

Micrometer

The origin of Mitutoyo's trustworthy brand of small tool instruments

Outside Micrometers SERIES 103

- Baked-enamel-finished frame.
- Measuring faces: Carbide.
- Equipped with Ratchet Stop for constant measuring force.



Metric	With ratchet stop		
Order No.	Range (mm)	Graduation (mm)	Accuracy (μm)
103-129	0 - 25	0.001	±2
103-130	25 - 50	0.001	
103-139-10	50 - 75	0.01	±3
103-140-10	75 - 100		
103-141-10	100 - 125		
103-142-10	125 - 150		
103-143-10	150 - 175		
103-144-10	175 - 200		
103-145-10	200 - 225		
103-146-10	225 - 250		
103-147-10	250 - 275		
103-148-10	275 - 300		
103-149	300 - 325	±4	±4
103-150	325 - 350		
103-151	350 - 375		
103-152	375 - 400		
103-153	400 - 425		
103-154	425 - 450		
103-155	450 - 475		
103-156	475 - 500		
103-157	500 - 525		
103-158	525 - 550		
103-159	550 - 575	±5	±5
103-160	575 - 600		
103-161	600 - 625		
103-162	625 - 650		
103-163	650 - 675		
103-164	675 - 700		
103-165	700 - 725		
103-166	725 - 750		
103-167	750 - 775		
103-168	775 - 800		
103-169	800 - 825	±6	±6
103-170	825 - 850		
103-171	850 - 875		
103-172	875 - 900		
103-173	900 - 925		
103-174	925 - 950		
103-175	950 - 975		
103-176	975 - 1000		

Inch	With ratchet stop		
Order No.	Range (in)	Graduation (in)	Accuracy (in)
103-177	0 - 1	0.001	±0.0001
103-131		0.0001	
103-178		0.001	
103-132		0.0001	
103-179	2 - 3	0.001	±0.00015
103-180	3 - 4		
103-181	4 - 5		
103-182	5 - 6		
103-183	6 - 7		
103-184	7 - 8		
103-185	8 - 9		
103-186	9 - 10		
103-187	10 - 11		
103-188	11 - 12		
103-189	12 - 13		
103-190	13 - 14		
103-191	14 - 15		
103-192	15 - 16		
103-193	16 - 17		
103-194	17 - 18		
103-195	18 - 19		
103-196	19 - 20		
103-197	20 - 21	±0.0003	
103-198	21 - 22		
103-199	22 - 23		
103-200	23 - 24		
103-201	24 - 25		
103-202	25 - 26		
103-203	26 - 27		
103-204	27 - 28		
103-205	28 - 29		
103-206	29 - 30		±0.00035
103-207	30 - 31		
103-208	31 - 32		
103-209	32 - 33		
103-210	33 - 34		
103-211	34 - 35		
103-212	35 - 36		
103-213	36 - 37		
103-214	37 - 38		
103-215	38 - 39	±0.0004	
103-216	39 - 40		

Metric	With ratchet stop		
Order No.	Range (mm)	Graduation (mm)	Maximum permissible error J_{MPE}^* (μm)
103-137	0 - 25	0.01	±2
103-138	25 - 50	0.01	

Inch	With friction thimble		
Order No.	Range (in)	Graduation (in)	Accuracy (in)
103-135	0 - 1	0.0001	±0.0001
103-136	1 - 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 B-74.



An inspection certificate is supplied as standard. Refer to page U-11 for details.

Technical Data

Measuring Force:
 5-10 N (for maximum measuring range 300 mm or less)
 10-15 N (for maximum measuring range 325 mm or more)
 Flatness: 0.6 μm/0.000024 in for models up to 300 mm/12 in
 1 μm/0.00004 in for models over 300 mm/12 in
 Parallelism:
 (2 + R/100) μm, R = max, range (mm)
 [0.00008 + 0.00004 (R/4)] in, R = max, range (inch)
 fraction rounded down
 Standard accessories: Reference bar, 1 pc.
 (except for measuring range 0-25 mm (0-1 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)



103-904-10



103-905-10



103-906

Technical Data

Standard accessories:

Reference rod 1 pc.

