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TriAngle Application: Wedge Measurement

The inspection of optical wedges with an autocollimator is the fastest and most convenient way of measuring wedge angles, especially in production environments. When the parallel beam emerging from the TriAngle® autocollimator is directed square to the wedge it is reflected back from both the front and the back surface of the wedge. As the result, two crosshairs are displayed on the camera screen, with a distance d depending on the wedge angle and the refractive index n of the material. The wedge angle δ is given by

$$\delta = \frac{d}{2nf}$$

Where

d = distance of both surface reflection images

n = refractive index of the wedge material

f = focal length of the autocollimator

The wedge angle is automatically computed by the software according to the above formula.

The software further includes the program for the wedge measurement in transmission (double pass) with reflection at a mirror behind the wedge. With this procedure the resolution is doubled by the double pass configuration.

