IF-SENSORR25

HOW TO ACHIEVE STABLE 3D MEASUREMENT IN PRODUCTION

THE SYSTEM

Optical 3D measurement sensor

IF-SensorR25 is a solid optical 3D measurement instrument for automated form and roughness measurement in production. The sensor is integrated into a production line and delivers high resolution, repeatable and traceable results when measuring surface characteristics in the µm or sub-µm range. This resolution can hardly be achieved by conventional 2D solutions or tactile techniques.

THE BENEFITS

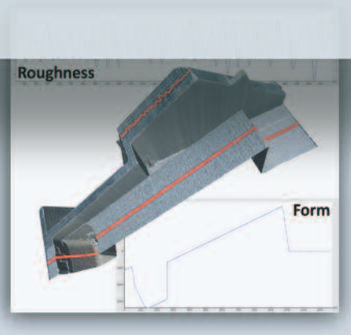
A measurement procedure from development to production

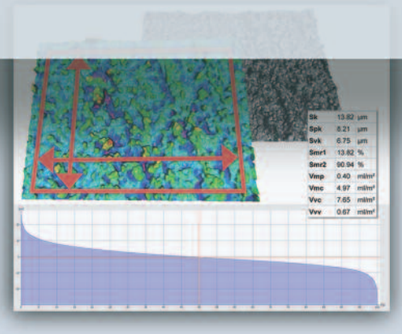
The robust technology of Focus-Variation delivers high resolution results with high repeatability in research and production. Therefore IF-SensorR25 is a platform that enables the use of the same measurement process both in-line and in the lab. Standardized interfaces (QDAS) support an easy and quick integration into production allowing comparable in-line and lab measurements.

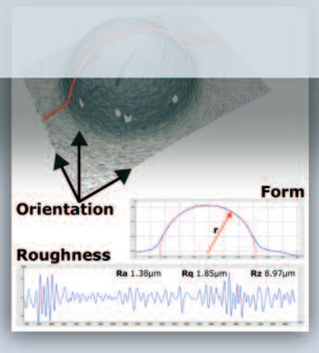
THE APPLICATION

Measurement of surface quality and finest form tolerances

IF-SensorR25 is a measurement system for quality assurance in serial production. It is suitable for numerous materials including composite materials. The modular design allows arbitrary extensions of hard- and software for new and/or complex measurement tasks. In the field of EDM, the sensor can be implemented directly in a Makino machining center to perform in-machine measurement. This “closed loop manufacturing” production concept enables 3D measurement of components directly in the machine, enabling up to a fourfold increase in machining accuracy.







GENERAL SPECIFICATION

Travel range Z	*26 mm (motorized)*
Illumination	*LED ring light with 24 segments*
Weight	*4 kg*
Dimensions	*126 mm x 153 mm x 202 mm (W x D x H)*

OBJECTIVES

		10x	20x	50x	2x SX	5x SX	10x SX	20x SX	50x SX
Sampling distance	*µm*	*1*	*0.5*	*0.2*	*5*	*2*	*1*	*0.5*	*0.2*
Min. repeatability (vertical)	*nm*	*40*	*20*	*10*	*1240*	*180*	*45*	*25*	*15*
Max. scan height (approx.)	*mm*	*16*	*12*	*9*	*25*	*25*	*25*	*19*	*12*
Best vertical resolution	*nm*	*100*	*50*	*20*	*3500*	*510*	*130*	*70*	*45*
Working distance	*mm*	*17.5*	*13*	*10.1*	*34*	*34*	*33.5*	*20*	*13*
Measurement field X x Y	*mm*	*2 x 2*	*1 x 1*	*0.4 x 0.4*	*10 x 10*	*4 x 4*	*2 x 2*	*1 x 1*	*0.4 x 0.4*

RANGE OF RESOLUTION AND APPLICATIONS

		10x	20x	50x	2x SX	5x SX	10x SX	20x SX	50x SX
Min. measurable radius	*µm*	*5*	*3*	*2*	*20*	*10*	*5*	*3*	*2*
Min. measurable wedge angle	*°*	*20*	*20*	*20*	*20*	*20*	*20*	*20*	*20*
Min. measurable roughness (Ra)	*nm*	*300*	*150*	*80*	*-*	*-*	*450*	*250*	*150*
Min. measurable roughness (Sa)	*nm*	*150*	*75*	*50*	*-*	*-*	*250*	*100*	*80*
Max. measurable slope angle	*°*	*up to 87*							

SOFTWARE

Measurement modules	*Standard: 3D data capturing; Automation; Remoting; AliconaInspect (3D inspection software including GD&T)*
	Optional: Profile form, profile roughness (Ra, Rq, Rz...), surface texture (Sa, Sq, Sz...), volume, 2D; automatic multi-measurement; fusion; form/contour/difference; various application specific measurement modules; Edge Measurement Package (edge radius/form/contour; edge break measurement; chipping/roughness; difference measurement; flash measurement); AliconaInspectProfessional (macros for GD&T)
Automation	*Integrated 3D Script Editor, Labview Framework and Remoting*
Import/Export	*Standard: 3D data sets (e.g. AL3D, STL, G3D, IGES, STP); common image formats (e.g. BMP, JPG, PNG); simple export of results (CSV, 2D, 3D, QDAS export) and reporting functionalities*
	Optional: AliconaInspectProfessional (CATIA, UG, Pro/E)
Languages	*German, English, French, Japanese, Chinese*

MEASUREMENT OBJECT

Surface texture	*Surface topography Ra above 9 nm with Lc 2 µm, dependent on surface structure*
Sample preparation	*none*