uponor

Uponor Ecoflex Solutions Technical information

Pre-insulated pipes for water distribution

From heat source... ...to building

Pre-insulated pipe systems connecting you to renewable heat

No special tools, no welding and no fuss. Just a quality product, which lasts.

Uponor pre-insulated pipes - the only choice for economical transport of hot and cold fluids from the energy centre to the final termination.

Besides excellent insulation properties, our lightweight pre-insulated pipes offer flexibility, ease of installation and a service life in excess of 30 years.

Applications:
- Remote boilers
- Biomass
- CHP
- District heating
- District cooling
- AD Biogas

Suitable for:
- Heating water
- Hot tap water
- Cold water
- Cooling water
- Industrial fluids

Solutions for:
- Family homes
- Social housing
- Farm buildings
- Smallholdings
- Outbuildings

The Advantages:
- Easy to handle, lightweight and highly flexible
- Easy to assemble, no special tools required
- Rapid work progress, up to 240m joint free installation
- Cut to length service, delivered directly to site
- Full design service, pipe sizing and material take-offs
- Load bearing, up to 60 tonnes at 0.5m depth

Over 35 million metres installed worldwide!

Content

System Description and Standards

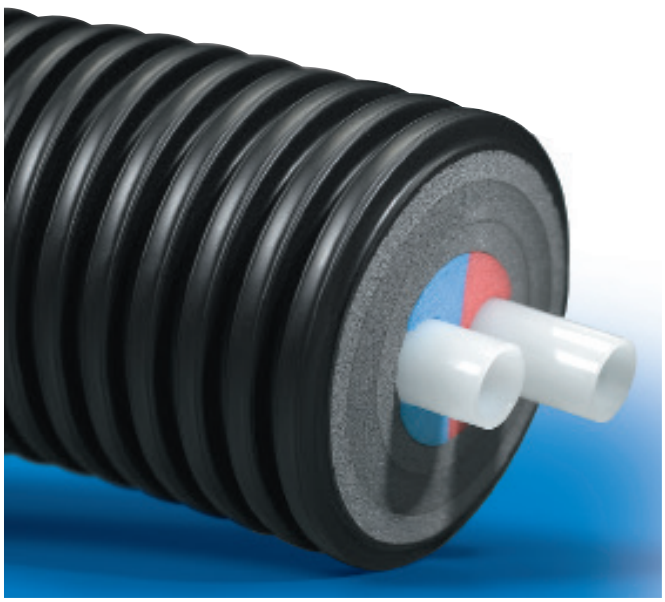
System description

A product fit for purpose. This is the fundamental idea behind our flexible, pre-insulated piping systems. The flexibility of the material, the convenient connecting methods and the well-attested service life and robustness of our pre-insulated pipes ultimately ensure that you, as the expert, can complete your projects quickly and easily. Whether you are dealing with an extensive supply network or a single connection to one building, the service we provide in association with our pre-insulated pipe systems also offers you comprehensive support at every phase of your project.

Quality, signed and sealed

Uncompromising quality is our number-one policy. Fully comprehensive quality control in production is just one aspect of our quality management system. And we regularly make sure that independent inspection organisations certify that our products meet the strictest standards.

Kiwa KOMO and WRAS approval and certification
The interaction between components (pre-insulated pipes, rubber end caps, Wipex fitting range and insulation sets) is examined in the twice-yearly system approval according to the current BRL 5609 guideline.
The approval certifies a system service life of at least 30 years, as well as absence of leaks at a water pressure of 0.3 bar and an ambient temperature of 30°C. In addition, the heat losses, static strength and creep behaviour of the pipes are checked according to consistent specifications.



WRAS Material Approval
Uponor PE100 RC black coloured pipe for use with water up to 23°C and Uponor Aqua pipe white coloured for use with water up to 85°C.

In accordance with BS EN 15632
Uponor flexible pre-insulated pipe systems are manufactured according to British & European Standard "BS EN 15632 - Part 1, 2 and 3 - District heating pipes - preinsulated flexible pipe systems".

DIN Certco certification
The annual certification according to VDI 2055 verifies the heat loss figures. The heat loss graphs for the flexible, pre-insulated pipes are prepared on this basis. The certification is based on defined layout conditions, and that means that the values are a good reflection of a real life system.

Static strength certification
The certificate, based on ATV DVWK-A127, demonstrates that our pipes, when laid in accordance with defined conditions, are suitable for loading by heavy traffic (SWL 60 = 60 t) according to worksheet ATV-A 127. The ring stiffness of the jacket pipe is proven according to EN ISO 9969.

Insulation performance of cross linked PE-foam
The water absorption of cross linked PE-foam is less than 1% by volume when tested according to BS EN 15632. Low water absorption means the insulating properties remain stable.

Flexibility - from the beginning through to the end

No welding, no special tools. The flexibility and the low weight of our pre-insulated pipes mean that they are easy to handle and that building work proceeds fast. They are also supported by a comprehensive range of accessories. From a variety of wall lead-throughs, insulation kits and the proven range of fittings.

The most important advantages for laying and connecting

- Problem-free laying around corners and obstacles
- Up to 240 meters of joint-free installation in one piece
- Self-adjusting tube structure make it unnecessary to fit expansion compensators
- Fast building progress / short assembly times
- Easy, reliable jointing method, including subsequent insulation of connections and branches

- Cutting service: shorter lengths, individually trimmed for your building site
- Both standard and partial lengths are delivered in shortest time
- Comprehensive support from experienced engineers for planning and layout
- Full project support and product training on-site
- Proven products with industry experence

Easy handling thanks to extraordinary flexibility: it is not just when rolling out in a ditch, but particularly at house lead-ins that our customers appreciate the advantages of our products.

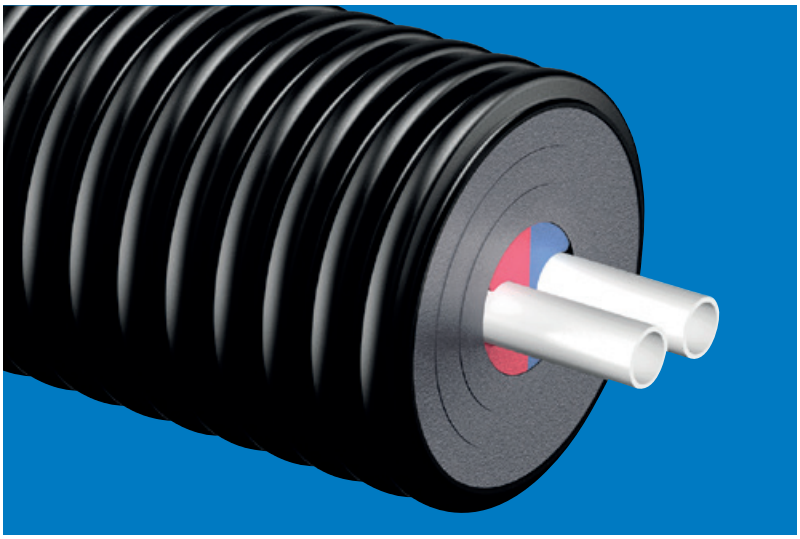
Product overview:

Uponor Ecoflex Thermo

Ideal for heating water supply

The ideal solution for distributing heating water in local heat supply networks, or for connecting building complexes and single houses. The Thermo Twin version also combines flow and return lines in a flexible pipe system.

The classification of the Thermo pipe system is described in EN 15632-3 as a non bonded system with a plastic medium pipe. The dog bone structure helps identify the pipes at the plant room.

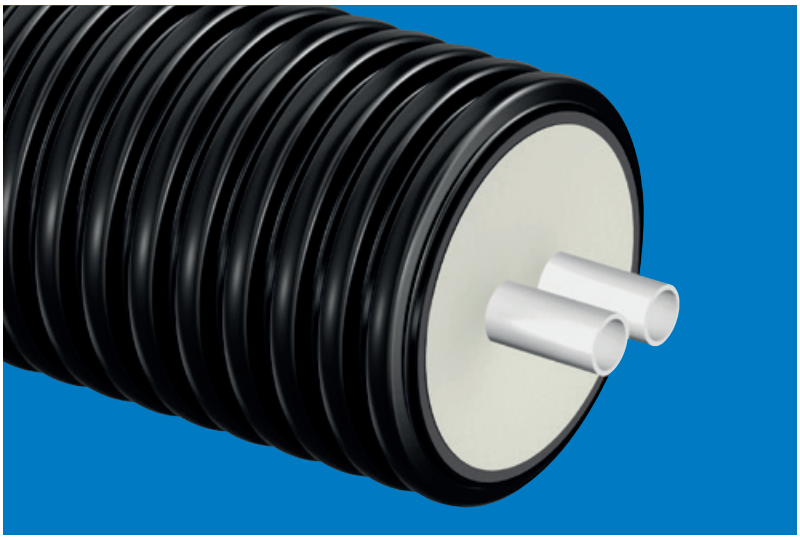


Uponor Ecoflex Thermo PRO

Ideal for energy efficient heating water supply systems

The ideal solution for energy efficient heating water distribution in local heating networks giving a market leading performance. The Thermo PRO Twin Composition version also combines flow and return lines in a flexible pipe system.

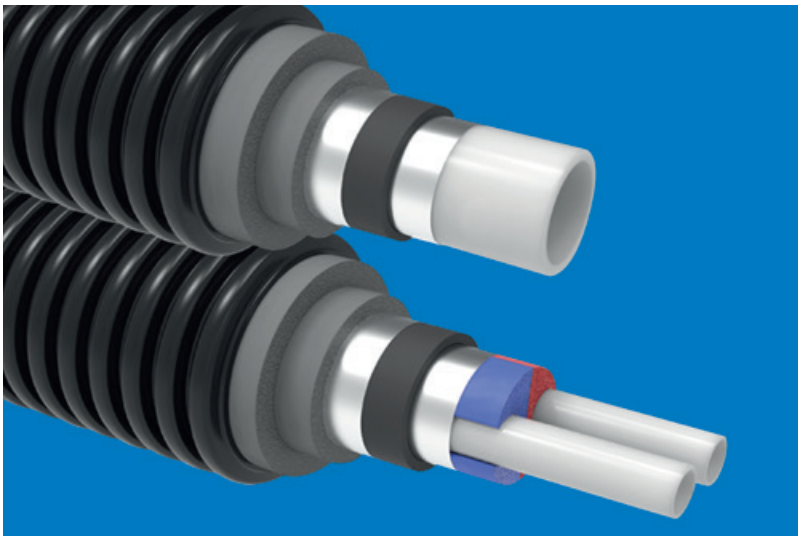
The classification of Thermo PRO system is described in EN 15632-2 as a bonded composite system with plastic medium pipe. Marked flow and return pipes help in identification at the plant room.



Uponor Ecoflex Thermo and Aqua VIP

The Uponor Ecoflex Thermo and Aqua VIP "Vacuum Insulation Panel" are part of Uponor's Ecoflex range of flexible, pre-insulated piping. The flexibility of the material, the convenient connecting methods and the well-attested service life contribute to projects being completed quickly, economically and reliably. The corrugated jacket and the layer of cross-linked PE foam together with the VIP insulation material provide an optimal solution for energy efficient distribution networks. The system has a great variety of applications from an extensive supply network to a single connection for one building. Hot water, warm tap water or cooling water are transported as reliably as many other liquid media in industrial settings.

Uponor Ecoflex Thermo and Aqua VIP are designed and manufactured in accordance with the requirements of EN 15632-1 and -3.

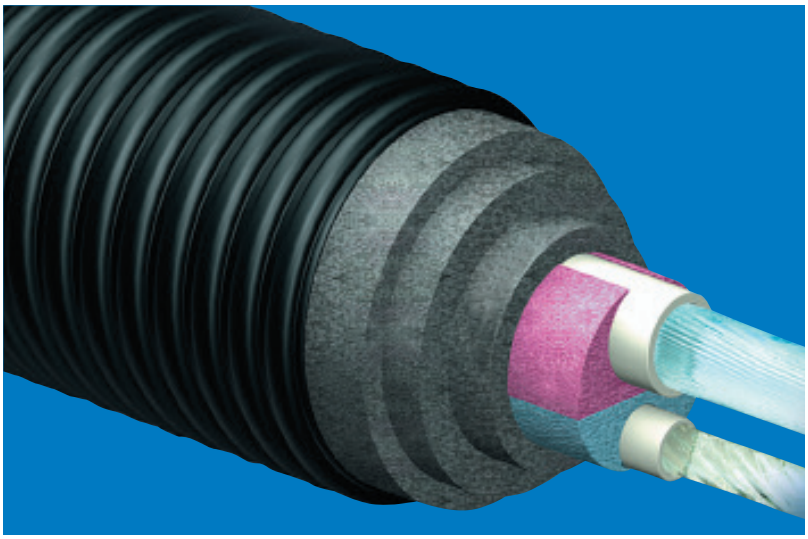


Uponor Ecoflex Aqua

The ideal pipe for domestic hot water services distribution

The Uponor Aqua pipework system is specifically designed for hot water distribution. With a thicker wall than the thermo pipe system it facilitates to take the higher demands required in distribution of hot water.

The Aqua pipe system is classified to BS EN 15632-3 as a non-bonded system with a plastic medium pipe. The dog bone structure helps identify the pipes at the plantroom.



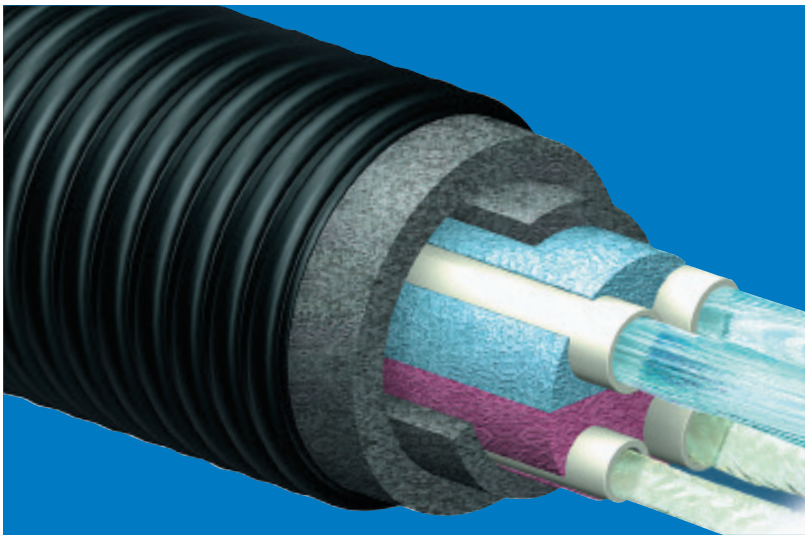
Uponor Ecoflex Quattro

One Jacket two applications

The Uponor Quattro is a perfect mix of both the Thermo and Aqua products. With 2 pipes for heating services flow and return and 2 pipes for domestic hot water flow and return.

The Quattro pipe system is classified to BS EN 15632-3 as a non-bonded system with a plastic medium pipe.

Please note this cannot be used for cold water services.



Uponor Ecoflex Supra

The only solution for chilled and cold water services

The Uponor Supra pipe is a the ideal solution for cold water services in the most demanding of environments. The PE100 pipework this gives it a higher than normal specification for water mains along with insulation to help prevent freezing. Coupled with this is the great flexibility of all Ecoflex Systems, which makes it the ideal solution for water mains in harsh environments.

For even colder environments, a frost protection cable can be added for peace of mind.

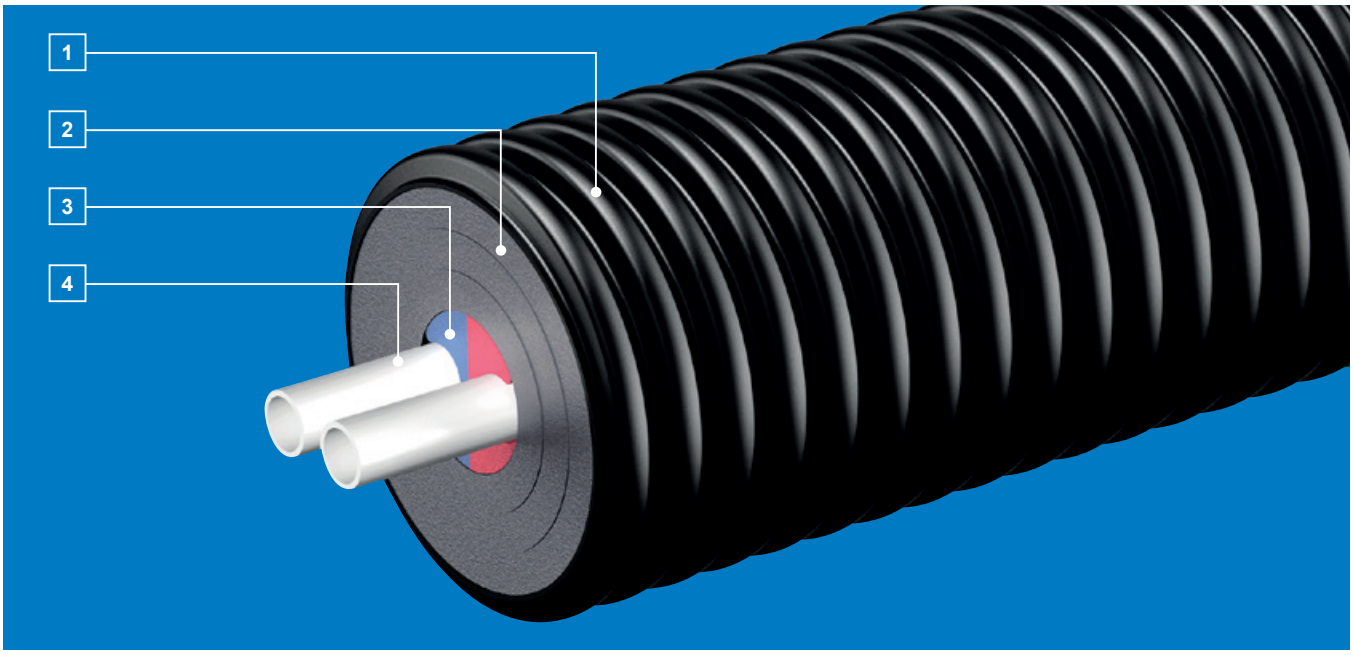
The Supra pipe system is classified to BS EN 15632-3 as a non-bonded system with a plastic medium pipe.

Uponor Ecoflex Thermo and Mini:

For flexibility and ease of installation

A practical solution for heating services where services life and ease of install are key

The ideal solution for the distribution of heating water in local heat supply networks or as links to building complexes and individual housing. The Uponor Thermo Twin variant combines flow and return in just one pipe system.



