

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Plastic Pipes, Thermoplastic

with type designation(s)
PPI iPVC DH Pipe & Fittings System (PN3)

Issued to
PPI PYUNGWHA CO., LTD.
Hwaseong-si, Gyeonggi-do, Republic of Korea

is found to comply with
Det Norske Veritas' Rules for Classification of Ships
Det Norske Veritas' Type Approval Programme 1-501.2, 2011, Thermoplastic Pipes

Application :

For use in systems for water and sea water up to 3 bar. Service temperature 0°C to 60°C. For installation in accordance with DNV GL's Rules and Manufacturer's Specifications. The piping system is approved to Low Flame Spread in accordance with IMO Resolution MSC.307(88)/IMO FPT Code, Part 5, Annex 1. The piping system is not tested w.r.t. Fire Endurance characteristics.

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

This Certificate is valid until **2019-08-16**.

Issued at **Høvik** on **2015-08-17**

DNV GL local station: **Seoul**

Approval Engineer: **Gisle Hersvik**

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.



Job Id: **262.1-018994-2**
Certificate No: **TAK0000025**

The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

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Product description

PPI iPVC DH Pipe & Fittings System (PN: 3.0 bar), made from I-PVC (Impact Polyvinyl Chloride), developed by PPI.

Pipes:

Dimensions		Wall thickness, min. [mm]
DN	dn	
35	42	3.1
40	48	3.6
50	60	4.0
65	76	4.4
75	89	5.0
100	114	5.5
125	140	6.5

Fittings:

Elbows, Tees, Branches, Sockets.

Joining:

Please refer to PPI's "Installment + Construction Specification (DH Pipe System)" (2014)

Application/Limitation

For installation in accordance with DNV GL's Rules and Manufacturer's Specification.

This material is not considered electrically conductive and therefore cannot be used in hazardous areas, or with non-conductive fluids.

The approval covers application such as non-essential system, in soli and drain piping systems. Not for use in exposed interior locations within accommodation spaces, service spaces and control stations.

Maximum design/service pressure 3.0 bar. Service temperature range 0°C to 60°C.

Not for installations subjected to external pressure.

Low Flame Spread

The piping system is tested with respect to Low Flame Spread performance in accordance with IMO Resolution MSC.307(88)/IMO FPT Code, Part 5, Annex 1.

Smoke and toxicity

Not evaluated.

Fire Endurance

The piping system is not tested with respect to Fire Endurance characteristics.

Other standards

Not evaluated.

Standard referred to: KS M3404-1995: Unplasticized Polyvinyl Chloride Pipes for Water Supply.

Type Approval documentation Tests carried out

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

Marking of product

Product/package shall be marked with *manufacturer's name*; **PPI** and *material/type designation*; **IPVC DH PIPE**, *type/nominal diameter* (of fittings) and *date of manufacture*.

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 two (2) years (Certificate Retention) and at renewal after four (4) 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 the DNV GL Type Approval Certificate.

END OF CERTIFICATE