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aquatherm

fusiotherm®
climatherm

Order No. E 11130
Edition 08/2010

fusiotherm® / climatherm Pipesystem

fusiotherm®
climatherm

Features - Fusion Technique - Installation Principles - Product Range

Installation manual

For potable water, hydronic and industrial applications

MADE IN GERMANY
PIPESYSTEMS

aquatherm

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Features

Permissible working pressure

for potable water installations
Fluid transported: water acc. to DIN 2000

Temperature	Service life	Fusiotherm®-pipe SDR 11 aquatherm lilac-pipe SDR 11 *		Fusiotherm®-pipe SDR 7,4 aquatherm lilac-pipe SDR 7,4 *		Fusiotherm®-pipe SDR 6 / Fusiotherm®-stabi composite pipe		Fusiotherm®-faser composite pipe SDR 7.4	
		Permissible working pressure in bar and (psi)							
		bar	(psi)	bar	(psi)	bar	(psi)	bar	(psi)
20 °C	1	15,0	(218)	23,8	(345)	30,0	(435)	28,6	(415)
	5	14,1	(205)	22,3	(324)	28,1	(408)	26,8	(389)
	10	13,7	(199)	21,7	(315)	27,3	(396)	26,1	(379)
	25	13,3	(193)	21,1	(306)	26,5	(385)	25,3	(367)
	50	12,9	(187)	20,4	(296)	25,7	(373)	24,5	(356)
30 °C	1	12,8	(186)	20,2	(293)	25,5	(370)	24,3	(353)
	5	12,0	(174)	19,0	(276)	23,9	(347)	22,8	(331)
	10	11,6	(168)	18,3	(266)	23,1	(335)	22,0	(319)
	25	11,2	(163)	17,7	(257)	22,3	(324)	21,3	(309)
	50	10,9	(158)	17,3	(251)	21,8	(316)	20,7	(300)
40 °C	1	10,8	(157)	17,1	(248)	21,5	(312)	20,5	(298)
	5	10,1	(147)	16,0	(232)	20,2	(293)	19,2	(279)
	10	9,8	(142)	15,6	(226)	19,6	(284)	18,7	(271)
	25	9,4	(136)	15,0	(218)	18,8	(273)	18,0	(261)
	50	9,2	(134)	14,5	(210)	18,3	(266)	17,5	(254)
50 °C	1	9,2	(134)	14,5	(210)	18,3	(266)	17,5	(254)
	5	8,5	(123)	13,5	(196)	17,0	(247)	16,2	(235)
	10	8,2	(119)	13,1	(190)	16,5	(239)	15,7	(228)
	25	8,0	(116)	12,6	(183)	15,9	(231)	15,2	(221)
	50	7,7	(112)	12,2	(177)	15,4	(224)	14,7	(213)
60 °C	1	7,7	(112)	12,2	(177)	15,4	(224)	14,7	(213)
	5	7,2	(104)	11,4	(165)	14,3	(208)	13,7	(199)
	10	6,9	(100)	11,0	(160)	13,8	(200)	13,2	(192)
	25	6,7	(97)	10,5	(152)	13,3	(193)	12,6	(183)
	50	6,4	(93)	10,1	(147)	12,7	(184)	12,1	(176)
Potable water (cold) / Potable water (warm)	65 °C	1		11,6	(168)	14,6	(212)	13,9	(202)
		5		10,8	(157)	13,6	(197)	12,9	(187)
		10		10,4	(151)	13,1	(190)	12,5	(181)
		25		10,0	(145)	12,6	(183)	12,0	(174)
		50		8,8	(128)	11,1	(161)	10,6	(154)
	70 °C	1		10,3	(149)	13,0	(189)	12,4	(180)
		5		9,5	(138)	11,9	(173)	11,4	(165)
		10		9,3	(135)	11,7	(170)	11,1	(161)
		25		8,0	(116)	10,1	(147)	9,6	(139)
		30		7,0	(102)	8,8	(128)	9,3	(135)
		50		6,7	(97)	8,5	(123)	8,1	(118)
	75 °C	1		9,8	(142)	12,3	(179)	11,7	(170)
		5		9,0	(131)	11,4	(165)	10,8	(157)
		10		8,3	(120)	10,5	(152)	10,0	(145)
		25		6,7	(97)	8,4	(122)	8,0	(116)
		Faser and Stabi composite pipe: high working stress at lower wall thickness and higher flow rate							

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

*** Only for non-potable water**

Permissible working pressure

heating systems or closed systems

Heating period	Temperature	Service life	climatherm-pipe SDR 11 / OT SDR 11 & faser composite pipe SDR 11		fusiotherm®-faser composite pipe SDR 7.4 fusiotherm®-stabi composite pipe		fusiotherm®-pipe SDR 7.4	
			Permissible working pressure in bar and (psi)					
			bar	(psi)	bar	(psi)	bar	(psi)
constant operating temperature 70 °C / 158 °F incl. 30 days per year at	75 °C	5	9,4	(136)	14,3	(208)	11,3	(164)
		10	9,1	(132)	13,8	(200)	11,0	(160)
		25	7,8	(113)	11,7	(170)	9,3	(135)
		45	6,8	(99)	10,2	(148)	8,1	(118)
	80 °C	5	8,9	(129)	13,5	(196)	10,7	(155)
		10	8,5	(123)	12,8	(186)	10,2	(148)
		25	7,4	(107)	11,1	(161)	8,8	(128)
		42,5	6,5	(94)	9,8	(142)	7,8	(113)
	85 °C	5	8,2	(119)	12,4	(180)	9,9	(144)
		10	7,8	(113)	11,9	(173)	9,4	(136)
		25	6,7	(97)	10,1	(147)	8,1	(118)
		37,5	6,1	(89)	9,2	(134)	7,3	(106)
	90 °C	5	7,5	(109)	11,4	(165)	9,0	(131)
		10	7,2	(104)	10,9	(158)	8,7	(126)
		25	5,9	(86)	8,9	(129)	7,0	(102)
		35	5,4	(78)	8,2	(119)	6,5	(94)
constant operating temperature 70 °C / 158 °F incl. 60 days per year at	75 °C	5	9,3	(135)	14,1	(205)	11,2	(163)
		10	8,9	(129)	13,6	(197)	10,8	(157)
		25	7,6	(110)	11,6	(168)	9,2	(134)
		45	6,6	(96)	10,1	(147)	8,0	(116)
	80 °C	5	8,6	(125)	13,1	(190)	10,4	(151)
		10	8,2	(119)	12,5	(181)	10,0	(145)
		25	6,9	(100)	10,6	(154)	8,4	(122)
		40	6,2	(90)	9,4	(136)	7,5	(109)
	85 °C	5	7,9	(115)	12,0	(174)	9,6	(139)
		10	7,6	(110)	11,5	(167)	9,1	(132)
		25	6,1	(89)	9,2	(134)	7,3	(106)
		35	5,6	(81)	8,5	(123)	6,7	(97)
	90 °C	5	7,3	(106)	11,0	(160)	8,8	(128)
		10	6,4	(93)	9,8	(142)	7,8	(113)
		25	5,1	(74)	7,8	(113)	6,2	(90)
		30	4,9	(71)	7,5	(109)	5,9	(86)
constant operating temperature 70 °C / 158 °F incl. 90 days per year at	75 °C	5	9,2	(134)	14,0	(203)	11,1	(161)
		10	8,8	(128)	13,4	(194)	10,6	(154)
		25	7,5	(109)	11,3	(164)	9,0	(131)
		45	6,5	(94)	9,8	(142)	7,8	(113)
	80 °C	5	8,5	(123)	12,9	(187)	10,2	(148)
		10	8,1	(118)	12,4	(180)	9,8	(142)
		25	6,6	(96)	10,1	(147)	8,0	(116)
		37,5	6,0	(87)	9,1	(132)	7,2	(104)
	85 °C	5	7,8	(113)	11,8	(171)	9,4	(136)
		10	7,0	(102)	10,7	(155)	8,5	(123)
		25	5,6	(81)	8,6	(125)	6,8	(99)
		32,5	5,3	(77)	8,0	(116)	6,4	(93)
	90 °C	5	7,0	(102)	10,6	(154)	8,4	(122)
		10	5,9	(86)	9,0	(131)	7,1	(103)
		25	4,7	(68)	7,2	(104)	5,7	(83)

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 out of the charted application ranges on page 9 and 10

Temperature	Service life	climatherm-faser-composite pipe SDR 11/UV & OT SDR 11/UV climatherm-pipe SDR 11		climatherm-faser-composite pipe SDR 7.4/UV & OT SDR 7.4/UV	
		Permissible working pressure in bar and (psi)			
		bar	(psi)	bar	(psi)
10 °C	1	27,8	(403)	43,2	(627)
	5	26,2	(380)	40,7	(591)
	10	25,6	(372)	39,7	(576)
	25	24,7	(358)	38,3	(556)
	50	24,1	(350)	37,4	(543)
	100	23,5	(341)	36,4	(528)
15 °C	1	25,7	(373)	39,9	(579)
	5	24,2	(351)	37,5	(544)
	10	23,6	(343)	36,6	(531)
	25	22,8	(331)	35,3	(512)
	50	22,2	(322)	34,4	(499)
	100	21,6	(313)	33,5	(486)
20 °C	1	23,8	(345)	36,8	(534)
	5	22,3	(324)	34,6	(502)
	10	21,7	(315)	33,7	(489)
	25	21,0	(305)	32,5	(472)
	50	20,4	(296)	31,7	(460)
	100	19,9	(289)	30,9	(448)
30 °C	1	20,2	(293)	31,3	(454)
	5	18,9	(274)	29,4	(427)
	10	18,4	(267)	28,6	(415)
	25	17,8	(258)	27,5	(399)
	50	17,3	(251)	26,8	(389)
	100	16,8	(244)	26,0	(377)
40 °C	1	17,1	(248)	26,6	(386)
	5	16,0	(232)	24,9	(361)
	10	15,6	(226)	24,1	(350)
	25	15,0	(218)	23,2	(337)
	50	14,6	(212)	22,6	(328)
	100	14,1	(205)	21,9	(318)
50 °C	1	14,5	(210)	22,5	(327)
	5	13,5	(196)	21,0	(305)
	10	13,1	(190)	20,4	(296)
	25	12,6	(183)	19,6	(284)
	50	12,2	(177)	19,0	(276)
	100	11,9	(173)	18,4	(267)
60 °C	1	12,2	(177)	19,0	(276)
	5	11,4	(165)	17,7	(257)
	10	11,0	(160)	17,1	(248)
	25	10,6	(154)	16,4	(238)
	50	10,3	(149)	15,9	(231)
70 °C	1	10,3	(149)	16,0	(232)
	5	9,6	(139)	14,8	(215)
	10	9,2	(134)	14,3	(208)
	25	8,0	(116)	12,5	(181)
	50	6,8	(99)	10,5	(152)
75 °C	1	9,4	(136)	14,6	(212)
	5	8,7	(126)	13,5	(196)
	10	8,0	(116)	12,5	(181)
	25	6,4	(93)	10,0	(145)
	50	5,4	(78)	8,4	(122)
80 °C	1	8,6	(125)	13,4	(194)
	5	7,7	(112)	11,9	(173)
	10	6,5	(94)	10,0	(145)
	25	5,2	(75)	8,0	(116)
90 °C	1	7,2	(104)	11,2	(163)
	5	5,1	(74)	7,8	(113)
	10	4,3	(62)	6,6	(96)

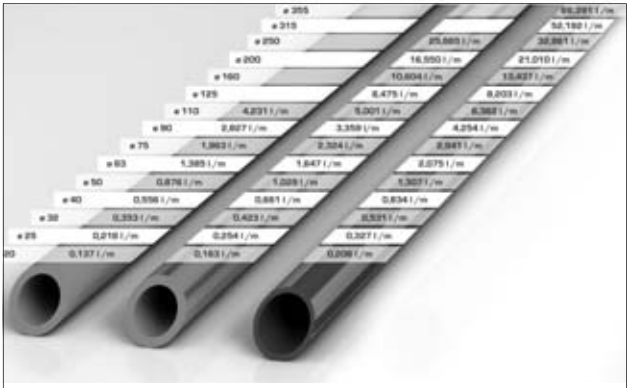
SDR = Standard Dimension Ratio (diameter/wall thickness ratio)
SDR = 2 x S + 1 ≈ d/s (S = Pipe series index from ISO 4065)

Features

Fields of application of the fusiotherm®, climatherm and lilac pipe systems:

System recommended due to its technical advantages: ●
Application of the system is suitable: ❍

	fusiotherm®	climatherm	lilac
Potable water application	●		
Heating system construction	❍	●	
Climate technology	❍	●	
Chilled water technology	❍	●	
Swimming-pool technology	●	●	
Chemical transport due to high chemical resistance	●	●	
Rainwater application			●
Irrigation	❍	●	
Compressed air systems	❍	●	
Surface-heating-systems	❍	●	
Fire protection sprinkler-systems			
Application in the field of ship building	●	●	
District heating pipeline systems	●	●	
Geothermal		●	



fusiotherm®-pipe SDR 6

fusiotherm®-faser composite pipe SDR 7.4
climatherm-faser composite pipe SDR 7.4 & SDR OT 7.4

climatherm-faser composite pipe SDR 11 & SDR OT 11
climatherm-pipe SDR 11
fusiotherm®-pipe SDR 11
aquatherm lilac- pipe SDR 11

The specifications concerning the chemical resistance and the included inquiery are both listed in the fusiotherm catalogue Art. No E10101 chapter 1, page 22 for the fusiotherm® and climatherm pipe system. The conditions, regulations and recommendations, described in chapter 3 "fusion", chapter 4 "installation principles" and chapter 5 "planning" are also valid for fusiotherm® and the climatherm-pipes. The fittings applied with the climatherm-pipe are specified in chapter 6 "product range". In addition the same conditions of guarantee and delivery as for the other aquatherm-pipe systems are valid for the climatherm-pipes.

Chapter 2
Fusion
for fusiotherm®, climatherm and aquatherm lilac

Part A: Mounting of the tools

1. **Fusiotherm®**, **climatherm** and **aquatherm lilac** are processed identically.

IMPORTANT!

Only use original fusiotherm® -welding devices and original fusiotherm®-welding tools.

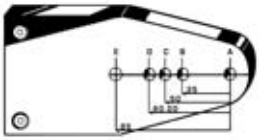
2. Assemble and tighten the cold welding tools manually.

3. Before fusing the distribution block, in which two connections are fused simultaneously, the welding tools have to be placed into the respective holes as described in the adjoing table A and drawing B.

A

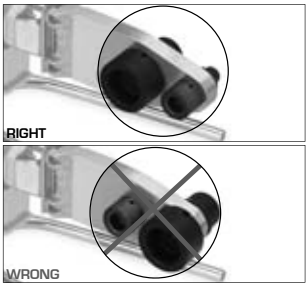
Art.-No.	Passage	Hole	Branch	Hole
30115	Ø 25 mm	A + E	Ø 20 mm	A + C
85123	Ø 20 mm	A + B	Ø 16 mm	A + C
85124	Ø 20 mm	A + B	Ø 16 mm	A + C

B



4. All welding tools must be free from impurities. Check if they are clean before assembling. If necessary clean the welding tools with a non fibrous, coarse tissue and with methylated spirit.

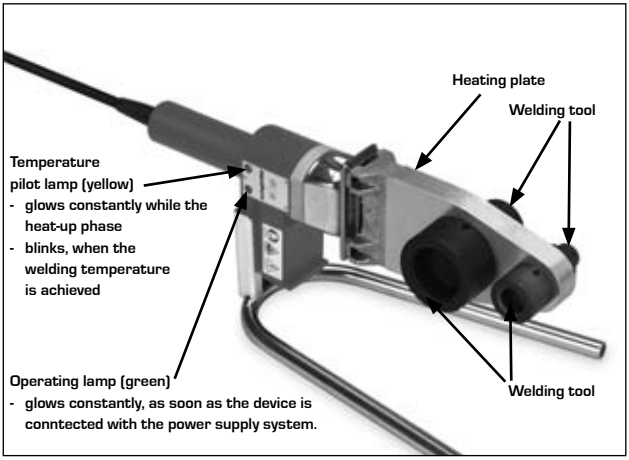
5. Place the welding tools on the welding device so that there is full surface contact between the welding tool and the heating plate. Welding tools over Ø 40 mm must always be fitted to the rear position of the heating plate.



Electric supply:
The power supply must coincide with the data on the type plate of the welding device and must be protected according to the local regulations. To avoide high power loss, the conductor cross-section of the used extension cables must be selected according to the power input of the welding devices.

6. Plug in the welding device. Depending on the ambient temperature it takes 10-30 minutes to heat up the heating plate.

Part A: Heating up phase



7. During the heating up phase tighten the welding tools carefully with the Allan key.

   Take care that the tools completely contact the heating plate. Never use pliers or any other unsuitable tools, as this will damage the coating of the welding tools.

8. The temperature of 260° C is required for the welding of the fusiotherm®-system.

   Acc. to DVS-Welding Guidelines the temperature of the welding device has to be checked at its tool before starting the welding process.

   This can be done with a fast indicating surface thermometer.

ATTENTION:

First welding - soonest 10 minutes after reaching of the welding temperature. DVS 2207, Part 11.

Part A: Handling

9. A tool change on a heated device requires another check of the welding temperature at the new tool (after its heating up).

Part A: Handling / Guidelines

10. If the device has been unplugged, e.g. during longer breaks, the heating up process has to be restarted (see item 6).

11. After use unplug the welding device and let it cool down. Water must never be used to cool the welding device, as this would destroy the heating resistances.

12. Protect fusiotherm®-welding devices and tools against impurities. Burnt particles may lead to an incorrect fusion. The tools may be cleaned with fusiotherm®-cleansing cloths, Art.-No.50193.

    Always keep the welding tools dry.

13. After welding, do not lay the the device on the Teflon-coated tool, but put it down in the provided supporting stand.

14. For a perfect fusion, damaged or dirty welding tools must be replaced, as only impeccable tools guarantee a perfect connection.

15. Never attempt to open or repair a defective device. Return the defective device for repair.

16. Check the operating temperature of fusiotherm®-welding devices regularly by means of suitable measuring instruments.

Part A: Guidelines

17. For the correct handling of welding machines the following must be observed:

    General Regulations for Protection of Labour and Prevention of Accidents and particularly the

    Regulations of the Employers' Liability Insurance Association of the Chemical Industry regarding Machines for the Processing of Plastics, chapter: „Welding Machines and Welding Equipment".

18. For the handling of fusiotherm®-welding machines, devices and tools please observe General Regulations DVS 2208 Part 1 of the German Association for Welding Engineering, Registered Society (Deutscher Verband für Schweißtechnik e. V.).

Part B: Checking of devices and tools

1. Check, if the fusiotherm® -welding devices and tools comply with the guidelines “Fusion Part A”.

2. All used devices and tools must have reached the necessary operating temperature of 260 °C. This requires acc. to “Fusion Part A, item 8” a separate test, which is indispensable (DVS-Welding Guidelines):

Suitable measuring instruments have to measure a temperature of up to 350° C with a high accuracy.

Note:
aquatherm recommends the original aquatherm temperature measuring device art.-no. 50188

Temperature control with a thermometer

aquatherm Temperatur - measuring device
Art.-No. 50188

Part B: Preparation for the fusion

3. Cut the pipe at right angles to the pipe axis. Only use fusiotherm®-pipe cutters or other suitable cutting pliers. Take care that the pipe axis is free from burrs or cutting debris and remove where necessary.

Cutting of the pipe

Part B: Preparation for the fusion

4. Mark the welding depth at the end of the pipe with the enclosed pencil and template.

5. Mark the desired position of the fitting on the pipe and / or fitting.

The markings on the fitting and the uninterrupted line on the pipe may be used as a guide.

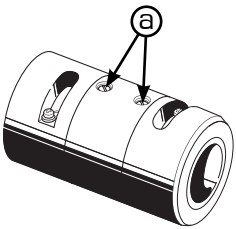
6. Before the fusion peel off the oxygen barrier layer of the climatherm OT-pipe, the aluminium-PP-composite layer of the stabi-composite pipe and the UV-layer of the faser-composite-pipe-UV completely to the stop by using the double peeling tools (Art.-No. 50507, 50511, 50516, 50519, 50525) considering the pipe diameter.

Marking of the welding depth

By turning the adjusting screw clockwise to the stop the peeling tools can be adjusted into small depths (sockets), by turning them counter clockwise up to the stop they can be adjusted into big peeling depth (electrofusion sockets).

Alternatively the peeling tools Art.-No. 50506, 50508, 50512, 50514, 505018, 50524 and 50526 can be applied.

Peeling of the aluminium-PP-composite-layer respectively oxygen barrier layer (Necessary only for stabi-composite pipes , climatherm OT pipe and pipes with UV protection layer!)



Peeling depth can be varied by turning the adjusting screw (a).

Part B: Preparation for the fusion

7. Only use original fusiotherm®-peeling tools with undamaged peeling blades. Blunt peeling blades have to be replaced by original ones. It will be necessary to make trial peelings to check the correct setting of the new blade. It should not be easier than usual to push the peeled stabi composite pipe or respectively climatherm OT-pipe into the welding tool.

8. Push the end of the stabi composite pipe into the guide of the peeling tool. Peel off the aluminium-PP-composite layer respectively oxygen barrier layer up to the stop of the peeling tool. It is not necessary to mark the welding depth as the backstop of the peeling tool indicates the correct welding depth.

9. Before starting the fusion, check if the aluminium-PP-composite layer respectively oxygen barrier layer has been completely removed.

Part B: Preparation for the fusion

The fusion is subject to the following data

Pipe external-Ø	Welding depth	Heating time		Welding time	Cooling time
mm	mm	sec. DVS	sec. AQE*	sec.	min.
16	13,0	5	8	4	2
20	14,0	5	8	4	2
25	15,0	7	11	4	2
32	16,5	8	12	6	4
40	18,0	12	18	6	4
50	20,0	18	27	6	4
63	24,0	24	36	8	6
75	26,0	30	45	8	8
90	29,0	40	60	8	8
110	32,5	50	75	10	8
125	40,0	60	90	10	8

*heating times recommended by aquatherm at ambient temperatures below + 5 °C

Following DVS 2207 part 11: At outdoor temperatures below +5 °C heating time will be increase of about 50%!

Dimension 160 - 355mm:

The dimensions 160 - 355 mm are joined by butt-welding.

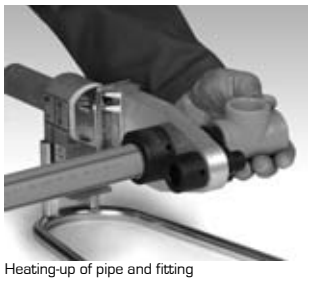
Detailed information see page 45 + 47

The General Guidelines for Heated Tool Socket Welding acc. to DVS 2207 Part 11 are applied hereupon.

Part B: Heating of pipe and fitting

10. Push the end of the pipe, without turning, up to the marked welding depth into the welding tool.

It is essential to observe the above mentioned heating times.


Heating-up of pipe and fitting

Pipes and fittings of the dimensions Ø 75 to 125 mm can only be welded with welding device Art.-No. 50141 (or with machine Art.-No. 50147). On using the fusiotherm®-welding machine Art.-No. 50147 a separate operating instruction has to be observed.

ATTENTION:

The heating time starts, when pipe and fitting have been pushed to the correct welding depth on the welding tool. NOT BEFORE!

Part B: Setting and alignment

11. After the required heating time quickly remove pipe and fitting from the welding tools. Join them immediately, and without turning, until the marked welding depth is covered by the PP-bead from the fitting.

Joining, fixing and...

ATTENTION:

Do not push the pipe too far into the fitting, as this would reduce the bore and in an extreme case will close the pipe.

12. The joint elements have to be fixed during the specified assembly time. Use this time to correct the connection. Correction is restricted to the alignment of pipe and fitting. Never turn the elements or align the connection after the processing time.

...aligning

13. After the required cooling time the fused joint is ready for use.

The result: a permanent connection!

The result of the fusion of pipe and fitting is a permanent material joining of the system elements. Connection technique with security for a life-time.

Part C: Weld-in saddles

fusiotherm®-weld-in saddles are available for pipe outer diameter of 40 - 355 mm. *

Weld in saddles are used for

- branch connections in existing installations
- the substitution of a reduction-tee
- branch connections in risers
- sensor wells, etc.

The maximum sensor well diameter is specified in the table.

1. Before starting the welding process, check whether the fusiotherm®-welding devices and tools comply with the requirements of "Fusion Part A".

2. The first step is to drill through the pipe wall at the intended outlet point by using the fusiotherm®-drill (Art.-No. 50940-50960).

Drilling through the pipe wall

3. IMPORTANT!

Only the oxgen barrier layer of the climatherm OT pipes Art.-No. 2170708-2170142 must be removed with the below mentioned fusiotherm special peeling drills.

Art.-No	Dimension
50921	for weld-in saddles 20 & 25 mm for pipe dimensions 50 mm and more
50922	for weld-in saddles ø 32 mm
50924	for weld-in saddles ø 40 mm
50926	for weld-in saddles ø 50 mm
50928	for weld-in saddles ø 63 mm

* when applicating climatherm - Faser composite pipe OT the weld in saddle technique is allowed from pipe outside diameter 50 mm

Part C: Weld-in saddles

For this the special peeling drill is inserted into the bore hole and swaied 2-3 times with light pressure and low rotating speed between the pipe walls until the oxygen barrier layer is completely peeled off.

Remove burrs, debris and other dirts with a chamfering tool or the aquatherm cleaning wipes. Do not touch the peeled surface any more and protect it from new pollution.

When using fusiotherm® -stabi composite pipes remove the rest of the aluminium remaining at the bore hole with the fusiotherm®-chamfering device.

4. The welding device / saddle welding tool must have reached the required operating temperature of 260 °C (check with reference to "Fusion Part B, item 2").

Note:
aquatherm recommends the original aquatherm temperature measuring device art.-no. 50188

Removal of the oxgen barrier layer from the climatherm OT-pipe

Removal of the aluminium layer from the stabi composite pipe.

aquatherm temperature - measuring device Art.-Nr. 50188

Part C: Weld-in saddles

5. The welding surfaces have to be clean and dry.

6. Insert the heating tool on the concave side of the weld-in saddle tool into the hole drilled in the pipe wall until the tool is completely in contact with the outer wall of the pipe. Next the weld-in saddle tool is inserted into the heating sleeve until the saddle surface is up against the convex side of the welding tool. The heating time of the elements is generally 30 seconds.

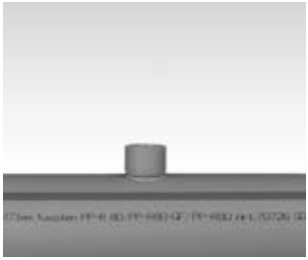
7. After the welding tool has been removed, the weld-in saddle tool is immediately inserted into the heated, drilled hole. Then the weld-in saddle should be pressed on the pipe for about 15 seconds. After a cooling time of 10 minutes the connection can be exposed to its full loading. The appropriate branch pipe is fitted into the sleeve on the fusiotherm®-weld-in saddle using conventional fusion technology.

By fusing the weld-in saddle with the pipe outer surface and the pipe inner wall the connection reaches highest stability.

The welding tool is inserted into the pipe wall ...

...heating-up of the elements

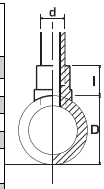
Joining



Ready!