1 The PE-HD jacket pipe: impact-resistant, long-life yet flexible due to the unique Uponor pipe construction

2 The insulation made from cross linked polyethylene foam: ideal insulating properties, ageing-resistant, resistance to moisture and very high flexibility

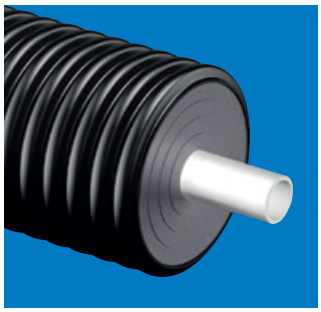
3 The coloured centring profile effectively avoids confusion between the flow and return pipes

4 The PE-Xa medium pipe: temperature-resistant, and resistant to incrustation and stress cracking

Your benefits

- Easy handling and fast building progress through exceptional flexibility
- Age-resistant, permanently elastic insulation of closed-cell cross linked polyethylene foam, water absorption < 1% by volume
- Heat losses externally monitored by DIN Certco
- Carrier pipe resistant to corrosion and incrustation
- The carrier pipe offers exceptional resistance to stress cracking, aggressive media, frost and micro-organisms
- Optimum ring stiffness, resistant to impact and pressure at the same time also offering high flexibility when laying and low weight of all the materials

Uponor Ecoflex Thermo Single



80°C
max.95°C

6 or 10 bar

25–125 mm

Primary application
- Heating water

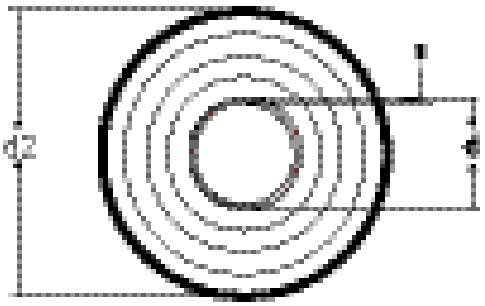
Secondary applications
- Waste water
- Chemicals (call for confirmation)

Medium pipe
- PE-Xa with EVOH, SDR 11 (6 bar) or
- PE-Xa with EVOH, SDR 7.4 (10 bar)

Option
- Heating cable

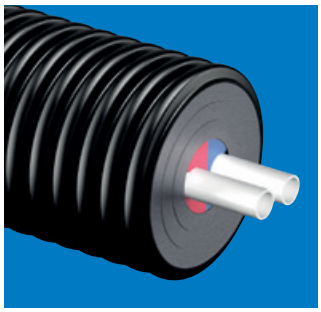
Insulating material
- Cross linked PE foam

Jacket pipe material
- PE-HD (PE 80)



Order Code	Medium pipe da / di / s	DN	Jacket pipe Da [mm]	Weight [kg/m]	Delivery lengths [m]	Bending radius [m]	Insulation thickness [mm]	U-value
1018109	25 / 20.4 / 2.3	20	140	1.10	200	0.25	45	0.148
1018110	32 / 26.2 / 2.9	25	140	1.20	200	0.30	42	0.174
1018111	40 / 32.6 / 3.7	32	175	2.20	200	0.35	55	0.172
1018112	50 / 40.8 / 4.6	40	175	2.43	200	0.45	50	0.203
1018113	63 / 51.4 / 5.8	50	175	2.73	200	0.55	43	0.249
1018114	75 / 61.4 / 6.8	65	200	3.74	100	0.80	49	0.257
1018115	90 / 73.6 / 8.2	80	200	4.20	100	1.10	39	0.315
1018116	110 / 90.0 / 10.0	100	200	5.24	100	1.20	30	0.421
1083868	125 / 102.2 / 11.4	125	250	7.30	80	1.40	46	0.378

Uponor Ecoflex Thermo Twin



80°C
max.95°C

6 or 10 bar

25–75 mm

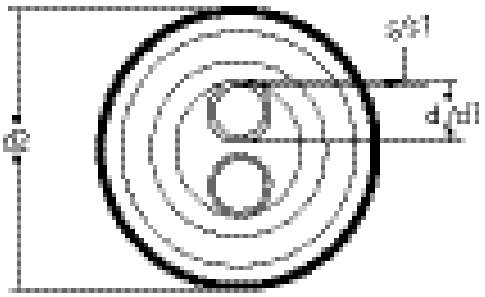
Primary application
- Heating water

Secondary applications
- Waste water
- Chemicals (call for confirmation)

Medium pipe
- PE-Xa with EVOH, SDR 11 (6 bar) or
- PE-Xa with EVOH, SDR 7.4 (10 bar)

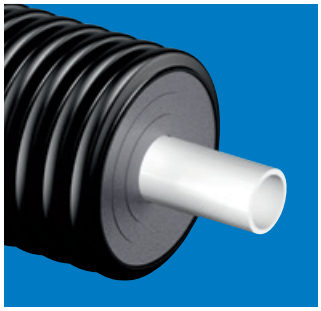
Insulating material
- Cross linked PE foam

Jacket pipe material
- PE-HD (PE 80)



Order Code	Medium pipe da / di / s	DN	Jacket pipe Da [mm]	Weight [kg/m]	Delivery lengths [m]	Bending radius [m]	Insulation thickness [mm]	U-value
1018134	(2x) 25 / 20.4 / 2.3	2x20	175	2.09	200	0.5	43	0.201
1018135	(2x) 32 / 26.2 / 2.9	2x25	175	2.16	200	0.6	38	0.241
1018136	(2x) 40 / 32.6 / 3.7	2x32	175	2.50	200	0.8	28	0.293
1018137	(2x) 50 / 40.8 / 4.6	2x40	200	3.59	100	1.0	32	0.314
1018138	(2x) 63 / 51.4 / 5.8	2x50	200	4.49	100	1.2	18	0.42
1088276	(2x) 75 / 61.4 / 6.8	2x65	250	6.43	100	1.4	28	0.369

Uponor Ecoflex Mini Single



80°C
max. 95°C

6 or 10 bar

25–32 mm

Primary application
- Heating water

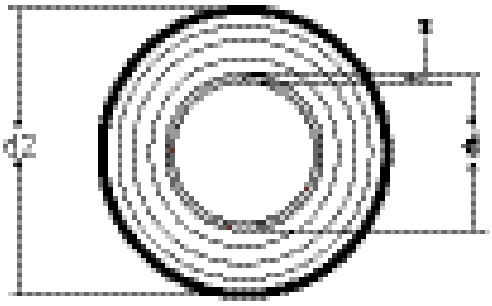
Secondary applications
- Foodstuffs (call for confirmation)
- Chemicals (call for confirmation)

Medium pipe
- PE-Xa with EVOH, SDR 11 (6 bar) or
- PE-Xa with EVOH, SDR 7.4 (10 bar)

Insulating material
- Cross linked PE-foam

Jacket pipe material
- PE-HD (PE 80)

NOTE!
The alternative solution for heating water distribution in local heating networks and for single building connections.



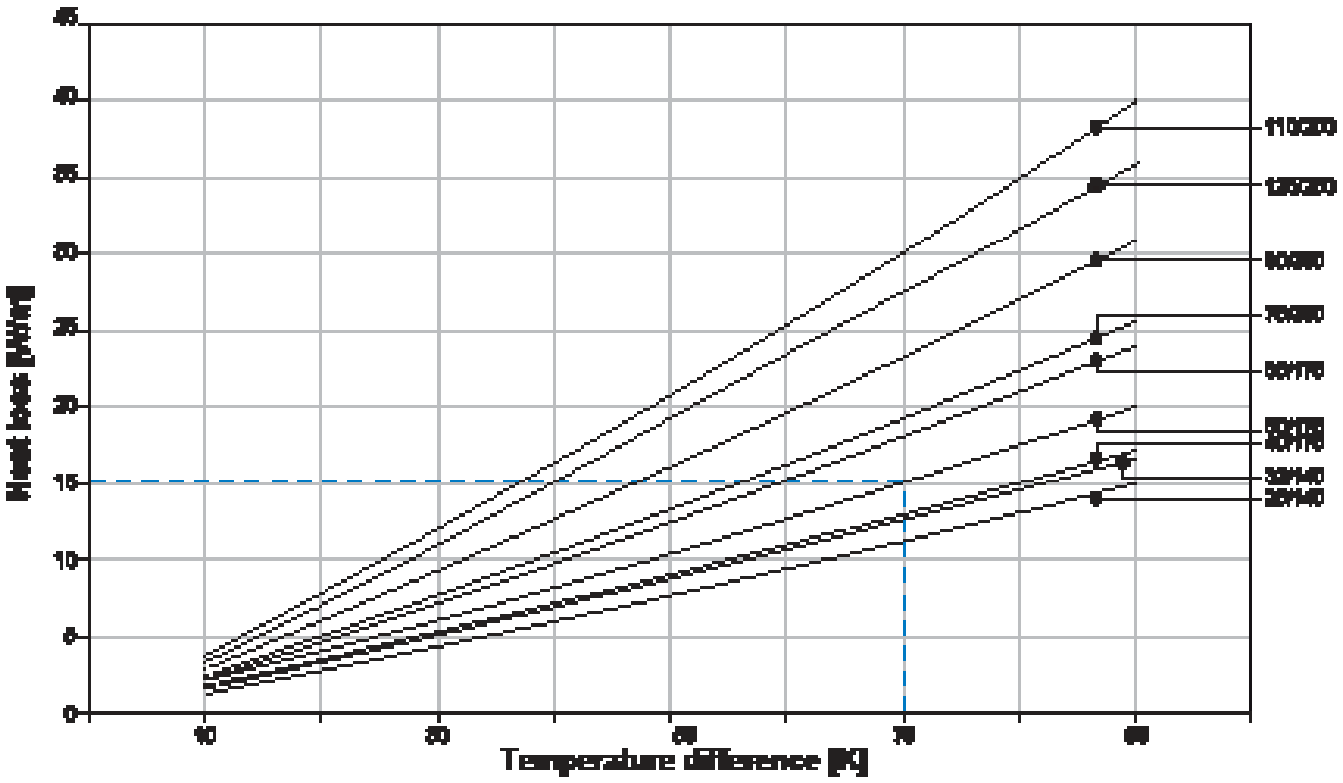
Order Code	Medium pipe da / di / s	DN	Jacket pipe Da [mm]	Weight [kg/m]	Delivery lengths [m]	Bending radius [m]	Insulation thickness [mm]	U-value
1018132	25 / 20.4 / 2.3	20	68	0.50	200	0.20	15	0.219
1018133	32 / 26.2 / 2.9	25	68	0.55	200	0.25	12	0.278

Heat Loss Charts

Uponor Thermo Single

Thermal conductivity ground: 1.0 W/mK
Ground coverage: 0.8 m

NOTE!
Heat loss data in the diagram are calculated with a safety factor of 1,05, according to the requirements of the German "VDI-AG Gütesicherung". Depending on production related tolerance.



Example for Uponor Thermo Single 50/175

T_M = Medium temperature
T_E = Ground temperature
ΔT = Temperature difference (K)

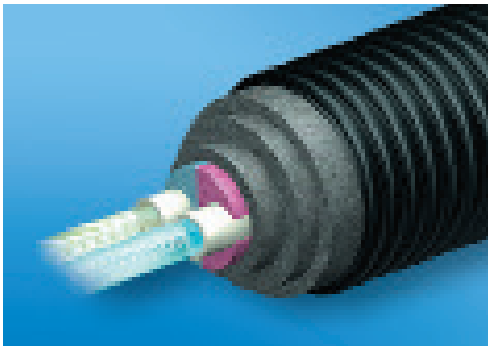
$\Delta T = T_M - T_E$
T_M = 75 °C
T_E = 5 °C
ΔT = 75 – 5 = 70 K
Heat loss: 15.1 W/m

überwacht nach VDI 2055 Überwachungsstelle FIW München

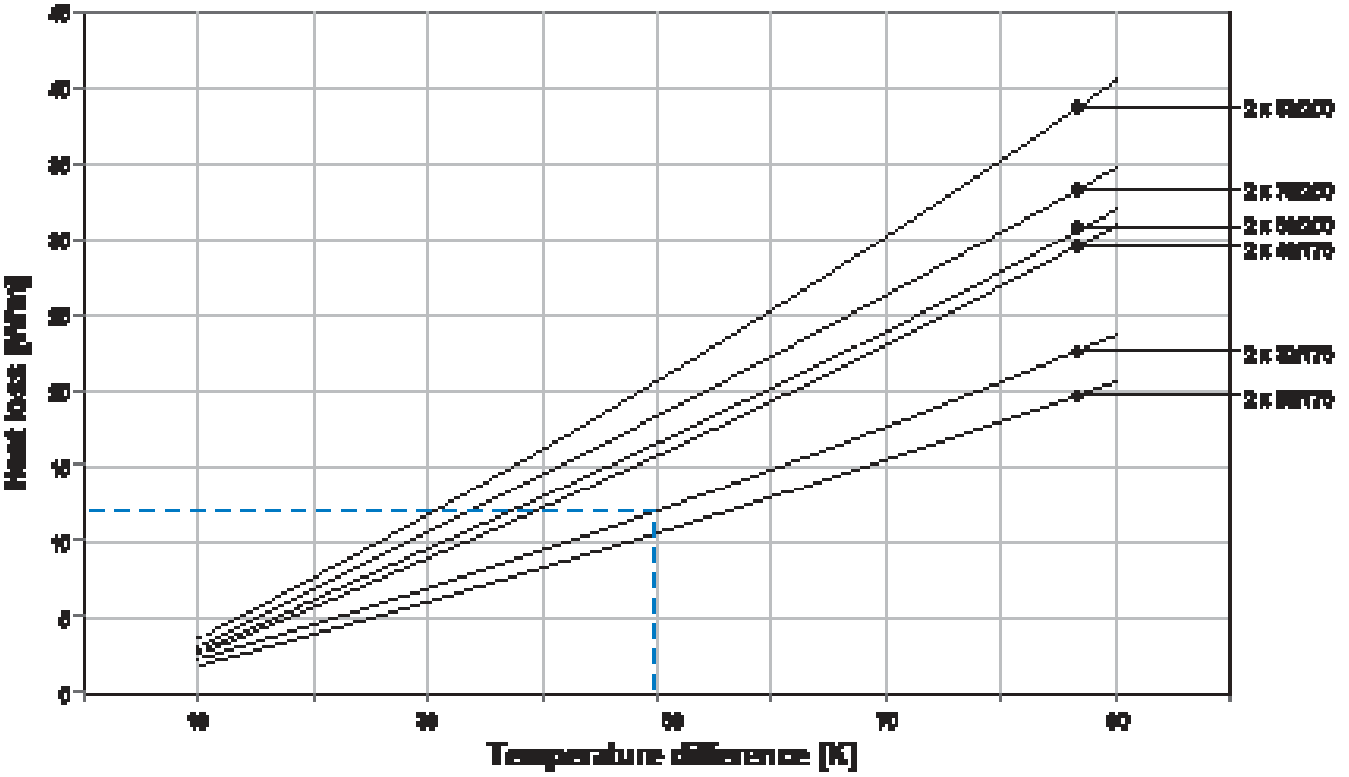
DIN CERTCO 6 V 046

Uponor Thermo Twin

Thermal conductivity ground: 1.0 W/mK
Ground coverage: 0.8 m



NOTE!
Heat loss data in the diagram are calculated with a safety factor of 1,05, according to the requirements of the German "VDI-AG Gütesicherung". Depending on production related tolerance.



Example for Uponor Thermo Twin 2 x 32/175

T_V = Flow temperature
T_R = Return temperature
T_E = Ground temperature
ΔT = Temperature difference (K)
$\Delta T = (T_V + T_R)/2 - T_E$
T_V = 70 °C
T_R = 40 °C
T_E = 5 °C
$\Delta T = (70 + 40)/2 - 5 = 50$ K
Heat loss: 12 W/m

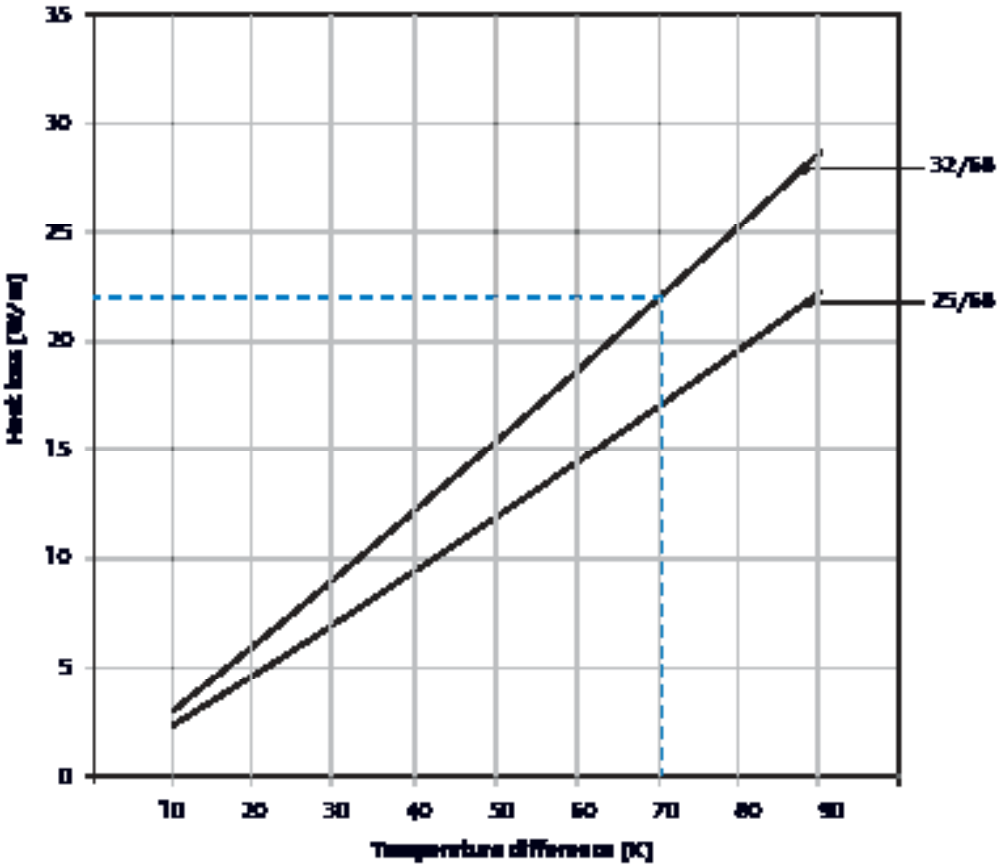
überwacht nach VDI 2055 Überwachungsstelle FLW München

DIN Geprüft
6 V 047

Uponor Ecoflex Thermo Mini

Thermal conductivity ground: 1.0 W/mK
Ground cover: 0.8 m

NOTE!
Heat loss data in the diagram are calculated with a safety factor of 1.05, according to the requirements of the German "VDI-AG Gütesicherung". Depending on production related tolerances.



Example for Uponor Thermo Mini 32/68

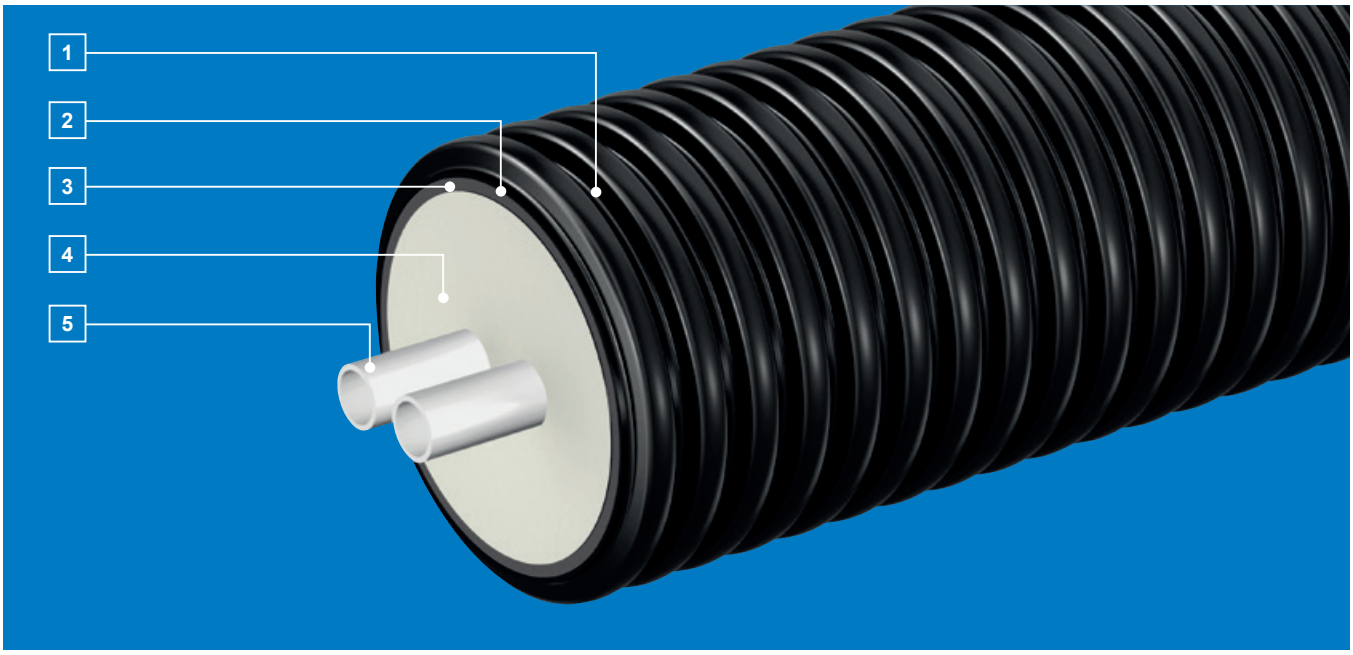
θ_M = Temperature of medium
θ_E = Temperature of the ground
$\Delta\theta$ = Temperature difference (K)
$\Delta\theta = \theta_M - \theta_E$
θ_M = 75 °C
θ_E = 5 °C
$\Delta\theta$ = 75 – 5 = 70 K
Heat loss: 22.5 W/m

NOTE!
The diagram shows the heat loss of one pipe. The heat loss of flow and return has to be calculated separately. To get the total heat loss add the flow and return heat losses.

