Certificate no.:
**TAK00002GZ**

# TYPE APPROVAL CERTIFICATE

## This is to certify:

**that the Composite Repair Systems**

with type designation(s)
**PermaGlass™**

issued to
## Wrap Master Global LLC
**Longview, TX, USA**

is found to comply with
**ISO 24817:2017 "Petroleum, petrochemical and natural gas industries – Composite repairs for pipework – Qualification and design, installation, testing and inspection", Edition 2, Corrected version 2018-01**
**ASME PCC2-2015 Part 4 – Article 4.1 "Nonmetallic Composite Repair Systems: High-Risk Applications"**

## Application:

**Composite repair of piping with various defect sizes and operating conditions including underwater.**

Issued at **Høvik** on **2025-12-05**
This Certificate is valid until **2030-12-04**.
DNV local unit: **Certification & Inspection Services**

for **DNV**

Approval Engineer: **Stefan Marion**

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

**PermaGlass™**: a two-component fiberglass-epoxy wet layup composite system for repair of external defects associated with Type A repairs for structural application such general corrosion up to 80% wall loss, blunt dents and gouges of pipelines and other piping systems. The product also covers Type B repairs for leak containment (classes 1, 2 & 3) as compliant with ISO 24187 & ASME PCC-2 requirements.

The system consists of:

- PermaGlass™ Fibreglass Fabric
- ERS 145 Epoxy Resin Kit (component A & B)
- EFS 4824 Load Transfer Filler Paste
- EPS 125 Adhesive Primer

## Application/Limitation

This Type Approval certificate is not valid for designs, components, equipment, systems or products which are subject to classification by DNV.

- Composite repair used on piping systems
- The PermaGlass™ system is used to repair Type A structural applications such as external corrosion, mechanical damage (dents, gouges, scratches, weld defects, inclusions and other fabrication defects) and Type B leak containment (classes 1, 2 & 3) within the constraints of the ISO 24817 & ASME PCC-2 requirements
- Surface preparation of substrates must be in accordance with Wrap Master PermaGlass™ Installation Manual
- For specific substrates, the manufacturer must be consulted
- The repair must be designed in accordance with the referenced standards
- The repair must be applied in accordance with Wrap Master PermaGlass™ Installation Manual using qualified, competent installers
- In case of Type B repairs, compatibility of the medium inside the pipe with the composite material to be verified.

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

## Type Approval documentation

## Tests carried out

Testing has been carried out in accordance with ISO 24817:2017 and ASME PCC-2 Article 401.

## Marking of product

Product/package to be marked with manufacturer's name, Wrap Master Global LLC and in accordance with above type designation/product name, and storage conditions.

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

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