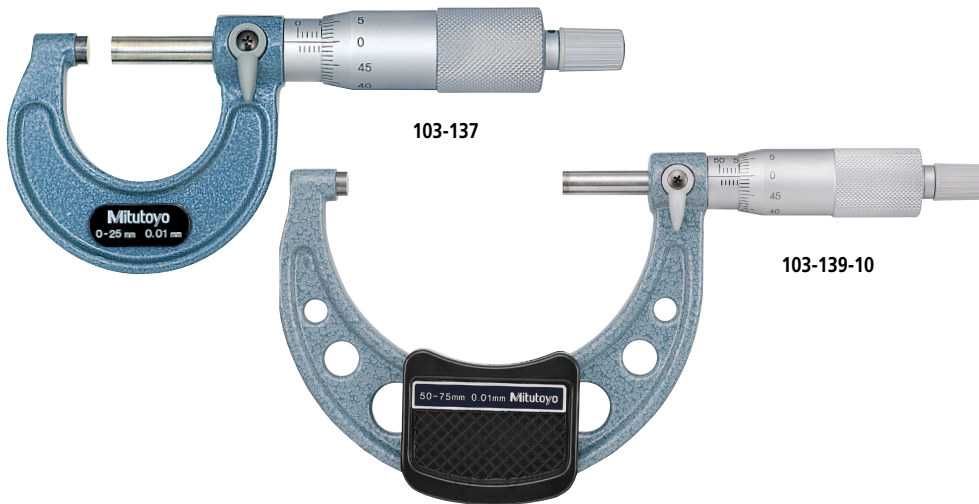


# Micrometer

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	Graduation	Accuracy
103-129	0 - 25 mm	0.001 mm	±2 μm
103-130	25 - 50 mm	0.001 mm	
103-139-10	50 - 75 mm	0.01 mm	
103-140-10	75 - 100 mm	0.01 mm	±3 μm
103-141-10	100 - 125 mm		
103-142-10	125 - 150 mm		
103-143-10	150 - 175 mm		±4 μm
103-144-10	175 - 200 mm		
103-145-10	200 - 225 mm		
103-146-10	225 - 250 mm		
103-147-10	250 - 275 mm		±5 μm
103-148-10	275 - 300 mm		
103-149	300 - 325 mm		0.01 mm
103-150	325 - 350 mm		
103-151	350 - 375 mm		
103-152	375 - 400 mm	±7 μm	
103-153	400 - 425 mm		
103-154	425 - 450 mm	±8 μm	
103-155	450 - 475 mm		
103-156	475 - 500 mm	±9 μm	
103-157	500 - 525 mm		
103-158	525 - 550 mm	0.01 mm	
103-159	550 - 575 mm		
103-160	575 - 600 mm		
103-161	600 - 625 mm		±11 μm
103-162	625 - 650 mm		
103-163	650 - 675 mm		±12 μm
103-164	675 - 700 mm		
103-165	700 - 725 mm		±13 μm
103-166	725 - 750 mm		
103-167	750 - 775 mm		±14 μm
103-168	775 - 800 mm		
103-169	800 - 825 mm	0.01 mm	±15 μm
103-170	825 - 850 mm		
103-171	850 - 875 mm		
103-172	875 - 900 mm		
103-173	900 - 925 mm		
103-174	925 - 950 mm		
103-175	950 - 975 mm		
103-176	975 - 1000 mm		

Metric	With ratchet stop		
Order No.	Range	Graduation	Accuracy
103-137	0 - 25 mm	0.01 mm	±2 μm
103-138	25 - 50 mm	0.01 mm	