Uponor Ecoflex Thermo PRO

A practical solution for heating, where service life and limited thermal loss are key

The unique construction of Ecoflex Thermo PRO combines low thermal loss with a good level of flexibility. The known features of the Ecoflex product range, such as the strong corrugated jacket and cross-linked PE foam come together with highly efficient PUR insulation material to provide the optimal solution for an efficient energy distribution network.



1 The PE-HD jacket pipe: impact-resistant with a long-life

2 PE foil helps to keep the PUR performance higher for longer

3 The PEX foam layer ensures that the Thermo PRO offers best in class flexibility

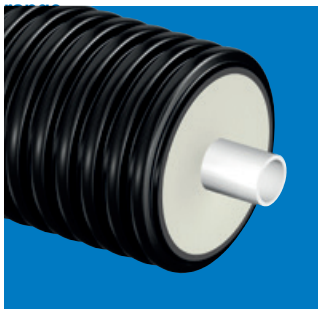
4 PUR foam helps to give the Thermo PRO 40% better insulation valves compared to PEX foam insulations

5 The PE-Xa carrier pipe: temperature-resistant, and resistant to incrustation and stress cracking

Your benefits

- Excellent energy efficiency due to high insulation performance
- Unique pipe construction provides best in class flexibility and long term performance of a heating system
- The carrier pipe is resistant to corrosion and incrustation
- The carrier pipe offers exceptional resistance to stress cracking, aggressive media, frost and micro-organisms
- Optimum ring stiffness, resistant to impact and pressure at the same time offering high flexibility when laying and low weight of all the materials

Uponor Ecoflex Thermo PRO Single PN 6 pipe



80°C
max.95°C

6 bar

40–110 mm

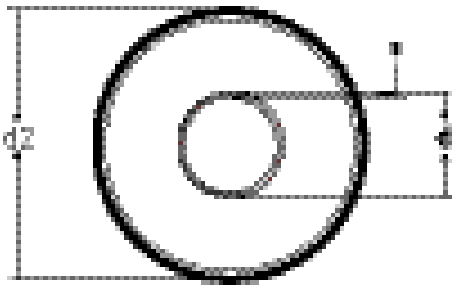
Primary application
- Heating water

Secondary applications
- Waste water
- Chemicals (call for confirmation)

Medium pipe
- PE-Xa with EVOH, SDR 11 (6 bar)

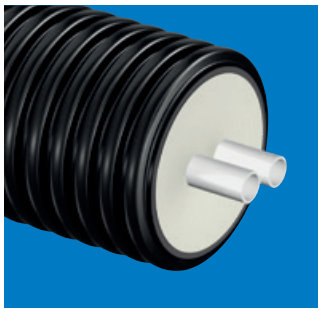
Insulating material
- PUR foam and cross linked PE foam

Jacket pipe material
- PE-HD (PE 80)



Order Code	Medium pipe da / di / s	DN	Jacket pipe Da [mm]	Weight [kg/m]	Delivery lengths [m]	Bending radius [m]	Insulation thickness [mm]	U-value
1087378	40 x 3.7	32	145	1.99	240	0.50	42	0.114
1087379	40 x 3.7	32	175	3.07	150	0.70	53	0.099
1087383	50 x 4.6	40	145	2.27	240	0.60	37	0.139
1087384	50 x 4.6	40	175	2.96	150	0.70	50	0.118
1087385	63 x 5.8	50	175	3.26	150	0.70	43	0.146
1087386	63 x 5.8	50	200	3.84	100	0.80	53	0.130
1087387	75 x 6.8	65	175	3.60	150	0.80	37	0.179
1087388	75 x 6.8	65	200	4.18	100	0.90	47	0.155
1087389	90 x 8.2	80	200	4.70	100	1.10	39	0.195
1087390	110 x 10.0	100	200	5.51	100	1.20	29	0.271

Uponor Ecoflex Thermo PRO Twin PN 6 pipe range



80°C
max.95°C

6 bar

25–63 mm

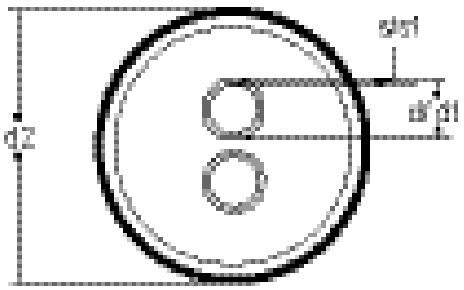
Primary application
- Heating water

Secondary applications
- Waste water
- Chemicals (call for confirmation)

Medium pipe
- PE-Xa with EVOH, SDR 11 (6 bar)

Insulating material
- PUR Foam and cross linked PE foam

Jacket pipe material
- PE-HD (PE 80)



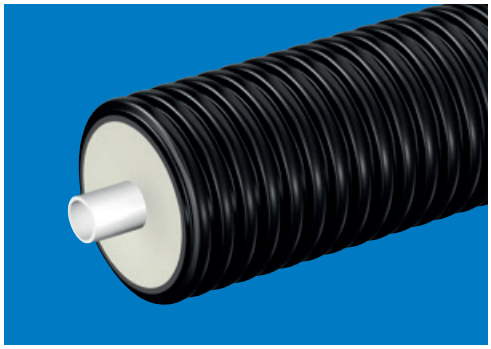
Order Code	Medium pipe da / di / s	DN	Jacket pipe Da [mm]	Weight [kg/m]	Delivery lengths [m]	Bending radius [m]	Insulation thickness [mm]	U-value
1087392	25 x 2.3	20 + 20	145	1.97	240	0.60	32	0.137
1087393	25 x 2.3	20 + 20	175	2.71	150	0.70	45	0.116
1087394	32 x 2.9	25 + 25	145	2.15	240	0.60	25	0.173
1087395	32 x 2.9	25 + 25	175	2.87	150	0.80	38	0.140
1087396	40 x 3.7	32 + 32	175	3.13	150	0.80	30	0.175
1087397	40 x 3.7	32 + 32	200	3.70	100	1.00	37	0.150
1087398	50 x 4.6	40 + 40	200	4.08	100	1.10	34	0.195
1087399	63 x 5.8	50 + 50	200	4.69	100	1.20	16	0.266

Heat Loss Charts

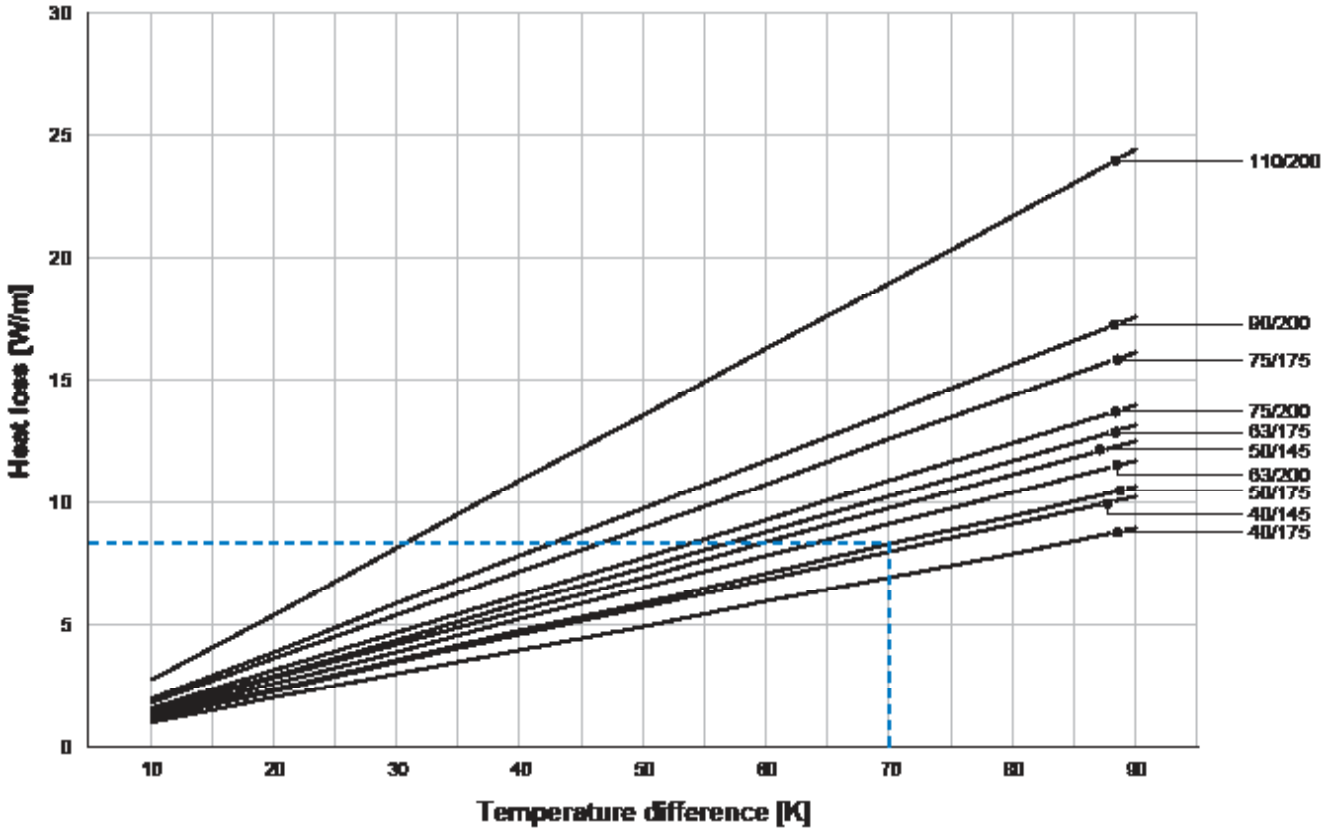
Heat loss Uponor Ecoflex Thermo PRO Single PN 6

Thermal conductivity of the ground: 1.0 W/mK
Ground cover: 0.8 m

Please contact Uponor sales office for installation specific heat loss calculation.



NOTE!
The diagram shows the heat loss of one pipe. The heat loss of flow and return has to be calculated separately. To get the total heat loss add the flow and return heat losses.



Example for Thermo PRO Single 50/175

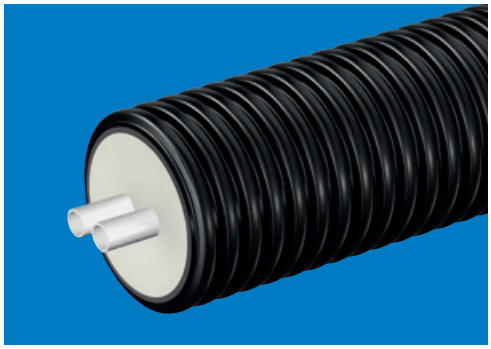
θ_M = Temperature of medium
θ_E = Temperature of the ground
$\Delta\theta$ = Temperature difference (K)

$\Delta\theta = \theta_M - \theta_E$
θ_M = 75 °C
θ_E = 5 °C
$\Delta\theta$ = 75 – 5 = 70 K
Heat loss: 8.3 W/m

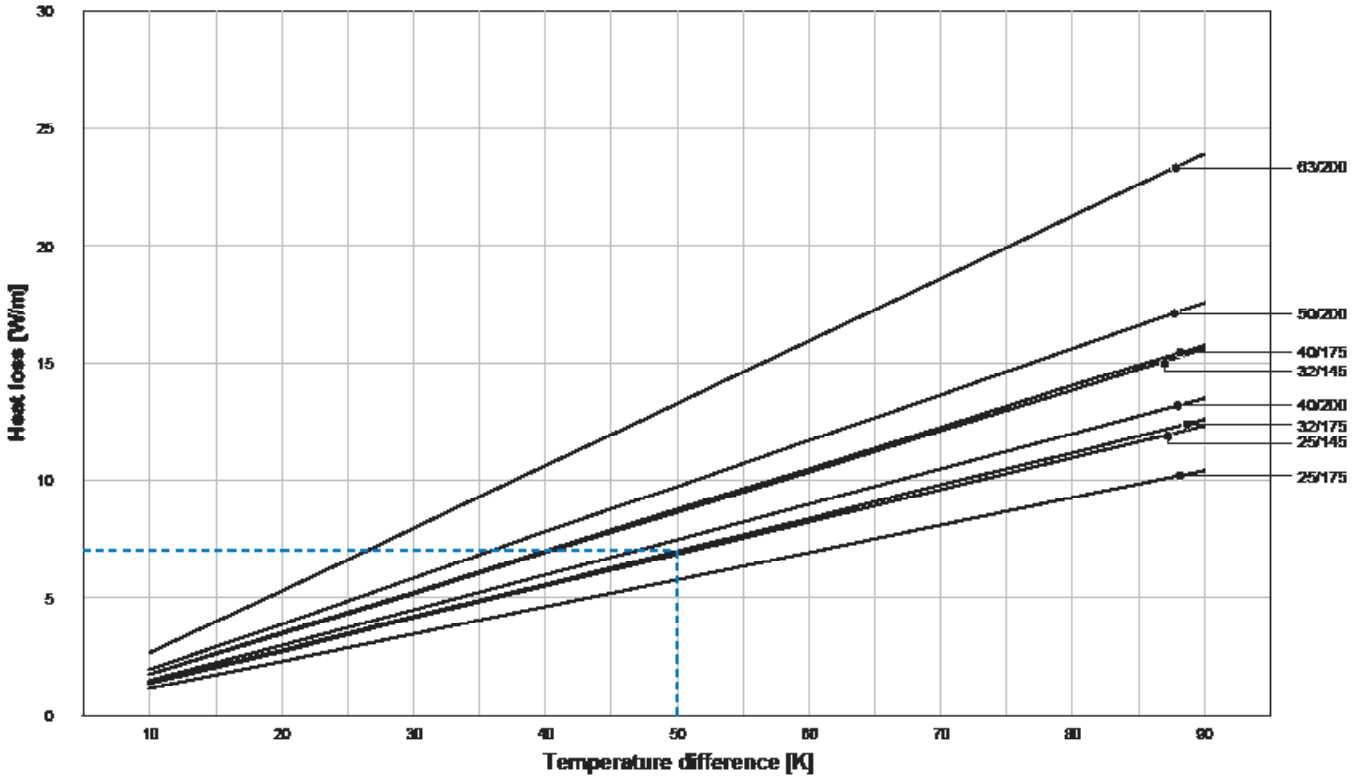
Heat loss Uponor Ecoflex Thermo PRO Twin PN 6

Thermal conductivity of the ground: 1.0 W/mK
Ground cover: 0.8 m

Please contact Uponor sales office for installation specific heat loss calculation.



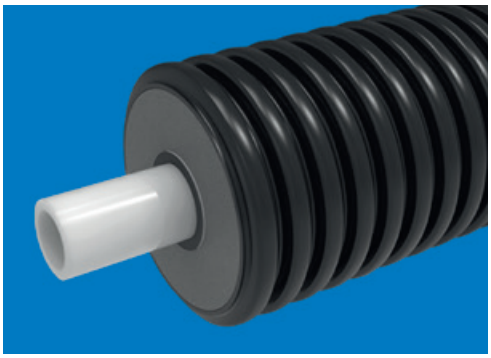
NOTE!
The diagram shows the heat loss for both the flow and return. Please note you do not need to calculate the flow and return seperately.

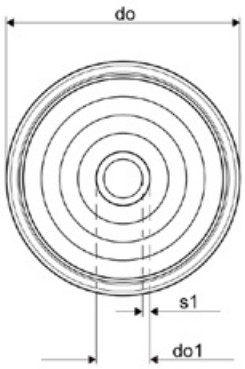


Example for Thermo PRO Twin 2 x 32/175

θ_V = Flow temperature
θ_R = Return temperature
θ_E = Temperature of the ground
$\Delta\theta$ = Temperature difference (K)
$\Delta\theta = (\theta_V + \theta_R)/ 2 - \theta_E$
θ_V = 70 °C
θ_R = 40 °C
θ_E = 5 °C
$\Delta\theta = (70 + 40)/2 - 5 = 50$ K
Heat loss: 7.0 W/m

Uponor Ecoflex Thermo VIP Single PN6 (SDR11)



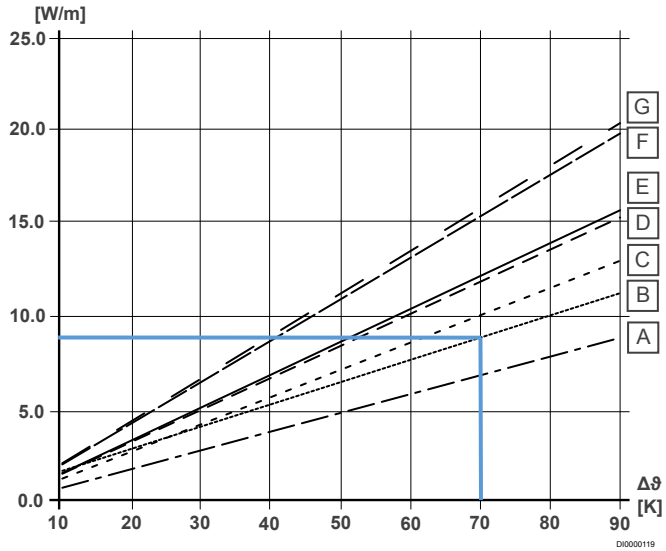


Type	Medium pipe do1 x s1 [mm]	Jacket pipe [mm]	Bending radius [m]	Weight empty [kg/m]	Volume Medium pipe [l/m]	Coil length [m]
40/140	40 x 3.7	140	0.35	1.67	0.83	200
50/140	50 x 4.6	140	0.40	1.93	1.31	200
63/140	63 x 5.8	140	0.50	2.35	2.07	200
75/140	75 x 6.8	140	0.60	2.73	2.96	200
90/175	90 x 8.2	175	0.70	4.00	4.25	100
110/175	110 x 10.0	175	0.90	5.08	6.36	100
125/200	125 x 11.4	200	1.30	6.65	8.20	120

Operating temperature: 80 °C (30 years), maximum 95 °C

Operating pressure: 6 bar

Heat loss



Example calculation

ϑ_M = Temperature medium = 75 °C
ϑ_E = Temperature Ground = 5 °C
$\Delta\vartheta$ = Temperature difference [K]

$\Delta\vartheta = \vartheta_M - \vartheta_E$

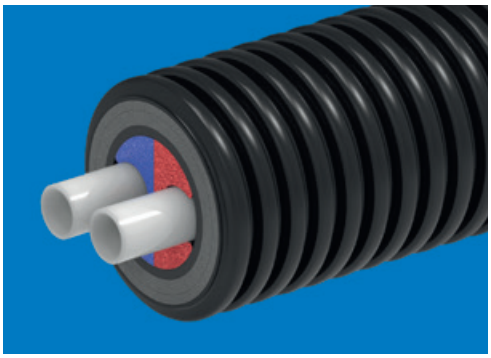
75 °C - 5 °C = 70 K

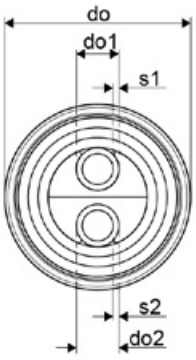
Heat loss: 8.5 W/m

			Heat loss [W/m] for corresponding temperature difference Δϑ [K]						
Item	Type	U-value [W/m·K]	30	40	50	60	70	80	90
A	40/140	0.104	3.11	4.14	5.18	6.22	7.25	8.29	9.32
B	50/140	0.122	3.65	4.86	6.08	7.30	8.51	9.73	10.94
C	63/140	0.146	4.37	5.82	7.28	8.74	10.19	11.65	13.10
D	75/140	0.171	5.14	6.85	8.57	10.28	11.99	13.70	15.42
E	90/175	0.176	5.27	7.02	8.78	10.54	12.29	14.05	15.80
F	110/175	0.221	6.64	8.85	11.06	13.27	15.48	17.70	19.91
G	125/200	0.227	6.82	9.09	11.37	13.64	15.91	18.18	20.46

U-value and heat loss calculation parameters according to EN 15632-1 Annex B.

