Measure form and roughness

with only one optical sensor

G6

InfiniteFocus

This is the new generation!

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Trusted Innovation

Groundbreaking user experience

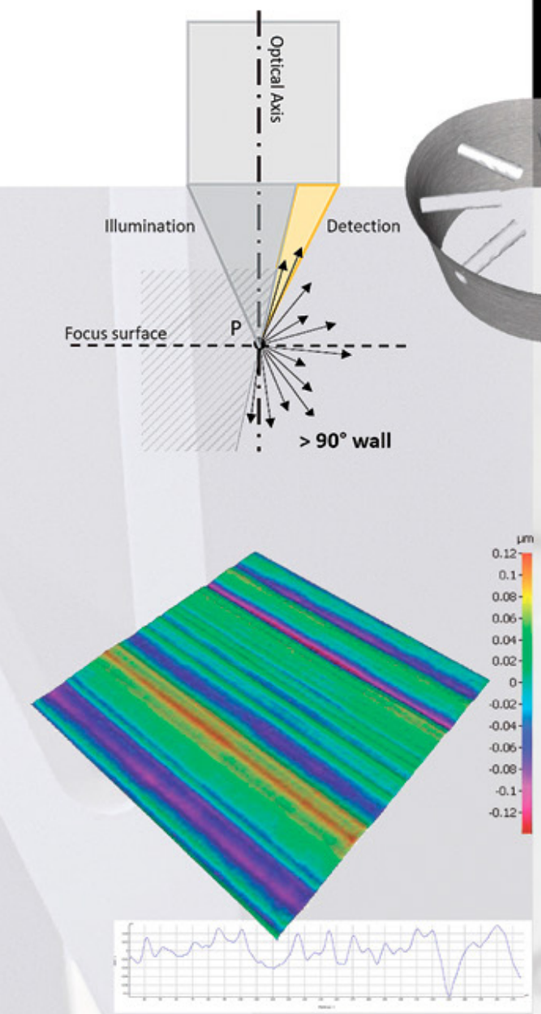
Unrivaled measurement performance

Smart design

Future-proof technologies

Measure form and roughness with only one optical sensor

InfiniteFocusG6 is an accurate, fast and universal optical 3D measuring instrument for tolerances in the µm and sub-µm range. Components are measured areal based, in high-resolution regardless of size, material, geometry, weight, and surface finish. Our new 6th generation of InfiniteFocus offers several proven features and new innovations, combining the functionalities of a surface roughness measurement device (Ra, Rq, Rz/Sa, Sq, Sz) with the features of a coordinate measuring machine. Users measure form and roughness with only one optical sensor.



Ra =24 nm, error: 2nm

Unrivaled measurement performance

A number of factors determine the quality and reliability of measurements. InfiniteFocus stands for:

Groundbreaking user experience

InfiniteFocus is made for users, focusing on their requirements. It is all about speed, ease of use and efficient workflows.

- Fast axes and innovative optics with modern algorithms ensure short measurement times.
- The MetMaX software sets new standards in usability. Users specify measurements already on the CAD model of a component. A digital twin combined with a virtual measurement simulation enables safe operation of the measuring instrument.
- Single-button solutions and automated measurement sequences ensure efficient workflows and measurements without user interaction.