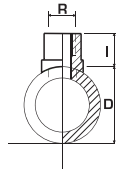
Part C: Weld-in saddles

Art.-No.	Dimension	D	d	l	Borer	Chamfering Device[1]	Peeling drill	Tool
		mm	mm	mm	Art.-No.	Art.-No.	Art.-No.	Art.-No.
15156	40/20 mm	40	25	27,0	50940	50910	-	50614
15158	40/25 mm	40	25	28,0	50940	50910	-	50614
15160	50/20 mm	50	20	27,0	50940	50910	50921	50616
15162	50/25 mm	50	25	28,0	50940	50910	50921	50616
15164	63/20 mm	63	20	27,0	50940/ 15941	50910	50921	50619
15166	63/25 mm	63	25	28,0	50940/ 15941	50910	50921	50619
15168	63/32 mm	63	32	30,0	50942	50912	50922	50620
15170	75/20 mm	75	20	27,0	50940/ 15941	50910	50921	50623
15172	75/25 mm	75	25	28,0	50940/ 15941	50910	50921	50623
15174	75/32 mm	75	32	30,0	50942	50912	50922	50624
15175	75/40 mm	75	40	34,0	50944	50914	50924	50625
15176	90/20 mm	90	20	27,0	50940/ 15941	50910	50921	50627
15178	90/25 mm	90	25	28,0	50940/ 15941	50910	50921	50627
15180	90/32 mm	90	32	30,0	50942	50912	50922	50628
15181	90/40 mm	90	40	34,0	50944	50914	50924	50629
15182	110/20 mm	110	20	27,0	50940/ 15941	50910	50921	50631
15184	110/25 mm	110	25	28,0	50940/ 15941	50910	50921	50631
15186	110/32 mm	110	32	30,0	50942	50912	50922	50632
15188	110/40 mm	110	40	34,0	50944	50914	50924	50634
15189	110/50 mm	110	50	34,0	50946	-	50926	50635
15190	125/20 mm	125	20	27,0	50940/ 15941	-	50921	50636
15192	125/25 mm	125	25	28,0	50940/ 15941	-	50921	50636
15194	125/32 mm	125	32	30,0	50942	-	50922	50638
15196	125/40 mm	125	40	34,0	50944	-	50924	50640
15197	125/50 mm	125	50	34,0	50946	-	50926	50642
15198	125/63 mm	125	63	38,0	50948	-	50928	50644
15206	160/20 mm	160	20	27,5	50940/ 15941	-	50921	50648
15208	160/25 mm	160	25	28,5	50940/ 15941	-	50921	50648
15210	160/32 mm	160	32	30,0	50942	-	50922	50650
15212	160/40 mm	160	40	34,0	50944	-	50924	50652
15214	160/50 mm	160	50	34,0	50946	-	50926	50654
15216	160/63 mm	160	63	38,0	50948	-	50928	50656
15218	160/75 mm	160	75	42,0	59050	-	-	50657
15220	160/90 mm	160	90	45,0	50952	-	-	50658
15228	200-250/20 mm	200-250	20	27,5	50941	-	50921	50660/50672
15229	200-250/25 mm	200-250	25	28,5	50941	-	50921	50660/50672
15230	200-250/32 mm	200-250	32	30,0	50942	-	50922	50662/50674
15231	200/40 mm	200	40	34,0	50944	-	50924	50664
15232	200/50 mm	200	50	34,0	50946	-	50926	50666
15233	200/63 mm	200	63	37,5	50948	-	50928	50668
15234	200/75 mm	200	75	42,0	50950	-	-	50667
15235	200/90 mm	200	90	42,0	50952	-	-	50669
15236	200/110 mm	200	110	49,0	50954**	-	-	50670
15237	200/125 mm	200	125	55,0	50956**	-	-	50671
15251	250/40 mm	250	40	34,0	50944	-	50924	50676
15252	250/50 mm	250	50	34,0	50946	-	50926	50678
15253	250/63 mm	250	63	37,5	50948	-	50928	50680
15254	250/75 mm	250	75	42,0	50950	-	-	50682
15255	250/90 mm	250	90	45,0	50952	-	-	50684
15256	250/110 mm	250	110	49,0	50954**	-	-	50686
15257	250/125 mm	250	125	55,0	50956**	-	-	50688
15260	315/63 mm	315	63		50948	-	50928	50690
15261	315/75 mm	315	75		50950	-	-	50692
15262	315/90 mm	315	90		50952	-	-	50694
15263	315/110 mm	315	110		50954**	-	-	50696
15264	315/125 mm	315	125		50956**	-	-	50698
15265	315/160 mm	315	160		50958**	-	-	50699



1 only for stabi-composite-pipes Art.-No. 70814 - 70824
2 only for climatherm OT faser composite pipes, Art.-No. 2170716- 2170138
** tool holder MK4

Part C: Weld-in saddles

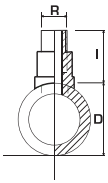


Art.-No.	Dimension	D	d	I	Borer	Chamfering Device[1]	Chamfe-ring Device[1]	Peeling drill	Tool
		mm	mm	mm	Art.-No.	Art.-No.	Art.-No.	Art.-No.	Art.-No.
28214	40/25 x 1/2" IG.	40	1/2"	39,0	14	50940	50910	-	50614
28216	50/25 x 1/2" IG.	50	1/2"	39,0	14	50940	50910	50921	50616
28218	63/25 x 1/2" IG.	63	1/2"	39,0	14	50940/ 15941	50910	50921	50619
28220	75/25 x 1/2" IG.	75	1/2"	39,0	14	50940/ 15941	50910	50921	50623
28222	90/25 x 1/2" IG.	90	1/2"	39,0	14	50940/ 15941	50910	50921	50627
28224	110/25 x 1/2" IG.	110	1/2"	39,0	14	50940/ 15941	50910	50921	50631
28226	125/25 x 1/2" IG.	125	1/2"	39,0	14	50940/ 15941	-	50921	50636
28230	160/25 x 1/2" IG.	160	1/2"	39,0	14	50940/ 15941	-	50921	50648
28232	200-250/ 25 mm x 1/2" IG.	200-250	1/2"	39,0	14	50941	-	50921	50660 / 50672
28234	40/25 x 3/4" IG.	40	3/4"	39,0	16	50940	50910	-	50614
28236	50/25 x 3/4" IG.	50	3/4"	39,0	16	50940	50910	50921	50616
28238	63/25 x 3/4" IG.	63	3/4"	39,0	16	50940/ 15941	50910	50921	50619
28240	75/25 x 3/4" IG.	75	3/4"	39,0	16	50940/ 15941	50910	50921	50623
28242	90/25 x 3/4" IG.	90	3/4"	39,0	16	50940/ 15941	50910	50921	50627
28244	110/25 x 3/4" IG.	110	3/4"	39,0	16	50940/ 15941	50910	50921	50631
28246	125/25 x 3/4" IG.	125	3/4"	39,0	16	50940/ 15941	-	50921	50636
28250	160/25 x 3/4" IG.	160	3/4"	39,0	16	50940/ 15941	-	50921	50648
28254	200-250/ 25 mm x 3/4" IG.	200-250	3/4"	39,0	16	50941	-	50921	50660/ 50672
28260	75/32 x 1" IG.	75	1"	43,0	20	50942	50912	50922	50624
28262	90/32 x 1" IG.	90	1"	43,0	20	50942	50912	50922	50628
28264	110/32 x 1" IG.	110	1"	43,0	20	50942	50912	50922	50632
28266	125/32 x 1" IG.	125	1"	43,0	20	50942	-	50922	50638
28270	160/32 x 1" IG.	160	1"	43,0	20	50942	-	50922	50650
28274	200-250/ 32 mm x 1" IG.	200-250	1"	43,0	20	50942	-	50922	50662/ 50674

1 only for stabi-composite-pipes Art.-No. 70814 - 70824
[2] only for climatherm OT faser composite pipes, Art.-No. 2170716- 2170138

Part C: Weld-in saddles

Art.-No.	Dimension	D	d	l	Borer	Chamfering Device[1]	Peeling drill	Tool
		mm	mm	mm	Art.-No	Art.-No.	Art.-No.	Art.-No
28314	40/25 x 1/2" AG.	40	1/2"	55,0	15940	50910	50920	50614
28316	50/25 x 1/2" AG.	50	1/2"	55,0	15940	50910	50921	50616
28318	63/25 x 1/2" AG.	63	1/2"	55,0	15940/ 15941	50910	50921	50619
28320	75/25 x 1/2" AG.	75	1/2"	55,0	15940/ 15941	50910	50921	50623
28322	90/25 x 1/2" AG.	90	1/2"	55,0	15940/ 15941	50910	50921	50627
28324	110/25 x 1/2" AG.	110	1/2"	55,0	15940/ 15941	50910	50921	50631
28326	125/25 x 1/2" AG.	125	1/2"	55,0	15940/ 15941	-	50921	50636
28330	160/25 x 1/2" AG.	160	1/2"	55,0	15940/ 15941	-	50921	50648
28334	40/25 x 3/4" AG.	40	3/4"	56,0	15940	50910	50921	50614
28336	50/25 x 3/4" AG.	50	3/4"	56,0	15940	50910	50921	50616
28338	63/25 x 3/4" AG.	63	3/4"	56,0	15940/ 15941	50910	50921	50619
28340	75/25 x 3/4" AG.	75	3/4"	56,0	15940/ 15941	50910	50921	50623
28342	90/25 x 3/4" AG.	90	3/4"	56,0	15940/ 15941	50910	50921	50627
28344	110/25 x 3/4" AG.	110	3/4"	56,0	15940/ 15941	50910	50921	50631
28346	125/25 x 3/4" AG.	125	3/4"	56,0	15940/ 15941	-	50921	50636
28350	160/25 x 3/4" AG.	160	3/4"	56,0	15940/ 15941	-	50921	50648



1 only for stabi-composite-pipes Art.-No. 70814 - 70824
[2] only for climatherm OT faser composite pipes, Art.-No. 2170716- 2170138

Part D: Electrical welding jig

By means of the electrical welding jig, fusiotherm®-pipes and fittings in dimensions of between 63 and 125 mm can be welded easily without any effort, with considerable time saving compared to customary welding.

Another advantage of the welding jig is the simple welding of pipes and fittings under ceilings, in narrow shafts and in other hardly accessible places.

1. Preparation for the fusion

Mark the welding and clamping depth at the end of the pipe by using the attached blue template. (Illustration 2)

The welding jig is fixed with the clamping jaws at the pipe and fitting.

Secure the clamping jaws by means of the clamping fixtures.

Align the pipe that the back mark is precise with the inside edge of the clamping jaw. The front mark shows the welding depth (Illustration 2). Secure the pipe and fitting with the front setscrew. (Illustration 3+4)

Never overtighten the pipe for avoiding deformations.

Part D: Electrical welding jig

2. Fusion

Keep the welding device between pipe and fitting and drive the machine slide in batches. Mind the welding depth!

Basically after introducing of pipe and fitting to the welding tool, the clamping jaws are to be relieved by a short return of the machine! The clamping jaws must always be parallel. (Illustration 5+6)

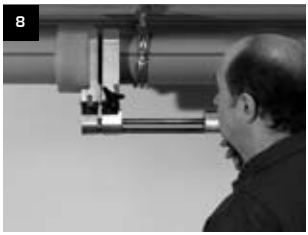
After the end of the heating time, release the machine slide and remove the welding device. (Illustration 7)

Pull the clamping jaws with pipe and fitting together and relieve the clamping jaws by a short return of the machine. (Illustration 8)

NOTE:

Clamping jaws and screws must not be loosened before the end of the cooling time!

By fusion of pipe and fitting a permanent connection is made. (Illustration 9)



Part D: Electrical welding jig

The fusion is subject to the following data

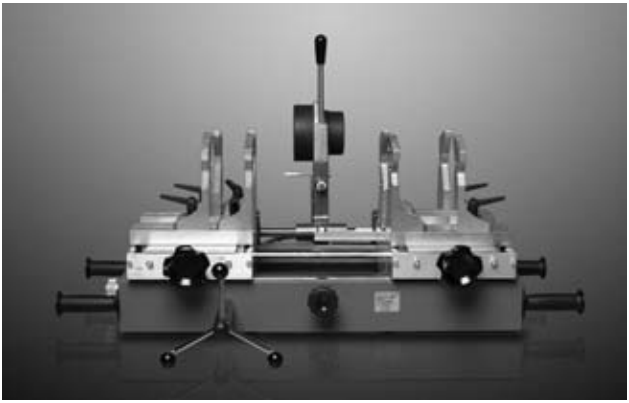
Pipe external	Welding depth	Heating time		Welding time	Cooling time
mm	mm	sec. DVS	sec. AQE*	sec.	min.
63	24,0	24	36	8	6
75	26,0	30	45	8	8
90	29,0	40	60	8	8
110	32,5	50	75	10	8
125	40,0	60	90	10	8

Following DVS 2207 part 11: At outdoor temperatures below +5 °C heating time will be increase of about 50%!

*heating times recommended by aquatherm

The General Guidelines for Heated Socket Welding acc. to DVS 2207, Part 11 are applied hereupon.

Part E: fusiotherm®-welding machine



Part E:

fusiotherm®-welding machine

- for stationary processing 50 – 125 mm
- precise pre-assembly and facilitation by hand creek
- scope of supply: wooden case, machine slide with body, clamping jaws 50 – 125 mm, tools 50 – 125 mm, 2 welding plates, pipe support with rolls

1. Check welding machine: temperature lamp blinks after reaching the welding temperature (260°C), align clamping jaws 50-125 mm. Adjust the dimension (welding depth) with the adjusting knob.
2. Fix the fitting against the clamping jaws.
3. Place the pipe loose in the opposite clamping jaws.
4. Insert the medium calibration knob and push up the slide as far as it will go.
5. In this position push the pipe against the fitting and fix it with the clamping jaws. Now open the slide and pull out the calibration knob.

6. Regulate the welding time according to the table below, place the welding device and push the fitting and pipe slowly as far as it will go on the tool.

7. The heating time starts when pipe and fitting are completely pushed on the tool. When heating time is complete, return the slide, remove the heating device quickly and join pipe and fitting.

8. Consider cooling times in the table below.

More detailed information can be taken from the enclosed operating manuals.

The fusion is subject to the following data

Pipe external-Ø	Welding depth	Heating time		Welding time	Cooling time
mm	mm	sec. DVS	sec. AQE*	sec.	min.
16	13,0	5	8	4	2
20	14,0	5	8	4	2
25	15,0	7	11	4	2
32	16,5	8	12	6	4
40	18,0	12	18	6	4
50	20,0	18	27	6	4
63	24,0	24	36	8	6
75	26,0	30	45	8	8
90	29,0	40	60	8	8
110	32,5	50	75	10	8
125	40,0	60	90	10	8

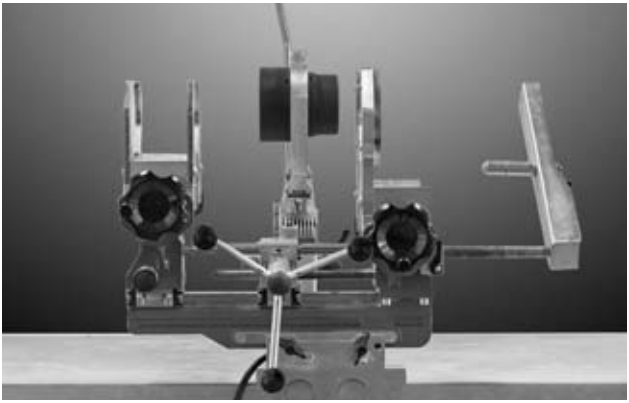
*heating times recommended by aquatherm at ambient temperatures below + 5 °C

Following DVS 2207 part 11: At outdoor temperatures below +5 °C heating time will be increase of about 50%!

Dimension 160 - 355 mm:
The dimensions 160 - 355 mm are joined by butt-welding. Detailed information in this chapter on page 45 + 47.

The general guidelines for heated tool socket welding acc. to DVS 2207 part 11 are applied hereupon.

Part E: fusiotherm®-welding machine prisma-light



- with heating plate without tools
- clamping fixture for fixing the prisma-light e. g. at the work bench

1. Check machine: temperature lamp blinks after reaching the welding temperature (260° C), adjust clamping jaws 63 – 125 mm coarsely. Mark welding depth with the template at the pipe.
2. Fix the fitting against the clamping jaws.
3. Place the pipe loose in the opposite clamping jaws.
4. Position the welding device centrically to the pipe-fitting axis and remove it.
5. Lock the front calibration knob and drive up the slide as far as it will go.
6. In this position push the pipe against the fitting and fix it with the clamping jaws.
7. Regulate the welding time according to the table on page 34, place the welding device and push the fitting and pipe slowly as far as it will go up to the marking.

8. The heating time starts when pipe and fitting are completely pushed on the tool. When heating time is complete slide return the slide, remove the heating device quickly and join the pipe and fitting.

9. Consider cooling times from the table on page 34.

More detailed information can be taken from the enclosed operating manuals.

Part F: electrofusion device

Fusion

The fusiotherm®-electrofusion device was specially developed for electrofusion sockets from Ø 20 - 250 mm.

The fusion of 160-250 mm fusiotherm®-and climatherm-faser composite pipes UV-resistant with the electrofusion socket Art.-No. 17230 is not possible.

fusiotherm®-electrofusion device Ø 20-250 mm

fusiotherm®-electrofusion socket

Technical information:

- supply voltage: 230 V (nominal voltage)
- nominal capacity: 2.800 VA, 80 % ED
- rated frequency: 50 Hz - 60 Hz
- protection class: IP 54

1. General and inspection

Cleanliness is - besides correct workmanship - the most important precondition for a correct fusion. For keeping the sockets clean do not unwrap them before processing.

The pipe surface must also be clean and undamaged. Deformed pipe ends must be cut off.

All parts of the system to be fused as well the temperature sensors shall have the same temperature (e.g. sun radiation or unadapted storing may cause differences in temperature!) within the acceptable range of temperature (e.g. +5 °C to 40 °C according to DVS 2207).

2. Preparation

Follow carefully the order of working steps!
Preparation is one of the most important steps of the electrofusion process!

1. Cut the ends of the pipes rectangularly and deburr them thoroughly

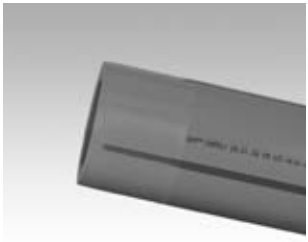
2. Clean and dry the ends of the pipes at the necessary length

3. Mark the depth of fusiotherm®-electro-fusion-socket on the end of the pipe

Welding depth up to 250 mm													
ø	20	25	32	40	50	63	75	90	110	125	160	200	250
ET	35,0	39,0	40,0	46,0	51,0	59,0	65,0	72,5	80,0	86,0	93,0	105,0	125,0

Fusion

4. Peel the surface of both pipes up to the marks thoroughly with a peeling tool (use the fusiotherm®-peeling tool with the respective pipe diameter)



Cut, peel and clean the pipes to be welded carefully

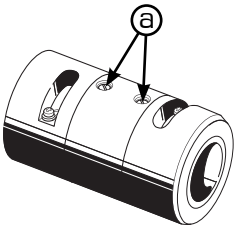
Part F: electrofusion device

IMPORTANT!

Before the fusion peel off the oxygen barrier layer of the climatherm OT-pipe, the aluminium-PP-composite layer of the stabi-composite pipe and the UV-layer of the faser-composite-pipe-UV completely to the stop by using the double peeling tools (Art.-No. 50507, 50511, 50515, 50519, 50525) considering the pipe diameter.

fusiotherm®-peeling tool (Art.-No. 50558-70, up to 75 mm) (from 90-160 mm: Art.-No. 50572/50574/50576/ 50580 (without picture))

By turning the adjusting screw clockwise to the stop, the peeling tools can be adjusted into small depths (sockets), by turning them counter clockwise up to the stop they can be adjusted into big peeling depth (electrofusion sockets)



Peeling depth can be varied by turning the adjusting screw (a).

5. Clean again thoroughly

Without complete peeling of the fusion surface a homogeneous and tight welding connection is not assured. Damages of the surface like axial grooves and scratches are not accepted in the fusion zone. Never touch peeled surfaces and protect them against dirt and grease. Start the fusion process within 30 mins after peeling.

Avoid soiling and fix all parts securely!

Part F: electrofusion device

Assembling the electrofusion sockets

1. Open the protective wrapping of the fusiotherm®-electrofusion sockets (cut with knife along the edge of the bore), leaving the rest of the foil intact. Clean the inside of the fitting carefully with aquatherm®-cleaning wipes. Assemble the fitting within 30 mins after opening of the protective foil.

Clean the inner surface of the electrofusion socket

2. Push the fusiotherm®-electrofusion sockets on the clean and dry end of the pipe (up to the marked depth). Use pressing clamps if necessary.

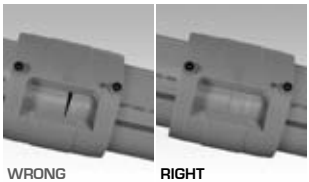
Push the electrofusion socket onto the pipe end

Part F: electrofusion device

3. Remove the protective foil completely and push the other prepared pipe end into the fusiotherm®- electro-fusion sockets tighten in the fixation.

Leave the pipes, free from bending stress or own weight, within the fusiotherm®-electrofusion socket. The socket is movable at both pipe ends after assembling. The air gap has to be even around the circumference. A non stress-free, resp. displaced connection can effect an unacceptable melt-flow and a defective connection while joining. The pipe ends and electrofusion sockets have to be dry when installed.

Push the second pipe - also peeled and cleaned - into the socket



WRONG RIGHT

For a stable welding result it is important that both pipe ends inside the electrofusion socket are with parallel faces! Follow the minimum welding depth - absolutely!

4. Fusion process

1. Position the fitting with even air gap around the circumference.

2. Regulate fusion equipment for the right fusion parameter.

3. Compare the indications of the fusion equipment with the parameters of the label.

4. Start and watch the fusion process.

Adjust the socket diameter on the welding device. Start and control welding process. Keep the cooling time. Finished!

Do not move or stress pipe and fitting during the whole fusion process and cooling time.

Part F: electrofusion device

5. Cooling time and pressure test

A fused pipe-joint shall not be moved (no release of the fixation) or stressed before complete cooling.

The minimum required cooling time is marked on each fusiotherm®-electrofusion socket. Ambient temperatures of more than 25 °C or strong sun-radiation need longer cooling times.

Working pressure

fusiotherm®-electrofusion sockets correspond to the pressure of PN 20. The relation between working temperature, pressure load and service life is given in the tables "Permissible working pressure."

For further information concerning electrofusion socket and details about the fusiotherm®-electrofusion device read the enclosed operating instructions.

Kind of stress	Compressive stress	Minimum waiting period
Tension, bend, torsion of unpressurized pipes		20 minutes
Test- or working pressure of pipes pressurized	up to 0.1 bar (1.5 psi) 0.1 up to 1 bar (1.5-14.5 psi) over 1 bar (14.5 psi)	20 minutes 60 minutes 120 minutes
Repeating of the welding process		60 minutes

Part G: possibilities of repair

Pipe repairs with the fusiotherm® electrofusion device

Cut squarely 3 to 4 lengths of a fitting out of the defect pipe, symmetrically to the defect. Fit the new pipe into this gap. Prepare the pipe ends of the existing pipe as in the case of a new welding.

Peel the new piece of pipe on both sides with the peeling tool on a length of more than the length of one fitting.

Unwrap two fittings and carefully move the fittings over both ends of the new pipe.

Then place the repair-pipe into the gap and move the fittings until they are aligned with the markings on the existing pipes.

Take care, that the fittings are exactly aligned and completely free of stress before welding.

Part G: possibilities of repair

Additional possibilities of repair

Damaged pipes may be repaired - as already mentioned - by means of

fusion (see Part B) electrofusion socket (see Part F).

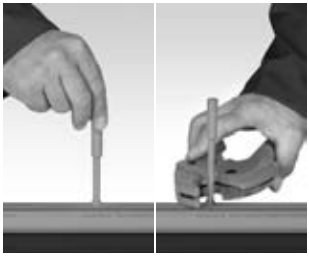
In addition to this the fusiotherm®-system offers the possibility of the

pipe repair stick.

The necessary welding tool (Art.-No. 50307 / 11) and repair stick (Art.-No. 60600) are described on page 184.

The installation information is enclosed with the welding tool, but may also be ordered separately (Order-No. D 11450) from aquatherm.

Heat-up



Repair stick Cutting

Part H: Butt-welding of pipe dimension 160 - 355 mm

The following fusiotherm®-pipes series are available:

fusiotherm®-pipe SDR 11 for cold water
fusiotherm®-faser-composite pipe SDR 7.4 (Pat.-No. 10018324, trademark protection no. 39926599 for green/dark green)
climatherm-faser-composite pipe SDR 11
climatherm OT faser-composite pipe SDR 11
aquatherm lilac faser-composite pipe SDR 11

Pipes and fittings are fused, as explained below, by **butt welding**:

1. Protect your place of work from weather influences

2. Check, if welding machine works properly and heat it up

3. Cut pipes into required length

4. Plastic pipes are aligned and fixed by means of the clamping elements

5. Use the milling machine for planing the pipe end to be plane-parallel

6. Remove the debris and clean the pipe ends with methylated spirit

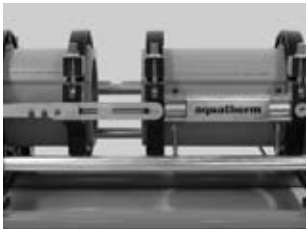
7. Check if pipes match (tolerance: max. 0.1 x wall thickness)

8. Check width of gap between the two pipes to be welded (tolerance: max. 0.5 mm)

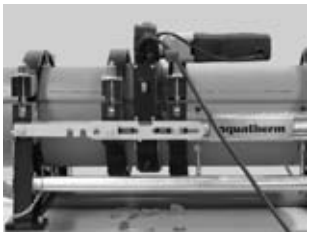
9. Check the temperature of the heating element

(210° C +/- 10° C)

Before welding, the 160-355 mm pipes are cut into the required lengths



The parts to be welded are fixed and aligned respectively,



the milling machine is used

Part H: Butt-welding of pipe dimension 160 - 355 mm

10. Clean the heating element

11. After the heating element has been positioned, the pipes are pushed onto the heating plate with a defined adjusting pressure.

12. After reaching the specified bead height (see table) the pressure is reduced. This process marks the beginning of the heating time. This time is for heating up the pipe ends up to the right welding temperature.

Specified bead height in mm:

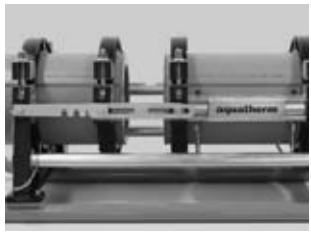
	SDR 7,4	SDR 11
160 mm	1,5	1,0
200 mm	2,0	1,0
250 mm	2,0	1,5
315 mm	-	2,0
355 mm		2,0

13. When heating time has expired, divide the machine slide, remove heating element quickly and join the pipes (by putting both parts of the slide together).

14. The pipes are fused with the required welding pressure and cooled down under pressure.

15. The welded connection can be unclamped - the welding process is finished.

Positioning of heating element



Divide the machine slide, remove heating element

Join the pipes, cool down under pressure

Unclamp and work on...

Additionally please follow the instructions given in the operating manual of the welding machine and observe guideline DVS 2207, part 11.

Part H: Butt-welding of pipe dimension 160 - 355 mm

Important Note

1. The welding machines have to be suitable for the welding of pipes with a diameter/wall thickness ratio of up to SDR 7.4

aquatherm recommends the following suitable welding machine manufacturers for butt welding:

Company Ritmo:	www.ritmo.it
Company Rothenberger:	www.rothenberger.com
Company Widos:	www.widos.de

2. For hydraulically operated welding machines, the real manometer pressure has to be calculated in consideration of the hydraulic piston area.

This value can be taken from the respective operating manuals.

Chapter 3
Installation principles

Fastening technique / Fixed points

Fastening technique

Pipe clamps for fusiotherm®-pipes must be dimensioned for the external diameter of the plastic pipe.

Take care, that the fastening material does not mechanically damage the surface of the pipe (fusiotherm®-pipe clamps Art.-No.: 6 0516 - 60597).

The ideal fastening material for fusiotherm®-pipes are rubber lined pipe clamps. The rubber compound is especially made for applications with plastic pipes.

Basically it must be distinguished on pipe assembly, whether the fastening material is used as

- a fixed point or
- a sliding point.

Fixed points

On locating fixed points the pipelines are divided into individual sections. This avoids uncontrolled movements of the pipe.

In principle fixed points have to be measured and installed in a way, that the forces of expansion of fusiotherm®-pipes as well as probable additional loads are accommodated.

On using threaded rods or threaded screws the drop from the ceiling should be as short as possible. Swinging clamps should not be used as fixed points.

Basically vertical distributions can be installed. Risers do not require expansion loops, provided that fixed points are located immediately before or after a branch.

To compensate the forces arising from the linear expansion of the pipe there must be sufficient and stable clamps and mountings.

fusiotherm®-pipe clamps meet all mentioned requirements and - when considering the following installation instructions - are perfect for fixed point installations.

Fastening technique / Fixed points

Sliding points

Sliding clamps have to allow axial pipe movements without damaging the pipe.

On locating a sliding clamp it has to be ensured that movements of the pipelines are not hindered by fittings or armatures installed next to the clamps.

fusiotherm®-pipe clamps have an extra even and sliding surface of the sound insulation insert.

Installation advice / Linear expansion

Installation advices

fusiotherm®-pipe clamps are perfectly suited for fixed point and sliding point installations.

The application of distance rings depends on the type of pipe.

Fastening	fusiotherm®- pipe fusiotherm®-Ffaser composite pipe	fusiotherm®- stabi composite pipe
Sliding Point	1 distance ring	2 distance rings
Fixed point	no distance ring	1 distance ring

Linear expansion

The linear expansion of pipes depends on the difference of operating temperature to installation temperatur:

$$\Delta T = T_{\text{operating temperature}} - T_{\text{installation temperature}}$$

Therefore cold water pipes have nearly no linear expansion.

Because of the heat dependent expansion of the material, the linear expansion must especially be considered in case of hot and heating installations. This requires a distinction of the types of installation, e.g.

- concealed installation
- installation in ducts
- open installation.

Concealed installation

Concealed installations generally do not require a consideration of the expansion of fusiotherm®-pipes.

The insulation acc. to DIN 1988 or the EnEV (Energie-Einsparverordnung) provides enough expansion space for the pipe. In the case where the expansion is greater than the room to move in the insulation, the material absorbs any stress arising from a residual expansion.

The same applies to pipes, which must not be insulated acc. to current regulations.

A temperature induced linear expansion is prevented by the embedding in the floor, concrete or plaster. The compressive strain and tensile stress arising from this are not critical as they are absorbed by the material.

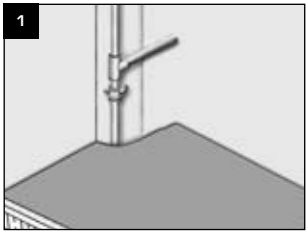
Installation in ducts

Due to the different linear expansion of the fusiotherm®-pipes with or without stabilization, the installation of pipe branches in risers has to be made according to the selected type of pipe.

Fusiotherm®-stabi/faser composite pipe

The linear expansion of fusiotherm®-stabi-composite pipes and fusiotherm®-faser composite pipes in vertical risers can be ignored.

The positioning of a fixed point directly before each branch-off point is sufficient. All clamps in the riser must be installed as fixed points (see 1).



Positioning of the fixed point clamp

In general it is possible to install risers rigidly, that means without expansion joints. This directs the expansion on the distance between the fixed points, where it is ineffective.

A maximum distance of 3.0 meters between two fixed points must be regarded.

Installation in ducts

fusiotherm®-pipe

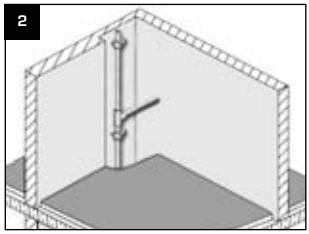
The installation of risers of fusiotherm®-pipes without stabilizing components (aluminium or faser) requires a branch pipe, which is elastic enough to take the linear expansion of the riser.

➠ This can be ensured by a favourable fixing of the riser in the duct (see 2).

➠ An adequate large pipe liner also gives sufficient elasticity to the branch-off pipe (see 3).

