

TYPE APPROVAL CERTIFICATE

Certificate no.:
TAK00001SG
Revision No:
4

This is to certify:

that the **Plastic Piping System, Thermoplastic**

with type designation(s)
Wefatherm Standard pipe, Wefatherm Fibre pipe

issued to

Wefatherm GmbH
Beverungen, Germany

is found to comply with

DNV rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV class programme DNV-CP-0072 – Type approval – Thermoplastic piping systems

Application:

Not approved with regard to external pressure resistance and flame spread.
Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.

Issued at **Hamburg** on **2024-11-18**

This Certificate is valid until **2029-11-17**.

DNV local unit: **Essen**

Approval Engineer: **Hagen Markus**

for **DNV**



Digitally Signed By:
Sven Klinger
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

Thermoplastic piping system made of Polypropylene - PP-R, types Standard mono layer and Fibre three-layer pipe with middle layer of glass fibre.
 Design standard DIN EN ISO 15874.

Nominal pressure values PN for pipe joints are based on Internal Pressure Short Term Tests on pipe spools with a safety factor of 4.

Detailed dimensions of components, design and installation requirements as per specification manual "Specialist Water Supply Systems – PP-R pipe system," 2022.

Technical Data

Pipes

Wefatherm Standard – SDR 6 (PN20)

Outer diameter (O.D.) mm	20	25	32	40	50	63	75	90	110	125
Wall thickness (s) mm	3.4	4.2	5.4	6.7	8.3	10.5	12.5	15.0	18.3	20.8

Nominal pressure PN	20bar
External pressure rating	None

Wefatherm Fibre – SDR 7.4 (PN16)

Outer diameter (O.D.) mm	20	25	32	40	50	63	75	90	110	125
Wall thickness (s) mm	2.8	3.5	4.4	5.5	6.9	8.6	10.3	12.3	15.1	17.1

Nominal pressure PN	16bar
External pressure rating	None

Fittings	Socket, reducer, cross, end caps, flange sleeve, stub end, transition round and hexagon female,
	Elbows 90°, elbows 45°, bends 90°, transition elbows, back plate elbows, electrofusion coupler, weld in saddles
	Tee 90°, tee reduced, transition tee female,
	Brass transitions, union brass female, pipe connection brass nut female

Joining techniques¹	Socket welding – manual, socket welding - mechanical, weld-in saddle welding, butt-welding, electrofusion welding
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Tools	Manual welding devices, socket and butt- welding machine, electrofusion welding machine, tools for welding and pipe finishing.
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Notes

¹ Reference Wefatherm "Specialist Water Supply Systems – PP-R pipe system, Section 9", 2022.

Permissible service pressure and temperature limits

According to standard ISO 15874 – Plastic piping systems for hot and cold-water installations – Polypropylene (PP)

Class ¹	0°C up to 20°C	Class 1	Class 2	Class 4	Class 5
Wefatherm PP-R pipe SDR 6 (bar)	10	10	8	10	6
Wefatherm PP-R fibre pipe SDR 7.4 (bar)	10	8	6	10	6

Notes

¹ Class 1 hot water supply 60°C - Class 2 hot water supply 70°C - Class 4 low temperature heating up to 60°C - Class 5 high temperature heating up to 80°C.

Application/Limitation

The Wefatherm Standard and Fiber pipes and fittings are type approved for application in piping systems as specified in the below table.

Approved installation locations are open decks (protected installation), cofferdams, void spaces, pipe tunnels and ducts. Installation in other locations is subject to case-by-case approval.

Not approved for installation locations where “NA” or “X” is indicated in Table 1- Fire endurance requirements matrix”. Refer to DNV RU-SHIP Pt.4 Ch.6, Section 2 – 1.7 Plastic pipes “

Further limitation

Not approved for installation in gas hazardous areas, within tanks and systems with vacuum pressure.

Reference to Table 1 – Fire endurance requirements matrix ¹	Item	Piping system
Freshwater		
Non-essential systems	22	Potable hot and cold-water piping systems including bunkerlines. Wash water and warm water heating.
Sanitary and drains and scuppers		
Sanitary drains (internal)	24	Sewage piping systems

Note

¹ DNV RU-SHIP Pt.4 Ch.6, Section 2 – 1.7 Plastic pipes “

Extent of Type Tests applicable to piping system dependent on application

Fire endurance level, flame spread

The Wefatherm Standard and Fiber pipes including fittings are not tested with respect to Fire endurance and flame spread characteristics.

Smoke and toxicity

The Wefatherm piping system is not type tested with respect to smoke generation and toxic products in fire as defined in IMO FTP Code, Annex 2 - 2.2.

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 the design and installation of the piping system the instructions specified in the Wefatherm manual “Specialist Water Supply Systems – PP-R pipe system” are to be observed.

In addition, the DNV-RU-SHIPS Pt.4 Ch.6, Section 10 Para. 4 Joining of plastic pipes.

Bulkhead and deck pipe penetration (watertight subdivisions)

The Wefatherm PP-R Standard and Fiber pipe system is not approved for the penetration of watertight bulkheads and decks.

Pipes may be accepted for penetrating watertight subdivisions provided that:

a) a steel spool piece of 900 mm in length, preferable 450 mm on each side, with thickness according to Pt.4 Ch.6 - Sec.9 [1.2.1] is arranged at the watertight penetration. A remote operated emergency shut-off valve shall be arranged between the steel spool piece and the pipe on one side. This valve shall be of safe to close type, or else the control including hydraulic piping and electric cables shall be routed inboard of B/5, and preferably to centre line, before being routed longitudinally. On the opposite side should the pipe be flanged or similar to the steel spool piece

b) two manual valves, one on each side of the steel spool piece in a) are arranged, under the provision that these valves are easily accessible.

Reference: Pt.4 Ch.6 Piping systems – Section 2 – 1.7.6.


Type Approval documentation

Tests carried out

Internal Pressure Short-term test, Internal Pressure Long-term test, External load test, Impact Resistance test.

Marking of product

The pipes and fittings are provided with the following marking (abstract):

Product	Scope	Example
Pipes PP-R	Manufacturer name and short sign	 wefatherm
	Material grade	PP-R
	Pressure class / ISO Standard	SDR 6 / ISO 15874
	Dimension outer diameter OD x WT	25x4,2mm
	ISO 15874 Classes	Class1/10bar, 2/8bar, 5/6bar
	Production date: Day- Month - Year	08.11.2024
	Colour	Green
Special Fiber multilayer pipes	Material grade	PP-R/PP-R-GF/PP-R fibre pipe
	Colour	Green with four red longitudinal stripes
Fittings	Manufacturer short sign	WF
	Dimension outer diameter OD	Ø25
	Material grade	PP-R
	Production date	Year-Month in form of a stamp

Periodical assessment

For retention of the Type Approval, a DNV Surveyor shall perform periodical assessment to verify that the conditions for the Type Approval are complied with. Refer to the Class Programme DNV-CP-0338, Section 4.

In addition, burst pressure testing on pipe spools made of different pipe/fitting sizes and fitting types to be carried out during renewal of the certificate.

To check the validity of this certificate, please look it up in <https://approvalfinder.dnv.com>

End of certificate