

Micrometer - Metric System



Barrel

(# of mm's)

Thimble

(# of 1/100 mm's)

A Micrometer Reading 5.780 mm

How To Read The Micrometer:

Suppose you have an object *lightly* clamped in the micrometer's jaws. (Note: Neither the object nor the jaws are visible in the illustration.) The object's width or size – that is, how far the jaws opened – is found by reading the micrometer's *barrel* and *thimble*.

- **First**, look at the *barrel*. Above its horizontal line are *millimeter* marks, showing the number of millimeters that the micrometer jaws are open to. At the illustration, the thimble's edge is somewhat beyond 5 mm. Below its horizontal line are *half-millimeter* marks between *millimeter* marks. At the illustration, the thimble's edge is somewhat past 5.5 mm.
- **Second**, look at the *thimble*. The thimble's marks represent the 1/100 mm (or 0.01 mm) marks. At the illustration, the barrel's horizontal line aligns with the thimble's 28th mark, so the jaws are open 28/100 mm (i.e., 0.28 mm) more than the 5.5 mm shown at the barrel.
- **Third**, by estimating to the nearest tenth between the thimble's 1/100 marks, the micrometer may be read to the 1/1000 mm (or 0.001 mm). (Note: the conversion is 0.001 mm = one micron.) At the illustration, the barrel's horizontal line aligns *exactly* with the thimble's 28th mark, therefore, 0/1000 mm (i.e., 0.000 mm) need to be added onto the reading.
- **Finally**, the measurement is the sum of the three readings above:

$$\text{Width} = (5.5 + 28/100 + 0/1000) \text{ mm} = 5.780 \text{ mm}$$

- Note: The thimble completes *two* turns for each millimeter. If your micrometer does not have half-mm marks, then you must keep track of whether you are on the *first* turn (0-50 1/100 mm) or the *second* turn (50-100 1/100 mm).