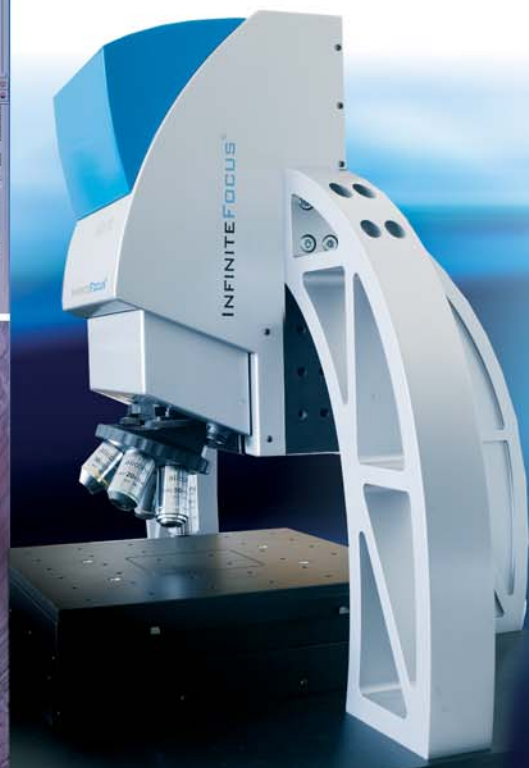
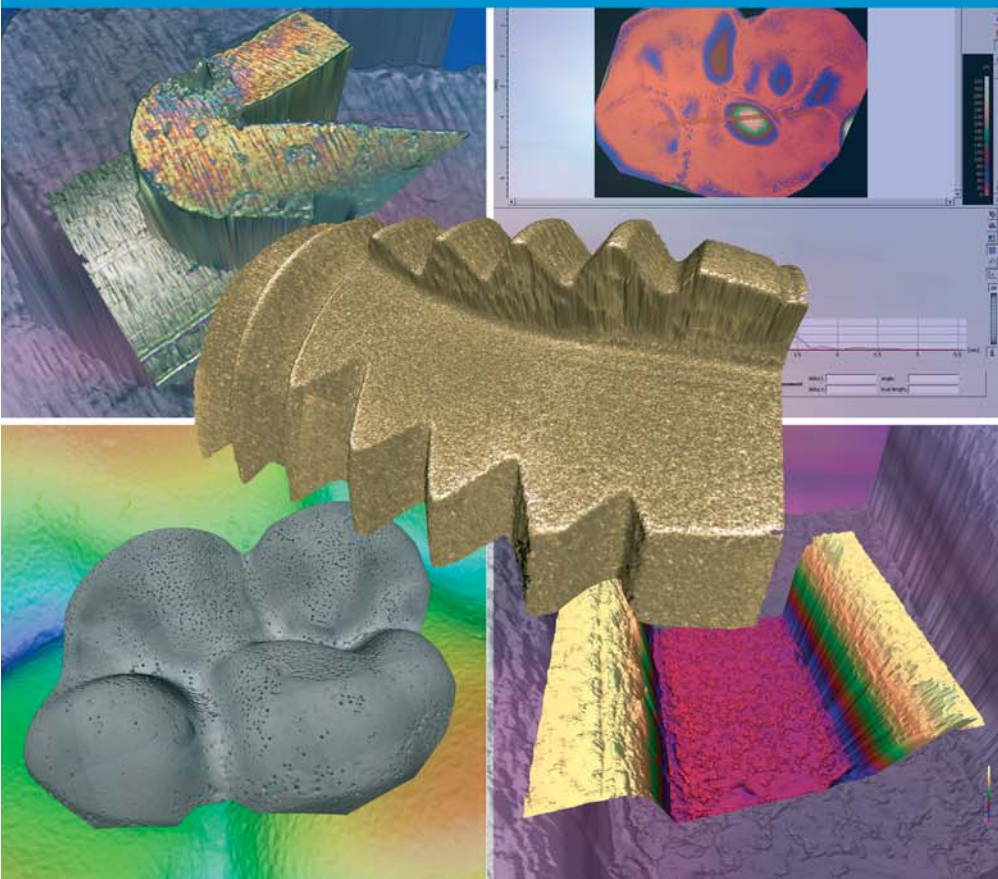


