



# info

No. 1

ibg-Talk



Despite stagnating economy and crisis atmosphere in industry the demand for innovative test system is increasing. Especially in this field, ibg Prüfcomputer GmbH has become world-known during its more than 20 years of experience and has advanced to a pacesetter in the development of eddy current test systems for component testing. In order to keep our steadily increasing, world-wide customers informed on new developments, intelligent solutions and general applications, we have brought this Newsletter into being which will be published from now on in regular intervals.

I am very pleased to present the first issue of the ibg test info today.

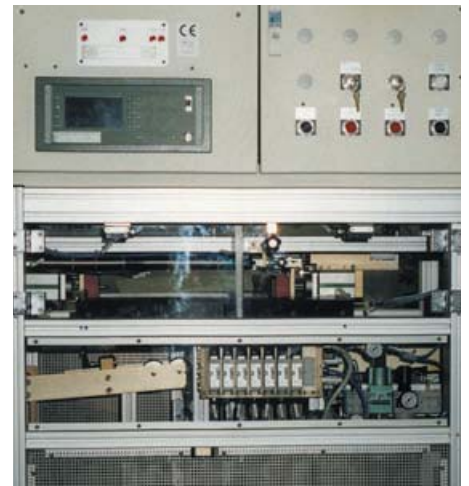
*Yours  
Herbert Baumgartner*

## Output Shafts automatically tested with eddyliner® P4

Utilizing ibg's **eddyliner® P4** technology, a new system provides automatic 100% testing of output shafts at four locations for hardness, case depth and hardness runout. Installed following the induction hardening process, the system is fed by a roller conveyor. In the system, the shafts are lifted up and clamped on the centers and test coils move automatically to each test position.

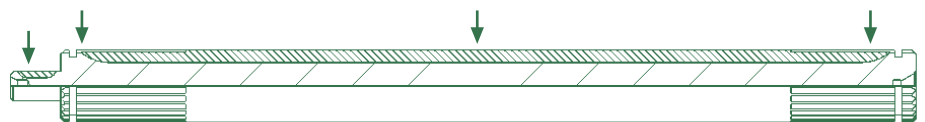
After testing, correctly-hardened parts are forwarded to the next process step, while incorrectly-hardened parts are rejected via a gravity chute to a locked container.

Non-destructive testing to verify correct material properties after heat treatment is a common task for ibg systems, including verification of correct hardness, case depth and hardness pattern (as in this application), case hardness, retained austenite, decarb, wrong material and other properties.



Shaft is fed into test system (from right) by gravity roller.

Automatic 100% testing for material properties is now often a mandatory process for component manufacturers. It is often required to assure zero defects in parts subjected to heat treating and alloying processes



Test coils move to four test positions (indicated by arrows) over the shaft lengths.

