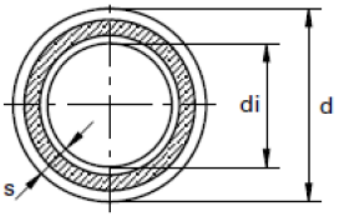
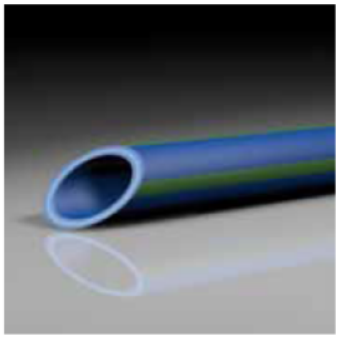
aquatherm blue pipe - SDR 7,4 / 11 / 17,6 MF

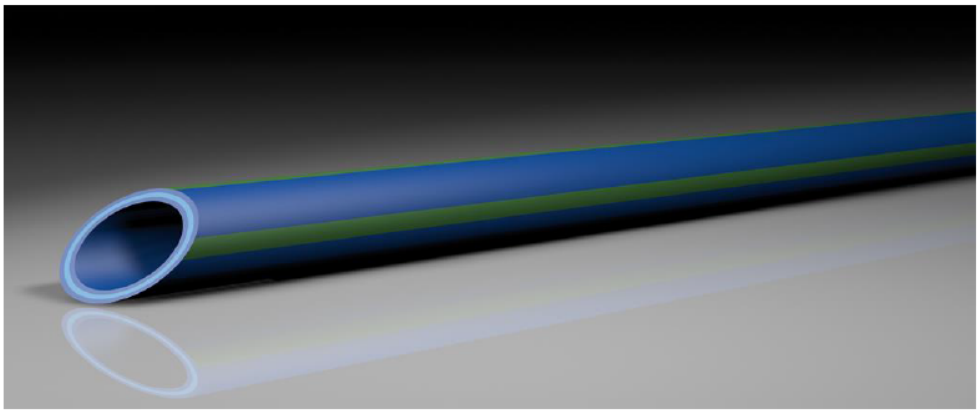
Structure of pipe:	MF = multilayer, with fibre reinforced
Material:	fusiolen PP-R
Pipe series:	SDR 7,4 / S 3,2 & SDR11 / S 5 & SDR 17,6 / S 8,3
Standards:	SKZ HR 3.28, ASTM F 2389, CSA B 137.11, ISO 21003
Colour:	blue with 4 wider green stripes
Form supplied:	ø 20-125mm straight lengths 4 m ø 160-630mm straight lengths 5,8 m
Packing Unit:	PU in meter
Application:	





Mechanically stabilized through a fibre mix integrated in the middle layer of the fusiolen® PP-R.

SDR	Art.-No.	Dimension d [mm]	Wall thickness s [mm]	Internal diameter di [mm]	Water content [l/m]	Weight [kg]	DN	PU [m]	Price € m/pc
7,4	Socket welding								
	2070708	20	2,8	14,4	0,163	0,159	15	100	
	2070710	25	3,5	18,0	0,254	0,244	20	100	
	2070712	32	4,4	23,2	0,423	0,275	25	40	
11	2070112	32	2,9	26,2	0,539	0,285	25	40	
	2070114	40	3,7	32,6	0,834	0,435	32	40	
	2070116	50	4,6	40,8	1,307	0,675	40	20	
	2070118	63	5,8	51,4	2,074	1,065	50	20	
	2070120	75	6,8	61,4	2,959	1,482	65	20	
	2070122	90	8,2	73,6	4,252	2,145	80	12	
	2070124	110	10,0	90,0	6,359	3,175	-	8	
	2070126	125	11,4	102,2	8,199	4,118	100	4	
	Butt welding								
	2070130	160	14,6	130,8	13,430	6,728	125	5,8	
	2070134	200	18,2	163,6	21,010	10,480	150	5,8	
	2070138	250	22,7	204,6	32,861	16,300	200	5,8	
	2070142	315	28,6	257,8	52,172	25,700	250	5,8	
	2070144	355	32,2	290,6	66,29	33,034	300	5,8	
	2070146	400	36,3	327,6	84,290	41,400	300	5,8	
	2070148	450	40,9	368,2	106,477	52,400	400	5,8	
17,6	Socket welding								
	NEW 2570126	125	7,1	110,8	9,637	2,698	100	4	
	Butt welding								
	2570130	160	9,1	141,8	15,792	4,360	150	5,8	
	2570134	200	11,4	177,2	24,661	6,800	200	5,8	
	2570138	250	14,2	221,6	38,568	10,570	250	5,8	
	2570142	315	17,9	279,2	61,223	16,740	300	5,8	
	2570144	355	20,1	314,8	77,832	21,210	350	5,8	
	2570146	400	22,7	354,6	98,756	26,930	350	5,8	
	2570148	450	25,5	399,0	125,036	34,020	400	5,8	
	2570150	500	28,4	443,2	154,272	42,070	450	5,8	
	2570152	560	31,7	496,6	193,688	52,550	500	5,8	
	2570154	630	35,7	558,6	245,070	66,540	500	5,8	



