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ELECTRONIC AND SEMICONDUCTOR METROLOGY SOLUTIONS

For precisely manufactured components, and a fast, seamless production cycle.

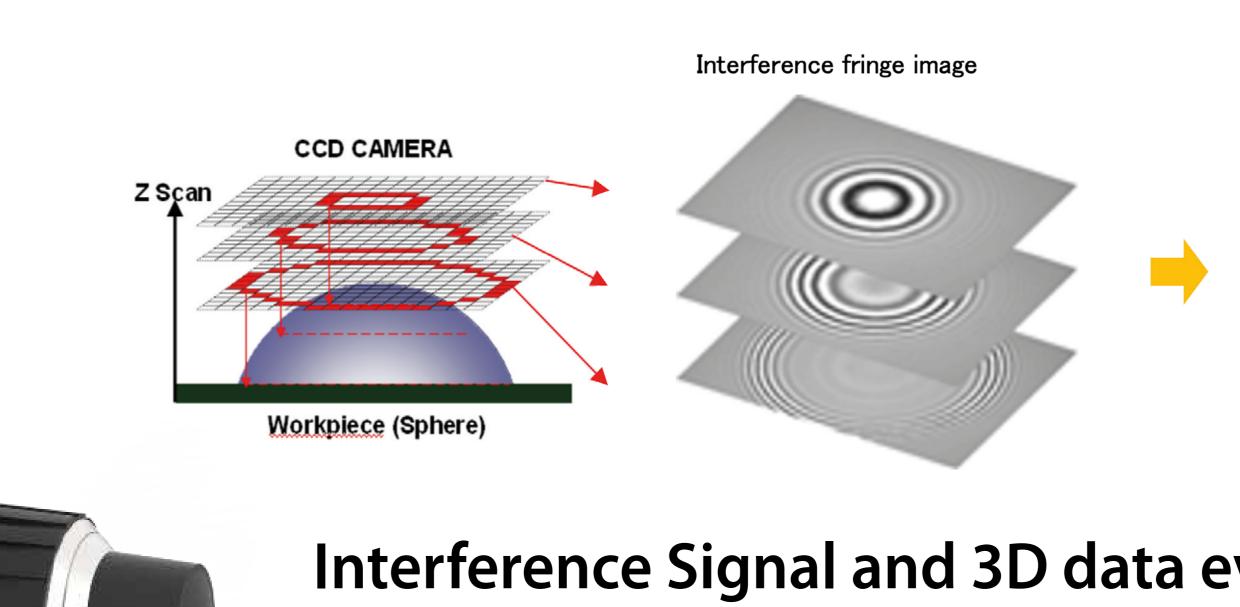
WHITE LIGHT INTERFEROMETRY FOR HIGHEST PRECISION 3D MEASUREMENTS

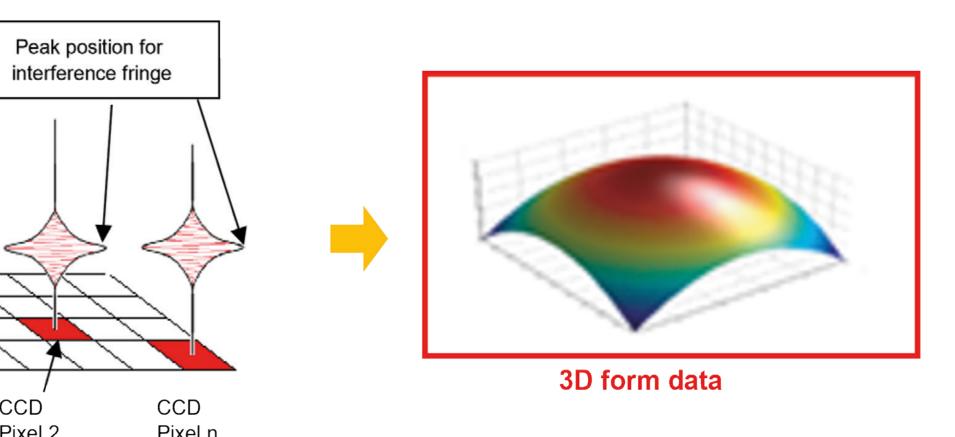
Author: Dr. Ralf Kruse / Michael Andessner

Principle White Light Interferometry (WLI) uses the interference signal of a broadband light source for highest accuracy, non-contact 3D measurements like for profile or roughness measurements down to a nanometer scale.



With new developed WLI objective lenses (magnification range 2.5x to 50x), the common technology of WLI is driven to its edge. The also new developed WLI Unit contains all necessary components including a Z-scanner for scan ranges up to several millimeters. Due to its compactness an easy integration of WLI measurement technology into production or measurement equipment is guaranteed.





Interference Signal and 3D data evaluation by WLI Unit with WLI Lens



New developed WLI Lenses from 2.5x to 50x magnification



Mitutoyo

HYPER

HYBRID

Advantages

WLI-UNIT

Contact-less, non-touching 3D profile measurements.
Highest repeatability down to nanometer scale.
Easy and stable optical adjustment due to patented principle.
Apochromatic aberration correction.
Large working distance.

Production boundaries and limits

Plus: + Short measurement time + Different magnifications by turret

Minus:
Vibration during measurement should be avoided.
Size of WLI-Unit to be considered if integrated into production or test environment.

