

**National Institute of Metrology (Thailand)**

3/4-5 Moo 3, Klong 5, Klong Luang, Pathumthani, 12120, Thailand

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Price List

Item No.	Description	Range	Accuracy / Uncertainty	Price (THB)	Remark	Code
Calibration Fee						
Dimensional Metrology						
1	Iodine Stabilized He-Ne laser	633 nm	5.0×10^{-11}	36,000/piece	Beat measurement mehod with Iodine stabilized He-Ne laser	08011 - 10101
2	Stabilized He-Ne laser	633 nm	1.0×10^{-9}	22,530/piece	Beat measurement mehod with Iodine stabilized He-Ne laser	08011 - 10201
3	Stabilized He-Ne laser	500 - 1000 nm and 1560 nm	1.0×10^{-12}	45,000/piece	Beat measurement mehod with optical comb	08011 - 10202
4	Stabilized He-Ne laser	532 nm	4×10^{-8}	22,530/piece	Beat measurement mehod with Iodine stabilized Nd:YAG laser	08011 - 10203
5	Nonstabilized Laser	633 nm	1×10^{-7}	22,530/piece	Beat measurement mehod with Iodine stabilized He-Ne laser	08011 - 10301
6	Nonstabilized Laser	350 - 1100 nm	1.7×10^{-7}	21,280/piece	Direct measurment method by wavelength meter	08011 - 10401
7	Wavelength meter	532 - 1064 nm	4.0×10^{-8}	25,000/piece	Direct measurment method by stabilized light source	08011 - 10503
8	Rectangular Gauge Block, Material : Steel	0.5 mm to 125 mm	Q[26 nm, 0.35 x 10 ⁻⁶ L]	2,000/piece	Optical Interferometry method, Deviation from central length Measuring faces inspection without lapping. Both side wringing	08021 - 10101
9	Rectangular Gauge Block, Material : Ceramic	0.5 mm to 125 mm	Q[26 nm, 0.29 x 10 ⁻⁶ L]	2,000/piece	Optical Interferometry method, Deviation from central length Measuring faces inspection without lapping. Both side wringing	08021 - 10101
10	Rectangular Gauge Block, Material : Tungsten Carbide	0.5 mm to 125 mm	Q[26 nm, 0.18 x 10 ⁻⁶ L]	2,000/piece	Optical Interferometry method, Deviation from central length Measuring faces inspection without lapping. Both side wringing	08021 - 10101
11	Rectangular Gauge Block, Material : Chromium Carbide	0.5 mm to 125 mm	Q[26 nm, 0.27 x 10 ⁻⁶ L]	2,000/piece	Optical Interferometry method, Deviation from central length Measuring faces inspection without lapping. Both side wringing	08021 - 10101
12	Rectangular Gauge Block, Material : Steel	< 0.5 mm	Q[26 nm, 0.35 x 10 ⁻⁶ L]	3,000/piece	Optical Interferometry method, Deviation from central length Measuring faces inspection without lapping. Both side wringing	08021 - 10102

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13	Rectangular Gauge Block, Material : Ceramic	< 0.5 mm	Q[26 nm, 0.29 x 10 ⁻⁶ L]	3,000/piece	Optical Interferometry method, Deviation from central length Measuring faces inspection without lapping. Both side wringing	08021 - 10102
14	Rectangular Gauge Block, Material : Tungsten Carbide	< 0.5 mm	Q[26 nm, 0.18 x 10 ⁻⁶ L]	3,000/piece	Optical Interferometry method, Deviation from central length Measuring faces inspection without lapping. Both side wringing	08021 - 10102
15	Rectangular Gauge Block, Material : Chromium Carbide	< 0.5 mm	Q[26 nm, 0.27 x 10 ⁻⁶ L]	3,000/piece	Optical Interferometry method, Deviation from central length Measuring faces inspection without lapping. Both side wringing	08021 - 10102
16	Rectangular Gauge Block, Material : Steel, Ceramic, Tungsten Carbide, Chromium Carbide - Variation in length	0.5 mm to 125 mm	0.020 um	2,200/piece	Optical Interferometry method, Variation (fo, fu) in length measurement. Measuring faces inspection without lapping.	08021 - 10103
17	Rectangular Gauge Block, Material : Steel, Ceramic, Tungsten Carbide, Chromium Carbide - Flatness	0.5 mm to 125 mm	0.035 um	2,200/piece	Optical Interferometry method, Flatness measurement	08021 - 10104
18	Rectangular Gauge Block, according to Euramet cg-2/v.02 (03/2011)	0.5 mm to 100 mm	26 nm	2,500/piece	Optical Interferometry method, Deviation from central length Measuring faces inspection without lapping. Both side wringing	08021 - 10201
19	Rectangular and Square Gauge Block (Metric), Material : Steel, Tungsten Carbide, Chromium Carbide - Deviation from central length	0.5 mm to 100 mm	Q[50 nm, 0.50e-06 L]	750/piece	Comparison method, <i>Dlc</i> , Deviation from central length , Variation (fo, fu) Measuring faces inspection without lapping	08021 - 10301
20	Rectangular and Square Gauge Block (Metric), Material : Steel, Tungsten Carbide, Chromium Carbide - Deviation from central length	>100 mm to 125 mm	Q[50 nm, 0.50e-06 L]	3,030/piece	Comparison method, <i>Dlc</i> , Deviation from central length , Variation (fo, fu) Measuring faces inspection without lapping	08021 - 10302

