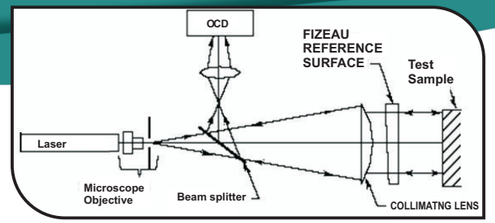
PRINCIPLE:



A laser source is spatially filtered via a microscope objective and a pin hole. The pin hole is located at the focal point of a collimating lens. The collimated beam encounters a slightly wedged glass plate The surface adjacent to the collimating lens is of good optical quality. However, the next surface is of exceptional optical quality, λ/10 peak to valley (PV) or better. This is the reference surface. A part of the collimated beam is reflected by this surface. And a part of the collimated beam continues on to interrogate the component being tested.

The return beam contains information on aberration introduced by the test surface. The two wave fronts recombine inside the interferometer.

The cube beam-splitter diverts the combined beam towards a recording medium, either film or a CCD. An intermediate lens forms an image of the test surface onto the recording plane.

The images so formed are called interference fringes. The shape of the light bands (fringes) represents the true profile of the surface under test.

With the help of Fringe analysis software the flatness of the test part could be quantified and report may be generated.

Applicaton

Ceramic Seals	Mechanical seals	Pump valves
Clutch plates	Gear Wheels (Flat-honed)	Auto Parts
Optical Flats	Optical Prisms	Semiconductor wafers

About us

Custom built manufacturer of Plano Optics: Prisms, Windows, Flats & Mirrors.
Pioneer in Prism production for high tolerances by Optical Contacting Technique in India
Capable to produce 5 mm to 300 mm Optics within 2 Arc seconds tolerances & upto λ/10 flatness.
In-house capabilities to offer coated Optics – Antireflection Coatings & Aluminum Reflective Coatings.

1991- Established Optics manufacturing facility.
1994- Developed Laser Fizeau Interferometer
1996- Established Optical Contacting technique for production of Prisms
2002- Developed Autocollimator/Angle Dekkor for Machine Tool Industry
2004- Manufacture of Monochromatic Light Source
2005- Manufacture of Michelson Interferometer
2005- Introduced double-side polishing machine for achieving < 1 sec parallelism.
2005- Developed Interference Autocollimator
2006- Participated in Hannover Fair, Germany.
2006- Incorporated Software evaluation to certify Flatness of Optical Flats
2007- Developed Alignment Autocollimator
2007- Participated in MTA Exhibition, Singapore
2008- Designed & Developed Optical Head for Alignment application

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Flatness Measurement

FIZEAU INTERFEROMETER

Technical mass products with flat surfaces specified to better than 0.1µm over a few cm are produced by millions per month.

The production processes are lapping & polishing – and, increasingly more often, micro-machining; 90% have diameters under 50mm.

ISO 9000 requires tight inspection often 100%

The most common tool for this is The Interferometer
An esteemed value to engineers as does the stethoscope for the medical practitioner.

Fizeau Interferometer Model FIM-100

Fizeau Autocollimator Model FAC-30, 60

Specifications

Orientation: Vertical
Clear Aperture: 95 mm
He-Ne Laser (633 nm): 1.0 mW
Reference Flat: λ/20
Work Table (Tilt Table) Dimension: 6” x 6”
1/3” CCD Camera
Spot alignment & Direct Fringe viewing
Dimensions: 350 (L) x 400 (W) x 670 (H)
Weight: 30 Kgs

Orientation: Vertical
Clear Aperture: 55 mm
Diode Laser (650 nm): < 3mW
Reference Flat: λ/10
Work Table (Tilt Table) Dimension: 4” x 4”
1/3” CCD Camera
Direct Fringe viewing
Dimensions: 300 (L) x 250 (W) x 550 (H)
Weight: 20 Kgs

Optional Accessories

Static Quick Fringe Analysis Software & Frame Grabber

PRISMS INDIA PRIVATE LIMITED