APPLICATION NOTES

Non-Destructive Crack and Structure Testing of Cams and Camshafts

The camshaft forms an important part of the combustion engine. Therefore, it is important to detect surface material flaws in time to take appropriate countermeasures. Non-destructive and automated crack and structure testing using eddy current supports specifically in the continuous quality assurance.

FOERSTER offers a fully automated 100 % inspection for structural properties as well as crack testing on forged and sintered cams. For crack testing, the STATOGRAPH test instrument is combined with MECA-PROBES and standard probes (see Figure 1).

Figure 1: STATOGRAPH CM+ with MECA-PROBE

This combination allows several critical areas to be tested at the same time.

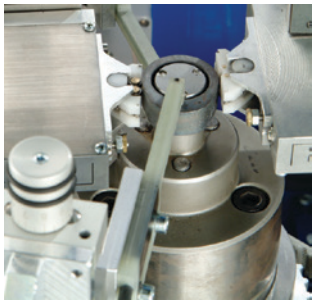

Figure 2: Crack detection on cams with two testing probes on the contact surface and one testing probe on each face side

In addition, a magneto-inductive structure test can be carried out with the MAGNATEST test instrument and an encircling coil.

Figure 3: Structure testing with encircling coil

Even complete camshafts can be fully automatically inspected for hardness cracks. Here, the the entire cam contact surfaces and all bearing seat surfaces are scanned by rotating the camshaft. This ensures a reliable crack detection on the full circumference of the cam and bearing surfaces. Simultaneous testing with up to 8 MECA-PROBE takes place. In addition, the inspection can be expanded with microstructure testing and assignment of results into zones.

Figure 4: Camshaft

For the inspection of cams and camshafts, we recommend the STATOGRAPH test instrument with appropriate probes to detect surface material defects at an early stage. In addition, a structure test can be carried out with MAGNATEST and encircling coils.
Further information can be found on our homepage: foerstergroup.de