SUPPORT INTERVALS

aquatherm green pipe SDR 7,4 MF & blue pipe SDR 7,4 MF (faser composite pipe)

Table to determine support intervals in conjunction with temperature and outside diameter.

Difference in temperature DT [K]	Pipe diameter d (mm)														
	20	25	32	40	50	63	75	90	110	125	160	200	250	315	355
	Support intervals in cm														
0	120	140	160	180	205	230	245	260	290	320	330	335	345	355	360
20	90	105	120	135	155	175	185	195	215	240	240	2755	260	265	270
30	90	105	120	135	155	175	185	195	210	225	230	240	245	255	260
40	85	95	110	125	145	165	175	185	200	215	220	230	240	240	245
50	85	95	110	125	145	165	175	185	190	195	205	220	230	235	235
60	80	90	105	120	135	155	165	175	180	185	195	205	215	220	225
70	70	80	95	110	130	145	165	165	170	175	185	195	200	215	220

Pipe clamp distances of vertically installed pipes can be increased by 20 % of the tabular values, e.g. to multiply the tabular value by 1.2.

aquatherm blue pipe SDR 11 MF (faser composite pipe)

Table to determine support intervals in conjunction with temperature and outside diameter.

Difference in temperature DT [K]	Pipe diameter d (mm)																
	20	25	32	40	50	63	75	90	110	125	160	200	250	315	355	400	450
	Support intervals in cm																
0	110	130	150	170	195	220	235	250	275	280	285	290	300	310	315	325	325
20	80	95	110	125	145	165	175	185	200	205	210	220	225	230	235	250	265
30	80	95	110	125	145	165	175	185	190	195	200	210	215	220	225	240	255
40	75	85	100	115	135	155	165	175	180	185	190	200	210	210	215	230	245
50	75	85	100	115	135	155	160	170	170	175	180	190	200	205	205	220	235
60	70	80	95	110	125	145	150	160	160	165	170	180	185	190	195	205	220
70	60	70	85	100	120	135	140	145	150	155	160	170	175	185	190	195	210

Pipe clamp distances of vertically installed pipes can be increased by 20 % of the tabular values, e.g. to multiply the tabular value by 1.2.

aquatherm blue pipe SDR 17,6 MF

Table to determine support intervals in conjunction with temperature and outside diameter.

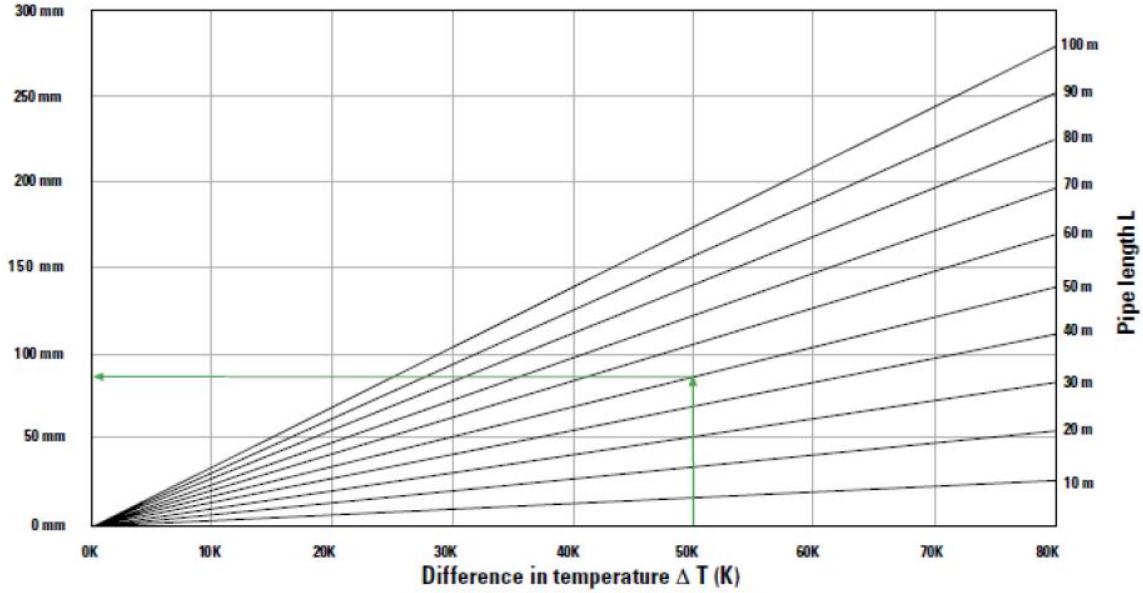
Difference in temperature DT [K]	Pipe diameter d (mm)										
	125	160	200	250	315	355	400	450	500	560	630
	Support intervals in cm										
0	255	260	265	275	280	285	295	305	315	325	330
20	185	190	200	205	210	215	230	240	255	270	280
30	175	180	190	195	200	205	220	230	245	260	275
40	170	175	180	190	190	195	210	225	235	250	265
50	160	165	175	180	185	190	200	215	230	240	255
60	150	155	165	170	175	180	185	200	215	230	240
70	140	145	155	160	170	175	180	190	205	220	230

