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Laboratory Name :	MAPANA METROLOGY PVT.LTD, NO.673,4TH CROSS, LAGGERE,RG NAGAR, BENGALURU, BENGALURU URBAN, KARNATAKA, INDIA		
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S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrument	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
Permanent Facility					
1	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Angle Plate - Flatness	Using CMM by Direct Method	Up to 600 mm	6.6 µm
2	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Angle Plate - Parallelism	Using CMM by Direct Method	Up to 600 mm	6.6 µm
3	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Angle Plate - Squareness	Using CMM by Direct Method	Up to 600 mm	6.9 µm
4	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Bevel Protractor (L..C.: 5 min)	Using Angle Gauge Blocks by Comparison method	0 to 360 °	4.0arc min

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5	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Caliper (Digital/ Dial/ Analog) (L.C.: 0.01 mm)	Using Long Gauge Blocks by comparison method	0 to 1000 mm	10.4µm
6	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Caliper (Digital/ Dial/ Analog) (L.C.: 0.01 mm)	Using Caliper checker by comparison method	0 to 600 mm	10.2 µm
7	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Coating Thickness Gauge (L.C.: 0.001 mm)	Using Master Foils by comparison method	23 µm to 660 µm	5.76 µm
8	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Coating Thickness Gauge (L.C.: 0.001 mm)	Using Master Foils by comparison method	9 µm to 23 µm	1.85µm
9	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Comparator Stand-Flatness	Using CMM by Direct Method	200 x 200 mm	5.1µm

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10	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Cylindrical Measuring Pin	Using ULM by comparison method	0.1 mm to 20 mm	5.0 µm
11	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Cylindrical Setting Master	Using ULM by comparison method	3 mm to 100 mm	1.5 µm
12	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Depth Gauge (Digital/ Dial /Analog) (L.C.: 0.01 mm)	Using Depth checker by comparison method	0 to 300 mm	8.4 µm
13	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Depth Micrometer (L.C.: 0.001 mm)	Using Depth checker by comparison method	0 to 300 mm	5.5 µm
14	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Dial Bore Gauge - Transmission Only (L.C.: 0.001 mm)	Using ULM by comparison method	0 to 1.5 mm	1.5 µm

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15	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Dial Indicator Lever Type (L.C.: 0.001 mm)	Using ULM by comparison method	0 to 0.14 mm	1.0 µm
16	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Dial Indicator Lever Type (L.C.: 0.01 mm)	Using ULM by comparison method	0 to 2 mm	5.9 µm
17	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Dial Indicator Plunger Type (L.C.: 0.0005 mm)	Using ULM by comparison method	0 to 50 mm	1.5 µm
18	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Dial Indicator Plunger Type - Digital, Analog (L.C.: 0.01mm)	Using ULM by Comaprision Method	0 to 50 mm	5.8**µm**
19	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Dial Thickness Gauge (L.C.: 0.001 mm)	Using Gauge Blocks by comparison method	0 to 25 mm	3.0 µm

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20	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Electronic Probe/ LVDT (L.C.: 0.0001 mm)	Using ULM based on comparison method	0 to 5 mm	2.0 µm
21	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Engineers Comparator (L.C.: 0.001 mm)	Using ULM by comparison method	0 to 3 mm	2.0 µm
22	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Engineers Parallel - Parallelism	Using CMM by Direct Method	Up to 500 mm	7.0 µm
23	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Engineers Square/ Tri Square - Grade A B C - Flatness	Using CMM by Direct Method	Up to 600 mm	6.6 µm
24	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Engineers Square/ Tri Square - Grade A B C - Perpendicularity	Using CMM by Direct Method	Up to 600 mm	6.6 µm

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25	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Engineers Square/ Tri Square - Grade A B C - Straightness	Using Co-ordinate measuring machine based on direct method	Up to 600 mm	6.6 µm
26	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	External Micrometer (L.C.: 0.001 mm)	Using gauge blocks and optical flat based on comparison method	0 to 100 mm	2.0 µm
27	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	External Micrometer (L.C.: 0.001 mm)	Using Gauge Blocks and optical flat by comparison method	0 to 600 mm	5.0 µm
28	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Feeler Gauge	Using ULM by Direct method	0.01 mm to 1 mm	2.9 µm
29	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Granite Square - Flatness	Using CMM by direct method	630 x 800 mm	8.2 µm

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30	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Granite Square - Squareness	Using CMM by direct method.	630 x 800 mm	8.2 µm
31	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Height Gauge - Digital/Dial/ Analog (L.C.: 0.001 mm)	Using Long Gauge Blocks, Surface plate by comparison method	0 to 600 mm	8.3 µm
32	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Internal / Stick Micrometer (L.C.: 0.001 mm)	Using Dial Gauge and Long Gauge blocks by comparison method	50 mm to 1025 mm	8.2 µm
33	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Leg / Section/ Groove Caliper	Using Gauge Blocks by comparison method	0 to 150 mm	7.5 µm
34	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Limit Gauge - Angle	Using CMM by Direct Method	Up to 360 °	12 arc sec

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35	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Limit Gauge - Depth	Using CMM by Direct Method	Up to 500 mm	6.0 µm
36	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Limit Gauge - Diameter	Using CMM by Direct Method.	Up to 500 mm	6.0 µm
37	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Limit Gauge - Thickness	Using CMM by Direct Method	Up to 500 mm	6.0 µm
38	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Limit Gauge - Width	Using CMM by Direct Method	Up to 500 mm	6.0 µm
39	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Limit Gauge- Length	Using CMM by Direct Method	Up to 500 mm	6.0 µm

