

Leaking tubes in Exhaust Gas Boiler

Application: Leaking tubes in Exhaust Gas Boiler

Place: The Caribbean Sea

Date: 2011

Job and report done by: KME, Greece

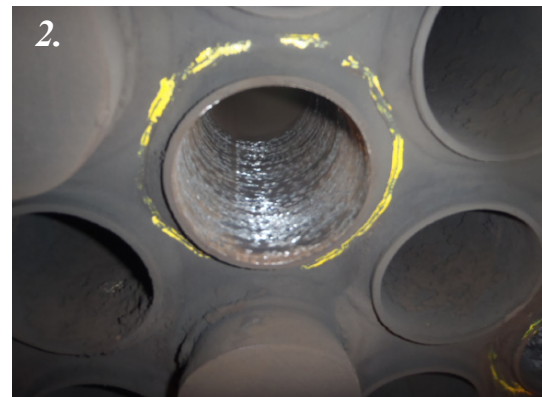
Wencon products used: Hi-Temp green, Tube expander,
Grinding tool, Cleaner, app. tools



1. Close-up photo taken from the water chamber side. It clearly shows tubes suffering from corrosion, right above the end plate level. The corrosion causes leaks, which could only be repaired from the smoke gas side of the boiler, due to difficulty access.



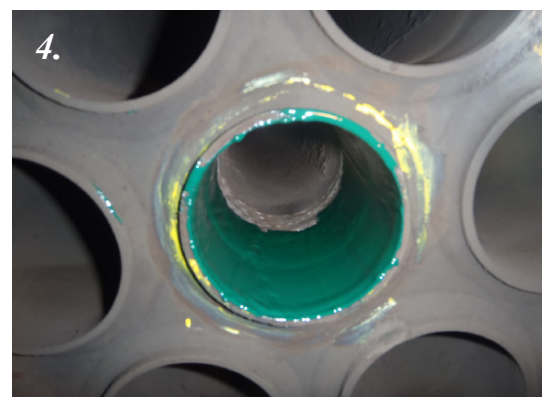
2. Internal pipe surface prepared. As rough as possible and hereafter cleaned using Wencon Cleaner.



3. Suitable amount of Wencon Hi-Temp are mixed and applied using a brush.



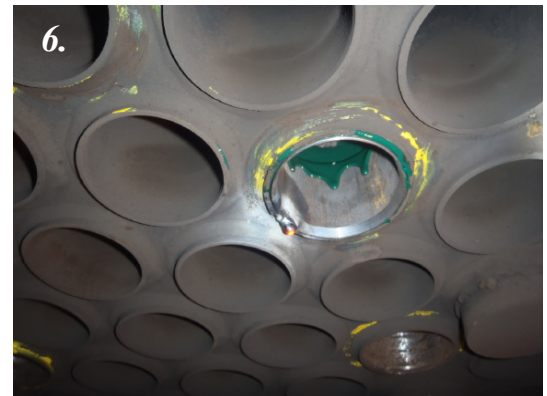
4. It is important to ensure, that the entire surface is completely covered with a thick layer of Hi-Temp.



5. Sleeves are produced with a tight fit and get knocked gently in position, using an appropriate size hammer.



6. Sleeve in position and tack welded to avoid rotation during expansion.



7. Expansion tool installed.

Please note the plugged tubes. All plugs will now be removed, and the boiler gets almost 100% of the original effect back after installing the sleeves instead.

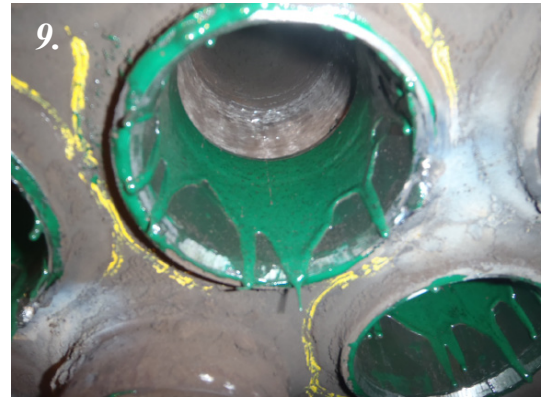


8. Inner sleeve being expanded during expansion.



9. Final result.

Photo shows Hi-Temp used as sealer between sleeve and tube. Excess material squeezed out around the sleeve, to ensure total fixation. Allow to cure according to product instruction, before operating the boiler.



Boiler capacity is back to nearly 100% effect again.

Choose the relevant surface preparation, according to the nature of the job. Seek advice from a Wencon Technician if needed.

Specification for surface preparation for Dry Applications

Defined as applications, where the Wencon product will be applied to a surface at a temperature minimum 3 degrees above dew point. Use the Wencon Products: Wencon Cream, Wencon Rapid, Wencon Coating, Wencon Ceramic Cream, Wencon Ceramic Coating, Wencon Hi-Temp, all requiring a dry surface.

1. Blast the machine part to SA 2 ½ using sharp-edged blasting media, to a roughness of min. 75 microns.
2. Leave the part for sweating out salts in a warm place for at least 12 hours or heat it up to 30 - 40 °C (86-104 °F) using gas torches.
3. Blast again to SA 2 ½ immediately prior to the application.
4. For parts containing lots of water and salt, it may be necessary to repeat 2. and 3. until the surface remains light grey for at least 2 hours after blasting.
5. Always use Wencon Cleaner prior to application.

Specification for surface preparation for Wet/Damp Applications

Defined as applications, where the Wencon product will be applied to a surface at a temperature less than 3 degrees above dew point. Use the products Wencon UW Putty, Wencon UW Cream and Wencon UW Coating for applications on wet or damp surfaces.

1. Water jet the entire surface with water and sand to a standard equal to SA 2½, as described above.

Specification for surface preparation for Emergency/Temporary Applications

Perago Treatment

Perago is a rubber disk with hard steel spikes mounted on the periphery. Perago can be mounted in a normal drilling machine, and gives a surface close to a blasted surface - clean and rough with sharp edges. Perago dishes can be ordered at Wencon and at all Wencon Distributors.

Grinding

Wheel grinding is often an acceptable surface preparation for emergency applications, where shot blasting is not possible. When grinding use a coarse stone or flap. Use the Wencon Cleaner before and after grinding. Grinding with sandpaper or emery cloth is only advisable when, for example, carrying out shaft-repair on a lathe. Often the grinding will not hit the dents.

Needle Gunning

Needle gunning is a method that has almost been forgotten in recent years. Or should we say is mostly used for very rough cleaning or removal of rust. It is possible to do a very nice job using a needle gun, but it takes time and should be closely supervised. It is essential that the marks from the sharp needles cover the whole surface so that none of the original surface remains. It is recommendable to steam clean the surface before needle gunning.

Wire Brushing

Wire brushing can be a good way of removing scales, rust and old paint. However, you will need to grind the surfaces after the wirebrushing to make the surface as rough as possible.