DNV·GL

Certificate No:
TAK00001WX

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Plastic Piping System, Fibre Reinforced Thermosetting

with type designation(s)
BL10B, BL10B-C

Issued to
Changzhou CTC Pipelines System Co., Ltd.
Changzhou, Jiangsu, China

is found to comply with
DNV GL class programme DNVGL-CP-0070 – Type approval – Fibre reinforced thermosetting plastic piping systems
DNV GL rules for classification – Ships
DNV GL offshore standards

Application :

For use in non-essential systems. For installation in accordance to DNV GL Rules and Manufacturer's recommendations. The piping system is conductive or non-conductive. The piping system has been tested to Fire Endurance L3 in accordance with IMO Resolution A.753(18). The piping system has been tested to Low Flame Spread in accordance with IMO Resolution A.653(16). The piping system has been tested to Smoke & Toxicity in accordance with IMO FTP Code, Annex 1, Part 2 (2010).

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

Issued at **Høvik** on **2020-07-01**
This Certificate is valid until **2025-06-30**.
DNV GL local station: **Nanjing NB & 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

BL 10B, BL 10B-C; glass fibre reinforced thermosetting plastic pipeline system

- Nominal internal pressure rating: 10 bar
- Nominal external pressure rating: None

Pipes: DN25 – DN 1100

BL 10B and BL 10B-C

Nominal reinforced wall thickness in mm										
Int. PN 10 [bar]	**Ø [inch] Ø [mm]:**	**1 25**	**1 ½ 40**	**2 50**	**2 ½ 65**	**3 80**	**4 100**	**5 125**	**6 150**	**8 200**
		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5

Nominal reinforced wall thickness in mm										
Int. PN 10 [bar]	**Ø [inch] Ø [mm]:**	**10 250**	**12 300**	**14 350**	**16 400**	**18 450**	**20 500**	**22 550**	**24 600**	**26 650**
		3.6	4.1	4.4	5.0	5.5	6.1	6.6	7.2	8.0

Nominal reinforced wall thickness in mm							
Int. PN 10 [bar]	**Ø [inch] Ø [mm]:**	**28 700**	**30 750**	**32 800**	**36 900**	**40 1000**	**44 1100**
		8.5	9.1	9.7	10.8	12.0	13.1

Note: Total nominal wall thickness includes 0.5 mm internal liner.

Fittings: Elbows, tees, concentric and eccentric reducers, couplings, saddles, laterals, crosses and flanges

Application/Limitation

For use in **non-essential systems**. Approved only for installation of piping systems onboard ships which will not be exposed to vacuum inside the pipes and not exposed to external pressure outside the pipes.

The installation of the piping system shall be according to DNV GL Rules and Manufacturer's recommendations.

Maximum working temperature is +93ºC. For applications with working temperature above +30ºC, the permissible pressure is to be reduced according to DNVGL-CP-0070, Table 2.

Fire Endurance
The piping system is tested w.r.t. Fire Endurance Level 3 characteristics in accordance with IMO Resolution A.753(18).

Low Flame Spread
The piping system is tested w.r.t. Low Flame Spread characteristics in accordance with IMO Resolution A.653(16).

Smoke Generation & Toxicity
The piping system has also been tested to Smoke Generation & Toxicity in accordance with IMO FTP Code, Annex 1, Part 2 (2010).

Electrical conductivity
The piping system is approved as:
- BL 10B: non-conductive, not for installations in gas hazardous areas.
- BL 10B-C: conductive, for installations in gas hazardous areas.

Test of conductivity is to be carried out after installation of piping system.

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 pipes and fittings are to be marked. The marking shall at least include the following information:
- *Product name*: **BL 10B** / **BL 10B-C**
- *Manufacturers name*: **Changzhou CTC Pipelines System Co., Ltd.**
- *Pressure rating*
- *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 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