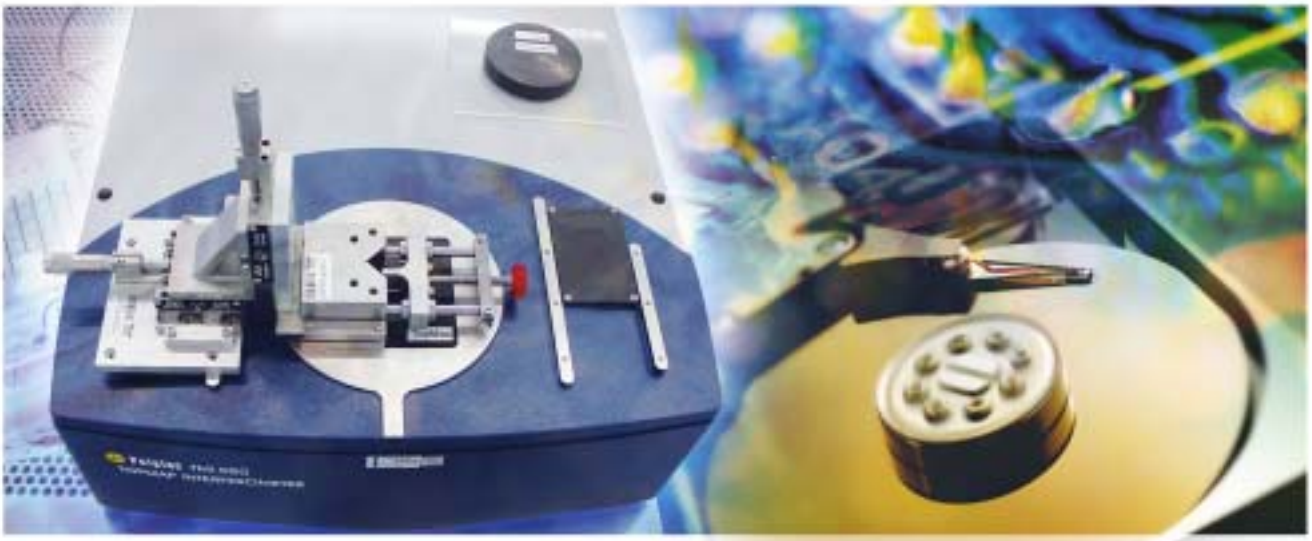
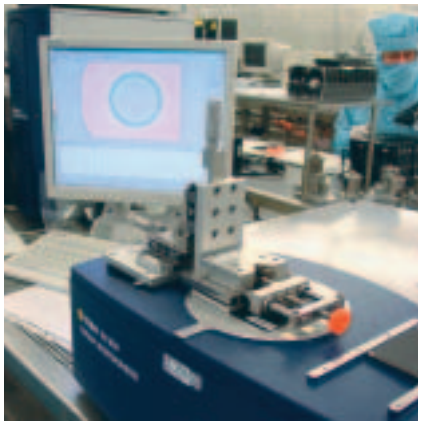
Surface Intact *with TopMap*



Non-destructive Quality Control for Hard Disk Components using the TopMap White Light Interferometer

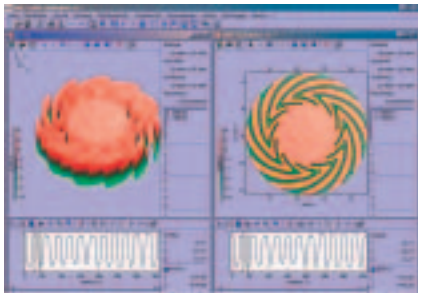
The classic contact stylus profilometer is not the best tool for measuring the surface topography of a component with a sensitive, high-quality surface finish since the stylus can damage the surface it is measuring, rendering the measurement and the component unusable. In contrast the TopMap scanning white light interferometer enables non-destructive topography and evenness measurements on surfaces up to 30 mm x 40 mm, with a vertical resolution of 10 nm.



PM°DM manufactures various components for hard disk drives such as bearing sleeves, shafts and disk hubs. Along with several other measurement techniques, PM°DM uses TopMap systems for quality control at its plants in Germany and Thailand. The quality of fluid dynamic bearings (FDB) which have appeared on the market in recent years as an alternative to ball bearings are of particular interest.

The sample shown in the figures is a grooved counter plate from an FDB positioned over the TopMap measurement area with the aid of a special mount. Once positioned, the TopMap can then determine the existing topography of the complex grooved surface with nanometer accuracy.

To measure the quality of the component, a cross-section along a circular line is analyzed for separation, width and depth of the steps. The results are visible in the lower part of the figure. This measurement benefits from the TopMap's telecentric imaging optics which measures the object with parallel light. In contrast to other measurement processes, this allows you to accurately test components with indentations, drill holes, steps and edges.



The TopMap white light interferometer has proven its value to PM°DM for their offline production quality control testing requirements. Their future plans include in-process, production line control with the TopCam system, an industrialized version of the TopMap technology designed for production process inspection.

CONTACT

Dipl. Ing. (FH) Martin Arnold
PM°DM Precision Motors
Deutsche Minebea GmbH
R&D - HDD Motor Technology
Auf Herdenen 10
D-78052 VS-Villingen
spindle@nmb-minebea.com

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