

CELLOFLEX-M shaft coating system

Technical bulletin / working procedure

General

The CELLOFLEX-M is a coating procedure for avoiding corrosion damage to propeller shafts and couplings exposed to seawater. CELLOFLEX-M is a further development of our experienced and well tried and tested shaft coating system CELLOFLEX which has been proven in service over ten thousand times worldwide.

The shaft coating procedure is easy to handle and no special turning is needed. The CELLOFLEX-M shaft coating can be applied when the ship is docked without the necessity of removing the shafts. Repairs can also be carried out during docking.

Main advantages:

- Very good accommodation to torsion and vibration stress of shaft
- Very good adhesive strength
- 3 layer system protects against damages from seawater obstacles
- non-polluting
- No need of removing of shaft in drydock
- No need of turning the shaft

1.0 Description of CELLOFLEX-M Shaft Coating

The part of the shaft to be coated should be machined so as to leave a fine key. It should not be smooth. Before starting the coating procedure, the shaft has to be cleaned from rust, oil, paint etc.

The shaft has to be cleaned with the special solvent "CELLONIT V 616" before one layer of the elastic plastic mass WBS is applied with a spatula. To achieve the correct bond and transformation of WBS between the shaft and the shaft liner it is necessary to extend the WBS over the conical ends (only) of the shaft liners.

This first layer of plastic mass WBS is the actual waterproof coating and protection against corrosion. It remains elastic below the following covering layer of WBD and absorbs the torsion and vibration stress of the shaft.

After hardening of the WBS layer the covering layer WBD should be applied by a brush or brush roller followed by a glass silk tape, which is being wrapped in a spiral manner around the shaft before hardening process of the WBD starts.

After hardening of the first layer WBD a second and if necessary a third layer of WBD is being applied but without additional glass silk tape

Remark:

Grinding of the various layers of the CELLOFLEX-M shaft coating is not necessary. The different layers do interconnect.

2.0 Preparation works before coating procedure

- 2.1 The temperature of the shaft must be above 'dew point' in order to avoid "sweating". This also applies to the WBS, WBD - und CELLONIT-materials.
- 2.2 Materials for the area to be coated have to be kept ready.

WBS (2,5 ltr unit, component A + B)
WBD (1,0 ltr unit, component A + B)
CELLONIT cleaner V616 cleaner (2,5 kg unit)
Glass silk tape, 10cm (100m coil)
Glass cloth (for coupling)
Emery cloth , graining 80
Adhesive tape, 19mm (1 coil)
Serrated pallet knife , 4mm
Pallet knife, toothless
Japan spatula (set of 4 pcs) (for small areas)
Brush roll, 10cm, wool 5mm
Holder for brush roll

Attention ! Precaution measures (personal protective equipment) to be taken according to the valid material safety data sheets

- 2.3 The part of the shaft which shall be coated has to be accurately cleaned from rust, dirt, grease etc. – Use only CELLONIT V 616 for this work.

3.0 Installation of CELLOFLEX-M coating

A minimum ambient temperature of 13°C - 25 °C is required when the CELLOFLEX-M coating shall be applied to the shaft. Higher temperatures are of some advantage and accelerate the time of hardening during each operation, but the ambient temperature shall not exceed 35 °C.

When the coating shall be applied during docking, please note the following:

- a minimum temperature of 13 °C – 25°C shall be observed.
- the shaft has to be absolutely dry.
- the shaft has to be protected from any external weather.

This usually requires a tent around the shaft.

- 3.1 After proper cleaning of the shaft the part of the shaft to be coated is ready for application
- 3.2 Mix the WBS resin and hardener (component A and B) until a homogenous mixture is reached and a uniform colour is shown. The mixing shall be carried out preferably with a special mixer. After mixing, the elastic plastic mass has to be applied thickly onto the shaft by using a serrated pallet-knife and / or metal sheet.
- 3.3 Leave the first WBS layer cure (curing time depends on the temperature and humidity) and proceed a measuring of thickness with a magnetic thickness gauge. Fill the result into the form "Manufacturer test certificate".

Actual/optimal thickness: 3mm
Min. thickness: 2mm

To complete the test procedure we recommend a spark test with the high voltage spark tester Porotest.

- 3.4 After curing process mix the covering layer of WBD as described under 3.2 and apply the mixture thickly with a brush or a brush roller onto the base layer WBS. Wrapp immediately the glass silk tape in a spiral manner around the shaft before hardening process of the WBD starts. Apply an additional layer of WBD on the glass silk tape immediately.

Attention ! Glas silk tape shall be applied edge to edge and shall not overlap !

- 3.5 After hardening of the layer WBD the bottom edge of the glass silk tape have to be grinded smooth. Now an additional layer of the WBD is being applied (mix and apply as described unter 3.2 and 3.4) but without the glass silk tape. Apply a 2nd and if necessary a 3rd layer of WBD in order to achieve a proper and good looking surface.
- 3.6 After airing and drying procedure of last layer the shaft coating system CELLOFLEX-M is ready and ready for use.

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