Laboratory	**Calibration Centre, Bharat Heavy Electricals Limited, Building No.-91, Tiruchirappalli, Tamil Nadu**		
Accreditation Standard	**ISO/IEC 17025:2005**		
Discipline	**Mechanical Calibration**	**Issue Date**	**17.09.2016**
Certificate Number	**C-0075**	**Valid Until**	**16.09.2018**
Last Amended on	**23.11.2016**	**Page**	**1 of 7**

Quantity Measured/ Instrument	Range / Frequency	*Calibration Measurement Capability (±)	Remarks
I. DIMENSION (Basic Measuring Instrument, Gauge etc.)			
1. VERNIER CALIPER[$]			
L.C. 0.010 mm	Upto 600 mm	10.10 µm	Using Master Gauge Blocks as per IS 3651 Comparison Method
L.C. 0.020 mm	Upto 300 mm	14.60 µm	
	Upto 600 mm	16.30 µm	
	Upto 1000 mm	19.60 µm	
2. HEIGHT GAUGE[$]			
L.C .0.010 mm	0 to 600 mm	10.35 µm	Using Master Gauge Blocks as per IS 2921 Comparison Method
L.C. 0.020 mm	0 to 1000 mm	17.20 µm	
3. DEPTH GAUGE			
L.C. 0.010 mm	0 to 300 mm	10.00 µm	Using Depth Micro Checker as per IS 4213 Comparison Method
L.C. 0.020 mm	0 to 600 mm	16.00 µm	Using Depth Micro Checker and Master Gauge Blocks as per IS 4213 Comparison Method
4. OUTSIDE MICROMETRE[$]			
L.C. 0.010 mm	Upto 500 mm	8.50 µm	Using Master Gauge Blocks as per IS 2967 Comparison Method
L.C .0.010 mm	Upto 1000 mm	10.00 µm	
5. EXTENSION RODS[$]	Upto 300 mm	3.4 µm	Using Universal Length Measuring Machine by Comparison Method
	Upto 1000 mm	7.70 µm	

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Convenor

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Program Manager

	Quantity Measured/ Instrument	Range / Frequency	*Calibration Measurement Capability (±)	Remarks
6.	**INSIDE MICROMETRE[$]**			
	L.C .0.010 mm	13 mm to 500 mm	8.57 µm	Using Universal Length Measuring Machine as per IS 2966 Comparison Method
	L.C. 0.010 mm	500 mm to 1000 mm	10.86 µm	
7.	**DEPTH MICROMETRE[$]**			
	L.C. 0.010 mm	0 to 300 mm	7.30 µm	Using Depth Micro Checker by BS6468 Comparison Method
8.	**DIAL GAUGE PLUNGER TYPE[$]**			
	L.C .0.001 mm	0 to 1 mm	1.84 µm	Using Universal Length Measuring Machine by IS 2092 Comparison Method
	L.C. 0.010 mm	0 to 10 mm	6.76 µm	
	L.C. 0.010 mm	0 to 10 mm	7.1 µm	Using Dial gauge Calibrator by IS 2092 Comparison Method
9.	**DIAL GAUGE LEVER TYPE[$]**			
	L.C. 0.010 mm	0 to 1 mm	6.7 µm	Using Universal Length Measuring Machine by IS 11498 Comparison Method
10.	**TWO POINT BORE DIAL GAUGE[$]**			
	L.C. 0.010 mm	Stroke Length : 1.5 mm	7.20 µm	Using Universal Length Measuring Machine by Comparison Method

	Quantity Measured/ Instrument	Range / Frequency	*Calibration Measurement Capability (±)	Remarks
11.	**FEELER GAUGE/ THICKNESS STANDARD$**	Upto 1 mm	5.95 µm	Using Universal Length Measuring machine by IS3179
12.	**RADIUS GAUGE$**	Upto 15mm	6.91 µm	Using Measuring Microscope by IS5294 Comparison Method
13.	**STRAIGHT EDGE$**	Upto 1000 mm	7.9 µm	Using Universal Length Measuring Machine by IS2220 Comparison Method
14.	**TRY SQUARE$**	Upto 300 mm base length	6.0 µm	Using Electronic Height Master by IS2103 Comparison Method
15.	**CYLINDRICAL SQUARE$ (Perpendicularity)**	Upto an height of 500 mm	20.0 µm	Using Electronic Height Master by IS6952 Comparison Method
16.	**WALL THICKNESS GAUGE$ L.C. 0.010 mm**	Upto 20 mm	10 µm	Using Master Gauge Blocks by IS 2092 Comparison Method
17.	**SPIRIT LEVEL$**	Sensitivity 0.020 mm/m	0.013 mm/m	Using Coincidence Spirit Level by IS 5706 by Comparison Method
		Sensitivity 0.020 mm/m	0.008 mm/m	Using Coincidence Spirit Level by IS 5706 by Electronic Level