aquatherm green pipe MF (faser composite pipe)
aquatherm blue pipe MF (faser composite pipe)

Due to the integration and positive bond of the different materials, the aquatherm- faser composite pipes offers much higher stability. The linear expansion reduces its value to $^1/_5$ of the mere PP-pipes.

Linear expansion ΔL in [mm]: aquatherm- faser composite pipes - a = 0.035 mm / mK

Pipe length	Difference in temperature $\Delta T = T_{operating\ temperature} - T_{installation\ temperature}$							
	10 K	20 K	30 K	40 K	50 K	60 K	70 K	80 K
	Linear expansion DL (mm)							
10 m	4	7	11	14	18	21	25	28
20 m	7	14	21	28	35	42	49	56
30 m	11	21	32	42	53	63	74	84
40 m	14	28	42	56	70	84	98	112
50 m	18	35	53	70	88	105	123	140
60 m	21	42	63	84	105	126	147	168
70 m	25	49	74	98	123	147	172	196
80 m	28	56	84	112	140	168	196	224
90 m	32	63	95	126	158	189	221	252
100 m	35	70	105	140	175	210	245	280



PERMISSIBLE WORKING PRESSURE

For heating systems or closed systems considering the seasonal periods of operation - non potable water application

Heating period	Temperature	Service life	aquatherm blue pipe SDR 11 MF, OT & S		aquatherm blue pipe SDR 17,6 MF	
			Permissible working pressure in bar and (psi)			
			bar	(psi)	bar	(psi)
constant operating temperature 70 °C / 158 °F incl. 30 days per year at	75 °C	5	9,38	(136)	5,38	(78)
		10	9,08	(132)	5,21	(76)
		25	7,82	(113)	4,48	(65)
		45	6,77	(98)	3,89	(56)
	80 °C	5	8,88	(129)	5,09	(74)
		10	8,46	(123)	4,86	(70)
		25	7,38	(107)	4,24	(61)
		42,5	6,49	(94)	3,72	(54)
	85 °C	5	8,17	(118)	4,69	(68)
		10	7,82	(113)	4,49	(65)
		25	6,70	(97)	3,85	(56)
		37,5	6,07	(88)	3,49	(51)
	90 °C	5	7,50	(109)	4,30	(62)
		10	7,19	(104)	4,13	(60)
		25	5,85	(85)	3,36	(49)
		35	5,39	(78)	3,09	(45)
constant operating temperature 70 °C / 158 °F incl. 60 days per year at	75 °C	5	9,26	(134)	5,31	(77)
		10	8,90	(129)	5,11	(74)
		25	7,62	(111)	4,37	(63)
		45	6,60	(96)	3,79	(55)
	80 °C	5	8,61	(125)	4,94	(72)
		10	8,24	(120)	4,73	(69)
		25	6,93	(101)	3,98	(58)
		40	6,18	(90)	3,55	(51)
	85 °C	5	7,91	(115)	4,54	(66)
		10	7,56	(110)	4,34	(63)
		25	6,05	(88)	3,47	(50)
		35	5,57	(81)	3,20	(46)
	90 °C	5	7,25	(105)	4,16	(60)
		10	6,40	(93)	3,67	(53)
		25	5,12	(74)	2,94	(43)
		30	4,90	(71)	2,81	(41)
constant operating temperature 70 °C / 158 °F incl. 90 days per year at	75 °C	5	9,17	(133)	5,26	(76)
		10	8,79	(127)	5,04	(73)
		25	7,45	(108)	4,27	(62)
		45	6,45	(94)	3,70	(54)
	80 °C	5	8,46	(123)	4,85	(70)
		10	8,11	(118)	4,65	(67)
		25	6,60	(96)	3,78	(55)
		37,5	5,98	(87)	3,43	(50)
	85 °C	5	7,76	(113)	4,45	(65)
		10	7,03	(102)	4,04	(59)
		25	5,63	(82)	3,23	(47)
		32,5	5,28	(77)	3,03	(44)
	90 °C	5	6,96	(101)	3,99	(58)
		10	5,88	(85)	3,37	(49)
		25	4,70	(68)	2,70	(39)

