

IF-PROFILER

HOW TO MEASURE ROUGHNESS AND SURFACE FINISH

alicona

THE SYSTEM

Optical surface profilometry to measure roughness

IF-Profilometer is a handheld 3D roughness measurement system for high resolution measurement of surface finish. Users measure roughness of flat and curved components with only one system. Measurements are performed both profile based (ISO 4287) and areal based (ISO 25178). The lightweight IF-Profilometer consists of a 3D measurement sensor and a robust, at the same time handy framework. The ergonomic design combines ease of use and requested mechanical rigidity.

THE BENEFITS

Flexible and easy to use

IF-Profilometer achieves flexible measurements and applications at high measurement speed. Various positions and measurement fields are traceably and intuitively measured. The roughness measurement system is also used to measure geometries with steep flanks and various coatings. A note book, used as Control Server, enables a flexible usage.



THE APPLICATION

Quality assurance of car bodies, steel plates, print rolls, etc.

Amongst other applications the IF-Profilometer is used to measure surface finish even of large and heavy components. Fields of use are the measurement of e.g. turbine or rotor blades, steel and body type surfaces. Traceable measurements are achieved in high repeatability.



GENERAL SPECIFICATION

| | |
|----------------|--------------------------------------|
| Travel range Z | 26 mm (motorized) |
| Illumination | LED ring light with 24 segments |
| Weight | 6.5 kg |
| Dimensions | 157 mm x 300 mm x 344 mm (W x D x H) |
| Control Server | Notebook (IF-ControlServerL) |

OBJECTIVES

| | | 10x | 20x | 50x |
|-------------------------------|---------------|-------|-------|-----------|
| Sampling distance | μm | 1 | 0.5 | 0.2 |
| Min. repeatability (vertical) | nm | 40 | 30 | 25 |
| Max. scan height (approx.) | mm | 16 | 12 | 9 |
| Best vertical resolution | nm | 100 | 80 | 60 |
| Working distance | mm | 17.5 | 13 | 10.1 |
| Measurement field X x Y | mm | 2 x 2 | 1 x 1 | 0.4 x 0.4 |

RANGE OF RESOLUTION AND APPLICATIONS

| | | 10x | 20x | 50x |
|--------------------------------|---------------|----------|-----|-----|
| Min. measurable radius | μm | 5 | 3 | 2 |
| Min. measurable wedge angle | $^{\circ}$ | 20 | 20 | 20 |
| Min. measurable roughness (Ra) | nm | 300 | 240 | 180 |
| Min. measurable roughness (Sa) | nm | 150 | 120 | 90 |
| Max. measurable slope angle | $^{\circ}$ | up to 87 | | |

SOFTWARE

| | |
|---------------------|--|
| Measurement modules | 3D data capturing, automated measurement of surface texture (ISO 25178) and profile roughness (ISO 4287) |
| Import/Export | 3D data sets (e.g. AL3D, STL, G3D, IGES, STP); common image formats (e.g. BMP, JPG, PNG); simple export of results (CSV, 2D, 3D, QDAS export) and printing functionalities |
| Languages | German, English, French, Japanese, Chinese |

MEASUREMENT OBJECT

| | |
|--------------------|---|
| Surface texture | Surface topography Ra above 9 nm with Lc 2 μm , dependent on surface structure |
| Max. diameter | 100mm - ∞ |
| Sample preparation | none |

