



MARINE DIVISION

Certificate number: 27999/A0 BV

File number: ACM 135/0707/04

Product code: 2080H

This certificate is not valid when presented without the full attached schedule composed of 7 sections

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TYPE APPROVAL CERTIFICATE

This certificate is issued to

Georg Fischer JRG AG
Sissach - SWITZERLAND

for the type of product

THERMOPLASTIC MATERIAL PIPES AND FITTINGS

JRG Sanipex MT Multilayer Pipes and Fittings

Requirements:

- BUREAU VERITAS Rules for the Classification of Steel Ships
- FTP Code, Resolution MSC.61(67), IMO Resolution A.753(18)

This certificate is issued to attest that BUREAU VERITAS did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.

This certificate will expire on: 23 May 2017

For BUREAU VERITAS,

At BV HAMBURG, on 23 May 2012,

Udo Storm



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with BUREAU VERITAS. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of BUREAU VERITAS Marine Division available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against BUREAU VERITAS for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION

JRG Sanipex MT Multilayer Pipes and Fittings

1.1 Design of Multilayer Pipes

Multi-layer pipe (PE-X/AL/PE-X) according to DVGW W542 to drinking water system JRG Sanipex MT, inner pex pipe (white) and outer pex coating (black) made of cross linked polyethylen (PE-X), support pipe in aluminium, butt welded

1.2 Ratings

DN	12	15	20	25	32	40	50
d (mm)	16	20	26	32	40	50	63
Wall-thickness (mm)	2.25	2.5	3	3	3.5	4	4.5

- Max. working pressure 10 bar
- Temperature range 0°C to 70 °C, heating max. 95 °C for shorter intervals

The allowable working pressure in relation to temperatures to be in conformity with manufacturer's recommendation.

- Jointing method

1.3 Raw material specification

- Pipes are made of PE-Xc/Al/PE-Xb (dimensions d16 to d40) and PE-Xc/Al/PE-Xc (dimensions d50 & d63)
- Fittings are made of PPSU/PA and PPSU/Gunmetal/PA

2. DOCUMENTS AND DRAWINGS

- +GF+'s JRG Catalogue - latest edition
- Technical Documentation - latest edition
- Users Manual - latest edition

No departure from the above documents shall be made without the prior consent of the Society. The manufacturer must inform the Society of any modification or changes to these documents and drawings.

3. TEST REPORTS

- 3.1 Tests carried out acc. to EN ISO 21003-1. Test report N° TGM-VA KU 22751 dated 13/12/2010 issued by the test laboratory TGM (Wien).
- 3.2 Flame spread characteristics according to ASTM D 635-06. Test report N° 96069/10 dated 28/07/2010 issued by SKZ.
- 3.3 The pipes and fittings are not type-tested with respect to fire resistance characteristics.

4. APPLICATION / LIMITATION

4.1 JRG Sanipex MT Multilayer Pipes and Fittings are approved for use in locations and for non-essential applications where no fire/flame endurance test is required according to Pt C, Ch 1, App 3 [2.3.1/2] of Bureau Veritas Rules or appendix 4 of IMO Resolution A.753 (18) when the abbreviations "O or NA" are specified:

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

4.2 Detailed drawings of piping system for each application on board ships are to be submitted for review of compliance with the Bureau Veritas Rules and the applicable regulations.

4.3 The pipes and fittings assembly is to be carried out in accordance with the manufacturer's instructions and the person performing these tasks is to be qualified to the satisfaction of the Society Surveyor.

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

4.5 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.

5. PRODUCTION SURVEY REQUIREMENTS

5.1 The products are to be manufactured, examined and tested by the manufacturer in accordance with the approved type described in this certificate and Bureau Veritas Rules and Regulations stated on the front page of this certificate.

5.2 Production sites are to be recognized by Bureau Veritas as per NR 320 for HBV products. To this end, the manufacturer has to make the necessary arrangements for a Society's Surveyor to perform visits and product audits at the production sites.

5.3 **Georg Fischer JRG AG, Switzerland** has declared to Bureau Veritas that the pipes detailed in this certificate are supplied by **Hewing GmbH, Ochtrup, Germany** and manufactured at the following production sites:

- Hewing GmbH, Ochtrup, Germany (multilayer pipes dimensions d16 to d40)
- Uponor GmbH, Location, Zella-Mehlis, Germany (multilayer pipes dimensions d50 & d63)

The fittings detailed in this certificate are manufactured at the facilities - Georg Fischer JRG AG, Switzerland (dimensions d16 to d63).

5.4 This certificate is also valid for other companies authorized by the manufacturer when same specifications, tolerances, equipment and quality control procedures are used. In such case, the BV agreement is to be obtained.

5.5 Each pipe and fitting is to be tested by the manufacturer at a hydrostatic pressure not less than 1.5 times the nominal pressure. Other recognised national or international standard may be accepted for pipes and fittings not employing hand lay up techniques. Depending upon the intended application the Society may require the pressure testing of each pipe and/or fitting.

5.6 Bureau Veritas certificate is not required for the product to be fitted on board units to be classed with Bureau Veritas.

6. MARKING OF PRODUCT

Pipes and fittings shall be marked with at least:

- Manufacturer's name or logo +GF+
- Type and size
- Design standard

The permanent label shall remain legible under normal handling and installation practices.

7. OTHERS

This approval is given with the understanding that the manufacturer will accept full responsibility for informing shipbuilders or their sub-contractors of the proper method of fitting and general maintenance of the products and of the conditions of this approval.

*** END OF CERTIFICATE ***