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21	Rectangular and Square Gauge Block (Metric), Material : Ceramic - Deviation from central length	0.5 mm to 100 mm	Q[70 nm, 0.50e-06 L]	750/piece	Comparison method, <i>Dlc</i> , Deviation from central length, Variation (<i>fo</i> , <i>fu</i>) Measuring faces inspection without lapping	08021 - 10301
22	Rectangular and Square Gauge Block (Metric), Material : Ceramic - Deviation from central length	>100 mm to 125 mm	Q[70 nm, 0.50e-06 L]	3,030/piece	Comparison method, <i>Dlc</i> , Deviation from central length, Variation (<i>fo</i> , <i>fu</i>) Measuring faces inspection without lapping	08021 - 10302
23	Rectangular and Square Gauge Block (Metric), Material : Steel, Ceramic, Tungsten Carbide, Chromium Carbide - Difference in central length	0.01 - 25 mm	47 nm	1,905/pair	Direct Measurement by gauge block comparator, Difference in central length, variation in length and measuring face inspection without lapping.	08021 - 10303
24	Rectangular and Square Gauge Block (inch), - Deviation from central length Material : Steel, Tungsten Carbide, Chromium Carbide	0.005 inch to 4 inch	Q[50 nm, 0.50e-06 L]	750/piece	Comparison method, <i>Dlc</i> , Deviation from central length, Variation (<i>fo</i> , <i>fu</i>) Measuring faces inspection without lapping	08021 - 10501
25	Rectangular and Square Gauge Block (inch), - Deviation from central length Material : Ceramic	0.005 inch to 4 inch	Q[70 nm, 0.50e-06 L]	750/piece	Comparison method, <i>Dlc</i> , Deviation from central length, Variation (<i>fo</i> , <i>fu</i>) Measuring faces inspection without lapping	08021 - 10501
26	Long Gauge Block (Metric Rectangular, Square) Material : Steel	>125 mm to 500 mm	Q[50 nm, 0.80 x 10 ⁻⁶ L]	3,380/piece	Comparison Method, <i>Dlc</i> , Deviation from central length, Variation (<i>fo</i> , <i>fu</i>) Measuring faces inspection without lapping.	08021 - 10601
27	Long Gauge Block (Metric Rectangular, Square) Material : Steel	600 mm to 1000 mm	Q[50 nm, 0.80 x 10 ⁻⁶ L]	6,750/piece	Comparison Method, <i>Dlc</i> , Deviation from central length, Variation (<i>fo</i> , <i>fu</i>) Measuring faces inspection without lapping.	08021 - 10603
28	Length Bar	Up to 800 mm	Q[50 nm, 0.80 x 10 ⁻⁶ L]	3,380/piece	Comparison Method, <i>Dlc</i> , Deviation from central length, Variation (<i>fo</i> , <i>fu</i>) Measuring faces inspection.	08021 - 10701
29	Ball Bar / Nest Bar	up to 800 mm	1.2 µm	3,780/piece	Direct measurement by ULM and laser interferometer	08021 - 10703



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30	Long Gauge Block (Metric Rectangular) Material : Steel	>125 mm to 500 mm	Q[20 nm, 0.44 x 10 ⁻⁶ L]	10,000/piece	Optical Interferometry method, Deviation from central length Measuring faces inspection and lapping. Both side wringing	08021 - 10801
31	Long Gauge Block (Metric Rectangular) Material : Steel	600 mm to 1000 mm	Q[20 nm, 0.44 x 10 ⁻⁶ L]	15,000/piece	Optical Interferometry method, Deviation from central length Measuring faces inspection and lapping. Both side wringing	08021 - 10802
32	Square Gauge Block Material : Steel	0.5 mm to 125 mm	Q[28 nm, 0.35 x 10 ⁻⁶ L]	1,730/piece	Optical Interferometry method, Deviation from central length Measuring faces inspection without lapping. Both side wringing	08021 - 11001
33	Autocollimator (Analog, Digital)	± 1000"	0.2"	25,000/piece	Calibration by standard autocollimator	08031 - 10101
34	Autocollimator (Analog, Digital)	± 1500"	0.15"	25,000/piece	Calibration by Self calibration angle system	08031 - 10103
35	Rotary Encoder	0 - 360 degree	0.06"	25,000/piece	Calibration by self calibration angle system (SCMS-127)	08031 - 10201
36	Rotary Encoder	0 - 360 degree	0.11"	25,000/piece	Calibration by self calibration angle system (SCMS-107)	08031 - 10201
37	Rotary Encoder	0 - 360 degree	7"	25,000/piece	Calibration by self calibration angle system	08031 - 10201
38	Polygon	8 to 72 faces	0.2"	1,000/face	Calibration by one autocollimator	08031 - 10301
39	Polygon	8 to 72 faces	0.25"	750/face	Calibration by two autocollimator	08031 - 10305
40	Polygon	8 to 72 faces	0.2"	1,000/face	Calibration by self calibration rotray encoder system	08031 - 10309
41	Angle Gauge Block	up to 90°	0.33"	1,500/piece	Calibration by autocalimator	08031 - 10401
42	Indexing Table	0° to 360°	0.2"	1,000/position	Calibration by one autocollimator	08031 - 10501
43	Electronic Inclinometer	±1000"	0.35"	15,000/range	Calibration by autocollimator	08031 - 10901
44	Electronic Level	±60o	0.002o	5,000	Calibration by rotary encorder	08030 - 10902
45	Cylindrical Square	Up to 400 mm	2.3 μm	5,000/side	Calibration by Master Square	08031 - 11101

