DNV·GL

Certificate No:
TAK00000U5

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Plastic Pipes, Thermoplastic

with type designation(s)
PE100 Pipes and Fittings; PN8, PN10 and PN12.5

Issued to
Zhejiang Weixing New Building Materials Co.,Ltd
Linhai Zhejiang, China

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 offshore standards
IMO Resolution A.753(18). Guidelines for the Application of Plastic Pipes on Ships

Application :

For use in systems for water and sea water up to 12.5 bar. Service temperature -40ºC to 60ºC. For installation in accordance to DNV GL Rules and Manufacturer's Specification. The piping system is not tested w.r.t. Fire Endurance and Low Flame Spread characteristics.

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

Issued at **Høvik** on **2017-04-24**
This Certificate is valid until **2018-12-31**.
DNV GL local station: **Ningbo**

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

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Product description

PE100 Pipes and Fittings.

- Polyethylene (PE100).
- Nominal Internal Pressure rating: 8, 10 and 12.5 bar.
- External pressure; None. Satisfies min. 3 bar collapse pressure.

Pipes:

Nominal diameter, DN [mm]	Wall thickness, min. [mm]		
	Standard Size Ratio, SDR		
	SDR17	**SDR13.6**	**SDR11**
	Nominal Pressure, PN [bar]		
	8	**10**	**12.5**
20	--	--	1.9
25	--	--	2.3
32	--	--	3.0
40	--	--	3.7
50	--	--	4.6
63	--	4.7	5.8
75	4.5	5.6	6.8
90	5.4	6.7	8.2
110	6.6	8.1	10.0
125	7.4	9.2	11.4
140	8.3	10.3	12.7
160	9.5	11.8	14.6
180	10.7	13.3	16.4
200	11.9	14.7	18.2
225	13.4	16.6	20.5
250	14.8	18.4	22.7
280	16.6	20.6	25.4
315	18.7	23.2	28.6
355	21.1	26.1	32.2
400	23.7	29.4	36.3
450	26.7	33.1	40.9
500	29.7	36.8	45.4
560	33.2	41.2	50.8
630	37.4	46.3	57.2
710	42.1	52.2	64.5
800	47.4	58.8	72.6

Fittings:
Elbows, tees, sockets, caps and male thread connectors.

Joining techniques:
Butt fusion, socket fusion, electrofusion and flanged.

Application/Limitation

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

The approval covers application such as essential and 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.

The piping system is not approved for installations within tanks and open decks.

Maximum service pressure; 12.5 bar.

Service temperature range; -40ºC to 60ºC.

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

Low Flame Spread:
The piping system is not tested w.r.t. Low Flame Spread characteristics.

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

The piping system is non-conductive, not for installation in gas hazardous area.

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 the *manufacturer's name*: **Zhejiang Weixing New Building Materials Co., Ltd., China**, *pressure rating*, *temperature rating* and *type designation*.

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.

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:
- 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