

**Laboratory** R&D Instrument Services, # 5/3A, Pomagal III Street, Ambalnagar,  
Ekkattuthangal, Chennai, Tamil Nadu

**Accreditation Standard** ISO/IEC 17025:2005

**Discipline** Mechanical Calibration **Issue Date** 15.10.2014

**Certificate Number** C-0673 **Valid Until** 14.10.2016

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Quantity Measured/ Instrument	Range / Frequency	*Calibration Measurement Capability ( $\pm$ )	Remarks
<b>I. PRESSURE</b>			
1. Pressure (Pneumatic) <sup>\$</sup> Analog/ Digital Pressure gauges, Transducers, Transmitters, Manometers, Calibrators	0.2 bar to 35 bar	0.011 % rdg	Using Pneumatic DWT by Direct Method DKD R-6-1
2. Pressure (Pneumatic) <sup>*</sup> Analog / Digital, Master / Standard / Test / Industrial Pressure gauges, Transducers, Transmitters, Indicating Transmitters, Indicators, Controllers, Recorders, Data Loggers, Switches, Manometers, Calibrators, Modules	0 to 20 bar	0.038 % rdg	Using DPI 145 by Comparison Method DKD R-6-1
	>20 bar to 35 bar	0.076 % rdg	Using EPC-40 by Comparison Method DKD R-6-1
3. Pressure (Hydraulic) <sup>\$</sup> Analog/ Digital Pressure gauges, Transducers, Transmitters, Manometers,	1 bar to 700 bar	0.018 %rdg	Using Hydraulic DWT, by Direct Method DKD R-6-1
	700 bar to 1400 bar	0.12 %rdg	Using DPI 104 by Comparison Method DKD R-6-1

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4. Pressure (Hydraulic) * Analog / Digital, Master / Standard / Test / Industrial Pressure gauges, Transducers, Transmitters, Indicating Transmitters, Indicators, Controllers, Recorders, Data Loggers, Switches, Manometers, Calibrators, Modules	0 to 700 bar	0.04 %rdg	Using EPC-200, EPC- 350, APC-700 by Comparison Method DKD R-6-1
5. Differential Pressure Gauges <sup>s</sup> Magnehelic / Photohelic Gauge, Differential pressure Transmitters	$\pm$ 200 mbar	0.059 %rdg	Using Precision Pressure Controller by Comparison Method DKD R-6-1
6. Differential Pressure Gauges* Magnehelic / Photohelic Gauge, Differential pressure Indicators/ Controllers/ Transmitters/ Switches	-25 mbar to 25 mbar -25 mbar to -200 mbar 25 mbar to 200 mbar	1 % rdg	Using Digital Manometer by Comparison Method DKD R-6-1

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## II. VACUUM

- |   |  |                          |   |
|---|--|--------------------------|---|
| 1. Analog/ Digital Vacuum gauges, Transducers, Transmitters, Manometers, Calibrators <sup>\$</sup>  | -30 mbar to -200 mbar<br>-200 mbar to -1000 mbar | 0.022 %rdg<br>0.016 %rdg | Using Pneumatic DWT by Direct Method<br>DKD R-6-1 |
| 2. Analog / Digital, Master / Standard / Test / Industrial Vacuum gauges, Transducers, Transmitters, Indicating Transmitters, Indicators, Controllers, Recorders, Data Loggers, Switches, Manometers, Calibrators, Modules <sup>+</sup> | 0 to -1000 mbar                                  | 0.088 % rdg              | Using DPI 145 by Comparison Method<br>DKD R-6-1   |

## III. DIMENSION

- |  |             |              |                                      |
|--|-------------|--------------|--------------------------------------|
| 1. Calipers <sup>\$</sup><br>(Vernier / Dial / Electronic)<br>L.C. 0.01 mm | 0 to 600 mm | 10.1 $\mu$ m | Using Caliper checker as per IS:3651 |
|--|-------------|--------------|--------------------------------------|

