DNV·GL

Certificate No:
TAK00000WD

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Plastic Pipes, Thermoplastic

with type designation(s)
JRG Sanipex MT Piping System

Issued to
Georg Fischer JRG AG
Sissach BL, Switzerland

is found to comply with
DNV GL rules for classification – Ships
DNV GL class programme DNVGL-CP-0072 – Type approval – Thermoplastic piping systems

Application :

Products approved by this certificate are accepted for installation on all vessels classed by DNV GL.

Issued at **Hamburg** on **2017-09-11**
This Certificate is valid until **2022-09-10**.
DNV GL local station: **Augsburg**

Approval Engineer: **Peter Gierhan**

for **DNV GL**

Olaf Drews
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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Job Id: **262.1-008023-4**
Certificate No: **TAK00000WD**

Product description

The JRG Sanipex MT installation system consists of ML pipes and fittings.

JRG Sanipex MT pipe in bars (OD 16 up to OD63), multilayer pipe (PE-X/AL/PE-X), according DVGW W542 and EN ISO 21003, inner PE-X pipe (white) and outer PE-X coating (black) made of cross linked polyethylene (PE-X), support pipe in aluminum, butt welded.

JRG Sanipex MT pipe in protective pipe in coils , (OD 16 and OD20), with black PE-protection conduit, multilayer pipe, (PE-X/AL/PE-X) according DVGW W542 and EN ISO 21003, inner PE-X pipe (white)
and outer PE-X coating (white) made of cross linked polyethylene (PE-X), support pipe in aluminum, butt welded.

JRG Sanipex MT pipe in coils, (OD12 up to OD32), multilayer pipe (PE-X/AL/PE-X) according DVGW W542 and EN ISO 21003, inner PE-X pipe (white) made of cross linked polyethylene (PE-X), outer coating made of polyethylene (PE-RT), support pipe in aluminum, butt welded.

Overview

Size range PN16 – Outer diameter (OD)	16mm up to 32mm
DN	12, 15, 20, 25
OD x wall thickness mm	16x2,25, 20x2,5, 26x3,0, 32x3,0
Size range PN13 – Outer diameter (OD)	40mm up to 63mm
DN	32, 40, 50
OD x wall thickness mm	40x3,5, 50x4,0, 63x4,5
Fitting types[1] PPSU/PA Fittings PPSU/PA/Gunmetal adapter	OD16 up to OD63mm
Service temperature range	0ºC to 70ºC (short interval up to 95°C)
Maximum internal service pressure	Up to 16bar
External pressure rating	None
Joining techniques	Flared pipe with mechanical joint

Notes

[1] Refer to the Georg Fischer "JRG Sanipex MT Technische Dokumentation".

Production places

Pipes	**DNV GL Station**
Hewing GmbH, Waldstrasse 3, 48607 Ochtrup, Germany Product: Multilayer Composite Pipes OD 16mm up to OD 40mm	Augsburg, Germany
Uponor GmbH, Am Köhlersgehäu 17, D-98544 Zella-Mehlis, Germany Product: Multilayer Composite Pipes OD 50mm up to OD 63mm	
Georg Fischer PFCI S.r.l, Via Degli Imprenditori, 37067 Valeggio Sul Mincio (VR), Italy Product: Multilayer Composite Pipes OD 16mm up to OD 40mm	Milan, Italy
Fittings and Valves	**DNV GL Station**
Georg Fischer JRG AG Hauptstrasse 130, 4450 Sissach, Switzerland Products Fittings: PPSU/PA, PPSU/Gunmetal/PA – for pipe OD16mm up to 63mm **Valves: Refer to DNV GL type approval certificates**	Augsburg, Germany

Responsibility

The Georg Fischer JRG AG takes the responsibility that both design and production are in compliance with Rules, Standards and/or Regulations listed on page 1 of this certificate.

Application/Limitation

The JRG Sanipex MT Pipes, Fittings and Valves are type approved for application in piping systems as listed in "Table 1- Fire endurance requirements matrix" of DNVGL Rules Pt.4, Ch.6, Section 2. as follows:

Reference to Table 1	**Piping system[1]**
Sanitary and Drains and Scuppers	Potable hot and cold water
Miscellaneous	Service air (non-essential)

Notes
[1] Approved installation locations where "0" is specified in "Table 1 - Fire endurance requirements matrix". Appropriate footnotes are to be observed.

Extent of Type Tests applicable to piping system dependent on application

Fire endurance Level
The Sanipex piping system is not tested with respect to Fire Endurance characteristics.

Flame spread
Surface flame spread characteristics is confirmed by ASTM D635.

Smoke and toxicity
The Sanipex piping system is not tested with respect to smoke and toxicity characteristics.

Electrical conductivity
Not applicable.

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.

Installation

For installation of the piping system the instructions specified in the Georg Fischer (GF) "Gebäudetechnik – Technisches Handbuch" and the installation requirements specific to the ship as specified by the ship yard as well as DNVGL Rules Pt.4,Ch6, Section 9 are to be observed.

The Sanipex piping systems are not approved for installation:
- within tanks and vacuum applications (service pressure below - 0.1bar gauge).
- in gas hazardous area.

Bulkhead penetration
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 Section 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

Production Testing

Each batch of pipes and fittings shall be subjected to product tests as specified in DNVGL CP-0072 - Table 1 Requierements for manufacturers quality control.

Marking of product

Pipes	GF + OD/DN, manufacturing date: day/month/year
Fittings	GF + OD/DN, manufacturing date: month/year
Colour	Black and white

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

For retention of the type approval certificate periodical assessments shall be carried out at production places by DNVGL surveyor.
The objective of the periodical assessment is to verify that the design and production conditions for the type approval have not been altered.

Main scope of the assessment:
- verification of the production and quality control system
- review of quality control documentation of recent deliveries
- review of drawings in production to verify any design changes which may have an impact on data specified in the type approval certificate, performance and range of application
- verification of the product marking

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.