DNV·GL

Certificate No:
**TAK00000TR**

# TYPE APPROVAL CERTIFICATE

## This is to certify:

**That the Plastic Pipes, Fibre Reinforced Thermosetting**

with type designation(s)
**BL 16B and BL 16B-C Pipelines System**

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

## Application :

**For installation according to DNV GL Rules and Manufacturer's Specifications. 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 **2017-03-21**
This Certificate is valid until **2017-12-31**.
DNV GL local station: **Nanjing**

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.

Job Id: **262.1-015399-2**
Certificate No: **TAK00000TR**

## Product description

**BL 16B and BL 16B-C Pipelines System**; PN16 bar Glass Fiber Reinforced Thermosetting (Epoxy) Plastic Piping System

Pipes: DN40 – DN800

*Internal Pressure*: PN16 bar

| Nominal wall thickness in mm, incl. 0.5 mm liner | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Int. PN 16 [bar]** | **Ø [inch] Ø [mm]:** | **1 ½ 40** | **2 50** | **2 ½ 65** | **3 80** | **4 100** | **5 125** | **6 150** | **8 200** | **10 250** | **12 300** |
| | | 3.5 | 3.8 | 4.0 | 4.0 | 4.8 | 4.8 | 5.3 | 6.5 | 7.7 | 9.0 |

| Nominal wall thickness in mm, incl. 0.5 mm liner | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Int. PN 16 [bar]** | **Ø [inch] Ø [mm]:** | **14 350** | **16 400** | **18 450** | **20 500** | **22 550** | **24 600** | **26 650** | **28 700** | **30 750** | **32 800** |
| | | 10.0 | 11.5 | 12.0 | 13.1 | 14.4 | 15.7 | 17.6 | 19.0 | 20.3 | 21.7 |

*External Pressure*: EP4.0 bar

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

Joining Methods:
Double O-Ring Socket & Spigot, Adhesive Bonded or Flanged; DN40 – DN400
Adhesive Bonded or Flanged; DN450 – DN800

## Application/Limitation

Maximum service temperature: 93ºC.

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

Piping system is approved as:
- **BL16B**: non-conductive, not for installations in gas hazardous areas.
- **BL16B-C**: conductive, for installations in gas hazardous areas.

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

Maximum working temperature is +95ºC. For applications with working temperature above +30ºC, the permissible pressure is to be reduced according to DNV GL Rules for Classification of Ships, Pt.4 Ch.6 Sec.7, Table 8.

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

## 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 16B** / **BL 16B-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.

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