Uponor Ecoflex Thermo VIP Twin PN6 (SDR11)



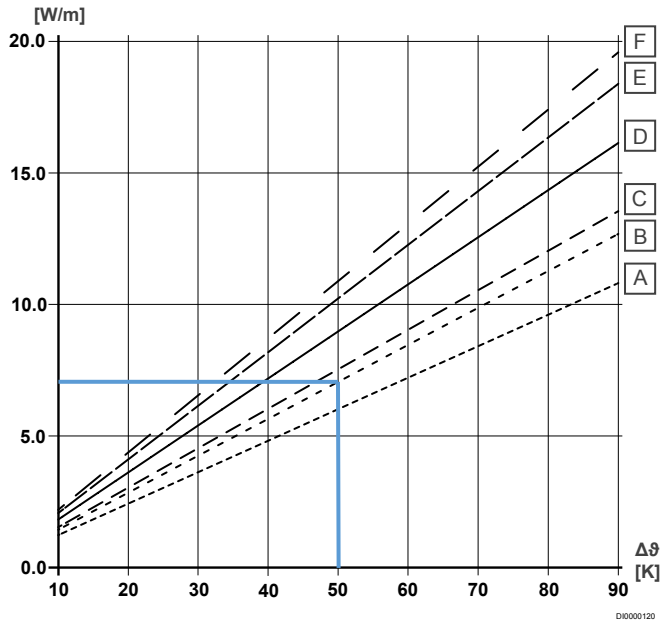


Type	Medium pipe do1 x s1 [mm]	Medium pipe do2 x s2 [mm]	Jacket pipe do [mm]	Bending radius [m]	Weight empty [kg/m]	Volume Medium pipe [l/m]	Coil length [m]
2x 25/140	25 x 2.3	25 x 2.3	140	0.40	1.70	2x 0.33	200
2x 32/140	32 x 2.9	32 x 2.9	140	0.50	1.91	2x 0.54	200
2x 40/175	40 x 3.7	40 x 3.7	175	0.80	2.90	2x 0.83	200
2x 50/175	50 x 4.6	50 x 4.6	175	0.90	3.44	2x 1.31	200
2x 63/200	63 x 5.8	63 x 5.8	200	1.20	4.88	2x 2.07	100
2x 75/250	75 x 6.8	75 x 6.8	250	1.40	6.77	2x 2.96	100

Operating temperature: 80 °C (30 years), maximum 95 °C

Operating pressure: 6 bar

Heat loss



Example calculation

ϑ_v = Flow temperature
ϑ_R = Return temperature
ϑ_E = Temperature Ground
$\Delta\vartheta$ = Temperature difference (K)

$\Delta\vartheta = (\vartheta_v + \vartheta_R)/ 2 - \vartheta_E$

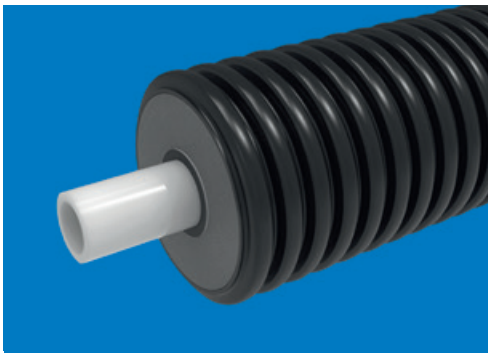
(70 °C + 40 °C)/ 2 - 5 °C = 50 K

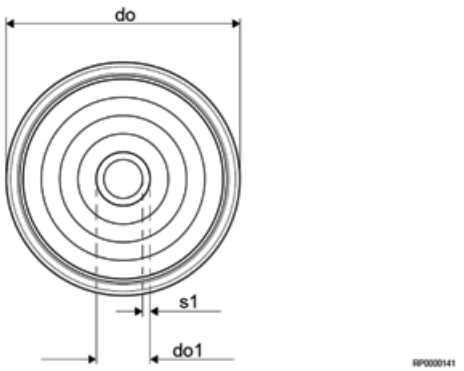
Heat loss: 7 W/m

			Heat loss [W/m] for corresponding temperature difference Δϑ [K]						
Item	Type	U-value [W/m·K]	30	40	50	60	70	80	90
A	2x25/140	0.120	3.59	4.79	5.99	7.19	8.39	9.58	10.78
B	2x32/140	0.141	4.22	5.62	7.03	8.44	9.84	11.25	12.65
C	2x40/175	0.150	4.51	6.01	7.51	9.01	10.51	12.02	13.52
D	2x50/175	0.179	5.37	7.16	8.95	10.74	12.53	14.32	16.11
E	2x63/200	0.204	6.12	8.16	10.20	12.24	14.28	16.32	18.36
F	2x75/200	0.218	6.53	8.71	10.89	13.06	15.24	17.42	19.59

U-value and heat loss calculation parameters according to EN 15632-1 Annex B.

Ecoflex Aqua VIP Single PN10 (SDR 7.4)



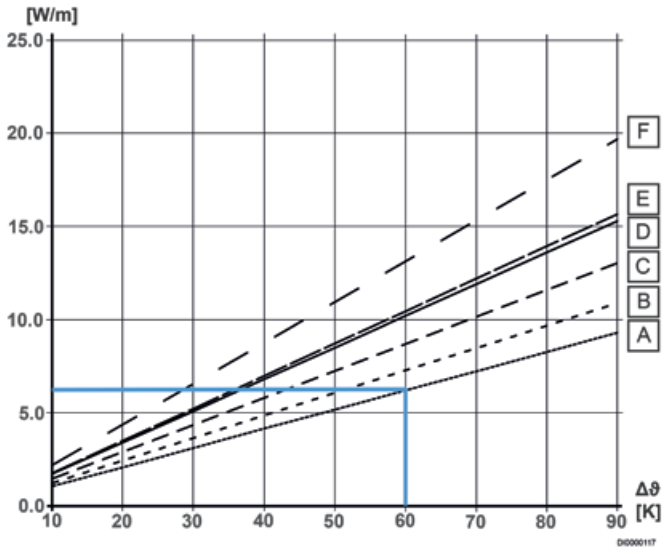


Type	Medium pipe do1 x s1 [mm]	Jacket pipe do [mm]	Bending radius [m]	Weight empty [kg/m]	Volume Medium pipe [l/m]	Coil length [m]
40/140	40 x 5.5	140	0.40	1.84	0.66	200
50/140	50 x 6.9	140	0.45	2.19	1.03	200
63/140	63 x 8.6	140	0.55	2.76	1.65	200
75/140	75 x 10.3	140	0.70	3.33	2.32	100
90/175	90 x 12.3	175	0.80	4.88	3.36	100
110/175	110 x 15.1	175	1.00	6.33	5.00	100

Operating temperature: 70 °C (50 years), maximum 95 °C

Operating pressure: 10 bar

Heat loss



ϑ_M = Temperature medium = 65 °C
ϑ_E = Temperature Ground = 5 °C
$\Delta\vartheta$ = Temperature difference [K]

$\Delta\vartheta = \vartheta_M - \vartheta_E$

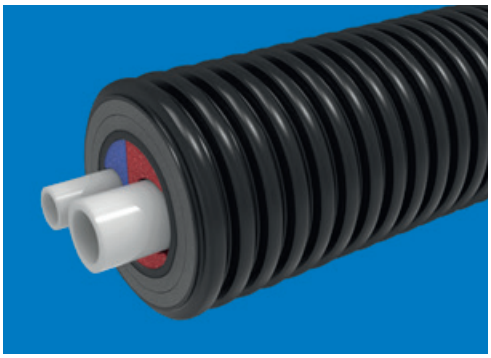
65 °C - 5 °C = 60 K

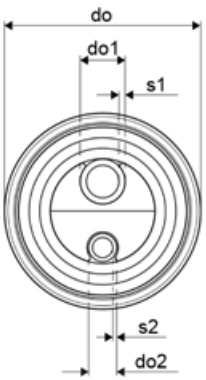
Heat loss: 6.18 W/m

			Heat loss [W/m] for corresponding temperature difference $\Delta\vartheta$ [K]						
Item	Type	U-value [W/m·K]	30	40	50	60	70	80	90
A	40/140	0.103	3.09	4.12	5.15	6.18	7.21	8.24	9.27
B	50/140	0.121	3.62	4.83	6.04	7.25	8.46	9.66	10.87
C	63/140	0.145	4.34	5.78	7.23	8.67	10.12	11.56	13.01
D	75/140	0.170	5.09	6.79	8.49	10.18	11.88	13.58	15.27
E	90/175	0.174	5.22	6.96	8.70	10.43	12.17	13.91	15.65
F	110/175	0.219	6.56	8.74	10.93	13.11	15.30	17.48	19.67

U-value and heat loss calculation parameters according to EN 15632-1 Annex B.

Ecoflex Aqua VIP Twin PN10 (SDR 7.4)



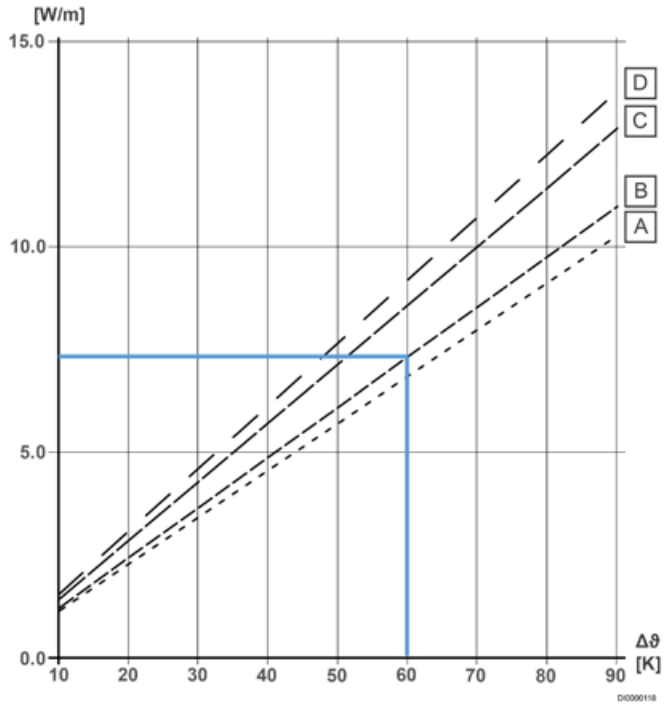


Type	Medium pipe do1 x s1 [mm]	Medium pipe do2 x s2 [mm]	Jacket pipe do [mm]	Bending radius [m]	Weight empty [kg/m]	Volume Medium pipe [l/m]	Coil length [m]
25-20/140	25 x 3.5	20 x 2.8	140	0.45	1.74	0.37	200
32-20/140	32 x 4.4	20 x 2.8	140	0.55	1.88	0.51	200
40-25/140	40 x 5.5	25 x 3.5	140	0.70	2.18	0.80	200
50-32/175	50 x 6.9	32 x 4.4	175	0.80	3.36	1.27	200

Operating temperature: 70 °C (50 years), maximum 95 °C

Operating pressure: 10 bar

Heat loss



ϑ_v = Flow temperature = 65 °C
ϑ_R = Return temperature = 55 °C
ϑ_E = Temperature Ground = 0 °C
$\Delta\vartheta$ = Temperature difference (K)

$\Delta\vartheta = (\vartheta_v + \vartheta_R)/ 2 - \vartheta_E$

(65 °C + 55 °C)/ 2 - 0 °C = 60 K

Heat loss: 7.32 W/m

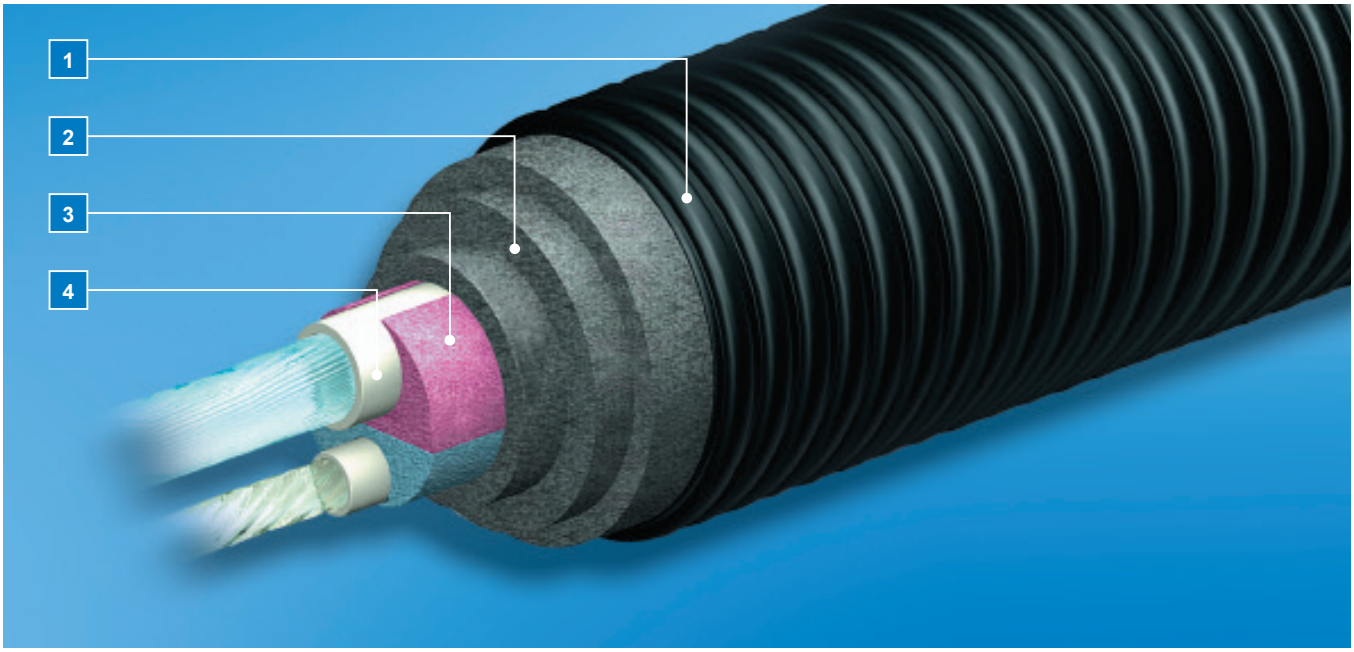
			Heat loss [W/m] for corresponding temperature difference Δϑ [K]						
Item	Type	U-value [W/m·K]	30	40	50	60	70	80	90
A	25-20/140	0.114	3.43	4.57	5.71	6.85	7.99	9.14	10.28
B	32-20/140	0.122	3.66	4.88	6.10	7.32	8.54	9.76	10.98
C	40-25/140	0.143	4.29	5.72	7.16	8.59	10.02	11.45	12.88
D	50-32/175	0.153	4.59	6.12	7.65	9.18	10.71	12.24	13.77

U-value and heat loss calculation parameters according to EN 15632-1 Annex B.

Uponor Ecoflex Aqua

The perfect flexible solution for domestic hot water services

A thicker walled pipework (SDR7.4) makes this a perfect solution for domestic hot water services. The twin design with in pipework has been produced with a circulation loop system in mind.



1 The PE-HD jacket pipe: impact-resistant, long-life yet flexible due to the Uponor pipe geometry

2 The insulation made from cross linked polyethylene foam: ideal insulating properties, ageing-resistant, resistance to moisture and very high flexibility

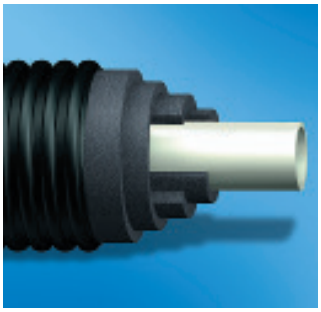
3 The coloured centring profile effectively avoids confusion between the flow and return pipes

4 The PE-Xa carrier pipe: temperature-resistant, and resistant to incrustation and stress cracking

Your benefits

- Unique pipe construction provides best in class flexibility and long term performance of a heating system.
- The carrier pipe is resistant to corrosion and incrustation
- The carrier pipe offers exceptional resistance to stress cracking, aggressive media, frost and micro-organisms
- Optimum ring stiffness, resistant to impact and pressure at the same time offering high flexibility when laying and low weight of all the materials

Uponor Aqua Single



70°C
max.95°C

10 bar

25–110 mm

Main application
- Potable water, warm

Other applications
- Foodstuffs
- Chemicals

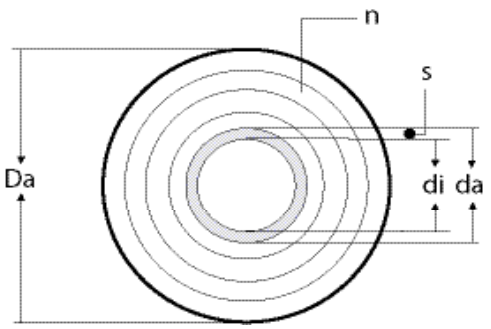
Medium pipe
- PE-Xa, SDR 7.4

Option
- Heating cable

Insulating material
- PE-X foam

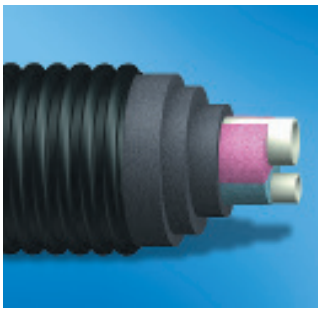
Material jacket pipe
- HDPE

NOTE!
The safe and cost-effective pipeline for warm water installations.



Order Code	Medium pipe da / di / s	DN	Jacket pipe Da [mm]	Weight [kg/m]	Delivery lengths [m]	Bending radius [m]	Insulation thickness [mm]
1018117	25 / 18.0 / 3.5	20	140	1.20	200	0.35	45
1018118	32 / 23.2 / 4.4	25	140	1.30	200	0.40	42
1018119	40 / 29.0 / 5.5	32	175	2.37	200	0.45	55
1018120	50 / 36.2 / 6.9	40	175	2.71	200	0.55	50
1018121	63 / 45.6 / 8.7	50	175	3.17	200	0.65	43
1018122	75 / 54.4 / 10.3	63	200	4.3	100	0.9	49
1018123	90 / 65.4 / 12.3	80	200	5.3	100	1.2	39
1036036	110 / 79.8 / 15.1	100	200	6.5	100	1.3	30

Uponor Aqua Twin



70°C
max.95°C

10 bar

25–50 mm

Main application
- Potable water, warm with circulation

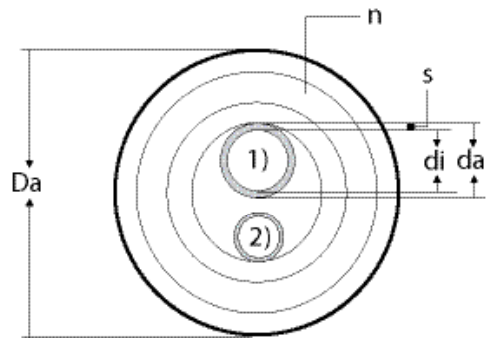
Other applications
- Foodstuffs
- Chemicals

Medium pipe
- PE-Xa, SDR 7.4

Insulating material
- PE-X foam

Material jacket pipe
- HDPE

NOTE!
Including circulation line. The two-coloured Dog Bone prevents confusion when connecting the medium pipe.



