

Cylinder Liner

Application:	Rebuilding of Cylinder Liner, due to cavitation
Place:	Gdynia, Poland
Date:	November 2015
Job and report done by:	Naviserv Sp. z.o.o.
Wencon products used:	Ceramic Cream, Cleaner, appl. tools.



1. Cylinder Liner damaged, due to cooling water cavitation. Thickness of cylinder wall is 45mm and deepest cavity is 8-9mm.



2. Surface sandblasted and degreased with Wencon Cleaner.



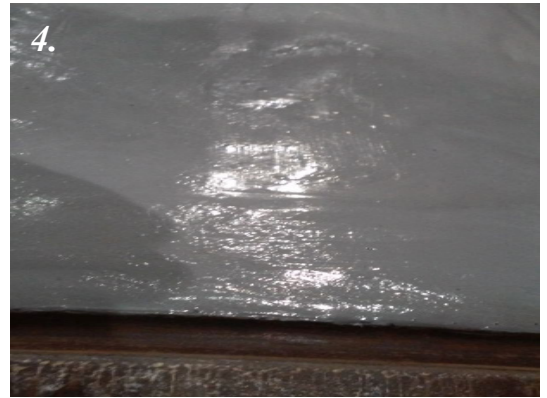
3. & 4.

After surface preparation, cavities are filled with Ceramic Cream and one extra layer of 700 µm Wencon Ceramic Cream applied.



4. & 5.

Areas with Cylinder seal and final work
overview.



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.

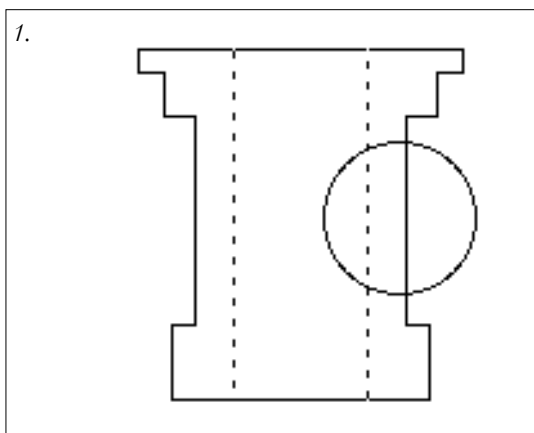
Needle Gunning

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.

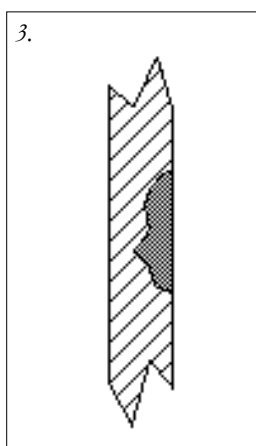
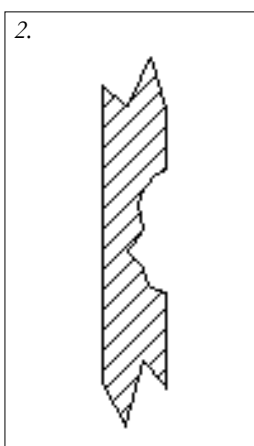
Wire Brushing

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 wet liners for diesel engine



1. Remove the liners from the engine, and protect the machined areas on the liner with tape.
2. Shot blast the affected areas to SA 2,5. (see further instructions in instructions for use).
3. Rebuild affected areas using either Wencon Cream or Rapid.
4. Coat the external surface of the liner, but avoid coating the machined surfaces, which shall mate the engine block.



The Wencon will prevent the liner from corroding again.

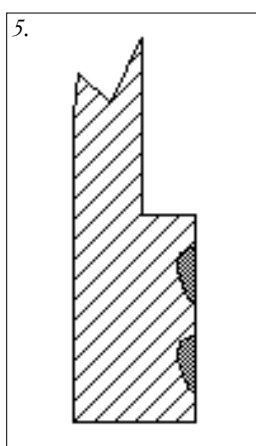
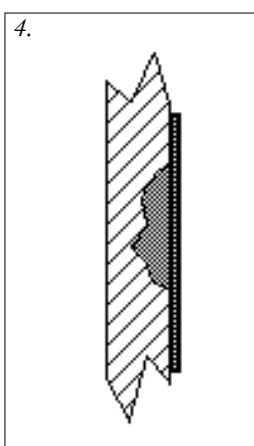
Usually, the sealing of the cooling water in an engine, is created by the means of O-rings.

The O-ring seats will be positioned in either the liner or in the engine block.

Both the O-ring seats and the sealing surface on the other part can corrode.

Either bi-metallically or by the continuous rubbing of the O-ring.

In both cases the damage can be repaired with Wencon.



5. Use the same procedure as above, but machine the surface after the curing has taken place. The machining can be done in either a lathe or by carefully grinding with a wheel grinder. If the damage is on the block, the initial surface preparation cannot be done by shot blasting, but by grinding and degreasing with Wencon Cleaner.

Follow the instructions carefully and ask your supplier if you are in doubt.

In two instances, Wencon can provide a very good solution to the repair of wet liners for engines. Corrosion on the outside of the liner, and deterioration of the metal surface of the O-ring seats in either the top or the bottom.

Experience has shown us clearly, that the treatment has no effect on the temperature of the cooling water.