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Ordering a Walton & Beckett graticule

The Walton & Beckett graticule is used for counting fibrous dust (e.g., asbestos or glass fibers) and is particularly useful where the majority of fibers to be counted are shorter than 5 microns. The circle is divided into four by two diametrical lines scaled in units of 5 and 3 microns, respectively. 3 and 5 microns are the critical measurements of fiber lengths and diameters used in fiber counting. Unlike the usual globes of other particle graticules, the Walton & Beckett have a series of shapes to compare objects — shapes that have been designed for comparison with fibers, especially since they incorporate an aspect ratio of 3:1, essential for such analysis using "A" rules.

***IMPORTANT NOTE:* The circle on these Walton & Beckett graticules must represent 100 microns at the stage and each one must be manufactured to suit the individual instrument.**

All Walton & Beckett reticles are normally used with 40x objectives giving a calibration factor of 4. In some microscopes there is also an additional 1.25x magnification to give a total objective magnification of 50x — these will have a calibration factor of 5. All standard Walton & Beckett reticles are supplied with a calibration factor of 4. Other calibration factors are made to special order. These reticles will require a calibrated stage micrometer to verify the sizes.

Therefore, the details that should be provided with your order are:

1. Calibration factor, if known;
2. Objective magnification;
3. Eyepiece magnification;
4. Diameter of graticule disc required;
5. Microscope make and model.

You will need the following four items in order to do any calibrations for your new reticle:

1. Ruler with centimeter scale
2. Stage micrometer
3. A reference reticle (eyepiece disc) that can be placed in 10X focusing eyepiece and removed.
   You can use a crosshair, scale, or grid reticle, any Walton-Beckett reticle or a Porton reticle.
4. Phase contrast microscope with 10X focusing eyepiece capable of reticle installation and 40X phase objective.

The calibrations we need:

1. The diameter of the reticle (eyepiece disc) that will fit in your eyepiece (standard sizes are 19 and 21mm).
   If you know the model number on your eyepieces, you could try calling the manufacturer for the diameter.

   _____mm

2. The Actual Length - This is the ruler measurement in mm of any line, crosshair, scale etc. on the reference reticle when outside the eyepiece. For instance, use a ruler to measure a horizontal line from end to end in mm.

   _____mm

3. The Magnified Length - This is the same measurement taken with a stage micrometer when the reference reticle is installed in 10X eyepiece and used with a 40X phase objective. If you measured a horizontal line previously with your ruler, you would measure the same line now but using your stage micrometer.

   _____µm

4. The D Value - Refers to the diameter of the circle pattern of the Walton-Beckett.

   Determining the exact D value is critical because the circle pattern has to measure 100µm with the stage micrometer.

   The D Value can be found once the Actual Length and Magnified Length have been determined.

   D Value = (Actual Length of line X 100) / Magnified Length of line. For example: (4.5 X 100) / 155mm = 2.903mm D Value

   Your D Value = _____mm