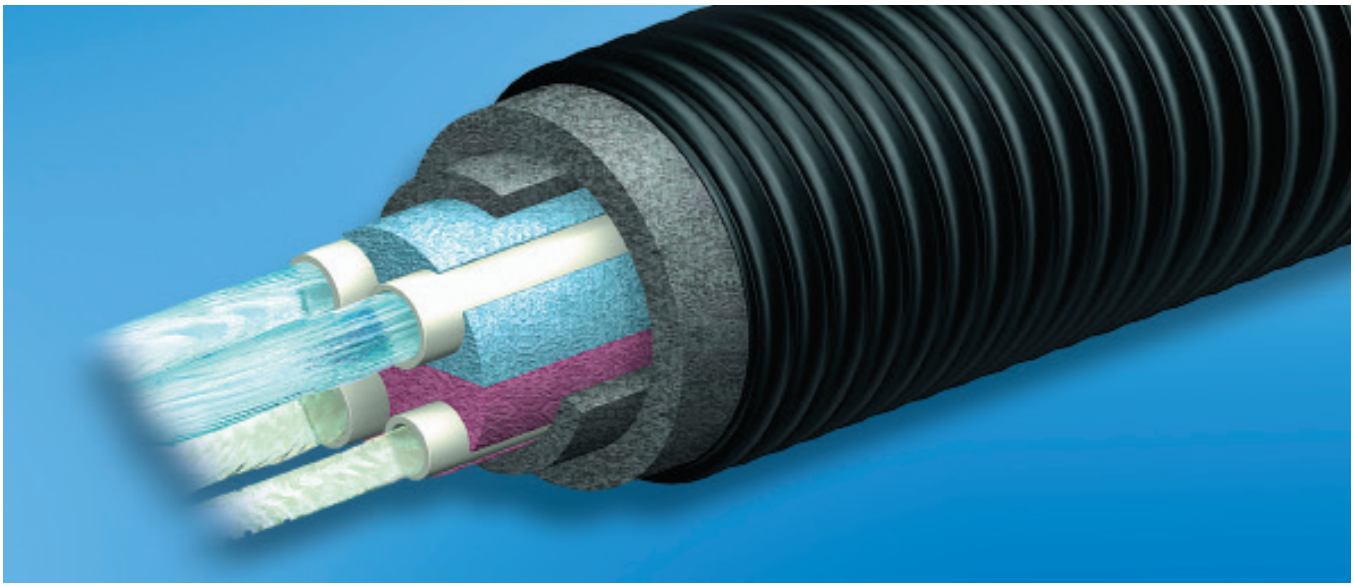
Order Code	Medium pipe da / di / s	DN	Jacket pipe Da [mm]	Weight [kg/m]	Delivery lengths [m]	Bending radius [m]	Insulation thickness [mm]
1018139	1) 25 / 18.0 / 3.5 2) 25 / 18.0 / 3.5	20 20	175	2.22	200	0.65	43
1018140	1) 32 / 23.2 / 4.4 2) 25 / 18.0 / 3.5	25 20	175	2.37	200	0.70	38
1018141	1) 40 / 29.0 / 5.5 2) 25 / 18.0 / 3.5	32 20	175	2.62	200	0.90	38
1018142	1) 50 / 36.2 / 6.9 2) 25 / 18.0 / 3.5	40 20	175	2.90	200	1.00	28

Uponor Ecoflex Quattro

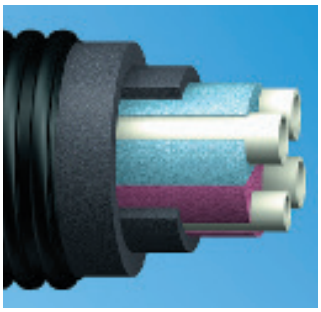
The one pipe solution for your domestic hot water and heating services needs

A 4 pipe system designed for carrying heating and hot water flow and return services– all in just one pipe. There is no easier or more cost-efficient way of linking up individual buildings or building complexes.

Please note this pipework cannot be used for cold water distribution.



Uponor Quattro



70°C/180°C
max.95°C

6/10 bar

25–32 mm

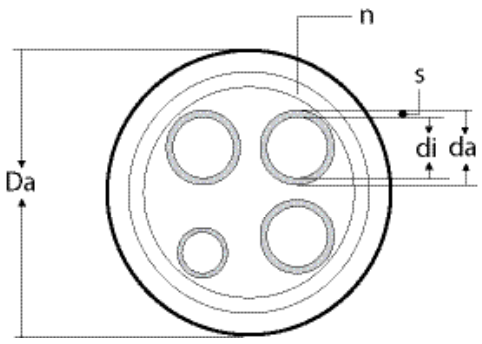
Main application
- Heating water
- Potable water, warm with circulation

Medium pipe
2 - PE-Xa, SDR 7.4
2 - PE-Xa with EVOH, SDR 11

Insulating material
- PE-X foam

Material jacket pipe
- HDPE

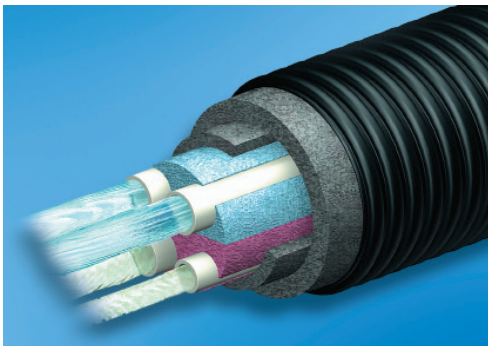
NOTE!
Uponor Quattro pipelines are also practical and cost-efficient for linking up annex buildings. The two-coloured Dog Bone prevents confusion when connecting the medium pipe.

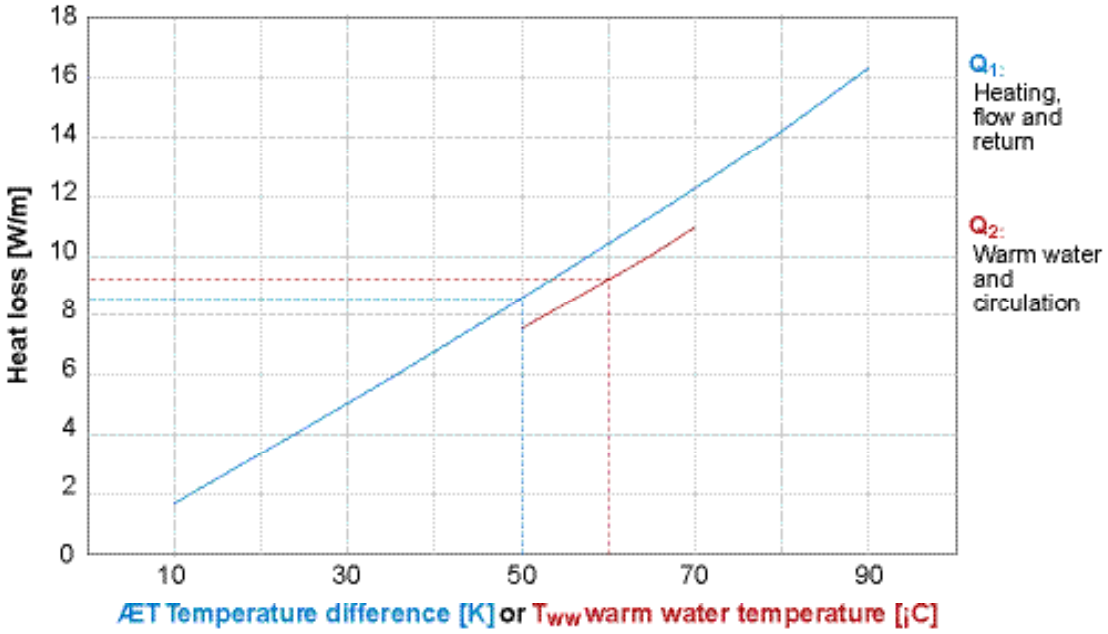


Order Code	Medium pipe da / di / s	DN	Jacket pipe Da [mm]	Weight [kg/m]	Delivery lengths [m]	Bending radius [m]	Insulation thickness [mm]
1018147	2x 25 / 20.4 / 2.3 2x 25 / 18.0 / 3.5	2x20 2x20	175	2.40	200	0.80	35
1018148	2x 32 / 26.2 / 2.9 2x 25 / 18.0 / 3.5	2x25 2x20	175	2.60	200	0.80	35
1018149	2x 32 / 26.2 / 2.9 32 / 23.2 / 4.4 25 / 18.0 / 3.5	2x25 1x25 1x20	175	2.70	200	0.80	34

Uponor Quattro

Thermal conductivity ground: 1.0 W/mK
Ground coverage: 0.8 m





Example for Uponor Quattro

T_V = flow temperature
T_R = return temperature
T_E = ground temperature
ΔT = temperature difference (K)
T_{ww} = temperature warm water and circulation line
$\Delta T = (T_V + T_R)/2 - T_E$
T_V = 70 °C
T_R = 40 °C
T_E = 5 °C
ΔT = (70 + 40)/2 – 5 = 50 K
T_{ww} = 60 °C

It follows therefore that:
Q_1 (at ΔT = 50K) = 8.5 W/m
Q_2 (at Tww = 60 °C) = 9.2 W/m

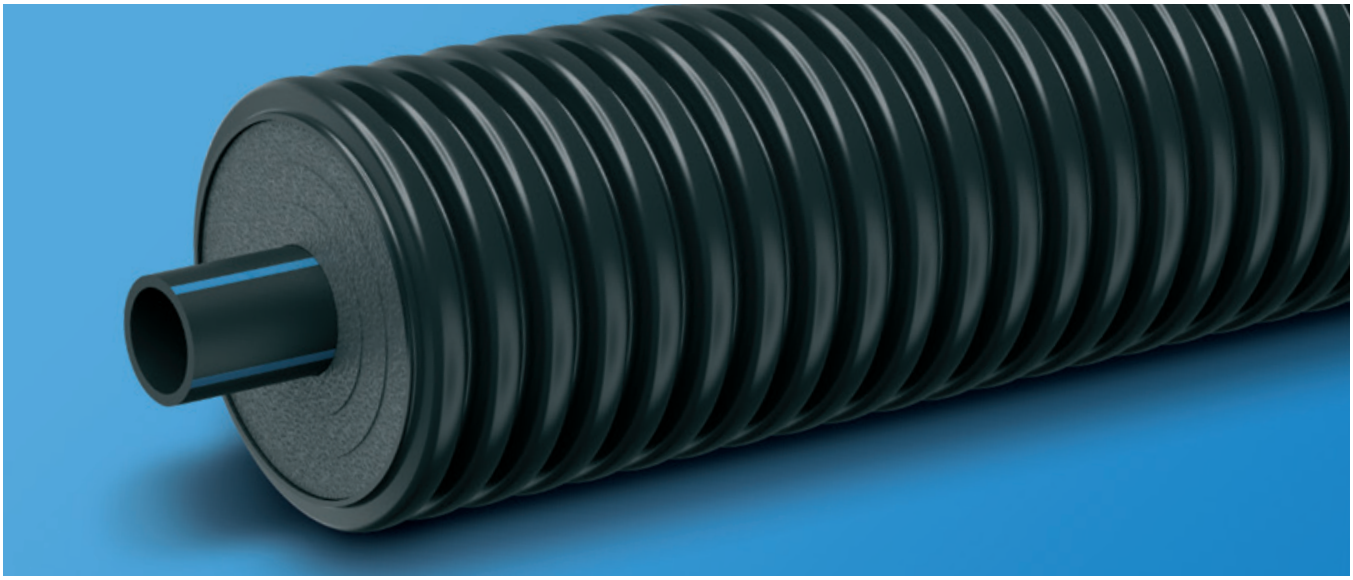
Specific heat loss per running metre:
$Q = Q_1 + Q_2$ = (8.5 + 9.2) W/m = 17.7 W/m

Heat loss checked by
FIW München:
Art.-No.: 1018149

Uponor Ecoflex Supra

Ideal for cold water mains in a demanding environment

The ultimate for cold potable water and cooling water networks
Refreshingly consistent for cold liquid media. Uponor Supra can be used for both cold and cooling water applications.



Uponor Supra

20°C

16 bar

25–110 mm

Main application
- Potable water, cold
- Cooling water

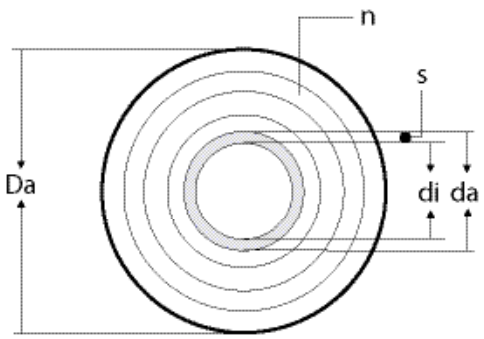
Other applications
- Waste water
- Medium pipe
- HDPE (PE 100), SDR 11

Insulating material
- PE-X foam

Material jacket pipe
- HDPE

NOTE!
For swimming pools, hotels, wellness centres or in industry. Supra is optimized for media temperatures from – 10 °C to + 20 °C.

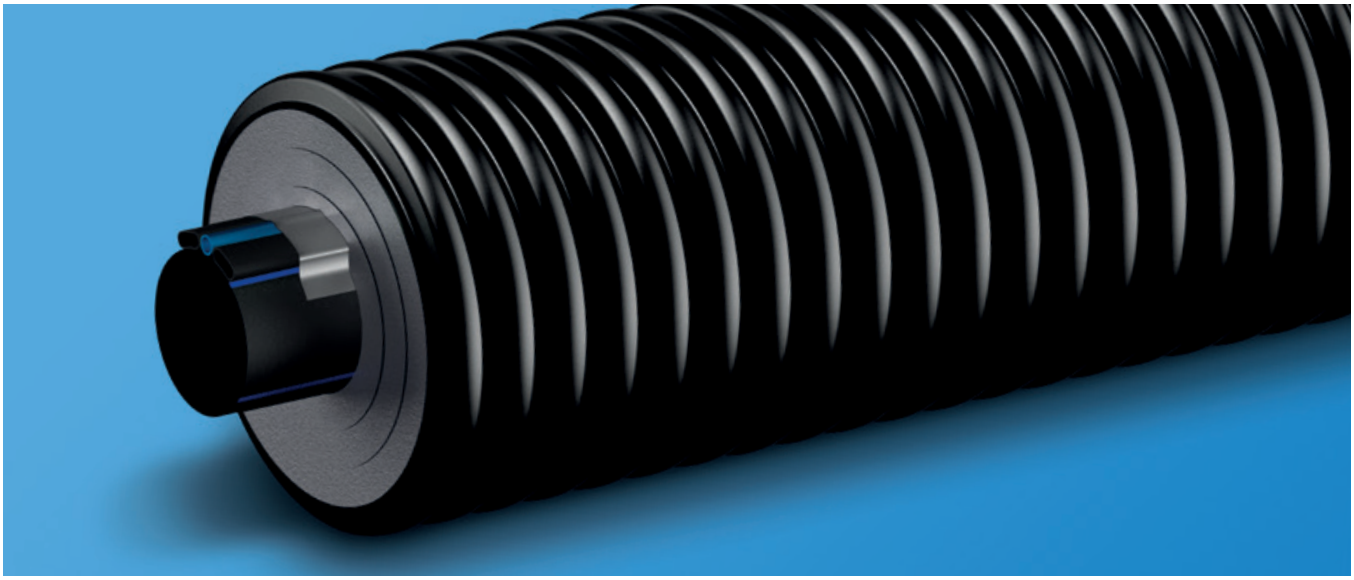
NOTE!
The full plasson range of Electrofusion and compression fittings can be used with Supra pipework.



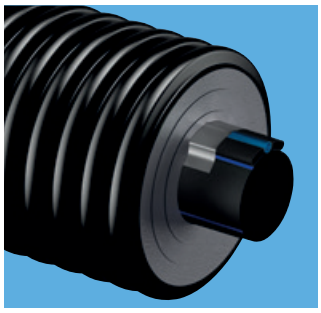
Order Code	Medium pipe da / di / s	DN	Jacket pipe Da [mm]	Weight [kg/m]	Delivery lengths [m]	Bending radius [m]	Insulation thickness [mm]
1095722	25 / 20.4 / 2.3	20	68	0.52	200	0.20	12
1095723	32 / 26.2 / 2.9	25	68	0.62	200	0.25	15
1095724	40 / 32.6 / 3.7	32	140	1.44	200	0.30	39
1095725	50 / 40.8 / 4.6	40	140	1.67	200	0.40	34
1095726	63 / 51.4 / 5.8	50	140	1.97	200	0.50	27
1095727	75 / 61.4 / 6.8	63	175	2.89	100	0.60	38
1095728	90 / 73.6 / 8.2	80	175	3.31	100	0.70	28
1095729	110 / 90.0 / 10.0	100	200	5.24	100	1.20	30

Uponor Ecoflex Supra Plus

For liquids and water transport at extremely low temperatures, Uponor Supra Plus is supplied with a self-regulating frost protection cable. It makes good sense to use this product if the pipeline is installed in conditions lacking weather protection, i.e. above ground or in shallow burial situations. The cable, rated at 10 W/m will prevent freezing down to -25°C.



Uponor Plus



NOTE!
The full plasson range of Electrofusion and compression fittings can be used with Supra pipework.

20°C

16 bar

25–110 mm

Main application
- Potable water, cold
- Cooling water

Other applications
- Waste water
- Medium pipe
- HDPE (PE 100), SDR 11

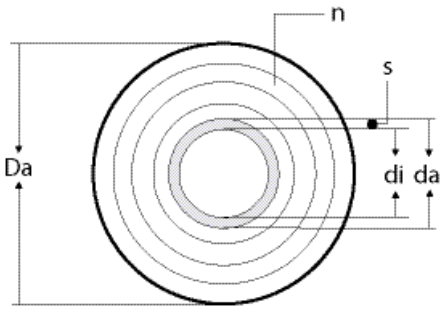
Protection cable
- Frost cable (Supra Plus)

Insulating material
- PE-X foam

Material jacket pipe
- HDPE

Note: Max 150m per thermostat required.

NOTE!
When ordering Supra Plus, an additional 0.5m allowance should be made at each end to facilitate easier cable connection. Burial depth should also be considered to ensure sufficient pipe length is ordered.



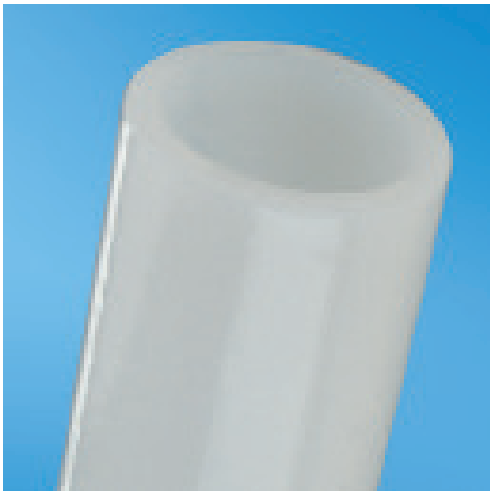
Order Code	Medium pipe da / di / s	DN	Jacket pipe Da [mm]	Weight [kg/m]	Delivery lengths [m]	Bending radius [m]	Insulation thickness [mm]
1095730	25 / 20.4 / 2.3	20	68	0.52	150	0.20	12
1095731	32 / 26.2 / 2.9	25	68	0.62	150	0.25	15
1095734	40 / 32.6 / 3.7	32	140	1.44	150	0.30	39
1095736	50 / 40.8 / 4.6	40	140	1.67	150	0.40	34
1095737	63 / 51.4 / 5.8	50	140	1.97	150	0.50	27
1095738	75 / 61.4 / 6.8	63	175	2.89	100	0.60	38
1095739	90 / 73.6 / 8.2	80	175	3.31	100	0.70	28
1095740	110 / 90.0 / 10.0	100	200	5.24	100	1.20	30

Technical specifications

Properties of the Uponor PE-Xa medium pipes (up to 95°C)

Aqua
The approved PEX pipes are suitable for carrying hot water services up to 95°C, and a maximum pressure of 10 bar. The Uponor PE- Xa pipe is manufactured, in accordance with DIN EN 15875-2, with a diameter/wall thickness ratio SDR 7.4 .

