

## Ballast pipeline repair

<b>Application:</b>	Repair of ballast pipeline on flange area
<b>Place:</b>	Malaysia
<b>Date:</b>	April 2017
<b>Job and report done by:</b>	Christec Services & Engineering Pte Ltd.
<b>Wencon products used:</b>	UW Coating, Reinforcement Tape, Cleaner, appl. tools



Client was facing problems on the ballast pipeline systems on board the vessel. The problem was likely caused by a closed valve, when turning on pressure to the system. This forced the pipe to shift approx. 30mm. Crew have performed a failed attempt to repair pipeline, which could have been avoided by having a Wencon Repair Kit on board.

### 1<sup>st</sup> issue: Shifted pipe at flange area

1. Photo shows flange area heavily coated by ship crew.



2. Previous failed repair has been removed and the damage is clear. Pipe at the flange area had shifted approximately 30mm and was thereby causing a leak.



3. & 4.

Pipe is shifted to aft to give room to clean internal of pipeline, before applying Wencon UW Coating.



4. Internal coating with Wencon UW Coating.



5. Pipe refitted to original place and coated with Wencon UW Coating.



## 2<sup>nd</sup> issue: Leakages on “elbow” ballast pipe

1. First layer of Wencon UW Coating is applied and in wet coating, Wencon Reinforcement tape is wrapped around the pipe with 50% overlap.



2. Second layer of Wencon UW Coating is applied over the Reinforcement Tape and process is repeated. For extra safety, coated and reinforced area is at least 15mm wider than damaged area.



3. Photo shows final result with a high quality Wencon repair solution, performed on ballast pipeline.



**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**

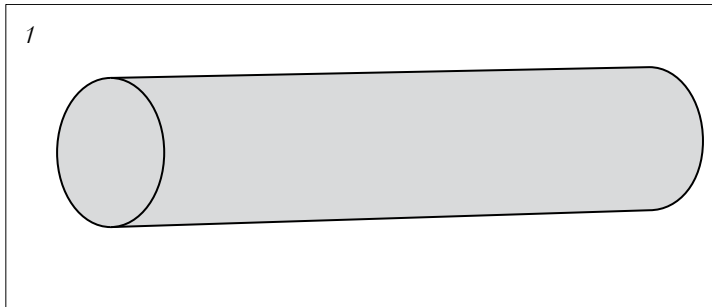
Needle gunning is a method that has almost been forgotten in recent years. Or should we say is mostly used for very rough cleaning or removal of rust. It is possible to do a very nice job using a needle gun, but it takes time and should be closely supervised. It is essential that the marks from the sharp 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.

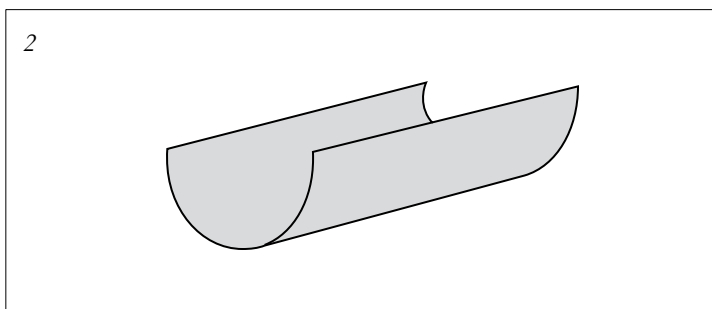


## Pipe repair - high pressure pipe

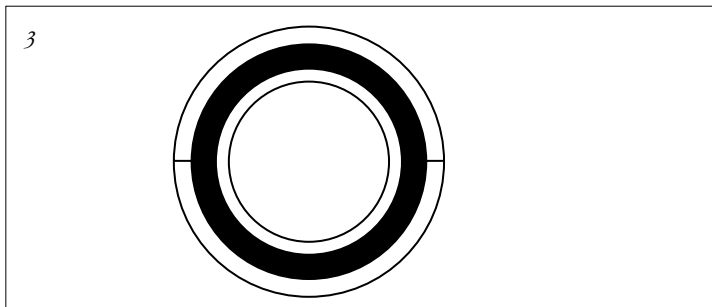


Repair of pipes with high pressure shall always be considered carefully. National regulations shall be respected, and the safety of people shall always be in the forefront.

The most safe way of repairing a pipe is by using a prime quality repair compound in a combination with additional pieces of pipe. That provides the highest degree of safety.



1. Empty the pipe, if possible. If not, depressurize it. Grind and clean the repair area.
2. Prepare two pipe shells, as shown in ill. 2 allowing a gap of 3-10 mm (0,12-0,4 inch) between the external surface of the existing pipe and the internal surface of the pipe shells. The strenght / thickness of the pipe shells shall be chosen according to pressure. Grind and clean the internal surfaces of the shells.



3. Mix and apply Wencon Cream or Rapid to the prepared areas and mount the shells as shown in ill. 3. Hold the shells in position by the use of pipe clamps or the like.
4. For further reinforcement, you can apply yet another set of pipe shells as shown in ill. 4.

