

Quick guide



MOBILE MEASUREMENT

IF  PORTABLE

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The System.

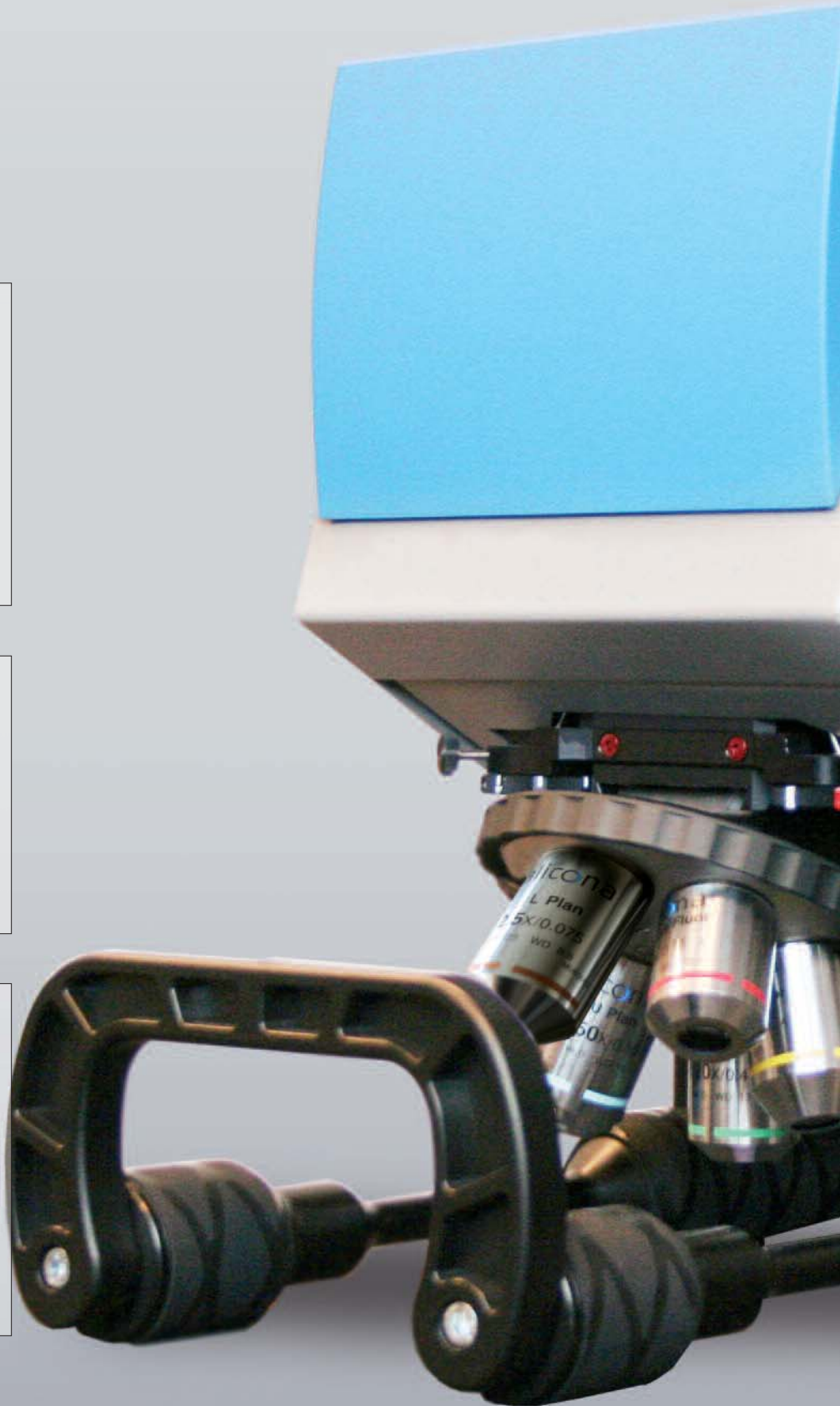
The IF-Portable is a mobile optical 3D measurement device to measure form and roughness of also larger surfaces. The standard configuration allows the high resolution measurement of surface fields of up to (mm) 50x50x19. Typically, the system is used for near or in production quality assurance.

The Function.

High resolution 3D surface measurement of even complex geometries with steep flanks, small radii and angles. As a lightweight, easy to handle and mobile system, the IF-Portable is a flexible measurement station which is used wherever it is needed.


The Benefits.