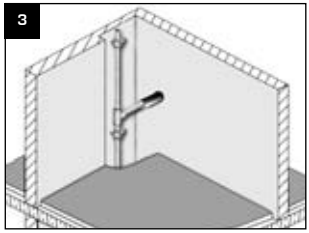
➠ Furthermore the installation of a spring leg gives the appropriate elasticity (see 4).

2



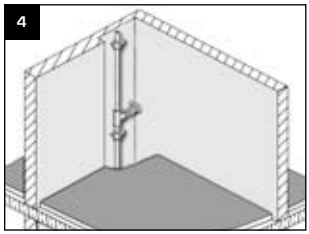
Favourable fixing

3



Large diameter pipe liner

4



Installation of a spring leg

Open installation

In case of open installed pipes (e.g. in the basement), excellent optical characteristics and form stability are important. This is provided by fusiotherm®-pipes for cold water and fusiotherm®-stabi composite / faser composite pipes for hot water and heating plants. The coefficient (a) of linear expansion of fusiotherm®-composite pipes is only

$\alpha_{\text{stabi composite}}$ **= 0.030 mm / mK**
$\alpha_{\text{faser composite}}$ **= 0.035 mm / mK**

and therefore nearly identical with the linear expansion of metal pipes.

The coefficient of linear expansion of fusiotherm®-pipes without stabilizing components is

$\alpha_{\text{fusiotherm}}$ **= 0.150 mm / mK**

fusiotherm®-stabi / -faser composite pipes must have enough space to expand (see page 54). An expansion control is required for long and straight stabi composite / faser composite pipes (over 40 m).

fusiotherm®-pipes without the stabilizing compound should have the expansion control after 10 m straight pipelines. Risers of composite pipes may be installed rigidly without expansion compensation. The following formula, calculation examples, data-tables and graphs help to determine the linear expansion. The difference between working temperature and maximum or minimum installation temperature is essential for the calculation of linear expansion.

Calculation of the linear expansion

Calculation example: Linear expansion

Given and required values

Symbol	Meaning	Value	Measuring unit
ΔL	Linear expansion	?	[mm]
α_1	Coefficient of linear expansion fusiotherm®-stabi composite pipe	0,03	mm/mK
α_2	Coefficient of linear expansion fusiotherm®-faser composite pipe	0,035	mm/mK
α_3	Lineare xpansionc oefficient	0,15	mm/mK
L	Pipe length	25,0	[m]
T_B	Working temperature	60	°C
T_M	Installation temperature	20	°C
ΔT	Temperature difference between working and installation temperature ($\Delta T = T_W - T_M$)	40	K

The linear expansion ΔL is calculated according to the following formula:

$\Delta L = \alpha \times L \times \Delta T$

Material:
fusiotherm®-stabi composite pipe (α = 0.03 mm/mK)

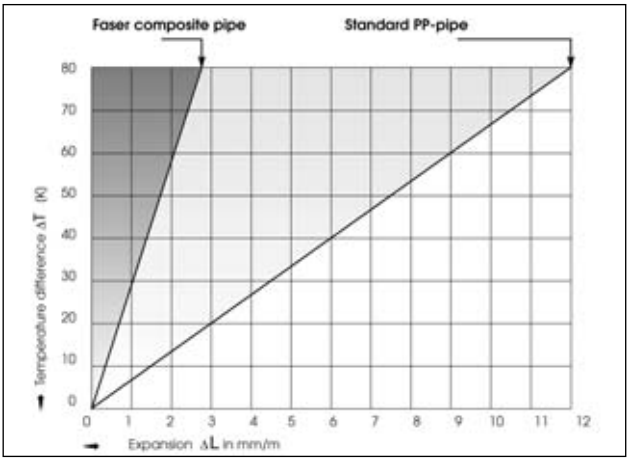
ΔL = 0.03 mm/mK x 25.0 m x 40 K

ΔL = 30.0 mm

Calculation of the linear expansion

Linear expansion comparison:

faser composite- to standard PP-pipe

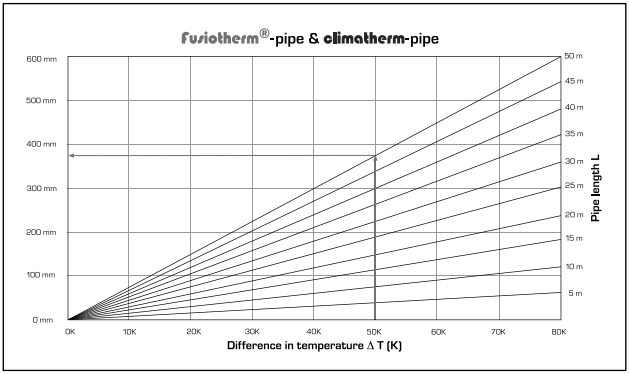


fusiotherm®-pipe / climatherm-pipe
(without faser)

The linear expansion, described on the preceding pages, can be taken from the following tables and graphs.

Linear expansion ΔL in [mm]: fusiotherm®-pipe and climatherm-pipe- α = 0,150 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)							
5 m	8	15	23	30	38	45	53	60
10 m	15	30	45	60	75	90	105	120
15 m	23	45	68	90	113	135	158	180
20 m	30	60	90	120	150	180	210	240
25 m	38	75	113	150	188	225	263	300
30 m	45	90	135	180	225	270	315	360
35 m	53	105	158	210	263	315	368	420
40 m	60	120	180	240	300	360	420	480
45 m	68	135	203	270	338	405	473	540
50 m	75	150	225	300	375	450	525	600



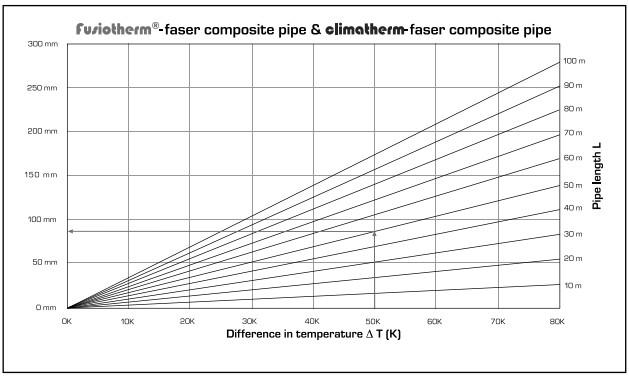
Fusiotherm®-faser composite pipe
climatherm-faser composite pipe

Due to the integration and positive bond of the different materials, the fusiotherm®- and climatherm-faser composite pipe offers much higher stability.

The linear expansion reduces its value to $^1/_5$ of the mere PP-pipes.

Linear expansion ΔL in [mm]: fusiotherm®-faser composite pipe and climatherm-faser composite pipe - α = 0.035 mm / mK

Pipe length	Difference in temperature $\Delta T = T_{\text{operating temperature}} - T_{\text{installation temperature}}$							
	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



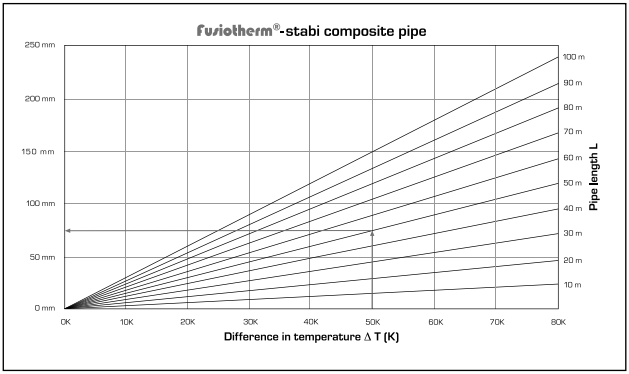
fusiotherm®-stabi composite pipe

Due to the integration and positive bond of the different materials, the fusiotherm®-stabi composite pipe offers much higher stability.

The linear expansion reduces its value to $^1/_5$ of the mere PP-pipes.

Linear expansion ΔL in [mm]: fusiotherm®-stabi composite pipe - α = 0,030 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 ΔL (mm)							
10 m	3	6	9	12	15	18	21	24
20 m	6	12	18	24	30	36	42	48
30 m	9	18	27	36	45	54	63	72
40 m	12	24	36	48	60	72	84	96
50 m	15	30	45	60	75	90	105	120
60 m	18	36	54	72	90	108	126	144
70 m	21	42	63	84	105	126	147	168
80 m	24	48	72	96	120	144	168	192
90 m	27	54	81	108	135	162	189	216
100 m	30	60	90	120	150	180	210	240



Bending side / Expansion loop

Linear expansion due to temperature difference between operating temperature and installation temperature can be compensated by different installation techniques.

Bending side

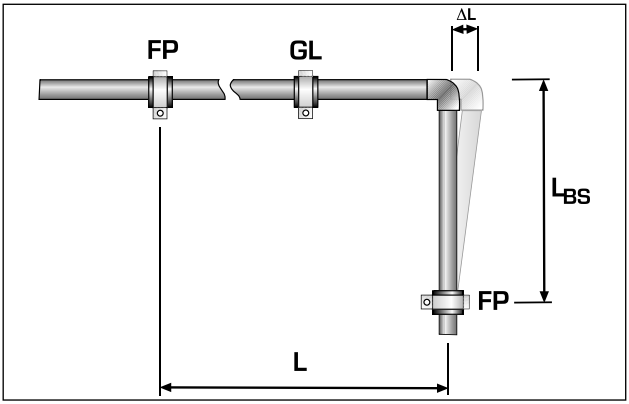
In most cases direction changes can be used to compensate for linear expansion in pipes.

The values of the bending side can be taken directly from the tables and graphs on the following pages.

Symbol	Meaning	Measuring unit
L_{BS}	Length of the bending side	[mm]
K	Material specific constant	15,0
d	Outside diameter	[mm]
ΔL	Linear expansion	[mm]
L	Pipe Length	[m]
FP	Fixed point	
GL	Sliding point	

Calculational determination of the bending side length

$$L_{BS} = K \times \sqrt{d \times \Delta L}$$



Expansion loop

If the linear expansion cannot be compensated by a change in direction, it will be necessary to install an expansion loop with long and straight pipelines.

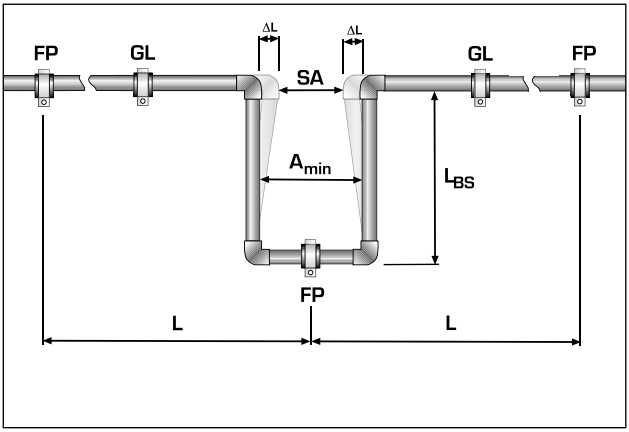
In addition to the length of the bending side L_{BS} the width of the pipe bend A_{min} must be considered.

Symbol	Meaning	Measuring unit
A_{min}	Width of the expansion loop	[mm]
SA	Safety distance	150 mm

The pipe bend A_{min} is calculated acc. to the following formula:

$$A_{min} = 2 \times \Delta L + SD$$

The width of the expansion loop A_{min} should be at least 210 mm.



Pre-stress

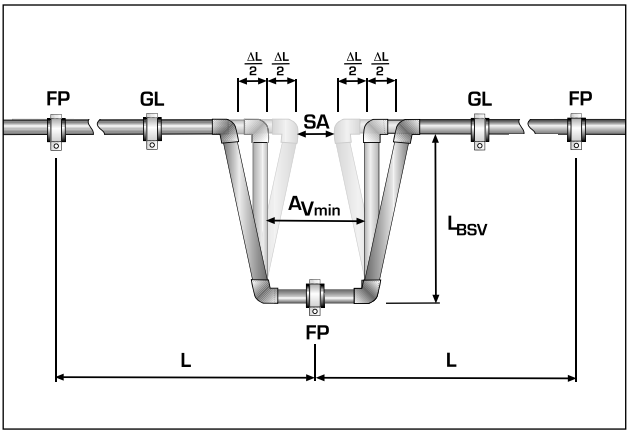
Where space is limited, it is possible to shorten the total width A_{min} as well as the length of the bending side L_{BSV} by pre-stressing.

Pre-stress installations, if planned and carried out carefully, offer an optically perfect installation, as the linear expansion is hardly visible.

Symbol	Meaning	Measuring unit
L_{BSV}	Length of pre-stress	[mm]

The side length of expansion loops wih pre-stress is calculated acc. to the following example:

$$L_{BSV} = K \times \sqrt{\frac{d \times \Delta L}{2}}$$



Bellow expansion joint

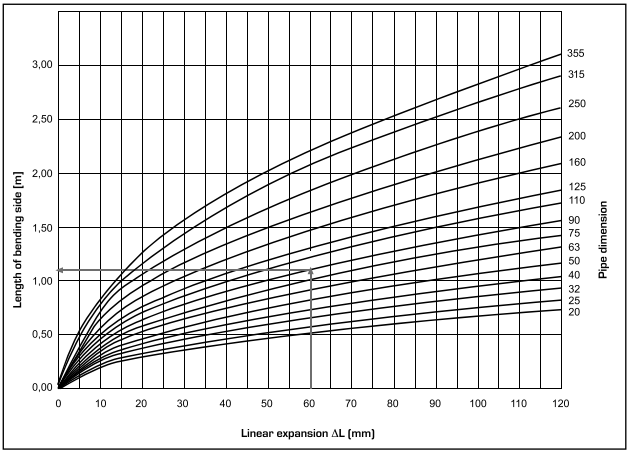
All bellow expansion joints for corrugated pipes designed for metal materials are unsuitable for fusiotherm®-pipes.

When using axial expansion joints observe the manufacturers instructions.

Length of bending side

Length of bending side for fusiotherm®, fusiotherm®-faser composite pipe and for fusiotherm®-stabi composite pipe, climatherm-pipe and climatherm-faser composite pipe

Pipe Dimension	Linear expansion (mm)											
	10	20	30	40	50	60	70	80	90	100	110	120
	Length of bendig side (m)											
20 mm	0,21	0,30	0,37	0,42	0,47	0,52	0,56	0,60	0,64	0,67	0,70	0,73
25 mm	0,24	0,34	0,41	0,47	0,53	0,58	0,63	0,67	0,71	0,75	0,79	0,82
32 mm	0,27	0,38	0,46	0,54	0,60	0,66	0,71	0,76	0,80	0,85	0,89	0,93
40 mm	0,30	0,42	0,52	0,60	0,67	0,73	0,79	0,85	0,90	0,95	0,99	1,04
50 mm	0,34	0,47	0,58	0,67	0,75	0,82	0,89	0,95	1,01	1,06	1,11	1,16
63 mm	0,38	0,53	0,65	0,75	0,84	0,92	1,00	1,06	1,13	1,19	1,25	1,30
75 mm	0,41	0,58	0,71	0,82	0,92	1,01	1,09	1,16	1,23	1,30	1,36	1,42
90 mm	0,45	0,64	0,78	0,90	1,01	1,10	1,19	1,27	1,35	1,42	1,49	1,56
110 mm	0,50	0,70	0,86	0,99	1,11	1,22	1,32	1,41	1,49	1,57	1,65	1,72
125 mm	0,53	0,75	0,92	1,06	1,19	1,30	1,40	1,50	1,59	1,68	1,76	1,84
160 mm	0,60	0,85	1,04	1,20	1,34	1,47	1,59	1,70	1,80	1,90	1,99	2,08
200 mm	0,67	0,95	1,16	1,34	1,50	1,64	1,77	1,90	2,01	2,12	2,22	2,32
250 mm	0,75	1,06	1,30	1,50	1,68	1,84	1,98	2,12	2,25	2,37	2,49	2,60
315 mm	0,84	1,19	1,46	1,68	1,88	2,06	2,23	2,38	2,53	2,66	2,79	2,92
355 mm	0,89	1,26	1,55	1,79	2,00	2,19	2,36	2,53	2,68	2,83	2,96	3,10

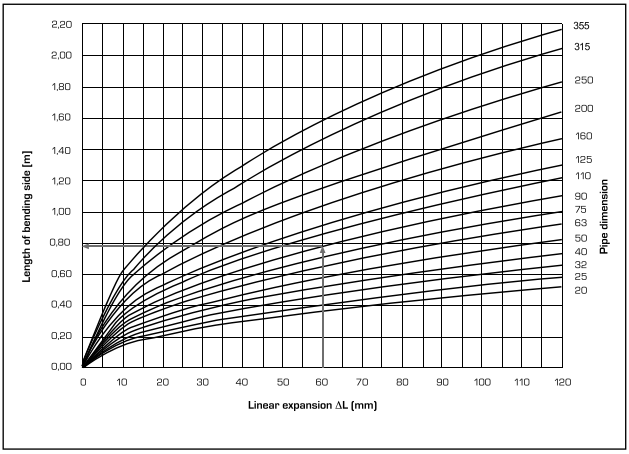


The length of the bending side L_{BS} can be taken from the tables and graphs in consideration of the applied pipe dimensions and determined linear expansion.

Length of bending side with pre-stress

Length of bending side with pre-stress for fusiotherm®, fusiotherm®-faser composite pipe and for fusiotherm®-stabi composite pipe, climatherm-pipe and climatherm-faser composite pipe

Pipe Dimension	Linear expansion (mm)											
	10	20	30	40	50	60	70	80	90	100	110	120
	Length of bending side with pre-stress (m)											
20 mm	0,15	0,21	0,26	0,30	0,34	0,37	0,40	0,42	0,45	0,47	0,50	0,52
25 mm	0,17	0,24	0,29	0,34	0,38	0,41	0,44	0,47	0,50	0,53	0,56	0,58
32 mm	0,19	0,27	0,33	0,38	0,42	0,46	0,50	0,54	0,57	0,60	0,63	0,66
40 mm	0,21	0,30	0,37	0,42	0,47	0,52	0,56	0,60	0,64	0,67	0,70	0,73
50 mm	0,24	0,34	0,41	0,47	0,53	0,58	0,63	0,67	0,71	0,75	0,79	0,82
63 mm	0,27	038	0,46	0,53	0,60	0,65	0,70	0,75	0,80	0,84	0,88	0,92
75 mm	0,29	0,41	0,50	0,58	0,65	0,71	0,77	0,82	0,87	0,92	0,96	1,01
90 mm	0,32	0,45	0,55	0,64	0,71	0,78	0,84	0,90	0,95	1,01	1,06	1,10
110 mm	0,35	0,50	0,61	0,70	0,79	0,86	0,93	0,99	1,06	1,11	1,17	1,22
125 mm	0,38	0,53	0,65	0,75	0,84	0,92	0,99	1,06	1,13	1,19	1,24	1,30
160 mm	0,42	0,60	0,73	0,85	0,95	1,04	1,12	1,20	1,27	1,34	1,41	1,47
200 mm	0,47	0,67	0,82	0,95	1,06	1,16	1,25	1,34	1,42	1,50	1,57	1,64
250 mm	0,53	0,75	0,92	1,06	1,19	1,30	1,40	1,50	1,59	1,68	1,76	1,84
315 mm	0,60	0,84	1,03	1,19	1,33	1,46	1,58	1,68	1,79	1,88	1,97	2,06
355 mm	0,63	0,89	1,09	1,26	1,41	1,55	1,67	1,79	1,90	2,00	2,10	2,19



The length of the bending side L_{BS} can be taken from the tables and graphs in consideration of the applied pipe dimensions and determined linear expansion.

Support intervals

Fusiotherm®-pipe SDR 6 & SDR 7.4

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

Difference in temperature ΔT [K]	Pipe diameter d (mm)									
	16	20	25	32	40	50	63	75	90	110
	Support intervals in cm									
0	70	85	105	125	140	165	190	205	220	250
20	50	60	75	90	100	120	140	150	160	180
30	50	60	75	90	100	120	140	150	160	180
40	50	60	70	80	90	110	130	140	150	170
50	50	60	70	80	90	110	130	140	150	170
60	50	55	65	75	85	100	115	125	140	160
70	50	50	60	75	80	95	105	115	125	140

Fusiotherm®-pipe SDR 11 & climatherm-pipe SDR 11

Table to determine support intervals for cold water application (temperature of medium: 20° C) in conjunction with outside diameter.

Pipe diameter d (mm)														
20	25	32	40	50	63	75	90	110	125	160	200	250	315	355
Support intervals in cm														
60	75	90	100	120	140	150	160	180	200	220	230	240	250	250

Support intervals

Fusiotherm®-stabi composite pipe

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

Difference in temperature ΔT [K]	Pipe diameter d (mm)									
	16	20	25	32	40	50	63	75	90	110
	Support intervals in cm									
0	130	155	170	195	220	245	270	285	300	325
20	100	120	130	150	170	190	210	220	230	250
30	100	120	130	150	170	190	210	220	230	240
40	100	110	120	140	160	180	200	210	220	230
50	100	110	120	140	160	180	200	210	220	210
60	80	100	110	130	150	170	190	200	210	200
70	70	90	100	120	140	160	180	190	200	200

Fusiotherm®-composite pipe SDR 7,4

climatherm-composite pipe SDR 11

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

Difference in temperature ΔT [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	340	345	350	355	360
20	90	105	120	135	155	175	185	195	215	240	270	275	280	285	290
30	90	105	120	135	155	175	185	195	210	225	245	250	255	260	265
40	85	95	110	125	145	165	175	185	200	215	235	240	245	250	255
50	85	95	110	125	145	165	175	185	190	195	205	210	215	220	225
60	80	90	105	120	135	155	165	175	180	185	195	200	205	210	215
70	70	80	95	110	130	145	155	165	170	175	185	190	195	200	205

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.

Pressure test / Test control

Acc. to the

➠ **Technical Rules for Potable Water Installations DIN 1988**

have to be (while still visible) hydraulically pressure tested all pipelines. The test pressure has to be 1.5 times of the operating pressure.

Due to the material properties of fusiotherm®-pipes a pressurization causes an expansion of the pipe. Different temperatures of pipe and test medium lead to alterations of pressure. A temperature change of 10 K corresponds to a pressure difference of 0.5 to 1 bar.

The pressure test of fusiotherm®-pipe systems should be made with a constant temperature of the medium.

The hydraulic pressure test requires a preliminary, principal and final test.

In the preliminary test the system is pressurized with the 1.5 times of the maximum operating pressure.

This test pressure has to be re-established twice within 30 minutes within an interval of 10 minutes. After a test time of a further 30 minutes the test pressure must not drop more than 0.6 bar. No leakage may appear.

The preliminary test is to be followed directly by the principal test. Test time is 2 hours. Now the test pressure taken from the preliminary test may not fall more than 0.2 bar.

The final test is made with a changing pressure of 1 bar and 10 bars according to the diagramm on page 70 . The pipe system must be unpressurized between each test cycle.

Between each test course the pressure has to be released.

No leakage must appear at any point of the tested installation system.

Measuring of the test pressures

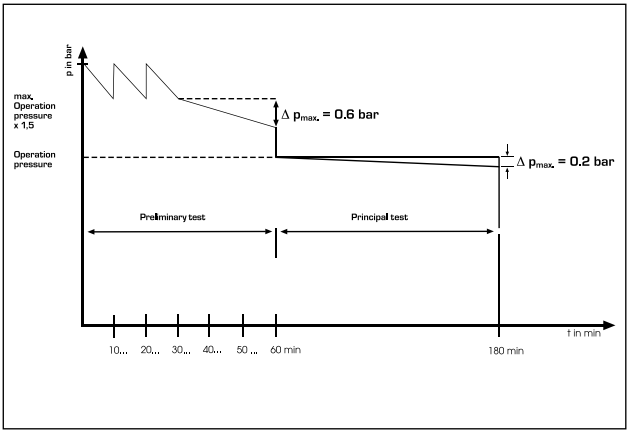
Measuring has to be done with a manometer allowing a perfect reading of a pressure change of 0.1 bar. The manometer has to be placed at the deepest point of the installation.

Test record

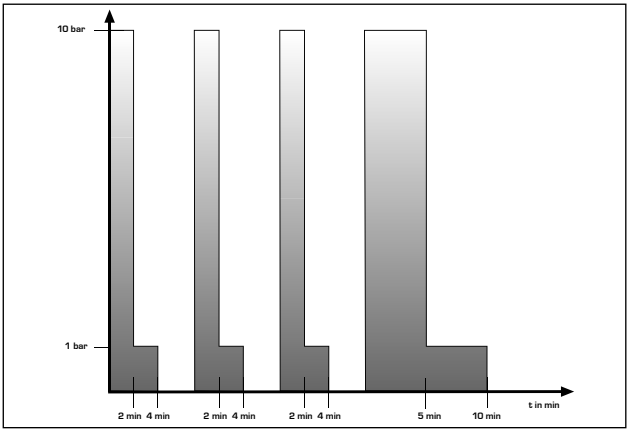
A record of the hydraulic pressure test has to be prepared and signed by the client and contractor stating place and date (see page: 71).

Pressure test / Test control

Preliminary- and principal test



Final test



Test record

Description of the installation

Place: _____

Object: _____

Pipe-lengths:

Ø 16 mm _____ m
Ø 20 mm _____ m
Ø 25 mm _____ m
Ø 32 mm _____ m
Ø 40 mm _____ m
Ø 50 mm _____ m
Ø 63 mm _____ m
Ø 75 mm _____ m
Ø 90 mm _____ m
Ø 110 mm _____ m
Ø 125 mm _____ m
Ø 160 mm _____ m
Ø 200 mm _____ m
Ø 250 mm _____ m
Ø 315 mm _____ m
Ø 355 mm _____ m

Highest point:

_____ m
(over manometer)

Start of the test: _____

End of the test: _____

Test period: _____

Contractor: _____

Client: _____

Place: _____

Date: _____

_____
Stamp / Signature

Preliminary test

max. working pressure x 1.5

_____ bar

Pressure drop after 30 minutes:

_____ bar
(max. 0,6 bar)

Result preliminary test:

_____

Principal test

Working pressure:

_____ bar
(Ergebnis Vorprüfung)

Pressure after 2 hours:

_____ bar
(max. 0,2 bar)

Result principal test:

_____

Final test*

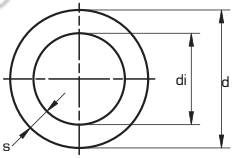
1. Working pressure 10 bar: _____ bar
   at least 2 minutes, then
   Working pressure 1 bar: _____ bar
   at least 2 minutes
2. Working pressure 10 bar: _____ bar
   at least 2 minutes, then
   Working pressure 1 bar: _____ bar
   at least 2 minutes
3. Working pressure 10 bar: _____ bar
   at least 2 minutes, then
   Working pressure 1 bar: _____ bar
   at least 2 minutes
4. Working pressure 10 bar: _____ bar
   at least 5 minutes, then
   Working pressure 1 bar: _____ bar
   at least 5 minutes

* Unpressurize the pipe between each cycle.

