DNV·GL

Certificate No:
**TAK00001K5**

# TYPE APPROVAL CERTIFICATE

## This is to certify:

**That the Polymer Repair System**

with type designation(s)
**Wencon Abrasion & Heat Resistance Products:**
**-Wencon Ceramic Coating,**
**-Wencon Ceramic Cream**

Issued to
**Wencon ApS**
**Bogense, Syddanmark, Denmark**

is found to comply with
**DNV GL rules for classification – Ships**

## Application :

**Epoxy-based compounds for repairs of steel components. Each repair shall be carried out in accordance with Manufacturer's instructions, approved by DNV GL, and under surveillance of DNV GL, when deemed applicable.**

**Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.**

Issued at **Høvik** on **2019-05-01**
This Certificate is valid until **2024-04-30**.
DNV GL local station: **Fredericia FiS**

Approval Engineer: **Gisle Hersvik**

for **DNV GL**

**Rikard Törnqvist**
**Head of Section**

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.


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## Product description

Wencon Abrasion & Heat Resistance Products:
- **Wencon Ceramic Coating**
- **Wencon Ceramic Cream**

The listed products are characterized by being resistant to both abrasion and heat, and is therefore preferred in harsh environments where there is both a requirement for Heat Resistance and Abrasion Resistance.

## Application/Limitation

***Repair activities for components which affect or might affect the Class of the ship, have to be reported in advance to DNV GL.***

Installation only in accordance with DNV GL Rules and Manufacturer's work instructions.

For limitations as to environmental conditions and exposure to chemicals, confer manufacturer's instructions.

The maximum working temperature shall be in accordance with Manufacturer's instructions / information in the relevant technical data sheet.

An adequate curing shall be proven by a Shore D test. The hardness shall be in accordance with Manufacturer's instructions / information in the relevant technical data sheet.

The lifetime and the performance of a repair is, apart from the procedure of application of the system, dependent on the service environment, imposed mechanical loads and deformations and may vary significantly from case to case. A careful assessment of the expected reliability of the repair shall always be carried out by the DNV GL surveyor and the manufacturer's representative with due regard to the service requirements and the requirements to the reliability of the component to be repaired.

The system has limited or no resistance to exposure to fire. Requirements to the performance of the repair under fire shall be carefully evaluated by the DNV GL surveyor and the manufacturer's representative.

Any significant changes in design and/or quality of the material will render the approval invalid.

Planning and execution of repair:
Each repair shall be carried out in close co-operation with the DNV GL surveyor:
- The surveyor shall be informed about and participate in (if required by the surveyor) the planning of the repair.
- When required by the surveyor, the surface preparation shall be witnessed and/or the finally prepared surfaces shall be made available for inspection and approved by the surveyor.
- When required by the surveyor, the application of the system and curing shall be witnessed by the same.
- When required by the surveyor, other operations shall be witnessed and approved by the surveyor.
- When required by the surveyor, the final condition of the repair shall be approved by the same.

## Type Approval documentation

## Tests carried out

Type Testing carried out in accordance with **Type Approval documentation**.

## Marking of product

All components of the system are to be marked with manufacturer's name, type designation, date of fabrication and shelf life or expiry date. In addition, the following documentation shall be submitted with the product:

- Product specification.
- Specification of range of application and limitations.
- Detailed procedures for surface preparation.
- Detailed procedures for application.
- Detailed procedures for curing.
- Hazards and precautions to be taken with regard to occupational safety.

The marking is to be carried out in such a way that it is visible, legible and indelible. The marking of product is to enable traceability to the DNV GL Type Approval Certificate.

## Periodical assessment

The scope of the Periodical Assessment is to verify that the conditions stipulated for the Type Approval is complied with and that no alterations are made to the product design or choice of materials.

Periodical Assessment to be performed after 2 and 3.5 years (Certificate Retention) and at renewal after 5 years (Certificate Renewal).

The main elements of the Periodical Assessment are to:

- Ensure that **Type Approval documentation** is available.
- Review design, materials, production process, and performance with respect to possible changes, in order to ensure compliance with **Type Approval documentation** and/or referenced material specifications.
- Ensure traceability between manufacturer's product marking and DNV GL Type Approval Certificate.

END OF CERTIFICATE