

Flatness

Improved optical flatness of a glass component is achieved through the lapping process. By conditioning the lapping plates and monitoring variables on the lapping machines, the top and bottom surface of the glass part are ground parallel in an extremely controlled process. Depending on the material and thickness, Coresix can generally produce to a quarter wave flatness.

Common Terms

Microns

A common way of expressing flatness is a peak to valley measurement in microns, either within a specified area or across the entire part.

Lambda (λ)

Greek letter commonly used to designate wavelength

Fringes

Using an interferometer with a monochromatic light source, the object part is measured against an optical flat. As light reflects in the gap between the object and the optical flat, the light will interfere with itself creating light and dark fringes or bands. As commonly measured on a helium neon laser at a wavelength of 632.8nm, each fringe is equal to .316 microns. These fringes can be counted to express flatness over a given area or evaluated as a contour map and interpreted for shape and flatness.

Wavelength

The distance between repeating units of a wave pattern.

Power & Irregularity

This is a common way of interpreting the results of an interferometer as described in the "fringes" definition above. Counting the fringes from left to right, then top to bottom, the larger number is the "power". Subtract the smaller number from the larger number to get the irregularity. The final number being the size of the aperture, the spec then reads P//A. For the example below, the flatness is 8/5/4 (8 fringes power, 5 fringes

Bow or Warp

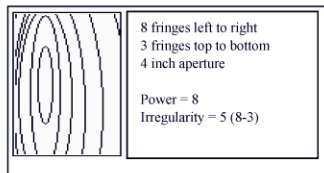
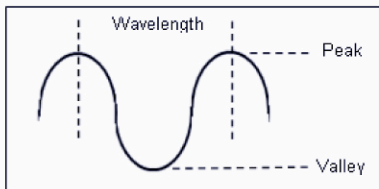
A curve, bend or other deviation from flatness.

Stigmatism

Irregularities within the glass which cause an interruption to the transmitted flow of light through the glass.

Saddle

A negative curvature or irregularity in the glass surface which produces a saddle shape (see figure 1)



Saddle Shape

Customer Input Required Yes No

Default Specification: No Spec