Chapter 4
Product Range

fusiotherm® - pipe SDR 6

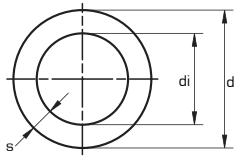
Material: fusiolen PP-R
Pipe series: SDR 6 / S 2,5
Standard: DIN 8077 / 78, DIN EN ISO 15874
ASTM F 2389, CSA B 137.11
Registrations: DVGW, ÖVGW, KIWA, SAI, TIN, TSE, SITAC, SII, LNEC, AENOR, Shipbuilding, IIP
Colour: green
Form supplied: 4 m straight lengths, also * in coils
Packing Unit: PU in meter



Art.- No.	Dimen-sion	PU	Dimen-sion	Wall thickness	Internal diameter	Water content	Weight	
			d	s	di			DN
	[mm]	[m]	[mm]	[mm]	[mm]	[l/m]	[kg/m]	
10006	16	100	16	2,7	10,6	0,088	0,11	10
10008	20	100	20	3,4	13,2	0,137	0,172	12
10010	25	100	25	4,2	16,6	0,216	0,266	15
10012	32	40	32	5,4	21,2	0,353	0,434	20
10014	40	40	40	6,7	26,6	0,555	0,671	25
10016	50	20	50	8,3	33,4	0,876	1,040	32
10018	63	20	63	10,5	42,0	1,385	1,650	40
10020	75	20	75	12,5	50,0	1,963	2,340	50
10022	90	12	90	15,0	60,0	2,826	3,360	60
10024	110	8	110	18,3	73,4	4,229	5,010	65
10106*	16	100	16	2,7	10,6	0,088	0,110	10
10108*	20	100	20	3,4	13,2	0,137	0,172	12
10110*	25	100	25	4,2	16,6	0,216	0,266	15

fusiotherm® - pipe SDR 11

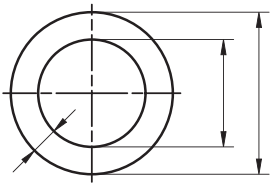
Material: fusiolen PP-R
Pipe series: SDR 11 / S 5
Standard: DIN 8077 / 78, DIN EN ISO 15874, ASTM F 2389, CSA B 137.11
Registrations: ÖNORM, SAI, TIN, TSE, LNEC, AENOR, SKZ A 175 Shipbuilding, IIP
Colour: green with 4 blue stripes
Form supplied:
4 m straight lengths (ø 20-125 mm),
6 m straight lengths (ø 160-315 mm)
Packing Unit: in meter
Application: Drinking water, gen. pressure pipes



Art.- No.	Dimension	PU	Dimension	Wall thickness	Internal diameter	Water content	Weight	
			d	s	di			DN
	[mm]	[m]	[mm]	[mm]	[mm]	[l/m]	[kg/m]	
10208	20	100	20	1,9	16,2	0,206	0,107	15
10210	25	100	25	2,3	20,4	0,327	0,164	20
10212	32	40	32	2,9	26,2	0,539	0,261	25
10214	40	40	40	3,7	32,6	0,834	0,412	32
10216	50	20	50	4,6	40,8	1,307	0,638	40
10218	63	20	63	5,8	51,4	2,074	1,010	50
10220	75	20	75	6,8	61,4	2,959	1,410	65
10222	90	12	90	8,2	73,6	4,252	2,030	80
10224	110	8	110	10,0	90,0	6,359	3,010	80
10226	125	4	125	11,4	102,2	8,199	3,910	100
10230	160	6	160	14,6	130,8	13,430	6,380	125
10234	200	6	200	18,2	163,6	21,010	9,990	150
10238	250	6	250	22,7	204,6	32,861	15,540	200
10242	315	6	315	28,6	257,8	52,172	24,650	250
10308*	20	100	20	1,9	16,2	0,206	0,107	15
10310*	25	100	25	2,3	20,4	0,327	0,164	20
10312*	32	50	32	2,9	26,2	0,539	0,267	25

Fusiotherm® - pipe SDR 7,4

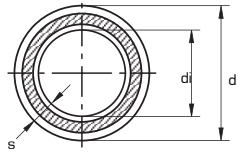
Material: fusiolen PP-R
Pipe series: SDR 7,4 / S 3,2
Standard: DIN 8 077 / 78, DIN EN ISO 15874, ASTM F 2389, CSA B 137.11
Registrations: ÖNORM, SAI, TIN, TSE, LNEC, AENOR, SKZ A 175, Shipbuilding, IIP
Colour: green
Form supplied: 4 m straight lengths, also* in coils
Packing Unit: in meter



Art.- No.	Dimen-sion	PU	Dimen-sion	Wall thickness	Internal diameter	Water content	Weight	
			d	s	di			DN
	[mm]	[m]	[mm]	[mm]	[mm]	[l/m]	[kg/m]	
10806	16	100	16	2,2	11,6	0,106	0,095	12
10808	20	100	20	2,8	14,4	0,163	0,148	15
10810	25	100	25	3,5	18,0	0,254	0,230	20
10812	32	40	32	4,4	23,2	0,423	0,370	25
10814	40	40	40	5,5	29,0	0,660	0,575	32
10816	50	20	50	6,9	36,2	1,029	0,896	40
10818	63	20	63	8,6	45,8	1,647	1,410	50
10820	75	20	75	10,3	54,4	2,323	2,010	50
10822	90	12	90	12,3	65,4	3,358	2,870	65
10824	110	8	110	15,1	79,8	4,999	4,300	80
10906*	16	100	16	2,2	11,6	0,106	0,095	12
10908*	20	100	20	2,8	14,4	0,163	0,148	15

fusiotherm®- faser composite pipe SDR 7.4

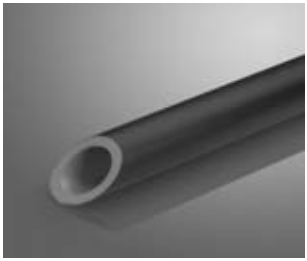
Material: fusiolen PP-R
fibre reinforced
Pipe series: SDR 7,4 / S 3,2
Standard: SKZ HR 3.28,
ASTM F 2389,
CSA B 137.11
Registrations: ÖVGW,
SAI-Global,
SKZ A 314,
TIN, TSE,
Shipbuilding
Colour: green with 4 dark-
green stripes
Form supplied:
4 m straight lengths (ø 20-125 mm),
6 m straight lengths (ø 160-250 mm)
also in *coils
Packing Unit: in meter
Application: Drinking water, gen. pressure pipes



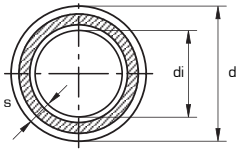
Mechanically stabilized through a fibre mix integrated in the middle layer of the fusiolen® PP-R

Art.- No.	Dimen-sion	PU	Dimen-sion	Wall thickness	Internal diameter	Water content	Weight	
			d	s	di			DN
	[mm]	[m]	[mm]	[mm]	[mm]	[l/m]	[kg/m]	
70708	20	100	20	2,8	14,4	0,163	0,158	15
70710	25	100	25	3,5	18,0	0,254	0,246	20
70712	32	40	32	4,4	23,2	0,423	0,394	25
70714	40	40	40	5,5	29,0	0,660	0,613	32
70716	50	20	50	6,9	36,2	1,029	0,955	40
70718	63	20	63	8,6	45,8	1,647	1,500	50
70720	75	20	75	10,3	54,4	2,323	2,135	50
70722	90	12	90	12,3	65,4	3,358	3,058	65
70724	110	8	110	15,1	79,8	4,999	4,576	80
70726	125	4	125	17,1	90,8	6,472	5,891	-
70730	160	6	160	21,9	116,2	10,599	9,538	125
70734	200	6	200	27,4	145,2	16,558	15,051	150
70738	250	6	250	34,2	181,6	25,901	23,479	175

Fusiotherm® - faser composite pipe SDR 7,4 UV



Material: fusiolen PP-R with fibre reinforced UV protection layer
Pipe series: SDR 7,4 / S 3,2
Standard: SKZ HR 3.28, ASTM F 2389, CSA B 137.11
Registrations: ÖVGW, SAI-Global, SKZ A 314, TIN, TSE, Shipbuilding
Colour: outer layer: black inner layer: green
Form supplied:
4 m straight lengths (ø 20-125 mm),
6 m straight lengths (ø 160-250 mm)
also in *coils
Packing Unit: in meter
Application: Drinking water, gen. pressure pipes



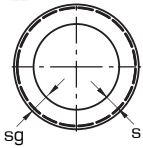
Resistant against UV-rays. Mechanically stabilized through a fibre mix integrated in the middle layer of the fusiolen® PP-R

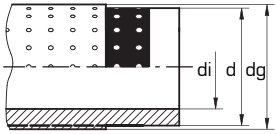
Art.- No.	Dimen-sion	PU	Dimen-sion	Wall thickness	Internal diameter	Water content	Weight	
			d	s	di			DN
	[mm]	[m]	[mm]	[mm]	[mm]	[l/m]	[kg/m]	
70758	20	100	20	2,8	14,4	0,163	0,159	15
70760	25	100	25	3,5	18,0	0,254	0,248	20
70762	32	40	32	4,4	23,2	0,423	0,397	25
70764	40	40	40	5,5	29,0	0,660	0,618	32
70766	50	20	50	6,9	36,2	1,029	0,963	40
70768	63	20	63	8,6	45,8	1,647	1,512	50
70770	75	20	75	10,3	54,4	2,323	2,153	50
70772	90	12	90	12,3	65,4	3,358	3,083	65
70774	110	8	110	15,1	79,8	4,999	4,613	80
70776	125	4	125	17,1	90,8	6,472	5,939	-
70780	160	6	160	21,9	113,2	10,059	10,130	100
70784	200	6	200	27,4	141,8	15,784	15,763	150
70788	250	6	250	34,2	177,6	24,760	24,528	175

fusiotherm® - stabi composite pipe SDR 7,4

Material: fusiolen PP-R, Aluminium
Pipe series: SDR 7,4 / S 3,2 (Inliner)
Standard: Inliner: DIN 8077 / 78, DIN EN ISO 15874
Composite pipe: DVGW W542, ÖNORM B 5157
Registrations: DVGW, ÖVGW, KIWA, SAI, TIN, TSE, Shipbuilding
Colour: green
Form supplied: 4 m straight lenghts, also * in coils
Packing Unit: in meter

Mechanically stabilized through integrated aluminium-layer

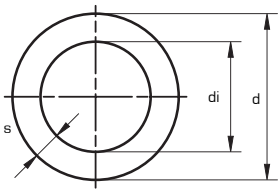




Art.- No.	Dimension	PU	Dimension	Wall thickness	Internal diameter	(d) total	(s) total	Water content	Weight	
			d	s	di	dg	sg	[l/m]	[kg/m]	DN
	[mm]	[m]	[mm]	[mm]	[mm]					
70806	16	100	16	2,2	11,6	17,6	3,0	0,106	0,138	12
70808	20	100	20	2,8	14,4	21,6	3,7	0,163	0,210	15
70810	25	100	25	3,5	18,0	26,8	4,4	0,254	0,288	20
70812	32	40	32	4,5	23,0	33,9	5,5	0,415	0,460	25
70814	40	40	40	5,6	28,8	42,0	6,6	0,651	0,695	32
70816	50	20	50	6,9	36,2	52,0	7,9	1,029	1,031	40
70818	63	20	63	8,7	45,6	65,1	9,7	1,632	1,598	50
70820	75	20	75	10,4	54,4	77,2	11,5	2,306	2,176	50
70822	90	12	90	12,5	65,4	92,7	13,9	3,317	3,285	65
70824	110	8	110	15,2	79,8	113,3	17,2	4,974	4,690	80
70856*	16	100	16	2,2	11,6	17,6	3,0	0,106	0,138	12

climatherm - pipe SDR 11

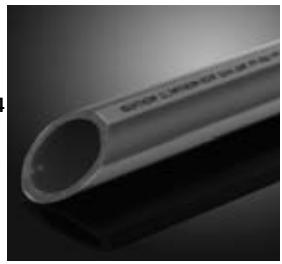
Material: PP-R
Pipe series: SDR 11 / S 5
Standard: DIN 8077 / 78, DIN EN ISO 15874, ASTM F 2389, CSA B 137.11, NSF 14
Registrations: TIN (Poland), EMI-TÜV (Hungary), LNEC (Portugal), CentrSEPRO (Ukraine), cNSFus-Industrial, IAPMO-(Kanada / USA)
Colour: blue



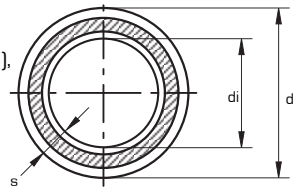
Form supplied:
4 m straight lengths (ø 20-125 mm),
6 m straight lengths (ø 160-250 mm), also * in coils

Art.- No.	Dimension	PU	Dimension	Wall thickness	Internal diameter	Water content	Weight	
			d	s	di			DN
	[mm]	[m]	[mm]	[mm]	[mm]	[l/m]	[kg/m]	
2010208	20	100	20	1,9	16,2	0,206	0,107	15
2010210	25	100	25	2,3	20,4	0,327	0,164	20
2010212	32	40	32	2,9	26,2	0,539	0,261	25
2010214	40	40	40	3,7	32,6	0,834	0,412	32
2010216	50	20	50	4,6	40,8	1,307	0,638	40
2010218	63	20	63	5,8	51,4	2,074	1,010	50
2010220	75	20	75	6,8	61,4	2,959	1,410	65
2010222	90	12	90	8,2	73,6	4,252	2,030	80
2010224	110	8	110	10,0	90,0	6,359	3,010	80
2010226	125	4	125	11,4	102,2	8,199	3,910	100
2010230	160	6	160	14,6	130,8	13,430	6,420	125
2010308*	20	100	20	1,9	16,2	0,206	0,107	15
2010310*	25	100	25	2,3	20,4	0,327	0,164	20
2010312*	32	50	32	2.9	26.2	0.539	0.265	25

climatherm faser composite pipe SDR 7,4 / SDR 11



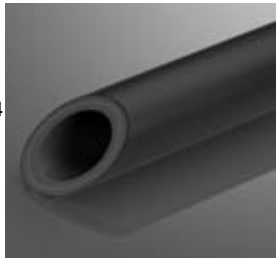
Material: fusiolen PP-R
fibre reinforced
Pipe series:
Art.- No. 2070708-2070712 = **SDR 7,4**
Art.- No. 2070112-2070138 = **SDR 11**
Standard: SKZ HR 3.28,
ASTM F2389,
CSA B 137.11, NSF 14
Registrations: TIN (Poland),
EMI-TÜV (Hungary),
LNEC (Portugal),
CentrSEPRO (Ukraine),
cNSFus-Industrial,
IAPMO-
(Kanada / USA)
Colour: blue with 4 wider
green stripes



Form supplied:
4 m straight lengths (ø 20-125 mm),
6 m straight lengths (ø 160-355 mm)
Packing unit: PU in meter
Application: HVAC, non-potable water applications

Art.- No.	Dimension	SDR	PU	Dimension	Wall thickness	Internal diameter	Water content	Weight	
				d	s	di			DN
	[mm]		[m]	[mm]	[mm]	[mm]	[l/m]	[kg/m]	
2070708	20	7,4	100	20	2,8	14,4	0,163	0,159	15
2070710	25	7,4	100	25	3,5	18,0	0,254	0,248	20
2070712	32	7,4	40	32	4,4	23,2	0,423	0,397	25
2070112	32	11	40	32	2,9	26,2	0,539	0,281	25
2070114	40	11	40	40	3,7	32,6	0,834	0,434	32
2070116	50	11	20	50	4,6	40,8	1,307	0,672	40
2070118	63	11	20	63	5,8	51,4	2,074	1,061	50
2070120	75	11	20	75	6,8	61,4	2,959	1,479	65
2070122	90	11	12	90	8,2	73,6	4,252	2,142	80
2070124	110	11	8	110	10,0	90,0	6,359	3,171	80
2070126	125	11	4	125	11,4	102,2	8,199	4,114	100
2070130	160	11	4	160	14,6	130,8	13,430	6,725	125
2070134	200	11	4	200	18,2	163,6	21,01	9,950	150
2070138	250	11	4	250	22,7	204,6	32,861	15,500	200
2070142	315	11	6	315	28,6	257,8	52,172	25,680	250
2070144	355	11	6	355	32,2	290,6	66,29	32,600	300

climatherm faser composite pipe SDR 7,4 / SDR 11 UV

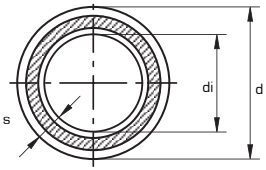


Material: fusiolen PP-R
fibre reinforced
UV-protective Layer

Pipe series:
Art.- No. 2070758-2070762 = **SDR 7,4**
Art.- No. 2070162-2070188 = **SDR 11**

Standard: SKZ HR 3.28,
ASTM F2389,
CSA B 137.11, NSF 14

Registrations: TIN (Poland),
EMI-TÜV (Hungary),
LNEC (Portugal),
CentrSEPRO (Ukraine),
cNSFus-Industrial,
IAPMO-
(Kanada / USA)



Colour: Inlinerb lue,
outside black

Form supplied:
4 m straight lengths (ø 20-125 mm),
6 m straight lengths (ø 160-250 mm)

Packing unit: PU in meter

Application: HVAC, non-potable water applications

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

Art.- No.	Dimen-sion	SDR	PU	Dimen-sion	Wall thickness	Internal diameter	Water content	Weight	
				d	s	di			DN
	[mm]		[m]	[mm]	[mm]	[mm]	[l/m]	[kg/m]	
2070758	20	7,4	100	20	2,8	14,4	0,163	0,211	15
2070760	25	7,4	100	25	3,5	18,0	0,254	0,316	20
2070762	32	7,4	40	32	4,4	23,2	0,423	0,488	20
2070162	32	11	40	32	2,9	26,2	0,539	0,370	25
2070164	40	11	40	40	3,7	32,6	0,834	0,551	32
2070166	50	11	20	50	4,6	40,8	1,307	0,820	40
2070168	63	11	20	63	5,8	51,4	2,074	1,251	50
2070170	75	11	20	75	6,8	61,4	2,959	1,698	50
2070172	90	11	12	90	8,2	73,6	4,252	2,470	65
2070174	110	11	8	110	10	90,0	6,359	3,668	80
2070176	125	11	4	125	11,4	102,2	8,199	4,647	100
2070180	160	11	4	160	14,6	127,8	12,821	7,257	125
2070184	200	11	4	200	18,2	160,2	20,146	11,224	150
2070188	250	11	4	250	22,7	200,6	31,589	17,399	200

climatherm OT - faser composite pipe OT SDR 7.4 / 11

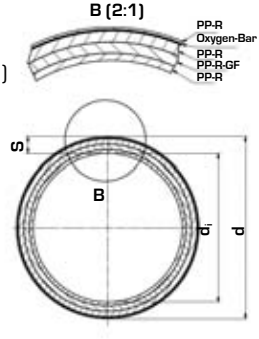
oxygene tight

Material: fusiolen PP-R fibre reinforced

Pipe series:
Art.-No. 2170708 - 2170712 = **SDR 7,4**
Art.-No. 2170114 - 2170142 = **SDR 11**

Standards: DIN 8077/78, DIN EN ISO 15874

Form supplied:
4 m straight lengths (ø 20-125 mm)
6 m straight lengths (ø 160-315 mm)
Color: blue with 4 grey stripes



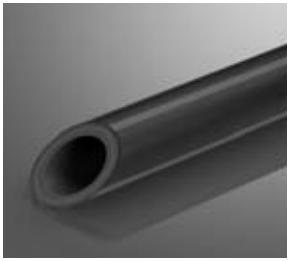
Specific feature:
oxygen tight by diffusion barrier acc. to DIN 4726

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

Art.- No.	Dimension	SDR	PU	Dimension	Wall thickness	Internal diameter	Water content	Weight	DN
				d	s	di	[l/m]	[kg/m]	
	[mm]		[m]	[mm]	[mm]	[mm]			
2170708	20	7,4	100	20	2,8	14,4	0,163	0,156	15
2170710	25	7,4	100	25	3,5	18,0	0,254	0,243	20
2170712	32	7,4	40	32	4,4	23,2	0,423	0,488	25
2170114	40	11	40	40	3,7	32,6	0,834	0,435	32
2170116	50	11	20	50	4,6	40,8	1,307	0,675	40
2170118	63	11	20	63	5,8	51,4	2,074	1,061	50
2170120	75	11	20	75	6,8	61,4	2,959	1,479	65
2170122	90	11	12	90	8,2	73,6	4,252	2,142	80
2170124	110	11	8	110	10,0	90,0	6,359	3,171	80
2170126	125	11	4	125	11,4	102,2	8,199	4,114	100
2170130	160	11	6	160	14,6	130,8	13,430	6,725	125
2170134	200	11	6	200	18,2	163,6	21,010	10,475	150
2170138	250	11	6	250	22,7	204,6	32,861	16,301	200

climatherm OT - faser composite pipe OT SDR 7.4 / 11 UV

oxygene tight

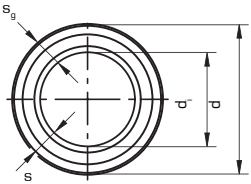


Material: fusiolen PP-R
fibre reinforced

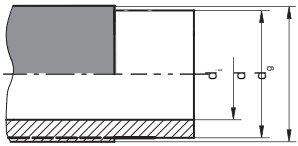
Pipe series:
Art.-No. 2170708 - 2170712 =
SDR 7,4
Art.-No. 2170114 - 2170142 =
SDR 11

Standards: DIN 8077/78,
DIN EN ISO
15874

Form supplied:
4 m straight lengths (ø 20-125 mm)
6 m straight lengths (ø 160-250 mm)
Color: Inliner blue,
outside black with 4 grey stripes



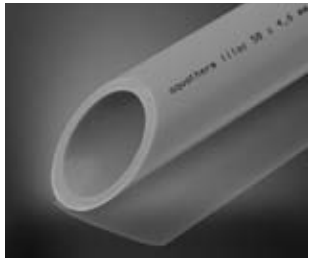
Specific feature:
oxygen tight by diffusion barrier
cc. to DIN 4726



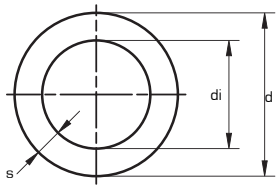
Resistant against UV-rays. Mechanically stabilized through a fibre mix integrated in the middle layer of the fusiolen® PP-R

Art.- No.	Dimension	SDR	PU	Dimension	Wall thickness	Internal diameter	(d) total	(s) total	Water content	Weight	DN
				d	s	d_i	d_g	s_g	l/m	kg/m	
	[mm]		[m]	mm	mm	mm	mm	mm			
2170758	20	7,4	100	20	2,8	14,4	21,9	3,7	0,163	0,211	15
2170760	25	7,4	100	25	3,5	18,0	27,0	4,5	0,254	0,316	20
2170762	32	7,4	40	32	4,4	23,2	34,1	5,5	0,423	0,488	25
2170164	40	11	40	40	3,7	32,6	42,2	4,8	0,834	0,551	32
2170166	50	11	20	50	4,6	40,8	52,3	5,7	1,307	0,820	40
2170168	63	11	20	63	5,8	51,4	65,4	7,0	2,074	1,251	50
2170170	75	11	20	75	6,8	61,4	77,4	8,0	2,959	1,698	50
2170172	90	11	12	90	8,2	73,6	93,0	9,7	4,252	2,470	65
2170174	110	11	8	110	10	90,0	113,6	11,8	6,359	3,668	80
2170176	125	11	,4	125	11,4	102,2	128,6	13,2	8,199	4,647	100
2170180	160	11	6	160	14,6	127,8	160,0	16,1	12,821	7,257	125
2170184	200	11	6	200	18,2	160,2	200,0	19,9	20,146	11,224	150
2170188	250	11	6	250	22,7	200,6	250,0	24,7	31,589	17,399	200

aquatherm lilac-pipe SDR 7,4 / 11



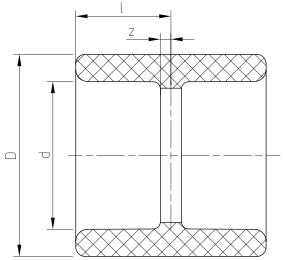
Material: fusiolen PP-R
Pipe series :
Art.- No. 9010808-10 = **SDR 7,4**
Art.-Nr.9010212-38 = **SDR 11**
acc. to:
DIN 8077 / 78,
DIN EN ISO 15874, ASTM F 2389, CSA B 137.11,
NSF 14
Registrations: cNSFus-rw
Colour: violet
Form supplied: 4 m straight lengths (ø 20-125 mm),
6 m straight lengths (ø 160-250 mm)
Packing unit: PU in meter
Application: Recycled / reclaimed water



Art.- No.	Dimension	SDR	PU	Dimension	Wall thickness	Internal diameter	Water content	Weight	DN
				d	s	di			
	[mm]		[m]	[mm]	[mm]	[mm]	[l/m]	[kg/m]	
9010808	20	7,4	100	20	2,8	14,4	0,163	0,148	15
9010810	25	7,4	100	25	3,5	18,0	0,254	0,230	20
9010212	32	11	40	32	2,9	26,2	0,539	0,261	25
9010214	40	11	40	40	3,7	32,6	0,834	0,412	32
9010216	50	11	20	50	4,6	40,8	1,307	0,638	40
9010218	63	11	20	63	5,8	51,4	2,074	1,010	50
9010220	75	11	20	75	6,8	61,4	2,959	1,410	65
9010222	90	11	12	90	8,2	73,6	4,252	2,030	80
9010224	110	11	8	110	10,0	90,0	6,359	3,010	80
9010226	125	11	4	125	11,4	102,2	8,199	3,910	100
9010230	160	11	6	160	14,6	130,8	13,430	6,380	125
9010234	200	11	6	200	18,2	163,6	21,010	9,950	150
9010238	250	11	6	250	22,7	204,6	32,861	15,500	200

Fusiotherm® - socket

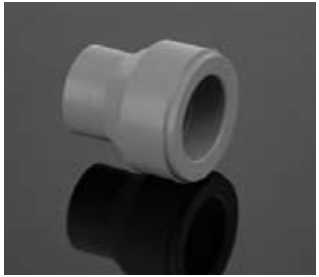
Material: Fusiolen® PP-R
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA, NSF, SAI, TIN,TSE, SITAC, Shipbuilding
Colour: green

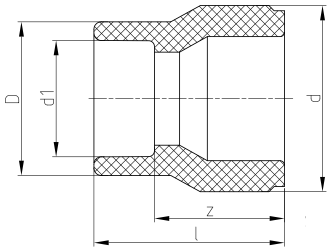


Art.- No.	Dimension	PU	d	l	z	D	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	kg/pc
11006	16	10	16,00	15,00	2,00	24,50	0,008
11008	20	10	20,00	16,00	1,50	29,50	0,011
11010	25	10	25,00	17,50	1,50	34,00	0,014
11012	32	5	32,00	20,25	2,25	43,00	0,027
11014	40	5	40,00	23,75	3,25	52,00	0,043
11016	50	5	50,00	26,50	3,00	68,00	0,087
11018	63	1	63,00	30,25	2,75	84,00	0,144
11020	75	1	75,00	33,25	3,25	100,00	0,233
11022	90	1	90,00	36,25	3,25	120,00	0,353
11024	110	1	110,00	41,00	4,00	147,00	0,606
11026	125	1	125,00	45,00	5,00	167,00	0,819

Fusiotherm® - reducer

Material: Fusiolen® PP-R
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO15874
Registrations: DVGW, ÖVGW, KIWA,
NSF, SAI, TIN,TSE, SITAC, Shipbuilding
Colour: green



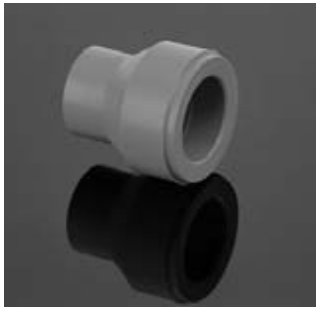


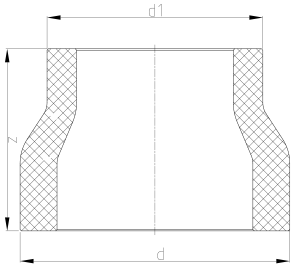
Art.- No.	Dimension	PU	d	d1	l	z	D	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
11109	20/16	10	20,00	16,00	39,00	26,00	24,50	0,009
11110	25/16	10	25,00	16,00	38,00	25,00	26,00	0,012
11112	25/20	10	25,00	20,00	38,50	24,00	29,50	0,013
11114	32/20	5	32,00	20,00	37,50	23,00	29,50	0,016
11116	32/25	5	32,00	25,00	38,00	22,00	34,00	0,016
11118	40/20	5	40,00	20,00	45,00	30,50	29,50	0,027
11120	40/25	5	40,00	25,00	50,00	34,00	34,00	0,034
11122	40/32	5	40,00	32,00	50,00	32,00	43,00	0,035
11124	50/20	5	50,00	20,00	55,00	40,50	29,50	0,045
11126	50/25	5	50,00	25,00	55,00	39,00	34,00	0,046

Art.- No.	Dimension	PU	d	d1	l	z	D	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
11128	50/32	5	50,00	32,00	54,00	36,00	43,00	0,054
11130	50/40	5	50,00	40,00	52,50	32,00	52,00	0,059
11131	63/20	1	63,00	20,00	65,00	50,50	29,50	0,081
11132	63/25	1	63,00	25,00	65,00	49,00	34,00	0,082
11134	63/32	1	63,00	32,00	62,00	44,00	43,00	0,093
11136	63/40	1	63,00	40,00	65,00	44,50	52,00	0,090
11138	63/50	1	63,00	50,00	63,50	40,00	68,00	0,122
11139	75/40	1	75,00	40,00	69,50	49,00	52,00	0,136
11140	75/50	1	75,00	50,00	63,00	39,50	68,00	0,143
11142	75/63	1	75,00	63,00	71,00	43,50	84,00	0,173
11143	75/20	1	75,00	20,00	65,50	51,00	34,50	0,115
11144	75/25	1	75,00	25,00	65,50	49,50	34,50	0,123
11145	75/32	1	75,00	32,00	69,50	51,50	52,00	0,145
11151	90/50	1	90,00	50,00	75,00	51,50	68,00	0,200
11152	90/63	1	90,00	63,00	78,00	50,50	84,00	0,232
11153	90/75	1	90,00	75,00	81,50	51,50	100,00	0,281
11155	110/63	1	110,00	63,00	86,00	58,50	84,00	0,363
11157	110/75	1	110,00	75,00	89,00	59,00	100,00	0,411
11159	110/90	1	110,00	90,00	99,00	66,00	120,00	0,564
11161	125/75	1	125,00	75,00	101,00	71,00	100,00	0,508
11163	125/90	1	125,00	90,00	99,00	66,00	120,00	0,556
11165	125/110	1	125,00	110,00	112,00	75,00	147,00	0,810
11176	160/125 SDR 7,4	1	160,00	125,00	90,00	50,00	167,00	0,814
11177	160/125 SDR 11	1	160,00	125,00	90,00	50,00	167,00	0,710

fusiotherm® - reducer

Material: fusiolen® PP-R
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA, NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green



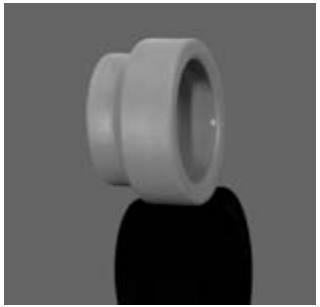


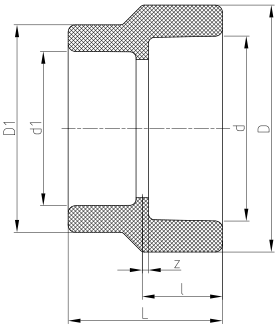
Art.- No.	Dimension	PU	d	d1	l	Weight
	[mm]		[mm]	[mm]	[mm]	kg/pc
11184	200/160 SDR7,4	1 pc	200,00	160,00	135,00	1,570
11185	200/160 SDR 11	1 pc	200,00	160,00	135,00	1,170
11190	250/200 SDR7,4	1 pc	250,00	200,00	175,00	3,210
11191	250/200 SDR 11	1 pc	250,00	200,00	175,00	2,330
11195	315/250 SDR 11	1 pc	315,00	250,00	233,00	4,650
11199	355/315 SDR 11	1 pc	355,00	315,00	160,00	4,469

fusiotherm® - reducing socket

female/female

Material: fusiolen® PP-R
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA, NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green

