



## ORDER GAUGING

contact person  
**Dittmar Klein**

### NON-CONTACT SURFACE MEASUREMENT

Surface measurement by optical profilometer and imaging measuring instrument FRT MicroProof:

- 2D and 3D measurement of roughness and waviness as per EN ISO 4287/ 4288
- measurement of planarity as per DIN 50441
- illustration and measurement of topography

Properties:

- movement range: 200 x 200 x 50 mm<sup>3</sup>
- resolution x / y: > = 2 µm
- resolution z: > = 20 nm
- accuracy z: ± 200 nm
- min. aperture angle: ± 30°

### DIGITAL LIGHT MICROSCOPY

Imaging by light microscope Keyence VHX:

- 2D and 3D in high quality and depth of focus, accurate imaging with high resolution (also pseudocolor image in 3D possible), especially for documentation purposes
- image composition of large sections by high magnification
- geometrical measurements in 2D and 3D images
- stepless magnification from 5x to 500x
- bright and dark field lighting with polarizer, comprehensive functions for image enhancement by software support

### 3D COORDINATE MEASURING SYSTEM

The 3D coordinate measuring system Werth Scope Check enables a fast acquisition, processing and evaluation of measured data by using different optical sensors and comprehensive 3D evaluating algorithms. It is applied for the most important measuring tasks during processing for continuous quality control.

- measuring range: max. 1000 x 650 x 300 mm<sup>3</sup>
- guaranteed measuring accuracy: 2,5 µm + 1,25 µm / 100 mm (accuracy: 2 – 4 µm)
- lighting: bright and dark field
- on-the-fly measurement: measuring during moving operation possible; application: up to 100% inspection of drilled holes and vias by reduced time exposure
- additional laser for measurement of height and planarity
- contours can be scanned automatically and converted to dxf-data (e.g. applicable to create a missing drawing for a finished part), scan of contour in 2D and 3D possible (restriction 3D: inclined plane scanable, but not high height differences)
- generation of measuring programs by provided dxf-data possible
- possibilities of evaluation:
  1. ISTR (Initial Sample Test Report)
  2. Excel®-Statistics:
- plotting of target and actual values, as well as upper and lower tolerances
- plotting of deviations
- plotting of distributions (Gaussian distribution of actual values), classification, tolerance range, mean, mean ±3σ by more than 25 measured data
- 3. Release of standard deviation, cp-value, cpk-value, information about process capability