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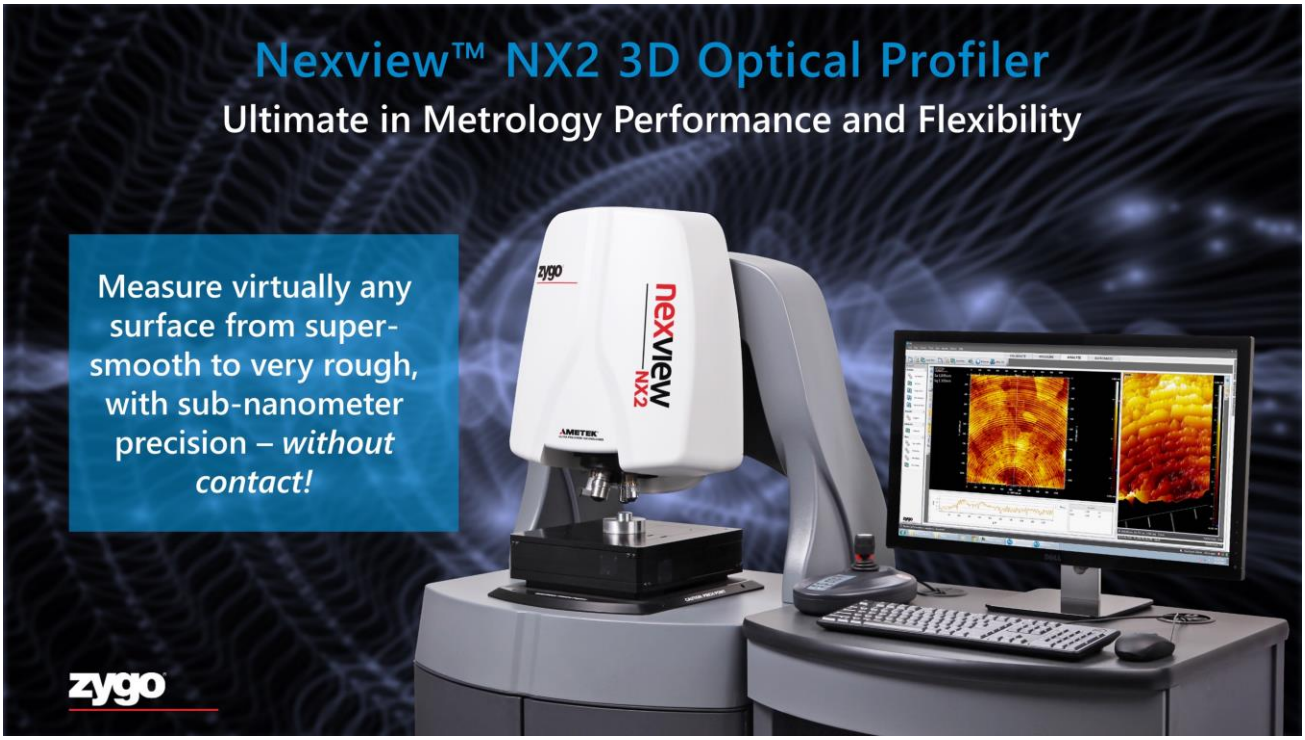
MANUFACTURING METROLOGY TEAM

Manufacturing Metrology Team – Instrument Data Sheet

Zygo NewView™ NX2 coherence scanning interferometer



Purpose

- Optical 3D measurement of surface form and texture

Working principle

- The Zygo NexView™ NX2 coherence scanning interferometer (CSI) is a 3D optical surface profiler and provides powerful versatility in non-contact optical surface profiling. All measurements are non-destructive, fast, and require no sample preparation. Advanced software tools characterize and quantify surface roughness, step heights, critical dimensions, and other topographical features, with excellent precision and accuracy.

Advantages

- Profile heights can range from less than 1 nm up to 20000 µm, at high speeds
- Sub-nanometre surface topography repeatability
- Measure a wide range of surface types, including smooth, rough, flat, sloped, and stepped

Limitations

- Measurement uncertainty of surface texture may increase for highly sloped and rough surfaces

Related research focus

- 3D modelling for CSI based on the foil model or the rigorous solution to surface scattering problem
- Calibration of the 3D surface-scattering transfer function
- Uncertainty evaluation for CSI and comparison with stylus instrument

Instrument Specifications

Objectives specifications				
Magnifications	1.4 ×	5.5 ×	20 ×	50 ×
Design	ZWF	Michelson	Mirau	Mirau
Numerical Aperture (NA)	0.04	0.15	0.4	0.55
Working Distance /mm	4.0	8.0	4.7	3.4
Optical resolution /µm	7.13	1.90	0.71	0.52
Field of view /mm (1x zoom)	6.00	1.50	0.43	0.17
Spatial sampling /µm (1x zoom)	6.00	1.50	0.43	0.17

Performance	
Vertical Scan Range	150 µm with precision Piezo drive; 20 mm with extended scan
Surface Topography Repeatability	0.12 nm
Repeatability of RMS	0.01 nm
Optical Lateral Resolution	0.34 µm (100× objective)
Spatial Sampling	0.04 µm (100× objective, 2× zoom)
Maximum Data Scan Speed	96 µm/s
Step Height Repeatability	0.1 %
Height Response Linearity	≤ 30 nm
Step Height Accuracy	0.3 %

For contract measurement enquiries, please contact:

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