info
No. 5

ibg-Talk

Welcome to the 5th issue of our newsletter "ibg info".

Today we want to present crack detection systems which have been integrated into automatic production lines. Crack and structure testing according to the eddy current method is ideally suited to such applications due to the ability to automate, parts are not contaminated and can be tested at production speeds.

This technology has been developed by ibg so that difficult applications may also be solved efficiently and economically.

ibg test systems are used by all world-known automotive manufacturers and their suppliers.

Yours

Herbert Baumgartner

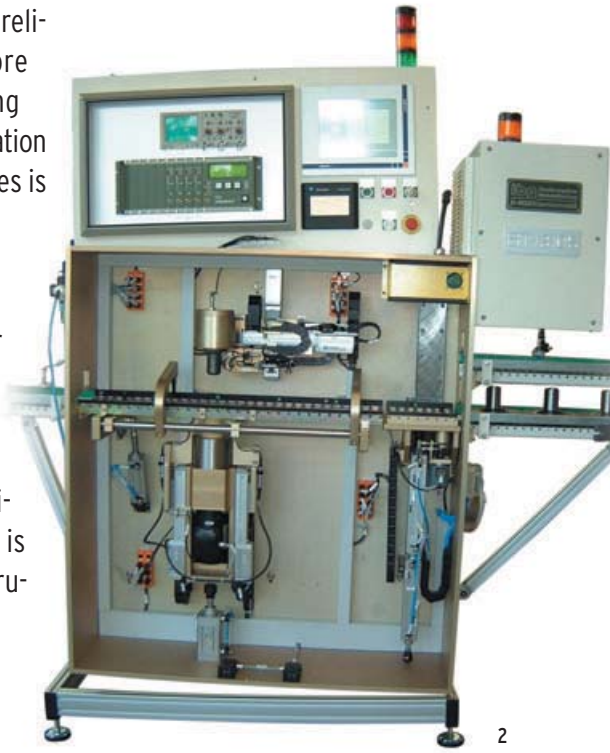
Automatic crack detection on hubs

1

The traditional methods of crack detection are visual and most often based on the decision of the human eye. The reliability of such methods is therefore doubtful and the risk of processing defective parts is rather high. Automation resp. integration into production lines is completely impossible.

Eddy current crack detection is the preferred and successful method for component testing. The main advantages of eddy current testing are the excellent automation opportunities as well as the reproducibility of results as the test decision is taken by the eddy current test instrument and not by an operator.

The system shown in picture 2 tests the stub as well as the radius transition to the flange of a hub (photo 1) for cracks without contact and residue-free. The process is automatic, and the test system integrated into a production line. The cycle time of this system is 12 seconds per part. Furthermore the system is equipped with a laser marking station where each tested part is marked.



2

Crack and pore detection as well as structure test on cylinder liners

2

For many years, detection of surface-open defects on cylinder liners has been a standard application for ibg. Dozens of crack detection instruments **eddydector**® are in use world-wide for this application. Most of the cylinder liners tested are for cars. But ibg has developed and manufactured a system to test cylinder liners for building machinery and lorries. Special design measures had to be considered due to the dimensions of the test system.
The cylinder liner dimensions are diameter 120 - 130 mm and length approx. 300 mm (photo 1).

The test task at the first station is structure test. The parts are examined at up to 16 selectable locations for correct case depth according to the Preventive Multi-Frequency Technology with 8 test frequencies. At the second station longitudinal and circumferential cracks as well as pores are detected. At the third, the marking station, OK parts are engraved.
Photo 2 shows the complete test system with OK and NOK parts outlet in the foreground. The system tests up to 110 liners per hour.
The swivelling arm which can be seen in photo 3, handles the test parts (weight up to 10 kg) between structure test, crack test and marking stations and finally to the sorting station.