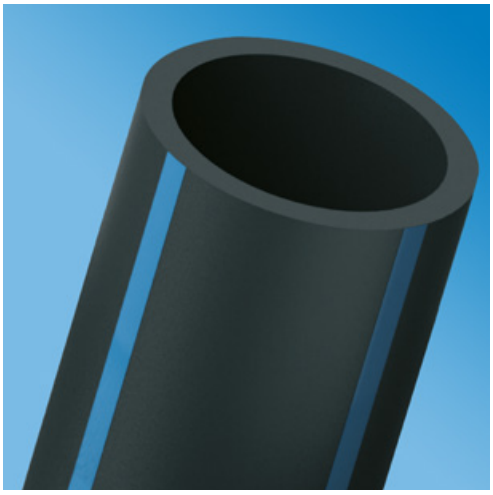
Mechanical properties	Standards	Temperature	Standard value	Unit
Density			938	kg/m³
Tensile strength	DIN 53455	20 °C	19 – 26	N/mm²
	DIN 53455	80 °C	9 – 13	N/mm²
Elasticity module	DIN 53457	20 °C	600 – 900	N/mm²
	DIN 53457	80 °C	300 – 350	N/mm²
Elongation at break	DIN 53455	20 °C	350 – 550	%
	DIN 53455	100 °C	500 – 700	%
Impact strength	DIN 53453	–140 °C	no break	kJ/m²
	DIN 53453	20 °C	no break	kJ/m²
	DIN 53453	100 °C	no break	kJ/m²
Moisture absorption	DIN 53472	22 °C	0.01	mg/4d
Friction coefficient with steel			0.08 – 0.1	
Oxygen-		20 °C	0.8 x 10-13	g m/m²s bar
Permeability		55 °C	3.0 x 10-13	g m/m²s bar



Thermo
Uponor Thermo medium pipes are coated with an EVAL oxygen diffusion barrier as per DIN 4726 and are thus particularly suited for transporting warm water up to 95°C and a max. pressure of 6 bar. The diameter-wall thickness ratio is SDR 11.

Thermal properties	Standards	Temperature	Standard value	Unit
Application temperature			–50 to +95	°C
Linear coefficient of expansion		20 °C	1.4 x 10-4	m/mK
		100 °C	2.05 x 10-4	m/mK
Softening point			+133	°C
Specific heat			2.3	kJ/kgK
Thermal conductivity	DIN 4725		0.35	W/mK

PE-100 medium pipe (applications up to 20°C)



Supra

The medium pipe in our Uponor Supra pipeline is produced in HDPE (PE 100)*. With a diameter-wall thickness ratio SDR 11 and pressure load of max. 16 bar at 20°C, it is designed specially for transporting cold potable water and for use in cooling water networks. Our HDPE medium pipe is WRAS approved for transporting potable water.

Property	Standard	PE 100 (std.values)	Unit
Density at 23 °C	DIN 53479 ISO 1183 ISO/R 1183	approx. 0.96	g/cm^2
Break strength	DIN 53495	38	N/mm^2
Elongation at break	DIN 53495	> 600	%
Tensile strength at yield	DIN 53495	25	N/mm^2
Elasticity module (tensile test)	ISO 178	approx. 1.200	N/mm^2
Hardness	ISO 2039	46	N/mm^2
Vicat-softening point VST-A/50 VST-B/50	DIN/ISO 306	 127 77	°C
Thermal conductivity (at 20 °C)	DIN 52612	0.38	W/mK
Application temperature (16 bar)		-10 to +20	°C
Thermal linear expansion coefficient	DIN 53752	1.8 x 10^{-4}	1/°C
Fire behaviour	DIN 4102 Part 1	B2	–

Long-term properties

Uponor PE-Xa pipes have been type approved by DVGW since 1977.

The approval is based on testing by international testing institutes. Stress tests show that at a temperature of 70 °C and a pressure level of 10 bar in continuous operation the pipe has an estimated service life of more than 50 years.

Classification of service conditions according to EN ISO 15875 of PE-Xa pipes for pre-insulated pipes

Uponor PE-Xa pipe systems are designed according to EN ISO 15875 (Plastics piping systems for hot and cold water installations - crosslinked polyethylene (PE-X)).

Application class	Operating temperature θ_D [°C]	Time at T_D [years]	T_{max} [°C]	Time at T_{max} [years]	T_{mal} [°C]	Time at T_{mal} [h]	Typical application
1[a]	60	49	80	1	95	100	Hot water distribution (60°C)
2[a]	70	49	80	1	95	100	Hot water distribution (70°C)
4[b]	20 Followed by 40 Followed by 60 Followed by (see next column)	2.5 Followed by 20 Followed by 25 Followed by (see next column)	70 Followed by (see next column)	2.5	100	100	Underfloor heating and low-temperature radiators
5[b]	20 Followed by 60 Followed by 80 Followed by (see next column)	14 Followed by 25 Followed by 10 Followed by (see next column)	90 Followed by (see next column)	1	100	100	High-temperature radiators

[a] In order to comply with national regulations, a country may apply either class 1 or 2.
[b] Where more than one operating temperature is shown for any class, the times must be added up, e.g. the operating temperature profile for 50 years for class 5 is: 20 °C for 14 years followed by 60 °C for 25 years, 80 °C for 10 years, 90 °C for one year and 100 °C for 100 h.

NB! For values exceeding those in the table for T_D , T_{max} and T_{mal}, this standard is not applicable.

Classification of service conditions according to EN 15632-2 and 3 of pre-insulated PE-Xa pipes

The pre-insulated PE-Xa heating pipes and related system components from Uponor are designed according to BS EN 15632 District heating pipes – Pre-insulated flexible pipe systems – Part 2: Bonded system with plastic service pipes - Requirements and test methods (Ecoflex Thermo PRO) and Part 3: Non bonded system with plastic service pipes (Ecoflex Thermo and Ecoflex Mini).

Operating temperatures and service life

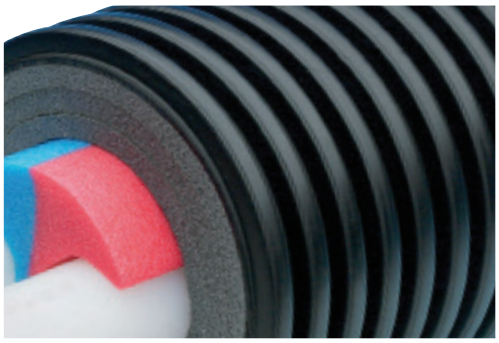
The Uponor pre-insulated PE-Xa pipe systems according to BS EN 15632 are designed for a service life time of at least 30 years when operated at the following temperature profile: 29 years at 80 °C + 1 year at 90 °C + 100 h at 95 °C.

Other temperature/time profiles can be applied in accordance with EN ISO 13760 (Miner´s Rule). Further information is given in BS EN 15632 Part 2 and 3, Annex A. The maximum operating temperature shall not exceed 95 °C.

Operating pressure

Uponor pre-insulated PE-Xa pipe systems are, in accordance with BS EN 15632-2 and 3, designed for continuous operating pressures of 6 bar (SDR 11) and 10 bar (SDR 7,4).

Material properties of the jacket pipe

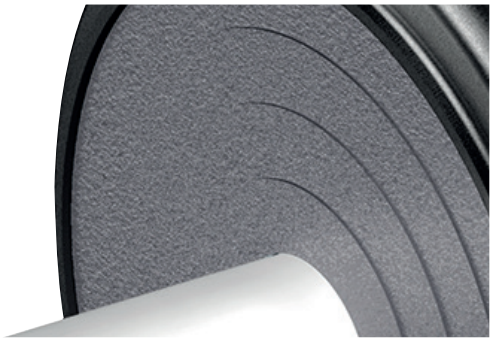


The stable, impact-resistant PE-HD jacket pipe protects the insulation and medium pipes from external loads. The special design of the pipe configuration ensures a high flexibility and high static load capacity.

Property	Value	Unit	Method
Material	PE-HD (PE 80)	-	-
UV-stabilised	yes	-	-
Fire behaviour	B2	-	DIN 4102
Density	957 – 959	kg/m³	ISO 1183
Modulus of elasticity	~ 1000	MPa	ISO 527-2

Material properties of the insulation

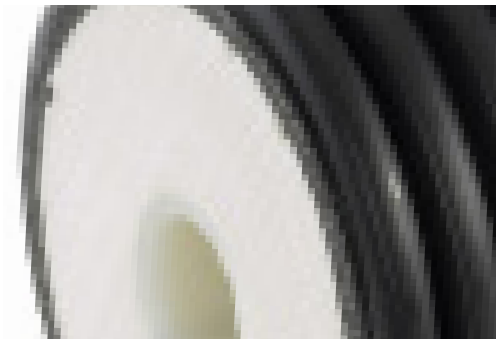
PEX Foam



The age-resistant cross linked PE-foam insulation consists of crosslinked polyethylene and has, due to its closed cell structure, only minimal water absorbtion. The multi-layer design combines maximum flexibility and optimum heat insulation.

Property	Value	Unit	Method
Density	approx. 28	kg/m³	DIN 53420
Tensile strength	28	N/cm²	DIN 53571
Operating temperature limits - Minimum - Maximum	-40 +95	°C °C	
Water absorption	< 1,0	volume-%	EN 489
Fire behaviour	B2	-	DIN 4102
Compressive strength 50% deformation	73	kPa	DIN 53577
Water vapour transmission/10mm thickness	1,55	g/m² d	DIN 53429
Thermal conductivity	50 °C : 0,040	W/m K	DIN 52612

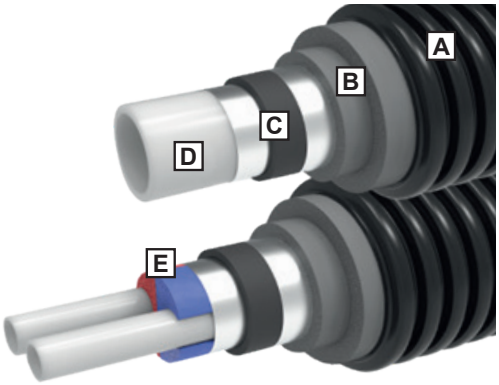
PUR Foam



The PUR insulation material is made of a halogen-free polyurethane foam core and an additional insulation layer made of closed cross linked PE-foam. In combination with the corrugated outer casing this ensures maximum flexibility. In addition to the excellent insulating properties the closed cell structure of the material guarantees a minimal water absorption. The material is free of CFC / HCFC and HFC.

Property	Value	Unit	Method
Density	60	kg/m³	ISO
Tensile strength	–	kPa	ISO 1926
Operating temperature limits - Minimum - Maximum	-80 +110	°C °C	
Water absorption	3-4	volume-%	EN 489
Fire behaviour	B2	-	DIN 4102
Thermal conductivity	50 °C : 0,0219	W/m K	DIN 52612

VIP Foam



The Uponor Ecoflex Thermo and Aqua VIP "Vacuum Insulation Panel" are part of Uponor's Ecoflex range of flexible, pre-insulated piping. The flexibility of the material, the convenient connecting methods and the well-attested service life contribute to projects being completed quickly, economically and reliably. Features like the corrugated jacket and the layer of cross-linked PE foam together with the VIP insulation material provide an optimal solution for energy efficient distribution networks. The system has a great variety of applications from an extensive supply network to a single connection for one building. Hot water, warm tap water or cooling water are transported as reliably as many other liquid media in industrial settings. Uponor Ecoflex Thermo and Aqua VIP are designed and manufactured in accordance with the requirements of EN 15632-1 and -3.

A – Jacket Corrugated polyethylene (PE-HD)
B – Insulation material Closed-cell, cross-linked polyethylen (PE-X) foam
C – Insulation material VIP (Vacuum Insulation Panel)
D – Medium pipe - Cross-linked polyethylene (PE-Xa) pipes according to EN 15875 - Pipes for heating and cooling with EVOH layer
E – Coloured centering profile (only Twin version)

Dimensioning Pipes

Thermo/Thermo PRO/VIP

Quick dimensioning table PN 6

Heating pipe PN 6

Spread ΔT = 10 K	ΔT = 15 K	ΔT = 20 K	ΔT = 25 K	ΔT = 30 K	ΔT = 35 K	ΔT = 40 K	Mass flow rate	Pipe type Δp. v	Pipe type Δp. v	Pipe type Δp. v
10 kW	15 kW	20 kW	25 kW	30 kW	35 kW	40 kW	860 kg/h	25/20.4 0.3016 kPa/m 0.740 m/s	32/26.2 0.0909 kPa/m 0.449 m/s	40/32.6 0.0319 kPa/m 0.290 m/s
20 kW	30 kW	40 kW	50 kW	60 kW	70 kW	80 kW	1720 kg/h	32/26.2 0.3157 kPa/m 0.897 m/s	40/32.6 0.1106 kPa/m 0.579 m/s	50/40.8 0.0377 kPa/m 0.370 m/s
30 kW	45 kW	60 kW	75 kW	90 kW	105 kW	120 kW	2581 kg/h	32/26.2 0.6553 kPa/m 1.346 m/s	40/32.6 0.2294 kPa/m 0.869 m/s	50/40.8 0.0782 kPa/m 0.555 m/s
40 kW	60 kW	80 kW	100 kW	120 kW	140 kW	160 kW	3441 kg/h	40/32.6 0.3853 kPa/m 1.159 m/s	50/40.8 0.1312 kPa/m 0.740 m/s	63/51.4 0.0433 kPa/m 0.466 m/s
50 kW	75 kW	100 kW	125 kW	150 kW	175 kW	200 kW	4301 kg/h	50/40.8 0.1961 kPa/m 0.925 m/s	63/51.4 0.0647 kPa/m 0.583 m/s	75/61.4 0.0276 kPa/m 0.408 m/s
60 kW	90 kW	120 kW	150 kW	180 kW	210 kW	240 kW	5161 kg/h	50/40.8 0.2725 kPa/m 1.110 m/s	63/51.4 0.0899 kPa/m 0.699 m/s	75/61.4 0.0383 kPa/m 0.490 m/s
70 kW	105 kW	140 kW	175 kW	210 kW	245 kW	280 kW	6022 kg/h	50/40.8 0.3599 kPa/m 1.295 m/s	63/51.4 0.1186 kPa/m 0.816 m/s	75/61.4 0.0505 kPa/m 0.572 m/s
80 kW	120 kW	160 kW	200 kW	240 kW	280 kW	320 kW	6882 kg/h	63/51.4 0.1510 kPa/m 0.932 m/s	75/61.4 0.0643 kPa/m 0.653 m/s	90/73.6 0.0269 kPa/m 0.455 m/s
90 kW	135 kW	180 kW	225 kW	270 kW	315 kW	360 kW	7742 kg/h	63/51.4 0.1867 kPa/m 1.049 m/s	75/61.4 0.0795 kPa/m 0.735 m/s	90/73.6 0.0333 kPa/m 0.512 m/s
100 kW	150 kW	200 kW	250 kW	300 kW	350 kW	400 kW	8602 kg/h	63/51.4 0.2259 kPa/m 1.165 m/s	75/61.4 0.0961 kPa/m 0.817 m/s	90/73.6 0.0402 kPa/m 0.568 m/s
110 kW	165 kW	220 kW	275 kW	330 kW	385 kW	440 kW	9.462 kg/h	63/51.4 0.2684 kPa/m 1.282 m/s	75/61.4 0.1142 kPa/m 0.898 m/s	90/73.6 0.0478 kPa/m 0.625 m/s
120 kW	180 kW	240 kW	300 kW	360 kW	420 kW	480 kW	10323 kg/h	75/61.4 0.1336 kPa/m 0.980 m/s	90/73.6 0.0559 kPa/m 0.682 m/s	110/90.0 0.0213 kPa/m 0.456 m/s
130 kW	195 kW	260 kW	325 kW	390 kW	455 kW	520 kW	11183 kg/h	75/61.4 0.1544 kPa/m 1.062 m/s	90/73.6 0.0646 kPa/m 0.739 m/s	110/90.0 0.0246 kPa/m 0.494 m/s
140 kW	210 kW	280 kW	350 kW	420 kW	490 kW	560 kW	12043 kg/h	75/61.4 0.1766 kPa/m 1.143 m/s	90/73.6 0.0739 kPa/m 0.796 m/s	110/90.0 0.0281 kPa/m 0.532 m/s
150 kW	225 kW	300 kW	375 kW	450 kW	525 kW	600 kW	12903 kg/h	75/61.4 0.2000 kPa/m 1.225 m/s	90/73.6 0.0837 kPa/m 0.853 m/s	110/90.0 0.0318 kPa/m 0.570 m/s
160 kW	240 kW	320 kW	400 kW	480 kW	560 kW	640 kW	13763 kg/h	75/61.4 0.2248 kPa/m 1.307 m/s	90/73.6 0.0940 kPa/m 0.909 m/s	110/90.0 0.0358 kPa/m 0.608 m/s
170 kW	255 kW	340 kW	425 kW	510 kW	595 kW	680 kW	14624 kg/h	90/73.6 0.1049 kPa/m 0.966 m/s	110/90.0 0.0399 kPa/m 0.646 m/s	125/102 0.0217 kPa/m 0.501 m/s
180 kW	270 kW	360 kW	450 kW	540 kW	630 kW	720 kW	15484 kg/h	90/73.6 0.1164 kPa/m 1.023 m/s	110/90.0 0.0442 kPa/m 0.684 m/s	125/102 0.0240 kPa/m 0.531 m/s
190 kW	285 kW	380 kW	475 kW	570 kW	665 kW	760 kW	16344 kg/h	90/73.6 0.1283 kPa/m 1.080 m/s	110/90.0 0.0488 kPa/m 0.722 m/s	125/102 0.0265 kPa/m 0.560 m/s

Heating pipe PN 6

Spread										
ΔT = 10 K	ΔT = 15 K	ΔT = 20 K	ΔT = 25 K	ΔT = 30 K	ΔT = 35 K	ΔT = 40 K	Mass flow rate	Pipe type Δp.v	Pipe type Δp. v	Pipe type Δp. v
200 kW	300 kW	400 kW	500 kW	600 kW	700 kW	800 kW	17204 kg/h	90/73.6 0.1408 kPa/m 1.137 m/s	110/90 0.0535 kPa/m 0.760 m/s	125/102 0.0290 kPa/m 0.590 m/s
210 kW	315 kW	420 kW	525 kW	630 kW	735 kW	840 kW	18065 kg/h	90/73.6 0.1538 kPa/m 1.194 m/s	110/90 0.0584 kPa/m 0.798 m/s	125/102 0.0317 kPa/m 0.619 m/s
220 kW	330 kW	440 kW	550 kW	660 kW	770 kW	880 kW	18925 kg/h	90/73.6 0.1673 kPa/m 1.251 m/s	110/90 0.0636 kPa/m 0.836 m/s	125/102 0.0345 kPa/m 0.649 m/s
230 kW	345 kW	460 kW	575 kW	690 kW	805 kW	920 kW	19785 kg/h	90/73.6 0.1813 kPa/m 1.307 m/s	110/90 0.0689 kPa/m 0.874 m/s	125/102 0.0374 kPa/m 0.678 m/s
240 kW	360 kW	480 kW	600 kW	720 kW	840 kW	960 kW	20640 kg/h	110/90 0.0744 kPa/m 0.912 m/s	125/102 0.0404 kPa/m 0.708 m/s	
250 kW	375 kW	500 kW	625 kW	750 kW	875 kW	1000 kW	21505 kg/h	110/90 0.0801 kPa/m 0.950 m/s	125/102 0.0435 kPa/m 0.737 m/s	
260 kW	390 kW	520 kW	650 kW	780 kW	910 kW	1040 kW	22366 kg/h	110/90 0.0860 kPa/m 0.988 m/s	125/102 0.0467 kPa/m 0.766 m/s	
270 kW	405 kW	540 kW	675 kW	810 kW	945 kW	1080 kW	23220 kg/h	110/90 0.0921 kPa/m 1.026 m/s	125/102 0.0500 kPa/m 0.796 m/s	
280 kW	420 kW	560 kW	700 kW	840 kW	980 kW	1120 kW	24086 kg/h	110/90 0.0984 kPa/m 1.064 m/s	125/102 0.0534 kPa/m 0.825 m/s	
290 kW	435 kW	580 kW	725 kW	870 kW	1015 kW	1160 kW	24946 kg/h	110/90 0.1048 kPa/m 1.102 m/s	125/102 0.0569 kPa/m 0.855 m/s	
300 kW	450 kW	600 kW	750 kW	900 kW	1050 kW	1200 kW	25806 kg/h	110/90 0.1115 kPa/m 1.140 m/s	125/102 0.0605 kPa/m 0.884 m/s	
310 kW	465 kW	620 kW	775 kW	930 kW	1085 kW	1240 kW	26667 kg/h	110/90 0.1183 kPa/m 1.178 m/s	125/102 0.0642 kPa/m 0.914 m/s	
320 kW	480 kW	640 kW	800 kW	960 kW	1120 kW	1280 kW	27527kg/h	110/90 0.1253 kPa/m 1.216 m/s	125/102 0.0680 kPa/m 0.943 m/s	
330 kW	495 kW	660 kW	825 kW	990 kW	1155 kW	1320 kW	28387 kg/h	110/90 0.1325 kPa/m 1.254 m/s	125/102 0.0719 kPa/m 0.973 m/s	
340 kW	510 kW	680 kW	850 kW	1020 kW	1190 kW	1360 kW	29247 kg/h	110/90 0.1398 kPa/m 1.292 m/s	125/102 0.0759 kPa/m 1.002 m/s	
350 kW	525 kW	700 kW	875 kW	1050 kW	1225 kW	1400 kW	30108 kg/h	125/102 0.0799 kPa/m 1.032 m/s		
360 kW	540 kW	720 kW	900 kW	1080 kW	1260 kW	1440 kW	30968 kg/h	125/102 0.0841 kPa/m 1.061 m/s		
370 kW	555 kW	740 kW	925 kW	1110 kW	1295 kW	1480 kW	31828 kg/h	125/102 0.0884 kPa/m 1.091 m/s		
380 kW	570 kW	760 kW	950 kW	1140 kW	1330 kW	1520 kW	32688 kg/h	125/102 0.0928 kPa/m 1.120 m/s		

