Optical flats

- Flatness measuring faces: 0.3 µm.
- Delivery in a case.

Item No.	Diameter mm	Thickness mm
Single optical flats, single face:		
909.201	30	15
907.903	45	15
909.202	50	20
907.904	60	20
909.204	75	20
Single optical flats, double face:		
907.905	45	15
909.203	50	20
907.906	60	20
909.205	75	20

How to use an optical flat

The surface to be tested should be clean and free from burrs. Prevent touching the measuring faces. Finger prints should be removed instantly in order to prevent them from being imprinted in the surface. Optical flats should always be kept clean and dry in their cases.

Interference fringes appear in monochromatic light when the optical flat is laid on and wiggled against the surface to be tested. The difference in height between adjacent fringes corresponds to an error in flatness of approx. 0.3 µm. A non-occurrence of interference fringes is most likely the result of dust particles between the surface to be tested and the optical flat.

In the event of a constant distance between the interference fringes, the angle between the measuring face of the optical flat and the surface to be tested is constant (fig. 1).

However, interference fringes do not usually have an even interspacing. When the fringes are close together the angle between the measuring face and the surface to be tested is large (fig. 2). In this case the surface to be tested is either convex (fig. 2) or concave (fig. 3). When putting pressure on the sides of the optical flat, the distance between the interference fringes at a convex surface will enlarge at the outer sides; angle α is decreasing. The deviation in flatness can be "measured" by counting the interference fringes.

The interference fringes do not usually have a straight and even pattern. Curved fringes are also an indication of an uneven surface. The extent of unevenness can, again, be obtained by counting the fringes.