* **SDR = Standard Dimension Ratio** (diameter/wall thickness ratio)
SDR = 2 x S + 1 = d/s (S = Pipe series index from ISO 4065)

PERMISSIBLE WORKING PRESSURE

for general pressure pipe applications in permanent operation charted application ranges on the left

Temperature	Service life	aquatherm blue pipe SDR 17,6 MF		aquatherm blue pipe SDR 11 MF & MF OT	
		Permissible working pressure in bar and (psi)			
		bar	(psi)	bar	(psi)
10 °C	1	12,8	(186)	27,8	(403)
	5	12,0	(174)	26,2	(380)
	10	11,7	(170)	25,6	(371)
	25	11,4	(165)	24,7	(358)
	50	11,1	(161)	24,1	(350)
	100	10,8	(157)	23,5	(341)
15 °C	1	11,8	(171)	25,7	(373)
	5	11,1	(161)	24,2	(351)
	10	10,8	(157)	23,6	(342)
	25	10,5	(152)	22,8	(331)
	50	10,2	(148)	22,2	(322)
	100	9,9	(144)	21,6	(313)
20 °C	1	10,9	(158)	23,8	(345)
	5	10,3	(149)	22,3	(323)
	10	10,0	(145)	21,7	(315)
	25	9,6	(139)	21,0	(305)
	50	9,4	(136)	20,4	(296)
	100	9,1	(132)	19,9	(289)
30 °C	1	9,3	(135)	20,2	(293)
	5	8,7	(126)	18,9	(274)
	10	8,5	(123)	18,4	(267)
	25	8,2	(119)	17,8	(258)
	50	7,9	(115)	17,3	(251)
	100	7,7	(112)	16,8	(244)
40 °C	1	7,9	(115)	17,1	(248)
	5	7,4	(107)	16,0	(232)
	10	7,2	(104)	15,6	(226)
	25	6,9	(100)	15,0	(218)
	50	6,7	(97)	14,6	(212)
	100	6,5	(94)	14,1	(205)
50 °C	1	6,7	(97)	14,5	(210)
	5	6,2	(90)	13,5	(196)
	10	6,0	(87)	13,1	(190)
	25	5,8	(84)	12,6	(183)
	50	5,6	(81)	12,2	(177)
	100	5,5	(80)	11,9	(173)
60 °C	1	5,6	(81)	12,2	(177)
	5	5,2	(75)	11,4	(165)
	10	5,1	(74)	11,0	(160)
	25	4,9	(71)	10,6	(154)
	50	4,7	(68)	10,3	(149)
70 °C	1	4,7	(68)	10,3	(149)
	5	4,4	(64)	9,6	(139)
	10	4,2	(61)	9,2	(133)
	25	3,7	(54)	8,0	(116)
	50	3,1	(45)	6,8	(99)
75 °C	1	4,3	(62)	9,4	(136)
	5	4,0	(58)	8,7	(126)
	10	3,7	(54)	8,0	(116)
	25	3,0	(44)	6,4	(93)
	50	2,5	(36)	5,4	(78)
80 °C	1	4,0	(58)	8,6	(125)
	5	3,5	(51)	7,7	(112)
	10	3,0	(44)	6,5	(94)
	25	2,4	(35)	5,2	(75)
90 °C	1	3,3	(48)	7,2	(104)
	5	2,3	(33)	5,1	(74)
	10	2,0	(29)	4,3	(62)

SDR = Standard Dimension Ratio (diameter/wall thickness ratio)
MF = multilayer faser

For fittings of butt-welded pipe segments a reduction factor of 0.75 (reduction of the table values by 25%) is effective.