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46	Standard Square	Up to 400 mm	2.3 µm	5,000/side	Calibration by Master Square and Measuring Probe	08031 - 11201
47	Squareness Tester	Up to 400 mm	2.0 µm	5,000	Calibration by Master Square	08031 - 11301
48	Precision Square	Up to 400 mm	2.5 µm	5,000	Calibration by Master Square & Gauge Blocks	08031 - 11401
49	Small Angle Generator	±5,000 µm/m	2 µm/m	15,000	Calibration by autocollimator	08031 - 11901
50	Sine Bar	up to 450	1"	5,000	Calibration by Gauge Blocks and Angle Gauge Blocks	08031 - 12001
51	Straightedge	up to 1000 mm	1.0 µm	5,000	Calibration straightness measuring machine	08031 - 12201
52	Straightness Measuring Machine	up to 2,500 mm	(1.6x10 ⁻³ /) µm	5,000	Cal. by standard autocollimator	08031 - 12202
53	Straightness Measuring Machine and Straightedge	Up to 1000 mm	0.7 µm	10,000	Cal. by Reversal Method	08031 - 12203
54	Plain Ring Gauge	0.1 to 100 mm	Q[0.37 µm, 1.3E-06 D]	2,410/piece	Calibration by Small Internal Diameter Measurement (IDM)	08041 - 10101
55	Plain Ring Gauge	0.5 mm to 100 mm	Q[0.25 µm, 1.8E-06 D]	4,410/piece	Compare measurement method with setting plain ring gauge	08041 - 10102
56	Plain Ring Gauge	100 to 300 mm	Q[0.25 µm, 1.8E-06 D]	4,410/piece	Compare measurement method with setting plain ring gauge	08041 - 10103
57	Go - No Go Plain Ring Gauge	0.1 to 100 mm	Q[0.37 µm, 1.3E-06 D]	2,410/side	Calibration by Small Internal Diameter Measurement (IDM)	08041 - 10201
58	Taper Plain Ring Gauge	Pitch 0.45 mm to 8 mm	2.0 µm	2,410/piece	Cal. by Universal length measuring Machine	08041 - 10301
59	Go - No Go Taper Plain Ring Gauge	Pitch 0.45 mm to 8 mm	2.0 µm	2,410/side	Cal. by Universal length measuring Machine	08041 - 10401
60	Plain Plug Gauge	0.1 to 1 mm	Q[0.20 µm, 1.0E-06 D]	2,410/piece	Cal. by Universal length measuring Machine	08041 - 10501
61	Plain Plug Gauge	1 to 100 mm	Q[0.20 µm, 1.0E-06 D]	2,410/piece	Cal. by Universal length measuring Machine	08041 - 10502
62	Plain Plug Gauge	100 to 300 mm	Q[0.20 µm, 1.0E-06 D]	2,410/piece	Cal. by Universal length measuring Machine	08041 - 10503



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63	Go-No Go Plain Plug Gauge	0.1 to 1 mm	Q[0.20 μ m, 1.0E-06 D]	2,410/side	Cal. by Universal length measuring Machine	08041 - 10601
64	Go-No Go Plain Plug Gauge	1 to 100 mm	Q[0.20 μ m, 1.0E-06 D]	2,410/side	Cal. by Universal length measuring Machine	08041 - 10602
65	Go-No Go Plain Plug Gauge	100 to 300 mm	Q[0.20 μ m, 1.0E-06 D]	2,410/side	Cal. by Universal length measuring Machine	08041 - 10603
66	Pin Gauge	0.1 to 1 mm	Q[0.20 μ m, 1.0E-06 D]	2,410/piece	Cal. by Universal length measuring Machine	08041 - 10701
67	Pin Gauge	1 to 100 mm	Q[0.20 μ m, 1.0E-06 D]	2,410/piece	Cal. by Universal length measuring Machine	08041 - 10702
68	Pin Gauge	100 to 300 mm	Q[0.20 μ m, 1.0E-06 D]	2,410/piece	Cal. by Universal length measuring Machine	08041 - 10703
69	Sphere	dia. Up to 300 mm	Q[0.20 μ m, 1.0E-06 D]	2,410/piece	Cal. by Universal length measuring Machine	08041 - 10801
70	3-Wire Unit	All sizes	Q[0.20 μ m, 1.0E-06 D]	2,820/set	Cal. by Universal length measuring Machine	08041 - 10901
71	Taper Plain Plug Gauge	from pitch 0.45 - 8 mm	2.0 μ m	2,820/piece	Cal. by Universal length measuring Machine and T-Ball Stylus	08041 - 11501
72	Parallel Thread Ring Gauge	from pitch 0.45 - 8 mm	1.5 μ m	2,820/piece	Cal. by Universal length measuring Machine and T-Ball Stylus	08041 - 11701
73	Go - No Go Parallel Thread Ring Gauge	from pitch 0.45 - 8 mm	1.5 μ m	2,820/side	Cal. by Universal length measuring Machine and T-Ball Stylus	08041 - 11801
74	Taper Thread Ring Gauge	from pitch 0.45 - 8 mm	2.0 μ m	2,820/piece	Cal. by Universal length measuring Machine and T-Ball Stylus	08041 - 11901
75	Parallel Thread Plug Gauge	from pitch 0.2 - 6 mm	1.5 μ m	2,820/piece	Cal. by Universal length measuring Machine and 3-Wires	08041 - 12101
76	Go - No Go Parallel Thread Plug Gauge	from pitch 0.2 - 6 mm	1.5 μ m	2,820/side	Cal. by Universal length measuring Machine and 3-Wires	08041 - 12201
77	Taper Thread Plug Gauge	from pitch 0.45 - 8 mm	2.0 μ m	2,820/piece	Cal. by Universal length measuring Machine and T-Ball Stylus	08041 - 12301
78	Pitch of thread gauge	0 mm to 120 mm	2.6 μ m	2,030/piece	Cal. By Contour Measuring Machine	08041 - 12501
79	X-Axis Contour Measuring Machine	0 mm to 120 mm	1.3 μ m	10,030/piece	Compare with standard glass scale	08041 - 12502



