

Signed for and on behalf of NABL

Alok Jain	Anil Relia	Dr T. Ramasami
Convenor	Director	Chairman

NABL

Department of Science & Technology, India

SCOPE OF ACCREDITATION

Laboratory	**Hi-Tech Laboratory & Services, Shivani Complex, C-4, Vidya Vihar, opp. to Barkatullah University, Bhopal**		
Accreditation Standard	**ISO/IEC 17025:2005**		
Field	**Mechanical Calibration**	**Issue Date**	**25.01.2012**
Certificate Number	**C-0600**	**Valid Until**	**24.01.2014**
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	Quantity Measured/ Instrument	Range / Frequency	*Calibration Measurement Capability (±)	Remarks
1	WEIGHTS	1 mg	0.1 mg	Using Standard weights of F1 Class & Precision Balances Based on OIML R -111. Substitution method of Weighing And "ABBA" weighing Cycle
		2 mg	0.1 mg	
		5 mg	0.1 mg	
		10 mg	0.1 mg	
		20 mg	0.1 mg	
		50 mg	0.1 mg	
		100 mg	0.1 mg	
		200 mg	0.2 mg	
		500 mg	0.2 mg	
		1 g	0.2 mg	
		2 g	0.2 mg	
		5 g	0.2 mg	
		10 g	0.2 mg	
		20 g	0.2 mg	
		50 g	0.2 mg	
		100 g	0.3 mg	
		200 g	0.4 mg	
		500 g	13 mg	Using Reference Weights of (F2 & M1) Class and ABBA/ABA Weighing Cycle
		1 kg	22 mg	
		2 kg	32 mg	

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	Quantity Measured/ Instrument	Range / Frequency	*Calibration Measurement Capability (±)	Remarks
2	**VOLUME**			
	Pipette	(0.1 to 1) ml	0.08 ml	Using Precision Balances, standard weights and density of pure distilled water By Gravimetric Method based on ISO 8655, ISO:20461 & IS 8897-1978(2006-01)
		(0.1 to 10) ml	0.09 ml	
		(0.1 to 25) ml	0.10 ml	
	Burette	(0.1 to 10) ml	0.08 ml	
		(0.1 to 50) ml	0.09 ml	
		(0.1 to 100) ml	0.10 ml	
	Volumetric Flask	(1 to 10) ml	0.08 ml	
		>10ml to 50 ml	0.09 ml	
		>50ml to 100 ml	0.1 ml	
		>100 ml to 200 ml	0.2 ml	
		>200 ml to 2000 ml	0.7 ml	
	Measuring Cylinder , Beaker & other Glass Wares	(1 to 10) ml	0.08 ml	
		>10ml to 50 ml	0.09 ml	
		>50ml to 100 ml	0.10 ml	
		>100 ml to 200 ml	0.20 ml	
		>200 ml to 1000 ml	0.70 ml	
3	**Balances**			
	Readability ≤ 100 µg	(0 to 200) g	1.2 mg	Procedure based on OIML R 76 of 2006, Using Standard Weights of F1 Class
	Readability ≤ 1 mg	(0 to 2000) g	5.0 mg	Standard weights of F2 & M1 Class
	Readability ≤ 10 mg		30 mg	
	Readability ≤ 100 mg	(0 to 15) kg	1 g	Standard weights of F2 & M1 Class
	Readability ≤ 1 g		3 g	
	Readability ≤ 10 g		30 g	

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4	**Spring Balance**	(0 to 1) kg L.C. =10 g	5.5 g	Using Standard Weights (F2 &M1 Class) Indications of the balance are in the units of mass, Procedure based on IS 1702 – 1987
		(0 to 10) kg L.C. = 50g	26 g	
		(0 to 20) kg L.C.= 100 g	52 g	
5	**Tension Gram Gauge**	(0 to 1000) g L.C. =10 g	6 g	Using Standard Weights (F2 &M1 Class Indications of the balance are in the units of mass, Procedure based on IS 1702 – 1987
		(0 to 2000) g L.C. =50 g	27 g	
6	**External Micrometer** **L.C.0.001mm** **L.C. 0.01mm**	(0 to 100) mm (0 to 100)mm (100 to 700) mm	3.0 µm 7.0 µm 11.0 µm	Using Slip Gauge & Length Bar
7	**Internal Micrometer** **L.C. 0.01 mm**	Up to 1000 mm	12.0 µm	Using Slip Gauge, Length Bar, Caliper Checker & Surface Plate
8	**Micrometer Setting Piece/Length Bar/ Height Block (Master)**	(0 to 100) mm (100 to 300) mm (300 to 700) mm	5.0 µm 8.0 µm 12.0 µm	Using Slip Gauge , Length Bar ,Plunger Dial Gauge & Comparator Stand