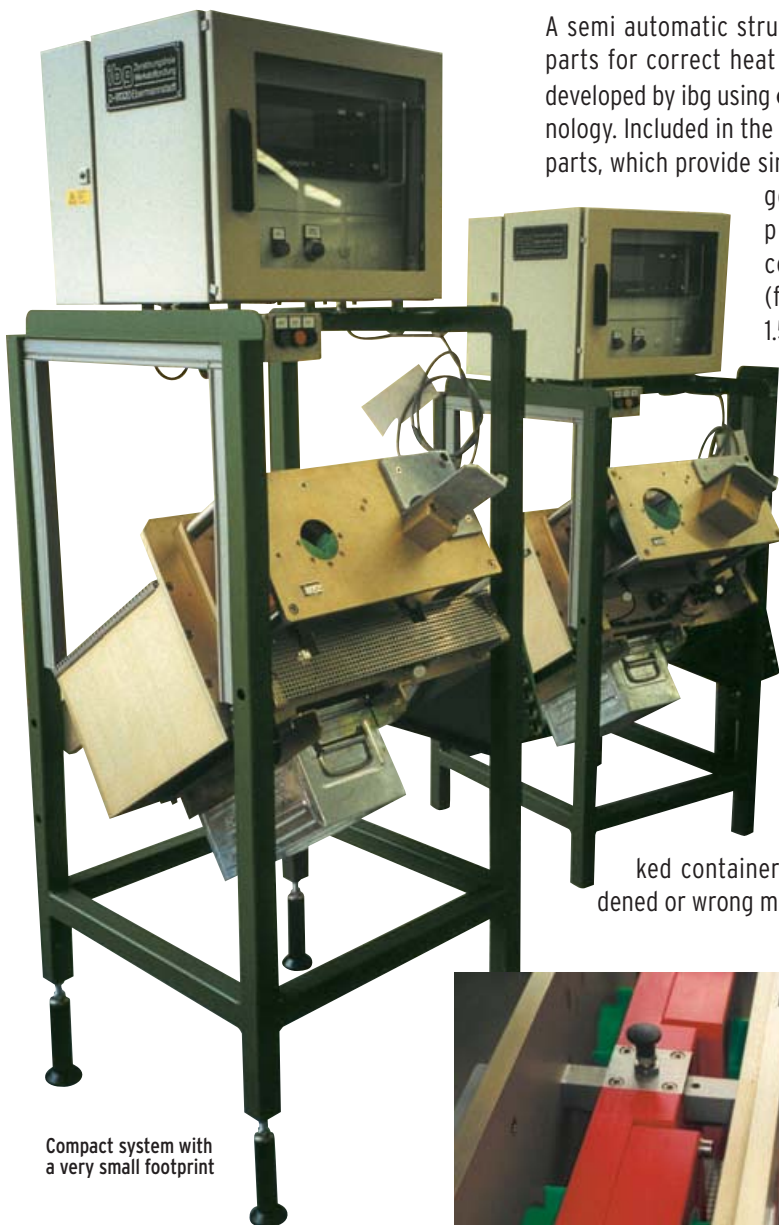


# Forged parts are 100 % tested for heat treatment and for wrong material

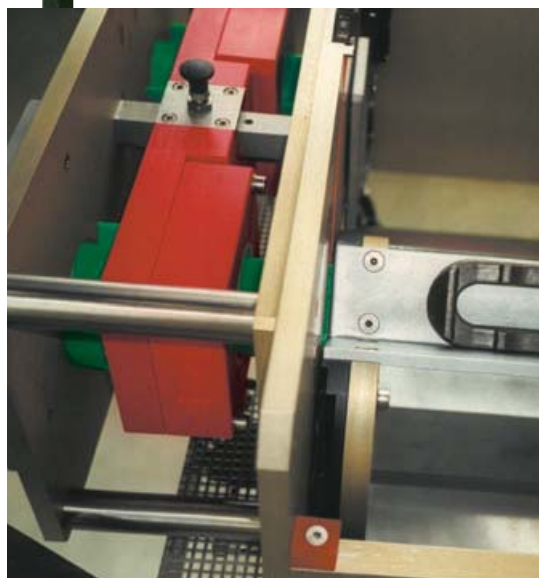
A semi automatic structure test on forged parts for correct heat treatment has been developed by ibg using **eddyliner<sup>®</sup>P** technology. Included in the system are exchange parts, which provide simple and quick changeovers for the test parts, which vary considerably in size (from approximately 1.5" to 10" in length).

Parts are placed on a gravity chute manually from which they slide into test position. Then depending on the sorting decision of the test instrument, each tested part is forwarded to an OK parts chute, via a sorting rocker, or is passed on to a locked container for incorrectly hardened or wrong material parts.

locked container for incorrectly hardened or wrong material parts.



Compact system with a very small footprint



A forged part is about to enter (from right) the test area.



Test system for crack detection on motor blocks

## Cylinder liners in engine blocks are tested for cracks and pores

A semi-automatic **eddydetector<sup>®</sup>** system by ibg utilizes **eddyscan<sup>®</sup>C** to scan for cracks and pores in cylinder liners in engine blocks. Various configurations: 3, 4 or 6 cylinders in-line, as well as 6-, 8- or 12-cylinder blocks can be scanned.

A rotating probe automatically centers in the cylindrical bore hole and scans the entire ID surface for cracks and pores. An X-Y slide controls position tolerances and angle of the scanner in the bore hole automatically.

