

Rebuilding of Cylinder Rams

Application:	Rebuilding of Cylinder Rams
Place:	On site, offshore, Norway
Date:	September 2012
Job and report done by:	Assens Shipyard, DK
Wencon products used:	Hi-Temp, Putty, Cleaner, appl. tools



1. Photo of ram, clearly shows bubbles under the original ceramic coating. It is a matter of time before the bubbles blow up, which will cause oil leaks from seals.



2. Photo shows one of the bubbles after cracking - here a damage of 50 x 80mm and 2-3 mm deep.



3. Attacked areas grinded to clean steel/ceramic, leaving the surface as rough as possible to get the best adhesion possible.

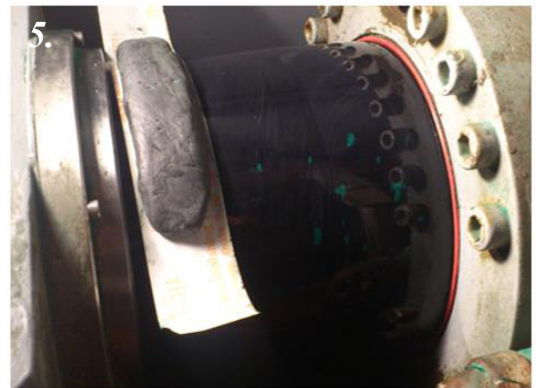


Surface preparation:

- a. Grind attacked areas to clean steel/ceramic, leaving the surface as rough as possible.
- b. Clean the ram thoroughly with Wencon Cleaner.
- c. Allow the cleaner to dry.

4. Application of Wencon Hi Temp.

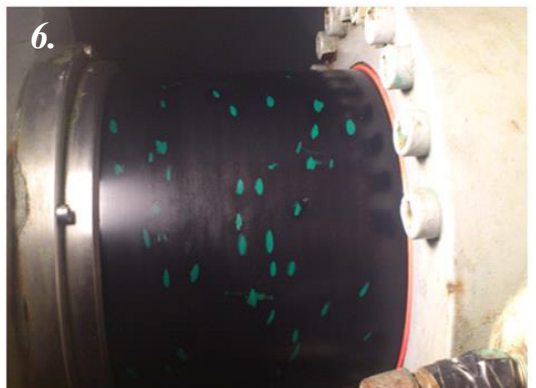
- a) To avoid waste of material, all areas to be repaired, should be masked with tape.
- b) Apply Hi Temp using a brush or spatula, until minimum original surface level is reached.
- c) If necessary repeat b).
- d) Allow the Wencon Hi Temp to cure 10-12 hours, in a minimum temperature of 15°C.



5. Creating a grinding tool, using Wencon putty, surface can be hand sanded to almost 100% original shape and size.

6. Final result.

Original surface is now intact and ready for many years of service.



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.

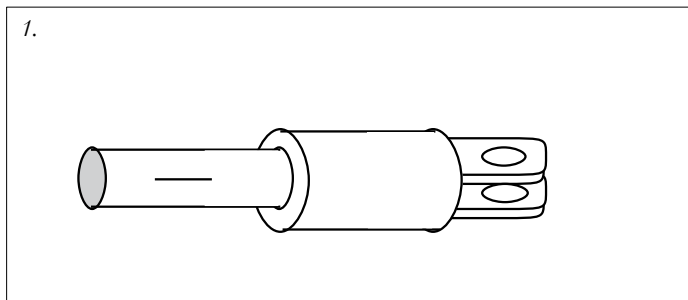
Needle Gunning

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

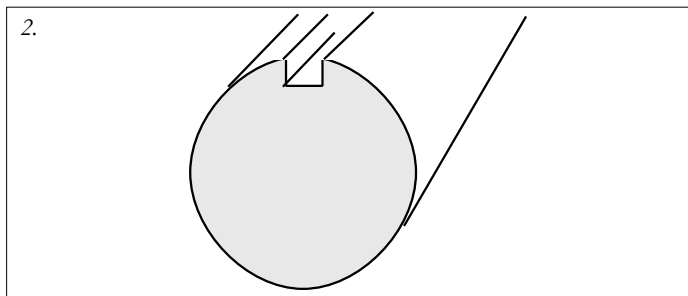
Wire brushing can be a good way of removing scales, rust and old paint. However, you will need to grind the surfaces after the wirebrushing to make the surface as rough as possible.

Repair of scores in hydraulic rams

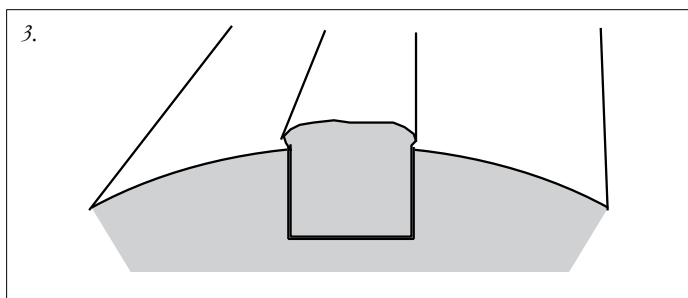


1. Clean the ram thoroughly with Wencon Cleaner.

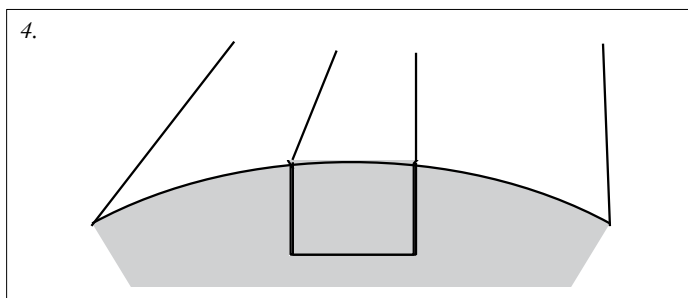
2. Grind the score down with a wheel grinder, until the grinding score is more or less as wide as it is deep. Clean again thoroughly. To aid cleaning, the ram can be heated, but only to approx. 40° C using hot air or oxygen/gas. Again clean thoroughly with Wencon Cleaner.



3. Mix and apply an adequate amount of Wencon Cream or Rapid (see diagram). Allow the Wencon to semi harden and cut off the superfluous material with a sharp knife. Allow the Wencon to harden completely and then grind the surface clean with a fine grained emery cloth.



4. To have a grinding tool in the right shape, you can use a hardened brick of Wencon Putty to hold the emery cloth. Apply a thin layer of Wencon Release Agent to a not damaged area of the ram. Mix and apply some Wencon Putty on the ram where you have applied the Release Agent, and let it cure. After it is cured you can break it of and use it as a tool to hold the emery cloth.



Variations:

The damage can also be due to a blow, or can be sore arising from contact with electric cables.

If the damage is a result of normal wear and tear and covers a large area, the repair described above is not particularly suitable.

In such cases machining must be recommended after Wencon material has cured. In special cases it is an advantage to turn a mandrel, especially if the ram has a large diameter.