



Measurement example



103-913-40

- Range: 0 - 150 mm (6 pcs./set)
- Models included: **103-137, 103-138, 103-139, 103-140, 103-141, 103-142,** 5 micrometer standards



103-914-40

- Range: 0 - 300 mm (12 pcs./set)
- Models included: **103-137, 103-138, 103-139, 103-140, 103-141, 103-142, 103-143, 103-144, 103-145, 103-146, 103-147, 103-148** 11 micrometer standards



103-915

- Range: 150 - 300 mm (6 pcs./set)
- Models included: **103-143, 103-144, 103-145, 103-146, 103-147, 103-148,** 6 micrometer standards

103-927-10

- Range: 0 - 75 mm (3 pcs./set)
- Models included: **103-137, 103-138, 103-139-10**

103-913-50

- Range: 50 - 150 mm (6 pcs./set)
- Models included: **103-137, 103-138, 103-139-10, 103-140-10, 103-141-10, 103-142-10**

103-914-50

- Range: 50 - 300 mm (12 pcs./set)
- Models included: **103-137, 103-138, 103-139-10, 103-140-10, 103-141-10, 103-142-10, 103-143-10, 103-144-10, 103-145-10, 103-146-10, 103-147-10, 103-148-10**

103-915-10

- Range: 150 - 300 mm (6 pcs./set)
- Models included: **103-143-10, 103-144-10, 103-145-10, 103-146-10, 103-147-10, 103-148-10**

Micrometer

Outside Micrometers SERIES 103

- This is a simple, classic analog micrometer that represents the roots of our company's foundation.

- Measuring faces: Carbide tipped
- Equipped with Ratchet Stop for constant measuring force.



Metric	With ratchet stop						
Code No.	Range (mm)	Measuring force (N)	Graduation (mm)	MPE*1 (μm)	Flatness (μm)	Parallelism (μm)	
103-129	0 - 25	5 - 10	0.001	±2	0.6	2	
103-130	25 - 50					2	
103-139-10	50 - 75		0.01	±3		3	
103-140-10	75 - 100					3	
103-141-10	100 - 125			±4		4	
103-142-10	125 - 150					4	
103-143-10	150 - 175			±5		5	
103-144-10	175 - 200					5	
103-145-10	200 - 225			10 - 15		±6	6
103-146-10	225 - 250						6
103-147-10	250 - 275	±7	7				
103-148-10	275 - 300		7				
103-149	300 - 325	±8	8				
103-150	325 - 350		8				
103-151	350 - 375	±9	9				
103-152	375 - 400		9				
103-153	400 - 425	±10	10				
103-154	425 - 450		10				
103-155	450 - 475	±11	11				
103-156	475 - 500		11				
103-157	500 - 525	±12	12				
103-158	525 - 550		12				
103-159	550 - 575	±13	13				
103-160	575 - 600		13				
103-161	600 - 625	±14	14				
103-162	625 - 650		14				
103-163	650 - 675	±15	15				
103-164	675 - 700		15				
103-165	700 - 725	±16	16				
103-166	725 - 750		16				
103-167	750 - 775	±17	17				
103-168	775 - 800		17				
103-169	800 - 825	±18	18				
103-170	825 - 850		18				
103-171	850 - 875	±19	19				
103-172	875 - 900		19				
103-173	900 - 925	±20	20				
103-174	925 - 950		20				
103-175	950 - 975	±21	21				
103-176	975 - 1000		21				

Metric	With ratchet stop					
Code No.	Range (mm)	Measuring force (N)	Graduation (mm)	MPE*1 *2 (μm)	Flatness (μm)	Parallelism (μm)
103-137	0 - 25	5 - 10	0.01	±2	0.6	2
103-138	25 - 50		0.001			±3
103-255	50 - 75					
103-256	75 - 100					
103-257	100 - 125					
103-258	125 - 150					

- Standard accessories: Setting standard, 1 pc. (except for measuring range 0 to 25 mm (0 to 1 in) models), Spanner (**301336**), 1 pc. (for maximum measuring range up to 300 mm (12 in)), Spanner (**200154**), 1 pc. (for maximum measuring range 325 mm (13 in) or over)

*1 MPE: Maximum permissible error of the indication measured by contacting the full measuring face with the object to be measured. J_{MPE} is a term specified by JIS B 7502: 2016 which has been prepared based on ISO 3611: 2010 with some modifications of the technical contents. The measurement method has not been changed from JIS B 7502: 1994. For details refer to page 13-10.