Mounted on a casters for mobility, the compact system is designed to be transported from laboratory to production line, where it can be directly integrated into the process.



# Rotating eddy current scanner inspects steering racks automatically for cracks, replacing magnetic particle inspection

A system for automatic crack inspection of hydro steering racks has been developed by ibg. Utilizing a two-channel **eddydector**<sup>®</sup> and rotating scanner **eddyscan**<sup>®</sup> H2/25 instrumentation, finish-ground or super-finished steering racks are tested along their entire sealed journal area for cracks and pores.

With throughput of 200 mm/sec, the system is faster than the grinders and runs parts at approximately 600/h. Non contacting crack inspection is carried out as the racks are fed

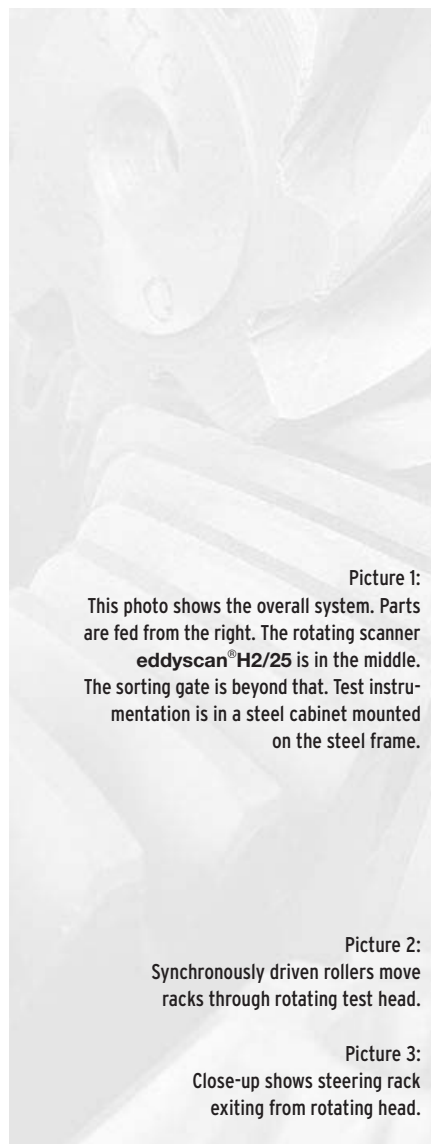
gently and precisely through the **eddyscan**<sup>®</sup> H2/25, which is rotating at approximately 6,000 rpm.

Blanking out of the toothed area and piston location is automatic by means of an adjustable fork-type light barrier. Use of **eddyscan**<sup>®</sup> H2/25 with such high rotation (6,000 rpm) means that - even with 200 mm/sec. throughput - the whole surface area is scanned for cracks with high resolution and no skipped surface. For example, it would not

be possible to rotate the steering racks at 6,000 rpm!

