DNV·GL

Certificate No:
TAK0000030

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Plastic Pipes, Thermoplastic

with type designation(s)
PE-RT Pipes and Fittings

Issued to
Jingjiang Haihong Plastics & Rubbers Science-Technology Co., Ltd
Jingjiang, China

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 :

Non-essential systems for water up to 16 bar. Service temperature -40 °C to 80°C. Installation according to DNV Rules and Manufacturer's Specification. The piping system is tested to Low Flame Spread according to IMO Resolution A.653(16). 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 **2019-09-08**.

Issued at **Høvik** on **2015-09-09**

for **DNV GL**

DNV GL local station: **Jiangyin FiS&CMC**

Approval Engineer: **Mats Gustafsson**

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.

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Product description

PE-RT Pipes and Fittings. Nominal pressure (PN) 16 bar.

PE-RT: Polyethylene of Raised Temperature resistance.

PE-RT Pipes:

	Outside diameters and minimum wall thickness					
OD [mm]	20	25	32	40	50	63
t [mm]	2,8	2,8	3,6	4,5	5,6	7,1

Fittings:
Elbows, Tees, Reducers, Caps, Flanges.

Joining technique:
Fusion welding.

Application/Limitation

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

The approval covers application such as non-essential system, 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 –40ºC to 80ºC.

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

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

Type Approval documentation
Tests carried out

Type Testing carried out in accordance with **Type Approval documentation**, and in addition:
- Test Report from Institute for Environmental Health and Related Product Safety – Chinese Center for Disease Control and Prevention, showing suitability for drinking water service, dated 2005-03-21.

Marking of product

The product is to be marked with the *manufacturer's name*: **Jingjiang Haihong Plastics & Rubbers Science-Technology Co., Ltd., Jingjiang, China**, *type designation/material*, *pressure rating* and *temperature rating*.

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