

PRESS RELEASE

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unverDROSSen – efficient, conservation-friendly production of large casting components

To compete in the international iron manufacturing market, the capability to efficiently produce large-scale casting parts while conserving resources is becoming increasingly essential. Particularly with wind power systems, the dross* found in large cast iron components with nodular graphite (GJS) can increase manufacturing, personnel and energy costs. These components must frequently be re-worked using extremely time-consuming manual processes.

Manufacturers of cast components (wind power turbines and ship engines for instance) are all too aware of the problem with dross, an issue that has not been resolved to date. A research project involving renowned industry partners has finally opened up the possibility of examining large casting components with dross defects in a targeted fashion and developing ways to turn dross into usable parts, keep the re-work to a minimum and in particular avoid the scrapping of defective components, something which is a major benefit to manufacturers and users.

For more than 40 years, researchers at the Fraunhofer Institute for Nondestructive Testing IZFP have been involved in the development and enhancement of innovative nondestructive testing (NDT) methods for every conceivable industry. Whether it's cracks, delamination, material damage or material changes, these defects may frequently be invisible to the human eye, but not to the nondestructive testing experts at Fraunhofer IZFP.

To date, the research industry has had little involvement in the problem of dross since these components are either re-worked or declared as rejects.

“Research has shown that several nondestructive testing processes possess excellent potential in more accurately identifying and characterizing these impurities. Our part in the *unverDROSSen* research project involves further developing existing NDT processes and where applicable to transfer newly developed processes into practical application,” explains Dr. Jochen Kurz head of the Materials Characterization department at Fraunhofer IZFP. Working closely together with Fraunhofer IZFP is the Fraunhofer Institute for Structural Durability and System Reliability LBF, which is examining the issue of structural durability.

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** Dross describes impurities caused by oxidation that form on the surface of molten metals. Components that exhibit these types of structural defects are frequently rejected during the construction of wind power systems*

The *unverDROSSen*** project is being sponsored by the German Federal Ministry of Education and Research through its Jülich project management organization. Under the project leadership of Fraunhofer LBF and with the participation of renowned industry and association partners, the primary aim is to transfer the results of the research into practical applications for industry. The project is slated for completion by the end of 2017.

** (a German word that means thorough, with painstaking care)

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GJS-based cast parts are important components in the construction of engines and engine housings.

"Turret of the Südkronsberg wind power turbine from below"
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