

LI10 Fizeau Interferometer

The LI10 Fizeau Interferometer is ideally suited to a wide range of flatness measurement operations on polished specimens up to 102mm (4")Ø. This unit is appropriate for use in both optical component production and research and development laboratories.

This interferometer, offers a rapid and accurate method for the optical measurement of polished surface flatness. Its reference flat, has a flatness of $\lambda/10$ and does not come into contact with the surface under test. This allows a contour map, or interferogram, to be produced by the display of reflections between these two surfaces.

Applications:

The Logitech LI10 is ideal for checking optical flats and for carrying out flatness measurements on a wide range of optical components. This unit can be used for measuring the flatness of polished semiconductor or optical materials, where flatness is essential for subsequent processing.

The LI10 is a manual display unit and allows the resulting interferogram to be viewed either a wide angle telescope (supplied as standard) or binocular viewer (ideal for prolonged viewing or spectacle wearers) located to the front panel of the unit.

Specimen Mounting:

The LI10 can work with samples ranging from 1"Ø through to a maximum of 6" Ø. This requires a simple but versatile mounting system known as the Three Ball Mount. These balls are variable in height allowing the LI10 to accommodate different sized specimens. Unmounted specimens or light weight specimen holding assemblies can be positioned on a gimbal device using micrometer adjustment to hold the specimen clear of the reference flat in a parallel orientation.

A tilting system is supplied as standard, for examining Logitech polishing jig or vacuum mounted specimens. The angle of this plate can be finely adjusted parallel to the plane of the optical reference.

The LI10 unit can also be fitted with an integral vacuum chuck to allow specimens to be mounted both quickly and accurately. This tool is particularly useful for flatness measurement on fragile semiconductors, especially when they have been processed using vacuum chuck polishing jigs. The LI10 also presents the specimen parallel to the optical reference to ensure that an accurate image is acquired, while the tilt plate is used to provide a precise interferogram image.



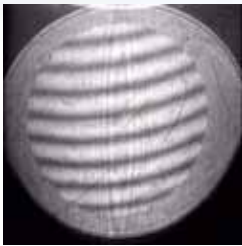
- *High precision flatness measurement of polished samples to $\lambda/10$*
- *3D imaging & analysis capacity*
- *Measure 0.335 μ m per fringe with high clarity*
- *Image & analyse fringe patterns on materials from 1" to 6" Ø*

Manual Fizeau Interferometry:

Using the LI10 interferometer the fringe patterns are easily envisaged as altitude contours. Each fringe represents a 0.316 μ m change of spacing in the air gap between the specimen and the reference flat.

Convexity and concavity are determined by gentle finger pressure as if to close the air gap. Fringes always move away from the point of minimum air gap (i.e. area of roundness) and conversely towards the maximum air gap (i.e. area of hollowness).

As interferometry determines any departure from specimen flatness and requires some degree of tilt between specimen and reference flat to do this, it is necessary to compensate for any residual net tilt by visually minimising the fringe count. This ensures that the flatness measurement is as accurate as possible. Alternatively, a mathematical estimate of the best fitting plane may be subtracted from the interferogram, a function normally performed by computer.



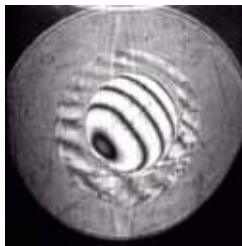
Example 1

Fringe pattern of a flat specimen. The linear fringes show that the sample is being presented to the optical reference surface of the interferometer at an angle.



Example 3

Fringe pattern of a flat specimen which is convex or concave, shown by the direction of fringe movement when the sample is touched. The annular fringe pattern indicates that the sample is being presented to the optical reference surface in a parallel plane.



Example 2

Fringe pattern of a specimen which is convex or concave, shown by the direction of movement when the sample is being presented to the optical reference surface at an angle.



Example 4

Fringe pattern of a sample with peaks and valleys. Again the annular fringe indicates that the sample is being presented to the optical reference surface in a parallel plane.

Note: the sample is not quite parallel to the mounting substrate and may require further processing.

Technical Specifications:

Height: 315mm

Depth: 320mm

Width: 215mm

Net Weight: 7.6kg

Power supply: 240/110V a.c. 50Hz

Maximum sample size: 102mm (4") Ø

Reference flat: Flatness of $\lambda/10$

Parallelism 20+/-5 min. of arc min. positive wedge

Fringe Spacing: 0.316µm

Accessories, Components & Consumables

A comprehensive range of accessories, components and consumables are available to support this system, enabling optimum results and longevity of the machine. For a more comprehensive listing please go to www.logitech.uk.com

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