

INFINITEFOCUS SL

AS FAST AND INTUITIVE AS 3D SURFACE MEASUREMENT CAN BE

alicona

THE SYSTEM

Traceable 3D measurement with color images

InfiniteFocusSL is a cost efficient optical 3D profile measurement system for easy, fast and traceable 3D measurement of form and finish on micro structured surfaces. Users are able to measure form and roughness of components with only one system. In addition, color images with high contrast and depth of focus are achieved. The robust frame and the intelligent illumination technology provide fast and high resolution measurement in the laboratory and a production near environment.

THE BENEFITS

Cost efficient, fast and intuitive

InfiniteFocusSL is particularly attractive due to its cost effectiveness, measurement speed and usability. The long working distance of up to 33 mm in combination with the above average measurement field of 50 mm x 50 mm allows a wide range of applications. Measurements are achieved within seconds, and features, such as a coaxial laser for quick and easy focusing enhance its usability.

THE APPLICATIONS

Robust design for universal use

Applications range from cutting edge measurement in tool industry to quality assurance and surface finish measurement of micro components and features on surfaces. InfiniteFocusSL is used in the automotive, aerospace, mold and medical device industries. Users also measure difficult to access surface positions including steep flanks or the roughness on, for example, the tooth root of a gear.



GENERAL SPECIFICATION

Travel range X/Y	50 mm x 50 mm (motorized)
Travel range Z	130 mm (26 mm motorized)
Illumination	LED ring light with 24 segments
Weight	15 kg
Dimensions	195 mm x 316 mm x 418 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
Best vertical resolution	nm	100	50	20	3500	510	130	70	45
Max. scan height (approx.)	mm	16	12	9	25	25	25	19	12
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
Max. extended field of view	mm ²	2500	2500	1100	2500	2500	2500	2500	1100
Max. uni-directional measurement	mm	50	50	50	50	50	50	50	50

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							

ACCURACY

Profile roughness	Ra = 500 nm	U = 40 nm, σ = 2 nm
Areal roughness	Sa = 500 nm	U = 30 nm, σ = 2 nm
Flatness	2 mm x 2 mm, 10x objective	U = 0.1 μm
Height measurement	z = 1000 μm	E _{Uni:St:ODS,MPE} = 1000 nm, σ = 0.1 μm
	z = 100 μm	E _{Uni:St:ODS,MPE} = 400 nm, σ = 0.05 μm
	z = 10 μm	E _{Uni:St:ODS,MPE} = 300 nm, σ = 0.025 μm
	z = 1 μm	E _{Uni:St:ODS,MPE} = 150 nm, σ = 0.01 μm
Distance measurement	xy up to 2 mm (10x objective)	E _{Bi:Tr:ODS,MPE} = 0.8 μm

E_{Uni:St:ODS,MPE} & E_{Bi:Tr:ODS,MPE} conform to ISO 10360-8

SOFTWARE

Measurement modules	Standard: 3D data capturing, profile form, profile roughness (Ra, Rq, Rz...), surface texture (Sa, Sq, Sz...), volume, 2D, automation; AliconalInspect (3D surface inspection including GD&T)
	Optional: 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); AliconalInspectProfessional (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: AliconalInspectProfessional (CATIA, UG, Pro/E)
Languages	German, English, French, Japanese, Chinese

MEASUREMENT OBJECT

Texture	Surface topography Ra above 9 nm with Lc 2 μm, dependent on surface structure
Max. height	155 mm
Max. weight	4 kg
Sample preparation	none

