EC-WORKS latest Eddy Current Inspection Technologies and Inspection Strategies

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Situation:

The actual power market in Central Europe is dominated by large amounts of renewable energies: These wind and solar energies are overstocking the energy market and this results in massive overcapacities of classic power plant fleets.

Many of the former base load power plants are nowadays running in a peak-load mode, this creates new challenges for the inspection and maintenance departments as formerly well working shut-down intervals has to be adapted and modified.

The New Challenge:

As a result of this marked situation most maintenance budgets have been cut drastically, therefore new faster and cost-effective inspection and repair works concepts have been developed to meet the markets new requirements.

The most important tube heat exchangers as condenser and preheater systems shall not be re-tubed completely as in the old days; but only partial to save money on the short remaining running period of many power plants. This should be done based on reliable inspection results, which should be delivered in a very tight schedule during shortened plant shut-downs.

Eddy Current Inspections at refineries and process industry plants are mostly all about carbon steel tube inspection. We have redesigned the saturated eddy current technology and promote this now under our label probolog™

These technologies represent a kind of transfer of the sensitivity of common eddy current tube inspection with the possibilities of online eddy current tube inspection system to the service related on-site tube inspections.

Carbon Steel Tube with Aluminium Fins
Key Features of The New Inspection Technology:

**Fast Online Signal Evaluation:**
One major cornerstone of our eddy current inspection technologies is the immediate software supported on-line signal evaluation. In aging plants, many tubes exhibit critical eddy current indications and this requires an immediate on-line signal evaluation.

**Permanently Immediate Reporting:**
Our new software enables us to give the plant crew instantly any kind of reports, e.g. about the number of inspected tubes and their defects, tubes to be plugged or re-tubed; whenever needed. The final inspection results are available immediately after the inspection of the last tube to support plant actions for tube removal/re-tubing.

**Fast Tools and Probes:**
This set-up requires a tailormade inspection technology consisting of software- and hardware-tools. Modified very fast and sensitive eddy current probes, simple but tough tools for manual or mechanized probe travel and good trained inspection personal delivers a new reliable and very fast eddy current tube inspection package.

probolog™: The latest developments with regards to carbon steel tube inspections will be presented with details and real life inspections examples.

Stainless steel tube internal surface

**Summary:**
This presentation will provide details about the new ec-works software and hardware tools and our modified inspection set-ups to enhance the efficiency of eddy current inspections. Several short examples of inspections performed in the last few years will be included to give the audience a closer view to the details highlighted earlier.

Please feel free to contact the author for further and more detailed information.