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2. <b>Height Gauges</b> \$ L.C. 0.02 mm	0 to 600 mm	10.7 $\mu$ m	Using Caliper Checker as per IS : 2921
3. <b>Depth Gauges</b> \$ L.C. 0.01 mm	Upto 300 mm	9.2 $\mu$ m	Using Gauge Blocks as per IS : 4213
4. <b>External Micrometer</b> \$ L.C. 0.001 mm L.C. 0.01 mm	0 to 100 mm 0 to 300 mm	2.9 $\mu$ m 8.0 $\mu$ m	Using Gauge Blocks and Long Gauge Blocks as per IS : 2967
5. <b>Internal Micrometer</b> \$ (Stick Type) L.C. 0.01 mm	50 mm to 250 mm	5.0 $\mu$ m	Using Gauge Blocks and Gauge Block Accessories as per IS : 2966
6. <b>Depth Micrometer</b> \$ L.C. 0.01 mm	Upto 300 mm	5.8 $\mu$ m	Using Gauge Blocks as per IS : 2967
7. <b>Plunger Dial Gauge</b> \$ L.C. 0.01 mm L.C. 0.001 mm	Upto 50 mm Upto 25 mm	2.5 $\mu$ m 2.4 $\mu$ m	Using Gauge Blocks and Electronic Dial Calibration Tester as per IS : 2092

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8. Lever Dial Gauge <sup>s</sup> L.C. 0.01 mm	Upto 2 mm	2.3 $\mu$ m	Using Electronic Dial Calibration Tester as per IS : 11498
9. Bore Dial Gauge <sup>s</sup> (Transmission only) L.C. 0.001 mm	1.2 mm	4.4 $\mu$ m	Using Electronic Dial Calibration Tester as per WI/RD/ML/09
10. Dial Thickness Gauge <sup>s</sup> L.C. 0.01 mm	Upto 10 mm	2.9 $\mu$ m	Using Gauge Blocks as per IS : 14271
11. Feeler Gauge <sup>s</sup>	0.05 mm to 1 mm	3.10 $\mu$ m	Using Digital Micrometer as per IS : 3179
12. Width Gauge <sup>s</sup>	Upto 20 mm	3.2 $\mu$ m	Using Digital Micrometer as per IS : 3179
13. Plain Plug Gauge <sup>s</sup>	Upto 100 mm	3.9 $\mu$ m	Using Gauge Blocks and Electronic Dial Comparator as per IS : 3455
14. Plain Snap / Gap Gauge <sup>s</sup>	2.5 mm to 100 mm	1.5 $\mu$ m	Using Gauge Blocks as per IS : 3455

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15. Micrometer Setting Standard <sup>\$</sup>	Upto 200 mm 200 mm to 300 mm	5.4 $\mu$ m 5.9 $\mu$ m	Using Gauge Blocks, Electronic Dial Calibration Comparator as per WI/RD/ML/16
16. Cylindrical Setting Master <sup>\$</sup>	Upto 100 mm	3.9 $\mu$ m	Using Gauge Blocks and Electronic Dial Comparator as per IS : 4349
17. Slip Gauge Accessories <sup>\$</sup> (Measuring jaw- Nominal size, Parallelism & Flatness)	Upto 25 mm	3.8 $\mu$ m	Using Gauge Blocks, Electronic Dial Calibration Tester and Optical Flat as per IS : 4440
<b>III. SPEED &amp; ACCELERATION</b>			
1. Non-Contact Tachometer <sup>#</sup>	60 rpm to 900 rpm >900 rpm to 3000 rpm >3000 rpm to 60000 rpm	0.12 rpm 0.12 rpm to 0.59 rpm 0.59 rpm to 1.2 rpm	Using Multi Product Calibrator 3041A by Simulation Method

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

<sup>\$</sup>Only in Permanent Laboratory

<sup>\*</sup>Only for Site Calibration

<sup>#</sup>The laboratory is also capable for site calibration however, the uncertainty at site depends on the prevailing actual environmental conditions and master equipment used.