



# info

No. 15

ibg-Talk



ibg has now completed the test instruments of the "digital" series and has been successful on the market for several months with the instruments **eddyliner**<sup>®</sup> "digital" as well as **eddyvisor**<sup>®</sup> "digital" for both crack detection and structure test.

The resonance so far is overwhelming and fortifies our philosophy to develop the best instruments and test systems for our customers all over the world.

Developing of test instruments on the one hand - but also application technology on the other hand - ibg becomes the trendsetter in the component testing market. Since the existence of the Preventive Multi-Filter Technology it has been possible to detect grinding burn reliably and automated.

The newly developed simultaneous harmonics analysis in structure test enables new chances regarding test speed and rest reliability.

The new ibg Info informs you on further applications. Our offices and sales partners will be glad to assist you.

*Yours  
Herbert Baumgartner*

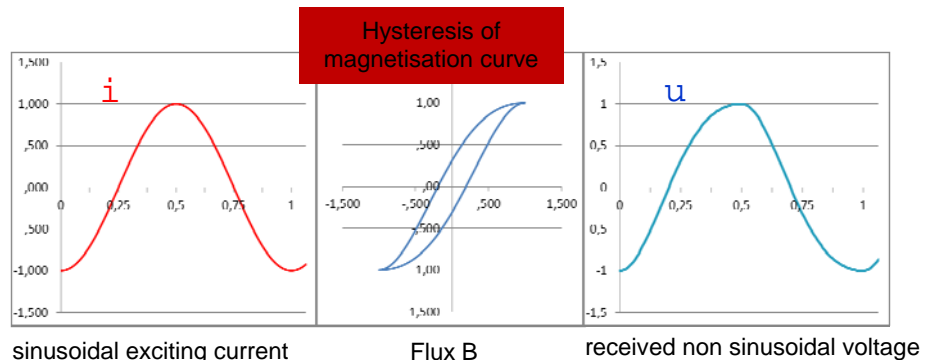
## iSHA

### ibg's Simultaneous Harmonic Analysis

#### New test possibilities and Additional test reliability

The structure test instruments of the new instrument line **eddyliner**<sup>®</sup>**S** digital as well as **eddyvisor**<sup>®</sup>**S** digital are equipped with a very new and special feature: iSHA = ibg's Simultaneous Harmonic Analysis.

Based on the fundamental wave of the eight test frequencies, two harmonics of odd order are additionally captured and analysed by the test software - and this simultaneously to the well-known Preventive Multi-Frequency Test. The harmonics result from a hysteresis of the magnetisation curve of the test part in the coil arrangement.



Source: Handbook Induction Heating by Herbert Baumgartner, 2012

The analysis of those harmonics gives a much more detailed sight of the magnetic features of the test part and thus more precise information on the structure.

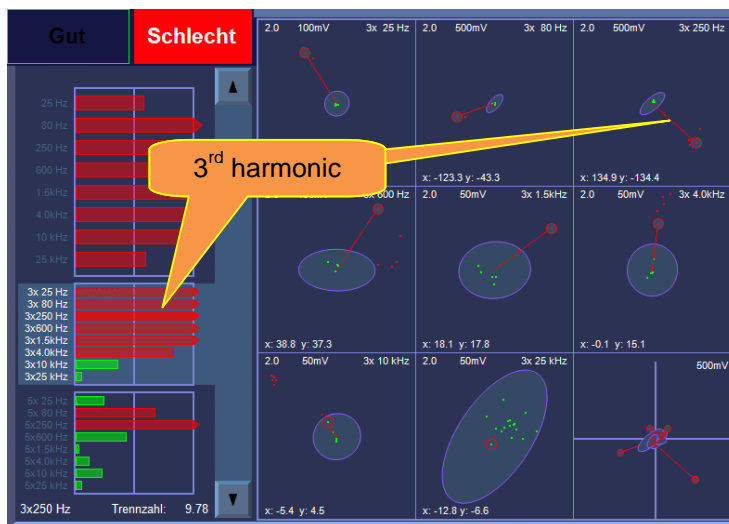
Thus it works out that by using harmonics material differences are now detected which have been hitherto undetected by using the fundamental wave.

The harmonic analysis is already active in **eddyliner®S** digital and **eddyvisor®S** digital in the standard setup and is displayed as bargraph diagram.



The 3<sup>rd</sup> and 5<sup>th</sup> harmonic are viewed as default, other combinations may also be set.