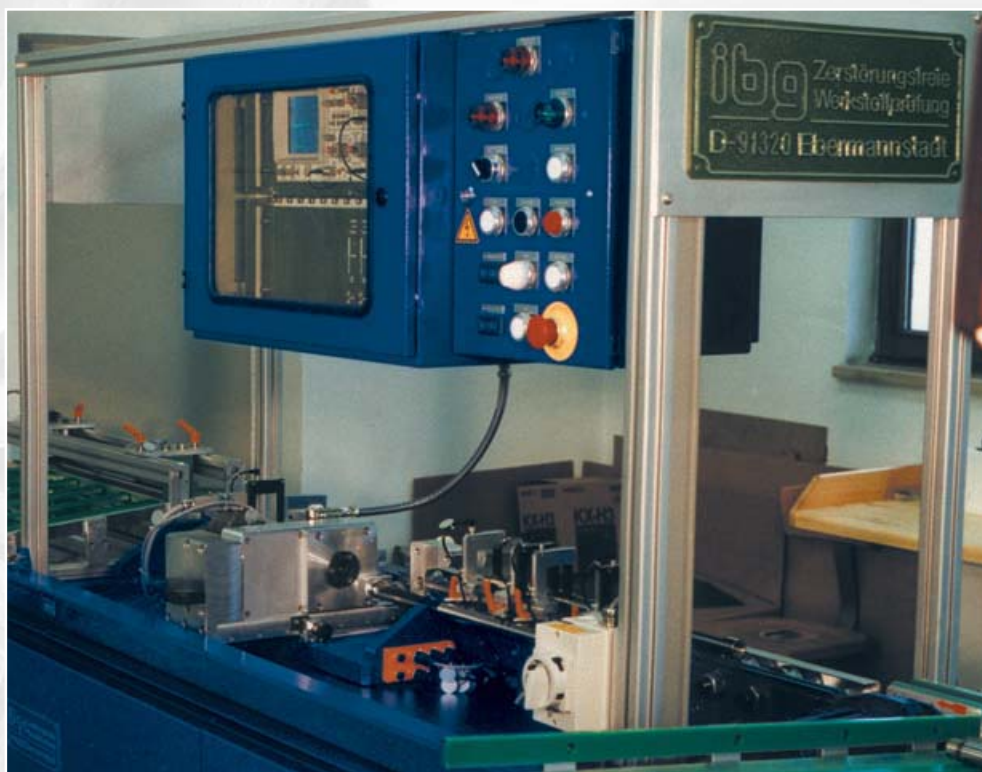
Change over from one part number to another is easily accomplished in under 10 minutes with use of exchange parts and the simple adjustment of test parameters.

These systems replace magnetic particle inspection on the steering racks, providing higher test resolution, much higher reliability (no human inspection) and lower overall.



Picture 1:

This photo shows the overall system. Parts are fed from the right. The rotating scanner **eddyscan**<sup>®</sup> H2/25 is in the middle. The sorting gate is beyond that. Test instrumentation is in a steel cabinet mounted on the steel frame.



Picture 2:

Synchronously driven rollers move racks through rotating test head.

Picture 3:

Close-up shows steering rack exiting from rotating head.



ibg - extra info

## International Sales Meeting in September 2002

Our traditional International Sales Meeting in 2002 will take place in Switzerland, in Lucerne, from 5 to 8 September. Here all ibg sales partners meet in order to discuss about new products and applications as well as to exchange experiences. We expect 45 participants from 15 nations.

## ibg France celebrated 1<sup>st</sup> anniversary

On 1 April 2001, ibg France started business as sales and service office in a suburb of Lyon. Even during the first year it has turned out that the presence on the important French automobile market is worthwhile. Several test systems for material test have been installed. Presently, turnkey systems are negotiated with well-known automobile sub-suppliers.

# Rotating head family



The test method using eddy current is gaining more and more popularity for the crack detection on cylindrical parts. Reasons for that are the always reproducible and residue-free method as well as the excellent feasibility of automation of this test. The application of rotating systems increases the productivity considerably.

The rotating head family **eddyscan**<sup>®</sup> was especially developed for applications in the automotive industry. The **eddyscan**<sup>®</sup>F

is used for crack detection in boreholes, for example piston boreholes, cylinder liners or bearing rings. The outer diameter of cylindrical parts is efficiently tested by means of the **eddyscan**<sup>®</sup>H. Applications are for example crack detection on steering racks or shock absorber pistons. The **eddyscan**<sup>®</sup>C is used for motor block testing. The self-centring probe disk scans the cylinder borehole for surface defects.



ibg Prüfcomputer GmbH  
Pretzfelder Straße 27  
D-91320 Ebermannstadt  
Tel: +49 - 9194 - 7384 - 0  
Fax: +49 - 9194 - 7384 - 10  
E-mail: info@ibgndt.de



ibg NDT Systems Corp.  
20793 Farmington Road  
Farmington Hills, MI 48336  
Tel: +1 - 248 - 478 9490  
Fax: +1 - 248 - 478 9491  
E-mail: sales@ibgndt.com



ibg Swiss AG  
Galgenried 6  
CH - 6370 Stans  
Tel: +41 - 41 - 612 2650  
Fax: +41 - 41 - 612 2651  
E-mail: info@ibgndt.ch