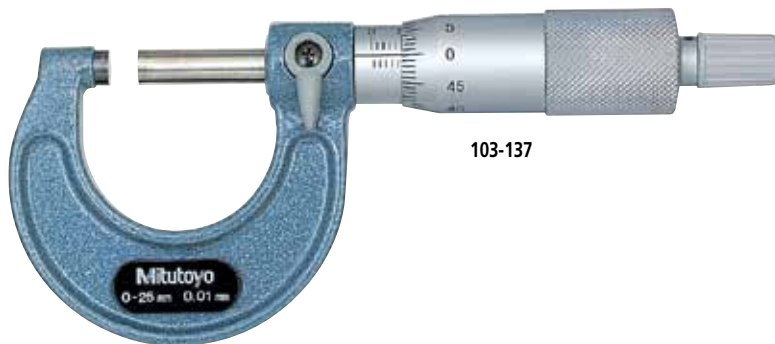


# Outside Micrometers

## SERIES 103

### FEATURES

- Hammertone, baked-enamel-finished frame.
- Ratchet stop for exact repetitive readings.
- With a standard bar except for 0-25mm model.



103-137



### Technical Data

Graduation: 0.01mm, 0.001mm  
 Flatness: 0.6 μm for models up to 300mm/12"  
 1 μm for models over 300mm/12"  
 Parallelism: (2+R/100)μm, R=max. range (mm)  
 Measuring faces: Carbide tipped

### SPECIFICATIONS

**Metric** With ratchet stop

Range	Order No.	Accuracy	Mass (g)
0 - 25mm	103-137	±2μm	175
	103-129*	±2μm	175
25 - 50mm	103-138	±2μm	215
	103-130*	±2μm	215
50 - 75mm	103-139-10	±2μm	315
75 - 100mm	103-140-10	±3μm	375
100 - 125mm	103-141-10	±3μm	515
125 - 150mm	103-142-10	±3μm	665
150 - 175mm	103-143-10	±4μm	720
175 - 200mm	103-144-10	±4μm	920
200 - 225mm	103-145-10	±4μm	1080
225 - 250mm	103-146-10	±5μm	1255
250 - 275mm	103-147-10	±5μm	1405
275 - 300mm	103-148-10	±5μm	1565
300 - 325mm	103-149	±6μm	1985
325 - 350mm	103-150	±6μm	2155
350 - 375mm	103-151	±6μm	2305
375 - 400mm	103-152	±7μm	2455
400 - 425mm	103-153	±7μm	2715
425 - 450mm	103-154	±7μm	2965
450 - 475mm	103-155	±8μm	3215
475 - 500mm	103-156	±8μm	3450

(Models with a range up to 1000mm are available.)

\*0.001mm reading is obtained with vernier.

### DIMENSIONS AND MASS

Up to 300mm / 12"

Over 300mm / 12"

Range	L	a	b	c
0 - 25mm / 0 - 1"	30.3	2.8	9	28
25 - 50mm / 1 - 2"	55.3	2.8	10	38
50 - 75mm / 2 - 3"	80.3	2.8	12	49
75 - 100mm / 3 - 4"	105.3	2.8	14	60
100 - 125mm / 4 - 5"	132.8	5.3	17	79
125 - 150mm / 5 - 6"	158.2	5.7	19	94
150 - 175mm / 6 - 7"	183.6	6.1	20	106
175 - 200mm / 7 - 8"	208.8	6.3	19	118
200 - 225mm / 8 - 9"	234.2	6.7	18	130
225 - 250mm / 9 - 10"	258	5.5	18	143
250 - 275mm / 10 - 11"	284	6.5	18	156
275 - 300mm / 11 - 12"	309	6.5	18	169

Range	L	a	b	c
300 - 325mm / 12-13"	353	18	28	187
325 - 350mm / 13-14"	378	18	28	199
350 - 375mm / 14-15"	403	18	28	212
375 - 400mm / 15-16"	428	18	28	224
400 - 425mm / 16-17"	453	18	28	236
425 - 450mm / 17-18"	478	18	28	248
450 - 475mm / 18-19"	503	18	28	261
475 - 500mm / 19-20"	528	18	28	273