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Quality assurance via optical surface measurement in medical device development

- Form and geometry measurement
- 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
- Optimisation of manufacturing processes
- Research and Development

Applications

LASER DRILLING IN DENTAL MEDICINE

ROUGHNESS MEASUREMENT OF TOOTH IMPLANTS

INFINITEFOCUS

InfiniteFocus® provides unique solutions to various medical device applications. In pharmaceutical tablet manufacturing the optical system is utilized to inspect tablet surface deviation and counterfeit surface registrations with its full 3D surface scanning capability. The flexibility and wide range of measurable surfaces also make InfiniteFocus® to a valuable quality assurance tool in medical device manufacturing. In dental medicine, the system is used for roughness measurement and to verify the geometry of implants. Also, tooth wear analysis and advanced measurement performances to optimise various drilling and laser ablating processes are realized. In stent production, InfiniteFocus® is used to measure critical geometrical dimensions as well as the roughness of the blasted surface.

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

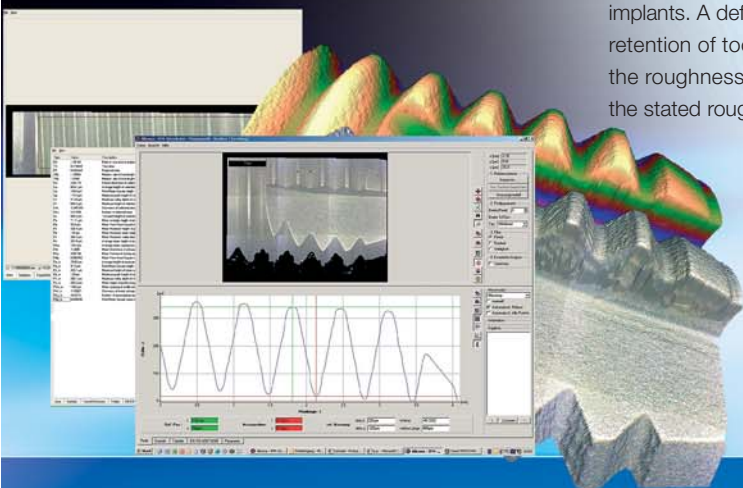
Laser drilling in dental medicine

The determination of the ideal energy distribution for laser drilling is essential to develop an optimized laser scanning technology to treat hard tooth structure. During the process of laser beaming the cavity, its correlation with the lasers drills' proper energy distribution curve as well as the extracted volume needs to be evaluated which requires advanced measurement performances.

InfiniteFocus® measures the volume of drilled holes robustly even in these depths. The optical measurement directly in the optical color image of the specimens' surface is fast and easy to perform. Measurement results with InfiniteFocus establish a correlation with the laser intensity and lead to an optimised, high class treatment of hard tooth structures.

**Form and roughness measurement of tooth implants**

Tooth implants are surgically inserted using a formed thread. Quality assurance and high quality implants is strongly a matter of robust geometry measurement of the thread form. The extended working distance of InfiniteFocus® allows both the robust 3D form measurement, plus the surface roughness, of the very deep valley of a formed thread. Also, traceable roughness measurement plays a major role for the successful insertion of implants. A defined surface roughness (Ra) of 5µm to 100µm is essential for the permanent retention of tooth implants in a patients' jawbone. InfiniteFocus® continuously measures the roughness during the process of artificial roughening to ensure the surface is within the stated roughness tolerance.

**Alicona Imaging GmbH**

Austria, Teslastraße 8
A-8074 Grambach/Graz
phone: +43 316 4000-700
fax: +43 316 4000-711
e-mail: info@aliconona.com