DNV·GL

TYPE APPROVAL CERTIFICATE

Certificate No:
TAK00001SG
Revision No:
3

This is to certify:

That the Plastic Pipes, Thermoplastic

with type designation(s)
Wefatherm pipe, Wefatherm fibre pipe

Issued to
Wefatherm GmbH
Wunstorf, Germany

is found to comply with
DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV GL class programme DNVGL-CP-0072 – Type approval – Thermoplastic piping systems

Application :

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

Issued at **Hamburg** on **2020-01-29**

for **DNV GL**

This Certificate is valid until **2023-10-19**.
DNV GL local station: **Essen**

Approval Engineer: **Hagen Markus**

Olaf Drews
Head of Section

Job Id: **262.1-029892-1**
Certificate No: **TAK00001SG**
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Product description

Thermoplastic piping system made of Polypropylene - PP-R. Joining of pipes and fittings by socket fusion or butt fusion. Design standard DIN EN ISO 15874.

Detailed dimensions of components, design and installation requirements as per Wefatherm manual " Specialist Water Supply Systems – PP-R pipe system ", 2017.

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
External pressure rating	None									

Wefatherm Fiber – 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
External pressure rating	None									

Fittings[1]	Socket, electrofusion coupler, reducer, tee 90°, tee reduced, bends 90°, elbows 90°, elbows 45°, cross, end caps, flange sleeve, stub end, transition round and hexagon female, transition elbows, back plate elbows, transition tee female, union brass female, pipe connection brass nut female, weld in saddles.
Tools	Manual welding devices, socket and butt- welding machine, electrofusion welding machine, tools for welding and pipe finishing.

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 fiber 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.

The piping systems is not approved for installation in tanks and systems with vacuum.

Media	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

Reference DNVGL Rules Pt.4, Ch.6, Section 2 – 1.7 Plastic pipes "Table 1- Fire endurance requirements matrix".

Extent of Type Tests applicable to piping system dependent on application

Fire endurance level
The WEFATHERM Standard and Fiber pipes including fittings are not tested with respect to Fire endurance characteristics.

Flame spread
Surface flame spread characteristic is not confirmed.

Smoke and toxicity
The Wefatherm piping systems are 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", 2017 are to be observed.

In addition the installation requirements specific to the ship as specified by the ship yard as well as DNVGL Rules Pt.4, Ch.6, Section 9 and 10 are to be observed.

The Wefatherm PP-R piping systems are not approved for installation in gas hazardous area, penetration of water tight bulkheads and installation within tanks.

Type Approval documentation

Actual TAK00001SG
Long-term pressure tests

SKZ 84630/09-II	Pipes	2010-11-10		
SKZ 86343/09	Joints and Fittings	2009-03-16		
SKZ 86343/09-I		2009-07-07		
SKZ 86346/12		2013-01-28		
SKZ 110653/14	Pipes	2015-10-05		
Wefatherm Fertigungsprüfung DIN EN ISO 1167 1h, 22h, 165h			Fiber pipe- SDR 7,4	2014-06-01
			Standard pipe – SDR 6	

Burst pressure tests witnessed by DNV GL surveyor:

Test report no.	Date	Type	O.D.	TP
2019040057/000	2019-04-25	PP-R, SDR6 – Pipe spool	20/25/32	80bar
2019040058/000			40/50/63	
2019040059/003		PP-R-Faser, SDR 7,4 – Pipe spool	20/25/32	64bar
2019040060/000			40/50/63	
2019040061/000		PP-R, SDR6 – Pipe spool	75/90/110	80bar
2019040062/000		PP-R-Faser, SDR 7,4 – Pipe spool	75/90/110	64bar
2019040063/001		PP-R, SDR6 – Pipe spool	125	80bar
2019040064/000		PP-R-Faser, SDR 7,4 – Pipe spool	125	64bar

- Production control reports "Fertigungsprüfung":
  - PP-R Faser-Rohr SDR 7,4 Charge 1-863, Charge 22598
  - PP-R Rohr SDR6, Charge 1-865
- Asbestos free declaration confirmed by application form for type approval, 2018-09-28
- DNVGL Assessment report Wefatherm GmbH, Wunstorf dated 2019-04-12
- WEFATHERM individual quality plan "Fertigungsprüfung" generated from data base.
- SKZ Inspection reports:

155218/2.1/131130	Fittings PP-R	25	Borealis RA 130 E	2nd half-year 2018
225918/2.2/131132	Pipes Standard PP-R	25x4,2		
340319/1.1/132970	Pipes Fiber multilayer PP-R/PP-R-GF/PP-R	50x6.9		1st half-year 2019
635419/1.1/132971		125x17.1		

Previous certificate 47 813-03HH
- Wefatherm test report 2003-09-26, 2007-11-26
- SKZ reports issued 2013
- DNV GL Ref.No: 13-022915

Tests carried out

Internal Pressure Short-Term and Long-Term, 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	Product name	WEFATHERM
	Material grade	PP-R
	Pressure class / ISO Standard	SDR 6 / ISO 15874
	Dimension ODxWT	Ø25x4,2
	ISO 15874 Classes	Class1/10bar, 2/8bar, 5/6bar
	Production date: Day- Month - Year	28-08-2019
	Colour	green
Especially Fiber multilayer pipes	Material grade	PP-R/PP-R-GF/PP-R fiber pipe
	Colour	Green with four red longitudinal stripes
ExpeciallyFittings	Manufacturer short sign	WF
	Dimension OD	Ø25
	Production date	Year-Month in form of a stamp
	Material grade	PP-R

Periodical assessment

For retention of the Type Approval, a DNV GL Surveyor shall perform periodical assessment after two years (+/- 90 days) and after 3.5 years (+/- 90 days) to verify that the conditions for the Type Approval are complied with. Refer to the Class Programme DNVGL-CP-0338, Sec.4.

End of certificate