

Quick testing of boilers.



Background

Coal, gas and oil-fired boilers in power plants and furnaces in large industries have furnaces made from water wall tubing. The dimensions are huge and accessibility is difficult.

Boilers are inspected at regular intervals, mostly during planned maintenance stops. This means often that it is necessary to erect scaffolds. When extensive replacements, major overhauls or modifications of boiler wall tubing are planned, there is no real alternative. Failures however, lead to fast shut-

downs and unscheduled downtime. This is where time is under pressure and scaffolding a time consuming activity. Moreover, maintenance turns from time based to condition based. This requires quick, simple but reliable inspection methods to gain insight in the furnace wall tubing condition and actions to be scheduled. By putting on specialized personnel, tools and materials inspections and small repairs can be performed in due time compared to the traditional scaffolding approach.

Service

KEMA provides these services at routine basis. Especially with unplanned shut downs this approach saves vast expenses. Visual inspection is usually combined with grinding and ultrasonic testing to measure remaining wall thickness. Computerized tables yield clear insight into the corrosion pattern in the boiler and severity of the attack. Derived from mountain engineering, our specialists are trained in rope access requiring only the opening of just a few manholes to perform the



inspections. Small repairs can be undertaken directly using a small cradle.

These services are applicable for large fossil and mixed fuel boilers and furnaces operating under a heavy thermal load up to 2,000 MW. Boiler parts that

can be inspected are for instance:

- Water wall tubing
- Burners
- Soot blowers
- Headers
- Super heaters and re-heaters.

Application

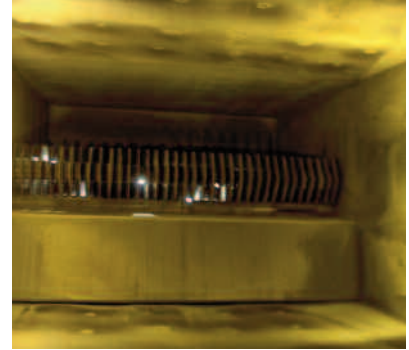
For boilers and furnaces the following services tools are applied:

- HSE toolbox meeting
- Project management
- Mark off grids
- Visual inspections
- Grinding
- Ultrasonic testing of wall thickness
- Corrosion and erosion testing
- Mark off weld on areas
- Data storage and processing
- Interpretation of the test results and advice on repair works.

Benefits

- No scaffolding necessary, saving outage time and cost
- Quick results as to root causes and extent
- Recordable, tabelized results, to support maintenance management decisions

- Trending possibility: two short stops will yield accurate results as to corrosion speed
- Consultancy by KEMA in the field of corrosion and life time assessment.



Case

The 640 MW_e coal fired unit 8 of Nuon in Amsterdam was shutdown for a major overhaul. KEMA was asked to perform wall thickness measurements and visual inspections with respect to low NO_x corrosion. Also 56 soot blowers were inspected in four walls with respect to erosion mechanisms. Within 48 hours KEMA tested and inspected more than 11,000 spots, processed and analyzed the test data and advised about repair works to be undertaken.

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