AdvFV (SF 2.0) VFP Real3D

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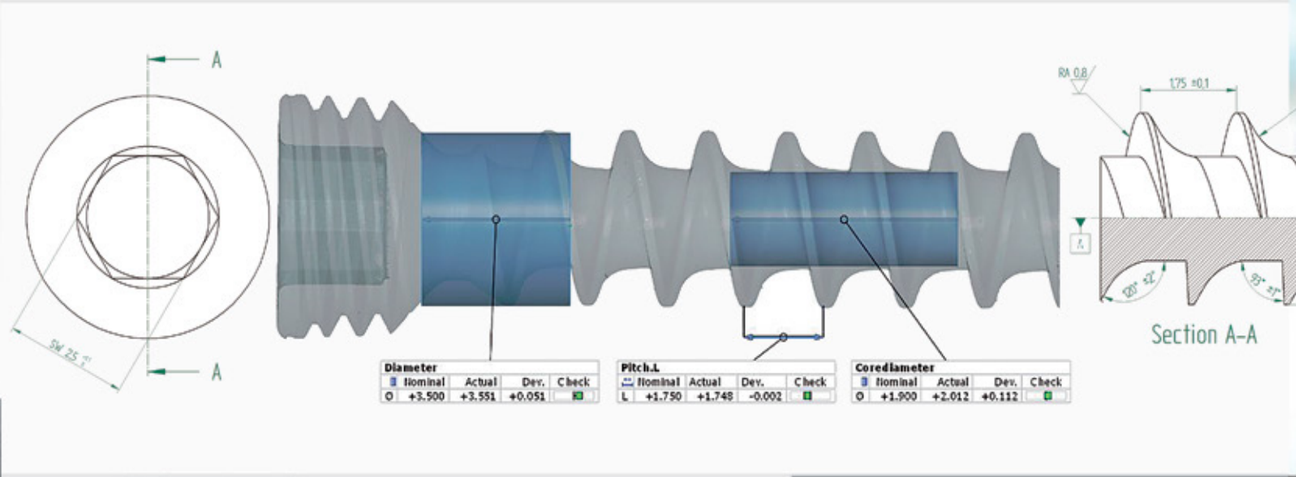
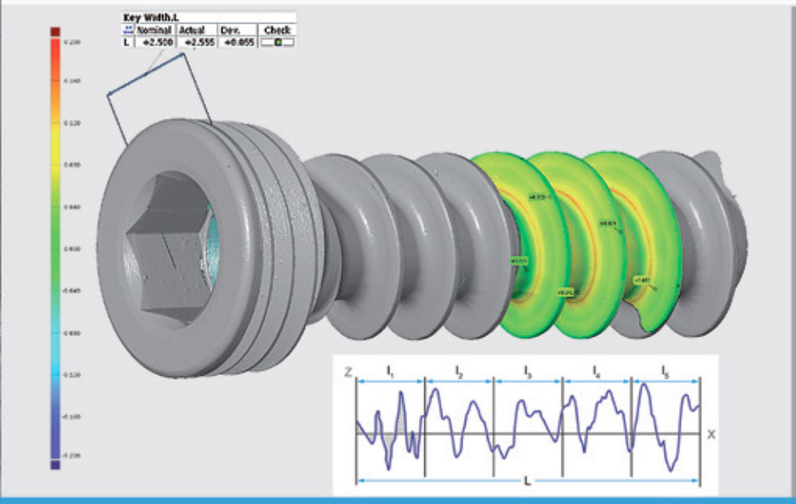
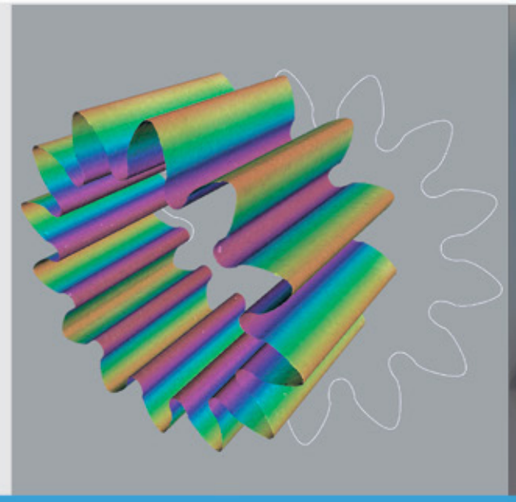
Future-proof technologies

Combining 3 technologies, the optical sensor sets new accuracy standards.

- Advanced Focus-Variation combines the functionalities of a roughness measuring instrument and a coordinate measuring machine. Users measure workpieces with steep flanks, varying reflections and structured roughness. The integrated SmartFlash technology ensures high-resolution measurements of smooth, reflective and highly polished surfaces.
- Real3D is the key for 360° measurement of complex micro geometries. Based on single measurements from different directions, users obtain a complete 3D data set.
- Vertical Focus Probing enables the optical lateral probing of components. Users measure holes and vertical flanks (>90°).



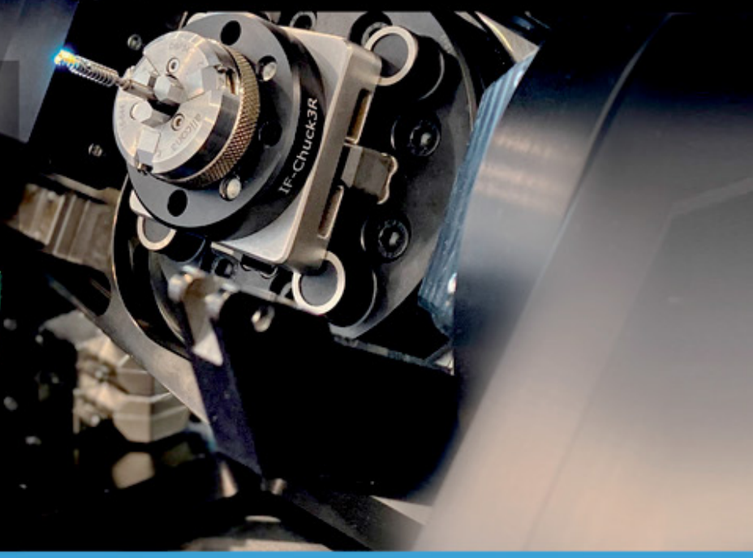




Smart design

Thanks to its architecture, the measurement system offers high flexibility for operators. InfiniteFocus measures a wide range of components with only one sensor.

- Components are measured regardless of size, material, geometry, weight and surface finish. This is, amongst others, enabled by a large measurement volume.
- The expansion from 3 to 5 axes allows measurements of geometries that are otherwise difficult or impossible to access. High-precision tilting and rotating axes enable the measurement of GD&T and roughness parameters on the entire object.
- InfiniteFocus is ideal for manufacturing. The robust Focus-Variation technology and the vibration-insensitive design ensure high-resolution and repeatable results, even directly next to the machine tool.
- Modern manufacturing strategies further benefit from automation solutions, interconnectivity with production machines, IT systems and integrated closed-loop processes.