	Quantity Measured/ Instrument	Range / Frequency	*Calibration Measurement Capability (±)	Remarks
18.	**BEVEL PROTRACTOR$** **5 ' arc**	0°-90°-0°	6.1 arc minute	Using Profile Projector by IS 4239 Comparison Method
19.	**SURFACE PLATE$**	Upto 1000 X 1000 mm	$1.45\sqrt{\frac{L+W}{150}}$ µm $3.71\sqrt{\frac{L+W}{100}}$ µm	Using Electronic Level by IS 12397 Comparison Measurement Using Coincidence Level by IS 12397 Comparison Measurement
20.	**STEEL TAPE$** **L.C. 1 mm**	3 m 10 m 20 m 30 m	$22.318 \times L^{0.2884}$ µm where L is in mm	Using Steel Tape and Steel Rule Calibration Unit by IS 1269 – Part II Comparison Method
21.	**STEEL RULE$** **L.C .1 mm**	Upto 1000 mm	146.25 µm	Using Steel Tape and Steel Rule Calibration Unit by IS 1481 Comparison Measurement
22.	**THREAD MEASURING CYLINDERS$**	Upto 13.00 mm	0.61 µm	Using Universal Length Measuring Machine by IS 6311 Comparison Method
23.	**PLAIN PLUG GAUGE$**	Upto dia 125 mm	1.60 µm	Using Universal Length Measuring Machine by IS 3455 Comparison Method
		Upto dia 125 mm	2.12 µm	Using Electronic Comparator by IS 3455 Comparison Method

	Quantity Measured/ Instrument	Range / Frequency	*Calibration Measurement Capability (±)	Remarks
24.	**PLAIN RING GAUGE**[$]	Dia. 5mm to 200mm	1.88 µm	Using Universal Length Measuring Machine by IS 3485 Comparison Method
25.	**THREAD PLUG GAUGE**[$]	Metric threads Upto dia 200 mm Unified Threads Upto dia 2 inches BSP Threads Upto dia 2 inches	1.91 µm	Using Universal Length Measuring Machine by IS 2334 Comparison Method
26.	**DIAL GAUGE CALIBRATOR**[$] **L.C. 0.001 mm**	0 to 10 mm	2.41 µm	Using Master Gauge Blocks by Comparison Method
27.	**ELECTRONIC COMPARATOR**[$] **L.C. 0.001 mm**	0 to 10 mm	1.43 µm	Using Master Gauge Blocks by Comparison Method
28.	**THREAD RING GAUGE**[$]	Metric threads Upto dia 90 mm Unified Threads Upto dia 2 inches BSP Threads Upto dia 2 inches	2.50 µm	Using Universal Length Measuring Machine by IS 2334 Comparison Method
29.	**UNIVERSAL LENGTH MEASURING MACHINE**[$] **L.C. 0.0001 mm**	0 to 100 mm (By direct measurement)	0.2 +(L/335) micron Where L is in mm	Using Master Gauge Blocks by Comparison Method

	Quantity Measured/ Instrument	Range / Frequency	*Calibration Measurement Capability (±)	Remarks
	L.C. 0.001 mm	0 to 1000 mm (By direct measurement)	0.064 X L -2 micron Where L is in mm	Using Master Gauge Blocks by Comparison Method
30.	**ELECTRONIC HEIGHT MASTER$**			
	L.C. 0.001 mm	0 to 500 mm	2.10 micron	Using Master Gauge Blocks by Comparison Method
31.	**DEPTH MICRO CHECKER$**	0 to 300 mm	4.30 µm	Using Electronic Height Master by Comparison Method
32.	**INSIDE MICRO CHECKER$**	0 to 600 mm	5.1 µm	Using Universal Length Measuring Machine by Comparison Method
33.	**MEASURING MICROSCOPE$**			
	L.C. 0.001 mm	X Axis: 0 to 200 mm Y Axis: 0 to 100 mm	2.60 µm	Using Master Gauge Blocks/Glass Scale by Comparison Method
	L.C. 1 ' arc	Angle: 0° to 180°	3.0 arc minutes	Using Master Angle Gauge Blocks/Glass Scale by Comparison Method
34.	**SLIP GAUGE CALIBRATION UNIT$**			
	L.C. 0.00001 mm	0 to 100 mm	0.08 µm	Using Master Gauge Blocks by Comparison Method

	Quantity Measured/ Instrument	Range / Frequency	*Calibration Measurement Capability (±)	Remarks
35.	**STEEL TAPE AND STEEL RULE CALIBRATION UNIT[$]** **L.C. 0.005 mm**	0 to 1000 mm	20.00 µm	Using Master Gauge Blocks by Comparison Method
36.	**COINCIDENCE SPIRIT LEVEL[$]** **L.C. 0.010 mm**	0 to 10 mm	0.004 mm/m	Using Electronic Level by Comparison Method

*** Measurement Capability is expressed as an uncertainty (±) at a confidence probability of 95%**
[$]Only in Permanent Laboratory