

Seawater / Cooling Water Pipes leaking

A.1028

Problem

Piping in tank below deck, found in very poor condition. Repairing recommended at earliest opportunity, to avoid problems before scheduled dry docking in 2017. Shipowner and Classification Society approved application, up to next dry docking.

Place & performer

Denmark

Assens Skibsværft, Assens, DK and Wencon

Application method

Temporary repair of elbows and T-joints.

Application date:

May 2014

Products recommended

Wencon Reinforcement Tape

Wencon UW Cream

Wencon UW Coating

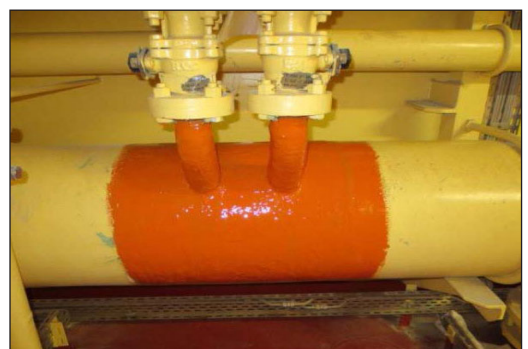
Wencon UW Putty

Wencon Perago Triss

Wencon Application tools

Pictures

1. Damages located in piping. In general, pipe thicknesses are critical and weldings penetrated several places, due to bi-metallic corrosion.
2. Surface prepared and ready for application.
3. Photo shows T-joint application in process.
4. Final layer of Wencon UW Coating applied. Left for curing 10-18 hours before operating.



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.

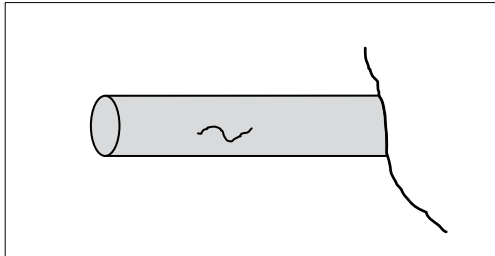
Needle Gunning

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

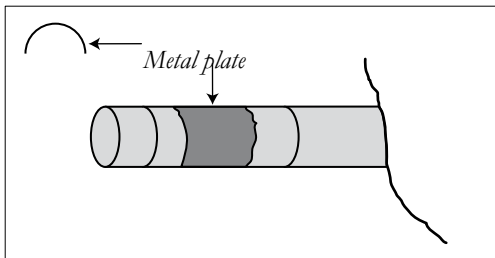
Wire brushing can be a good way of removing scales, rust and old paint. However, you will need to grind the surfaces after the wirebrushing to make the surface as rough as possible.

Pipe repair - ballast pipes

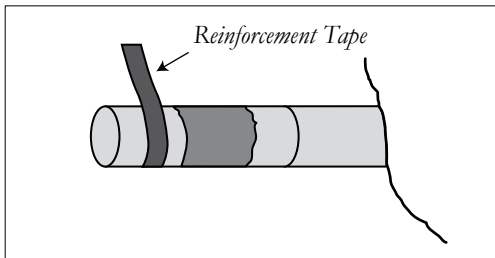


On all pipe repairs you have to consider - temperature and pressure during operation. This will help you to choose the right Wencon product and the right Wencon product and the right application datasheet.

In general for normal temperatures use Wencon Cream or Rapid. If you want a top coat use Wencon blue/white coating. For high temperature pipes use Wencon Hi-Temp, which can take temperature up to 160°C (320°F) in corrosive conditions and up to 300°C (570°F) used as a filler. If the surface is wet (ballast pipes) use Wencon UW Cream and Wencon UW Coating as the top coat. Wencon UW Cream and Wencon UW Coating will have a good adhesion on a wet surface - even under water.



1. If possible drain the pipe. Clean and dry the repair area and determine the size of the leak.
2. With an angle grinder, a Perago dish or coarse emery cloth, grind a belt around the pipe over an area of 10-15 cm (4-6 inch) wider than the leak. Clean the repair spot thoroughly with Wencon Cleaner.
3. If liquid is still coming out of the leak, mix and apply a suitable amount of Wencon Putty directly into the crack, to stop the leak.
4. Clean again with Wencon Cleaner.
5. Apply the first layer of Wencon UW Cream, using a brush or a spatula. (0,3-0,5 mm / 0.01-0.02 inch)
6. Cover the leak with a metal plate bended in the same shape as the pipe using Wencon UW Cream as a glue. The metal plate has to be blasted / grinded and cleaned on both sides.
7. Again apply a layer of Wencon, and repeat until you have 3 layers of Wencon Reinforcement Tape and 4 layers of Wencon UW Cream.
8. For repairs that shall last for a longer period, we recommend to apply extra 2 layers of Wencon UW Cream after same method.



Curing time can be speeded up by heating up - Halogen lamps or like.

To see the theoretical consumption of Wencon material and Wencon Reinforcement Tape, see Chapter 1 in the Wencon Repair Manual.