

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Plastic Pipes, Thermoplastic

with type designation(s)
PVC-U PN16 Pipes and Fittings

Issued to

You Li Holding Group Co.,Ltd
Yue Qing, China

is found to comply with

DNV GL class programme DNVGL-CP-0072 – Type approval – Thermoplastic piping systems
DNV GL rules for classification – Ships

Application :

For use in non-essential and essential systems for water up to 16 bar. Service temperature 0°C to 60°C. For installation according to DNV GL Rules and Manufacturer's recommendations. The piping system is not tested w.r.t. Fire Endurance. The piping system is tested to Low Flame Spread according IMO Resolution A.653(16).

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

Issued at **Høvik** on **2017-10-09**

This Certificate is valid until **2022-10-08**.

DNV GL local station: **Ningbo**

for **DNV GL**

Approval Engineer: **Gisle Hersvik**

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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.



Job Id: **262.1-013885-3**
Certificate No: **TAK00000YW**

Product description

PVC-U PN16 Pipes and Fittings.

PVC-U: Unplasticised Polyvinyl Chloride

Dimensions: DN15/dn20 to DN150/dn160

Pipes PN16 - Series S6.3 SDR13.6:

Outside diameters and minimum wall thickness											
OD [mm]	20	25	32	40	50	63	75	90	110	140	160
t [mm]	2,2	2,2	2,4	3.0	3.7	4,7	5,6	6,7	8,1	10,3	11,8

External pressure:

Vacuum resistant. Not designed to take any external pressure.

Fittings:

Bends, tees, crosses, reducers, flanges.

Joining technique:

Solvent jointed

Application/Limitation

Approved only for installation of piping systems onboard ships which will not be exposed to external pressure outside the pipes.

For installation according to DNV GL Rules and Manufacturer's Specification.

The approval covers application such as non-essential and essential systems, hot and cold water systems chilled and brine water systems, cooling systems (air condition), black and grey water systems, watertreatment fresh and waste water, osmosis systems and evaporation, fresh water bunker lines, etc.

Maximum service pressure 16 bar. Service temperature range 0°C to 60°C.

Flame Spread:

The piping system is tested with respect to Low Flame Spread performance in accordance with IMO Resolution A.653(16).

Smoke Generation & Toxicity:

The piping system is not tested with respect to Smoke Generation & Toxicity characteristics.

Fire Endurance:

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

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

Type Approval documentation

Tests carried out

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

Marking of product

Job Id: **262.1-013885-3**
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The product is to be marked with the *manufacturer's name*: **You Li Holding Group Co., Ltd., China**, *material/type designation*, *nominal pressure*, *dimensions* and *production date*.

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 2 and 3.5 years (Certificate Retention) and at renewal after 5 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 DNV GL Type Approval Certificate.

END OF CERTIFICATE