



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

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					3
103-139-10	50 - 75					
103-140-10	75 - 100			±3		
103-141-10	100 - 125					
103-142-10	125 - 150			±4		
103-143-10	150 - 175					
103-144-10	175 - 200					
103-145-10	200 - 225			±5		
103-146-10	225 - 250					
103-147-10	250 - 275	10 - 15	0.01	±6	1	5
103-148-10	275 - 300					
103-149	300 - 325					
103-150	325 - 350			±7		
103-151	350 - 375					
103-152	375 - 400					
103-153	400 - 425			±8		
103-154	425 - 450					
103-155	450 - 475					
103-156	475 - 500			±9		
103-157	500 - 525					
103-158	525 - 550					
103-159	550 - 575	±10				
103-160	575 - 600					
103-161	600 - 625					
103-162	625 - 650	±11				
103-163	650 - 675					
103-164	675 - 700					
103-165	700 - 725	±12				
103-166	725 - 750					
103-167	750 - 775					
103-168	775 - 800	±13				
103-169	800 - 825					
103-170	825 - 850					
103-171	850 - 875	±14				
103-172	875 - 900					
103-173	900 - 925					
103-174	925 - 950	±15				
103-175	950 - 975					
103-176	975 - 1000					

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					

- 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 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 02-82.

Micrometer

02

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					
103-182	5 - 6					
103-183	6 - 7			±0.0002		0.00016
103-184	7 - 8					
103-185	8 - 9					
103-186	9 - 10					
103-187	10 - 11			±0.00025		0.0002
103-188	11 - 12					
103-189	12 - 13					
103-190	13 - 14					
103-191	14 - 15			±0.00035		0.00024
103-192	15 - 16					
103-193	16 - 17					
103-194	17 - 18					
103-195	18 - 19	±0.0004	0.00028			
103-196	19 - 20					
103-197	20 - 21					
103-198	21 - 22					
103-199	22 - 23	±0.00045	0.00032			
103-200	23 - 24					
103-201	24 - 25					
103-202	25 - 26					
103-203	26 - 27	±0.00055	0.00036			
103-204	27 - 28					
103-205	28 - 29					
103-206	29 - 30					
103-207	30 - 31	±0.0006	0.0004			
103-208	31 - 32					
103-209	32 - 33					
103-210	33 - 34					
103-211	34 - 35	±0.00065	0.00044			
103-212	35 - 36					
103-213	36 - 37					
103-214	37 - 38					
103-215	38 - 39	±0.0007	0.00048			
103-216	39 - 40					

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 02-82.



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

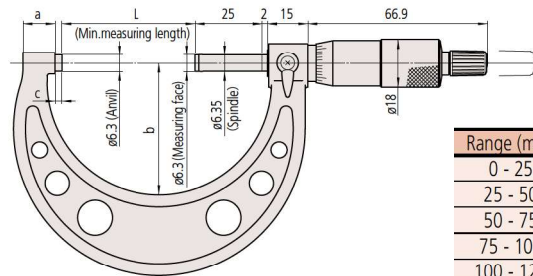
Outside Micrometers (Analog)

Outside Micrometers SERIES 103

DIMENSIONS

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

Unit: mm

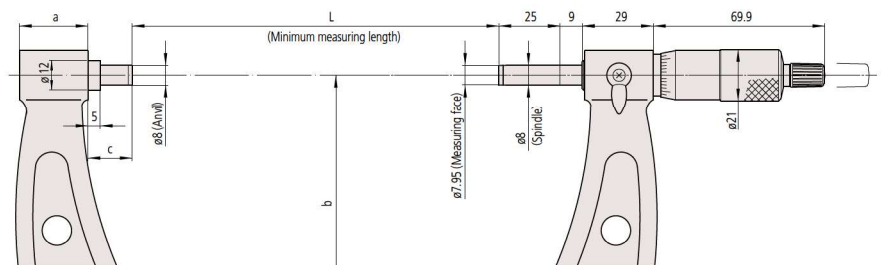


Range (mm)	L	a	b	c
0 - 25	0	9	28	2.5
25 - 50	25	10	38	
50 - 75	50	12	49	
75 - 100	75	14	60	
100 - 125	100	16.7	79	5.3
125 - 150	125	18.8	94	5.7
150 - 175	150	19.1	106	6.1
175 - 200	175	18.2	118	6.3
200 - 225	200	16.8	130	6.7
225 - 250	225	18	143	5.5
250 - 275	250		156	6.5
275 - 300	275		169	

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	
475 - 500	475		273	
500 - 525	500		307	40
525 - 550	525			15
550 - 575	550		332	40
575 - 600	575			15
600 - 625	600		355	40
625 - 650	625			15

Range (mm)	L	a	b	c
650 - 675	650	28	382	40
675 - 700	675			15
700 - 725	700		405	40
725 - 750	725			15
750 - 775	750			40
775 - 800	775		430	15
800 - 825	800			40
825 - 850	825		455	15
850 - 875	850			40
875 - 900	875		480	15
900 - 925	900			40
925 - 950	925		505	15
950 - 975	950			40
975 - 1000	975			15