DNV·GL

Certificate No:
TAK00001WT

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Plastic Piping System, Thermoplastic

with type designation(s)
WHITE MARINE

Issued to
Valsir S.p.A.
Vestone, BS, Italy

is found to comply with
DNV GL class programme DNVGL-CP-0072 – Type approval – Thermoplastic piping systems
DNV GL rules for classification – Ships
DNV GL rules for classification – Offshore units
IMO Resolution A.753(18). Guidelines for the Application of Plastic Pipes on Ships

Application :

For use in gravity and vacuum sewerage systems and drain systems and non-essential services. UV resistant and suitable for outdoor use.

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

For installation in accordance to DNV GL Rules and Manufacturer's Specification. The piping system is not tested w.r.t. Fire Endurance. The piping system is tested w.r.t. Low Flame Spread characteristics.

Issued at **Høvik** on **2020-07-03**
This Certificate is valid until **2025-07-02**.
DNV GL local station: **Italy/Malta CMC**

Approval Engineer: **Stefan Marion**

for **DNV GL**

Martin Strande
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 GL AS, its parent companies and subsidiaries as well as their officers, directors and employees ("DNV GL") 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.

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Product description

WHITE MARINE; multi-layer pipes manufactured from polypropylene

Maximum operating temperature: 95°C (intermittent), 80°C (continuous)
Minimum Pressure: -800 mbar
Maximum Pressure: +1500 mbar

Pipe dimension, external diameter OD [mm]	32	40	50	75	90	110
Wall thickness [mm]	1.8	1.8	1.8	2.6	3.1	3.4

Pipe dimension, external diameter OD [mm]	125	160	200	250
Wall thickness [mm]	3.9	4.9	6.2	7.7

Application/Limitation

For use in gravity and vacuum sewerage systems and drain systems. For use in non-essential services and not exposed to external pressure outside the pipes. UV resistant, suitable for outdoor use in accordance with Manufacturer's recommendations.

For installation in accordance with DNV GL Rules/Standards and Manufacturer's recommendations.

Fire Endurance
The piping system is not tested w.r.t. Fire Endurance characteristics

Low Flame Spread
The piping system is tested w.r.t. Low Flame Spread characteristics in accordance with ASTM D635 (accepted as an alternative to IMO FTP Code, Annex 1, Part 5).

Smoke Generation & Toxicity
The piping system is not tested w.r.t. Smoke Generation & Toxicity characteristics.

Electrical conductivity
The piping system is non-conductive, not for installation in gas hazardous area, or used with non-conductive fluids.

Passenger vessels
For application on passenger vessels additional requirements specified in the Rules and Regulations of the appropriate flag state authority may have to be observed.

Bulkhead and Deck Penetration
Pipe penetration through watertight bulkheads or decks as well as through fire divisions shall be type approved unless the penetration pipe is welded into the bulkhead/deck.

When plastic pipes pass through watertight bulkheads or decks which are also a fire division and a fire may cause flooding of watertight compartments, the watertight integrity of the bulkhead or deck is to be maintained by a metallic shut-off valve fitted at the bulkhead or deck. The operation of this valve shall be provided from above the freeboard deck. Refer to DNV GL Rules Pt.4, Ch.6, Sec.3 – 1.4 Fittings on watertight bulkheads.

On passenger vessels, where the watertight bulkhead is also a fire division, the requirements of the SOLAS Chapter II - 1, Regulation 13.2.3. are to be observed.

Type Approval documentation

Tests carried out

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

Marking of product

The product is to be marked with:
- manufacturer's name; **Valsir S.p.A, Italy**
- manufacturing plant address
- type designation; *WHITE MARINE*
- pressure rating
- nominal pressure
- dimensions
- production date/Batch no.

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 assessments (for Certificate Retention and Certificate Renewal) shall be performed according to DNVGL-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.dnvgl.com.

END OF CERTIFICATE