Typical applications for using harmonics are testing for hardness or detection of soft spots on the surface. Case depth as well as surface hardness provide very good signals to be evaluated at the harmonics when underrun the requested thickness.



Characteristic test result of a part with too shallow case: the largest separation figure arise from the 3<sup>rd</sup> harmonic.

## Testing of piston rods for surface defects

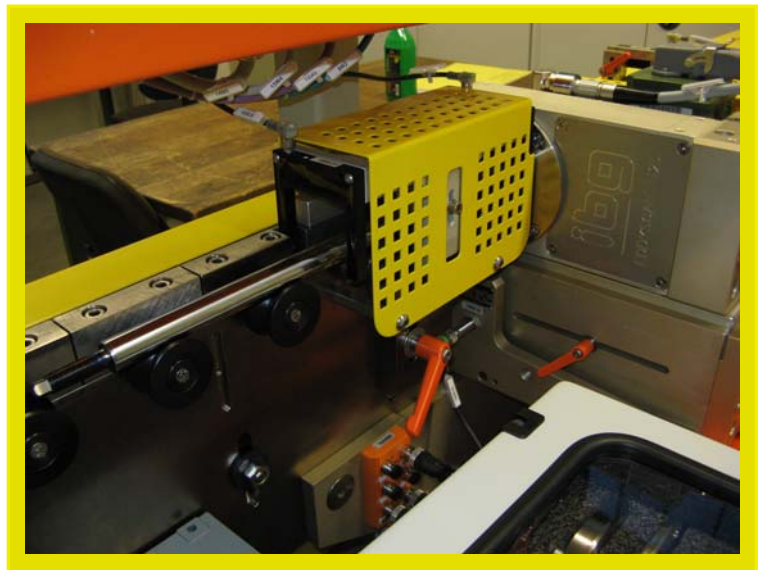


Piston rods mounted in e.g. shock absorbers can have cracks due to the complex production process with several heat treatment steps and grinding processes. More and more manufacturers replace the unreliable and cost-intensive visual inspection by the much more efficient and automatable eddy current test.

ibg offers suitable solutions fitting the production process. Usually, piston rods are tested by means of a rotating head **eddyscan<sup>®</sup>H**, the test part is moved through the rotating head where a probe disk with test probes rotates. Throughput of up to 800 mm/sec. is possible.

If small batches shall be tested the "classical" method could also be applied, where the test part is rotated and a probe scans the surface for surface-open defects.

Both methods, rotating probe or rotating test part, guarantee a 100 % test of the critical part's surface and this without any chemical auxiliaries and it can be automated. Test system are designed as per customer's requirements and may be integrated into to existing production lines.



ibg - extra info



### ibg's new sales partner in France

Qualisco ([www.qualisco.com](http://www.qualisco.com)) is ibg's new sales partner for the French market, with experience in the component branch. Mr. Romain Labroye-Schulte, managing director of Qualisco, to ibg:

"The automobile market economically plays a dominating role in France, furthermore. Local manufacturers of test systems and machines, however, often cannot keep up with customers' technical requirements. So ibg will be very successful in France."

Qualisco is the new contact for our French customers, and he has all necessary equipment like application laboratory, instruments and a choice of spare parts at his disposal.

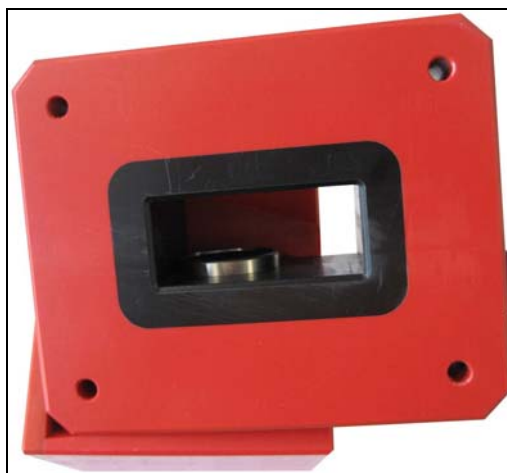
In addition, Qualisco offers contract trials worldwide.

### A typical application for material mix up verification: Testing of valve seat rings

The valve seat rings must be tested for correct material before they are mounted in the cylinder head, otherwise there is the risk that geometrically identical rings but different in material alloy are mounted. For instance, motors which run with natural gas or petrol require rings of different alloy, in case of mixing up, the motor will fail.



valve seat ring in rectangular coil



ibg offers for this application different concepts, starting with semi-automatic solutions up to an automatic test station integrated in automatic assembly machines.



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