

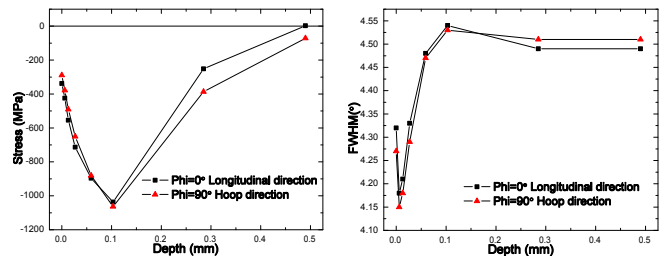
SHOT PEENING IS HOT!

The shot peening method is in short, a method of impacting the surface of the component with round metallic, glass or ceramic particles to create a plastic deformation of the surface layer. This plastic deformation produces higher compressive, residual stresses in the surface, and will extend the fatigue life of the shaft, gear, or whatever the component is used for. XSTRESS 3000 G3R has shown to be good tool to verify that the stresses on shot peened surface and stress profiles are desired and acceptable for the purpose of the component.

*Text Per Lundin,
Inomec AB*

The Swedish truck manufacturer SCANIA has been using Barkhausen noise analysis for many years in their manufacturing for quality control of several part types. Also at their Materials Technology laboratory, Barkhausen noise has been used as a method for process development. Scania Materials Technology has also been sending samples for Stresstech's measurement service for residual stress and retained austenite measurements with the X-ray diffractometer. During the past few years the use of Stresstech measuring service has been so intense that during 2007 Scania decided that it should invest in their own X-ray diffractometer from Stresstech. The diffractometer, a XSTRESS 3000 G3R, was delivered in the spring of 2008, and has been intensively used since then.

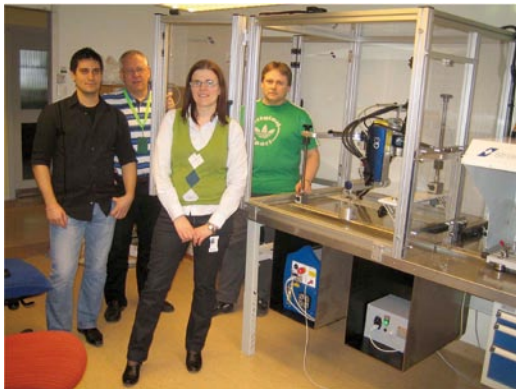
*Typical stress profiles on
shot peened surface.*



"One of the main tasks with our new diffractometer is to measure the residual stress profiles of shot peened components", says Taina Vuoristo, PhD, responsible for the residual stresses measurements at Scania Materials Technology.

Shot peening has become a very common surface treatment method of steel components. *"During the few past years we have seen a large increase in the demand of our measurement service, especially regarding shot peened products",* verifies Janne Suoknuuti from Stresstech Oy, *"In particular we can see that gears are products that are very popular right now for shot peening".*

The shot peening group in the Nordic countries became acquainted in the possibilities of XSTRESS 3000 G3R system in studying shot peening in their spring meeting at Scania in Södertälje this year. This group has been gathered together as a group called Nordic Association Advancing Shot Peening Technology some years ago. This organisation is also known as the SPORT Group (the Shot Peening Operative Resource Team), see also www.sport-group.org. The SPORT-group consists of 16 members, both from the university and from the industry, from Sweden, Norway, and Finland. SPORT-group's objective is to create a forum for the exchange of ideas and experiences related to problems, inventions, and nomenclature in the field of shot peening.



The research team at Scania; Ninos Hawsho (left), Taina Vuoristo (middle), and Thomas Hammarlund (right), together with Per Lundin (middle) from Inomec and the Xstress 3000 G3R at Scania.



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EDITORIAL



Terrible twos and puberty ages are long gone, and Stresstech Group has reached the smooth adulthood. American Stress Technologies was established 25 years ago in USA, and Stresstech a year later in Finland. Stresstech GmbH in Germany was born to the family in 1999. It's time to look back and forward.

During this quarter of a century in business we have found our customers - or customers have found us - we have established our position as the quality control partner, and made it clear to ourselves, what we want to do and how. Many of our main products have gone or are going through change of generation as the demands in the market change and grow. Thanks to our customers our smooth adulthood is not too smooth, but the very different needs of our customers keep our interest high and make every day different and challenging. Because of this vast experience gained during the past operating years, we can offer more up-to-date products and services to our customers.

In this very specialized but for metal industry necessary business of ours we continue to deepen our knowledge and know-how on stress related quality inspection methods and tools to be and stay the number one stress measurement company.

Lasse Suominen, President of Stresstech Oy

INOMEC AB REPRESENTS STRESSTECH IN THE NORDIC COUNTRIES

“Barkhausen Noise and X-ray diffraction users in Sweden, Norway and Denmark operate in many different fields, which makes the representation work very interesting”, says Per Lundin, sales manager of Stresstech products at Inomec AB.