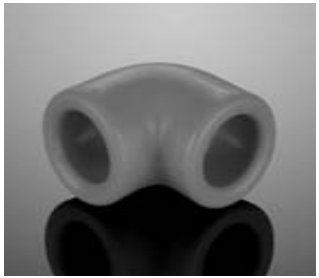


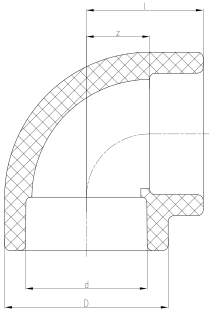


Art.- No.	Dimension	PU	d	d1	L	l	z	D	D1	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
11238	63/50	1	63,00	50,00	56,00	30,00	2,50	84,00	68,00	0,126
11242	75/63	1	75,00	63,00	62,50	32,50	2,50	100,00	84,00	0,191
11253	90/75	1	90,00	75,00	69,00	36,00	3,00	120,00	100,00	0,297

fusiotherm® - elbow 90°

Material: fusiolen® PP-R
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA, NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green

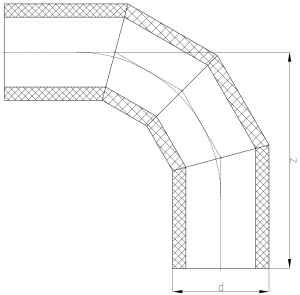




Art.- No.	Dimension	PU	d	z	l	D	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	kg/pc
12106	16	10	16,00	9,00	22,00	24,50	0,011
12108	20	10	20,00	11,00	25,50	29,50	0,018
12110	25	10	25,00	13,50	29,50	34,00	0,023
12112	32	5	32,00	17,00	35,00	43,00	0,043
12114	40	5	40,00	21,00	41,50	52,00	0,071
12116	50	5	50,00	26,00	49,50	68,00	0,158
12118	63	1	63,00	32,50	60,00	84,00	0,276
12120	75	1	75,00	38,50	68,50	100,00	0,447
12122	90	1	90,00	46,00	79,00	120,00	0,797
12124	110	1	110,00	56,00	93,00	147,00	1,323
12126	125	1	125,00	76,50	116,50	167,00	2,026

Fusiotherm® - elbow 90°

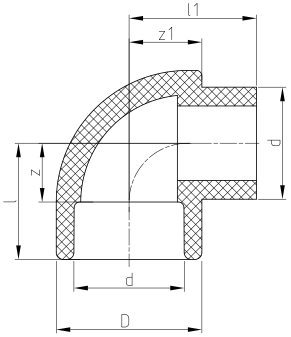
Material: Fusiolen® PP-R
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA,
NSF, SAI, TIN,TSE, SITAC,
Shipbuilding
Colour: green



Art.- No.	Dimension	PU	d	z	Weight
	[mm]		[mm]	[mm]	kg/pc
12130	SDR 7,4 - 160	1 pc	160,00	145,00	2,603
12131	SDR 11 - 160	1 pc	160,00	145,00	1,959
12134	SDR 7,4 - 200	1 pc	200,00	450,00	11,690
12135	SDR 11 - 200	1 pc	200,00	450,00	8,140
12138	SDR 7,4 - 250	1 pc	250,00	625,00	26,000
12139	SDR 11 - 250	1 pc	250,00	625,00	18,000
12143	315 SDR 11	1 pc	315,00	773,00	37,850
12145	355 SDR 11	1 pc	355,00	833,00	37,400

Fusiotherm® - elbow 90°
female/male

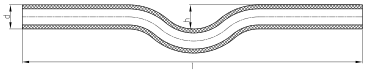
Material: Fusiolen® PP-R
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA, NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green



Art.- No.	Dimension	PU	d	z	l	D	l1	z1	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
12306	16	10	16,00	9,00	22,00	24,50	21,75	12,00	0,010
12308	20	10	20,00	11,00	25,50	29,50	25,50	15,00	0,017
12310	25	10	25,00	13,50	29,50	34,00	29,50	17,00	0,024
12312	32	5	32,00	17,00	35,00	43,00	39,00	21,50	0,049
12314	40	5	40,00	21,00	41,50	52,00	45,50	26,00	0,080

Fusiotherm® - cross over fitting

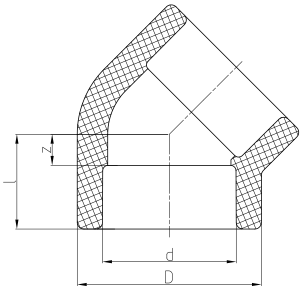
Material: Fusiolen® PP-R
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA, NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green



Art.- No.	Dimension	PU	d	h	l	Weight
	[mm]	pc	[mm]	[mm]	[mm]	kg/pc
16106	16	10	16,00	17,00	352,00	0,039
16108	20	10	20,00	22,00	352,00	0,060
16110	25	10	25,00	25,00	352,00	0,091
16112	32	5	32,00	32,00	352,00	0,154

fusiotherm® - elbow 45°

Material: fusiolen® PP-R
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA, NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green

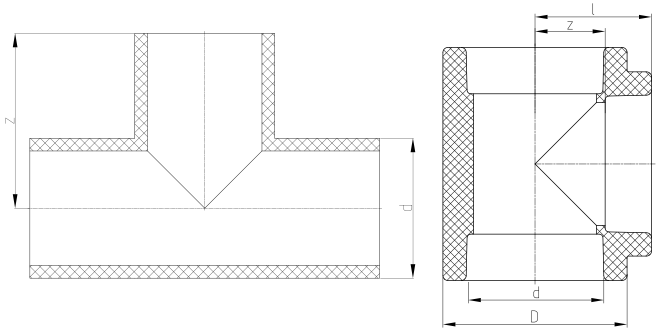


Art.- No.	Dimension	PU	d	z	l	D	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	kg/pc
12506	16	10	16,00	4,50	17,50	24,50	0,009
12508	20	10	20,00	5,00	19,50	29,50	0,015
12510	25	10	25,00	6,00	22,00	34,00	0,019

Art.- No.	Dimension	PU	d	z	l	D	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	kg/pc
12512	32	5	32,00	7,50	25,50	43,00	0,035
12514	40	5	40,00	9,50	30,00	52,00	0,057
12516	50	5	50,00	11,50	35,00	68,00	0,112
12518	63	1	63,00	14,00	41,50	84,00	0,233
12520	75	1	75,00	16,50	46,50	100,00	0,353
12522	90	1	90,00	19,50	52,50	120,00	0,570
12524	110	1	110,00	23,50	60,50	147,00	0,994
12526	125	1	125,00	27,00	67,00	167,00	1,281
12530	SDR 7,4 - 160	1	160,00	95,00			1,898
12531	SDR 11 - 160	1	160,00	95,00			1,376
12534	SDR 7,4 - 200	1	200,00	274,00			8,180
12535	SDR 11 - 200	1	200,00	274,00			5,740
12538	SDR 7,4 - 250	1	250,00	412,00			2,800
12539	SDR 11 - 250	1	250,00	412,00			13,000
12543	315 SDR 11	1	315,00	517,00			27,300
12545	355 SDR 11	1	355,00	520,00			26,650

Fusiotherm® - tee

Material: Fusiolen® PP-R
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA, NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green

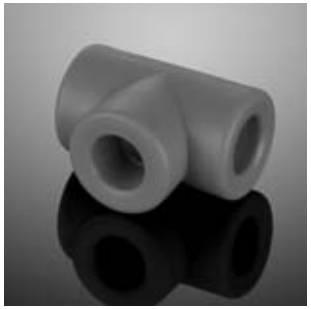


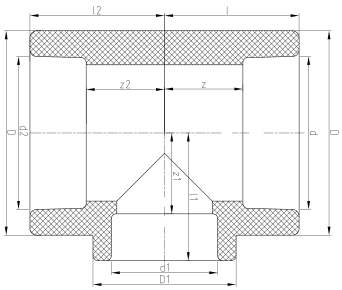
Art.- No.	Dimension	PU	d	l	z	D	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	kg/pc
13106	16	10	16,00	22,00	9,00	24,50	0,015
13108	20	10	20,00	25,50	11,00	29,50	0,022
13110	25	10	25,00	31,00	15,00	34,00	0,033

Art.- No.	Dimension	PU	d	l	z	D	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	kg/pc
13112	32	5	32,00	35,00	17,00	43,00	0,052
13114	40	5	40,00	40,50	20,00	52,00	0,093
13116	50	5	50,00	49,50	26,00	68,00	0,200
13118	63	1	63,00	60,00	32,50	84,00	0,377
13120	75	1	75,00	68,50	38,50	100,00	0,534
13122	90	1	90,00	79,00	46,00	120,00	0,986
13124	110	1	110,00	93,00	56,00	147,00	1,632
13126	125	1	125,00	116,50	76,50	167,00	2,692
13130	160 SDR 7,4	1	160,00	145,00			3,652
13131	160 SDR 11	1	160,00	145,00			2,773
13134	200 SDR 7,4	1	200,00	250,00			9,825
13135	200 SDR 11	1	200,00	250,00			6,865
13138	250 SDR 7,4	1	200,00	375,00			22,000
13139	250 SDR 11	1	200,00	375,00			16,000
13143	315 SDR 11	1	315,00	460,00			20,450
13145	355 SDR 11	1	355,00	480,00			

fusiotherm® - reducing tee

Material: fusiolen® PP-R
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA,
NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green





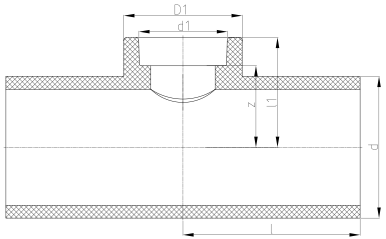
Art.- No.	Dimension	PU	d	l	z	D	d1	l1	z1	D1	d2	l2	z2	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
13506	20/16/16	10	20,00	25,50	11,00	29,50	16,00	25,50	12,00	29,50	16,00	25,50	12,50	0,026
13508	20/16/20	10	20,00	25,50	11,00	29,50	16,00	25,50	12,00	29,50	20,00	25,50	11,00	0,025
13510	20/20/16	10	20,00	25,50	11,00	29,50	20,00	25,50	11,00	29,50	16,00	25,50	12,50	0,025
13511	20/25/20	10	20,00	31,00	16,50	34,00	25,00	30,50	14,50	34,00	20,00	31,00	16,50	0,041
13512	25/16/16	10	25,00	31,00	15,00	34,00	16,00	30,50	17,50	34,00	16,00	31,00	18,00	0,043
13514	25/16/20	10	25,00	31,00	15,00	34,00	16,00	30,50	17,50	34,00	20,00	31,00	16,50	0,041
13516	25/16/25	10	25,00	31,00	15,00	34,00	16,00	30,50	17,50	34,00	25,00	31,00	15,00	0,038
13518	25/20/16	10	25,00	31,00	15,00	34,00	20,00	30,50	16,00	34,00	16,00	31,00	18,00	0,042

Art.- No.	Dimension	PU	d	l	z	D	d1	l1	z1	D1	d2	l2	z2	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
13520	25/20/20	10	25,00	31,00	15,00	34,00	20,00	30,50	16,00	34,00	20,00	31,00	16,50	0,040
13522	25/20/25	10	25,00	31,00	15,00	34,00	20,00	30,50	16,00	34,00	25,00	31,00	15,00	0,036
13528	32/16/32	5	32,00	35,00	17,00	43,00	16,00	31,00	18,00	29,50	32,00	35,00	17,00	0,055
13532	32/20/20	5	32,00	36,50	18,75	43,00	20,00	37,00	22,50	43,00	20,00	36,50	22,25	0,082
13534	32/25/25	5	32,00	35,00	17,00	43,00	20,00	31,00	16,50	29,50	32,00	35,00	17,00	0,055
13538	32/25/25	5	32,00	35,00	17,00	43,00	25,00	34,50	18,50	43,00	25,00	35,00	15,00	0,056
13540	32/25/32	5	32,00	35,00	17,00	43,00	25,00	34,50	18,50	43,00	32,00	35,00	17,00	0,066
13542	40/20/40	5	40,00	41,50	21,00	52,00	20,00	36,00	21,50	34,00	40,00	41,50	21,00	0,093
13544	40/25/40	5	40,00	41,50	21,00	52,00	25,00	36,00	20,00	34,00	40,00	41,50	21,00	0,091
13546	40/32/40	5	40,00	42,00	21,50	52,00	32,00	40,50	22,50	52,00	40,00	42,00	21,50	0,106
13547	50/20/50	5	50,00	49,50	26,00	68,00	20,00	40,50	26,00	29,50	50,00	49,50	26,00	0,184
13548	50/25/50	5	50,00	49,50	26,00	68,00	25,00	44,50	28,50	43,00	50,00	49,50	26,00	0,192
13550	50/32/50	5	50,00	49,50	26,00	68,00	32,00	44,50	26,50	43,00	50,00	49,50	26,00	0,174
13551	50/40/50	5	50,00	49,50	26,00	68,00	40,00	49,50	29,00	68,00	50,00	49,50	26,00	0,221
13552	63/20/63	1	63,00	60,00	32,50	84,00	20,00	48,50	34,00	34,00	63,00	60,00	32,50	0,338
13554	63/25/63	1	63,00	60,00	32,50	84,00	25,00	48,50	32,50	34,00	63,00	60,00	32,50	0,335
13556	63/32/63	1	63,00	60,00	32,50	84,00	32,00	53,50	35,50	52,00	63,00	60,00	32,50	0,355
13558	63/40/63	1	63,00	60,00	32,50	84,00	40,00	53,50	33,00	52,00	63,00	60,00	32,50	0,340
13560	63/50/63	1	63,00	60,00	32,50	84,00	50,00	60,00	36,50	84,00	63,00	60,00	32,50	0,411
13561	75/20/75	1	75,00	68,50	38,50	100,00	20,00	54,50	40,00	34,00	75,00	68,50	38,50	0,504
13562	75/25/75	1	75,00	68,50	38,50	100,00	25,00	54,50	38,50	34,00	75,00	68,50	38,50	0,554

Art.- No.	Dimension	PU	d	l	z	D	d1	l1	z1	D1	d2	l2	z2	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
13564	75/32/75	1	75,00	68,50	38,50	100,00	32,00	59,00	41,00	52,00	75,00	68,50	38,50	0,505
13566	75/40/75	1	75,00	68,50	38,50	100,00	40,00	59,00	38,50	52,00	75,00	68,50	38,50	0,494
13568	75/50/75	1	75,00	68,50	38,50	100,00	50,00	66,00	42,50	84,00	75,00	68,50	38,50	0,540
13570	75/63/75	1	75,00	68,50	38,50	100,00	63,00	66,00	38,50	84,00	75,00	68,50	38,50	0,515
13576	90/32/90	1	90,00	79,00	46,00	120,00	32,00	65,00	47,00	52,00	90,00	79,00	46,00	0,894
13578	90/40/90	1	90,00	79,00	46,00	120,00	40,00	65,00	44,50	52,00	90,00	79,00	46,00	0,986
13580	90/50/90	1	90,00	79,00	46,00	120,00	50,00	75,00	51,50	84,00	90,00	79,00	46,00	0,976
13582	90/63/90	1	90,00	79,00	46,00	120,00	63,00	75,00	47,50	84,00	90,00	79,00	46,00	0,969
13584	90/75/90	1	90,00	79,00	46,00	120,00	75,00	81,00	51,00	120,00	90,00	79,00	46,00	0,997
13586	110/63/110	1	110,00	93,00	56,00	147,00	63,00	87,50	60,00	100,00	110,00	93,00	56,00	1,691
13588	110/75/110	1	110,00	93,00	56,00	147,00	75,00	87,50	57,50	100,00	110,00	93,00	56,00	1,634
13590	110/90/110	1	110,00	93,00	56,00	147,00	90,00	89,00	56,00	120,00	110,00	93,00	56,00	1,569
13592	125/75/125	1	125,00	116,50	76,50	167,00	75,00	106,50	76,50	100,00	125,00	116,50	76,50	2,475
13594	125/90/125	1	125,00	116,50	76,50	167,00	90,00	109,50	76,50	120,00	125,00	116,50	76,50	2,542
13596	125/110/125	1	125,00	116,50	76,50	167,00	110,00	113,50	76,50	147,00	125,00	116,50	76,50	2,628

Fusiotherm® - reducing tee

Material: Fusiolen® PP-R
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA,
NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green

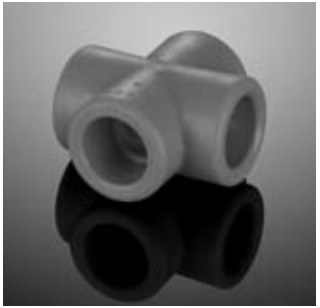


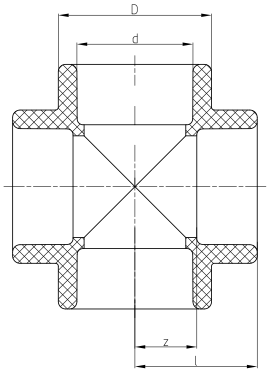
Art.- No.	Dimension	PU	d	l	d1	l1	z	D	Weight
	[mm]		[mm]	[mm]			[mm]	[mm]	kg/pc
13600	160/75/160 SDR 7,4	1	160,00	230,00	75,00	122,00	92,00	100,00	4,414
13601	160/75/160 SDR 11	1	160,00	230,00	75,00	122,00	92,00	100,00	3.,140
13602	160/90/160 SDR 7,4	1	160,00	230,00	90,00	125,00	92,00	120,00	4,515
13603	160/90/160 SDR 11	1	160,00	230,00	90,00	125,00	92,00	120,00	3,176
13608	200/75/200 SDR 7,4	1	200,00	250,00	75,00	142,00	112,00	100,00	7,110
13609	200/75/200 SDR 11	1	200,00	250,00	75,00	142,00	112,00	100,00	5,287
13610	200/90/200 SDR 7,4	1	200,00	250,00	90,00	145,00	112,00	120,00	7,540
13611	200/90/200 SDR 11	1	200,00	250,00	90,00	145,00	112,00	120,00	5,168

Art.- No.	Dimension	PU	d	l	d1	l1	z	D	Weight
	[mm]		[mm]	[mm]			[mm]	[mm]	kg/pc
13612	200/110/200 SDR 7,4	1	200,00	250,00	110,00	149,00	112,00	147,00	7.325
13613	200/110/200 SDR 11	1	200,00	250,00	110,00	149,00	112,00	147,00	5.648
13614	200/125/200 SDR 7,4	1	200,00	250,00	125,00	155,00	115,00	167,00	7.645
13615	200/125/200 SDR 11	1	200,00	250,00	125,00	155,00	115,00	167,00	5.786
13624	250/75/250 SDR 7,4	1	250,00	375,00	75,00	167,00	137,00	100,00	16,600
13625	250/75/250 SDR 11	1	250,00	375,00	75,00	167,00	137,00	100,00	12,000
13626	250/90/250 SDR 7,4	1	250,00	375,00	90,00	170,00	137,00	120,00	16,800
13627	250/90/250 SDR 11	1	250,00	375,00	90,00	170,00	137,00	120,00	12,000
13628	250/110/250 SDR 7,4	1	250,00	375,00	110,00	174,00	137,00	147,00	16,800
13629	250/110/250 SDR 11	1	250,00	375,00	110,00	174,00	137,00	147,00	13,000
13630	250/125/250 SDR 7,4	1	250,00	375,00	125,00	180,00	140,00	167,00	17,000
13631	250/125/250 SDR 11	1	250,00	375,00	125,00	180,00	140,00	167,00	12,000
13634	250/160/250 SDR 7,4	1	250,00	375,00	160,00		682,00		
13635	250/160/250 SDR 11	1	250,00	375,00	160,00		682,00		
13640	250/200/250 SDR 7,4	1	250,00	375,00	200,00		548,00		
13641	250/200/250 SDR 11	1	250,00	375,00	200,00		548,00		
13651	315/125/315 SDR 11	1	315,00	460,00	125,00	213,00	173,00	167,00	25,150
13653	315/160/315 SDR 11	1	315,00	460,00	160,00		238,00		24,850
13657	315/250/315 SDR 11	1	315,00	460,00	250,00		693,00		

Fusiotherm® - cross

Material: Fusiolen® PP-R
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA, NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green

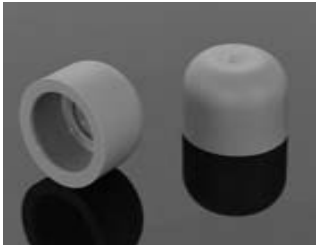


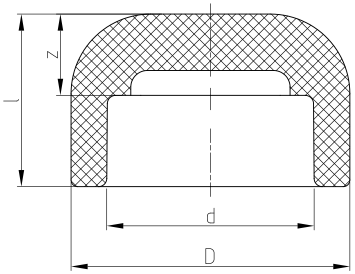


Art.- No.	Dimension	PU	d	z	l	D	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	kg/pc
13708	20	10	20,00	11,50	26,00	29,50	0,027
13710	25	10	25,00	13,50	29,50	34,00	0,036
13712	32	5	32,00	17,00	35,00	43,00	0,064
13714	40	5	40,00	21,00	41,50	52,00	0,101

fusiotherm® - end cap

Material: fusiolen® PP-R
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA, NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green

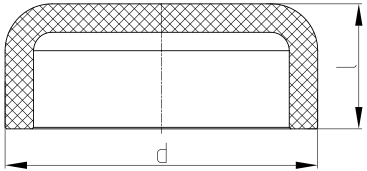




Art.- No.	Dimension	PU	d	l	z	da	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	kg/pc
14106	16	10	16,00	26,50	13,50	26,00	0,008
14108	20	10	20,00	24,00	9,50	29,50	0,009
14110	25	10	25,00	24,00	8,00	34,00	0,011
14112	32	5	32,00	31,50	13,50	43,00	0,023
14114	40	5	40,00	38,00	17,50	52,00	0,042
14116	50	5	50,00	44,50	21,00	68,00	0,082
14118	63	1	63,00	52,00	24,50	84,00	0,153
14120	75	1	75,00	58,50	28,50	100,00	0,245
14122	90	1	90,00	57,50	34,50	120,00	0,377
14124	110	1	110,00	65,00	28,00	147,00	0,648
14126	125	1	125,00	70,00	30,00	167,00	0,872

Fusiotherm® - end cap for butt welding

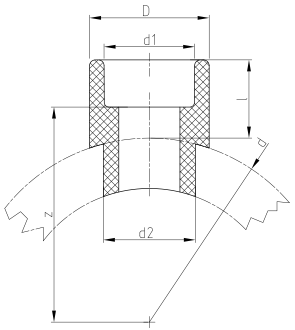
Material: Fusiolen® PP-R
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA,
NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green



Art.- No.	Dimension	PU	d	l	Weight
	[mm]	pc	[mm]	[mm]	kg/pc
14130	160 SDR 7,4	1	160,00	70,00	0,857
14131	160 SDR 11	1	160,00	70,00	0,752
14134	200 SDR 7,4	1	200,00	80,00	1,390
14135	200 SDR 11	1	200,00	80,00	1,000
14138	250 SDR 7,4	1	250,00	90,00	2,550
14139	250 SDR 11	1	250,00	90,00	2,010
14143	315 SDR 11	1	315,00	270,00	6,200

fusiotherm® - weld-in saddle

Material: fusiolen® PP-R
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA, NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green



Art.- No.	Dimension	PU	d	d1	d2	l	z	D	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
15156	40/20	5	40,00	20,00	25,00	27,00	32,50	29,50	0,015
15158	40/25	5	40,00	25,00	25,00	28,50	32,50	34,00	0,017
15160	50/20	5	50,00	20,00	25,00	27,50	38,00	29,50	0,018

Art.- No.	Dimension	PU	d	d1	d2	l	z	D	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
15162	50/25	5	50,00	25,00	25,00	28,50	37,50	34,00	0,019
15164	63/20	5	63,00	20,00	25,00	27,50	44,50	29,50	0,018
15166	63/25	5	63,00	25,00	25,00	28,50	44,00	34,00	0,019
15168	63/32	5	63,00	32,00	32,00	30,00	43,50	43,00	0,028
15170	75/20	5	75,00	20,00	25,00	27,50	50,50	29,50	0,018
15172	75/25	5	75,00	25,00	25,00	28,50	50,00	34,00	0,019
15174	75/32	5	75,00	32,00	32,00	30,00	49,50	43,00	0,028
15175	75/40	5	75,00	40,00	40,00	34,00	51,00	52,00	0,049
15176	90/20	5	90,00	20,00	25,00	27,50	58,00	29,50	0,018
15178	90/25	5	90,00	25,00	25,00	28,50	57,50	34,00	0,019
15180	90/32	5	90,00	32,00	32,00	30,00	57,00	43,00	0,029
15181	90/40	5	90,00	40,00	40,00	34,00	58,50	52,00	0,048
15182	110/20	5	110,00	20,00	25,00	27,50	68,00	29,50	0,019
15184	110/25	5	110,00	25,00	25,00	28,50	68,50	34,00	0,020
15186	110/32	5	110,00	32,00	32,00	30,00	67,00	43,00	0,030
15188	110/40	5	110,00	40,00	40,00	34,00	68,50	52,00	0,050
15189	110/50	5	110,00	50,00	50,00	34,00	65,50	68,00	0,090
15190	125/20	5	125,00	20,00	25,00	27,50	75,50	67,00	0,019
15192	125/25	5	125,00	25,00	25,00	28,50	75,00	34,00	0,020
15194	125/32	5	125,00	32,00	32,00	30,00	74,50	43,00	0,029

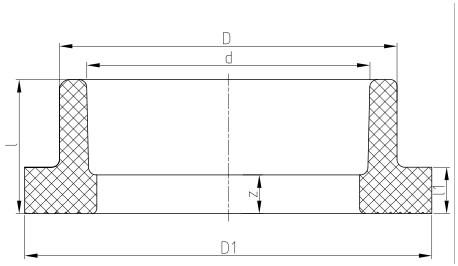
Art.- No.	Dimension	PU	d	d1	d2	l	z	D	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
15196	125/40	5	125,00	40,00	40,00	34,00	76,00	52,00	0,051
15197	125/50	5	125,00	50,00	50,00	34,00	73,00	68,00	0,091
15198	125/63	5	125,00	63,00	63,00	38,00	73,00	84,00	0,150
15206	160/20	5	160,00	20,00	25,00	27,50	93,00	29,50	0,022
15208	160/25	5	160,00	25,00	25,00	28,50	92,50	34,00	0,023
15210	160/32	5	160,00	32,00	32,00	30,00	92,00	43,00	0,034
15212	160/40	5	160,00	40,00	40,00	34,00	93,50	52,00	0,054
15214	160/50	5	160,00	50,00	50,00	34,00	90,50	84,00	0,092
15216	160/63	5	160,00	63,00	63,00	38,00	90,50	84,00	0,156
15218	160/75	5	160,00	75,00	75,00	42,00	92,00	100,00	0,229
15220	160/90	5	160,00	90,00	90,00	45,00	92,00	120,00	0,360
15228	200-250/20	5	200-250	20,00	25,00	27,50	113,00	29,50	0,019
15229	200-250/25	5	200-250	25,00	25,00	28,50	112,50	34,00	0,021
15230	200-250/32	5	200-250	32,00	32,00	30,00	112,00	43,00	0,031
15231	200/40	5	200,00	40,00	40,00	34,00	113,50	52,00	0,048
15232	200/50	5	200,00	50,00	50,00	34,00	110,50	68,00	0,086
15233	200/63	5	200,00	63,00	63,00	37,50	110,00	84,00	0,146
15234	200/75	5	200,00	75,00	75,00	42,00	112,00	100,00	0,220
15235	200/90	5	200,00	90,00	90,00	45,00	112,00	120,00	0,054
15236	200/110	5	200,00	110,00	110,00	49,00	112,00	147,00	0,054

Art.- No.	Dimension	PU	d	d1	d2	l	z	D	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
15237	200/125	5	200,00	125,00	125,00	55,00	115,00	167,00	0,862
15251	250/40	5	250,00	40,00	40,00	34,00	138,50	52,00	0,052
15252	250/50	5	250,00	50,00	50,00	34,00	135,50	68,00	0,089
15253	250/63	5	250,00	63,00	63,00	37,50	135,00	84,00	0,149
15254	250/75	5	250,00	75,00	75,00	42,00	137,00	100,00	0,054
15255	250/90	5	250,00	90,00	90,00	45,00	137,00	120,00	0,054
15256	250/110	5	250,00	110,00	110,00	49,00	137,00	147,00	0,054
15257	250/125	5	250,00	125,00	125,00	55,00	140,00	167,00	0,829
15260	315/63	1	315,00	63,00	63,00	37,50	167,50	84,00	0,153
15261	315/75	1	315,00	75,00	75,00	42,00	169,50	100,00	0,231
15262	315/90	1	315,00	90,00	90,00	45,00	169,50	120,00	0,350
15263	315/110	1	315,00	110,00	110,00	49,00	169,50	147,00	0,568
15264	315/125	1	315,00	125,00	125,00	55,00	172,50	167,00	0,834
15265	315/160	1	315,00	160,00	160,00	80,00	237,50		0,808
15268	355/90	1	355,00	90,00	90,00	45,00	189,50	120,00	0,344
15269	355/110	1	355,00	110,00	110,00	49,00	189,50	147,00	0,547
15270	355/125	1	355,00	125,00	125,00	55,00	192,50	167,00	0,803
15271	355/160	1	355,00	160,00	160,00	80,00	257,50		0,845
15272	355/200	1	355,00	200,00	200,00	90,00	267,50		1,602

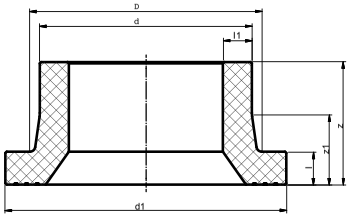
Fusiotherm® - flange adapter

with gasket

Material: Fusiolen® PP-R
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA, NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green