One key feature is the integrated revolving nosepiece to change objectives and measurement resolution. This increases measurement precision as each objective is pre-calibrated, avoiding error-prone readjustment or recalibration processes. Also, the large vertical scanning range enables the measurement of various geometry types and forms.



IF-PORTABLE:

Use it
where you need it!

The image shows a close-up of a grey and blue machine component. The text 'IF-PORTABLE' is printed vertically on the grey part, with a blue logo element above the 'I'.

IF-PORTABLE

The Applications.

The IF-Portable is used for all production relevant materials including composites. Amongst others, a key application is platen inspection in print industry. Further fields of use are the measurement of turbine or rotor blades, steel and body type surfaces.

The Technology.

Focus-Variation is a robust technology for quality assurance in the lab and in production. Stable measurements are provided even in a production near environment. Results are traceable and repeatable. As an areal based measurement technology, Focus-Variation is included in EN ISO 25178.

The Know-How.

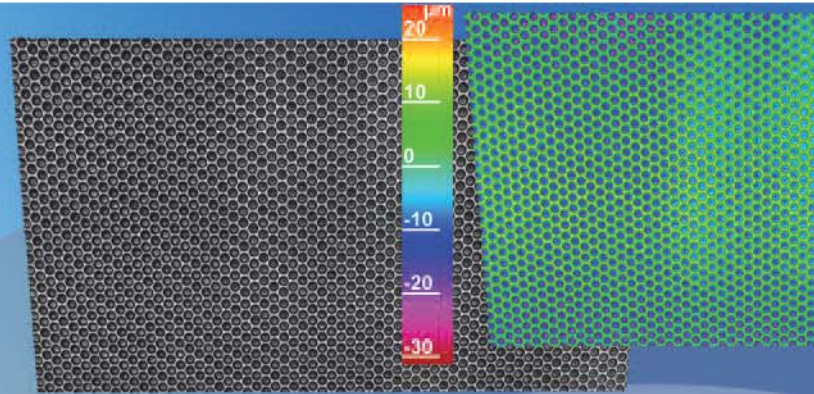
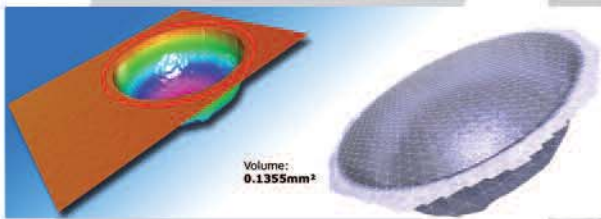
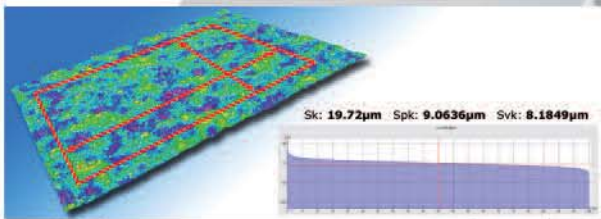
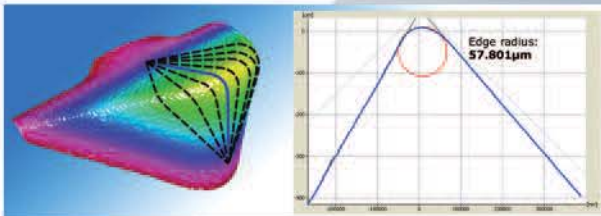
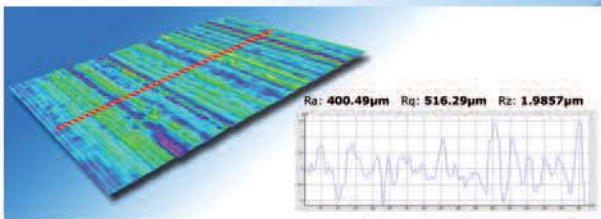
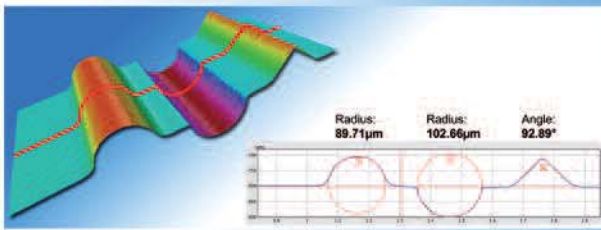
"The form of a laser structured surface geometry is a crucial challenge when it comes to measure a platen. With the IF-Portable system we have found a solution which really delivers precise results."