Heating pipe PN 6

Spread										
ΔT = 10 K	ΔT = 15 K	ΔT = 20 K	ΔT = 25 K	ΔT = 30 K	ΔT = 35 K	ΔT = 40 K	Mass flow rate	Pipe type Δp.v	Pipe type Δp. v	Pipe type Δp. v
390 kW	585 kW	780 kW	975kW	1170 kW	1365 kW	1560 kW	33548 kg/h	125/102 0.0973 kPa/m 1.150 m/s		
400 kW	600 kW	800 kW	1000 kW	1200 kW	1400 kW	1600 kW	34409 kg/h	125/102 0.1018 kPa/m 1.179 m/s		
410 kW	615 kW	820 kW	1025 kW	1230 kW	1435 kW	1640 kW	35269 kg/h	125/102 0.1065 kPa/m 1.209 m/s		
420 kW	630 kW	840 kW	1050 kW	1260 kW	1470 kW	1680 kW	36129 kg/h	125/102 0.1112 kPa/m 1.238 m/s		
430 kW	645 kW	860 kW	1075 kW	1290 kW	1505 kW	1720 kW	36989 kg/h	125/102 0.1161 kPa/m 1.268 m/s		
440 kW	660 kW	880 kW	1100 kW	1320 kW	1540 kW	1760 kW	37849 kg/h	125/102 0.1210 kPa/m 1.297 m/s		
450 kW	675 kW	900 kW	1125 kW	1350 kW	1575 kW	1800 kW	38710 kg/h	125/102 0.1261 kPa/m 1.327 m/s		

For sizing pipes, the following equation applies

$$Q = \dot{m}\, Cp \Delta T$$

Where

Q = heating power (kW)
$\dot{m}$ = mass flow rate kg/s
Cp = water specific heat capacity
ΔT = temperature difference

The following table enables determination of the pressure loss at a specified flow rate. It is recommended to keep the pressure loss below 0.3kPa/m.

Pressure loss tables for PN 6 pipes

Heating pipe: Based on 50°C water temperature*

DIM:		25 x 2.3		32 x 2.9		40 x 3.7		50 x 4.6		63 x 5.8		75 x 6.8		90 x 8.2		110 x 10		125 x 11.4	
d_i [mm]:		20.4		26.2		32.6		40.8		51.4		61.4		73.6		90.0		102.2	
Volumetric flow rate																			
l/h	l/s	kPa/m	m/s	kPa/m	m/s	kPa/m	m/s	kPa/m	m/s	kPa/m	m/s	kPa/m	m/s	kPa/m	m/s	kPa/m	m/s	kPa/m	m/s
36	0.01																		
72	0.02																		
108	0.03																		
144	0.04																		
180	0.05	0.018	0.153																
216	0.06	0.025	0.184																
252	0.07	0.033	0.214																
288	0.08	0.042	0.245																
324	0.09	0.051	0.275																
360	0.1	0.062	0.306	0.019	0.185														
720	0.2	0.214	0.612	0.065	0.371	0.023	0.240												
1080	0.3	0.444	0.918	0.134	0.556	0.047	0.359												
1440	0.4	0.745	1.224	0.224	0.742	0.079	0.479	0.027	0.306										
1800	0.5	1.114	1.530	0.335	0.927	0.117	0.599	0.040	0.382										
2160	0.6	1.548	1.836	0.465	1.113	0.163	0.719	0.056	0.459										
2520	0.7	2.044	2.142	0.614	1.298	0.215	0.839	0.073	0.535										
2880	0.8	2.601	2.448	0.782	1.484	0.274	0.958	0.093	0.612	0.031	0.386								
3240	0.9	3.217	2.754	0.967	1.669	0.338	1.078	0.115	0.688	0.038	0.434								
3600	1	3.891	3.059	1.169	1.855	0.409	1.198	0.139	0.765	0.046	0.482								
3960	1.1	4.623	3.665	1.389	2.040	0.486	1.318	0.165	0.841	0.055	0.530								
4320	1.2	5.411	3.671	1.625	2.226	0.568	1.438	0.193	0.918	0.064	0.578	0.027	0.405						
5040	1.4	7.152	4.283	2.147	2.597	0.751	1.677	0.255	1.071	0.084	0.675	0.036	0.473						
5760	1.6	9.108	4.895	2.733	2.968	0.956	1.917	0.325	1.224	0.107	0.771	0.046	0.540						
6480	1.8	11.274	5.507	3.383	3.339	1.182	2.156	0.402	1.377	0.133	0.867	0.056	0.608	0.024	0.423				
7200	2	13.647	6.119	4.093	3.710	1.431	2.396	0.486	1.530	0.160	0.964	0.068	0.675	0.029	0.470				
7920	2.2	16.223	6.731	4.865	4.081	1.700	2.636	0.578	1.683	0.190	1.060	0.081	0.743	0.034	0.517				
8640	2.4	18.998	7.343	5.696	4.452	1.990	2.875	0.676	1.836	0.223	1.157	0.095	0.811	0.040	0.564				
9360	2.6	21.969	7.955	6.586	4.823	2.300	3.115	0.782	1.989	0.257	1.253	0.110	0.878	0.046	0.611				
10080	2.8	25.134	8.567	7.533	5.194	2.631	3.355	0.894	2.142	0.294	1.349	0.125	0.946	0.052	0.658				
10800	3	28.491	9.178	8.538	5.565	2.981	3.594	1.013	2.295	0.334	1.446	0.142	1.013	0.059	0.705	0.023	0.472		
12600	3.5	37.707	10.708	11.295	6.492	3.943	4.193	1.339	2.677	0.441	1.687	0.187	1.182	0.078	0.823	0.030	0.550		
14400	4	48.077	12.238	14.397	7.419	5.024	4.792	1.706	3.059	0.561	1.928	0.239	1.351	0.100	0.940	0.038	0.629	0.021	0.488
16200	4.5			17.835	8.347	6.223	5.391	2.112	3.442	0.695	2.169	0.295	1.520	0.124	1.058	0.047	0.707	0.025	0.549
18000	5			21.603	9.274	7.536	5.990	2.557	3.824	0.841	2.410	0.358	1.689	0.150	1.175	0.057	0.786	0.031	0.610
19800	5.5			25.696	10.202	8.962	6.589	3.041	4.207	1.000	2.651	0.425	1.858	0.178	1.293	0.068	0.865	0.037	0.670
21600	6			30.109	11.129	10.499	7.188	3.561	4.589	1.171	2.892	0.498	2.026	0.208	1.410	0.079	0.943	0.043	0.731
23400	6.5			34.837	12.056	12.145	7.787	4.119	4.972	1.354	3.133	0.575	2.195	0.240	1.528	0.091	1.022	0.050	0.792
25200	7					13.900	8.386	4.713	5.354	1.549	3.374	0.658	2.364	0.275	1.645	0.104	1.100	0.057	0.853
27000	7.5					15.761	8.985	5.344	5.737	1.756	3.614	0.746	2.533	0.312	1.763	0.118	1.179	0.064	0.914
28800	8					17.728	9.584	6.010	6.119	1.975	3.855	0.839	2.702	0.350	1.880	0.133	1.258	0.072	0.975
30600	8.5					19.799	10.183	6.711	6.501	2.205	4.096	0.936	2.871	0.391	1.998	0.149	1.336	0.081	1.036
32400	9					21.974	10.782	7.447	6.884	2.446	4.337	1.039	3.040	0.434	2.115	0.165	1.415	0.089	1.097

Heating pipe: Based on 50°C water temperature*

DIM:		25 x 2.3		32 x 2.9		40 x 3.7		50 x 4.6		63 x 5.8		75 x 6.8		90 x 8.2		110 x 10		125 x 11.4	
d_i [mm]:		20.4		26.2		32.6		40.8		51.4		61.4		73.6		90.0		102.2	
Volumetric flow rate																			
l/h	l/s	kPa/m	m/s	kPa/m	m/s	kPa/m	m/s	kPa/m	m/s	kPa/m	m/s	kPa/m	m/s	kPa/m	m/s	kPa/m	m/s	kPa/m	m/s
34200	9.5					24.252	11.381	8.218	7.266	2.699	4.578	1.146	3.208	0.479	2.233	0.182	1.493	0.099	1.158
36000	10					26.632	11.980	9.023	7.649	2.963	4.819	1.258	3.377	0.525	2.350	0.199	1.572	0.108	1.219
37800	10.5							9.862	8.031	3.238	5.060	1.375	3.546	0.574	2.468	0.218	1.650	0.118	1.280
39600	11							10.735	8.414	3.525	5.301	1.496	3.715	0.625	2.586	0.237	1.729	0.129	1.341
43200	12							12.582	9.178	4.130	5.783	1.753	4.053	0.732	2.821	0.278	1.886	0.151	1.463
46800	13							14.561	9.943	4.779	6.265	2.028	4.391	0.847	3.056	0.321	2.043	0.174	1.585
50400	14							116.670	10.708	5.470	6.747	2.321	4.728	0.969	3.291	0.367	2.201	0.199	1.707
54000	15							18.909	11.473	6.204	7.229	2.632	5.066	1.098	3.526	0.417	2.358	0.226	1.829
57600	16							21.276	12.238	6.979	7.711	2.960	5.404	1.235	3.761	0.468	2.515	0.254	1.950
61200	17									7.796	8.193	3.306	5.741	1.380	3.996	0.523	2.672	0.283	2.072
64800	18									8.653	8.675	3.670	6.079	1.531	4.231	0.580	2.829	0.315	2.194
68400	19									9.552	9.157	4.050	6.417	1.690	4.466	0.640	2.987	0.347	2.316
72000	20									10.490	9.639	4.448	6.755	1.855	4.701	0.703	3.144	0.381	2.438
79200	22									12.487	10.602	5.293	7.430	2.208	5.171	0.837	3.458	0.453	2.682
86400	24									14.641	11.566	6.206	8.106	2.587	5.641	0.980	3.773	0.531	2.926
93600	26									16.951	12.530	7.183	8.781	2.995	6.111	1.134	4.087	0.614	3.169
100800	28											8.226	9.457	3.429	6.581	1.299	4.401	0.703	3.413
108000	30											9.333	10.132	3.890	7.051	1.473	4.716	0.798	3.657
115200	32											10.503	10.807	4.377	7.522	1.657	5.030	0.897	3.901
122400	34											11.736	11.483	4.890	7.992	1.851	5.344	1.002	4.145
129600	36											13.032	12.158	5.429	8.462	2.055	5.659	1.113	4.388
136800	38													5.994	8.932	2.269	5.973	1.228	4.632
144000	40													6.584	9.402	2.492	6.288	1.349	4.876
162000	45													8.170	10.577	3.091	7.074	1.673	5.486
180000	50													9.911	11.752	3.749	7.860	2.029	6.095
198000	55													11.805	12.928	4.464	8.645	2.415	6.705
216000	60															5.236	9.431	2.833	7.314
234000	65															6.064	10.217	3.280	7.924
252000	70															6.948	11.003	3.758	8.533
270000	75															7.886	11.789	4.265	9.143
288000	80															8.878	12.575	4.801	9.752
306000	85																	5.366	10.362
324000	90																	5.960	10.971
342000	95																	6.583	11.581
360000	100																	7.233	12.190

***Pressure loss correction factors for other water temperatures**

°C	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95
Factor	1.217	1.183	1.150	1.117	1.100	1.067	1.050	1.017	1.000	0.983	0.967	0.952	0.938	0.933	0.918	0.904	0.890	0.873

Aqua / VIP

Potable water pipe: Basis 50 °C water temperature*

DIM:		25 x 3.5		32 x 4.4		40 x 5.5		50 x 6.9		63 x 8.6		75 x 10.3		90 x 12.3		110 x 15.1	
d_i [mm]:		18.0		23.2		29.0		36.2		45.6		54.4		65.4		79.8	
Volumetric flow rate																	
l/h	l/s	kPa/m	m/s	kPa/m	m/s	kPa/m	m/s	kPa/m	m/s	kPa/m	m/s	kPa/m	m/s	kPa/m	m/s	kPa/m	m/s
36	0.01																
72	0.02																
108	0.03																
144	0.04																
180	0.05	0.033	0.196														
216	0.06	0.045	0.236														
252	0.07	0.060	0.275														
288	0.08	0.076	0.314														
324	0.09	0.093	0.354	0.028	0.213												
360	0.1	0.113	0.393	0.033	0.237												
720	0.2	0.391	0.786	0.116	0.473	0.040	0.303										
1080	0.3	0.810	1.179	0.240	0.710	0.082	0.454	0.028	0.291								
1440	0.4	1.360	1.572	0.402	0.946	0.138	0.606	0.048	0.389								
1800	0.5	2.032	1.965	0.601	1.183	0.206	0.757	0.071	0.486	0.023	0.303						
2160	0.6	2.823	2.358	0.834	1.419	0.286	0.908	0.099	0.583	0.032	0.364						
2520	0.7	3.729	2.751	1.102	1.656	0.377	1.060	0.130	0.680	0.042	0.425	0.018	0.301				
2880	0.8	4.746	3.144	1.402	1.892	0.480	1.211	0.165	0.777	0.054	0.486	0.023	0.344				
3240	0.9	5.871	3.537	1.734	2.129	0.593	1.363	0.205	0.874	0.066	0.546	0.029	0.387				
3600	1.0	7.103	3.930	2.097	2.366	0.718	1.514	0.247	0.972	0.080	0.607	0.035	0.430				
3960	1.1	8.439	4.323	2.491	2.602	0.852	1.665	0.294	1.069	0.095	0.668	0.042	0.473				
4320	1.2	9.878	4.716	2.915	2.839	0.997	1.817	0.344	1.166	0.111	0.728	0.049	0.516				
5040	1.4	13.059	5.502	3.853	3.312	1.318	2.120	0.454	1.360	0.147	0.850	0.064	0.602				
5760	1.6	16.633	6.288	4.906	3.785	1.677	2.422	0.578	1.555	0.187	0.971	0.082	0.688	0.034	0.476		
6480	1.8	20.593	7.074	6.072	4.258	2.076	2.725	0.715	1.749	0.231	1.093	0.101	0.774	0.042	0.536		
7200	2.0	24.930	7.860	7.349	4.731	2.512	3.028	0.865	1.943	0.279	1.214	0.122	0.860	0.050	0.595		
7920	2.2	29.638	8.645	8.735	5.204	2.985	3.331	1.027	2.138	0.331	1.335	0.145	0.947	0.060	0.655		
8640	2.4	34.711	9.431	10.228	5.677	3.494	3.634	1.202	2.332	0.388	1.457	0.170	1.033	0.070	0.714		
9360	2.6	40.144	10.217	11.826	6.150	4.040	3.936	1.390	2.526	0.448	1.578	0.196	1.119	0.081	0.774	0.031	0.520
10080	2.8	45.932	11.003	13.529	6.624	4.621	4.239	1.589	2.721	0.513	1.700	0.224	1.205	0.092	0.834	0.036	0.560
10800	3.0	52.071	11.789	15.334	7.097	5.236	4.542	1.801	2.915	0.581	1.821	0.254	1.291	0.105	0.893	0.040	0.600
12600	3.5			20.290	8.279	6.927	5.299	2.382	3.401	0.768	2.124	0.336	1.506	0.138	1.042	0.053	0.700
14400	4.0			25.866	9.462	8.828	6.056	3.034	3.886	0.978	2.428	0.427	1.721	0.176	1.191	0.068	0.800
16200	4.5			32.048	10.645	10.934	6.813	3.757	4.372	1.211	2.731	0.529	1.936	0.218	1.340	0.084	0.900
18000	5.0			38.825	11.828	13.243	7.570	4.550	4.858	1.466	3.035	0.640	2.151	0.264	1.488	0.101	1.000
19800	5.5			46.187	13.011	15.751	8.327	5.410	5.344	1.743	3.338	0.761	2.366	0.314	1.637	0.120	1.100
21600	6.0					18.454	9.084	6.337	5.830	2.041	3.642	0.891	2.581	0.367	1.786	0.141	1.200
23400	6.5					21.350	9.841	7.331	6.315	2.360	3.945	1.030	2.797	0.425	1.935	0.163	1.300
25200	7.0					24.437	10.598	8.389	6.801	2.700	4.249	1.179	3.012	0.486	2.084	0.186	1.400
27000	7.5					27.712	11.355	9.512	7.287	3.061	4.552	1.336	3.227	0.550	2.233	0.211	1.500
28800	8.0					31.172	12.112	10.698	7.773	3.443	4.856	1.502	3.442	0.619	2.381	0.237	1.600
30600	8.5							11.947	8.259	3.844	5.159	1.677	3.657	0.691	2.530	0.265	1.700
32400	9.0							13.259	8.745	4.265	5.463	1.861	3.872	0.766	2.679	0.294	1.799
34200	9.5							14.632	9.230	4.707	5.766	2.054	4.087	0.846	2.828	0.324	1.899
36000	10.0							16.067	9.716	5.167	6.070	2.254	4.302	0.928	2.977	0.356	1.999
37800	10.5							17.562	10.202	5.648	6.373	2.464	4.518	1.014	3.126	0.389	2.099
39600	11							19.118	10.688	6.147	6.677	2.681	4.733	1.104	3.275	0.423	2.199
43200	12							22.409	11.659	7.204	7.284	3.142	5.163	1.293	3.572	0.496	2.399
46800	13							25.936	12.631	8.336	7.891	3.635	5.593	1.496	3.870	0.573	2.599
50400	14									9.543	8.498	4.161	6.023	1.712	4.168	0.656	2.799

***Pressure loss correction factors for other water temperatures**

°C	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95
Factor	1.208	1.174	1.144	1.115	1.087	1.060	1.039	1.019	1.000	0.982	0.965	0.954	0.943	0.928	0.923	0.907	0.896	0.878

