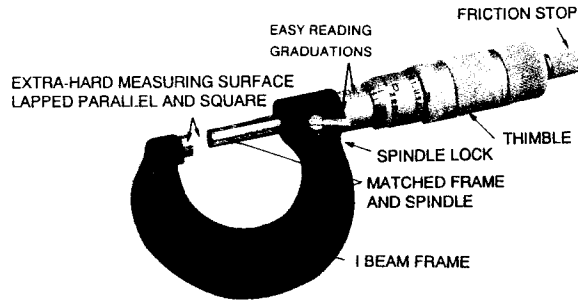


HOW TO USE A MICROMETER

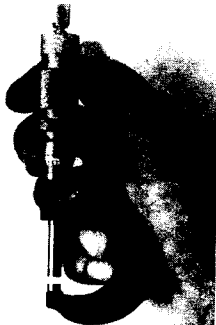
1 Beam frame micrometer with friction stop and spindle lock.



HOLDING THE TOOL

In using the smaller sizes of micrometers for measuring work in the hands, hold the micrometer in the right hand so that the thumb and index finger rest on the knurled thimble, and the frame of the micrometer, supported by the little finger, rests against the base of the thumb. In this position the tool is secure and work may be readily inserted between the measuring surfaces using the free left hand.

In using larger sizes of micrometers, or when the work is fixed, the micrometer is supported by its anvil end in the left hand while the right hand adjusts the thimble to determine the proper adjustment.



THE SPINDLE LOCK

On micrometers equipped with a spindle lock a fixed setting can be maintained by rotating the lever clockwise. The spindle will then be securely locked until released.

DECIMAL EQUIVALENTS

Inches	Decimals	mm	Inches	Decimals	mm	Inches	Decimals	mm
1/64	0.016	0.397	11/32	0.344	8.731	43/64	0.672	17.066
1/32	0.031	0.794	23/64	0.359	9.128	11/16	0.688	17.463
3/64	0.047	1.191	3/8	0.375	9.525	45/64	0.703	17.859
1/16	0.063	1.588	25/64	0.391	9.922	23/32	0.719	18.256
5/64	0.078	1.984	13/32	0.406	10.319	47/64	0.734	18.653
3/32	0.094	2.381	27/64	0.422	10.716	3/4	0.750	19.050
7/64	0.109	2.778	7/16	0.438	11.113	49/64	0.766	19.447
1/8	0.125	3.175	29/64	0.453	11.509	25/32	0.781	19.844
9/64	0.141	3.572	15/32	0.469	11.906	51/64	0.797	20.241
5/32	0.156	3.969	31/64	0.484	12.303	13/16	0.813	20.638
11/64	0.172	4.366	1/2	0.500	12.700	53/64	0.828	21.034
3/16	0.188	4.763	33/64	0.516	13.097	27/32	0.844	21.431
13/64	0.203	5.159	17/32	0.531	13.494	55/64	0.859	21.828
7/32	0.219	5.556	35/64	0.547	13.891	7/8	0.875	22.225
15/64	0.234	5.953	9/16	0.563	14.288	57/64	0.891	22.622
1/4	0.250	6.350	37/64	0.578	14.684	29/32	0.906	23.019
17/64	0.266	6.747	19/32	0.594	15.081	59/64	0.922	23.416
9/32	0.281	7.144	39/64	0.609	15.478	15/16	0.938	23.813
19/64	0.297	7.541	5/8	0.625	15.875	61/64	0.953	24.209
5/16	0.313	7.938	41/64	0.641	16.272	31/32	0.969	24.606
21/64	0.328	8.334	21/32	0.656	16.669	63/64	0.984	25.003

Here's Your New



MICROMETER

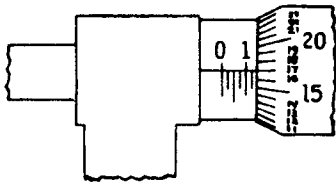
Your micrometer is a precision measuring instrument and should be treated with the respect you give your watch or other fine mechanism. Water, dirt, and abrasive dust must be kept out of the spindle threads.

Detailed instructions inside this folder will show you how to read your new micrometer.