Andreas Tillmann,
Project Management, Heidelberger Druck, Germany

Stable and robust measurements with high measurement point density

User Benefits

Optical form and roughness measurement of large measurement fields

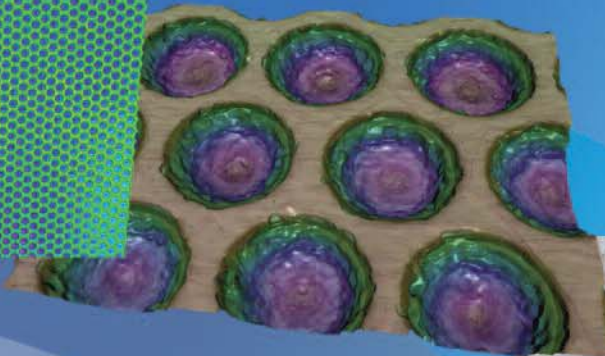


High resolution measurements
in a production environment

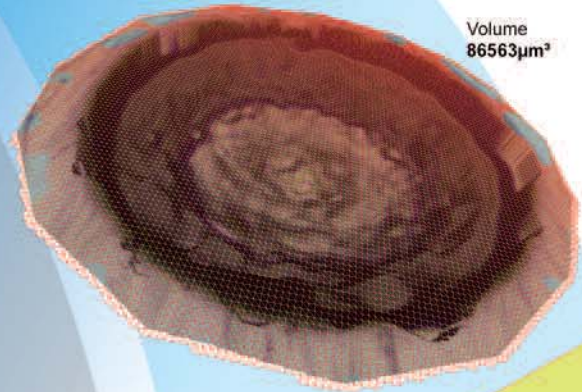
Typical Application

Platen inspection

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Volume
86563 μm^3

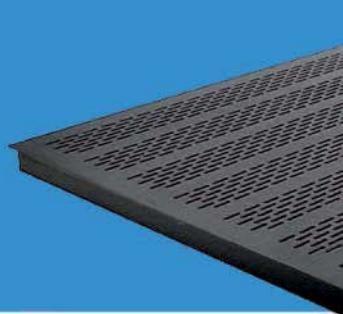


HEIDELBERG

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User friendly system with
easy to read results

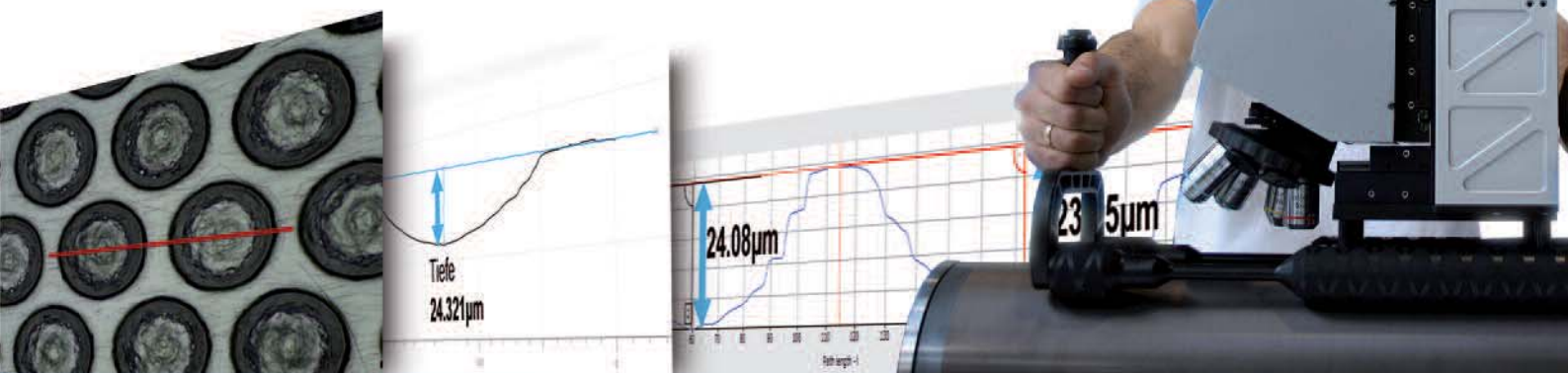


Focus-Variation

High resolution measurement in the lab and in production

Focus-Variation is a robust, flexible and easily adjustable technology to perform sustainable quality assurance.