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80	Included angle of thread gauge	0-90 degree	0.06 degree	2,030/piece	Cal. By Contour Measuring Machine	08041 - 12601
81	Contour specimen - x-axis (pitch)	up to 200 mm	2.3 μ m	5,000/5 points + 1,000/point	Direct measurement by using Contour Measuring Machine	08041 - 12701
82	Contour specimen - z-axis (step, height)	up to 20 mm	1.6 μ m	5,000/5 points + 1,000/point	Direct measurement by using Contour Measuring Machine	08041 - 12702
83	Check Master/ Step Gauge	0 to 300 mm	Q[0.20 μ m, 7.7E-07 L]	10,660/piece	Cal. By Laser Interferometer	08051 - 10201
84	Check Master/ Step Gauge	0 to 600 mm	Q[0.20 μ m, 7.7E-07 L]	13,160/piece	Cal. By Laser Interferometer	08051 - 10202
85	Check Master/ Step Gauge	0 to 1020 mm	Q[0.20 μ m, 7.7E-07 L]	15,660/piece	Cal. By Laser Interferometer	08051 - 10203
86	Gear standard Spur gear : Profile slope deviation	25 to 400 mm	1.0 to 3.0 μ m	7,880/piece	Cal. by Coordinate Measuring Machine	08051 - 10301
87	Gear standard Spur gear : Profile slope deviation	up to 45°	1.0 to 2.0 μ m	7,880/piece	Cal. by Coordinate Measuring Machine	08051 - 10401
88	Spur gear : Pitch	up to 400 mm	2.0 μ m	7,880/piece	Cal. by Coordinate Measuring Machine	08051 - 10501
89	Bevel Gear : form deviation	up to 300 mm	2.0 μ m	7,880/piece	Cal. by Coordinate Measuring Machine	08051 - 10601
90	Ball Plate	up to 1000 mm	Q[0.26 μ m, 1.9E-06 L]	36,000/piece	Cal. by Coordinate Measuring Machine with Laser Interferometer	08051 - 10701
91	Depth Micro-Checker	0 to 150 mm	Q[0.68 μ m, 1.1E-06 L]	9,000/piece	Cal. by Coordinate Measuring Machine	08051 - 10801
92	Depth Micro-Checker	0 to 300 mm	Q[0.68 μ m, 1.1E-06 L]	11,250/piece	Cal. by Coordinate Measuring Machine	08051 - 10802
93	Inside Micro-Checker	0 to 300 mm	Q[0.20 μ m, 7.7E-07 L]	10,660/piece	Cal. by Laser Interferometer	08051 - 10901
94	Inside Micro-Checker	0 to 600 mm	Q[0.20 μ m, 7.7E-07 L]	13,160/piece	Cal. by Laser Interferometer	08051 - 10902
95	Inside Micro-Checker	0 to 1020 mm	Q[0.20 μ m, 7.7E-07 L]	15,660/piece	Cal. by Laser Interferometer	08052 - 10903
96	Caliper Checker/ Vernier Checker	0 to 300 mm	Q[0.20 μ m, 7.7E-07 L]	10,660/piece	Cal. by Laser Interferometer	08051 - 11001