InfiniteFocus G6

Fair Data Sheet
Initiative
Specifications in blue mark Alicona specific values.

GENERAL SPECIFICATIONS

Measurement principle	Non-contact, optical, three-dimensional Technologies: • Advanced Focus-Variation (SmartFlash 2.0) • Vertical Focus Probing • Real3D
Number of measurement points	Single measurement: X: 2160, Y: 2160, X x Y: 4.6 million ImageField: up to 500 million
Positioning volume (X x Y x Z)	200 mm x 200 mm x 180 mm = 7 200 000 mm³
Positioning volume (R x T)	AdvancedReal3DUnit (optional): Motorized rotation: 360° / Motorized tilt: - 15° to + 90°
Coaxial illumination	LED coaxial illumination (color), high-power, electronically controllable; optional wireless white LED ring light illumination
System monitoring	Automatic self-diagnosis due to temperature sensors, internal current and voltage monitoring
ControlServerSF	6 Core, 32 GB DDR4, SSD 512GB, Windows 10 IoT Enterprise 64bit, 2 x 27" Full HD LED Monitor

MEASUREMENT OBJECT

Surface texture	Any surface, including polished metals; no preparation required
Max. sample dimensions	Height: up to 315 mm; more on request / Weight: up to 30 kg; more on request; 5-axes max. sample weight: 4 kg
Max. measurable slope angle	Advanced Focus-Variation: 87° / Vertical Focus Probing: > 90°

OBJECTIVE SPECIFIC FEATURES

Objective name (1)		**3000 WD8**	**1900 WD30**	**800 WD37 (2)**	**800 WD17**	**400 WD30 (2)**	**400 WD19**	**150 WD11**	**80 WD4**
Working distance	mm	8.8	30	37	17.5	30	19	11	4.5
Lateral measurement range (X,Y)	mm	5.3	3.8	1.6	1.6	0.8	0.8	0.3	0.16
Measurement point distance	µm	2.88	1.77	0.72	0.72	0.36	0.36	0.14	0.07
Measurement noise	nm	800	80	40	15	20	5	2	1
Vertical resolution	nm	2300	250	130	50	80	30	15	10

(1) Objectives with longer working distance available upon request. (2) Objective available in special objective configuration.

RESOLUTION AND APPLICATION SPECIFICATIONS

Objective name		**3000 WD8**	**1900 WD30**	**800 WD37**	**800 WD17**	**400 WD30**	**400 WD19**	**150 WD11**	**80 WD4**
Min. measurable roughness (Ra)	µm	n.a.	n.a.	0.7	0.18	0.24	0.12	0.05	0.03
Min. measurable roughness (Sa)	µm	n.a.	n.a.	0.35	0.09	0.12	0.06	0.025	0.015
Min. measurable radius	µm	20	12	5	5	3	3	2	1

ACCURACY (3)

Flatness deviation	1.5 mm x 1.5 mm with 800 WD17 objective	U = 0.1 µm
Max. deviation of a height step measurement	Height step 10000µm Height step 1000µm Height step 100µm Height step 10µm Height step 1µm	$E_{UniZ: St: ODS, MPE}$ = 0.8 µm, σ = 0.4 µm $E_{UniZ: St: ODS, MPE}$ = 0.5 µm, σ = 0.1 µm $E_{UniZ: St: ODS, MPE}$ = 0.4 µm, σ = 0.05 µm $E_{UniZ: St: ODS, MPE}$ = 0.3 µm, σ = 0.025 µm $E_{UniZ: St: ODS, MPE}$ = 0.15 µm, σ = 0.01 µm
Profile roughness	Ra = 0.1 µm Ra = 0.5 µm	U = 0.025 µm, σ = 0.002 µm U = 0.04 µm, σ = 0.002 µm
Area roughness	Sa = 0.1 µm Sa = 0.5 µm	U = 0.02 µm, σ = 0.002 µm U = 0.03 µm, σ = 0.002 µm
Distance measurement	XY up to 1 mm XY up to 10 mm XY up to 20 mm MultiMeasurement XY	$E_{UniXY: Tr: ODS, MPE}$ = 0.7 µm $E_{UniXY: Tr: ODS, MPE}$ = 1.0 µm $E_{UniXY: Tr: ODS, MPE}$ = 2.0 µm $E_{UniXY: Tr: ODS, MPE}$ = 3.2+L/100 (4)
Wedge angle	β = 70° - 110°	U = 0.15° , σ = 0.02°
Edge radius	R = 5 µm - 20 µm R > 20 µm	U = 1.5 µm, σ = 0.15 µm U = 2 µm, σ = 0.3 µm

(3) E_{Uni} and E_{Bi} based on ISO 10360-8. (4) Measurement at reference temperature of 22°C +/- 0.5K and with reference weight of 15kg +/- 5kg.

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Alicona Imaging GmbH, Dr.-Auner-Straße 19, 8074 Raaba/Austria, phone: +43 316 403010 700, sales.alicona@bruker.com

www.alicona.com

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