Inch	With ratchet stop		
Order No.	Range	Graduation	Accuracy
103-177	0 - 1 in	0.001 in	±0.0001 in
103-131		0.0001 in	
103-178		0.001 in	
103-132	1 - 2 in	0.0001 in	±0.00015 in
103-179		2 - 3 in	
103-180	3 - 4 in	0.001 in	±0.0002 in
103-181			
103-182	5 - 6 in	0.001 in	±0.00025 in
103-183			
103-184	7 - 8 in	0.001 in	±0.0003 in
103-185			
103-186	9 - 10 in	0.001 in	±0.00035 in
103-187			
103-188	11 - 12 in	0.001 in	±0.0004 in
103-189			
103-190	13 - 14 in	0.001 in	±0.00045 in
103-191			
103-192	15 - 16 in	0.001 in	±0.0005 in
103-193			
103-194	17 - 18 in	0.001 in	±0.00055 in
103-195			
103-196	19 - 20 in	0.001 in	±0.0006 in
103-197			
103-198	21 - 22 in	0.001 in	±0.00065 in
103-199			
103-200	23 - 24 in	0.001 in	±0.0007 in
103-201			
103-202	25 - 26 in	0.001 in	±0.00075 in
103-203			
103-204	27 - 28 in	0.001 in	±0.0001 in
103-205			
103-206	29 - 30 in	0.001 in	±0.00015 in
103-207			
103-208	31 - 32 in	0.001 in	±0.0002 in
103-209			
103-210	33 - 34 in	0.001 in	±0.00025 in
103-211			
103-212	35 - 36 in	0.001 in	±0.0003 in
103-213			
103-214	37 - 38 in	0.001 in	±0.00035 in
103-215			
103-216	39 - 40 in	0.001 in	±0.0004 in

Inch	With friction thimble		
Order No.	Range	Graduation	Accuracy
103-135	0 - 1 in	0.0001 in	±0.0001 in
103-136	1 - 2 in		



An inspection certificate is supplied as standard. Refer to page X 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)

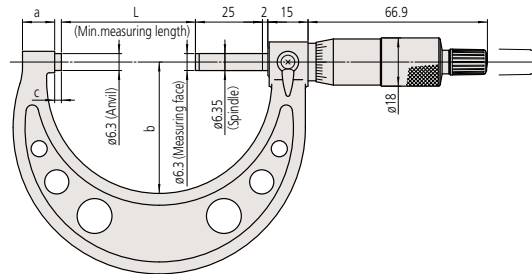


Metric	Micrometer set / With ratchet thimble	
Order No.	Range	Models included
103-927-10	0 - 75 mm (3 pcs./set)	103-137, 103-138, 103-139-10, 2 micrometer standards
103-913-50	0 - 150 mm (6 pcs./set)	103-137, 103-138, 103-139-10, 103-140-10, 103-141-10, 103-142-10, 5 micrometer standards
103-915-10	150 - 300 mm (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 mm (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	Models included
103-929	0 - 3 in (3 pcs./set)	103-177, 103-178, 103-179, 2 micrometer standards
103-930	0 - 4 in (4 pcs./set)	103-177, 103-178, 103-179, 103-180, 3 micrometer standards
103-904-10	0 - 6 in (6 pcs./set)	103-177, 103-178, 103-179, 103-180, 103-181, 103-182, 5 micrometer standards
103-906	6 - 12 in (6 pcs./set)	103-183, 103-184, 103-185, 103-186, 103-187, 103-188, 6 micrometer standards
103-905-10	0 - 12 in (12 pcs./set)	All micrometers of 103-904-10 and 103-906 in one set, 11 micrometer standards

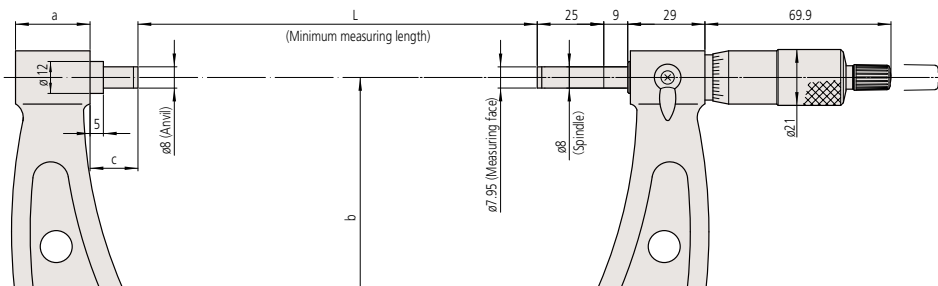
## DIMENSIONS

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



Unit: mm

Models 325 mm to 1000 mm



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

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

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