

# Vision spectra

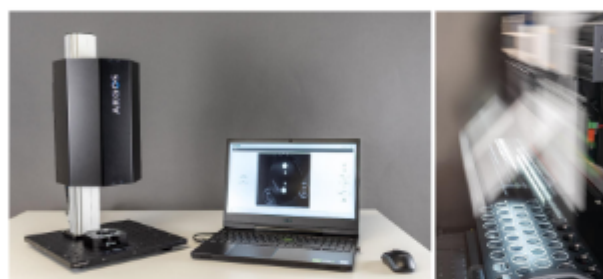
## WHITE PAPERS & APPLICATION NOTES

WHITE PAPER

DIOPTRIC

### AUTOMATED SCRATCH-DIG INSPECTION

Advantages of replacing manual-visual inspection



Worldwide a tendency can be observed to increase accuracy and quality of inspection of optical parts. More often than ever before, manufacturers explore computer-based inspection systems to gradually replace human inspectors. We describe how machine vision inspection systems can help to improve quality while reducing costs.

#### Inspection of optical surfaces: Man vs. Machine

Optical inspection of lenses and mirrors is traditionally done by human inspectors. This causes high cost and subjective inspection results and is incompatible with a highly efficient high-quality digital workflow. Also, ISO 10115-7 formulates complex criteria for a pass or fail, which are difficult or even impossible to keep in mind when observing defects on optical samples.

On the other hand, machine vision-based inspection systems, such as ARSOS by DIOPTRIC, can solve the task of highly reliable objective testing of optical surfaces according to ISO or MIL rules. These systems are typically

equipped with a dark field illumination unit and a high-resolution optical camera, generating high quality images of relevant defects. Ideally, the images taken within seconds are then used as a basis for a computerized analysis by machine learning algorithms. The data is strictly analyzed according to ISO 10115-7 or any other criteria given by the system owner.

#### The need for automated inspection systems

In a highly efficient cost-sensitive environment not only computerized testing is needed. Testing systems must also be semi or fully automated to reduce the cost of human interaction within the QC workflow even for

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## Automated Scratch-Dig Inspection - Advantages of Replacing Manual-visual Inspection

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