



Bearing shell detection in automotive manufacturing

During the assembly of internal combustion engines, bearing shells are pressed into the bearing shell caps for the connecting rod assembly on the drive shaft. This is performed in an automated process. At a car manufacturer, even before the connecting rod is assembled, it is checked whether the bearing shells are actually in the bearing shell cap. This task is performed by the optoCONTROL 2520-95 optical micrometer.

For this purpose, the bearing shell caps are transported on a workpiece carrier directly under the light band of the sensor. A robot picks up the bearing shell caps and lifts them up so that the light band measures about 3 mm from the lower edge of the bearing shell cap. Transmitter and receiver of the optoCONTROL are mounted at a distance of 1300 mm from each other. Due to the large distance between transmitter and receiver, the target can be freely positioned in the light band.

The bearing shells themselves have a thickness of about 1.5 mm. If no bearing shell cap is present, a diameter is detected which is 3 mm above the specified value. This bearing shell can be directly sorted out as faulty by OK/NOK testing.

Optical micrometers from Micro-Epsilon perform these and similar inspection tasks reliably and accurately. They enable fast and automated quality inspection within the production line.

Requirements for the measurement system

- Measuring range: 2 ... 95 mm
- Resolution: $\geq 2 \mu\text{m}$
- Linearity: $\pm 15 \mu\text{m}$
- Distance light source receiver: 20 ... 2000 mm

Ambient conditions

- Production plant with industrial conditions
- Environment must be appropriate for optical sensors
- Temperature range: 0 °C... +50 °C

System design

- Sensor: optoCONTROL 2520-95

Advantages

- Large distance between transmitter and receiver
- Large measuring range of 95 mm
- Resolution of $\geq 2 \mu\text{m}$
- Automatic inline quality control
- Simple integration thanks to a wide range of interfaces
- Convenient configuration via web interface