**Metric** Micrometer set

Range	Order No.	Included in set	Mass (g)
0 - 75mm (3 pc. set)	103-927-10	103-137, 103-138, 103-139-10, 2 micrometer standards	750
0 - 150mm (6 pc. set)	103-913-50	103-137, 103-138, 103-139-10, 103-140-10, 103-141-10, 103-142-10, 5 micrometer standards	2260
150 - 300mm (6 pc. set)	103-915-10	103-143-10, 103-144-10, 103-145-10, 103-146-10, 103-147-10, 103-148-10, 6 micrometer standards	7695
0 - 300mm (12 pc. set)	103-914-50	All micrometers of 103-913-50 and 103-915-10 in one set, 11 micrometer standards	9300



# Outside Micrometers

## SERIES 103— Inch Models

### FEATURES

- Hammertone, baked-enamel-finished frame.
- Ratchet stop or friction thimble for exact repetitive readings.
- With a standard bar except for 0-1" model.



### Technical Data (Inch Model)

Accuracy: Refer to the list of specifications

Graduation: .001" or .0001"

Flatness: .000024" for models up to 12"  
.00004" for models over 12"

Parallelism: [.00008 + .00004 (L/4)]" L= max range (inch)

Measuring faces: Carbide tipped

### SPECIFICATIONS

**Inch** \_\_\_\_\_ With ratchet stop

Range	Graduation	Order No.	Accuracy	Mass (g)
0 - 1"	.001"	<b>103-177</b>	±.0001"	175
1 - 2"	.001"	<b>103-178</b>	±.0001"	215
2 - 3"	.001"	<b>103-179</b>	±.0001"	315
3 - 4"	.001"	<b>103-180</b>	±.00015"	375
4 - 5"	.001"	<b>103-181</b>	±.00015"	515
5 - 6"	.001"	<b>103-182</b>	±.00015"	665
6 - 7"	.001"	<b>103-183</b>	±.0002"	720
7 - 8"	.001"	<b>103-184</b>	±.0002"	920
8 - 9"	.001"	<b>103-185</b>	±.0002"	1080
9 - 10"	.001"	<b>103-186</b>	±.00025"	1255
10 - 11"	.001"	<b>103-187</b>	±.00025"	1405
11 - 12"	.001"	<b>103-188</b>	±.00025"	1565
12 - 13"	.001"	<b>103-189</b>	±.0003"	1985
13 - 14"	.001"	<b>103-190</b>	±.0003"	2155
14 - 15"	.001"	<b>103-191</b>	±.0003"	2305
15 - 16"	.001"	<b>103-192</b>	±.00035"	2455
16 - 17"	.001"	<b>103-193</b>	±.00035"	2715
17 - 18"	.001"	<b>103-194</b>	±.00035"	2965
18 - 19"	.001"	<b>103-195</b>	±.0004"	3215
19 - 20"	.001"	<b>103-196</b>	±.0004"	3450
20 - 21"	.001"	<b>103-197</b>	±.0004"	4060
21 - 22"	.001"	<b>103-198</b>	±.00045"	4080
22 - 23"	.001"	<b>103-199</b>	±.00045"	4500
23 - 24"	.001"	<b>103-200</b>	±.00045"	4525
24 - 25"	.001"	<b>103-201</b>	±.0005	4915
25 - 26"	.001"	<b>103-202</b>	±.0005"	4930
26 - 27"	.001"	<b>103-203</b>	±.0005"	5200
27 - 28"	.001"	<b>103-204</b>	±.00055"	5215
28 - 29"	.001"	<b>103-205</b>	±.00055"	5835
29 - 30"	.001"	<b>103-206</b>	±.00055"	5860
30 - 31"	.001"	<b>103-207</b>	±.0006"	6385
31 - 32"	.001"	<b>103-208</b>	±.0006"	6410
32 - 33"	.001"	<b>103-209</b>	±.0006"	6925
33 - 34"	.001"	<b>103-210</b>	±.00065"	6940
34 - 35"	.001"	<b>103-211</b>	±.00065"	7565
35 - 36"	.001"	<b>103-212</b>	±.00065"	7590
36 - 37"	.001"	<b>103-213</b>	±.0007"	8215
37 - 38"	.001"	<b>103-214</b>	±.0007"	8240
38 - 39"	.001"	<b>103-215</b>	±.0007"	8860
39 - 40"	.001"	<b>103-216</b>	±.00075"	8880