The company Inomec has represented Stresstech in the Nordic countries since 1988 from the Group's early steps. The work began then in the company Inration AB, which was acquired by Inomec in 1999.

“Norway is much into oil and hydro power, Denmark in hydraulics, wind-mills, and agriculture, and Sweden much into paper, mining, and steel industry having also two major

truck manufacturers, Volvo and Scania,” continues Per. Volvo is using Barkhausen noise for measurements on camshafts, crankshafts and gears in their production plants in Skövde and Köping. Scania is using BNA for measurements of the same products at their main plant in Södertälje. Also sub-suppliers to the truck manufacturers are using BNA in their manufacturing. Inomec has also delivered equipment to manufacturers of hydraulic pumps and motors in Sweden and Denmark, who are using BNA in their manufacturing for quality control and process development.

“It is very interesting to see how our customers start to use BNA as a sorting tool after the grinding process to detect grinding burns”, says Per Lundin. *“But then they develop their skills and continue using their BNA-equipment more and more as a process development tool getting control also of the earlier stages in their grinding process.”*

Stresstech has delivered several X-ray diffractometers in Sweden during the years. These customers are using the diffractometers both for production control and for research and development, also in connection with measurements with Barkhausen noise.

“We have also a lot of customers using Stresstech's very efficient and competent abilities through measurement services. Some of our customers have their own materials laboratory with X-ray diffractometer, but prefer to send their samples to Stresstech for analysis of residual stresses or retained austenite. They are very impressed that Stresstech's service is so very fast and reliable”, says Per Lundin.



Per Lundin from Inomec getting acquainted with CamScan 1000-4 HD under construction, which was delivered as two units to Volvo Powertrain Corporation in Sweden in 2007.

DRILLSCAN FREES TIME FROM QUALITY INSPECTION TO PROCESS DEVELOPMENT

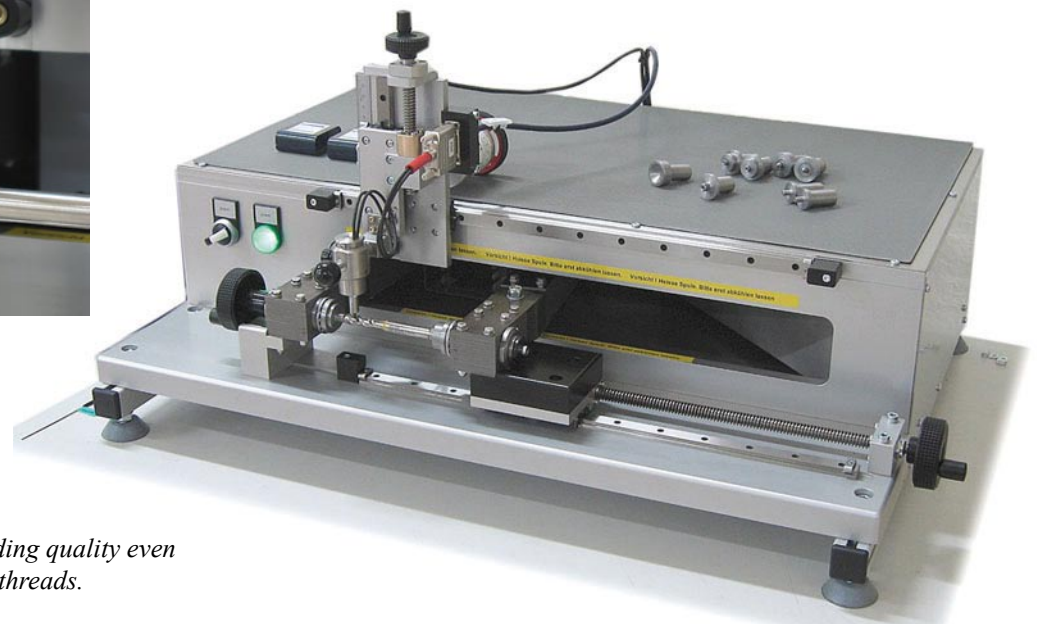
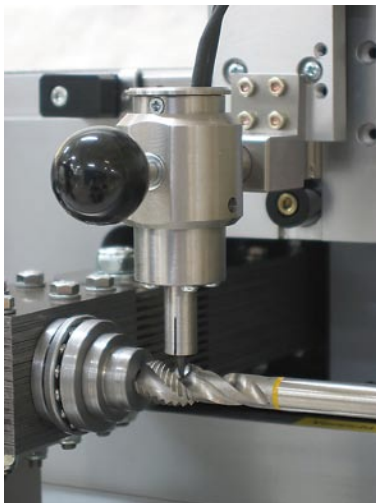
*Text Dominik Dapprich,
Stresstech GmbH*

Improving the grinding quality of drilling tools and threads is becoming more and more important. New innovations such as Stresstech's **DrillScan** are used to meet the increasing requirements of the users.