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40	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Micrometer Head (L.C.: 0.001 mm)	Using ULM by comparison method	0 to 50 mm	4.0 µm
41	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Micrometer Setting Rod	Using Gauge blocks, Surface plate and Dial Gauge by comparison method	25 mm to 600 mm	5.5 µm
42	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Plain Plug Gauge	Using ULM by Comparison method	1 mm to 300 mm	2.0 µm
43	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Plain Ring Gauge / Setting Ring Gauge	Using ULM & Master Ring Gauge by Comparison method	3 mm to 300 mm	4.3 µm
44	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Sine Bar - Parallelism of Faces	Using CMM by Direct Method	Up to 100 mm	5.0 µm

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45	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Sine Bar - Roller Distance	Using CMM , Angle Gauge Blocks by Direct Method	Up to 100 mm	5.0µm
46	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Snap Gauge	Using ULM & Master Ring Gauge by Comparison method	Up to 300 mm	4.3 µm
47	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Spline Plug Gauge - Diameter	Using ULM by Comparison method	10 mm to 100 mm	3.0 µm
48	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Spline Ring Gauge - Diameter	Using ULM & Master Ring Gauge by Comparison method	20 mm to 100 mm	4.0 µm
49	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Straight Edge - Straightness Grade 0 ,1,2	Using CMM by direct method	Up to 750 mm	10.0 µm

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50	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Straightness Edge - Parallelism Grade 0,1,2	Using CMM by Direct Method	Up to 750 mm	10.0 µm
51	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Taper Plain Plug Gauge - Dia. Gauge Plane Length	Using CMM by Direct Method	Up to 100 mm	3.0 µm
52	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Taper Plain Plug Gauge - Major Diameter	Using CMM by Direct Method	6.35 mm to 100 mm	3.0 µm
53	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Taper Plain Ring Gauge - Major Diameter	Using CMM by Direct Method	6.35 mm to 100 mm	3.0 µm
54	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Taper Thread Plug Gauge - Effective Diameter	Using ULM & Master Ring Gauge by Comparison method	3 mm to 85 mm	3.0 µm

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55	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Taper Thread Ring Gauge - Effective Diameter	Using ULM & Master Ring Gauge by Comparison method	6.35 mm to 100 mm	4.0 µm
56	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Thickness Foils	Using ULM by comparison method	5 µm to 1000 µm	2.0 µm
57	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Thread Measuring Wire	Using ULM by Comparison method	0.17 mm to 6 mm	0.5 µm
58	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Thread Plug Gauge - Effective Diameter	Using ULM & Thread Measuring Wires By Comparison Method	3 mm to 300 mm	2.0 µm
59	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Thread Ring Gauge - Effective Diameter	Using ULM & Master Ring Gauge by Comparison method	3 mm to 300 mm	5.6 µm

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60	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Three Point Micrometer (L.C.: 0.001 mm)	Using ULM , Setting Ring Gauge by Comparison Method	5 mm to 100 mm	4.0 µm
61	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	V Block - Parallelism	Using CMM by Direct method.	Up to 300 mm	4.5 µm
62	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	V Block - Squareness	Using CMM by Direct Method	Up to 300 mm	4.5 µm
63	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	V-Block - Symmetry	Using CMM by Direct Method	Up to 300 mm	5.0 µm
64	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Caliper Checker	Using CMM by Direct Method	0 to 600 mm	6.6µm

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65	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Depth Micro Checker	Using CMM by Direct Method	Up to 300 mm	4.4µm
66	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Gauge Block Set (Grade 1,2)	Using Slip Gauge Calibrator & K Grade Slip Gauge by Comparison method	>25 mm to 50 mm	0.37µm
67	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Gauge Block Set (Grade 1,2)	Using Slip gauge Calibrator & K grade Slip Gauges by Comparison method	>50 mm to 75 mm	0.37µm
68	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Gauge Block Set (Grade 1,2)	Using Slip Gauge Calibrator & K grade Slip Gauges by Comparison method	>75 to 100 mm	0.64µm
69	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Gauge Block Set (Grade 1,2)	Using Slip Gauge Calibrator & K grade Slip Gauges by Comparison method	0.5 mm to 25 mm	0.19µm
70	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Long Gauge Blocks	Using Co-ordinate Measuring Machine by direct method	Up to 600 mm	3.8µm
71	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Surface Roughness Master-Depth	Using Roughness Tester (Stand Alone Unit)	up to 10 µm	6.4%

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72	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Surface Roughness Master/ Surface Roughness Specimen	Using Roughness Tester (Stand Alone Unit) with Master Roughness specimen	Up to Ra 3.2 µm	6.72%

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Site Facility					
1	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Contour Measuring Equipment (Linear)	Using Gauge Block and Depth/Radius master by comparison method	Up to 120 mm	3.0µm
2	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Contour Measuring Equipment (Straightness)	Using Optical Flat by Comparision Method	Up to 120 mm	0.87µm
3	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Electronic Height Gauge /2D height Gauge - Squareness (L.C.: 0.0001 mm)	Using Granite Square , Surface plate & Electronic dial Based on comparison method	0 to 600 mm	8.0µm
4	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Electronic Height Gauge /2D height Gauge - Linearity (L.C.: 0.0001 mm)	Using Gauge Blocks, Surface plate based on comparison method	0 to 600 mm	10.0µm
5	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Length Measuring Machine (L.C.: 0.0001 mm)	Using Gauge Blocks K grade based on comparison method	0 to 300 mm	0.4µm
6	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Roughness Tester (Stand Alone unit / Portable)	Using Roughness Masters/Specimen (3 Ra Values), Depth Master	Up to Ra 3.2 µm	6.4%

*** CMCs represent expanded uncertainties expressed at approximately the 95% level of confidence, using a coverage factor of k = 2.**