Premium Solutions for Boiler Tube Testing

AN INNOVATIVE METHOD FOR ON-SITE INSPECTION OF EXISTING POWER PLANTS
Over 125 years’ experience in hot finished seamless tube production

Since 2000, more than 1,000,000 tons of quality tubes for power plants produced and delivered worldwide

Since 2010, more than 30,000,000 meters of boiler tubes have been tested by ultrasonic methods in our mills

Non-destructive testing of boiler tubes

For decades, Vallourec has been renowned worldwide as a manufacturer and full-range supplier of high-grade boiler tubes for power plants. In developing ever new products and materials and cooperating closely with customers on projects and applications, we have acquired unrivalled expertise in materials technology and manufacturing processes.

Our numerous innovations in the materials sector and the many new applications we have opened up for our tubes in power plant engineering would be unthinkable without state-of-the-art destructive and non-destructive testing techniques. From the findings they supply, we can reliably derive quality parameters such as lifetime, processing behavior and corrosion resistance. At the same time, they form the indispensable basis for national and international certifications and customer-specific approvals.

State-of-the-art testing techniques and feedback from practical applications

Vallourec has its own non-destructive testing (NDT) department. The over 25 highly specialized engineers and testing technicians working there have the latest testing techniques and equipment at their disposal. Vallourec also has several Research Centers, whose test and development findings on processes and materials allow us to steadily increase and broaden our knowledge of the application-specific properties of seamless hot-finished tubes – to the advantage of users.

“An innovative testing technique that supplies differentiated findings on the condition of boiler tubes in existing power plants.”
Our experience for your boiler

Mobile testing technique supplies differentiated findings

Vallourec has now “mobilized” its concentrated testing competence with a new technique: using an ultrasonic process based on phased array technology in combination with a mobile unit, a team of specialists can carry out non-destructive in-situ tests on boiler tubes in existing power plants. The plant operator receives test reports with precise information on the position of each defect detected or expected in the boiler tubes. In conjunction with computer simulations and calculations, this enables him to arrive at a differentiated assessment of the life cycle or the residual lifetime of his plant. Operators of older plants, in particular, can thus cost-effectively plan any necessary maintenance and revamping jobs on specific boiler components. This shall help to success fully set up a preventive maintenance approach.

On-site testing of boiler tubes by Vallourec’s NDT team benefits of the new method

– innovative special technique for power plants with extended operating periods
– testing conducted on-site by a team of specialists
– new non-destructive testing technique that supplies differentiated findings
– Technique is adaptable to all power stations types and to specific customers requests
– clear localization of defective boiler tubes
– verification of test results by destructive testing
– extensive testing and materials expertise of a global leading manufacturer of boiler tubes
– planning safety and cost-effectiveness through reliable test results
– power plant operators acquire know how on the service life of boiler tubes and on the type, location and scale of defects.

Waterwall tubes leakages

➜ EDF coal-fired power plant
➜ Failures located fireside with a wide scattering

An extensive qualification

➜ Ultrasonic solution based on phased array technology
➜ Numerical simulation, lab tests and blind tests
➜ Versus radiography & eddy current techniques

A successful onsite control

➜ Mapping of the waterwall tubes
➜ Tubes with defects replaced and no false alarm

Success project for EDF

The French power plant operator EDF experienced repeated boiler failures in a 35-year-old power plant and wished to restore the plant’s reliability so urgently required within its energy network. For this purpose, EDF wanted to have the boiler tubes tested and replaced as necessary. Vallourec won the extensive bidding procedure issued by EDF, as the superiority of the new technique over conventional ultrasonic and eddy current tests was demonstrated in simulations, laboratory tests and blind tests on specimens from the boiler. Using the differentiated findings, the Vallourec team documented and mapped the condition of the boiler tubes, so replacements could be limited to defective tubes or tubes in which a defect was expected to occur in the near future.
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