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97	Caliper Checker/ Vernier Checker	0 to 600 mm	Q[0.20 μ m, 7.7E-07 L]	13,160/piece	Cal. by Laser Interferometer	08051 - 11002
98	Caliper Checker/ Vernier Checker	0 to 1020 mm	Q[0.20 μ m, 7.7E-07 L]	15,660/piece	Cal. by Laser Interferometer	08052 - 11003
99	Optical Flat	max. dia. 60 mm	20 nm	2,500/piece	Cal. by Flatness Interferometer	08061 - 10201
100	Optical Flat	max. dia. 300 mm	37 nm	7,500/piece	Cal. by Non-contact measurement using Flatness Interferometer	08061 - 10202
101	Transmission Flat/Reference Flat	max. dia. 300 mm	25 nm	11,500/piece	Absolute Flatness calibration by 3-Flat Test method	08061 - 10203
102	Glass Hemisphere Roundness specimen (High precision)	dia. Up to 355 mm	Q[7.7 nm, 7.6E-03 R]	11,500/piece	Error separation technique by multistep method (Stylus-on-spindle) where <i>R</i> representing roundness value Soft file of measurement result charge +2500 baht/file	08061 - 10301
103	Roundness of specimen/workpiece	dia. Up to 355 mm	Q[11.1 nm, 1.1E-02 R]	7,530/piece	Soft file of measurement result charge +2500 baht/file where <i>R</i> representing measured value of roundness	08061 - 10401
104	Cylinder/Cylindrical standard - Cylindricity	Height up to 500 mm Diameter up to 300 mm Maximum runout: 2.06 mm	Q[0.16 μ m, 1.17E-06 <i>H</i>]	7,530	Direct measurement by Roundness Measuring Instrument where <i>H</i> representing measured height of the cylinder	08061 - 10402
105	Cylinder/Cylindrical standard - Straightness	Height up to 500 mm Diameter up to 300 mm Maximum runout: 2.06 mm	Q[77 nm, 0.10E-06 <i>L</i>]	7,530	Direct measurement by Roundness Measuring Instrument based on Reversal method where <i>L</i> representing travel length	08061 - 10403
106	Cylinder/Cylindrical standard - Parallelism	Height up to 500 mm Diameter up to 300 mm Maximum runout: 2.06 mm	Q[0.16 μ m, 1.2E-06 <i>H</i>]	7,530	Direct measurement by Roundness Measuring Instrument where <i>H</i> representing measured height of the cylinder	08061 - 10404
107	Cylinder/Cylindrical standard - Squareness	Height up to 500 mm Diameter up to 300 mm Maximum runout: 2.06 mm	Q[0.10 μ m, 1.2E-06 <i>H</i>]	7,530	Direct measurement by Roundness Measuring Instrument where <i>H</i> representing measured height of the cylindrical square	08061 - 10405
108	Roughness Specimen (Type A), Step Height	25 nm to 32 μ m	Q[6.6 nm, 1.2E-02 <i>d</i>]	5,030/step	Contact measurement by Roughness (stylus) Measuring Instrument where <i>d</i> representing depth	08061 - 10501

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109	Roughness Specimen (Type A), Step Height	10 nm to 10 μ m	Q[2.4 nm, 5.4E-03 <i>d</i>]	6,280/step	Non-contact measurement using Interference Microscope where <i>d</i> representing depth	08061 - 10502
110	Roughness Specimen (Type C or Type D), Roughness Specimen	25 nm to 32 μ m	<i>Ra</i> : Q[10 nm, 12E-03 <i>Ra</i>]	7,530/range	Contact measurement by Roughness (stylus) Measuring Instrument where <i>Ra</i> , <i>Rz</i> and <i>Sm</i> representing roughness value	08061 - 10601
111	Roughness Specimen (Type C or Type D), Roughness Specimen	25 nm to 32 μ m	<i>Rz</i> : Q[18 nm, 17E-03 <i>Rz</i>]	7,530/range	Contact measurement by Roughness (stylus) Measuring Instrument where <i>Ra</i> , <i>Rz</i> and <i>Sm</i> representing roughness value	08061 - 10601
112	Roughness Specimen (Type C or Type D), Roughness Specimen	25 nm to 32 μ m	<i>Rsm</i> : Q[0.58 μ m, 20E-03 <i>Sm</i>]	7,530/range	Contact measurement by Roughness (stylus) Measuring Instrument where <i>Ra</i> , <i>Rz</i> and <i>Sm</i> representing roughness value	08061 - 10601
113	Roughness specimen (Areal parameter)	0.01 μ m to 3 μ m	<i>Sa</i> : Q[29.5 nm, 7.28E-03 <i>Zm</i>]	7,530/range	Non-contact measurement using Interference Microscope	08061 - 10602
114	Roughness specimen (Areal parameter)	0.01 μ m to 3 μ m	<i>Sq</i> : Q[30.3 nm, 7.23E-03 <i>Zm</i>]	7,530/range	Non-contact measurement using Interference Microscope	08061 - 10602
115	Roughness specimen (Areal parameter)	0.01 μ m to 3 μ m	<i>Sz</i> : Q[140.5 nm, 7.27E-03 <i>Zm</i>]	7,530/range	Non-contact measurement using 3D Measuring Laser Microscope where <i>Zm</i> representing measured value	08061 - 10602
116	Step height / depth standard	1 nm to 100 nm	Q[0.73 nm, 1.73E-06 <i>Zm</i>]	11,500/piece	Measurement by Metrological Nanomeasuring and Nanopositioning Machine	08061 - 10901
117	Pitch standard	0.1 μ m to 100 μ m	Q[3.39 nm, 1.73E-06 <i>Zm</i>]	11,500/piece	Measurement by Metrological Nanomeasuring and Nanopositioning Machine	08061 - 11001
118	Radius of curvature	up to 600 mm	Q[0.75 μ m, 22.1E-06 <i>L</i>]	2,530	Non-contact measurement using Fizeau interferometer where <i>L</i> representing measured radius of curvature	08061 - 11101
119	Sphericity and form error of spherical part	F#: 10.7	23 nm	7,530/piece	Non-contact measurement using Fizeau interferometer	08061 - 11102
120	Lens : Sag	Aperture: 100 mm	1 μ m	2,530/piece	Non-contact measurement using Fizeau interferometer	08061 - 11103
121	Lens : Focal length	Concave radius: up to 600 mm Convex radius: up to 600 mm	(7.87 + 0.47E-03 <i>F</i>) μ m	3,780/piece	Non-contact measurement using Fizeau Interferometer where <i>F</i> representing calculated focal length Reflective Index (<i>n</i>) of a lens is required	08061 - 11201

