DNV·GL

Certificate No:
TAK00001D7

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Wood Products

with type designation(s)
Ranprex® ML8 Laminated Compressed Wood

Issued to
RANCAN S.r.l. Unipersonale
MONTECCHIO MAGGIORE, VI, Italy

is found to comply with
DNV GL class programme DNVGL-CP-0099 – Type approval – Hardwood for tank supports
DNV GL rules for classification – Ships

Application :

For use as supporting material between cargo tanks for liquified gas and support in hull structure, for minimum temperature of cargo - 196°C.

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

Issued at **Hamburg** on **2018-11-13**
This Certificate is valid until **2023-11-12**.
DNV GL local station: **Venice**

Approval Engineer: **Joachim Rehbein**

for **DNV GL**

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.

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Job Id: **262.1-027966-1**
Certificate No: **TAK00001D7**

Product description
Ranprex® ML8: Laminated Compressed Wood

Application/Limitation
For use as supporting material between cargo tanks for liquified gas and support in hull structure, for minimum temperature of cargo -196°C.

For regular, not submerged material at 20°C:
- Compressive strength perpendicular (⊥) to veneers: 289 MPa
- Compressive strength parallel (||) to veneers: 161 MPa
- Safety factor for long term loading: 4

Further regarding properties, application and limitations: As per data sheets and instructions of manufacturer.

Drawings showing arrangement of the compressed wood together with calculation of the compressive stresses shall be submitted for approval for each ship application.

Sufficient protection against water and other relevant media has to be provided during pre-installation storage phase.
Periodic maintenance of protection shall be provided.

The compressed wood shall be delivered with a works certificate according to EN 10204/3.1 or equivalent.

Type Approval documentation

Tests carried out
Type Testing carried out according to **Type Approval documentation**.

Marking of product
Product package shall be marked with *manufacturer's name*; **Rancan srl Unipersonale** or manufacturer's symbol, and *type designation;* **Ranprex® ML8**

Periodical assessments

The scope of the Retention/Renewal Survey 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.

Surveys to be performed bi-yearly within the validity of this certificate (Certificate Retention Survey) and at renewal after five (5) years (Certificate Renewal Survey).

The main elements of the survey are:

- 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 the DNV Type Approval Certificate.

END OF CERTIFICATE