OPTIMET
optical metrology

ConoProbe Mark 3.0

Distance & 3D Non-Contact Measurement Sensor

Conoscopic Holography Technology

- 3D Measurement of complex geometries, with angle coverage up to 85°
- Co-linear technology for blind holes measurement
- In process inspection
- Interchangeable objective lenses from 16 to 250 mm

www.optimet.com

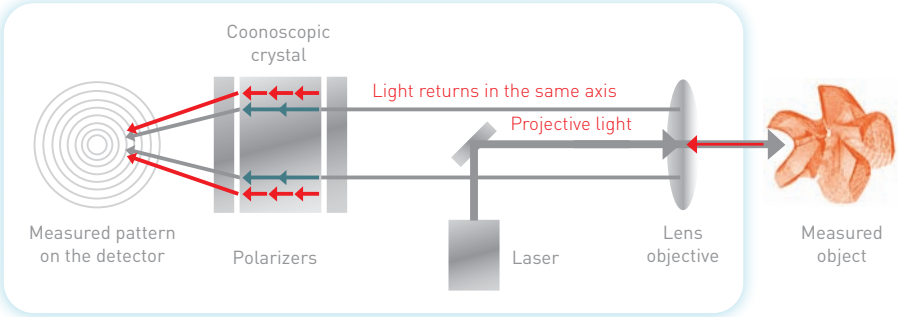
Conoprobe Mark 3.0

The ConoProbe is a robust optical sensor for high precision distance, 2D profiles and 3D measurements. Based on conoscopic holography technology, the ConoProbe is a collinear sensor with a wide range of object coverage using interchangeable objective lenses between 16-250 mm.

Over 70 OEM's worldwide actively use the ConoProbe in a large variety of industrial applications.

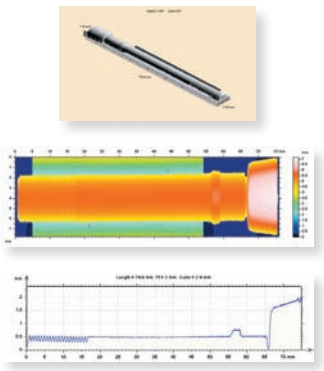
Optimet's Technology - Conoscopic Holography

Conoscopic Holography technology uses the behaviour of light in optical crystals for 3D measurements. The large amount of information received from each measurement enables very accurate measurements of steep slopes, difficult geometries and materials. The co-linearity - light that is projected and returned in the same axis - allows measurement of holes and concave geometries.

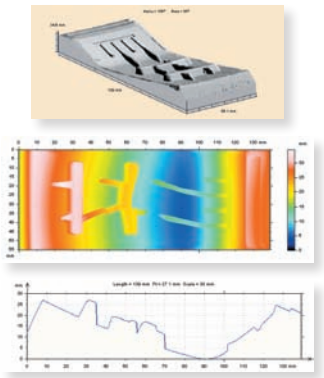


3D Measurement Applications

Quality Control

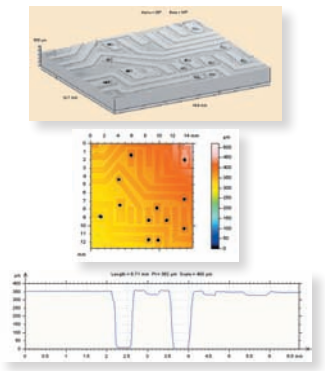


Orthopedic screw

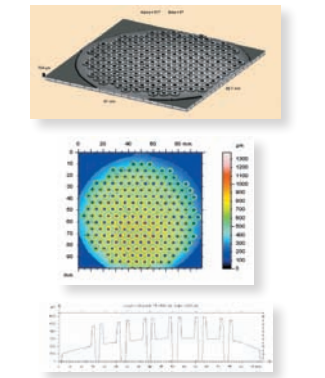


Tire Mould

In-Process Inspection

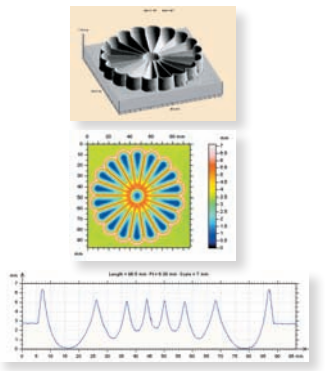


PC Board

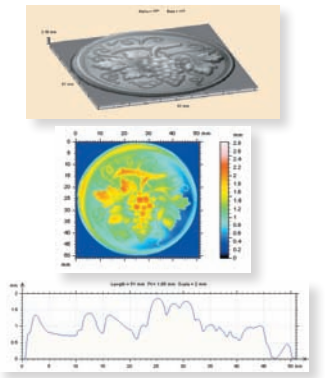


Vacuum plate

Reverse Engineering



Jewelry



Mint

ConoProbe Mark 3.0 Accessories

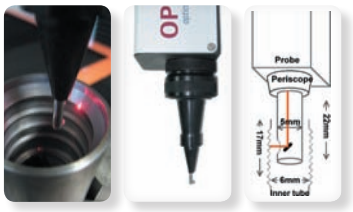
Optimet offers a variety of objective lenses, optical accessories and integrative capabilities, enabling integration of the ConoProbe Mark 3.0 in a wide range of 3D measurment applications and systems.