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122	Lens : Ophthalmic power	Concave radius: up to 600 mm Convex radius: up to 600 mm	$(0.0006 + 0.0005 D) m^{-1}$	3,780/piece	Non-contact measurement using Fizeau Interferometer where D representing calculated ophthalmic power Reflective Index (n) of a lens is required	08061 - 11202
123	Lens : Prism Diopter	Up to 50Δ	15Δ	5,000/piece	Prism diopter calibration using Mechanical-Bearing Rotary Stage Reflective Index (n) of a lens is required	08062 - 11203
124	Vernier Caliper	0 mm to 600 mm	Q[13 μm, 1.33x10 ⁻⁵ L]	3,380/piece	Cal. by Gauge Block	08071 - 10201
125	Vernier Caliper	0 mm to 1000 mm	Q[14 μm, 1.33x10 ⁻⁵ L]	3,380/piece	Cal. by Gauge Block	08071 - 10202
126	Height Measuring Station	0 mm to 300 mm	Q[0.70 μm, 1.0E-06 D]	11,250/piece	Cal. by Gauge Block	08071 - 10301
127	Height Measuring Station	0 mm to 600 mm	Q[0.70 μm, 1.0E-06 D]	12,600/piece	Cal. by Gauge Block	08071 - 10302
128	Height Gauge	0 mm to 600 mm	Q[6 μm, 1.3x10 ⁻⁵ L]	9,000/piece	Cal. by Gauge block and Electronic comparator	08071 - 10401
129	Height Gauge	0 mm to 1000 mm	Q[7 μm, 1.3x10 ⁻⁵ L]	12,600/piece	Cal. by Gauge block and Electronic comparator	08071 - 10402
130	External Micrometer	>25 mm to 225 mm	Q[0.6 μm, 1.36x10 ⁻⁵ L]	2,820/piece	Cal. by Gauge Block	08071 - 10501
131	External Micrometer	>225 mm to 300 mm	Q[0.7 μm, 1.42x10 ⁻⁵ L]	3,380/piece	Cal. by Gauge Block	08071 - 10502
132	External Micrometer (Resolution : < 0.001 mm)	0 mm to 25 mm	Q[0.1 μm, 1.35x10 ⁻⁵ L]	3,380/piece	Cal. by Gauge Block	08071 - 10504
133	Setting Zero Rod	Up to 1000 mm	$(0.2^2 + 2.3 L^2) \mu m$	2,030/piece	Cal. by ULM	08071 - 10601
134	Dial gauge (analog/digital)	0-10 mm	Q[2.6 μm, 1.8E-4 L]	2,820/piece	Cal. by dial gauge tester	08071 - 10602
135	Dial gauge (analog/digital)	0-25 mm	Q[2.6 μm, 1.8E-4 L]	3,380/piece	Cal. by dial gauge tester	08071 - 10603
136	Dial gauge (analog/digital)	0-50 mm	Q[2.6 μm, 1.8E-4 L]	5,660/piece	Cal. by dial gauge tester	08071 - 10604
137	Dial gauge (analog/digital)	0-10 mm	Q[0.34 μm, 4.5E-5 L]	2,820/piece	Cal. by ULM	08071 - 10605

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138	Dial gauge (analog/digital)	0-25 mm	Q[0.34 μ m, 4.5E-5 L]	3,380/piece	Cal. by ULM	08071 - 10606
139	Dial gauge (analog/digital)	0-50 mm	Q[0.34 μ m, 4.5E-5 L]	5,660/piece	Cal. by ULM	08071 - 10607
140	Dial test indicator	up to 1.6 mm	0.8 μ m	2,820/piece	Cal. by calibration tester	08071 - 10608
141	Laser displacement sensor	0-50 mm	Q[12 μ m, 1.7E-4 L]	3,380/piece	Cal. by dial gauge tester	08071 - 10609
142	Laser displacement sensor	0-100 mm	Q[1.2 μ m, 4E-4 L]	5,660/piece	Cal. by gauge block	08071 - 10610
143	Micrometer Head	0 mm to 25 mm	Q[0.8 μ m, 8x10 ⁻⁶ L]	3,380/piece	Direct measurement by length gauge	08071 - 10701
144	Micrometer Head	0 mm to 50 mm	Q[0.8 μ m, 8x10 ⁻⁶ L]	4,500/piece	Direct measurement by length gauge	08071 - 10702
145	Dial Gauge Tester (Scale, Digital)	0 mm to 25 mm	Q[0.13 μ m, 8.0x10 ⁻⁶ L]	6,750/piece	Cal. by Standard linear gauge	08071 - 10901
146	Dial Gauge Tester (Scale, Digital)	0 mm to 60 mm	Q[0.13 μ m, 8.0x10 ⁻⁶ L]	8,780/piece	Cal. by Standard linear gauge	08071 - 10902
147	Dial Gauge Tester (Scale, Digital)	0 mm to 100 mm	Q[0.20 μ m, 8.0x10 ⁻⁶ L]	10,030/piece	Cal. by Standard linear gauge	08071 - 10903
148	Calibration Tester	Up to 5 mm	Q[0.13 μ m, 4.8x10 ⁻⁶ L]	7,880/piece	Cal. by Laser interferometer	08071 - 10801
149	Electronic Comparator (Mu-Checker / Millitron) (Include: Probe and display unit) Analog M-Checker	0 mm to 5 mm	0.2 μ m	4,500/piece	Comparison with Laser Hologauge	08071 - 11201
150	Calibration Gauge for Seam Metal	0 to 5 mm	0.0003 mm	2,530/piece	Cal. By NIMT Line scale interferometer system	08071 - 11301
151	Laser Hologauge / Linear gauge	0 to 100 mm	Q[0.05 μ m, 1.7x10 ⁻⁶ L]	11,250/piece	Cal. by Gauge Block	08071 - 11401
152	Thickness of specimen/ feeler gauge	up to 10 mm	Q[0.5 μ m, 9.1x10 ⁻⁶ L]	750/point	Cal. by length gauge	08071 - 11801
153	Laser Scan Micrometer (Display Unit, Measuring Unit)	Up to 100 mm	0.5 μ m	11,250/piece	Cal. by Standard plug gauge	08071 - 11901

