

## Inspection of Cylinder Crankcases

It is the philosophy of the car manufacturers to produce powerful vehicles and engines with even greater accuracy and safety. The objective of the inspection is a 100 % analysis of the crystalline structure of the cylinder face of the cylinder crankcase which is subject to great strain. Six cylinder bores are inspected simultaneously using highly accurate high-resolution eddy current test rotors. The inspection system was realized as a fully automated and self-calibrating autonomous system. The inspection, evaluation, analysis, calibration and the ejection of unsatisfactory parts is accomplished within a 20-second cycle without any outside intervention

### Areas of inspection: cylinder face

#### Solution:

Automated eddy current inspection of the cylinder face using special test rotors and eddy current C-scan techniques; evaluation of the test results by the customer using image-processing algorithms.

**Sensor:** probe KAS-3 H-1643.11.3

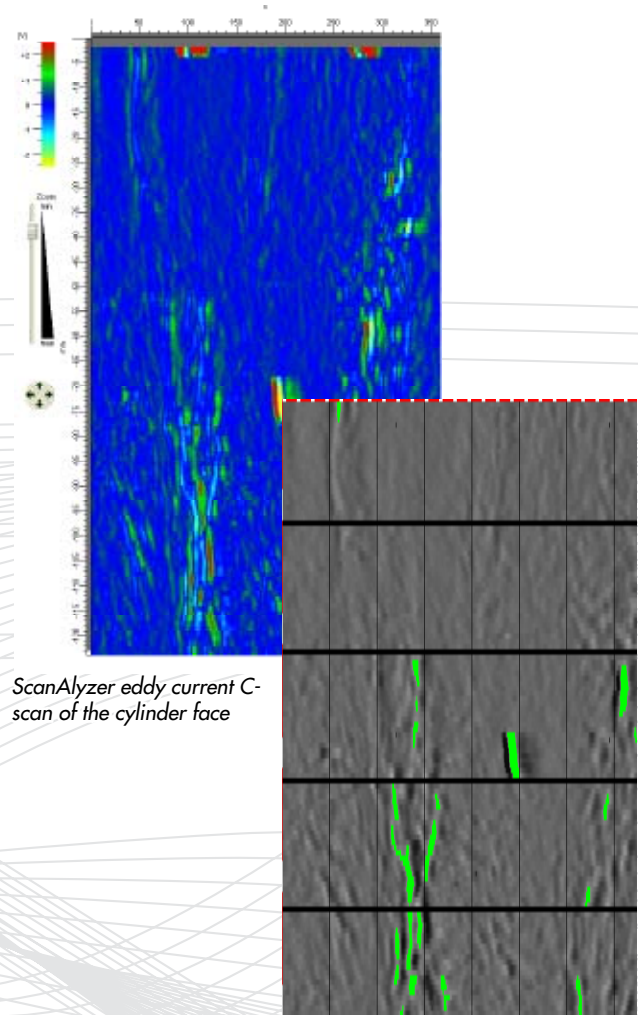
**Frequency:** 2,5 MHz

**Defect size:** These are deviations from a specified distribution of silicone crystals in the structure. Cracks and pores.

**Cycle time:** 3 cylinder crankcases per minute



*Test rotors in the test position*



*Scanalyzer eddy current C-scan of the cylinder face*

*Image processing*



Serial inspection system



Flexible inspection system

## Probe data KAS-3 H-1643.11.3

### Application:

Monitoring the homogeneity of the crystalline structure, cracks of varying orientation, pores (open and near the surface)

### Coil system:

Absolute ferrite core Ø 3.5 mm, transformer, shielded

**Frequency range:** 100 kHz - 5 MHz

**Active area:** approx. 3,0 mm

**Penetration depth:** 0,1 - 0,2 mm

### Technical data:

The probe lever for the HD-rotor head may be used for dimensions ranging from 78 to 80 mm.  
Two probe levers are required per rotor head.  
Designed with wear protection to increase the endurance (min. 1 year with three-shift operation)

**Dimensions:** 30 mm x 10 mm x 20 mm

### Order data:

Dependent on the diameter of the bore; upon request only

## 6 ELOTEST PL320

### Inspection system:

One inspection unit per cylinder bore consisting of:

- an ELOTEST PL320 2-channel test instrument
- an HD (heavy duty)-rotor system
- a 2-channel rotor head with interchangeable probe levers