(Excluding the measuring range 0-25 mm)

Spanner (301336) 1 pc.

(Maximum measuring length Less than 300 mm)

Spanner (200154) 1 pc.

(Maximum measuring length More than 325 mm)

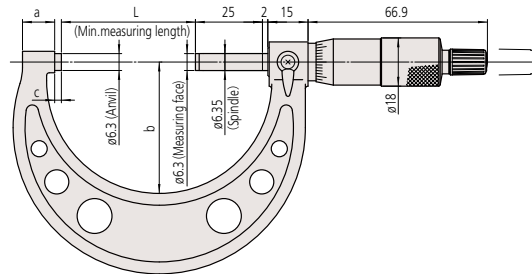


Metric			Micrometer set/With ratchet thimble
Order No.	Range (mm)	Models included	
103-927-10	0 - 75 (3 pcs./set)	103-137, 103-138, 103-139-10, 2 micrometer standards	
103-913-50	0 - 150 (6 pcs./set)	103-137, 103-138, 103-139-10, 103-140-10, 103-141-10, 103-142-10, 5 micrometer standards	
103-915-10	150 - 300 (6 pcs./set)	103-143-10, 103-144-10, 103-145-10, 103-146-10, 103-147-10, 103-148-10, 6 micrometer standards	
103-914-50	0 - 300 (12 pcs./set)	All micrometers of 103-913-50 and 103-915-10 in one set, 11 micrometer standards	

Inch			Micrometer set/With ratchet thimble
Order No.	Range (in)	Models included	
103-929	0 - 3 (3 pcs./set)	103-177, 103-178, 103-179, 2 micrometer standards	
103-930	0 - 4 (4 pcs./set)	103-177, 103-178, 103-179, 103-180, 3 micrometer standards	
103-904-10	0 - 6 (6 pcs./set)	103-177, 103-178, 103-179, 103-180, 103-181, 103-182, 5 micrometer standards	
103-906	6 - 12 (6 pcs./set)	103-183, 103-184, 103-185, 103-186, 103-187, 103-188, 6 micrometer standards	
103-905-10	0 - 12 (12 pcs./set)	All micrometers of 103-904-10 and 103-906 in one set, 11 micrometer standards	

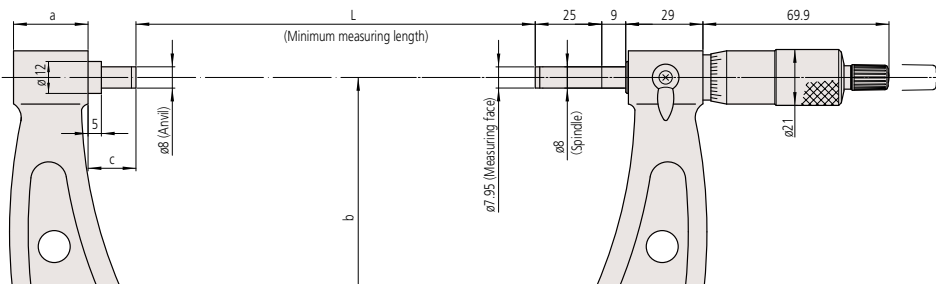
DIMENSIONS

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



Unit: mm

Models 325 mm to 1000 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	
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

Range (mm)	L	a	b	c
250-275	250	18	156	6.5
275-300	275		169	
300-325	300		187	
325-350	325		199	
350-375	350		212	
375-400	375	28	224	18
400-425	400		236	
425-450	425		248	
450-475	450		261	
475-500	475		273	

Range (mm)	L	a	b	c
500-525	500	28	307	40
525-550	525			15
550-575	550		332	40
575-600	575			15
600-625	600		355	40
625-650	625			15
650-675	650		382	40
675-700	675			15
700-725	700		405	40
725-750	725			15
750-775	750	430	40	
775-800	775		15	
800-825	800	455	40	
825-850	825		15	
850-875	850	480	40	
875-900	875		15	
900-925	900	505	40	
925-950	925		15	
950-975	950	530	40	
975-1000	975		15	