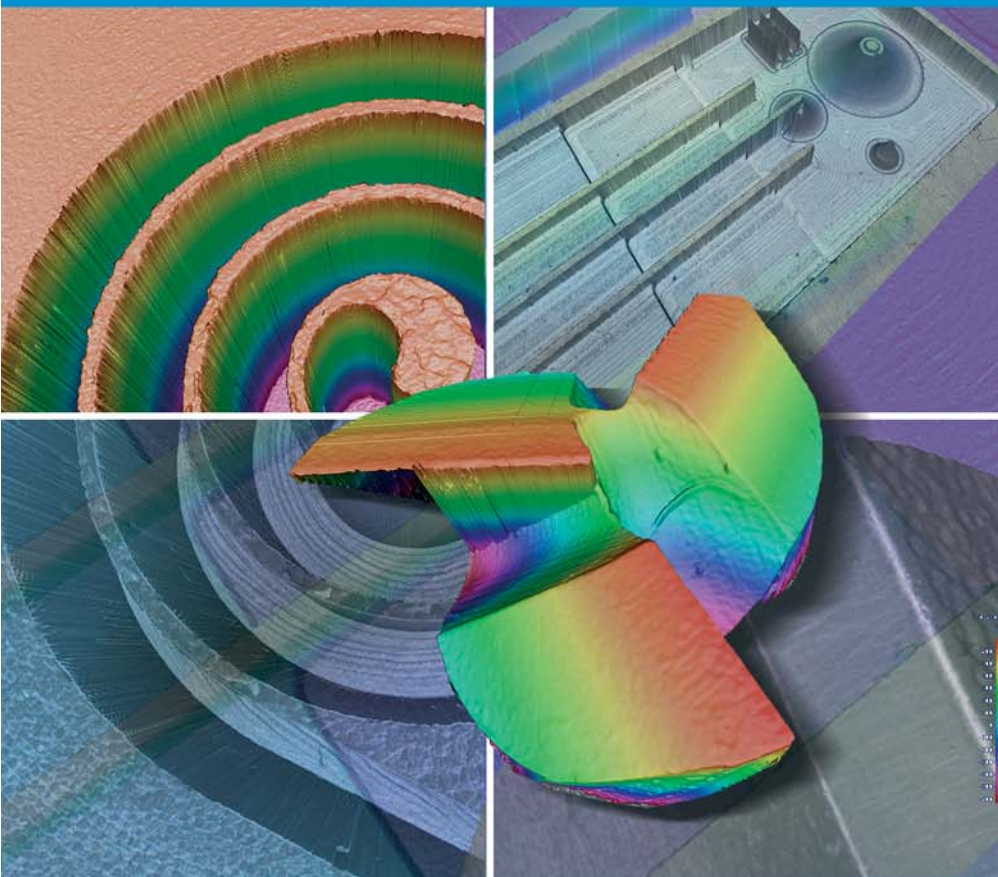




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Form and geometry measurement in tool and mold making

- Form and geometry measurement
- Wear analysis and measurement of tolerances
- True color information to registered 3D data
- Roughness and contour measurement conforming to latest ISO standards
- Measurement of surfaces showing steep flanks and strong reflections
- Surface characterisation of sub miniaturized components
- Highest resolution across measurement areas of several mm
- Fast and easy failure analysis
- Surface measurement of tool tips
- Optimisation of manufacturing processes
- Numerical evaluation of manufacturing quality

Applications

WEAR MEASUREMENT OF MACHINING TOOLS

3D GEOMETRY MEASUREMENT OF MICRO GEARS

3D FORM MEASUREMENT OF CUTTING TOOLS

INFINITEFOCUS

In all tool making processes the reliable form and geometry measurement of highly reflective components is a crucial demand. InfiniteFocus® allows complex details such as steep flanks, cutting angles and cutting edge radii to be quickly and reliably measured irrespective of reflectivity. Even across large areas with a high vertical and lateral scanning range or at complex geometries such as tool-tips, InfiniteFocus® yields robust surface measurement results. Also, due to the use of an additional rotation system parameters such as circular spacing, release angle or other production relevant parameters in milling and drilling processes are measured. The optical form measurement of cutting tools with InfiniteFocus® increase durability, feed rates and overall machining properties.

