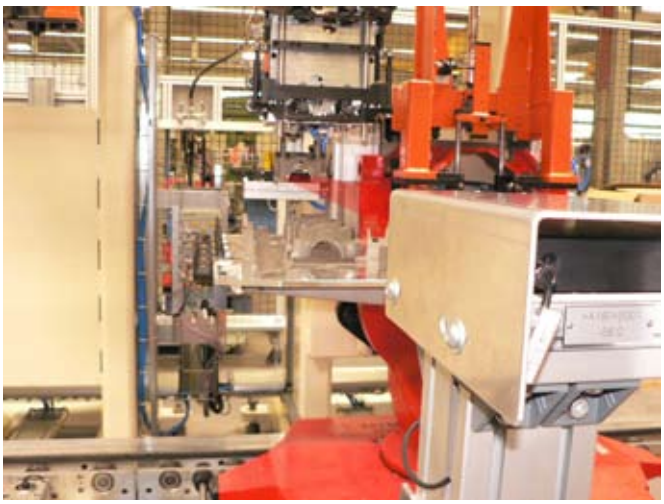
MICRO-EPSILON

Bearing shell detection in automotive manufacturing

During the assembly of combustion engines, the bearing shells are automatically pressed into the bearing cap for the connecting rod assembly on the drive shaft.
The task of the optical micrometre optoCONTROL 1202 for Volvo in Sweden is to check whether the bearing shells are actually present in the bearing cap before assembling the connecting rod.
The bearing caps are transported on a workpiece carrier directly under the light band of the sensor. A robot picks up the bearing cap and lifts it into position so that the light band measures at a distance of approx. 3mm to the bottom edge of the bearing cap. The transmitter and receiver of the optoCONTROL are mounted with a distance of 1300mm between them. The optoCONTROL 1202-100 with a light band width of 100mm is used. The emitted light band is partially covered by the bearing cap. The size of the part is measured based on light not shadowed. The robot lifts the bearing caps into the light band one after the other. There can be up to six bearing caps on a workpiece carrier. Due to the high distance between emitter and receiver, the object can freely be positionend within the light band. The bearing shells have a thickness of approx. 1.5mm. This means the measured diameter is 3mm too large if no bearing shell is present and the bearing cap is rejected. If the bearing cap is recognised as OK, the robot transports it for further assembly.

Benefits for the customer:
- High distance between transmitter and receiver
- High depth of field for complete light band
- Very wide light band
- Resolution up to 30μm
- Compact dimensions due to integrated controller

Sensor series used:
optoCONTROL 1202 - 100



MICRO-EPSILON
Königbacherstr. 15
94496 Ortenburg/Germany
Tel. +49 (0) 85 42/1 68-0
Fax +49(0) 85 42/1 69 90
info@micro-epsilon.com
www.micro-epsilon.com

A member of micro-epsilon group
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