Art.- No.	Dimension	PU	d	l	z	D	D1	l1	z1	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]		kg/pc
15512	32	1	32,00	35,00	17,00	41,00	68,00	11,00	3,00	0,053
15514	40	1	40,00	36,50	16,50	50,00	78,00	12,50	3,00	0,071
15516	50	1	50,00	39,50	16,00	61,00	88,00	12,00	3,00	0,095
15518	63	1	63,00	43,50	16,00	76,00	102,00	15,50	3,00	0,130
15520	75	1	75,00	46,00	16,00	90,00	122,00	16,00	3,00	0,191
15522	90	1	90,00	50,00	17,00	108,00	138,00	17,00	3,00	0,257
15524	110	1	110,00	55,50	18,50	131,00	158,00	18,50	3,00	0,329
15526	125	1	125,00	202,00	202,00	125,00	158,00	13,50	3,00	1,329
15527	125	1	125,00	63,00	23,00	165,00	188,00	20,00	3,00	0,724

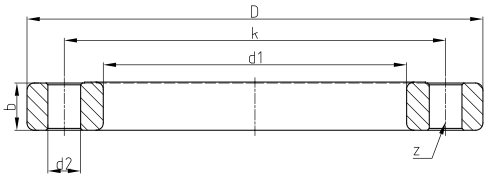


Art.- No.	Dimension	PU	d	z	d1	D	l	l1	z1	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
15530	160 SDR 7,4	1	160,00	93,00	212,00	175,00	25,00	21,90	53,00	1,163
15531	160 SDR 11	1	160,00	93,00	212,00	175,00	25,00	14,60	53,00	0,955
15534	200 SDR 7,4	1	200,00	130,00	268,00	232,00	32,00	27,40	72,00	2,292
15535	200 SDR 11	1	200,00	130,00	268,00	232,00	32,00	18,20	72,00	1,957
15538	250 SDR 7,4	1	250,00	130,00	320,00	285,00	35,00	34,20	75,00	3,298
15539	250 SDR 11	1	250,00	130,00	320,00	285,00	35,00	22,70	75,00	2,717
15543	315 SDR 11	1	315,00	170,00	370,00	333,00	35,00	6,00	90,00	5,650
15545	355 SDR 11	1	355,00	185,00	432,00	370,00	42,00	6,00	90,00	

fusiotherm®

- plastic coated steel flange

Material: PP/Steel
Colour: grey

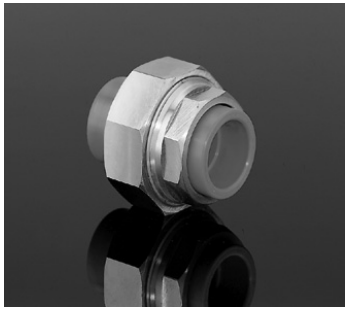


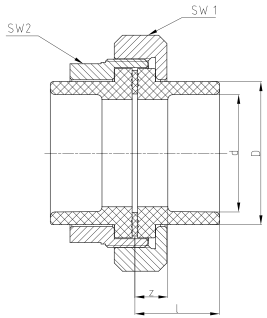
Art.- No.	Dimension	PU	fits to	d1	D	K	d2	b	z	Weight
	[mm]	pc	Art.- No.	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
15712	32	1	15512	42,00	116,00	85,00	14,00	15,50	4,00	0,466
15714	40	1	15514	51,00	141,00	100,00	18,00	17,50	4,00	0,681
15716	50	1	15516	62,00	151,00	110,00	18,00	17,50	4,00	0,766

Art.- No.	Dimension	PU	fits to	d1	D	K	d2	b	z	Weight
	[mm]	pc	Art.- No.	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
15718	63	1	15518	78,00	166,00	125,00	18,00	19,00	4,00	0,885
15720	75	1	15520	92,00	186,00	145,00	18,00	19,00	4,00	1,154
15722	90	1	15522	110,00	201,00	160,00	18,00	21,00	8,00	1,404
15724	110	1	15524/26	133,00	221,00	180,00	18,00	22,00	8,00	1,461
15726	125	1	15527	167,00	251,00	210,00	18,00	26,00	8,00	2,096
15730	160	1	15530/31	178,00	286,00	240,00	22,00	27,00	8,00	3,628
15734	200	1	15534/35	235,00	341,00	295,00	22,00	28,00	8,00	4,643
15738	250	1	15538/39	288,00	406,00	350,00	22,00	31,00	12,00	7,216
15742	315	1	15543	340,00	460,00	400,00	22,00	34,50	12,00	9,500
15744	355	1	15545	380,00	520,00	460,00	22,00	39,00	16,00	15,300

fusiotherm® - coupling screw joint

Material: fusiolen® PP-R, brass
Pipe series: SDR 6
Standard: DIN 16962
DIN EN
ISO 15874
Registrations: DVGW, ÖVGW, KIWA,
NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green



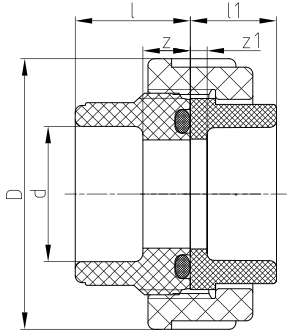


with 2 flange adapters including gasket

Art.- No.	Dimension	PU	d	l	z	D	SW1	SW2	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
15812	32	1	32,00	36,50	18,50	41,00	65,00	50,00	0,479
15814	40	1	40,00	38,00	17,50	50,00	80,00	60,00	0,841
15816	50	1	50,00	41,00	17,50	61,00	86,00	70,00	0,820
15818	63	1	63,00	45,00	17,50	76,00	108,00	95,00	1,498
15820	75	1	75,00	47,50	17,50	90,00	130,00	105,00	1,998

Fusiotherm® -
PP-plastic screw joint

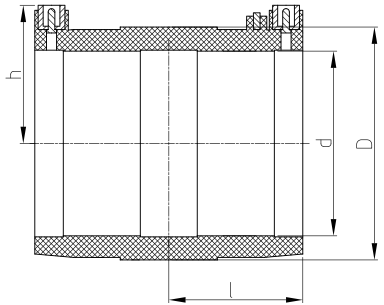
Material: Fusiolen® PP-R
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA, NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green



Art.- No.	Dimension	PU	d	l	z	l1	z1	D	Weight
	[mm]	pc	[mm]	[mm]		[mm]	[mm]	[mm]	kg/pc
15838	20	10	20	26,00	12,00	20,00	5,50	46,00	0,036
15840	25	10	25	28,00	12,00	21,00	5,00	56,00	0,058
15842	32	5	32	32,00	12,00	23,00	5,00	66,00	0,088
15844	40	5	40	38,00	14,00	25,50	5,00	79,00	0,136
15846	50	5	50	45,00	16,00	28,50	5,00	87,00	0,170
15848	63	1	63	55,50	20,00	32,50	5,00	107,00	0,240

Fusiotherm® - electrofusion socket

Material: Fusiolen® PP-R
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA, NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green



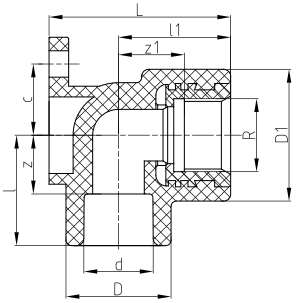
Art.- No.	Dimension	PU	d	l	h	D	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	kg/pc
17208	20	1	20,00	35,00	36,00	31,50	0,049
17210	25	1	25,00	39,00	38,50	36,50	0,057
17212	32	1	32,00	40,00	42,50	45,00	0,077

Art.- No.	Dimension	PU	d	l	h	D	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	kg/pc
17214	40	1	40,00	46,00	47,00	54,00	0,103
17216	50	1	50,00	51,50	52,00	65,00	0,142
17218	63	1	63,00	59,00	58,00	81,50	0,239
17220	75	1	75,00	65,00	64,50	96,00	0,347
17222	90	1	90,00	72,50	72,00	113,50	0,501
17224	110	1	110,00	80,00	82,50	139,00	0,821
17226	125	1	125,00	86,00	90,00	156,00	1,097
17230	160	1	160,00	93,00	109,50	197,00	1,754
17234*	200	1	200,00	105,00	134,00	243,00	3,625
17238*	250	1	250,00	125,00	170,00	315,00	7,142

* calibration-tool necessary for processing on request

Fusiotherm® - back plate elbow

Material: Fusiolen® PP-R, MS
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA, NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green

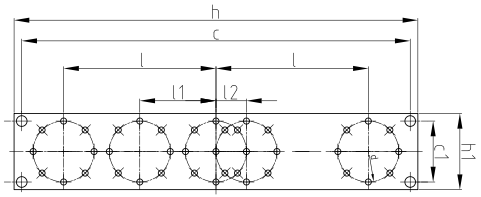


Art.- No.	Dimension	PU	d	l	z	D	l1	z1	D1	L	c	R	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	Zoll	kg/pc
20106	16 x 1/2"	10	16,00	31,00	18,00	29,50	31,50	18,50	37,00	51,00	20,00	1/2"	0,078
20108	20 x 1/2"	10	20,00	31,00	16,50	29,50	31,50	18,50	37,00	51,00	20,00	1/2"	0,077
20110	20 x 3/4"	10	20,00	37,00	22,50	34,00	37,00	24,00	44,00	54,00	25,00	3/4"	0,113
20112	25 x 3/4"	10	25,00	37,00	21,00	34,00	37,00	24,00	44,00	54,00	25,00	3/4"	0,111
20113	25 x 1/2"	10	25,00	33,50	17,50	34,00	31,00	18,50	37,00	53,00	20,00	1/2"	0,078

Mounting plate

galvanized; to fix back plate
elbows as double connection

Material : iron, galvanized
Colour : zinc



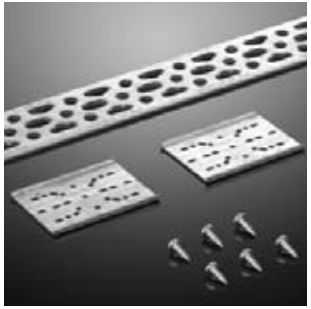
Art.- No.	Dimension	PU	d	l	l1	l2	c	c1	h	h1	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
60010	220 mm 150 mm 80 mm	1	40,00	100,00	50,00	20,00	255,00	40,00	265,00	50,00	0,221

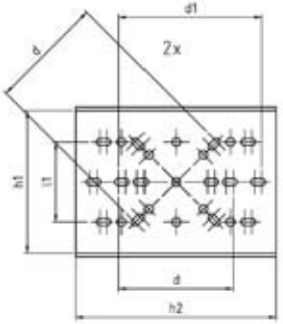
not suitable for connection with sound insulation plate (Art.-No. 79080).
We recommend mounting rail Art.-No. 79090.

Mounting rail

galvanized; to fix back plate elbows including 2 fixing plates and 4 screws

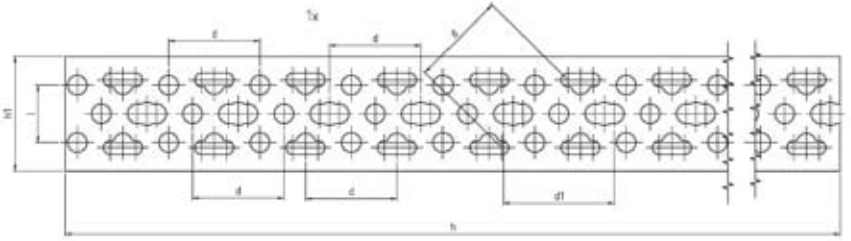
Material : iron, galvanized
Colour : zinc





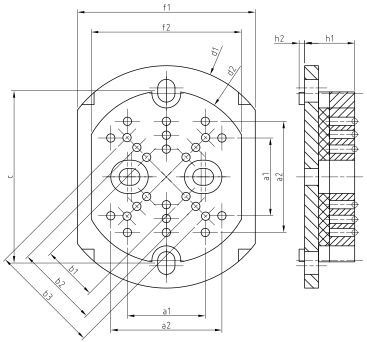
Art.- No.	Dimen-sion	PU	d	d1	l	l1
	[mm]	pc	[mm]	[mm]	[mm]	[mm]
79090		1	40,00	50,00	25,00	28,00

h	h1	h2	Weight
[mm]	[mm]	[mm]	kg/pc
560,00	50,00	70,00	0,546



aquatherm® SHT -
sound isolation plate
for **fusiotherm®**-and **aquatherm® SHT**-
back plate elbow

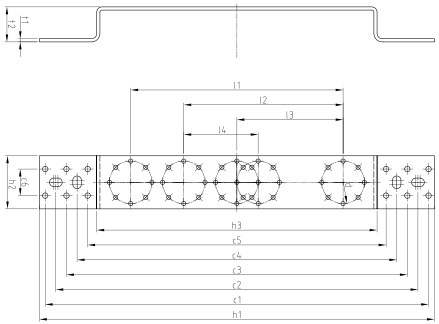
Material : PP
Colour : white



Art.- No.	Dimension	PU	a1	a2	b1	b2	b3	c	d1	d2	f1	f2	h1	h2	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
79080		2	28,00	40,00	20,00	30,00	40,00	62,00	80,00	62,00	64,00	54,00	18,00	2,00	0,058

Mounting rail (double and single)

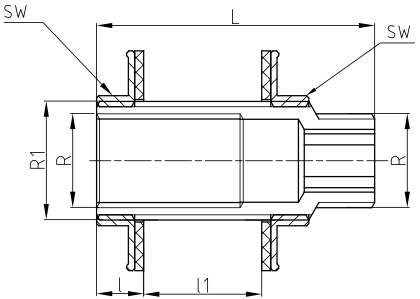
Material : iron, galvanized
Colour : zinc



Art.- No.	Dimension	PU	d	l1	l2	l3	l4	c1	c2	c3	c4	c5	c6	h1	h2	h3	t1	t2	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
79095		2	40,00	200,00	150,00	100,00	70,00	361,00	341,00	321,00	301,00	281,00	25,00	372,00	50,00	264,00	3,00	33,00	0,412

Fusiotherm® -
dry construction wall fitting

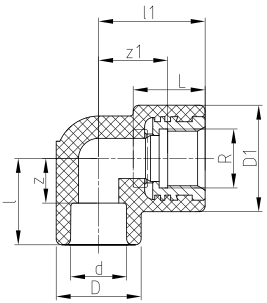
Material : brass
Druckstufe : PN 20
Anforderung : DIN 16962
DVGW-Nr. : DW-8501AS2120



Art.- No.	Dimension	PU	R	R1	l	l1	L	SW	Weight
	[mm]	pc	Zoll	Zoll	[mm]	[mm]	[mm]	[mm]	kg/pc
20114	1/2"	10	1/2"	3/4"	10,50	26,00	62,00	30,00	0,213

Fusiotherm® - back plate elbow for dry construction

Material: Fusiolen® PP-R, brass
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA, NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green



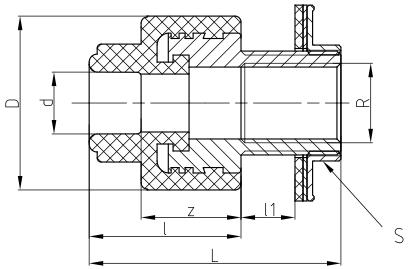
Art.- No.	Dimension	PU	d	l	z	D	l1	z1	L	D1	R	c	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	Zoll	[mm]	kg/pc
20156	16 x 1/2"	10	16,00	30,00	17,00	29,50	37,00	24,00	25,00	37,00	1/2"	59,00	0,079
20158	20 x 1/2"	10	20,00	30,00	15,50	29,50	37,00	24,00	25,00	37,00	1/2"	59,00	0,081

Fusiotherm® - transition piece

with counternut, gasket and tension washer

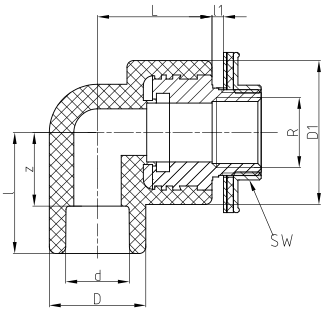
Material: Fusiolen® PP-R, brass
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA, NSF, SAI,
TIN, TSE, SITAC, Shipbuilding
Colour: green

e. g. for connection of a cistern or application with mounting plate (Art.-No. 60110-60115)



Art.- No.	Dimension	PU	d	l	z	D	l1	L	R	SW	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	Zoll	[mm]	kg/pc
20204	20x1/2"fx3/4"m	10	20,00	40,00	25,50	43,50	13,50	65,00	1/2"	29,00	0,204

Fusiotherm® - transition elbow



Material: Fusiolen® PP-R, brass
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA,
NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green

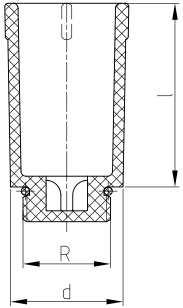
e. g. for connection of a cistern or application with mounting plate (Art.-No. 60110-60115)

Art.- No.	Dimension	PU	d	l	z	D	L	l1	D1	R	SW	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	Zoll	[mm]	kg/pc
20206	16x1/2"fx3/4"m	10	16,00	37,00	24,00	29,50	35,00	3,50	44,00	1/2"	29,00	0,201
20208	20x1/2"fx3/4"m	10	20,00	37,00	22,50	29,50	35,00	3,50	44,00	1/2"	29,00	0,154
20209	25x1/2"fx3/4"m	10	25,00	37,00	21,00	34,00	37,00	3,50	44,00	1/2"	29,00	0,206

Fusiotherm® - plug for pressure tests

with gasket

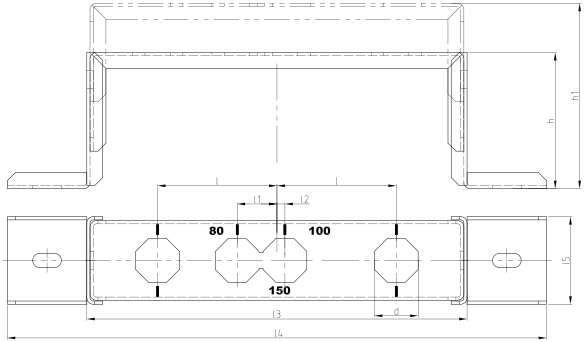
Material: Fusiolen® PP-R
Colour: green



Art.- No.	Dimension	PU	d	l	Weight
	[mm]	pc	[mm]	[mm]	kg/pc
50708	1/2"	10	28,00	55,50	0,022
50710	3/4"	10	34,00	55,50	0,027

Fusiotherm® - mounting unit

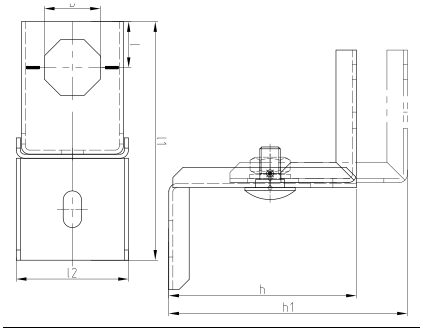
double



Art.- No.	Dimension	PU	b	l	l1	l2	h	h1	b	l3	l4	l5	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
60110	80, 100, 150	1	27,50	75,00	25,00	5,00	92,50	122,50	27,50	239,00	339,00	55,00	0,630

Fusiotherm® - mounting unit

single

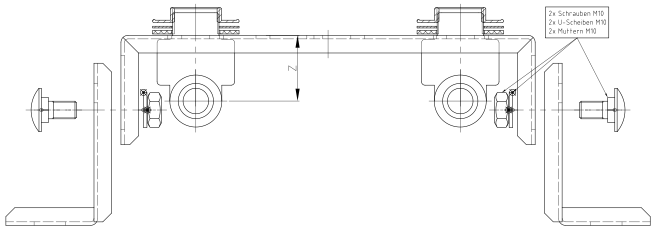


Art.- No.	Dimension	PU	b	l	l	l2	h	h1	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
60115		1	27,50	22,50	118,00	55,00	92,50	122,50	0,278

fusiotherm® - mounting unit

with two fusiotherm®-transition elbows (Art.-No. 20208)

with counternut, gasket and tension washer

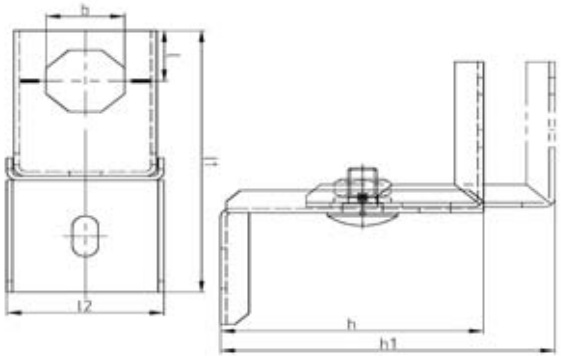


Art.-No.	Dimension	PU	b	l	l1	l2	h	h1	b	l3	l4	l5	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
60150	80, 100, 150	1	27,50	75,00	25,00	5,00	92,50	122,50	27,50	239,00	339,00	55,00	**0,942**

Fusiotherm® - mounting unit

single

with one Fusiotherm®-
transition elbow (Art.-No. 20208)

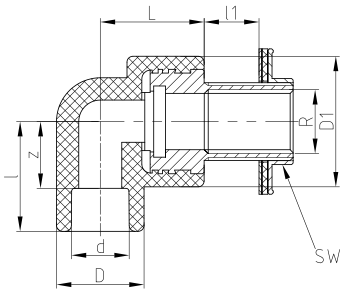


Art.- No.	Dimension	PU	b	l	l	l2	h	h1	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
60155		1	27,50	22,50	118,00	55,00	92,50	122,50	0,434

Fusiotherm® - transition elbow

for dry construction

Material: Fusiolen® PP-R, brass
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA,
NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green



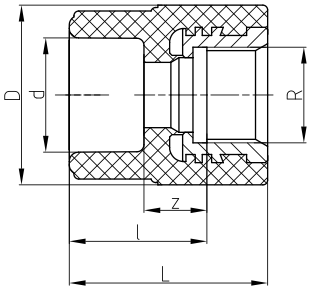
with 30 mm thread, counternut,
gasket and tension washer

Art.-No.	Dimension	PU	d	l	z	D	L	l1	D1	R	SW	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	Zoll	[mm]	kg/pc
20210	20x1/2"fx3/4"m	10	20,00	37,00	22,50	29,50	35,00	18,50	44,00	1/2"	29,00	0,221

Fusiotherm® - transition piece with female thread

round

Material: Fusiolen® PP-R, brass
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW,
KIWA, NSF, SAI, TIN, TSE, SITAC,
Shipbuilding
Colour: green

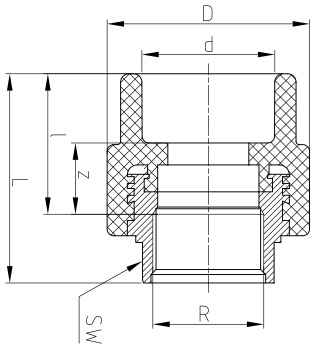


Art.- No.	Dimension	PU	d	l	z	D	L	R	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
21006	16x1/2"f	10	16,00	28,00	15,00	29,50	41,00	1/2"	0,071
21008	20x1/2"f	10	20,00	28,00	13,50	29,50	41,00	1/2"	0,070
21010	20x3/4"f	10	20,00	27,50	13,00	34,00	40,50	3/4"	0,090
21011	25x1/2"f	10	25,00	29,50	13,50	34,00	42,50	1/2"	0,071
21012	25x3/4"f	10	25,00	27,50	11,50	34,00	40,50	3/4"	0,086
21013	32x3/4"f	5	32,00	30,50	12,50	43,00	43,50	3/4"	0,093

Fusiotherm® - transition piece with female thread

hex shaped threaded transition

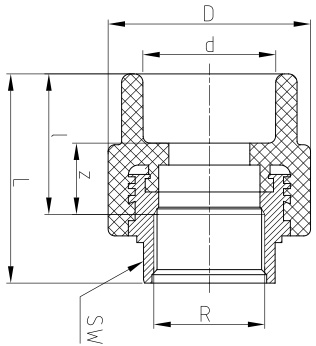
Material: Fusiolen® PP-R, brass
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA,
NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green



Art.- No.	Dimension	PU	d	l	z	D	L	R	SW	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
21106	16x1/2"f	10	16,00	32,50	19,50	38,50	50,50	1/2"	24,00	0,089
21108	20x1/2"f	10	20,00	32,50	18,00	38,50	50,50	1/2"	24,00	0,088
21110	20x3/4"f	10	20,00	27,00	12,50	43,50	50,00	3/4"	31,00	0,113
21111	25x1/2"f	10	25,00	34,00	18,00	38,50	52,00	1/2"	24,00	0,089
21112	25x3/4"f	10	25,00	27,00	11,00	43,50	50,00	3/4"	31,00	0,109
21113	32x3/4"f	5	32,00	30,00	12,00	43,50	53,00	3/4"	31,00	0,114
21114	32x1"f	5	32,00	37,50	19,50	60,00	59,50	1"	39,00	0,239

Fusiotherm® - transition piece with female thread

hex shaped threaded transition

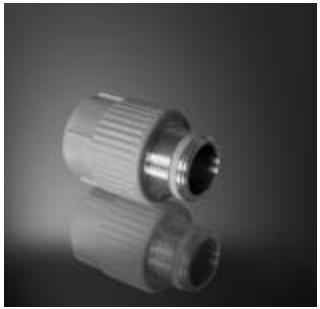


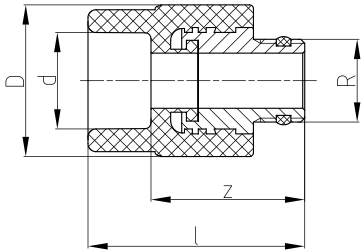
Art.- No.	Dimension	PU	d	l	z	D	L	R	SW	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
21115	40x1"f	5	40,00	40,00	19,50	60,00	62,00	1"	39,00	0,245
21116	40x1 1/4"f	5	40,00	42,00	21,50	74,00	65,00	1 1/4"	50,00	0,385
21117	50x1 1/4"f	5	50,00	45,00	21,50	74,00	68,00	1 1/4"	50,00	0,404
21118	50x1 1/2"f	5	50,00	45,00	21,50	85,50	67,00	1 1/2"	55,00	0,445
21119	63x1 1/2"f	1	63,00	51,50	24,00	84,00	73,50	1 1/2"	55,00	0,479
21120	63x2"f	1	63,00	50,00	22,50	101,00	76,00	2"	67,00	0,662
21122	75x2"f	1	75,00	51,00	21,00	100,00	77,00	2"	67,00	0,671

Fusiotherm® - transition piece with male thread

round, self sealing

Material: Fusiolen® PP-R, brass
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA, NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green



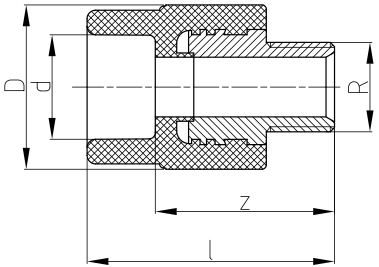


Art.-No.	Dimension	PU	d	l	z	D	R	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
21258	20x1/2"m	10	20,00	52,50	38,00	38,50	1/2"	0,090
21261	25x1/2"m	10	25,00	54,00	38,00	38,50	1/2"	0,091
21262	25x3/4"m	10	25,00	53,50	37,50	38,50	3/4"	0,099

Fusiotherm® - transition piece

round

Material: Fusiolen® PP-R, brass
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA,
NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green

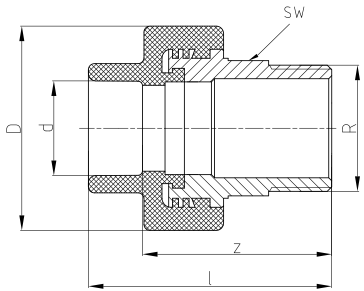


Art.-No.	Dimension	PU	d	l	z	D	R	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
21206	16x1/2"m	10	16,00	56,50	43,50	38,50	1/2"	0,098
21208	20x1/2"m	10	20,00	56,50	42,00	38,50	1/2"	0,097
21210	20x3/4"m	10	20,00	57,50	43,00	38,50	3/4"	0,108
21211	25x1/2"m	10	25,00	58,00	42,00	38,50	1/2"	0,098
21212	25x3/4"m	10	25,00	57,50	41,50	38,50	3/4"	0,108
21213	32x3/4"m	5	32,00	59,50	41,50	43,00	3/4"	0,115

Fusiotherm® - transition piece with male thread

with hex shaped threaded transition

Material: Fusiolen® PP-R, brass
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA,
NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green

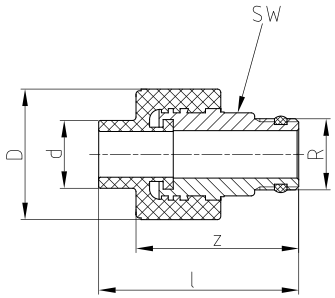


Art.- No.	Dimension	PU	d	l	z	D	R	SW	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
21306	16x1/2"m	10	16,00	66,50	53,50	38,50	1/2"	22,00	0,118
21308	20x1/2"m	10	20,00	66,50	52,00	38,50	1/2"	22,00	0,104
21310	20x3/4"m	10	20,00	67,50	53,00	38,50	3/4"	24,00	0,129
21312	25x3/4"m	10	25,00	67,50	51,50	38,50	3/4"	24,00	0,103
21314	32x1"m	5	32,00	78,50	60,50	53,00	1"	32,00	0,216

Art.-No.	Dimension	PU	d	l	z	D	R	SW	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
21316	32x1 1/4"m	5	32,00	81,00	63,00	68,00	1 1/4"	41,00	0,360
21317	40x1"m	5	40,00	81,00	60,50	52,00	1"	32,00	0,251
21318	40x1 1/4"m	5	40,00	84,50	64,00	68,00	1 1/4"	41,00	0,361
21319	50x1 1/4"m	5	50,00	85,50	62,00	68,00	1 1/4"	41,00	0,389
21320	50x1 1/2"m	5	50,00	88,50	65,00	74,00	1 1/2"	46,00	0,480
21321	63x1 1/2"m	1	63,00	99,00	71,50	72,50	1 1/2"	46,00	0,523
21322	63x2"m	1	63,00	102,50	75,00	84,00	2"	50,00	0,708
21323	75x2"m	1	75,00	104,00	74,00	84,00	2"	50,00	0,753
21324	75x2 1/2"m	1	75,00	105,00	75,00	100,00	2 1/2"	65,00	1,024
21325	90x3"m	1	90,00	126,00	93,00	120,00	3"	85,00	1,488
21327	110x4"m	1	110,00	148,00	111,00	147,00	4"	105,00	2,816

