Opticent | METROLOGY

HaloM400™

Revolutionizing metrology with high-resolution Optical Coherence Tomography (OCT).

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The Opticent HaloM400 is a standalone optical coherence tomography (OCT) imaging platform that delivers industry-leading spatial resolution. Utilizing an ultrawide illumination light within the visible-light spectral range, it achieves exceptional axial resolution. HaloM400 integrates seamlessly with commercial objective lenses from leading manufacturers, offering maximum flexibility across imaging requirements, including lateral resolution, imaging depth, field of view, and coupling medium. HaloM400 can be configured for operation on a stationary desktop platform, on a mobile cart, or integrated with customized production systems.

Leveraging Opticent's proprietary balanced detection and advanced data-processing technologies, HaloM400 delivers superior imaging quality across difficult samples, including optically transparent materials such as glass, quartz, ceramic, plastic, and thin coatings. It excels at quantitative analysis of, for example, critical dimensions, structural defects, laser modifications, and foreign inclusions.

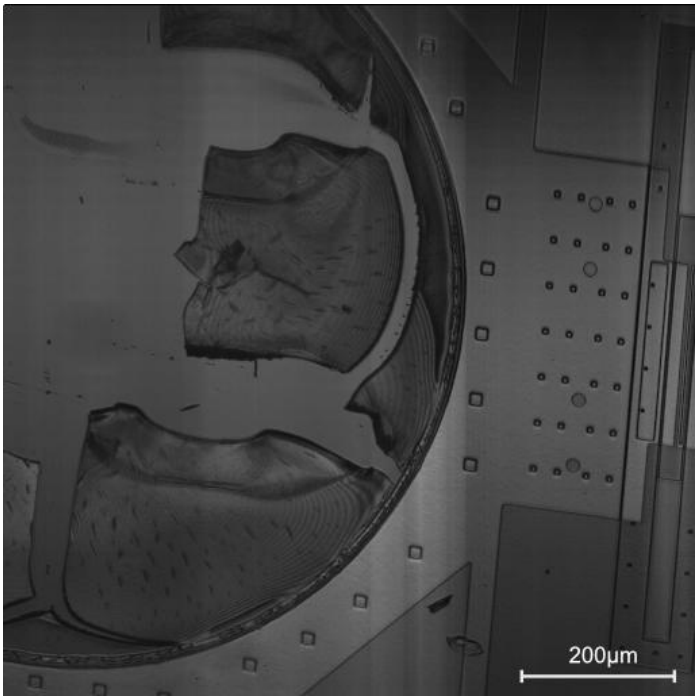


Figure 1. Fracture inspection of silicon die.

Common System Use Cases:

Ultra-high-resolution imaging of glass, quartz, ceramic, plastic, and other optically transparent samples

Thickness and critical dimension measurement of substrates, layers, and thin coatings

Coating uniformity and interface analysis

Detection and characterization of structural defects, laser modifications, and foreign inclusions

Subsurface inspection of transparent and semi-transparent materials

Inline integration with customized production systems

Microcrack and chip detection at wafer or panel edges

Glass-to-glass and glass-to-polymer bond line inspection

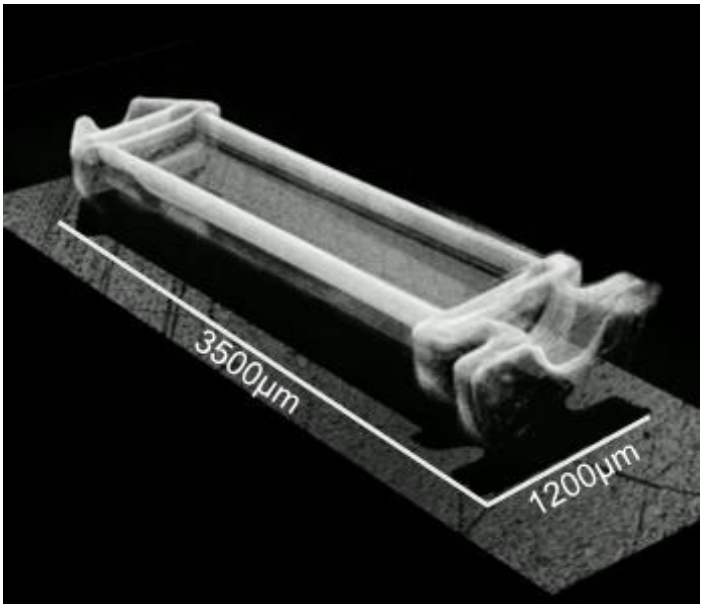


Figure 2. Volumetric visualization of additively manufactured (3D printed) micro devices and parts.



Figure 3. HaloM400 system enclosure and imaging platform (laser and computer not pictured).

HaloM400 System Specifications		
Operational bandwidth	510 nm - 615 nm	
Center wavelength	563 nm	
Axial resolution (FWHM)	1.8 µm in air, 1.2 µm in glass	
Depth of imaging	1.5 mm in air	
	10× water immersion objective lens	**4× objective lens**
Numerical aperture (NA)	0.3	0.1
Lateral resolution (FWHM)	1.2 µm	3.4 µm
Working distance	3.5 mm	18.5 mm
Field of view	2.6 mm in diameter	5.5 mm in diameter
Depth of focus	4 µm	28 µm
Maximum A-line rate	80 kHz, 125 kHz, or 250 kHz	
Imaging mode	Cross-sectional and volumetric imaging, spectral reduction, dynamic contrast, motion contrast, continuous imaging	
Imaging platform dimensions	55 cm x 35 cm x 35 cm	
System enclosure dimensions	62.4 cm x 55.8 cm x 14.9 cm	
Laser requirement (not shown)	Hamamatsu SuperK (default) or supercontinuum lasers from other manufacturers	

For further inquiries, sales information, or technical questions, please contact Opticent at info@opticenthealth.com.