



info

No. 7

ibg-Talk



During the past weeks and months the press has produced more articles about recall actions of various automobile manufacturers. At first it may seem trivial but recall action may cause incalculable costs for these companies and suppliers and furthermore a tremendous loss of reputation.

Reasons for recall action is in the end always defective quality of safety- and function-critical components. Recipes to avoid recall action do exist a lot which are explained in various quality management philosophies i.e. DIN ISO 9000 ff or Six Sigma. Keywords like 100 % testing and Zero Defects are well known. However, many companies fight shy of realisation i.e. investment in test equipment. But what is certain is: avoiding recall action is much cheaper than recall action and its consequences.

This ibg Info issue will show some applications and solutions for 100 % testing of components. All examples have been realised and installed worldwide. If you are interested in any ibg eddy current test system or application please do not hesitate to contact our offices and representatives.

Yours

Herbert Baumgartner

Crack detection and structure test on raw and machined ball studs

Testing of ball studs is a standard application for ibg.

1

Several ball studs of various designs are mounted in each car. A ball stud is a mass-produced article with a safety critical function and is thus subject to strict test criteria.



Photo 1: Ball stud raw and machined

ibg supplies test systems for crack detection and structure test (correct heat treatment) tailor-made to customers' specifications.

Cycle times from 3 seconds per part are achieved, with faster speeds from twin or triple designed systems.



Photo 2+3: Typical system with test stations for crack detection and structure test. An optional master part run will guarantee constant test quality.



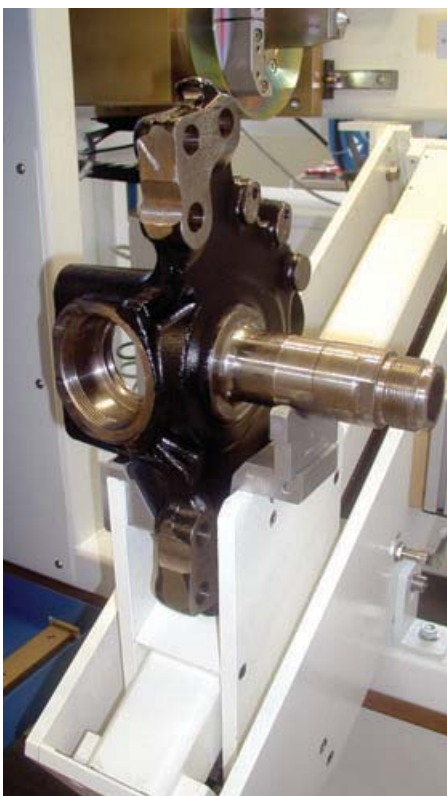
3

Eddy current crack detection on steering knuckles integrated in production line

For some months, a renowned lorry manufacturer has been testing the critical areas of steering knuckles with eddy current technology from ibg, and follows a common trend in the automotive industry.

The many advantages of that method over the traditional processes of magnetic particle inspection include:

- Test decision does not depend on the human eye and is always reproducible.



- Defect specification is exactly defined and thus everywhere comparable and documented. Inexact or ridiculous requirements like „part free from any crack“ on the entire surface belong to the past. Defect size, as well as critical test area are defined beforehand when testing with eddy current method.
- Only the eddy current method enables ease of automation of the testing process.

After the test, the OK part is marked and may be discharged from the platform accordingly. The test system requires the master part to be inserted at regular intervals. The master part has artificial defects which must be detected to confirm the test system is working correctly.

The test system you can see in the picture tests parts with a weight of 25 kg. The test part is lifted onto a platform in front of the test station. The protec-

Crack detection and structure test on rings within 9 seconds

The test system shown in photo 1 combines efficiency and high test reliability. This system tests (freewheel) rings which are provided from the induction hardening machine to the ibg system via a roller conveyor. At the first test station, the ring is tested for surface hardness, case depth, hardness profile and core hardness using customised ID coils and Preventive Multi-Frequency Technology. Photos 2 and 3 show the ring and the hardness profile to be tested. At the second test station, the race of the ring is scanned for surface-open defects by the crack detection instrument **eddydector**[®]. The cycle time is 9 seconds per part.

Such or similar test systems may also test other ring-shaped geometries e.g. bearing rings and hubs for correct structure and surface defects.



2



Similar systems for crack detection and structure test may be designed for your application as well.

Photo 1: Efficiency and high test reliability in one



1

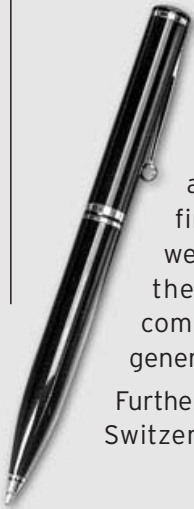


3

Photo 2+3: Ring and hardness profile to be tested.



ibg - extra info



Workshop 2005

ibg workshops continued success in 2005. In April, we welcomed our participants in Würzburg, Stuttgart and Düsseldorf (Germany). In May, we organised the first workshop in Spain: in Bilbao and Barcelona we welcomed 25 interested customers. The main topic of the programme was technology for eddy current component testing as well as presentation of the new generation **eddyvisor®**.

Further events are scheduled for 2005, including France and Switzerland. If you are interested in please contact us.

eddyvisor®

ibg is able to announce a successful start for the new **eddyvisor®** instrument model.

No wonder, all functions of our new instrument correspond exactly to the high requirements of our customers, especially regarding test speed, data documentation and flexibility. Even the basic version of **eddyvisor®** is capable of testing up to 32 locations of a test part e.g. a camshaft and this is possible within a

few seconds for correct heat treatment using the well-known Preventive Multi-Frequency Technology. Conspicuous is the 15" colour touch screen which displays the test result graphically and numerically in all requested modes. For a presentation of our new instrument, please contact our offices and representatives.



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