Microscope comes with a full white light interferometer for non-destructive measurement

FRT MicroScope WLI is the new optical surface measuring system launched by Fries Research & Technology (FRT). Based on an optical microscope, it comes with a full white light interferometer for non-destructive measurement. This enables for quick and easy performing 3D measurements on a surface with very high vertical resolution. Especially it is a highlight for R & D departments and universities.

High-performance hard- and software
Easy to use, flexible and highly reliable - these are the characteristics of the new MicroScope WLI of FRT: An optical microscope with a 4-fold turret and a white light interferometer. The surface metrology system is small, compact and fast. Due to the economical price the MicroScope WLI is especially appropriate for R&D and universities and gives high quality information about roughness, step height, profiles or 3D structures.

Depending on the objective the interferometric measurements are performed with an extreme height resolution in accordance with a very good lateral resolution.

The MicroScope WLI has a motorized x,y-stage with a travel range of 100 mm x 100 mm. The axial measurement range is 400 µm. For maximum accuracy the 4-fold turret is equipped with a piezoelectric drive for the WLI objective. By a selection of objectives various spot sizes and resolutions can be realized. The metrology tool comes with a PC with the FRT Mark III software for profile and topography analysis, roughness, step height and a bunch of 2D and 3D filters and data evaluation. The average measurement time is only a few seconds.

In addition to the interferometer objectives still 3 standard microscope objectives may be mounted. This particularly responds to people who are usually working with optical microscopes, such as universities and biological laboratories, medical laboratories or similar.

White light interferometry (WLI) is a fast method to carry out 3D topographical measurements. It utilizes a light source with very small coherence length. With a beam splitter this light is separated into a reference beam (reflected at a reference mirror) and an object beam that strikes the surface to be measured.

The light reflected from both, the reference mirror and the measured object, is superposed. The resulting interference pattern gets captured by a camera. During the topography measurement, the objective is gradually moved in small steps into z-direction. At each position the camera takes an image. Then, all images are compiled into an image stack, which is used to obtain the 3D topography. Due to the small coherence length of the white light, the WLI characterizes reflective and rough surfaces as well as step heights with very good height resolution, which is typical for interferometric measurement approaches.

www.frt-gmbh.com [1]

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[1] http://www.frt-gmbh.com