The market is demanding lower prices and quicker delivery times, so high speed grinding is becoming more and more important for the manufacturing process. Incorrectly set parameters are increasing the probability of grinding burns tremendously. Modern grinding machines have very high stock removal volume, which is able to temper or even reharden the cutting edge of the tools being ground. This leads into smaller endurance of cutting tools immediately. In some cases only 10 % of the normal endurance is caused by burned tools. In use those parts bear the risk to break during the machining process. Then of course not only the tool is damaged, also the machined part is very often destroyed or at least needs to be fixed.

To avoid the delivery of burned bad tools a customer in the Black Forest is checking the quality of the manufactured cutting tools with the new **DrillScan**. This instrument is especially developed for checking the grinding quality of drilling tools and threads.

In addition to checking the quality of the produced parts, the equipment is used for monitoring the grinding process. This way the parameters of the grinding machines can be improved to avoid the production of burned parts.



The big advantage of using Barkhausen Noise is the quick response of results after the manufacturing process. Normally it takes several hours or even days to obtain results from the microscopic examinations in the laboratory. The parts need to be prepared, casted in, polished and etched. Only after that the examination can start. Moreover, only the cut area can be examined, which means that the complete part never can be monitored completely by microscopic examinations.

With the **DrillScan** a complete tool can now be checked quickly without destroying it. The tool only needs to be clamped in the yoke and scanned with the DrillScan. This takes just a few minutes and the results are monitored in real time. Furthermore the part needs not to be prepared in a special way compared to classical quality tests. DrillScan user can now concentrate more on the continuous improvement of the tools and the production process.

The first step is to set the rejection limits and check the quality of the parts. The big advantages are saving time to monitor the parts and analyse as well as optimize the production to increase reliability and customer satisfaction.

The potential of using Barkhausen Noise to improve the manufacturing process is extremely high. Barkhausen inspections have become more and more important in verifying the quality of parts and machining processes. Another big advantage of Barkhausen Noise compared to microscopic examination and nital etching is the non destructive character of Barkhausen Noise inspection.

DrillScan verifies the grinding quality even in small drilling tools and threads.

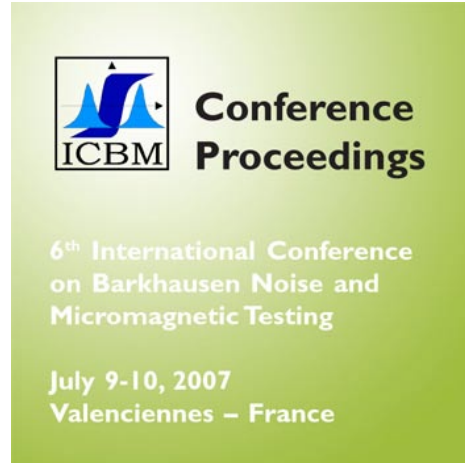
ICBM AGAIN IN 2009

The semiannual International Conference on Barkhausen Noise and Micromagnetic Testing will be held again 2009. For more information on the event, visit the website www.icbmconference.org.

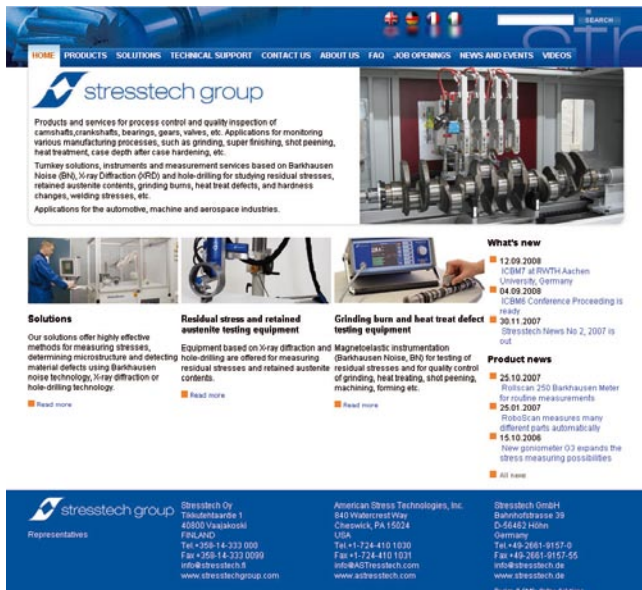
ICBM6 Conference Proceedings

The 6th International Conference on Barkhausen Noise and Micromagnetic Testing took place in Valenciennes, France in 2007.

Order the Conference Proceedings from www.icbmconference.org.



STRESSTECH GROUP WEBSITE UPDATED



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www.stresstechgroup.com

has been updated in 2008. Browse the site for new products, updated information of products in production, video demos and much more!

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