Fusiotherm® - transition piece with male thread

self-sealing, with hex shaped threaded transition male/male



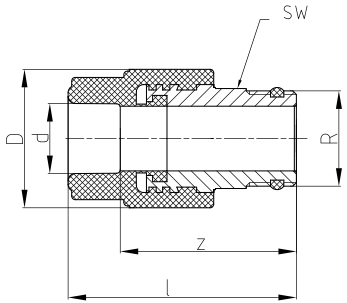
Material:	Fusiolen® PP-R, brass
Pipe series:	SDR 6
Standard:	DIN 16962
	DIN EN ISO 15874
Registrations:	DVGW, ÖVGW, KIWA,
	NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour:	green

Art.-No.	Dimension	PU	d	l	z	D	R	SW	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
21355	20 mm x 1/2"m	10	20,00	59,00	48,00	38,50	1/2"	22,00	0,107

Fusiotherm® - transition piece with male thread

self-sealing, with hex shaped threaded transition

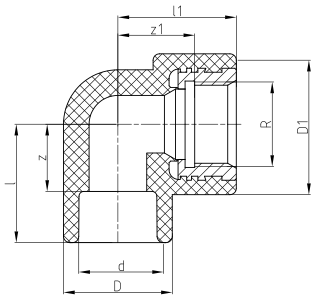
Material:	Fusiolen® PP-R, brass
Pipe series:	SDR 6
Standard:	DIN 16962
	DIN EN ISO 15874
Registrations:	DVGW, ÖVGW,
	KIWA, NSF, SAI, TIN,
	TSE, SITAC, Shipbuilding
Colour:	green



Art.- No.	Dimension	PU	d	l	z	D	R	SW	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
21356	16x1/2"m	10	16,00	63,50	50,50	38,50	1/2"	22,00	0,112
21358	20x1/2"m	10	20,00	63,50	49,00	38,50	1/2"	22,00	0,111

fusiotherm® - transition elbow with female thread

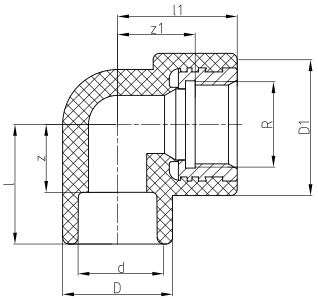
Material: fusiolen® PP-R, brass
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA,
NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green



Art.- No.	Dimension	PU	d	l	z	D	l1	z1	D1	R	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
23006	16x1/2"f	10	16,00	31,50	18,50	29,50	37,00	24,00	50,00	1/2"	0,077
23008	20x3/4"f	10	20,00	37,00	22,50	34,00	37,00	24,00	59,00	3/4"	0,097
23010	20x1/2"f	10	20,00	31,50	17,00	29,50	37,00	24,00	50,00	1/2"	0,076
23012	25x3/4"f	10	25,00	37,00	21,00	34,00	37,00	24,00	59,00	3/4"	0,106
23014	25x1/2"f	10	25,00	34,00	18,00	34,00	37,00	24,00	52,50	1/2"	0,078
23016	32x3/4"f	5	32,00	27,50	9,50	43,00	51,00	38,00	49,50	3/4"	0,112
23018	32x1"f	5	32,00	34,00	16,00	43,00	66,50	44,00	60,50	1"	0,260

Fusiotherm® - transition elbow with female thread

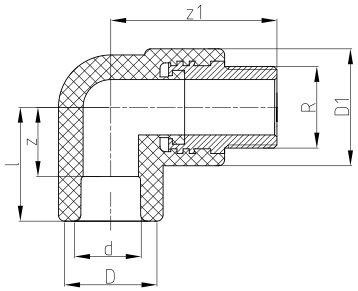
Material: Fusiolen® PP-R, brass
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA,
NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green



Art.- No.	Dimension	PU	d	l	z	D	l1	z1	D1	R	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
23208	20ax1/2"f	10	20,00	33,50	18,50	29,50	37,00	24,00	37,00	1/2"	0,073

fusiotherm® - transition elbow with male thread

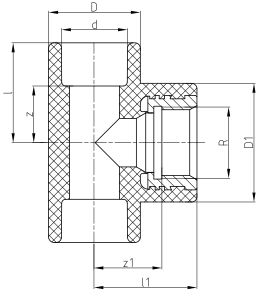
Material: fusiolen® PP-R, brass
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA,
NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green



Art.- No.	Dimension	PU	d	l	z	D	z1	D1	R	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
23504	16x1/2"m	10	16,00	31,50	18,50	29,50	53,00	37,00	1/2"	0,109
23506	20x1/2"m	10	20,00	31,50	17,00	29,50	53,00	37,00	1/2"	0,108
23508	20x3/4"m	10	20,00	37,00	22,50	34,00	54,00	38,00	3/4"	0,128
23510	25x3/4"m	10	25,00	37,00	21,00	34,00	54,00	38,00	3/4"	0,126
23512	32x3/4"m	5	32,00	27,50	9,50	43,00	68,00	38,00	3/4"	0,134
23514	32x1"m	5	32,00	31,00	13,00	43,00	85,50	52,00	1"	0,262

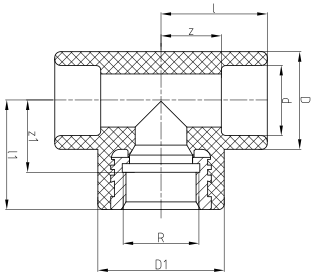
Fusiotherm® - threaded branch tee with female thread

Material: Fusiolen® PP-R, brass
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA,
NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green



Art.- No.	Dimension	PU	d	l	z	D	l1	z1	D1	R	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
25004	16x1/2" f x 16	10	16,00	31,50	18,50	29,50	37,00	24,00	37,00	1/2"	0,086
25006	20x1/2" f x 20	10	20,00	31,50	17,00	29,50	37,00	24,00	37,00	1/2"	0,083
25008	20x3/4" f x 20	10	20,00	37,00	22,50	34,00	38,00	25,00	44,00	3/4"	0,121
25010	25x1/2" f x 25	10	25,00	34,00	18,00	34,00	38,00	25,00	37,00	1/2"	0,088
25012	25x3/4" f x 25	10	25,00	37,00	21,00	34,00	38,00	25,00	44,00	3/4"	0,115
25014	32x3/4" f x 32	5	32,00	27,50	9,50	43,00	51,00	38,00	44,00	3/4"	0,118
25016	32x1" f x 32	5	32,00	31,00	13,50	43,00	67,00	49,00	60,00	1"	0,274
25022	50x1" f x 50	5	50,00	49,50	26,00	68,00	63,50	43,50	68,00	1"	0,433

fusiotherm® - threaded branch tee with male thread



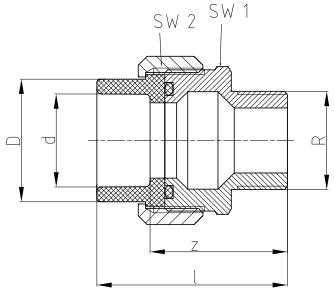
Material: fusiolen® PP-R, brass
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW,
KIWA, NSF, SAI, TIN,
TSE, SITAC, Shipbuilding
Colour: green

Art.- No.	Dimension	PU	d	l	z	D	z1	D1	R	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
25506	20x1/2" f x 20	10	20,00	31,50	17,00	29,50	53,00	37,00	1/2"	0,115

Fusiotherm® - transition coupling with male thread

with union nut and welding socket

Material: Fusiolen® PP-R, brass
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW,
KIWA, NSF, SAI, TIN,
TSE, SITAC, Shipbuilding
Colour: green

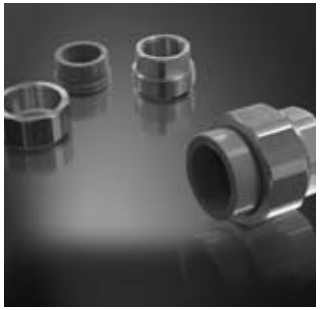


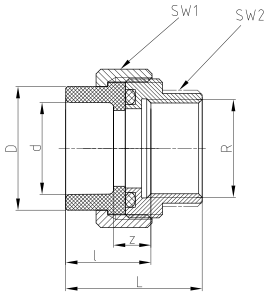
Art.- No.	Dimension	PU	d	l	z	D	SW1	SW2	R	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
26608	20	1	20,00	54,50	40,00	27,50	36,00	36,00	1/2"	0,145
26610	25	1	25,00	59,50	43,50	36,00	46,00	46,00	3/4"	0,242
26612	32	1	32,00	64,50	46,50	41,50	52,00	50,00	1"	0,382
26614	40	1	40,00	70,00	49,50	53,00	64,00	65,00	1 1/4"	0,632
26616	50	1	50,00	86,50	63,00	59,00	72,00	57,00	1 1/2"	0,685
26618	63	1	63,00	95,50	68,00	74,00	89,00	66,00	2"	1,212

fusiotherm® - transition coupling with female thread

with union nut and welding socket

Material: fusiolen® PP-R, brass
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA, NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green



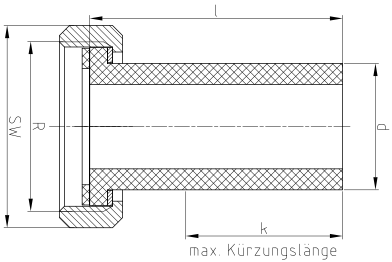


Art.- No.	Dimension	PU	d	l	z	D	L	SW1	SW2	R	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
26638	20	1	20,00	30,00	15,50	27,50	45,00	36,00	25,00	1/2"	0,083
26640	25	1	25,00	32,00	16,00	36,00	49,00	45,00	32,00	3/4"	0,193
26642	32	1	32,00	37,00	19,00	41,50	54,00	52,00	40,00	1"	0,290
26644	40	1	40,00	36,50	16,00	53,00	58,50	64,00	47,00	1 1/4"	0,423
26646	50	1	50,00	45,50	22,00	59,00	64,50	72,00	57,00	1 1/2"	0,610
26648	63	1	63,00	50,50	23,00	74,00	74,50	89,00	68,00	2"	0,924

Fusiotherm® - loose nut adapter

length: 100 mm, with gasket

Material: Fusiolen® PP-R, brass
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA, NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green

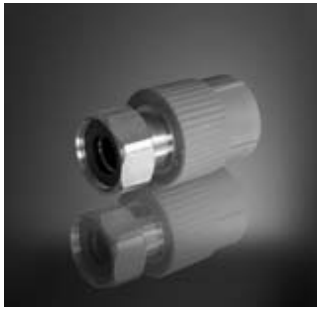


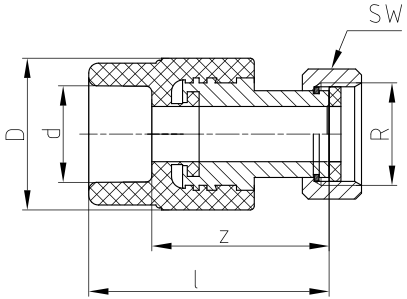
Art.- No.	Dimension	PU	d	l	k	R	SW	Weight
	[mm]	pc	[mm]	[mm]	[mm]	Zoll	[mm]	kg/pc
26708	20mm with nut R 1"	1	20,00	100,00	65,00	1"	36,00	0,079
26710	25mm with nut R 1 1/4"	1	25,00	100,00	62,00	1 1/4"	46,00	0,104
26712	32mm with nut R 1 1/2"	1	32,00	100,00	58,00	1 1/2"	52,00	0,175
26714	40mm with nut R 2"	1	40,00	100,00	53,00	2"	64,00	0,258
26716	50mm with nut R 2 1/4"	1	50,00	100,00	49,00	2 1/4"	72,00	0,344
26717	50mm with nut R 2 1/2"	1	50,00	100,00	44,00	2 1/2"	80,00	0,447
26718	63mm with nut R 2 3/4"	1	63,00	100,00	43,00	2 3/4"	89,00	0,583
26720	75mm with nut R 3 1/2"	1	75,00	100,00	34,00	3 1/2"	110,00	0,918
26722	90mm with nut R 4"	1	90,00	100,00	26,00	4"	120,00	1,238

fusiotherm® - water meter nut adapter

with gasket

Material: fusiolen® PP-R, brass
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA, NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green

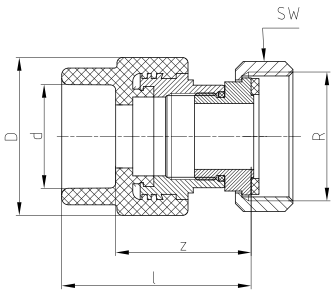




Art.-No.	Dimension	PU	d	l	z	D	R	SW	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
26808	nut R 3/4" x 20mm	1	20,00	59,50	45,00	38,50	3/4"	30,00	0,153
26810	nut R 3/4" x 25mm	1	25,00	61,00	45,00	38,50	3/4"	30,00	0,155
26812	nut R 3/4" x 32mm	1	32,00	62,00	44,00	43,50	3/4"	30,00	0,162

Fusiotherm® - nut adapter

ISO-standard



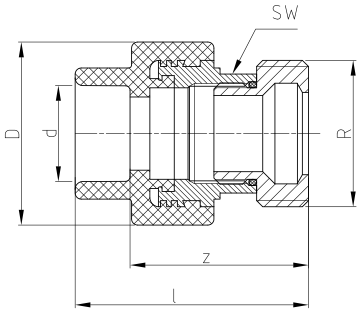
Material: Fusiolen® PP-R, brass
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA, NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green

Art.- No.	Dimension	PU	d	L	z	D	R	SW	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
27010	nut R 1" x 20mm	10	20,00	58,50	44,00	38,50	1"	36,00	0,182
27011	nut R 1" x 25mm	10	25,00	60,00	44,00	38,50	1"	36,00	0,186
27012	nut R 1 1/4" x 25mm	10	25,00	60,00	44,00	43,50	1 1/4"	46,00	0,274

Art.- No.	Dimension	PU	d	L	z	D	R	SW	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
27013	nut R 1 1/4" x 32mm	5	32,00	63,00	45,00	43,50	1 1/4"	46,00	0,279
27014	nut R 1 1/2" x 32mm	5	32,00	69,50	51,50	60,00	1 1/2"	52,00	0,446
27015	nut R 1 1/2" x 40mm	5	40,00	72,00	51,50	60,00	1 1/2"	52,00	0,421
27016	nut R 2" x 40mm	5	40,00	74,00	53,50	74,00	2"	64,00	0,719
27017	nut R 2" x 50mm	5	50,00	77,00	53,50	74,00	2"	64,00	0,736
27018	nut R 2 1/4" x 50mm	5	50,00	77,00	53,50	84,00	2 1/4"	72,00	0,831
27019	nut R 2 1/4" x 63mm	1	63,00	83,50	56,00	84,00	2 1/4"	72,00	0,889
27020	nut R 2 3/4" x 63mm	1	63,00	84,00	56,50	101,00	2 3/4"	89,00	1,305
27021	nut R 2 3/4" x 75mm	1	75,00	85,00	55,00	100,00	2 3/4"	89,00	1,274
27022	nut R 3 1/2" x 75mm	1	75,00	91,00	61,00	100,00	3 1/2"	110,00	1,818

fusiotherm® - counterpart

with welding socket and male thread
for ISO-standard adapter



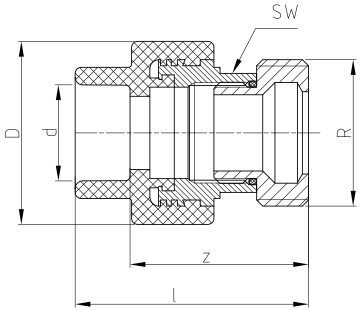
Material:	fusiolen® PP-R, brass
Pipe series:	SDR 6
Standard:	DIN 16962
	DIN EN ISO 15874
Registrations:	DVGW, ÖVGW, KIWA,
	NSF, SAI, TIN, TSE,
	SITAC, Shipbuilding
Colour:	green

Art.- No.	Dimension	PU	d	l	z	D	R	SW	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
27310	1" m x 20mm	10	20,00	61,50	47,00	38,50	1"	24,00	0,151
27311	1" m x 25mm	10	25,00	63,00	47,00	38,50	1"	24,00	0,153
27312	1 1/4" m x 25mm	10	25,00	63,00	47,00	43,50	1 1/4"	31,00	0,221

fusiotherm® - counterpart

with welding socket and male thread for ISO-standard adapter

Material: fusiolen® PP-R, brass
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA, NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green

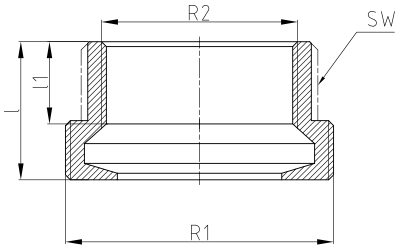


Art.-No.	Dimension	PU	d	l	z	D	R	SW	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
27313	1 1/4" m x 32mm	5	32,00	66,00	48,00	43,50	1 1/4"	31,00	0,226
27314	1 1/2" m x 32mm	5	32,00	76,50	58,50	60,00	1 1/2"	39,00	0,408
27315	1 1/2" m x 40mm	5	40,00	79,00	58,50	60,00	1 1/2"	39,00	0,414
27316	2" m x 40mm	5	40,00	81,00	60,50	74,00	2"	50,00	0,650
27317	2" m x 50mm	5	50,00	84,00	60,50	74,00	2"	50,00	0,634
27318	2 1/4" m x 50mm	5	50,00	83,00	59,50	84,00	2 1/4"	55,00	0,750
27319	2 1/4" m x 63mm	1	63,00	89,50	62,00	84,00	2 1/4"	55,00	0,728
27320	2 3/4" m x 63mm	1	63,00	94,00	66,50	101,00	2 3/4"	67,00	1,093
27321	2 3/4" m x 75mm	1	75,00	95,00	65,00	100,00	2 3/4"	67,00	1,116
27322	3 1/2" m x 75mm	1	75,00	100,00	70,00	100,00	3 1/2"	67,00	1,436

Fusiotherm® - brass counterpart

with female thread, for ISO-standard adapter / loose nut adapter

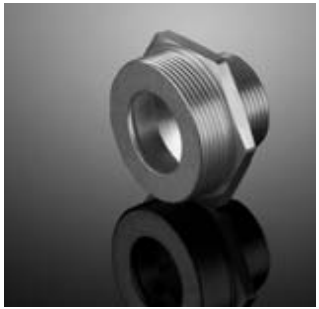
Material : brass
Colour : brass

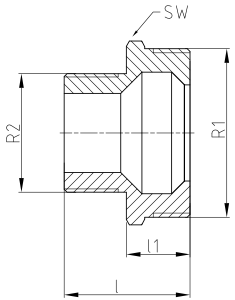


Art.- No.	Dimension	PU	l	l1	R1	R2	SW	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
27510	1" m x 1/2" f	10	25,00	15,00	1"	1/2"	25,00	0,063
27512	1 1/4" m x 3/4" f	10	28,00	18,00	1 1/4"	3/4"	32,00	0,120
27514	1 1/2" m x 1" f	5	31,00	17,00	1 1/2"	1"	40,00	0,175
27516	2" m x 1 1/4" f	5	33,00	22,00	2"	1 1/4"	47,00	0,263
27518	2 1/4" m x 1 1/2" f	5	36,00	19,00	2 1/4"	1 1/2"	57,00	0,333
27520	2 3/4" m x 2" f	1	42,00	24,00	2 3/4"	2"	68,00	0,517
27522	3 1/2" m x 2 1/2" f	1	46,00	27,00	3 1/2"	2 1/2"	84,00	0,801
27524	4" m x 3" f	1	46,00	27,00	4"	3"	97,00	0,943

fusiotherm® - brass counterpart

with male thread, for ISO-standard adapter / loose nut adapter



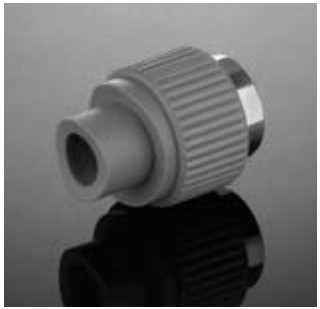


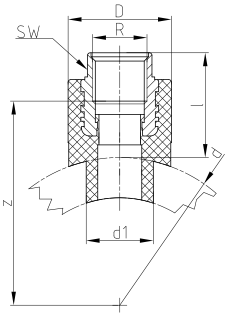
Material: brass
Colour: brass

Art.- No.	Dimension	PU	l	l1	R1	R2	SW	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
27710	1" m x 1/2" m	10	34,50	18,50	1"	1/2"	36,00	0,109
27712	1 1/4" m x 3/4" m	10	38,50	21,00	1 1/4"	3/4"	46,00	0,188
27714	1 1/2" m x 1" m	5	41,50	22,50	1 1/2"	1"	50,00	0,263
27716	2" m x 1 1/4" m	5	44,50	22,50	2"	1 1/4"	65,00	0,442
27718	2 1/4" m x 1 1/2" m	1	58,00	36,00	2 1/4"	1 1/2"	57,00	0,472
27720	2 3/4" m x 2" m	1	63,00	38,00	2 3/4"	2"	66,00	0,803
27722	3 1/2" m x 2 1/2" m	1	70,00	42,00	3 1/2"	2 1/2"	82,00	1,189
27724	4" m x 3" m	1	74,00	42,00	4"	3"	97,00	1,398

fusiotherm® - weld-in saddle with female thread

Material: fusiolen® PP-R, brass
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA, NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green



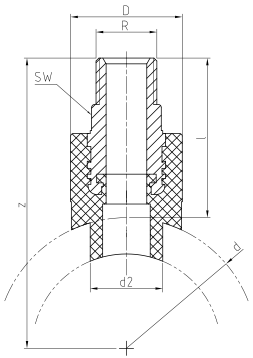


Art.-No.	Dimension [mm]	PU	d	d1	l	z	D	R	SW	Weight
		pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
28214	40/25 x 1/2" f	5	40,00	25,00	39,00	41,00	38,50	1/2"	24,00	0,088
28216	50/25 x 1/2" f	5	50,00	25,00	39,00	46,00	38,50	1/2"	24,00	0,090
28218	63/25 x 1/2" f	5	63,00	25,00	39,00	52,50	38,50	1/2"	24,00	0,089
28220	75/25 x 1/2" f	5	75,00	25,00	39,00	58,50	38,50	1/2"	24,00	0,097
28222	90/25 x 1/2" f	5	90,00	25,00	39,00	66,00	38,50	1/2"	24,00	0,090
28224	110/25 x 1/2" f	5	110,00	25,00	39,00	76,00	38,50	1/2"	24,00	0,089

Art.- No.	Dimension [mm]	PU	d	d1	l	z	D	R	SW	Weight
		pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
28226	125/25 x 1/2" f	5	125,00	25,00	39,00	83,50	38,50	1/2"	24,00	0,091
28230	160/25 x 1/2" f	5	160,00	25,00	39,00	101,00	38,50	1/2"	24,00	0,092
28234	40/25 x 3/4" f	5	40,00	25,00	39,00	36,00	43,50	3/4"	31,00	0,108
28236	50/25 x 3/4" f	5	50,00	25,00	39,00	41,00	43,50	3/4"	31,00	0,110
28238	63/25 x 3/4" f	5	63,00	25,00	39,00	47,50	43,50	3/4"	31,00	0,110
28240	75/25 x 3/4" f	5	75,00	25,00	39,00	53,50	43,50	3/4"	31,00	0,110
28242	90/25 x 3/4" f	5	90,00	25,00	39,00	61,00	43,50	3/4"	31,00	0,110
28244	110/25 x 3/4" f	5	110,00	25,00	39,00	71,00	43,50	3/4"	31,00	0,110
28246	125/25 x 3/4" f	5	125,00	25,00	39,00	78,50	43,50	3/4"	31,00	0,111
28250	160/25 x 3/4" f	5	160,00	25,00	39,00	96,00	43,50	3/4"	31,00	0,112
28260	75/32 x 1" f	5	75,00	32,00	43,00	58,50	60,00	1"	39,00	0,088
28262	90/32 x 1" f	5	90,00	32,00	43,00	66,00	60,00	1"	39,00	0,088
28264	110/32 x 1" f	5	110,00	32,00	43,00	76,00	60,00	1"	39,00	0,237
28266	125,32 x 1" f	5	125,00	32,00	43,00	83,50	60,00	1"	39,00	0,237
28270	160/32 x 1" f	5	160,00	32,00	43,00	101,00	60,00	1"	39,00	0,244
28232	200-250/25x1/2"f	5	200,00	25,00	39,00	121,00	38,50	1/2"	24,00	0,091
28254	200-250/25x3/4" f	5	200,00	25,00	39,00	116,00	43,50	3/4"	31,00	0,107
28274	200-250/32x1" f	5	200,00	32,00	43,00	121,00	60,00	1"	39,00	0,244

Fusiotherm® - weld-in saddle with male thread

Material: Fusiolen® PP-R, brass
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA, NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green



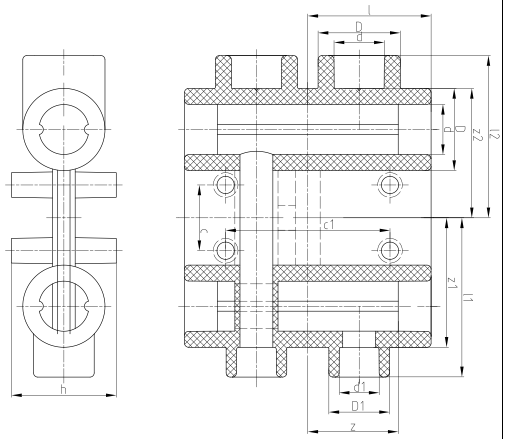
Art.- No.	Dimension	PU	d	R	d2	l	z	D	SW	Weight
	[mm]	pc	[mm]	[...]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
28314	40/25 mm x 1/2" f	5	40,00	R1/2	25,00	55,00	75,00	38,50	21,00	0,087
28316	50/25 mm x 1/2" f	5	50,00	R1/2	25,00	55,00	80,00	38,50	21,00	0,090
28318	63/25 mm x 1/2" f	5	63,00	R1/2	25,00	55,00	86,50	38,50	21,00	0,089

Art.- No.	Dimension	PU	d	R	d2	l	z	D	SW	Weight
	[mm]	pc	[mm]	[...]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
28320	75/25 mm x 1/2" f	5	75,00	R1/2	25,00	55,00	92,50	38,50	21,00	0,097
28322	90/25 mm x 1/2" f	5	90,00	R1/2	25,00	55,00	100,00	38,50	21,00	0,090
28324	110/25 mm x 1/2" f	5	110,00	R1/2	25,00	55,00	110,00	38,50	21,00	0,089
28326	125/25 mm x 1/2" f	5	125,00	R1/2	25,00	55,00	117,50	38,50	21,00	0,091
28330	160/25 mm x 1/2" f	5	160,00	R1/2	25,00	55,00	135,00	38,50	21,00	0,092
28334	40/25 mm x 3/4" f	5	40,00	R3/4	25,00	56,00	76,00	43,50	24,00	0,107
28336	50/25 mm x 3/4" f	5	50,00	R3/4	25,00	56,00	81,00	43,50	24,00	0,110
28338	63/25 mm x 3/4" f	5	63,00	R3/4	25,00	56,00	87,50	43,50	24,00	0,109
28340	75/25 mm x 3/4" f	5	75,00	R3/4	25,00	56,00	93,50	43,50	24,00	0,109
28342	90/25 mm x 3/4" f	5	90,00	R3/4	25,00	56,00	101,00	43,50	24,00	0,110
28344	110/25 mm x 3/4" f	5	110,00	R3/4	25,00	56,00	111,00	43,50	24,00	0,110
28346	125/25 mm x 3/4" f	5	125,00	R3/4	25,00	56,00	118,50	43,50	24,00	0,111
28350	160/25 mm x 3/4" f	5	160,00	R3/4	25,00	56,00	136,00	43,50	24,00	0,112

Fusiotherm® -
distribution block plumbing
including 1 plug and 2 fastenings

Material: Fusiolen® PP-R
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA, NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green

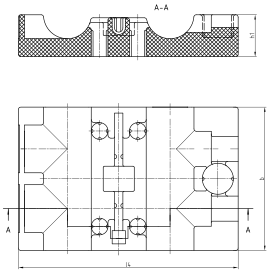
Passage: 25 mm (socket)/ 2 branches: 20 mm (socket)

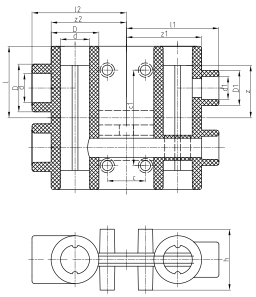


Art.- No.	Dimension	PU	d	l	z	D	d1	l1	z1	D1	l2	z2	c	c1	cl	l3	h	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
30115	25/20	1	25,00	60,00	44,00	40,00	20,00	77,50	63,00	29,50	79,00	63,00	32,00	80,00	100,00	36,00	51,00	0,273

Fusiotherm® - distribution block plumbing

with insulation block





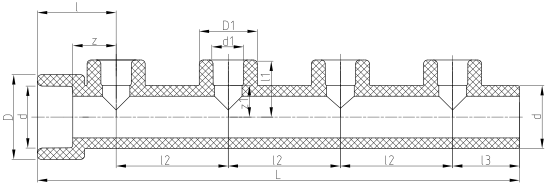
Material: Fusiolen® PP-R
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA,
NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green

Like Art.-No. 30115, but with insulation block - height = 70 mm

Art.- No.	Dimension	PU	d	l	z	D	d1	l1	z1	D1	l2	z2	c	c1	cl	l3	h	Weight
	[mm]		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
30130	25/20	1 pc	25,00	60,00	44,00	40,00	20,00	77,50	63,00	29,50	79,00	63,00	32,00	80,00	100,00	36,00	51,00	0,319

Fusiotherm® - four-port manifold

length: 246 mm, with 4 branches

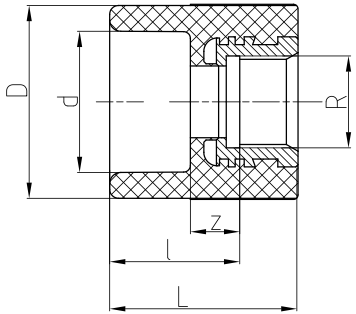


Material: Fusiolen® PP-R
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA,
NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green

The four-port manifold can be shortened or extended by fusion with further four-port manifolds, if required.