Cost

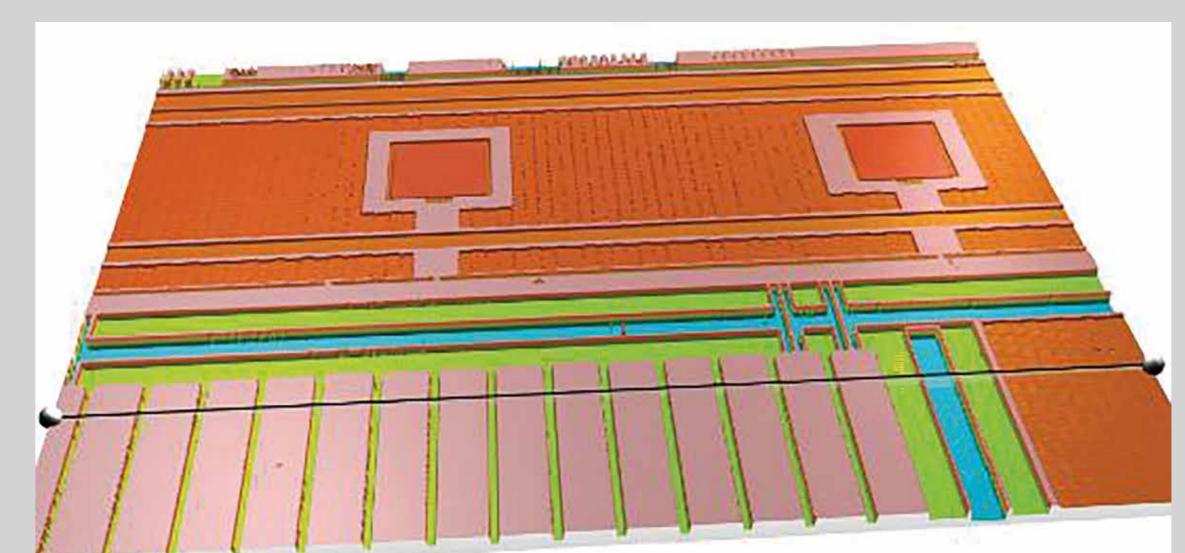
Starting from approx. 3000 € depending on quantity and magnification.
Fast surface measurement on a large area compared to point sensors or touch probes, therefore short ROI.



Disadvantages

Maximum field of view is 3x2.3mm. For larger areas stitching is possible.
Separate but powerful software for data analysis.

Examples



3D data presentation of micro-IC pattern. Structures with max height of 4 µm. Scanning time below 10 seconds.



Roughness standard sample with Ra 3 μm. SineCopper pattern on glass substrate. Copperstructure measured with highest accuracy incylinders with 10 μm height. Although



short time.

reflectance on glass and copper are very different, no problem to measure.

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Measuring delicate components requires microscopic accuracy, and Mitutoyo brings over 80 years of expertise in precise, reliable measurement. From micrometers and vision lasers with 0.1 micron resolution to bench-type non-contact CMMs, our electronics and semiconductor metrology equipment helps manufacturers ensure accurate production.

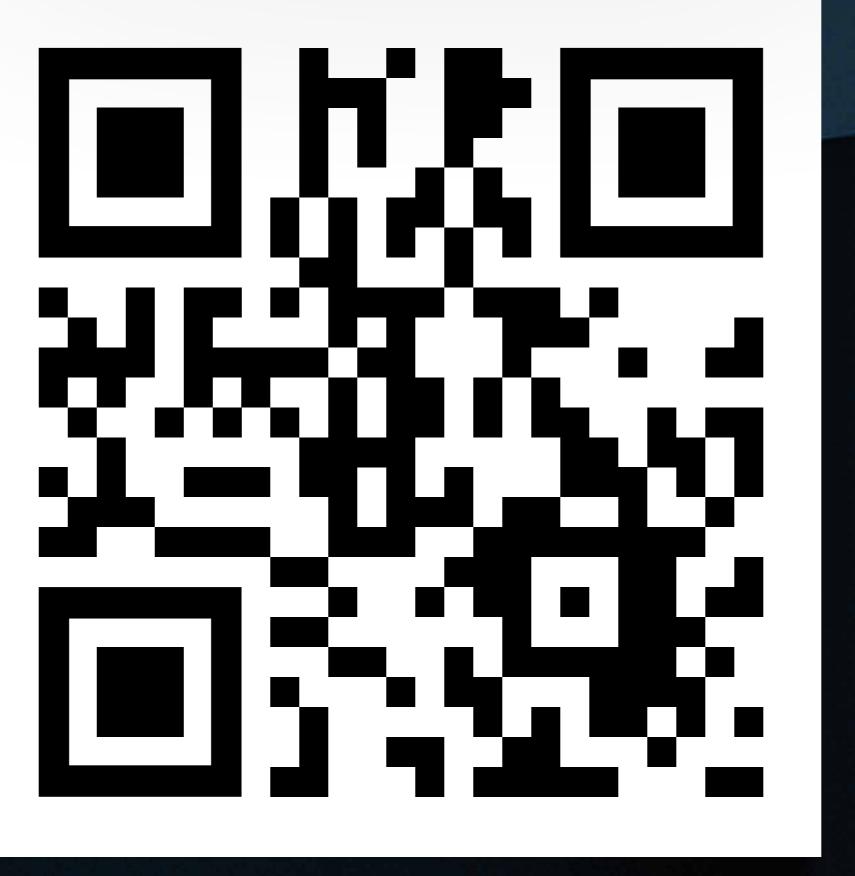
Delicate Components - Rapid Iterations

Mitutoyo delivers the metrology solutions needed to keep the electronics industry on track and within tolerances.

 High-res optical solutions with high-contrast images across a broad light spectrum

- Streamlined data acquisition to enable faster inspection speeds
- Non-contact and vision measurement for small or delicate components
 Advanced sensor scanning solutions to polarization microscopes with ultraviolet through near infrared capabilities
 Highly accurate, best-in-class vision systems for non-contact measurement applications

More information:



 High-resolution microscopes and profile projectors measure minuscule electronic components with high accuracy and repeatability