- » Results reach a vertical resolution of up to 10nm even at large measurement volumes
- » Robust, stable and repeatable measurements are provided also at complex forms including steep flanks and surfaces with strongly varying reflection properties
- » Measurements of small angles and radii are achieved easily
- » Large vertical scan range enables the measurement of various geometry types and forms
- » All measurements include an estimated measurement uncertainty
- » Surface topographic information is captured with registered color information, which provides higher accuracy of also large measurement fields
- » Easy to achieve automation options via scripting
- » Reliable measurements even in a production environment throughout high resistance to vibrations, variations in temperature and extraneous light



Traceable, repeatable measurements in any location

Technical Specification

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Hard- and Software, Objectives

General Specifications

Measurement principle	non-contact, optical, 3-dimensional, based on Focus-Variation
Measurement result	2-100Mil 3D points in registered true color information
Maintenance	maintenance free
Illumination	white LED coaxial light, high power, controllable; optional: polarization
Nosepiece	6-Objective manual
Travel range	X:50mm, Y:50mm, Z:19mm
Weight measurement system	9kg
Size measurement system WxDxH	180mm x 270mm x 260mm (dimensions without resting adapter)
Temperature range	possible: 5° - 40°C, calibrated for: 18° - 22°C
Power supply	900W; 110-230V-; 50-60Hz
Resting adapter	Plane, roller, sphere, magnetic adapter, robot adapter, other upon request

Objectives

Objective		2.5x	5x	10x	20x	50x	100x
Lateral sampling distance	μm	4.4	2.2	1.1	0.55	0.22	0.11
Min. lateral resolution	μm	58.71	23.48	11.74	8.8	6.4	4.4
Max. lateral resolution	μm	8.7	4.38	2.2	1.1	0.64	0.44
Max. scan height (approx.)	mm	8	17	16	12	9	3.2
Max. vertical resolution*	nm	1717	428	106	60	60	60
Working distance	mm	8.5	23.1	17.5	13.0	10.1	3.5
Field of view X	μm	7040	3520	1760	880	352	176
Field of view Y	μm	5280	2640	1320	660	264	132
Max. extended field of view	mm^2	2500	2500	2500	2500	1000	210

*) Vertical resolution can be adjusted depending on the application.

Resolution and Application Range

Objective		2.5x	5x	10x	20x	50x	100x
Min. measurable height	nm	1717	428	106	60	60	60
Max. measurable height (approx.)	mm	8	17	16	12	9	3.2
Step height accuracy (1mm step height)	%	0.1	0.1	0.1	0.1	0.1	0.1
Max. measurable area	mm^2	2500	2500	2500	2500	1000	210
Max. measurable profile length	mm	50	50	50	50	50	50
Min. repeatability	nm	610	160	40	25	25	25
Min. measurable roughness (Ra)*	nm	5200	1300	320	180	180	180
Min. measurable roughness (Sa)*	nm	2600	650	160	90	90	90
Min. measurable vertical angle	°	20	20	20	20	20	20

*) dependent on the specimen structure

Software

Measurement Modules and Utilities	Standard: ProfileFormMeasurement (height, angle...), ProfileRoughnessMeasurement (Ra...), SurfaceTextureMeasurement (Sa, fractale dimension...), VolumeMeasurement, 3D-Editor, FormRemoval; Optional: 3DFormMeasurement, DifferenceMeasurement, ContourMeasurement, EdgeMeasurement;
Automation	IF Automation (built-in script editor), .NET Remoting interface
Visualization	2D-image and high resolution 3D visualization
Database	intuitive, graphical database
Import/Export	Simple export to STL and VRML, import of CAD-data with STL format, QDAS export, variety of reporting functionalities

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Further systems based on Focus-Variation to optically measure form and roughness:



InfiniteFocus

InfiniteFocus is an optical 3D micro coordinate measurement system for high resolution measurements in the lab and in production. Users measure form and roughness of components. Results are achieved in a vertical resolution of up to 10nm even across large measurement fields. The system is also successfully applied to measure surfaces with steep flanks and strongly varying reflection properties.



InfiniteFocus Real 3D

InfiniteFocus Real3D enables the 360° measurement of drills, milling cutters and tap tools. Users achieve the full form measurement of components. Further, the Real3D option to InfiniteFocus offers comparative measurements to CAD data or reference geometry, tolerance measurements and Reverse Engineering.



IF-EdgeMaster

The IF-EdgeMaster is a system to automatically measure cutting edges in production. It is used to measure form, radii and chipping regardless of type, size, material or surface finish of the edge. The IF-EdgeMaster is the only system that additionally delivers traceable roughness measurements.

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IF-Portable – G1-Q3/10

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