**Inch** \_\_\_\_\_ With friction thimble

Range	Graduation	Order No.	Accuracy	Mass (g)
0 - 1"	.0001"	<b>103-135*</b>	±.0001"	175
1 - 2"	.0001"	<b>103-136*</b>	±.0001"	215

\* .0001" Reading is obtained with vernier

**Inch** \_\_\_\_\_ With ratchet stop

Range	Graduation	Order No.	Accuracy	Mass (g)
0 - 1"	.0001"	<b>103-131*</b>	±.0001"	175
1 - 2"	.0001"	<b>103-132*</b>	±.0001"	215
2 - 3"	.0001"	<b>103-217*</b>	±.0001"	315
3 - 4"	.0001"	<b>103-218*</b>	±.00015"	375
4 - 5"	.0001"	<b>103-219*</b>	±.00015"	515
5 - 6"	.0001"	<b>103-220*</b>	±.00015"	665
6 - 7"	.0001"	<b>103-221*</b>	±.0002"	720
7 - 8"	.0001"	<b>103-222*</b>	±.0002"	920
8 - 9"	.0001"	<b>103-223*</b>	±.0002"	1080
9 - 10"	.0001"	<b>103-224*</b>	±.00025"	1255
10 - 11"	.0001"	<b>103-225*</b>	±.00025"	1405
11 - 12"	.0001"	<b>103-226*</b>	±.00025"	1565

\* .0001" Reading is obtained with vernier

**Inch** \_\_\_\_\_ With Tapered Frame and Ratchet Stop

Range	Graduation	Order No.	Accuracy	Mass (g)
0-1"	.001"	<b>103-259</b>	±.0001"	175
0-1"	.0001"	<b>103-260*</b>	±.0001"	175
1-2"	.0001"	<b>103-262*</b>	±.0001"	215

\* .0001" Reading is obtained with vernier

# Outside Micrometers

## SERIES 103 — Inch model set

Inch		Micrometer Set .001" Graduation Model	
Range	Order No.	Included in set	Mass (g)
0 - 3" (3pcs./set)	<b>103-929</b>	103-177, 103-178, 103-179, 2 Micrometer Standards	750
0 - 4" (4pcs./set)	<b>103-930</b>	103-177, 103-178, 103-179, 103-180, 3 Micrometer Standards	1600
0 - 6" (6pcs./set)	<b>103-904-10</b>	103-177, 103-178, 103-179, 103-180, 103-181, 103-182, 5 Micrometer Standards	2200
0 - 12" (12pcs./set)	<b>103-905-10</b>	103-177, 103-178, 103-179, 103-180, 103-181, 103-182, 103-183, 103-184, 103-185, 103-186, 103-187, 103-188, 11 Micrometer Standards	9000
6 - 12" (6pcs./set)	<b>103-906</b>	103-183, 103-184, 103-185, 103-186, 103-187, 103-188, 6 Micrometer Standards	7695



103-905-10

Inch		Micrometer Set .0001" Graduation Model	
Range	Order No.	Included in set	Mass (g)
0 - 3" (3pcs./set)	<b>103-922</b>	103-135, 103-136, 103-217, 2pcs. Micrometer Standards	705
0 - 4" (4pcs./set)	<b>103-931</b>	103-135, 103-136, 103-217, 103-218, 3pcs. Micrometer Standards	1600
0 - 6" (6pcs./set)	<b>103-907-40</b>	103-135, 103-136, 103-217, 103-218, 103-219, 103-220, 5 Micrometer Standards	2200
0 - 12" (12pcs./set)	<b>103-908-40</b>	103-135, 103-136, 103-217, 103-218, 103-219, 103-220, 103-221, 103-222, 103-223, 103-224, 103-225, 103-226, 11pcs. Micrometer Standards	9000
6 - 12" (6pcs./set)	<b>103-909</b>	103-221, 103-222, 103-223, 103-224, 103-225, 103-226, 6pcs. Micrometer Standards	6945



103-904-10