



# More Precision

**reflectCONTROL Automation** // Automated inspection of shiny surfaces





- Automatic inspection of the entire component in several measuring positions
- High speed inspection
- High lateral resolution
- Cost reduction due to reduced defect slippage compared to visual control

#### Surface inspection

In many areas, ever-increasing requirements are being placed on the quality and appearance of surfaces. Particularly with reflecting surfaces, faultless, high quality production is expected. The parts are often subjected to manual inspection, which can lead to defects being missed due to tiredness of the inspectors. reflectCONTROL Automation is designed for automatic surface inspection of components whose dimensions require several measuring positions.

The compact sensor outputs a striped pattern on the display. This striped pattern is mirrored over the surface of the measurement object into the sensor cameras. Any defects on the surface will cause deviations from this striped pattern, which are evaluated by software.

#### Robot-guided measurement

The compact deflectometry sensor, which consists of a monitor for the striped pattern projection, as well as up to two cameras, is guided over the measurement object by a robot. The sensor enables the inspection of objects whose geometry requires several measuring positions.

Using the 3D model (CAD), the robot program is created. The robot guides the sensor over the relevant surfaces and inspects the surface. The defects found are evaluated and displayed in the 3D model.

#### Scope of supply

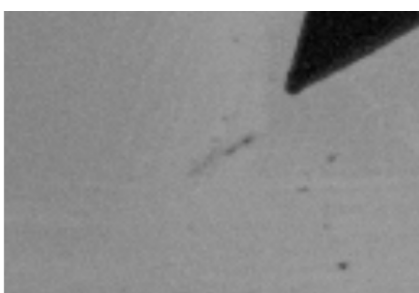
- Complete system incl. robot, sensor & evaluation unit, housing
- Standard robot: Kuka Agilus KR 10 R1100 sixx
- Software package for the configuration and evaluation of measurements
- Customer-specific modifications on request

#### Free feasibility study

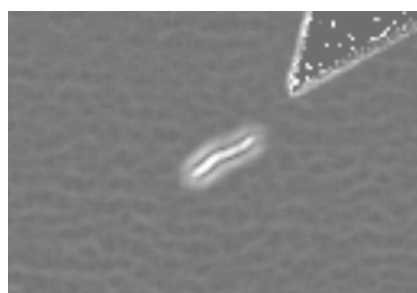
In order to objectively evaluate your measurement task, Micro-Epsilon offers non-binding inspections of your boundary samples. Please feel free to contact us!

#### Application examples:

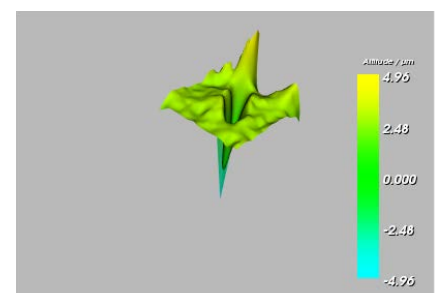
- Automotive industry: attachments such as bumper and interior parts
- Electronics industry: tablet PCs, display glasses, etc.
- Generally: high-gloss parts with complex geometries



Amplitude image



Curvature image



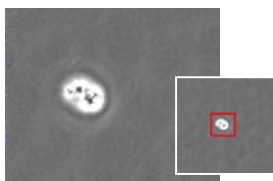
3D reconstruction of the detected defect

<b>Sensor</b>	<b>RCS110-245</b>
Measuring field	245mm x 116mm
Lateral resolution	>70µm
Inspection rate	<2 sec/measuring position
Weight	approx. 7kg
<b>Robot</b>	<b>Kuka Agilus KR 10 R1100 sixx</b>
Load capacity	10kg
Weight	54kg
Max. reach	1101mm
<b>Overall system</b>	<b>reflectCONTROL Automation</b>
Power supply	380/415V (50/60Hz, 16A)
Operating temperature	+5°C ... +40°C
Storage temperature	-10°C ... +60°C
Relative air humidity	10% ... 80% in declared temperature, non-condensing
Total weight	approx. 800kg incl. housing

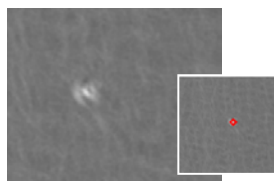
#### Related products:

- **reflectCONTROL Compact:** fully integrated system for the inspection & 3D reconstruction of reflecting surfaces
- **reflectCONTROL PSS 8005.D / Automotive:** system for paint defect control of the entire car bodywork

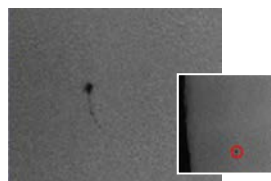
#### Typical defects



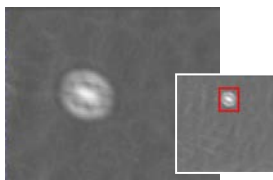
Inclusion



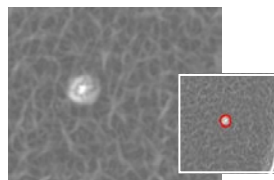
Inclusion in the base paint



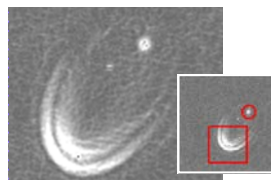
Hair



Spitters



Craters



Paint drop

## High performance sensors made by Micro-Epsilon



Sensors and systems for displacement and position



Sensors and measurement devices for non-contact temperature measurement



2D/3D profile sensors (laser scanner)



Optical micrometers, fibre optic sensors and fibre optics



Colour recognition sensors, LED analyzers and colour online spectrometer



Measurement and inspection systems