



TYPE APPROVAL CERTIFICATE

Certificate No. : HMB00895-PE001 **Initial Approval** : 13th May, 1999
Product : Pipe and Fittings made of Polypropylene
Manufacturer : Aquatherm GmbH
Biggen 5, D-57439 Attendorn, Germany

Product Description : Pipes and Fittings made of Polypropylene
- aquatherm green pipe (old : fusiotherm)
- aquatherm blue pipe (old : Climatherm)
- aquatherm red pipe (old : Aquatherm firestop)
- aquatherm green pipe fittings (old : fusiotherm fittings)

* Intended for : Portable water, sanitary water, grey and black water, sanitary drains (internal), water heating system, ballast piping (only inside ballast water tank, cofferdams, void spaces, pipe tunnels, ducts) and non-essential system

" See Appendix 1 "

Approval Condition : " See Appendix 1 "

THIS IS TO CERTIFY that the above-mentioned product has been approved in accordance with the relevant requirement of this Society's Rules and / or of the recognized standards as follows and entered in the "List of Approved Manufacturers and Type Approved Equipment".

Pt 5, Ch 6, Sec 1 of the Rules for the Classification of Steel Ships, IMO Res. A753(18) except Fire endurance test and Flame spread test.

This Certificate is valid until 12th May, 2024

Issued at Busan, Korea on 8th April, 2019



This certificate is signed electronically in accordance with IMO FAL.5/Circ.39/Rev.2. Validation and authentication of the certificate can be confirmed from "<http://e-cert.krs.co.kr>" by using the tracking No (ME19007646559) and certificate No.(HMB00895-PE001).



KOREAN REGISTER OF SHIPPING

*General Manager of
Marine & Ocean Equipment Team*

*Note : 1. This certificate will be valid subject to complying with the approval conditions described on the certificate and/or on the Rules of this Society.
2. This certificate will be invalid from the expiry date aforementioned unless the extension or renewal has been granted to the applicant or the manufacturer.
3. Any significant modifications or changes in design or construction to the above product without approval from this Society will render this certificate invalid.
4. Should the specified rules, regulations or standards be amended during the validity of this certificate, the product is to be re-approved by this Society in accordance with the requirements as amended.*

Appendix 1

Product Description and/or Approval Condition

Certificate No : HMB00895-PE001

Date of Issue : 8th April, 2019

A. Product Description

1. Product Specification

- 1) aquatherm green pipe SDR11 S (old : fusiotherm SDR11)
 aquatherm green pipe SDR7,4 S (old : fusiotherm SDR7,4)
 aquatherm green pipe SDR6 S (old : fusiotherm SDR6)

SDR11 S (PN 10)			SDR7.4 S (PN 16)			SDR6 S (PN 20)		
Art.-No.	Dia.	S	Art.-No.	Dia.	S	Art.-No.	Dia.	S
10208	20	1.9	10806	16	2.2	10006	16	2.7
10210	25	2.3	10808	20	2.8	10008	20	3.4
10212	32	3.0	10810	25	3.5	10010	25	4.2
10214	40	3.7	10812	32	4.5	10012	32	5.4
10216	50	4.6	10814	40	5.6	10014	40	6.7
10218	63	5.8	10816	50	6.9	10016	50	8.4
10220	75	6.9	10818	63	8.7	10018	63	10.5
10222	90	8.2	10820	75	10.4	10020	75	12.5
10224	110	10.0	10822	90	12.5	10022	90	15.0
10226	125	11.4	10824	110	15.2	10024	110	18.4
10230	160	14.6						
10234	200	18.2						
10238	250	22.7						
10242	315	28.6						
10244	355	32.2						
10246	400	36.3						
10248	450	40.9						
10308	20	1.9						
10310	25	2.3						
10312	32	2.9						

* Dia. = outer Diameter (mm), S = wall thickness (mm)

- 2) aquatherm green pipe SDR7,4 MS (old : fusiotherm Stabi-composite SDR7,4/PN20)

Art.-No.	Dia.	S	Art.-No.	Dia.	S
70806	16	2.7	70816	50	7.9
70808	20	3.6	70818	63	9.7
70810	25	4.4	70820	75	11.4
70812	32	5.4	70822	90	13.5
70814	40	6.6	70824	110	16.2

* Dia. = outer Diameter (mm), S = wall thickness (mm)

Aluminium foil

- The stabilizing layer used for the composite pipes is a regularly perforated aluminium foil with a thickness of 0.15 mm for all pipe diameters, coated with a bonding agent or polypropylen respectively.