*2 Maximum permissible error of the indication measured by contacting the full measuring face with the object to be measured. J_{MPE} is a term specified by JIS B 7502: 2016 which has been prepared based on ISO 3611: 2010 with some modifications of the technical contents. The measurement method has not been changed from JIS B 7502: 1994. For details refer to page 13-10.

Micrometer

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Micrometers

Inch With ratchet stop

Code No.	Range (in)	Measuring force (N)	Graduation (in)	MPE*1 (in)	Flatness (in)	Parallelism (in)	
103-177	0 - 1	5 - 10	0.001	±0.0001	0.000024	0.00008	
103-131			0.0001				
103-178			0.001				
103-132			0.0001				
103-179	2 - 3		0.001	±0.00015		0.00012	
103-180	3 - 4						
103-181	4 - 5			±0.0002		0.00016	
103-182	5 - 6						
103-183	6 - 7			±0.00025		0.00016	
103-184	7 - 8						
103-185	8 - 9			±0.0003		0.0002	
103-186	9 - 10						
103-187	10 - 11			±0.00035		0.00024	
103-188	11 - 12						
103-189	12 - 13			±0.0004		0.00028	
103-190	13 - 14						
103-191	14 - 15			±0.00045		0.00032	
103-192	15 - 16						
103-193	16 - 17	10 - 15		±0.0005	0.00004	0.00036	
103-194	17 - 18						
103-195	18 - 19					0.0004	
103-196	19 - 20						
103-197	20 - 21					0.00044	
103-198	21 - 22						
103-199	22 - 23					0.00048	
103-200	23 - 24						
103-201	24 - 25					0.0008	
103-202	25 - 26						
103-203	26 - 27					0.0012	
103-204	27 - 28						
103-205	28 - 29					0.0016	
103-206	29 - 30						
103-207	30 - 31					0.0002	
103-208	31 - 32						
103-209	32 - 33	5 - 10	0.0001	±0.00015	0.000024		
103-210	33 - 34						
103-211	34 - 35				0.00012		
103-212	35 - 36						
103-213	36 - 37				0.00016		
103-214	37 - 38						
103-215	38 - 39				0.0002		
103-216	39 - 40						
103-217	0 - 1				0.00008		
103-218	2 - 3						
103-219	3 - 4				0.00012		
103-220	4 - 5						
103-221	5 - 6				0.00016		
103-222	6 - 7						
103-223	7 - 8				0.0002		
103-224	8 - 9						
103-225	9 - 10				0.0002		
103-226	10 - 11						
	11 - 12						

Inch With friction thimble

Code No.	Range (in)	Measuring force (N)	Graduation (in)	MPE*1 *2(in)	Flatness (in)	Parallelism (in)
103-135	0 - 1	5 - 10	0.0001	±0.0001	0.000024	0.00008
103-136	1 - 2					

• Standard accessories: Setting standard, 1 pc. (except for measuring range 0 to 25 mm (0 to 1 in) models)- (301336), 1 pc. (for maximum measuring range up to 300 mm (12 in)), Spanner (200154), 1 pc. (for maximum measuring range 325 mm (13 in) or over)

*1 MPE: Maximum permissible error J_{MPE}

*2 Maximum permissible error of the indication measured by contacting the full measuring face with the object to be measured. J_{MPE} is a term specified by JIS B 7502: 2016 which has been prepared based on ISO 3611: 2010 with some modifications of the technical contents. The measurement method has not been changed from JIS B 7502: 1994. For details refer to page 13-10.