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154	Arm Calibrator	All ranges	0.01 mm + 9.5 10 ⁻⁶ l	2,820/piece	Cal. by Coordinate Measuring Machine	08071 - 12201
155	Magnification calibrator / Magnification Checker	0 mm to 0.4 mm	0.2 um	5,630/piece	Direct measurement by linear gauge	08071 - 12401
156	Calibration block	V1	0.01 mm	4,500/piece	Cal. by QV *Depend on the quality of artifact	08071 - 12601
157	Calibration block	V2	0.01 mm	3,380/piece	Cal. by QV *Depend on the quality of artifact	08071 - 12602
158	Calibration block	LSW	0.01 mm	3,380/piece	Calibration by Coordinate Measuring Machine	08071 - 12603
159	Scale lupe : Line spacing	0 - 30 mm	Q[0.0003 mm, 1.8 x 10 ⁻⁶ L]	2,820/piece + 500 / ne	Cal. by NIMT Line Scale interferometer system	08071 - 12701
160	Scale lupe : Diameter/Ellipse	upto 20 mm	Q[0.0005 mm, 3.21 x 10 ⁻⁶ L]	2,820/piece + 500 / ne	Cal. By QV	08071 - 12702
161	Scale lupe : Angle	0 to 360 degree	1 minute	2,820/piece + 500 / ne	Cal. By QV	08071 - 12703
162	Objective/Stage micrometer : Line s	0 - 10 mm	Q[0.0003 mm, 1.8 x 10 ⁻⁶ L]	2,820/piece + 500 / ne	Cal. by NIMT Line Scale interferometer system	08071 - 12711
163	Objective/Stage micrometer : Angle	0 to 360 degree	1 minute	2,820/piece + 500 / ne	Cal. By QV	08071 - 12712
164	Objective/Stage micrometer : Diamo	upto 5 mm	Q[0.0005 mm, 3.21 x 10 ⁻⁶ L]	2,820/piece + 500 / ne	Cal. By QV	08071 - 12713
165	Specimens : Line spacing	0 - 300 mm	Q[0.0003 mm, 1.8 x 10 ⁻⁶ L]	3,000 /piece + 500 / n	Cal. by NIMT Line Scale interferometer system	08071 - 12721
166	Specimens : Angle	0 to 360 degree	1 minute	3,000 /piece + 500 / n	Cal. By QV	08071 - 12722
167	Specimens : Diameter/Ellipse	upto 300 mm	Q[0.0005 mm, 3.21 x 10 ⁻⁶ L]	3,000 /piece + 500 / n	Cal. By QV	08071 - 12723
168	Test sieve	0.020 - 125 mm	0.012 - 0.025 mm	5,000/piece	Cal. By QV	08071 - 12901
169	Standard Glass Scale	0 mm to 300 mm	Q[41 nm, 0.1x10 ⁻⁶ L]	15,750/piece	Cal. by Line Scale Interferometer	08081 - 10103
170	Standard Glass Scale	>300 mm to 500 mm	Q[41 nm, 0.1x10 ⁻⁶ L]	18,000/piece	Cal. by Line Scale Interferometer	08081 - 10104

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171	Standard Metal Scale	0 mm to 1000 mm	$8 \mu\text{m} + 2.3 \times 10^{-6} l$	4,500/piece	Cal. By NIMT Line scale interferometer	08081 - 10201
172	Glass scale	0 mm to 200 mm	$Q[0.0006 \text{ mm} + 1.8 \times 10^{-6} L]$	3,380/piece	Cal. By NIMT Line scale interferometer (Price per 10 measuring points) *Depend on the quality of glass scale	08081 - 10301
173	Glass scale	0 mm to 400 mm	$Q[0.0006 \text{ mm} + 1.8 \times 10^{-6} L]$	5,630/piece	Cal. By NIMT Line scale interferometer (Price per 10 measuring points) *Depend on the quality of glass scale	08081 - 10302
174	Glass scale	0 mm to 500 mm	$Q[0.0003 \text{ mm}, 1.0 \times 10^{-6} L]$	6,750/piece	Cal. By QV	08081 - 10303
175	Glass scale	0 mm to 1000 mm	$Q[0.0005 \text{ mm}, 1.0 \times 10^{-6} L]$	7,880/piece	Cal. By QV	08081 - 10304
176	Standard Glass Scale/ Working Standard Scale/Glass scale	0 mm to 200 mm	$Q[0.11 \mu\text{m}, 2.9 \times 10^{-6} L]$	6,650/piece	Cal. by Line Scale Interferometer	08081 - 10305
177	Standard Glass Scale/ Working Standard Scale/Glass scale	>200 mm to 500 mm	$Q[0.11 \mu\text{m}, 2.9 \times 10^{-6} L]$	10,140/piece	Cal. by Line Scale Interferometer	08081 - 10306
178	Calibration Grid	100x100 mm	0.0003 mm	4,500/piece	Cal. by QV *Depend on the quality of artifact	08081 - 10501
179	Calibration Grid	200x200 mm	0.0003 mm	5,400/piece	Cal. by QV *Depend on the quality of artifact	08082 - 10502
180	Calibration Grid	300x300 mm	0.0005 mm	6,300/piece	Cal. by QV *Depend on the quality of artifact	08083 - 10503
181	Calibration Grid	> 300 mm	0.0007 mm	10,800/piece	Cal. by QV *Depend on the quality of artifact	08084 - 10504
182	Linear Scale	Up to 1000 mm	7 μm	5,630/piece	Cal. by laser interferometer	08081 - 10801
183	3D non-contact	x- and y-axis up to 500 mm	$Q[0.00015 \text{ mm}, 0.16 \times 10^{-6} L]$	14,500/piece	Cal by glass scale, angle gauge, standard square and gauge blocks	08081 - 30803
184	3D non-contact	z-axis up to 100 mm	$Q[0.0012 \text{ mm}, 4.5 \times 10^{-6} L]$	14,500/piece	Cal by glass scale, angle gauge, standard square and gauge blocks	08081 - 30803
185	Measuring Microscope	Up to 500 mm	1 μm	6,750/piece	Cal. by standard glass scale	08081 - 10901



