

## 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.

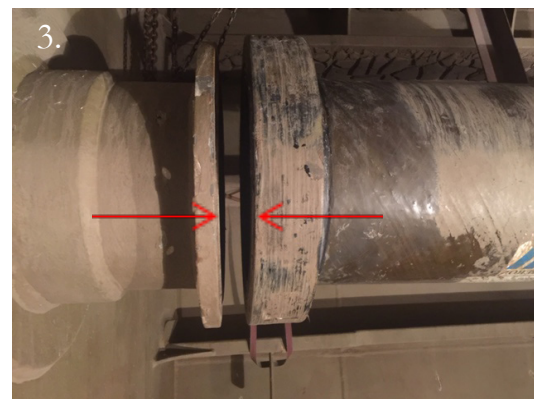


2. Previous failed repair has been removed and the damage is clear. Pipe at the flange area had shifted approximately 30mm and was thereby causing a leak.



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.



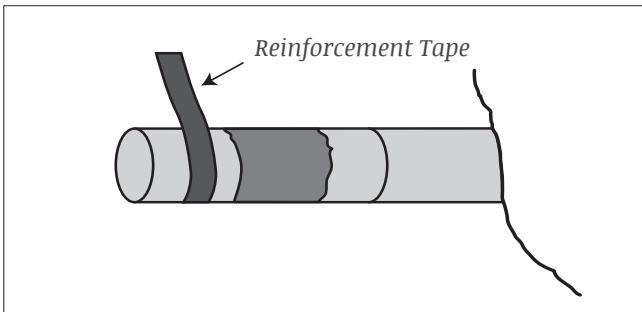
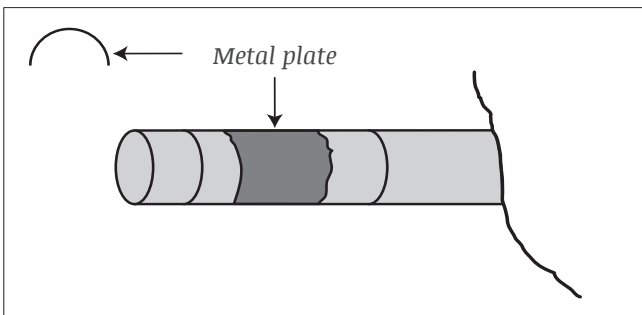
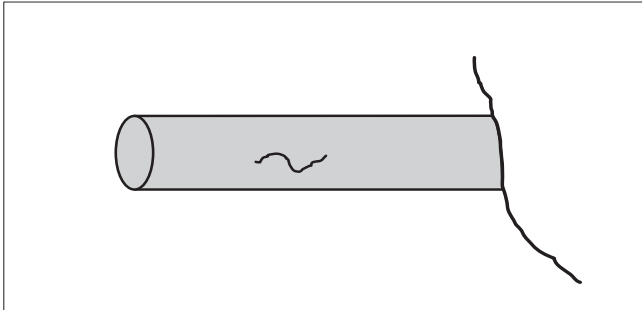
2. Second layer of Wencon UW Coating is applied over the Reinforcement Tape and process is repeated. For extra safety, coated and reinforced area is at least 15mm wider than damaged area.



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



## 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 application datasheet.

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 Rotating Blaster 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 acc. to Wencon surface preparation, next page.
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. Clean again acc. to Wencon Surface preparation.
4. 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.
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. Again apply a layer of Wencon, and repeat until you have 3 layers of Wencon Reinforcement Tape and 4 layers of Wencon UW Cream.
7. For repairs that shall last for a longer period, we recommend to apply extra 2 layers of Wencon UW Cream using the same method.

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

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

**Alternative products: Wencon Ceramic Coating**

## Wencon surface preparation

Choose the relevant surface preparation, depending on the nature of the job.

Surface preparation using dry blasting methods:

Application with Wencon products on a dry surface, at minimum 3°C. above dew point.

1. Blast the machine part to SA 2,5 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 2,5, prior to the application.
4. For parts containing a lot of water and salt, it may be necessary to repeat point 2 and 3, until the surface remains light grey, for at least 2 hours after blasting.
5. For optimal adhesion of Wencon products, always use Wencon Bio Cleaner or Wencon Cleaner prior to application. Follow one of below two methods:
  - 5.1 **Wencon Bio Cleaner**  
**Wet surface:** Apply Wencon Bio Cleaner and let it work for 5-10 min. If necessary use a brush, to make sure the surface is clean. Rinse off with clean water and wipe off with an absorbing cloth. Apply Wencon UW Coating as a primer, and hereafter any Wencon products can be applied.  
  
**Dry surface:** Apply Wencon Bio Cleaner and let it work for 5-10 min. If necessary use a brush, to make sure the surface is clean. Rinse off with clean water and dry with an absorbing cloth or with compressed air for a completely dry surface. Hereafter any Wencon products can be applied.
  - 5.2 **Wencon Cleaner**  
After surface preparation, apply Wencon Cleaner with a brush and allow the product to evaporate before applying other Wencon products. Wencon Cleaner is non-flammable. Use only in large or well ventilated rooms.

Surface preparation using wet/damp methods:

Water jet the entire surface with water and sand to a standard, equal to SA 2,5 as described above.

If the surface is left wet after surface preparation, is it important to dry out the surface or alternatively use a Wencon UW product as a primer.

Surface preparation for emergency/temporary applications:

If above surface preparation methods are not possible, it may be necessary to use one of below methods:

- Blasting
- Grinding
- Needle Gunning

In emergency / temporary applications it may be difficult to prepare the surface according to above methods. In any case, it is important to clean the surface to SA 2,5 and 75 microns roughness. If possible dry the surface before applying. If not possible, use Wencon UW products prior to applying any other Wencon products.

For further information on Wencon surface preparation, please contact our Area Sales Managers.