



# TYPE APPROVAL CERTIFICATE

Certificate no.:  
**TAK00001R3**  
Revision No:  
**2**

## This is to certify:

that the **Plastic Piping System, Thermoplastic**

with type designation(s)  
**SMARTLINE®**

issued to

**Pipelife Norge AS**  
Surnadal, Norway

is found to comply with

**DNV class programme DNV-CP-0072 – Type approval – Thermoplastic piping systems**  
**DNV rules for classification – Ships**

## Application:

For use in non-essential sanitary and drainage systems up to 0.5 bar and 45°C. Installation of the piping system shall be in accordance with Manufacturer's recommendations. The piping system is not tested with respect to Fire Endurance, Low Flame Spread and Smoke Generation & Toxicity characteristics.

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

Issued at **Hamburg** on **2024-06-20**

This Certificate is valid until **2029-06-30**.

DNV local unit: **Kristiansund N**

Approval Engineer: **Gisle Hersvik**

for **DNV**



Digitally Signed By:  
Stefan Röhr  
Location: DNV Hamburg,  
Germany

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 AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") 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.



## Product description

**SMARTLINE®:** Polypropylene (PP) Pipes and Fittings.

Nominal Diameter (OD) range: 40 - 110 mm

Nominal internal pressure (PN): 0.5 bar

Nominal external pressure (EP): None

### Pipes and Fittings - Dimensions:

Ø [OD]:	Minimum wall thickness [mm]	
	Pipes	Fittings
40	1,8	1,8
50	1,8	1,8
75	2,3	2,3
110	3,4	3,4

Dimensions as per NS-EN 1451-1.

### Fittings and Jointing:

- In accordance with **SMARTLINE ABC** (Product Catalogue).

## Application/Limitation

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.

Non-essential sanitary and drainage systems:

- the piping system is not under pressure and maximum working pressure under operating conditions is zero, and
- the piping system must not be shaped in such a way that the internal pressure exceeds 0.5 bar during an eventual blockage.

For installation in accordance with DNV Rules and Manufacturer's recommendations.

Maximum service pressure: 0.5 bar.

Service temperature range:

- continuous flow up to +45°C,
- flow for longer periods up to +60°C and
- intermittent flow up to +95°C.

### **Fire Endurance**

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

### **Low Flame Spread**

The piping system is not tested with respect to Low Flame Spread characteristics.

### **Smoke Generation & Toxicity**

The piping system is not tested with respect to Smoke Generation & Toxicity characteristics.

### **Electrical conductivity**

The piping system is non-conductive, not for installation in gas hazardous area.

### **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 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 rules for classification - Ships, 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

1. Periodical Assessment Report from DNV Kristiansund of 2024-06-12, and the following supporting documents:
  - SMARTLINE ABC (Product Catalogue, February 2024),
  - RISE Reports of 2024-01-31 (Elevated temperature cycling test / Audit tests of PP-fittings, Smartline, according to NPG/PS 107:2020 and INSTA-CERT SBC PS 107, December 2020)
  - RISE Report of 2023-11-02 (Audit tests of PP-pipes, smartline, according to EN1451-1:2017/AC:2018 and INSTA CERT SBC 1451, June 2021),
  - ISO 9001 Certificate (Nemko) and ISO 14001 Certificate (Nemko).
2. Periodical Assessment Report from DNV GL Kristiansund of 2019-06-24.
3. Periodical Assessment Report from DNV GL Kristiansund of 2015-05-12, and the following supporting documents SMARTLINE® Product Catalogue (March 2013), and SP Reports 2014-09-04 and 2013-09-09 (audit tests for PP pipes and fittings), TDS for the Polypropylene material.
4. Email from Pipelife Norge AS of 2010-09-21, including Application for Type Approval of 2010-09-21, Survey Report from DNV Kristiansund of 2010-04-21, Letter from Pipelife Norge AS of 2010-03-15, and SMARTLINE® Product Catalogue.

## 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:

- *Manufacturer's Name:* (Pipelife)
- *Material:* (PP)
- *Pipe dimensions:* (Outer diameter/wall thickness)

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 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 / Certificate Renewal) shall be performed according to DNV-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.dnv.com>

END OF CERTIFICATE