HOW TO USE A MICROMETER

SPINDLE BARREL THIMBLE



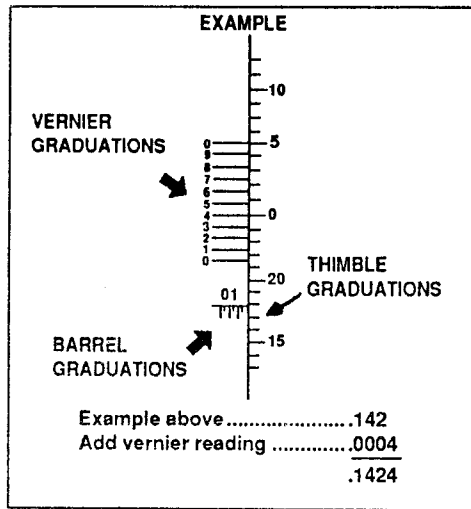
OPERATING PRINCIPLES ENGLISH

As you will see by turning the thimble, it is fastened to the spindle, which moves toward or away from the anvil by means of a screw within the barrel. This screw has 40 threads to the inch so the spindle during one complete revolution moves 1/40th of an inch or .025". Every fourth graduation is numbered 0, 1, 2, etc., representing tenths of an inch (.100", .200", etc.). The beveled edge of the thimble is graduated into 25 equal parts. When all 25 of these graduations have passed the horizontal line on the barrel, the spindle has made one revolution and has moved .025". Therefore, each thimble graduation equals 1/25th of .025", or .001"

ENGLISH WITH TEN THOUSANDTHS (.0001) GRADUATIONS

On those micrometers having vernier graduations, a reading of ten thousandths of an inch can be obtained whenever the thimble graduation and major line do not coincide. Note that when an exact reading to the thousandth is obtained, the zero lines of the thimble and vernier coincide. The vernier graduations are also spaced that when this is not the case, only one vernier graduation and one thimble graduation coincide.

This vernier graduation gives the number of ten thousandths which must be added to the thousandths reading.



METRIC

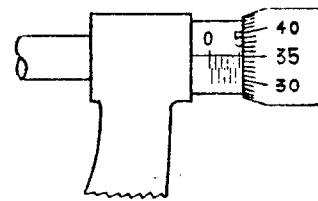
The same principle governs the reading of metric micrometers except that different graduations are used. Measurements are made in increments of .01 (1/100)mm by means of 50 graduations on the thimble. A single revolution, therefore, advances the spindle (50 grads x .01 mm/grad) = .5 mm, two rotations advance the spindle 1 mm, etc.

The metric micrometer spindle thread pitch is .50 mm per revolution. The thimble has 50 graduations on its beveled edge and the numbers 0 thru 45 adjacent to every fifth graduation. The number

50 is not stamped since it would be coincident with the number zero. The thimble graduations stand for decimal parts of a millimeter, that is, 5, 50, and 35 stand for .05, .20, and .35mm respectively.

The barrel is graduated two ways. The graduations extending from the horizontal line are whole millimeters; the intermediate graduations are half millimeters. The numbers on the barrel may be read directly in millimeters. The example shown should be read as 5 + .35 = 5.35mm.

SPINDLE BARREL THIMBLE



INSTRUCTIONS FOR ADJUSTING

This micrometer was accurately calibrated at the factory but we recommend that all micrometers be checked before every use to make sure that they are properly calibrated. Failure to do this can result in error. If adjustment is necessary follow these simple steps.

1. Clean the spindle and anvil faces and bring the spindle into contact with the anvil for 0-1" micrometer, or appropriate standard test gauge for larger sizes.
2. Remove knurled cap on end of thimble and loosen set screw
3. Make zero line on thimble coincide with zero line on barrel.
4. Tighten set screw lightly and separate measuring faces by turning spindle.
5. With measuring faces open, hold micrometer by thimble and securely tighten set screw.
6. Recheck zero setting and replace thimble cap.

ADJUSTMENT FOR MICROMETERS WITH EXPOSED THIMBLE SET SCREW

1. Clean the spindle and anvil faces and bring the spindle into contact with the anvil for 0-1" micrometer, or appropriate standard test gauge for larger sizes.
2. Loosen thimble set screw.
3. Slide and rotate the thimble until the "0" mark on the thimble is aligned with the "0" mark on the barrel.
4. Tighten set screw lightly and separate measuring faces by turning spindle.
5. With measuring faces open, hold micrometer by thimble and securely tighten set screw.
6. Recheck zero setting.

MEASURING A WORKPIECE

To measure a work piece, insert it between the surface of the anvil and spindle and turn the thimble until the spindle comes in contact with the piece being measured. As we have already noted, the barrel is divided into ten major sections, each representing one tenth of an inch (.100"), and each major section is sub-divided into four parts. Therefore, each division on the barrel represents 25 thousandths (.025) of an inch.

Now, (1), note the last figure (hundredths visible on the barrel. Then, (2), count the number of graduations visible beyond the last figure, each of which represents 25 thousandths of an inch. Finally, (3), note the number of the division on the bevel of the thimble that coincides with the horizontal line on the barrel. The addition of these three figures will give you your final reading.

For example, as shown on a previous page

Highest figure shown on barrel is 1100
which equals .100 of an inch100
Number of lines visible between the		
number 1 on the barrel and the thimble		
edge is one or .025" of an inch025
Number of lines on bevel of the thimble		
turned past horizontal line is seventeen017
		<u>Final Reading .142</u>