WENCON®
- repair solutions for you

Protection of Propeller shaft

Application:	Protection against bi-metallic corrosion on propeller shaft.
Place:	Workshop - Chile
Date:	January 2015
Job and report done by:	Danish Business Ltda. , Chile
Wencon products used:	Coating blue, Cleaner, appl. tools

WENCON ApS • Jyllandsvej 15 • DK-5400 Bogense •
Phone +45 6481 1010 • wencon@wencon.com • www.wencon.com

Introduction:

Propeller shaft on vessel was protected against bi-metallic corrosion, using Wencon Coating blue with a thickness of 0,8mm (2 layers of 0,4mm).

Dimension of shaft: L: 360cm and Ø 30cm

1. Propeller shaft before sandblasting.
   Requirements to ensure a good adhesion of Wencon Coating to the shaft:
   - SA 2,5
   - profile of 75 microns
   - 3° above dew point

2. Propeller shaft after blasting.

3. Four test of roughness were made with flw. results:
   - 70
   - 98
   - 86
   - 91

4. Cleaning two times with Wencon Cleaner.

5. First layer of Wencon Coating Blue was applied very thin, and massaged into the surface and profile to make an excellent adhesion. The layer was applied without rotating the shaft. Second layer also applied with a brush while the lathe was turning with 9 rpm. During the curing process the lathe is rotating.

6. After semi curing (aprox. 2 hours) the third layer was applied. During application of the second and third layer, the thickness was controlled several times, using a wet film gauge.

7. A heating gun was used to secure that no air was entrapped in the coating.

   The lathe was left rotating overnight.

8. Final result.

9. Final result - close up.

Surface preparation

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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.

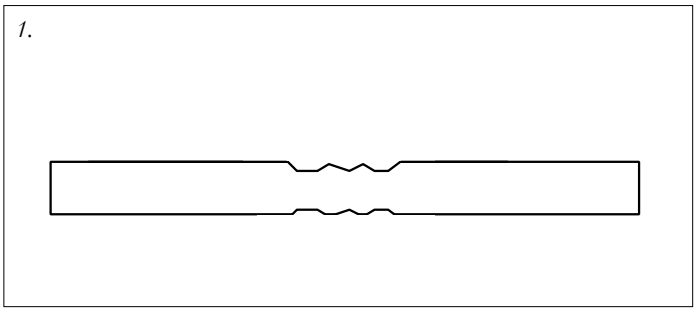
Needle Gunning

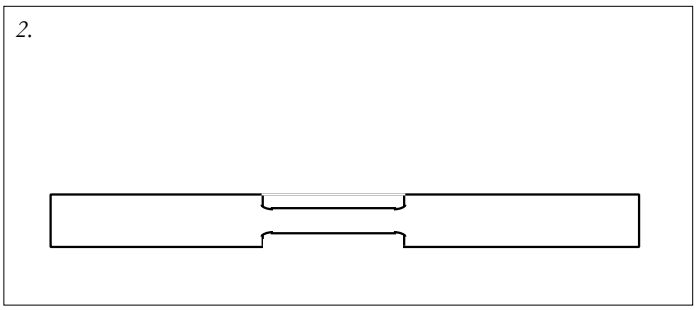
Needle gunning is a method that has almost been forgotten in recent years. Or should we say is mostly used for very rough cleaning or removal of rust. It is possible to do a very nice job using a needle gun, but it takes time and should be closely supervised. It is essential that the marks from the sharp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

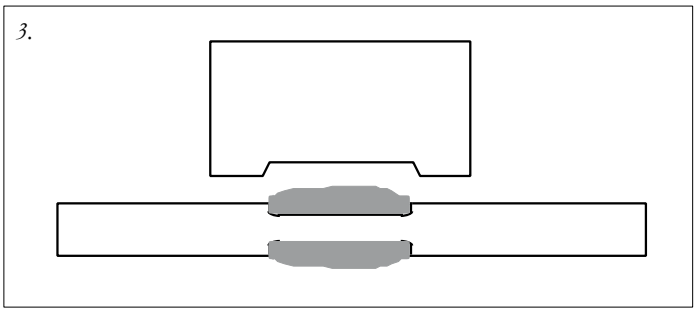
Wire Brushing

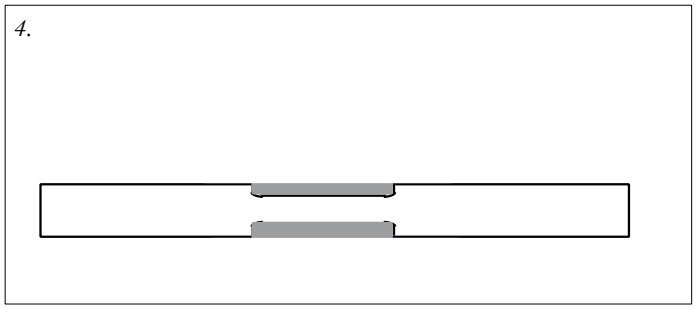
Wire brushing can be a good way of removing scales, rust and old paint. However, you will need to grind the surfaces after the wirebrushing to make the surface as rough as possible.

Repair of damaged shafts









In cases where damage is caused by an object which was meant to be fixed to the shaft, but has rotated, the chances of successful repair are good. Any repair presupposes that the shaft is of adequate mechanical strength.

1. Place the shaft in the turning lathe.

2. Turn the shaft as shown. Finish off with a rough turning or a thread.

3. Mix a suitable amount of Wencon Cream or Rapid and apply one layer to the shaft. If necessary, make a spatula as shown.

4. When cured, turn to final size. If so desired, an interference fit can be machined, or the bearing can be glued on.

Variations:

Rather than using the turning lathe, the first turn can be replaced by grinding with an angle-grinder. A couple of bushes must also be made with the internal diameter of the final size required. These bushes should be approx. twice the length of the damaged area, and be used for casting of the new surface on the bearing site. The bushes must be treated with Wencon Release Agent prior to casting.

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