

MARINE DIVISION
17 Bis Place des Reflets - La Défense 2
92400 Courbevoie - France
Tel. 33 1 42 91 53 48
Fax 33 1 42 91 28 94



Certificate N°:
12232/A0 BV
The attached Schedule forms part of the certificate
File Number : ACM 135/0707/002
Product Code : 2080H

**BUREAU
VERITAS**

CERTIFICATE OF TYPE APPROVAL

This is to certify that the product identified below was found to be in compliance with the relevant hereunder stated Regulations & standards

THERMOPLASTIC MATERIAL PIPES AND FITTINGS +GF+ Instaflex Polybutylene PB

MANUFACTURED BY:

GEORG FISCHER S.A. (SWITZERLAND)
SCHAFFHAUSEN - SWITZERLAND

SPECIFIED REGULATIONS & STANDARDS :
BUREAU VERITAS Rules for the Classification of Steel Ships,
IMO Resolution A.753 (18).

The Approval is valid until : 09.08.2007

BUREAU VERITAS ZURICH



At Paris la Défense, on : 09.08.2002

J.BENOIT
For the Secretary

This Certificate remains valid until the date stated on, hereunder, unless cancelled or revoked, provided the conditions in the attached schedule are complied with and the equipment remains satisfactory into service.
This Certificate is not valid for equipment, the design or manufacture of which has been varied or modified from the specimen tested.
This Certificate is not valid without the stamp of the above mentioned by BUREAU VERITAS Inspection Center.
The manufacturer should notify BUREAU VERITAS of any modification or changes to the equipment in order to obtain a valid Certificate.
The latest published Regulations or Standards referred to, above, and the Marine Division General Conditions are applicable.



THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION :

+GF+ Instaflex Pipes, fittings and valves

Range

- Pipe and fittings 16 to 110 mm
- Pipe-in-sleeve
- Accessories and jointing equipment
- Valves

Pressure rating

Internal pressure	25 bar	size 16 and 20 mm
	16 bar	size 25 to 110 mm

Normal working temperature range

- 15°C to + 95°C

Allowable working pressure in relation to temperatures to be in conformity with Manufacturer's recommendations

Type of joints

- Socket fusion
- Electrofusion
- Compression fittings

2. DESIGN DRAWINGS and/or SPECIFICATIONS

GEORG FISCHER +GF+ 's catalogues:

- +GF+ Piping Systems the Corporate Group
- Plastics Technical Manual
- General Technical Documentation
- +GF+ Instaflex Technical Manual (11/01)
- +GF+ Instaflex Product Range 2001 (4.01)

3. TYPE TEST REPORTS / LABORATORY RECOGNITION STATUS

3.1 Product approval type testing in accordance with IMO Resolution A.753 (18) without fire endurance test :

- Burst pressure test as per test report 157/9863 dated 07/12/2001
- Burst pressure test as per test report 157/9864 dated 07/12/2001
- Flame spread test according to ASTM D-635

3.2 Georg Fischer Laboratory is accredited as a Testing laboratory for components of piping systems.

- Accreditation number: STS 094

3.3 Behaviour in case of fire (smoke generation and toxicity) is to be deemed satisfactory by the flag authorities of the vessel on board which the piping system is fitted.

4. MATERIALS and/or COMPONENTS REQUIRED TO BE TYPE APPROVED

Insulation material when used.

5. OTHER MATERIALS and/or COMPONENTS

Raw material of Fittings, Valves and Pipes:

- PB Polybutylene

6. APPLICATION / LIMITATION OF USE

6.1 The pipes, fittings and valves may be used for the following services on board :

- Domestic water system (cold sea and fresh water)
- Chilled and potable water systems
- Heating systems
- Non-essential systems

6.2 The use of plastic pipes, fittings and valves is defined by Appendix 4 of IMO Resolution A.753 (18) when the abbreviations "O or NA" are specified.

6.3 The use of PB Piping system with insulation material +GF+Armaflex is restricted to cold service piping less than 15°C as stated in SOLAS 74 Convention, as amended.

6.4 The integrity of watertight bulkheads and fire division is not to be impaired.

6.5 Detailed drawings of each system are to be submitted for examination of the compliance with the Rules.

7. PRODUCTION SURVEY REQUIREMENTS

Each pipe and fitting is to be tested by the Manufacturer at a hydrostatic pressure not less than 1.5 times the nominal pressure.

8. ON BOARD INSTALLATION & MAINTENANCE REQUIREMENTS

8.1 The fitting aboard is to be the same as used for the test.

8.2 The piping assembly is to be carried out under the supervision of the Manufacturer or by a qualified Agent.

9. MARKING FOR IDENTIFICATION

The pipes, fittings and valves are to be permanently marked as follows:

- Manufacturer's name: +GF+
- Dimension
- Raw material: PB
- Product code

10. OTHERS

10.1 This approval is given on the understanding that the Society reserves the right to require check tests to be carried out on the units at any time and that **GEORG FISCHER + GF +**, will accept full responsibility for informing shipbuilders, shipowners or their sub-contractors of the proper methods of use and general maintenance of the units and of the conditions of this approval.

10.2 All manufacturing sites' s **GEORG FISCHER** are ISO approved:

- GEORG FISCHER Plastics Huntingdon - GB ISO 9002
- GEORG FISCHER Deka GmbH - D ISO 9001
- GEORG FISCHER Til Spa - I ISO 9002
- GEORG FISCHER Schaffhausen - CH ISO 9001
- GEORG FISCHER Seewis - CH ISO 9001

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