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	Quantity Measured/ Instrument	Range / Frequency	*Calibration Measurement Capability (±)	Remarks
9	**Depth Micrometer**			
	L.C. 0.01mm	(0 to 300) mm	8.0 µm	Using Slip Gauge and Surface Plate
10	**Vernier Caliper**			
	L.C. 0.01mm	(0 to 600) mm	15.0 µm	Using Slip Gauge, Caliper Checker & Length Bar
		(600 to 1000) mm	20.0 µm	
	L.C. 0.02mm	(0 to 600) mm	20.0 µm	
		(600 to 1000) mm	25.0 µm	
		(1000 to 2000) mm	40.0 µm	
11	**Vernier Height Gauge**			
	L.C. 0.01mm	(0 to 600) mm	15.0 µm	Using Slip Gauge , Caliper Checker ,Length Bar & Surface Plate
		(600 to 1000) mm	20.0 µm	
	L.C. 0.02mm	(0 to 600) mm	20.0 µm	
		(600 to 1000) mm	30.0 µm	
12	**Vernier Depth Gauge**			
	L.C. 0.02mm	(0 to 300) mm	22.0 µm	Using Slip Gauge , Length Bar , Caliper Checker , Length Bar & Surface Plate
13	**Plunger Dial Gauge & Digital Dial Gauge**			
	L.C.0.001mm	(0 to 25) mm	3.5 µm	Using Slip Gauge and Comparator Stand
	LC 0.002mm	(0 to 25) mm	3.5 µm	
	L.C. 0.01mm	(0 to 25) mm	6.0 µm	
14	**Dial Thickness Gauge / Pistol Caliper**			
	L.C. 0.01mm	(0 to 10) mm	7.0 µm	Using Slip Gauge and Comparator Stand

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	Quantity Measured/ Instrument	Range / Frequency	*Calibration Measurement Capability (±)	Remarks
15	**Snap Gauge**	Up to 100mm	3.0 µm	Using Slip Gauge
16	**Plain Plug Gauge/ OD Master/ Height Block/ Width Gauge/ Measuring Pins**	Up to 100mm	5.8 µm	Using Slip Gauges, Comparator Stand & Plunger Dial Gauge
17	**Feeler Gauge/ Coating Thickness Foil**	Up to 1mm	3.0 µm	Using Digital Micrometer
18	**Spirit Level** **L.C. 0.01 µm /m** **L.C. 0.02 µm /m**	 Up to 300mm Up to 300mm	 15.0 µm /m 15.0 µm /m	Using Slip gauge & Surface Plate
19	**Ford Cup**	4 mm	22.0 µm	Using Digital Universal Caliper
20	**Bevel Protractor / Angle Protractor / Combination Square Set** **L.C. 5min of arc** **L.C. 1°C**	Upto 360°	3.5 min of arc 7.0 min of arc	Using Sine Bar, Slip Gauge Set , & Surface Plate
21	**Speed (R.P.M.)**	Upto 20,000rpm	1.15% FSD	Using Standard Tachometer
22	**Pressure Gauge**	(0 to 700) kg/cm^2	1.0% FSD	Using Digital Test Gauge with Comparator

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Quantity Measured/ Instrument	Range / Frequency	*Calibration Measurement Capability (±)	Remarks
AT SITE			
23 Pressure Gauge	(0 to 20) kg/cm^2	1.0% FSD	Using Digital Test Gauge & Hydraulic Comparator
24 Vacuum Gauge	-700mm Hg	1.4% FSD	Using Digital Test Gauge & Pneumatic Comparator
25 Balances			
Readability ≤ 100 µg	(0 to 200) g	1.2 mg	Procedure based on OIML R 76 of 2006, Using Standard Weights of F1 Class
Readability ≤ 1 mg	(0 to 2000) g	5.0 mg	Standard weights of F2 & M1 Class
Readability ≤ 10 mg		30 mg	
Readability ≤ 100 mg	(0 to 15) kg	1 g	Standard weights of F2 & M1 Class
Readability ≤ 1 g		3 g	
Readability ≤ 10 g		30 g	

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

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