Interchangeable Objective Lenses

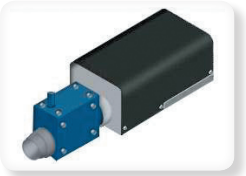
	P/N 3Z83016	STANDARD	**16mm lens:** Microscope lens. High numeric aperture. High precision lens.
	P/N 3Z83025	STANDARD	**25mm lens:** Popular for small feature scan in reverse engineering applications.
	P/N 3Z81030	STANDARD	**25mm Gold lens:** Distortion free aspheric lens.
	P/N 3Z83040	STANDARD	**40mm lens:** For high precision and long standoff applications.
	P/N 3Z81050	STANDARD	**50mm lens:** Very popular in precise reverse engineering applications.
	P/N 3Z81075	STANDARD	**75mm lens:** Very popular in reverse engineering applications and in-process inspection inside holes.
	P/N 3Z81100	STANDARD	**100mm lens:** Popular for wood industrial applications.
	P/N 3Z82006	STANDARD	**150mm lens**: Large working range.
	P/N 3Z82007	STANDARD	**200mm lens:** Very large working range for large object reconstruction as in shoe lasts.
	P/N 3Z82008	STANDARD	**250mm lens:** Very large range coverage for free form objects.
	P/N 3Z83050E	STANDARD	**50mm Extended Lens:** Best for small turbine blades.
	P/N 3Z83075E	STANDARD	**75mm Extended Lens:** High precision lens for long standoff measurement of turbine blades.
	P/N 3Z83125E	STANDARD	**125mm Extended Lens:** For deep object measurement - for avoiding collisions.
	P/N 3Z84016	HD	**16mm Lens:** For small feature recognition.
	P/N 3Z81025	HD	**25mm Lens:** For high precision measurement of sharp contours on shiny surfaces.
	P/N 3Z81030	HD	**25mm Gold Lens:** Distortion free aspheric lens.
	P/N 3Z83040	HD	**40mm Lens:** For automotive QC engine applications.
	P/N 3Z81050T	HD	**50T Lens:** High definition lens.
	P/N 3Z83050E	HD	**50mm Extended Lens:** Best for small turbine blades.

Periscope, Video Camera and Accessories

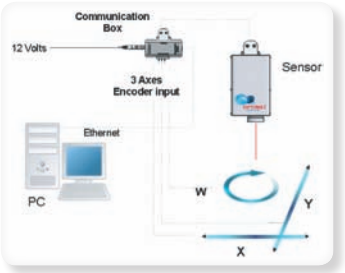
Ruby 75/100 Periscope
unique solution for small holes with restricted access and internal threads measurement.



Video Camera
A special video camera mounted on the sensor through which a video picture of the object and the sensor's laser spot are viewed.



OPS
Position Synchronization - a special firmware module embedded in the sensor's electronics which records encoders output and synchronizes the accurate position of up to 3 system axis together with the sensor measurements.



Optimet's measurement technology - Unique Capabilities

Resolution & Reproducibility - Optimet technology enables high resolution and reproducibility over a wide working range (0.0125% of the working range).

Versatility & Robustness - Optimet technology adapts to different surfaces and materials ranging from highly reflective, up to N6 (rugo), partially translucid, diffusive to roughly textured surfaces with no need for spraying or resurfacing.

Grazing Incidence Measurement - Optimet technology measures angles very close to normal incidence up to ±85°. This unique capability permits the reproduction of difficult geometry maintaining Cartesian coordinates system and very high precision.

Deep Holes and grooves Measurement - Optimet co-linear technology allows deep holes, up to 1:10 diameter/depth, narrow slots, grooves and blind-holes.

ConoProbe Mark 3.0

Distance & 3D non-contact OEM measurement sensor

Based on Conoscopic Holography

Sensor Options

		ConoProbe HD				ConoProbe										
Objective Lens Type	mm	16 HD	25 HD	40HD	50 HD	16	25	40	50	50ext	75	100	125ext	150	200	250
Working range	mm	0.2	0.6	1.4	2	0.6	1.8	4	8	8	18	35	45	70	125	180
Standoff	mm	11	14	43	40	9	15	45	42	85	65	90	240	140	185	245
Precision	µm	0.5	1	2	2.5	2	3	4	6	6	10	15	20	35	70	100
Repeatability 3σ	µm	0.1	0.2	0.4	0.5	0.15	0.4	0.6	1	1	3	4	8	15	25	35
Min lateral resolution (scan step)	µm	1	1	1.5	2	5	12	14	15	20	25	35	50	50	72	94
Laser spot size	µm	3.5	6	10	15	16	18	25	26	28	35	43	55	60	84	107
Angular coverage	deg	150	150	150	170	150	150	170	170	170	170	170	170	170	170	170

Communication & Data Handling

Communication		Ethernet 10/100 UDP, USB optional.
Measurement rate	Hz	3000
Output		(i) Digital Z (distance) (ii) synchronized system encoder readings (iii) SNR (iv) Total (vi) in/out of range (vii) tag.
Control signals		ROG - output, External trigger - input, Analog output ±5 V, OPS (Position Synchronization).
Pre-configuration		Optional pre-configuration of sensor measurement parameters embadded in the sensor.
Software		Smart 32 DLL SDK, Sample Applications, Documentation, C++, C SHARP

General

Working temperature	°C	18 to 35
Laser safety (FDA)		Class II (<1mw) - eye safe visible laser diode 655 nm
Voltage supply		12 V DC - 0.5 Amp
Dimensions (L x W x H)	mm	167 x 79 x 57
Weight	gr	700

CE

About Optimet

Optimet provides state-of-the-art 3D measurement sensors and systems with up to sub-micron precision. Optimet products are based on patented Conoscopic holography technology together with additional sophisticated technologies and patent portfolio. Thousands of systems are being actively used by Optimet customers around the world in Inspection & Metrology of Automotive & Aerospace components, LCD/PDP production, Steel inspection and more. Optimet provides the most innovative and precise 3D scanners for the Digital Dental CAD/CAM market. Optimet is a member of Ophir Optronics Group, a world leader in electro-optics products.

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