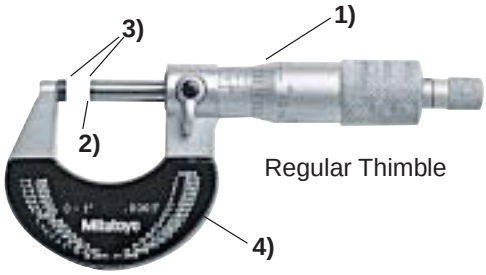
Accuracy Specifications

The accuracy of a micrometer is derived from several fundamental factors. The most significant factors are: 1) thread accuracy, 2) flatness of measuring faces, 3) parallelism between the faces and 4) rigidity of the frame which holds anvil and spindle.

The following comparisons clearly indicate that MITUTOYO Micrometers not only meet, but most often exceed those accuracies stipulated in Federal Specifications.



Comparison
Federal vs. MITUTOYO Specifications

Flatness (anvil or spindle tip)

Size	Federal Spec.	MITUTOYO Spec.
1"	.00005"	.000024"
2"	.00005"	.000024"
3"	.00005"	.000024"
4"	.00008"	.000024"
5"	.00008"	.000024"
6"	.00008"	.000024"
7"	.00008"	.000024"
8"	.00008"	.000024"
9"	.00008"	.000024"
10"	.0001"	.000024"
11"	.0001"	.000024"
12"	.0001"	.000024"

Comparison-Overall Accuracy
Federal vs. MITUTOYO Specifications

Inch Micrometers

Size	Federal Spec.	MITUTOYO Spec.
1"	±.0001"	±.0001"
2"	±.00015"	±.0001"
3	±.00015"	±.0001"
4"	±.0002"	±.00015"
5"	±.0002"	±.00015"
6"	±.0002"	±.00015"
7"	±.00025"	±.0002"
8"	±.00025"	±.0002"
9"	±.00025"	±.0002"
10"	±.0003"	±.00025"
11"	±.0003"	±.00025"
12"	±.0003"	±.00025"

Parallelism (Between anvil and Spindle)

Size	Federal Spec.	MITUTOYO Spec.
1"	.00005"	.00008"
2"	.00010"	.00008"
3"	.00015"	.00008"
4"	.0002"	.00012"
5"	.0002"	.00012"
6"	.0002"	.00012"
7"	.00025"	.00012"
8"	.00025"	.00016"
9"	.00025"	.00016"
10"	.0003"	.00016"
11"	.0003"	.00016"
12"	.0003"	.00020"

Metric Micrometers

Size	Federal Spec.	MITUTOYO Spec.
25mm	±0.004mm	±0.002mm
50mm	±0.004mm	±0.002mm
75mm	±0.004mm	±0.002mm
100mm	±0.005mm	±0.003mm
125mm	±0.005mm	±0.003mm
150mm	±0.005mm	±0.003mm
175mm	±0.006mm	±0.003mm
200mm	±0.006mm	±0.004mm
225mm	±0.006mm	±0.004mm
250mm	±0.0075mm	±0.004mm
275mm	±0.0075mm	±0.004mm
300mm	±0.0075mm	±0.005mm

(Federal Specification GGG–C–105C)

Mitutoyo