Certificate No:
TAK0000281

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Protective Coating Systems - Offshore Structures

with type designation(s)
BERLINize 448GF-V (2x180 µm)

Issued to
Berlin Co., Ltd.
Kaohsiung, **Taiwan**

is found to comply with
NORSOK Standard M-501 Surface preparation and protective coating, Edition 6, February 2012

Application :

For use in Coating System No. 7B in accordance with the stated Standard.

Issued at **Hamburg** on **2023-04-21**
This Certificate is valid until **2028-04-20** .
DNV local unit: **Kaohsiung**

Approval Engineer: **Gisle Hersvik**

for **DNV**

Thorsten Lohmann
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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.

Product description

BERLINize 448GF-V (2x180 µm)

Description of the Coating system, tested on bare steel:
- **BERLINize 448GF-V** GLASS FLAKE EPOXY COATING: a polyamine-cured high-build 2K epoxy coating with special glass flake.

The tested coating system is defined in accordance with NORSOK M-501.

The testing has been performed with basis in test requirements of NORSOK M-501 (for Coating system no. 7B, for protection of submerged carbon and stainless steel ≤50°C).

Coating system no. 7B is defined in NORSOK M-501, Surface preparation and protective coating, Rev. 6, February 2012, as two-component epoxy based coating, a minimum of 2 coats and a total DFT of min. 350 µm.

For details on Coating system no. 7B, please refer to NORSOK M-501, Rev. 6, February 2012.

Application/Limitation

This approval is solely connected to the corrosion prevention properties of the coating system. The approval does not include any evaluation of toxicity, contamination, pollution, or fire technical aspects.

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

Type Approval documentation

Tests carried out

Type Testing carried out in accordance with **Type Approval documentation**, ref.:
- SGS Taiwan Ltd. Test Report No. KV-22-03939A of 2023-02-08.

Marking of product

Products forming parts of the coating system shall be marked with *manufacturer's name*: **Berlin Co., Ltd., Taiwan** and *type designations*.

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 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 assessments (for Certificate Retention / Certificate Renewal) shall be performed according to DNV-CP-0338.

This certificate is only valid if required Periodical assessments are carried out with satisfactory results. To check the validity of this certificate, please look it up in https://approvalfinder.dnv.com

END OF CERTIFICATE