Art.- No.	Dimension	PU	d1	l	z	D	d1	l1	z1	D1	l2	l3	L	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
30602	32mm x 16mm	1	32,00	40,00	22,00	43,00	16,00	29,00	16,00	29,50	57,00	36,00	245,00	0,141
30604	32mm x 20mm	1	32,00	40,00	22,00	43,00	20,00	29,00	14,50	29,50	57,00	36,00	245,00	0,134

Fusiotherm® - manifold end piece with female thread*



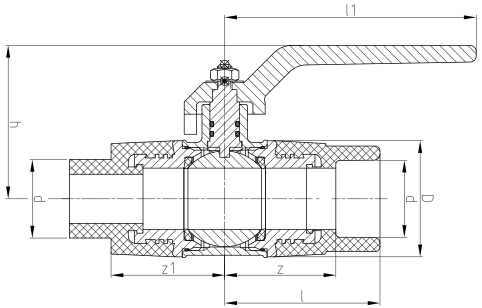
Material: Fusiolen® PP-R, brass
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA,
NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green

*Fusiotherm®- transition piece as manifold endpiece with female thread

Art.-No.	Dimension	PU	d	l	z	D	L	R	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
30804	32mm x 1/2" f	1	32,00	29,00	11,00	43,00	42,00	1/2"	0,078

fusiotherm® -
ball valve for manifold
female/male

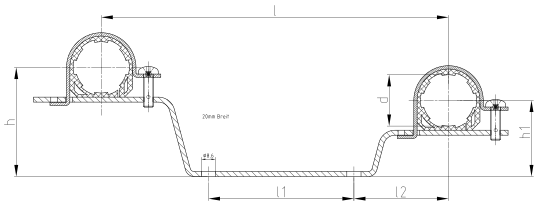
Material:	**fusiolen®** PP-R, brass
Pipe series:	SDR 6
Standard:	DIN 16962 DIN EN ISO 15874
Registrations:	DVGW, ÖVGW, KIWA, NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour:	green



Art.- No.	Dimension	PU	d	l	z	D	z1	h	l1	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
78000	32mm i/a	2	32,00	63,00	45,00	47,50	46,50	78,00	108,00	0,575

fusiotherm® - supporting strap for four-port manifold

with clamps, galvanized, double

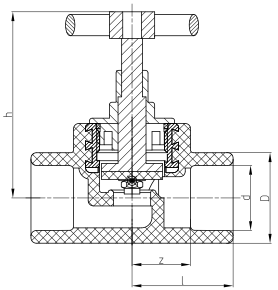


Art.-No.	Dimension	PU	d	l	l1	l2	h	h1	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
60210	for ø = 32mm	2	32,00	210,00	80,00	57,00	66,00	46,00	0,225

Fusiotherm® - globe valve

for surface installation

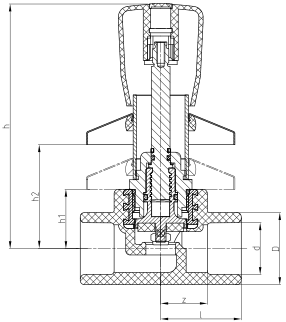
Material: Fusiolen® PP-R, brass
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA, NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green



Art.- No.	Dimension	PU	d	l	z	D	h	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
40808	20	1	20,00	35,00	20,50	29,50	70,00	0,205
40810	25	1	25,00	38,00	22,00	34,00	70,00	0,211
40812	32	1	32,00	49,00	31,00	43,00	86,50	0,314
40814	40	1	40,00	60,00	39,50	52,00	100,50	0,585

fusiotherm® - concealed valve

chromium plated

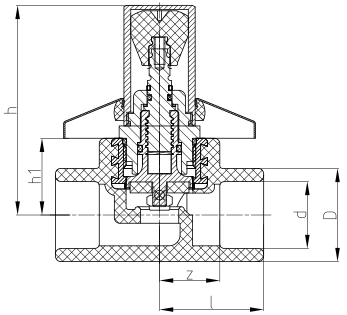


Material:	fusiolen® PP-R, brass
Pipe series:	SDR 6
Standard:	DIN 16962 DIN EN ISO 15874
Registrations:	DVGW, ÖVGW, KIWA, NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour:	green

Art.- No.	Dimension	PU	d	l	z	D	h	h1	h2	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
40858	20	1	20,00	35,00	20,50	29,50	116,00	28,00	59,00	0,319
40860	25	1	25,00	38,00	22,00	34,00	116,00	28,00	59,00	0,330
40862	32	1	32,00	49,00	31,00	43,00	121,00	34,00	59,00	0,416

fusiotherm® - concealed valve

tamper proof/ chromium-plated/
short design

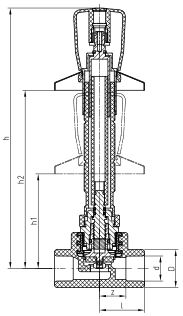


Material:	fusiolen® PP-R
Pipe series:	SDR 6
Standard:	DIN 16962 DIN EN ISO 15874
Registrations:	DVGW, ÖVGW, KIWA, NSF, SAI, TIN, TSE, SITAC, Ship building
Colour:	green

Art.- No.	Dimension	PU	d	l	z	D	h	h1	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
40868	20	1	20,00	35,00	20,50	29,50	71,50	28,00	0,257
40870	25	1	25,00	38,00	22,00	34,00	71,50	28,00	0,288
40872	32	1	32,00	49,00	31,00	43,00	82,50	34,00	0,376

fusiotherm® - concealed valve

chromium-plated



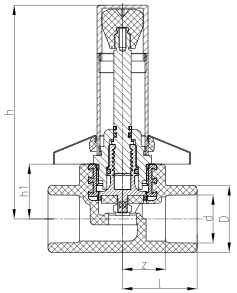
Material: fusiolen® PP-R
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA, NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green

suitable for construction depth of 55 mm to 100 mm

Art.-No.	Dimension	PU	d	l	z	D	h	h2	h1	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
40878	20	1	20,00	35,00	20,50	29,50	213,00	147,00	59,00	0,357
40880	25	1	25,00	38,00	22,00	34,00	213,00	147,00	59,00	0,370
40882	32	1	32,00	49,00	31,00	43,00	219,00	153,00	65,00	0,455

Fusiotherm® - concealed valve

tamper proof, chromium-plated



Material: Fusiolen® PP-R
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA,
NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green

suitable for construction depth up to 60 mm

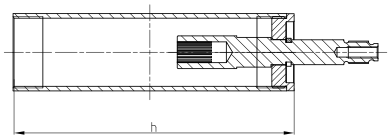
Art.- No.	Dimension	PU	d	l	z	D	h	h1	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
40888	20	1	20,00	35,00	20,50	29,50	109,00	28,00	0,342
40890	25	1	25,00	38,00	22,00	34,00	109,00	28,00	0,350
40892	32	1	32,00	49,00	31,00	43,00	115,00	34,00	0,432

fusiotherm® - extension for fusiotherm® concealed valve

chromium-plated for

Art.-No. 40858-40862

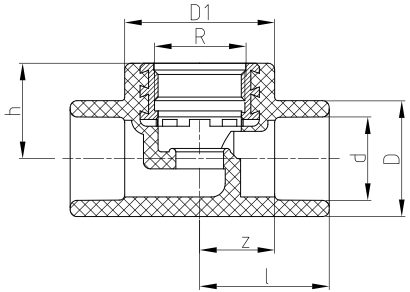
Material: brass



Art.- No.	Dimension	PU	h	Weight
	[mm]	pc	[mm]	kg/pc
40900	length 92	1	92,00	0,148
40902	length 132	1	132,00	0,209

fusiotherm® - stop valve body

Material: fusiolen® PP-R, brass
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA, NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green

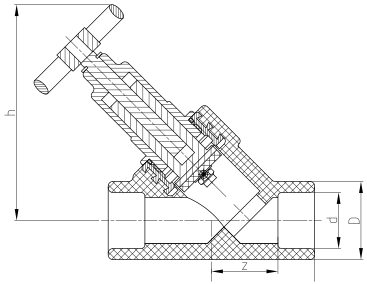


Art.- No.	Dimension	PU	d	l	z	D	h	D1	R	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	Zoll	kg/pc
40908	20	1	20,00	35,00	20,00	29,50	28,00	44,00	3/4"	0,093
40910	25	1	25,00	38,00	22,00	34,00	28,00	44,00	3/4"	0,101
40912	32	1	32,00	49,00	31,00	43,00	34,00	52,00	1"	0,146
40914	40	1	40,00	60,00	39,50	52,00	41,00		1 1/4"	0,313

fusiotherm® - inclined valve

without drain

Material: fusiolen® PP-R, brass
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA, NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green

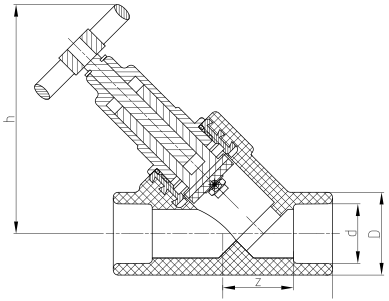


Art.- No.	Dimension	PU	d	l	z	D	h	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
41108	20	1	20,00	45,00	30,50	34,00	95,50	0,294
41110	25	1	25,00	45,00	29,00	34,00	95,50	0,283
41112	32	1	32,00	56,00	38,00	43,00	111,50	0,421
41114	40	1	40,00	65,00	44,50	52,00	135,00	0,834

Fusiotherm® - non-return valve

without drain

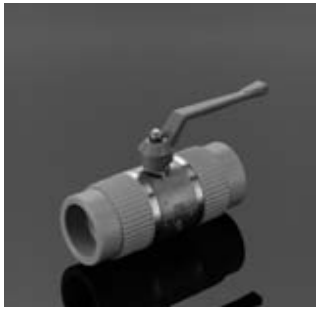
Material: Fusiolen® PP-R, brass
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA, NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green

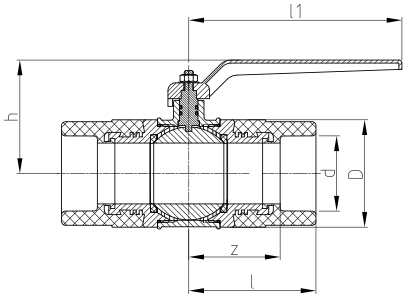


Art.- No.	Dimension	PU	d	l	z	D	h	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
41208	20	1	20,00	45,00	30,50	34,00	95,50	0,297
41210	25	1	25,00	45,00	29,00	34,00	95,50	0,292
41212	32	1	32,00	56,00	38,00	43,00	111,50	0,431
41214	40	1	40,00	65,00	44,50	52,00	135,00	0,840

fusiotherm® - ball valve PP/brass

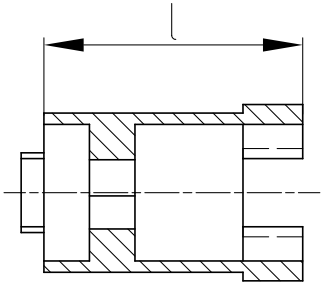
Material: fusiolen® PP-R, brass
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA, NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green





Art.- No.	Dimension	PU	d	l	z	D	h	l1	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
41308	20	1	20,00	55,00	40,50	32,00	66,00	85,00	0,280
41310	25	1	25,00	55,00	39,00	41,00	73,00	85,00	0,375
41312	32	1	32,00	63,50	45,50	47,00	82,00	108,00	0,592
41314	40	1	40,00	72,50	52,00	58,00	93,00	108,00	1,034
41316	50	1	50,00	83,50	60,00	70,50	114,00	140,00	1,339
41318	63	1	63,00	102,50	75,00	87,00	132,00	140,00	2,552

Fusiotherm® - extension for Fusiotherm®-ball valve



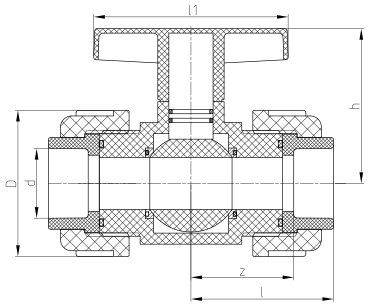
Material: brass

Art.- No.	Dimension	PU	l	Weight
	[mm]	pc	[mm]	kg/pc
41378	for Art.- No. 41308 / 41310 - length = 35 mm	1	35,00	0,120
41382	for Art.- No. 41312 / 41314 - length = 35 mm	1	35,00	0,120
41386	for Art.- No. 41316 / 41318 - length = 46 mm	1	46,00	0,273

fusiotherm® - PP-ball valve

with union nut and welding socket

Material: fusiolen® PP-R
Pipe series: SDR 9
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA, NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green

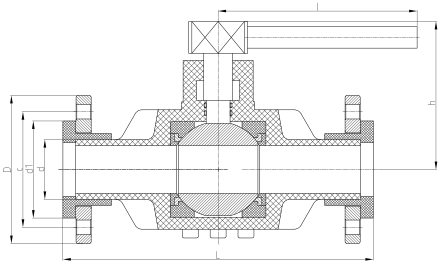


Art.- No.	Dimension	PU	Dimension								
			d	l	z	D	h	L2	DN	DN	Weight
	[mm]	pc	[mm]	(mm)	(mm)	(mm)	[mm]	[mm]	[mm]	Zoll	kg/pc
41388	20	1	20,00	51,50	37,00	46,00	51,00	68,00	15	1/2	0,117
41390	25	1	25,00	58,50	42,50	56,00	61,00	78,00	20	3/4	0,188
41392	32	1	32,00	63,00	45,00	66,00	70,00	88,00	25	1	0,277
41394	40	1	40,00	72,00	51,50	79,00	81,00	98,00	32	1 1/4	0,434
41396	50	1	50,00	76,00	52,50	87,00	90,00	108,00	40	1 1/2	0,550
41398	63	1	63,00	90,50	63,00	107,00	110,00	118,00	50	2	0,922
41400	75	1	75,00	250,00	145,00	186,00	186,00	390,00	65		2,615

Fusiotherm® - PP-ball valve

with flange connection on both sides

Material: Fusiolen® PP-R
Pipe series: SDR 7,4
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA, NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green

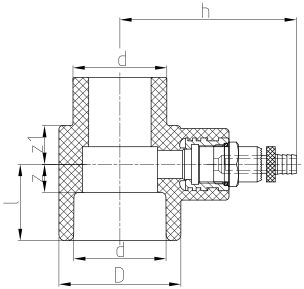


Art.- No.	Dimension		Dimension								
		PU	d	l	k	D	d1	h	L	DN	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
41402	90	1	90,00	250,00	160,00	201,00	128,00	200,00	425,00	80	8,792
41404	110	1	110,00	350,00	180,00	221,00	158,00	212,00	465,00	100	10,855
41406	125	1	125,00	350,00	210,00	251,00	188,00	212,00	470,00	100	13,166
41407	160	1	160,00	450,00	240,00	286,00	212,00	256,00	760,00	125	27,600

fusiotherm® - draining branch

to weld in fusiotherm®-valves

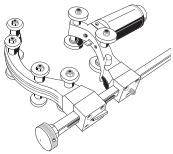
Material: fusiolen® PP-R, brass
Pipe series: SDR 6
Standard: DIN 16962
DIN EN ISO 15874
Registrations: DVGW, ÖVGW, KIWA, NSF, SAI, TIN, TSE, SITAC, Shipbuilding
Colour: green



Art.- No.	Dimension	PU	d	z	l	D	z1	h	Weight
	[mm]	pc	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	kg/pc
41408	20	1	20,00	11,50	26,00	34,00	16,50	67,00	0,098
41410	25	1	25,00	10,00	26,00	34,00	16,50	67,00	0,096
41412	32	1	32,00	14,00	32,00	43,00	17,00	70,50	0,118
41414	40	1	40,00	12,00	32,50	52,00	16,50	76,50	0,140
41416	50	1	50,00	15,50	39,00	68,00	17,00	83,75	0,202
41418	63	1	63,00	16,50	44,00	84,00	16,50	93,00	0,288

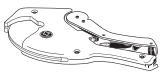
Fusiotherm®- pipe cutter

Art.- No.	Dimension	Packing unit m / pc
50102	for pipes 16 - 40 mm	1
50105	for pipes 50 - 125 mm	1
50106	for pipes 110 - 160 mm	1



Fusiotherm®- pipe cutter

Art.- No.	Dimension	Packing unit m / pc
50104	for pipes 16 - 40 mm	1



Fusiotherm®- orbital circular saw

Art.- No.	Dimension	Packing unit m / pc
50108	for Pipes 160 - 355 mm	1

This orbital circular saw can be ordered directly from Rothenberger with Art.-No. 5.5620 (www.rothenberger.com). High-performance orbital circular saw for fast, precise, perfectly aligned and right-angled cutting of plastic pipes 160 - 355 mm at the building site or in the workshop.

Fusiotherm®- manual welding device (500 W)

Art.- No.	Dimension	Packing unit m / pc
50336	for pipes Ø 16 - 32 mm	1

with base and case for tools

Fusiotherm®- manual welding device (800 W)

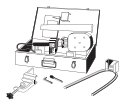
Art.- No.	Dimension	Packing unit m / pc
50337	for pipes Ø 16 - 63 mm	1

with base and case for tools

Fusiotherm®- manual welding device (1400 W)

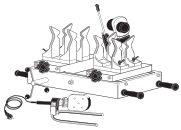
Art.- No.	Dimension	Packing unit m / pc
50341	for pipes Ø 50 - 125 mm	1

with base and case for tools



Fusiotherm®- welding machine (1400 W)

Art.- No.	Dimension	Packing unit m / pc
50147	for pipes Ø 50 - 125 mm	1



including welding tools 50 - 125 mm, Fusiotherm®-manual welding device (1400 W) and wooden transport case

Fusiotherm®- welding machine (1400 W) Light

Art.- No.	Dimension	Packing unit m / pc
50145	for pipes Ø 50-125 mm	1

Fusiotherm®- manual welding device (1400 W) and wooden transport case

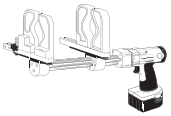
Important:

Do not cut the Fusiotherm®-pipes with customary hack saws.

Fusiotherm®-pipes can be cut with customary saws equipped with saw blades suitable for plastic.

Fusiotherm®- electric welding jig

Art.- No.	Dimension	Packing unit m / pc
50149	for pipes Ø 63-125 mm	1



including standby accumulator, charging station and metal case

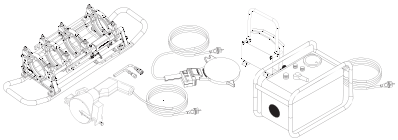
Fusiotherm®- base for Art.-No. 50149

Art.- No.	Dimension	Packing unit m / pc
50151	-	1

Fusiotherm®- butt welding machine Rothenberger

Art.- No.	Dimension	Packing unit m / pc
50163	for pipes ø 160 - 250 mm	1
50167	for pipes ø 160 - 315 mm	1
50178	for pipes ø 160 - 355 mm	1

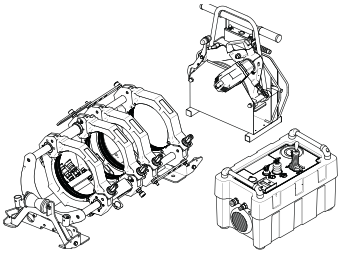
including wooden transport box.
The butt welding machine can be obtained directly from Rothenberger



Fusiotherm®- butt welding machine Ritmo

Art.- No.	Dimension	Packing unit m / pc
50165	for pipes ø 160 - 250 mm	1
50166	for pipes ø 160 - 315 mm	1
50177	for pipes ø 160 - 355 mm	1

including wooden transprot box
The butt welding machine can be obtained directly from Ritmo. (www.ritmo.it)

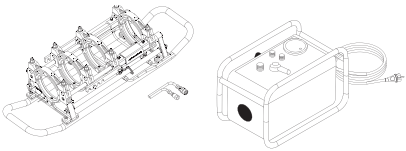


Fusiotherm®-clamping elements for butt welding

without milling cutter and heating plate

Art.- No.	Dimension	Packing unit m / pc
50164	for pipes ø 160 - 250 mm	1

including wooden transport box.
The clamping elements can be obtained directly from Rothenberger. (www.rothenberger.com)



Fusiotherm®- electrofusion device

Art.- No.	Dimension	Packing unit m / pc
50175	for pipes Ø 20-250 mm	1

for Fusiotherm®-electrofusion sockets Art.-No. 17208-17238

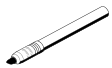
Fusiotherm®- cleaning wipes

Art.- No.	Dimension	Packing unit m / pc
50193	Box with 100 towels	1

for electrofusion sockets

Fusiotherm®- temperature pencil

Art.- No.	Dimension	Packing unit m / pc
50190	-	1



to check the correct welding temperature

Fusiotherm®- temperature measuring device

Art.- No.	Dimension	Packing unit m / pc
50188	-	1

to check the correct welding temperature

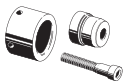
Fusiotherm®- temperature protective glove

for tool change

Art.- No.	Dimension	Packing unit m / pc
50195	-	1 pair

Fusiotherm®- welding tool

Art.- No.	Dimension	Packing unit m / pc
50206	16 mm	1
50208	20 mm	1
50210	25 mm	1
50212	32 mm	1
50214	40 mm	1
50216	50 mm	1
50218	63 mm	1
50220	75 mm	1
50222	90 mm	1
50224	110 mm	1
50226	125 mm	1



Fusiotherm®- repair set

Art.- No.	Dimension	Packing unit m / pc
50307	7 mm	1
50311	11 mm	1

to close holes of up to 10 mm in the pipe (pipe repair stick Art.-No. 60600)

Fusiotherm®- pipe repair stick

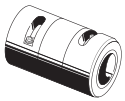
for pipe reparation

Art.- No.	Dimension	Packing unit m / pc
60600	7/11 mm	10

Fusiotherm®- peeling tool

for **climatherm** OT, **climatherm** OT UV, Fusiotherm® UV and Fusiotherm®-stabi-composite pipe

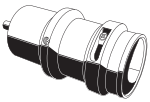
Art.- No.	Dimension	Packing unit m / pc
50506	16 & 20 mm	1
50508	20 & 25 mm	1
50512	32 & 40 mm	1
50514	40 & 50 mm	1
50518	63 & 75 mm	1
50524	90 & 110 mm	1
50526	110 & 125 mm	1



Fusiotherm®- peeling tool

for electrofusion sockets (Art.-No. 17208-17238)
not for Fusiotherm®-stabi composite and **climatherm OT** pipes

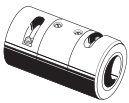
Art.- No.	Dimension	Packing unit m / pc
50558	20 mm	1
50560	25 mm	1
50562	32 mm	1
50564	40 mm	1
50566	50 mm	1
50568	63 mm	1
50570	75 mm	1
50572	90 mm	1
50574	110 mm	1
50576	125 mm	1
50580	160 mm	1
50592	200-400 mm	1



Fusiotherm®- double peeling tool

for electrofusion sockets (Art.-No. 17208-17238)
only for Fusiotherm®-stabi composite and **climatherm OT** pipes

Art.- No.	Dimension	Packing unit m / pc
50507	20 & 25 mm	1
50511	32 & 40 mm	1
50515	50 & 63 mm	1
50519	75 & 90 mm	1
50525	110 &125 mm	1



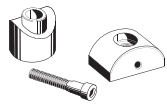
Fusiotherm®- spare blade

for Fusiotherm® peeling tools

Art.- No.	Dimension	Packing unit m / pc
50440	-	1

fusiotherm®- welding tool

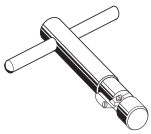
For welding of saddles of Art.-No. 15156-15257 and 28214-28350



Art.- No.	Dimension	Packing unit m / pc
50614	40 x 20/25 mm	1
50616	50 x 20/25 mm	1
50619	63 x 20/25 mm	1
50620	63 x 32 mm	1
50623	75 x 20/25 mm	1
50624	75 x 32 mm	1
50625	75 x 40 mm	1
50627	90 x 20/25 mm	1
50628	90 x 32 mm	1
50629	90 x 40 mm	1
50631	110 x 20/25 mm	1
50632	110 x 32 mm	1
50634	110 x 40 mm	1
50635	110 x 50 mm	1
50636	125 x 20/25 mm	1
50638	125 x 32 mm	1
50640	125 x 40 mm	1
50642	125 x 50 mm	1
50644	125 x 63 mm	1
50648	160 x 20/25 mm	1
50650	160 x 32 mm	1
50652	160 x 40 mm	1
50654	160 x 50 mm	1
50656	160 x 63 mm	1
50657	160 x 75 mm	1
50658	160 x 90 mm	1
50660	200 x 20/25 mm	1
50662	200 x 32 mm	1
50664	200 x 40 mm	1
50666	200 x 50 mm	1
50667	200 x 75 mm	1
50668	200 x 63 mm	1
50669	200 x 90 mm	1
50670	200 x 110 mm	1
50671	200 x 125 mm	1
50672	250 x 20/25 mm	1
50674	250 x 32 mm	1
50676	250 x 40 mm	1
50678	250 x 50 mm	1
50680	250 x 63 mm	1
50682	250 x 75 mm	1
50684	250 x 90 mm	1
50686	250 x 110 mm	1
50688	250 x 125 mm	1
50690	315 x 63 mm	1
50692	315 x 75 mm	1
50694	315 x 90 mm	1
50696	315 x 110 mm	1
50698	315 x 125 mm	1
50699	315 x 160 mm	1
50712	355 x 63 mm	1
50714	355 x 75 mm	1
50716	355 x 90 mm	1
50718	355 x 110 mm	1
50720	355 x 125 mm	1
50722	355 x 160 mm	1
50724	355 x 200 mm	1

Fusiotherm®- chamfering device

Art.- No.	Dimension	Packing unit m / pc
50910	20 & 25 mm	1
50912	32 mm	1
50914	40 mm	1



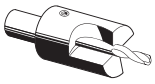
for removal of the aluminium swarfs at the drill hole only with stabi-composite pipes - to prepare the saddle welding

Only for stabi-composite pipes!

Fusiotherm®- drill

for installation of weld-in saddles

Art.- No.	Dimension	Packing unit m / pc
50940	20 & 25 mm (for pipes 40 - 160 mm)	1
50941	20 & 25 mm (for pipes 63 - 250 mm)	1
50942	32 mm	1
50944	40 mm	1
50946*	50 mm	1
50948*	63 mm	1
50950**	75 mm	1
50952**	90 mm	1
50954**	110 mm	1
50956**	125 mm	1
50958**	160 mm	1
50960**	200 mm	1



* may only be used in fixed drilling machines!

** tool holder MK4

Fusiotherm®- special peeling drill for climatherm OT pipes

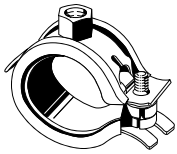
for the installation of weld-in saddles

Art.- No.	Dimension	Packing unit m / pc
50921	for weld-in saddles 20 & 25 mm for pipe dimensions 50 mm and more	1
50922	for weld-in saddles ø 32 mm	1
50924	for weld-in saddles ø 40 mm	1
50926	for weld-in saddles ø 50 mm	1
50928	for weld-in saddles ø 63 mm	1

Fusiotherm®- pipe clamps

for Fusiotherm®-pipes

Art.- No.	Dimension	Packing unit m / pc
60516	16 mm	50
60520	20 mm	50
60525	25 mm	50
60532	32 mm	50
60540	40 mm	50
60550	50 mm	50
60563	63 mm	25
60575	75 mm	25
60590	90 mm	25
60594	110 mm	25
60595	125 mm	25
60597	160 mm	25
60650	200 mm	1
60654	250 mm	1
60658	315 mm	1
60660	355 mm	1



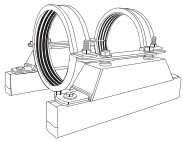
Suitable for sliding and fixed point installation.

Thread connection:
M8 & M10 for 16 - 125 mm
M10 for 160 mm
M16 for 200 & 355 mm

Fusiotherm®- pipe clamps for fixed point installation

for Fusiotherm®-, **climatherm**- und **aquatherm lilac**- pipes

Art.- No.	Dimension	Packing unit m / pc
60668	160 mm	1
60670	200 mm	1
60674	250 mm	1
60678	315 mm	1

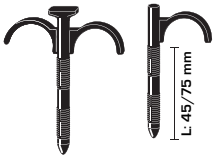


Suitable for fixed point installation.

Fusiotherm®- pipe fastening bow

fsuitable for 16-32 mm Fusiotherm®-and aquatherm®-SHT-Pipes

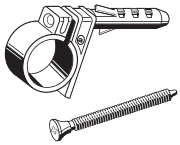
Art.- No.	Dimension	Packing unit m / pc
60604	single - length = 45 mm	50
60606	single - length = 75 mm	50
60608	double - length = 45 mm	50
60610	double - length = 75 mm	50



Fusiotherm®- plastic pipe clamps

suitable for Fusiotherm® and aquatherm®-SHT-pipes

Art.- No.	Dimension	Packing unit m / pc
60616	16 mm	50
60620	20 mm	50
60625	25 mm	30



Fusiotherm®- pipe support

Art.- No.	Dimension	Packing unit m / pc
85110	for pipes ø 16 x 2.2 mm - ø 11.4 mm	10
10186	for pipes ø 16 x 2.7 mm - ø 10.4 mm	10