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On-site Calibration						
186	Universal Length Measuring Machine (ULM)	Up to 500 mm	Q[0.050 um, 0.80 x 10 ⁻⁶ L]	30,000/piece (10 points) + 1,000/point	Direct measurement with gauge block	08021 - 30901
187	Universal Length Measuring Machine (ULM)	>500 mm to 1000 mm	Q[0.060 um, 0.80 x 10 ⁻⁶ L]	30,000/piece (10 points) + 1,000/point	Direct measurement with gauge block	08021 - 30901
188	Universal Length Measuring Machine (ULM)	Up to 2000 mm	Q[0.040 um, 0.40 x 10 ⁻⁶ L]	40,000/piece (10 points) + 1,000/point	Direct measurement with Laser Interferometer	08021 - 30902
189	Profile projector	Up to 500 mm	Q[0.0015 mm, 0.15 x 10 ⁻³ L]	12,530/piece	Cal by Glass Scale, Angle Gauge Block.	08071 - 30601
190	3D non-contact	x- and y-axis up to 500 mm	Q[0.00015 mm, 0.16x10 ⁻⁶ L]	14,500/piece	Cal by glass scale, angle gauge, standard square and gauge blocks	08081 - 30803
191	3D non-contact	z-axis up to 100 mm	Q[0.0012 mm, 4.5x10 ⁻⁶ L]	14,500/piece	Cal by glass scale, angle gauge, standard square and gauge blocks	08081 - 30803
192	Rotary encoder	0-360 degree	5"	30,000	Comparative measurement using reference encoder	08031 - 30201
193	Measuring Microscope	Up to 500 mm	1 um	6,750/piece	Cal by standard glass scale	08081 - 30901
PT and Inter-laboratory comparison only						
194	Optical Parallel : Flatness	max. dia. 60 mm	0.02 um	1,600/piece	Cal. by Flatness Interferometer, Universal Length Measuring Machine (ULM) and/or	08061 - 10101
195	Optical Parallel : Parallelism	max. dia. 60 mm	ULM : Q[0.060 um, 6.48E-06 P]	1,600/piece	Cal. by Flatness Interferometer, Universal Length Measuring Machine (ULM) and/or	08061 - 10101
196	Optical Parallel : Thickness	max. dia. 60 mm	0.15 um	1,600/piece	Cal. by Flatness Interferometer, Universal Length Measuring Machine (ULM) and/or	08061 - 10101
197	Precision Level	Full range	5 um/m	5,630/piece	Calibration by autocollimator	08031 - 11001
198	Bevel protractor	0° to 360°	1.3'	5,000	Cal. By angle gauge block	08031 - 11501
199	Height Master (analog/digital)	0 to 300 mm	0.3 um + 3x10 ⁻⁶ l	13,500/piece	Cal. by Gauge block or Length Bar	08051 - 10101
200	Height Master (analog/digital)	0 to 600 mm	0.3 um + 3x10 ⁻⁶ l	22,500/piece	Cal. by Gauge block or Length Bar	08051 - 10102

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201	Gauge Block Comparator	0.5 mm to 100 mm	37 nm	25,000/piece	Cal. by 11 Gauge Blocks 0.5 to 100 mm Euramet cg-2/v.02 (03/2011)	08021 - 30801
202	Holtest / 3- point internal micrometer	Up to 100 mm	$1.5 \mu\text{m} + 1.5 \times 10^{-6} d$	2,250/piece	Cal. by Ring gauge	08071 - 12001
Instrument/measuring system/specimen/TRM						
203	Flatness Tester		$\geq 40 \text{ nm}$	200,000/ea.	The flatness tester system, reference flat, software, including training	08061 - 10701
204	Monodisperse Polystyrene Particle	Diameter 150 nm	10 mL	5,000/ea.	TRM-M-9001	08091 - 10101
205	Monodisperse Polystyrene Particle	Diameter 100 nm	10 mL	5,000/ea.	TRM-M-9002	08091 - 10102
206	Monodisperse Polystyrene Particle	Diameter 1.5 um	10 mL	5,000/ea.	TRM-M-9003	08091 - 10103