103-904-10

- Range: 0 - 6 in (6 pcs./set)
- Models included: 103-177, 103-178, 103-179, 103-180, 103-181, 103-182, 5 micrometer standards



103-905-10

- Range: 0 - 12 in (12 pcs./set)
- Models included: All micrometers of 103-904-10 and 103-906 in one set, 11 micrometer standards



103-906

- Range: 6 - 12 in (6 pcs./set)
- Models included: 103-183, 103-184, 103-185, 103-186, 103-187, 103-188, 6 micrometer standards

103-907-40

- Range: 0 - 6 in (6 pcs./set)
- Models included: 103-135, 103-136, 103-217, 103-218, 103-219, 103-220

103-908-40

- Range: 0 - 12 in (12 pcs./set)
- Models included: 103-135, 103-136, 103-217, 103-218, 103-219, 103-220, 103-221, 103-222, 103-223, 103-224, 103-225, 103-226

103-909

- Range: 6 - 12 in (6 pcs./set)
- Models included: 103-221, 103-222, 103-223, 103-224, 103-225, 103-226

103-929

- Range: 0 - 3 in (3 pcs./set)
- Models included: 103-177, 103-178, 103-179

103-930

- Range: 0 - 4 in (4 pcs./set)
- Models included: 103-177, 103-178, 103-179, 103-180

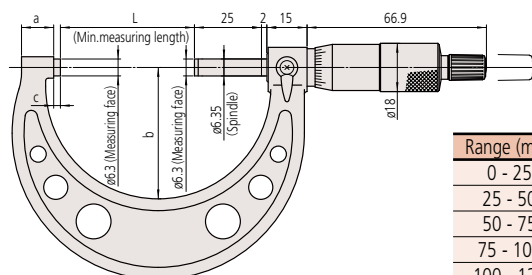
Outside Micrometers (Analog)

Outside Micrometers SERIES 103

DIMENSIONS

103-137 and 103-138, Models 75 mm to 300 mm

Unit: mm

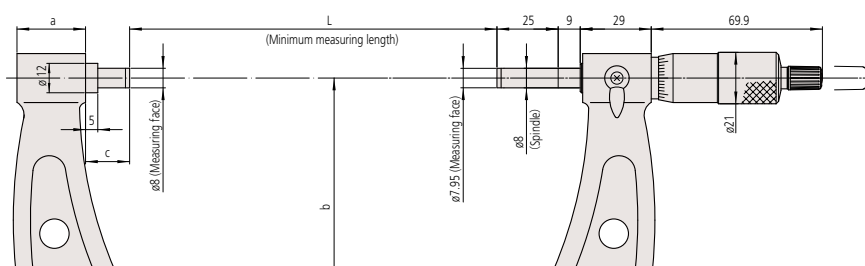


Range (mm)	L	a	b	c
0 - 25	0	9	28	2.5
25 - 50	25	10	38	
50 - 75	50	12	49	
75 - 100	75	14	60	
100 - 125	100	16.7	79	5.3
125 - 150	125	18.8	94	5.7
150 - 175	150	19.1	106	6.1
175 - 200	175	18.2	118	6.3
200 - 225	200	16.8	130	6.7
225 - 250	225	18	143	5.5
250 - 275	250		156	6.5
275 - 300	275		169	

DIMENSIONS

Models 325 mm to 1000 mm

Unit: mm



Range (mm)	L	a	b	c
300 - 325	300	28	187	18
325 - 350	325		199	
350 - 375	350		212	
375 - 400	375		224	
400 - 425	400		236	
425 - 450	425		248	
450 - 475	450		261	40
475 - 500	475		273	
500 - 525	500		307	
525 - 550	525		332	15
550 - 575	550		355	40
575 - 600	575			15

Range (mm)	L	a	b	c
650 - 675	650	28	382	40
675 - 700	675		405	15
700 - 725	700		430	40
725 - 750	725		455	15
750 - 775	750		480	40
775 - 800	775		505	15
800 - 825	800		530	40
825 - 850	825			15
850 - 875	850			40
875 - 900	875			15
900 - 925	900			40
925 - 950	925			15