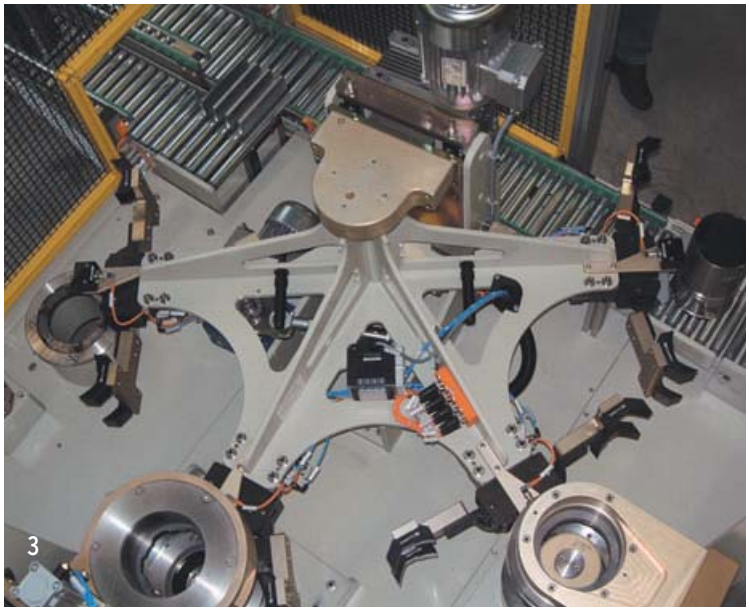


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Photo 1: Test part
Photo 2. Total view
Photo 3. Swivelling arm

Various test tasks on components of fuel injection systems

Due to rapid developments in the field of diesel and petrol injection systems a lot of new application fields for the eddy current test method have followed. Most often the concerns are relatively small parts which have to withstand high pressures within the injection system.

1

Such components must be 100 % tested for correct heat treatment (hardness) and cracks. In the meantime, ibg is a supplier to all known manufacturers of injection systems world-wide.

Photo 1 shows a typical component, a sleeve, which is part of a direct injection petrol engine. The task is to detect circumferential cracks smaller than 2 mm length and 0.15 mm depth on the inner and the outer diameter. ibg has developed and manufactured a system which scans the entire part for surface-open cracks at a rate of one part per second (photo 2). In order to reach this cycle time three sleeves are tested simultaneously.

Similar test systems for crack and structure test applications are developed to customers' specifications. Please contact ibg.

2

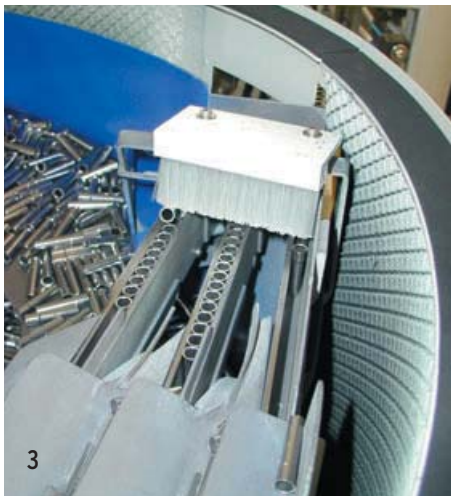

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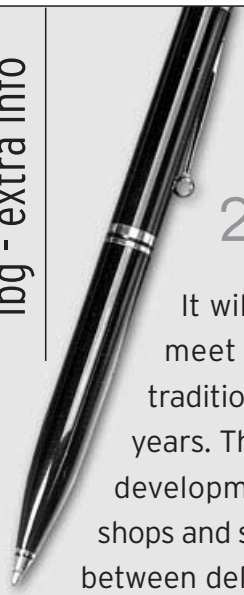
Photo 1: Thin-walled sleeve
Photo 2: Total view of test system
Photo 3: The parts are fed via a vibration bowl to the test system and divided into three rows.
Photo 4: In a group of three the parts are transported through the test system hanging in receptacles of an indexing wheel.

ibg - extra info



International Sales Meeting in September 2004

It will soon be time: all representatives of ibg will meet from 2nd to 5th September 2004 for the traditional Sales Meeting which takes place every two years. The aim of the event is the presentation of new developments, maintaining of ibg know-how by workshops and seminars as well as the exchange of experience between delegates. ibg attaches great importance to the fact that its representatives have sound knowledge and experience in eddy current technology. More than 40 participants are awaited.

Up to 10 balls per second ...

... tested for material mix and correct hardness - isn't it a feat?

You do not see it at first glance but this small ball tester with its precision mechanical and electronic construction is a high-performance system. It manages balls with a diameter range of 1.5 - 6.0 mm. The changeover from one diameter to another takes only a few minutes. The balls are forwarded by means of a transport disk to the test position where each ball is tested for correct structure using the Preventive Multi-Frequency Technology. Depending on the test result the ball is sorted to either the OK or the NOK channel.

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