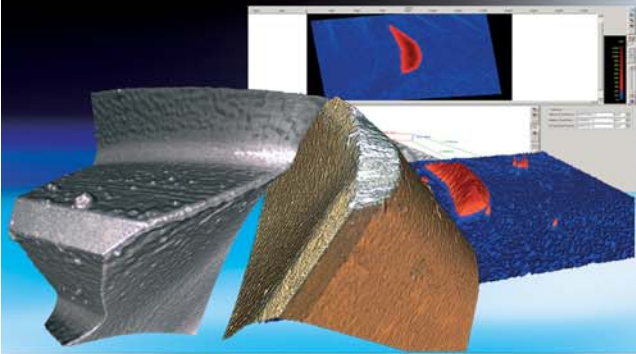
InfiniteFocus® is based on Focus-Variation. The optical 3D measurement device provides the entire surface topographic information in combination with its true color information. Measurements reach a vertical resolution of up to 10nm even at complex geometries such as steep flanks and strong reflections. InfiniteFocus® can be used in the lab as well as an Inline sensor in production.

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OPTICAL SURFACE MEASUREMENT WITH TRUE COLOR

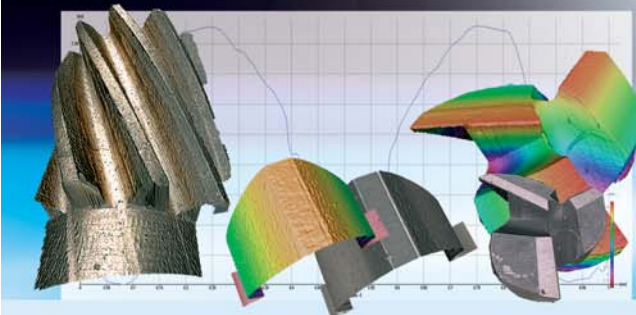
INFORMATION – INFINITE**FOCUS**[®] IN QUALITY ASSURANCE

Wear analysis of machining tools



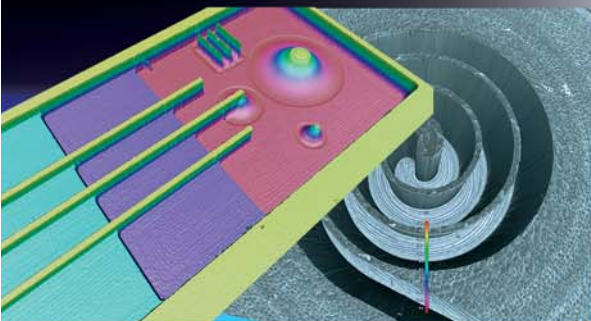
Wear analysis is performed in all kinds of drilling and milling processes as it strongly is a matter of quality assurance in terms of cutting speed, durability and feed rates of cutting tools. InfiniteFocus[®] automatically measures and displays worn material which allows new measures to improve product development and quality. Reliable, traceable 3D data and extended 3D visualisation capabilities in true color make the optical 3D measurement device an ideal tool for fast and easy wear analysis. InfiniteFocus[®] computes a difference model which is based on the 3D measurement of a tool in an unused state and then in the worn state. The worn material can be easily measured via volume, height and area measurement of the tools' topography.

Accurate 3D measurement of micro gear wheels



Due to the continuing miniaturization of components there is an increasing need for advanced surface metrology to provide robust measurements even on complex geometries such as steep flanks, e.g. at the single cogs of gear wheels. This is a typical industrial application that can be easily achieved due to the distinctive measurement capabilities of InfiniteFocus[®]. Geometries with steep flanks of more than 80° are measured accurately in seconds. Additionally, parameters such as the inner and outer diameter, flank angles and angles of angular geared components are computed.

Form and geometry measurement of cutting tools



Cutting inserts for metal cutting made of tungsten carbide allow high-performance cutting. The outstanding hardness and wear resistance of the material assure high cutting speed, extended tool-life, and short machining time. As far as quality assurance of high-performance cutting inserts is concerned, optical measurement of surfaces can provide meaningful surface analysis since it removes inaccuracies caused by tactile inspection methods.

InfiniteFocus[®] enables the highly accurate measurement of cutting edges' angles and radii. The user carries out 3D measurement directly on the optical color image which significantly improves measurement results in contrast to tactile techniques. Cutting tools that are quality assured with InfiniteFocus[®] can be used with confidence in turning, milling and drilling operations ensuring high quality and reproducible machining results.

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