



μKORAD^{3D}

3D-Shape



3D-Shape GmbH presents μKORAD^{3D}, a flexible and robust optical 3D measurement system for microscopic applications from engineering to electrical industry to biotechnology.

The sensor works fast, precisely and reliably under both laboratory and industrial conditions. Various surfaces in different processing states, diverse materials and complex geometries can be measured contact free and three-dimensionally.

The sensor can be integrated in existing production facilities. User-friendly software and interfaces enable simple use.

The measurement procedure is based on the principle of white-light interferometry and allows a full-area surface measurement with a measurement uncertainty down to the nanometre range.

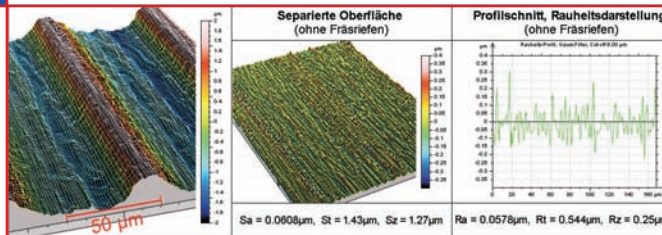
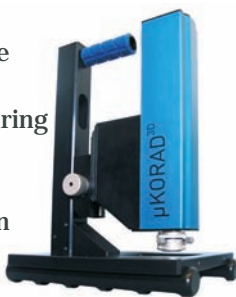
Light from a white source (with a coherence length of typically a few micrometres) is passed through a half-silvered mirror (beam splitter). The two resulting beams illuminate simultaneously the object for measurement and a reference mirror. Light waves reflected by the object and the reference mirror pass through the beam splitter again and on to a detector (camera chip). If the path length to the object matches the path length to the reference mirror, the instrument produces interference patterns that are sensed by the camera and can be analysed. Software interprets fluctuations in brightness in order to compute the object distance for each object point. As the object moves along the optical axis, a height map of the object with sub-micrometre precision can be created in this way. The scanning speed is typically between a few micrometres per second and 100 μm/s, depending on the precision required.

Applications

μKORAD^{3D} can be used for random sampling applications and for 100% quality control on the production line. In contrast to touch-probe measurement systems, not only a profile line, but also an entire area is available for evaluations.

The strong point of μKORAD^{3D} is the accurate determination of roughness, the generation of profiles and the analyse of complex three-dimensional structures.

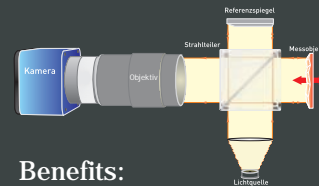
μKORAD^{3D} can be obtained as a portable measuring device also if, for example, large production areas must be covered.



On the metal surface with milling grooves displayed above, the roughness parameters Ra, Rz, ... can be determined along profile lines. Furthermore, the 3D roughness parameters Sa, Sz, ... can be calculated.

Spezifikation μKORAD^{3D}

- Sensor resolution: 750 x 750 Pixel
- Measurement speed: up to 30 μm/s
- Field of view: 0,1-1,5 mm² (acc.to objective)
- Lateral resolution: 0,3-2,5 μm
- Longitudinal measurement range: 100-400 μm
- Measurement uncertainty: down to the nm
- Range
- Free working distance: ~1.5 mm



Benefits:

- Remote control via DCOM interface
- Application in the laboratory and on the production line

System requirements for computer unit:

- RS232 interface
- PCIe interface
- Windows 2000/XP
- RAM: > 1 GB



We will gladly perform test measurements of sample parts to demonstrate the application capabilities of μKORAD^{3D} for your application. Further fields of view and longitudinal measurement ranges can be implemented as needed.