- 3) aquatherm green pipe SDR7,4 MF (old : fusiotherm faser composite SDR7,4/PN20)

Art.-No.	Dia.	S	Art.-No.	Dia.	S
70708	20	2.8	70722	90	12.3
70710	25	3.5	70724	110	15.1
70712	32	4.4	70726	125	17.1
70714	40	5.5	70730	160	21.9
70716	50	6.9	70734	200	27.4
70718	63	8.6	70738	250	34.2
70720	75	10.3	70742	315	42.6
			70744	355	48.0

* Dia. = outer Diameter (mm), S = wall thickness (mm)

< To be continued >

Appendix 1

Product Description and/or Approval Condition

Certificate No : HMB00895-PE001

Date of Issue : 8th April, 2019

4) aquatherm green pipe SDR9 MF-RP

Art.-No.	Dia.	S	Art.-No.	Dia.	S
0370712	32	3.6	0370726	125	14.0
0370714	40	4.5	0370730	160	17.9
0370716	50	5.6	0370734	200	22.4
0370718	63	7.1	0370738	250	27.9
0370720	75	8.4	0370742	315	35.2
0370722	90	10.1	0370744	355	39.7
0370724	110	12.3			

* Dia. = outer Diameter (mm), S = wall thickness (mm)

5) aquatherm blue pipe SDR7,4 MF (old : Climatherm faser composite SDR7,4)
aquatherm blue pipe SDR11 MF (old : Climatherm faser composite SDR11)

Art.-No.	Dia.	S	Art.-No.	Dia.	S
2070708	20	2.8	2070710	25	3.5
2070112	32	3.0	2070114	40	3.7
2070116	50	4.6	2070118	63	5.8
2070120	75	6.9	2070122	90	8.2
2070124	110	10.0	2070126	125	11.4
2070130	160	14.6	2070134	200	18.2
2070138	250	22.7	2070142	315	28.6
2070144	355	32.2	2070146	400	36.3
2070148	450	40.9			

* Dia. = outer Diameter (mm), S = wall thickness (mm)

6) aquatherm blue pipe SDR11 S(old : Climatherm SDR 11)

Art.-No.	Dia.	S	Art.-No.	Dia.	S
2010208	20	1.9	2010210	25	2.3
2010210	32	3.0	2010214	40	3.7
2010216	50	4.6	2010218	60	5.8
2010220	75	6.9	2010222	90	8.2
2010224	110	10.0	2010226	125	11.4

* Dia. = outer Diameter (mm), S = wall thickness (mm)

7) aquatherm blue pipe SDR17,6 MF

Art.-No.	Dia.	S	Art.-No.	Dia.	S
2570130	160	9.1	2570146	400	22.7
2570134	200	11.4	2570148	450	25.5
2570138	250	14.2	2570150	500	28.4
2570142	315	17.9	2570152	560	31.7
2570144	355	20.1	2570154	630	35.7

* Dia. = outer Diameter (mm), S = wall thickness (mm)

8) aquatherm red pipe SDR7,4 MF-HI

Art.-No.	Dia.	S	Art.-No.	Dia.	S
4170708	20	2.8	4170718	63	8.6
4170710	25	3.5	4170720	75	10.3
4170712	32	4.4	4170722	90	12.3
4170714	40	5.5	4170724	110	15.1
4170716	50	6.9	4170726	125	17.1
			4170130	160	14.6

* Dia. = outer Diameter (mm), S = wall thickness (mm) < To be continued >

Appendix 1

Product Description and/or Approval Condition

Certificate No : HMB00895-PE001

Date of Issue : 8th April, 2019

2. Approved Drawings and Documents

- 1) Approved product drawings and product catalogue E10101, Edition 04/2015

3. Test Reports, etc.

- 1) Test reports witnessed by DNV-GL and LR reviewed by the Society
- 2) Test reports carried out at test laboratory and manufacturing plant

B. Approval Condition

1. Application & Limitation

- 1) These pipes are type approved for use in piping systems of class III.
- 2) These pipes may not be used wherever the fire endurance or flame spread characteristics are required according to IMO Res. A 753(18).
- 3) For application, refer to "Product Catalogue E10101, Edition 04/2015"
- 4) The Installation of pipes are to be in accordance with the KR Rules and the Manufacturer's instruction.
- 5) Where the pipes pass through watertight bulkheads or decks, the watertight integrity of the bulkhead or deck is to be maintained using pipe penetration method approved by the Society.

2. Individual Product Cert. and Drawing Approval Requirement

- 1) Individual Product Certification is not required.

3. Marking

- 1) The pipes and fittings are to be marked with the following items
 - Type of product or trade name
 - Mark to prove that the product is approved by the Society
 - Nominal diameter, Pressure rating, Temperature rating

4. Others

Nil

< End of Certificate >

KOREAN REGISTER