Supra

Potable water/cooling water pipe: Basis 20°C water temperature

V	25 / 20.4 / 2.3		32 / 26.2 / 2.9		40 / 32.6 / 3.7		50 / 40.8 / 4.6		63 / 51.4 / 5.8		75 / 61.4 / 6.8		90 / 73.6 / 8.2		110 / 90.0 / 10.0	
	v	Δp	v	Δp	v	Δp	v	Δp	v	Δp	v	Δp	v	Δp	v	Δp
l/s	[m/s]	[bar/ 100 m]	[m/s]	[bar/ 100 m]	[m/s]	[bar/ 100 m]	[m/s]	[bar/ 100 m]	[m/s]	[bar/ 100 m]	[m/s]	[bar/ 100 m]	[m/s]	[bar/ 100 m]	[m/s]	[bar/ 100 m]
0.0315	0.096	0.0127	0.059	0.0041												
0.04	0.122	0.0189	0.075	0.0061												
0.05	0.153	0.0275	0.094	0.0088	0.060	0.0031										
0.063	0.193	0.0407	0.119	0.0130	0.075	0.0045										
0.08	0.245	0.0611	0.151	0.0195	0.096	0.0067	0.061	0.0024								
0.1	0.306	0.0895	0.188	0.0285	0.120	0.0098	0.076	0.0034								
0.125	0.382	0.1315	0.235	0.0417	0.150	0.0144	0.096	0.0050	0.060	0.0017						
0.16	0.490	0.2016	0.301	0.0638	0.192	0.0219	0.122	0.0076	0.077	0.0026	0.054	0.0011				
0.2	0.612	0.2974	0.377	0.0939	0.240	0.0321	0.153	0.0111	0.096	0.0037	0.068	0.0016				
0.25	0.765	0.4394	0.471	0.1384	0.300	0.0473	0.191	0.0163	0.120	0.0055	0.085	0.0024	0.059	0.0010		
0.315	0.964	0.6599	0.593	0.2072	0.377	0.0706	0.241	0.0244	0.152	0.0082	0.107	0.0036	0.074	0.0015		
0.4	1.224	1.0068	0.753	0.3152	0.479	0.1071	0.306	0.0369	0.193	0.0123	0.136	0.0054	0.094	0.0023	0.063	0.0009
0.5	1.530	1.4972	0.942	0.4672	0.599	0.1585	0.382	0.0544	0.241	0.0182	0.170	0.0079	0.118	0.0033	0.079	0.0013
0.63	1.927	2.2631	1.187	0.7039	0.755	0.2381	0.482	0.0816	0.304	0.0272	0.214	0.0119	0.148	0.0049	0.099	0.0019
0.8	2.448	3.4774	1.507	1.0776	0.958	0.3634	0.612	0.1242	0.386	0.0413	0.272	0.0180	0.188	0.0075	0.126	0.0029
1	3.059	5.2062	1.883	1.6072	1.198	0.5405	0.765	0.1842	0.482	0.0611	0.340	0.0266	0.235	0.0111	0.157	0.0043
1.25			2.354	2.4022	1.498	0.8053	0.956	0.2738	0.602	0.0906	0.425	0.0394	0.294	0.0163	0.196	0.0063
1.6			3.014	3.7567	1.917	1.2547	1.224	0.4253	0.771	0.1403	0.544	0.0609	0.376	0.0252	0.252	0.0097
2					2.396	1.8774	1.530	0.6345	0.964	0.2088	0.680	0.0904	0.470	0.0374	0.314	0.0143
2.5					2.995	2.8148	1.912	0.9483	1.205	0.3112	0.850	0.1345	0.588	0.0555	0.393	0.0212
3.15							2.409	1.4406	1.518	0.4714	1.071	0.2033	0.740	0.0838	0.495	0.0320
4							3.059	2.2247	1.928	0.7254	1.360	0.3123	0.940	0.1285	0.629	0.0489
5									2.410	1.0873	1.700	0.4670	1.175	0.1917	0.786	0.0729
6.3									3.036	1.6567	2.142	0.7098	1.481	0.2908	0.990	0.1103
8											2.720	1.0965	1.880	0.4480	1.258	0.1695
10											3.399	1.6493	2.350	0.6722	1.572	0.2537
12.5													2.938	1.0104	1.965	1.3804
16															2.515	0.5966
20															3.144	0.8977

Flow rates have a considerable influence on the cost-efficiency and operational safety of a supply system. High flow rates result in high pressure losses and high dynamic pressure losses can occur. Furthermore, particles which have been deposited on the pipe walls may become entrained. Low flow rates result in long retention times whereby the water can become cloudy or contaminated with germs. Adequate water exchange must be observed.

Dimensioning of lines for industrial water

The dimensioning of pipelines carrying water for domestic use must ensure there is sufficient water supply at each of the tap connections. The pipeline system dimensions must ensure that in the case of the lowest absolute pressure, each tap connection is sufficiently supplied.

NOTE:

Please observe DIN 1988 and the DVGW Work Sheet W551, which include some new items referring to district heating supply.

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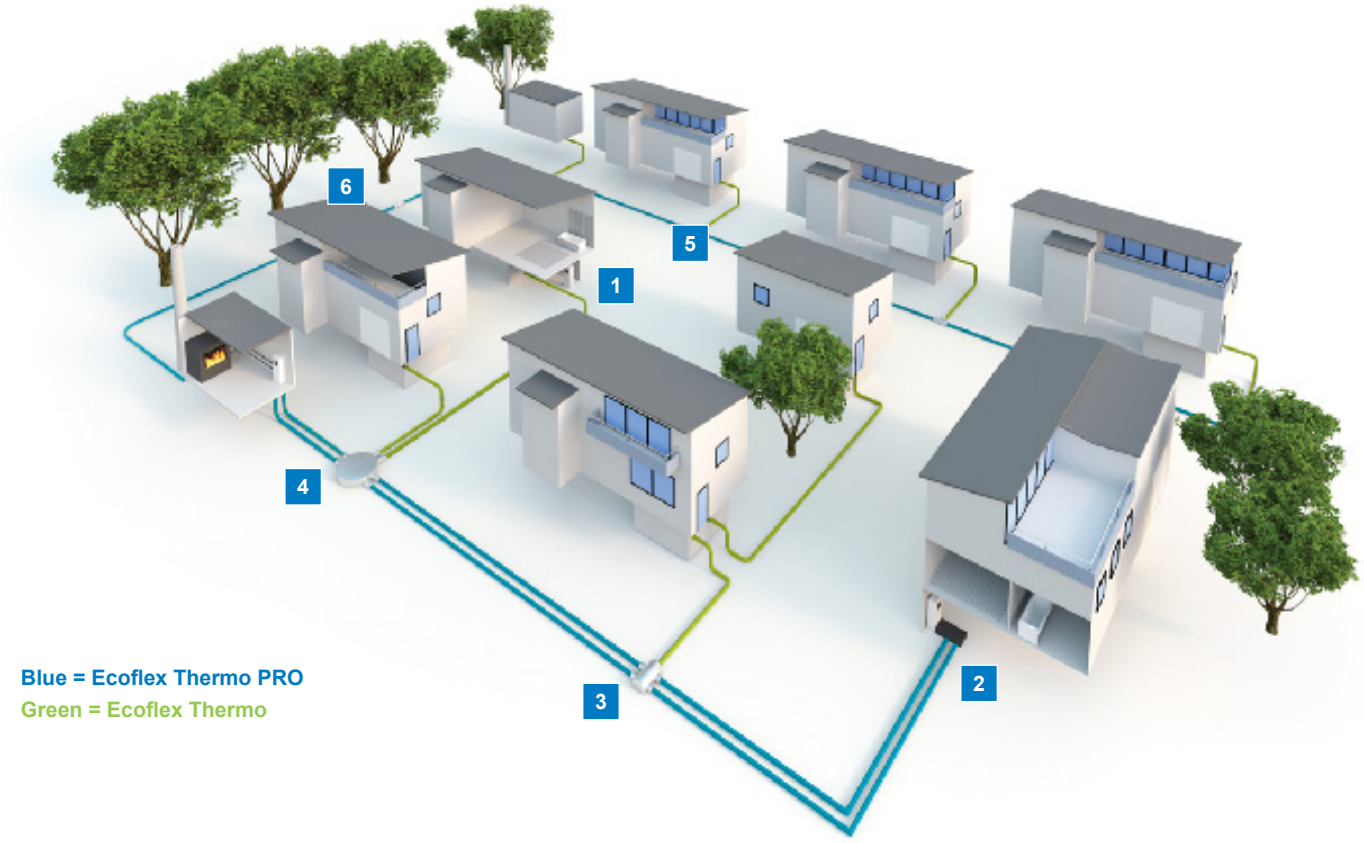
Installation examples



Blue = Ecoflex Thermo PRO
Green = Ecoflex Thermo

1 House connection with Thermo Twin

A Wall duct, non-pressure-waterproof (NPW)

Item	Number required
Thermo Twin	
Thermo PRO Twin	
Rubber end caps, Twin **Alternative with Thermo PRO**	1
Wipex coupling	2
Wipex sleeve	2
Wall through sealing NPW	1

B Alternative: Wall duct, non-pressure-waterproof (NPW)

Item	Number required
Thermo Twin	
Thermo PRO Twin	
Rubber end caps, Twin **Alternative with Thermo PRO**	1
Wipex coupling	2
Wipex sleeve	2
Wall sleeve set NPW	1

C Alternative: Wall duct, pressure-waterproof (PWP)

Item	Number required
Thermo Twin	
Thermo PRO Twin	
Rubber end caps, Twin **Alternative with Thermo PRO**	1
Wipex coupling	2
Wipex sleeve	2
Fibre cement pipe PWP *)	1
Wall seal PWP	1
Additional insert PWP *)	1

*) optional, check necessity

2 Service connection with Thermo PRO Single

Two wall ducts, non pressure-waterproof (NPW)

Item	Number required	
Thermo Single		
Thermo PRO Single		
Rubber end caps, Single **Alternative with Thermo PRO**	2	
Wipex coupling	2	
Wipex sleeve	2	
Wall sleeve set NPW	2	

3 Branching from Thermo PRO Single main lines to Thermo Twin branch lines in the H-insulation set

Item	Number required	
Thermo Single		
Thermo PRO Single		
Thermo Twin		
Thermo PRO Twin		
Varia Twin (alternative)		
Double tee	1	
Rubber end caps, Single **Alternative with Thermo PRO**	4	
Rubber end caps, Twin **Alternative with Thermo PRO**	1	
Wipex coupling	6	
Wipex tee	2	
Wipex reducer *)		

4 Branching from Thermo PRO Single main lines to Thermo Twin branch lines in the chamber

Item	Number required	
Thermo Single		
Thermo PRO Single		
Thermo Twin		
Thermo PRO Twin		
Varia Twin (alternative)		
Chamber	1	
Rubber end caps, Single **Alternative with Thermo PRO**	4	
Rubber end caps, Twin **Alternative with Thermo PRO**	2	
Wipex coupling	8	
Wipex tee	4	
Wipex reducer *)		
Wipex elbow *)		

connecting pipe if necessary, pipe or double nipple (customer's responsibility)

5 Thermo Twin branches in the T-insulation set

Item	Number required	
Thermo Twin		
Thermo PRO Twin		
T-insulation set	1	
Rubber end caps, Twin	3	
Wipex coupling	6	
Wipex tee	2	
Wipex reducer *)		

*) optional, check necessity

6 Thermo PRO Twin joints in the straight insulation set

Item	Number required	
Thermo Twin		
Thermo PRO Twin		
Straight insulation set	1	
Rubber end caps, Twin	2	
Wipex coupling	4	
Wipex sleeve	2	

Planning

Design basics

Lining up the elements

The flexible piping system allows you to plan the trenches flexibly and take the environment into account. When the pipe element is led into the building, the selection of the entry location must take into account the space requirements of the element bending radius.

Linking

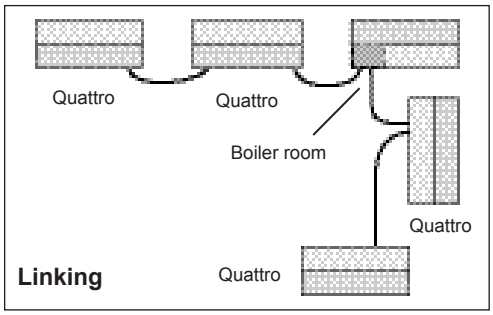
The most cost effective way of installation is the use of a linking system (see below). Thermal loss is minimal in the Quattro products, which are particularly well suited to implementation in terraced houses and small apartment buildings. The number of joints in the ground can be reduced for small buildings by using the linking technique. The technique is particularly well suited to locations where houses are lined up and the dimensions of the Quattro products are adequate. The floor space required by Quattro is very small, allowing for linking joints to be made inside the apartments. For example, the raised base of the hallway cabinet can be used as the linking space.

Building-specific lines

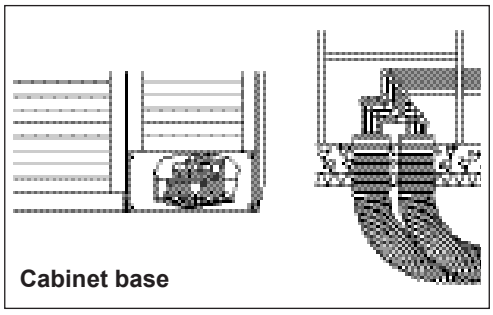
In properties consisting of several buildings, straight connections from the house to the boiler room are recommended if the boiler room is located in a central location. Installation between buildings is fast straight off the coil and no connections are required. Trenches do not have to be kept open for pressure testing. The used pipe sizes are not large and this allows the use of multiple pipe elements.

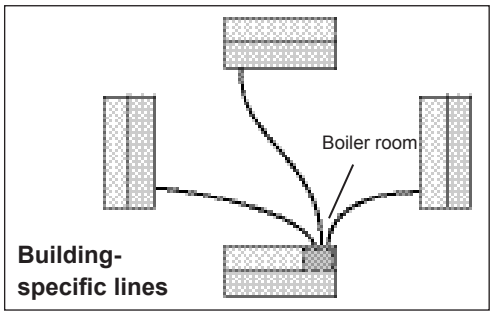
Combining products

Radiator-equipped hot tap water systems can be used with the larger circulation pipe elements Quattro and Aqua Twin. The cost saving benefits of the twin and four-pipe elements can be achieved in these locations. By combining products,
a functional system can be created and efficient use of the chambers can be guaranteed.

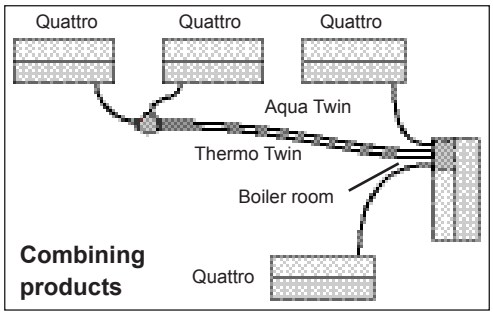


Linking


Cabinet base



Building-specific lines



Combining products

Planning the marked-out route

The flexibility of the Uponor pipes permits problem-free adaptation on-site to almost any routing conditions. It is possible to route over or under existing lines, while obstacles can simply be avoided. Even laying the pipe system under a groundwater table of 3 metres (0.3 bar) is permitted.

The system only requires the excavation of a narrow ditch of low depth. Laying does not normally need anyone to get into the ditch except at the pipe joint and branch locations. Suitable working space should be created for this purpose at the joint and branch sites. Whenever the pipe direction changes, the bending radii must not be smaller than the permitted minimums for the various pipe systems.

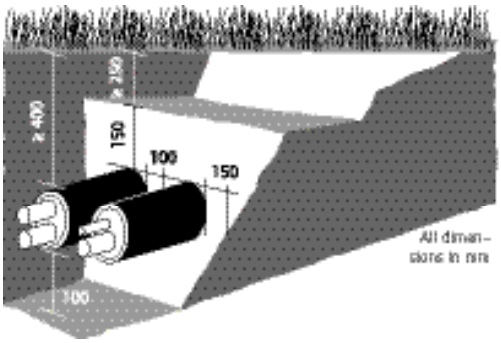
It is convenient to do all the excavation on one side of the ditch. The pipe is then rolled out on the free side, and laid directly in the ditch. It is essential to avoid damaging the jacket pipe.

A bed of sand without stones is specified. The sand grain size should be between 0 and 2/3 mm. Never include any objects with sharp edges or points in the ditch. Bedding the pipeline carefully (at least 10 cm above and below the jacket pipe, and to the walls of the ditch) has a crucial effect on the durability of the jacket pipe. When deciding the minimum coverage, the possibility of damage from subsequent building work during the entire lifetime of the construction should be borne in mind. The filling material should be compacted in layers, and a machine should be used for this above 500 mm coverage. When this has been done, lay the line warning strip and fill the ditch.

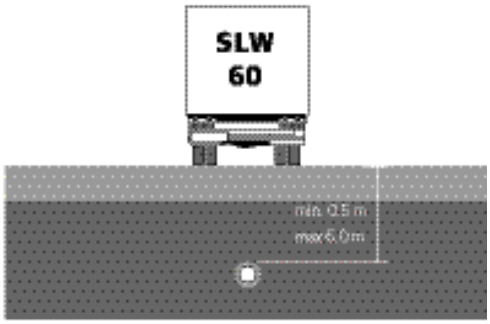
When covered to a depth of h = 0.5 metres up to a maximum of 6 metres, the Uponor jacket pipe can withstand soil and high traffic loads. The certificate, based on ATV DVWK-A127, demonstrates that our pipes, when laid in accordance with defined

conditions, are suitable for loading by heavy traffic (SWL 60 = 60 t) according to worksheet ATV-A 127. The ring stiffness of the jacked pipe ist proved according EN ISO 9969 to be able to withstand 4 kN/m² (class SN4).

Minimum coverage without stress from traffic loading



Coverage with traffic loading according to SLW 60



CAUTION!
Local frost limits have not been taken into account here.

Guideline values for the installation process

The time required to lay these pipe systems depends on local conditions. In the following table, obstacles, underpasses, weather conditions, fitting times and other aspects have not been taken into account. The use of aids such as excavators or cable winches has also not been included in the calculation.

Installation time for Thermo products.

Pipe type	25 Meters Fitters/min.	50 Meters Fitters/min.	100 Meters Fitters/min.
Single:			
25	2 / 15	2 / 30	3 / 40
32	2 / 15	2 / 30	3 / 40
40	2 / 20	2 / 40	3 / 60
50	2 / 20	2 / 40	3 / 60
63	3 / 20	3 / 40	4 / 60
75	3 / 25	3 / 50	4 / 75
90	3 / 30	4 / 60	5 / 90
110	3 / 30	4 / 60	5 / 90
125	4 / 30	5 / 60	6 / 90
Twin:			
25	2 / 20	2 / 40	3 / 60
32	2 / 20	2 / 40	3 / 60
40	2 / 30	3 / 40	4 / 60
50	3 / 25	3 / 50	5 / 90
63	3 / 30	4 / 60	5 / 90
75	3 / 30	4 / 60	5 / 90

Guideline values for average fitting time for jointing equipment and accessories:

Number of fitters / group minutes per item (e.g.2/15 = 2 fitters require 15 minutes per item)	
Rubber end caps	1 / 5
Wipex coupling 1 / 15	
Wipex coupling 2 / 30	
Wipex tee (complete)	2 / 40
Straight insulation set	1 / 35
T-insulation set 1 / 45	
Elbow insulation set	1 / 35
Double tee set	2 / 50
Chamber incl. 6 x connections to the jacket pipe	2 / 50
Wall sleeve set NPW (non pressure waterproof)	1 / 30
Wall seal PWP (pressure waterproof)	1 / 30
Peeling time for thermo PRO	2/10

Two examples of the average fitting time for Uponor pipes:

Example 1:

- Installation of 2 x 25 m Uponor Ecoflex Thermo Single 63 mm
- 3 fitters with no additional aids

Installation time: 2 x 20 minutes

Example 2:

- Installation of a wall sleeve set NPW
- 1 fitter with no additional aids
- Guide figure for rubber end cap 1/5, conversion nipple 1/15, wall sleeve set NPW 1/30

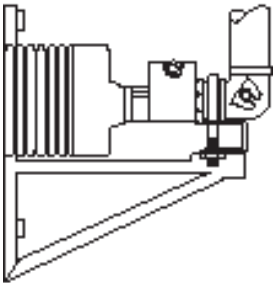
Installation time: 1 x 50 minutes

The assembly times mentioned above are group minutes for the corresponding number of fitters (not including excavation work). The figures are only guidance for calculation.

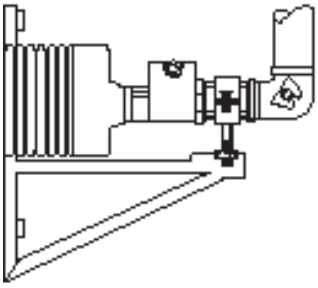
Anchoring

The expansion behaviour of PEX material leads to slight changes in the length of the medium pipe therefore a tension-free connection must be provided by a pipe bend or a fixed point joint.

Small pipe sizes (medium pipe OD ≤ 50 mm) can normally be anchored with the holders of the joined piece of the equipment. Large pipe sizes (medium pipe OD > 50 mm) must be anchored using a separate fixed point joint.

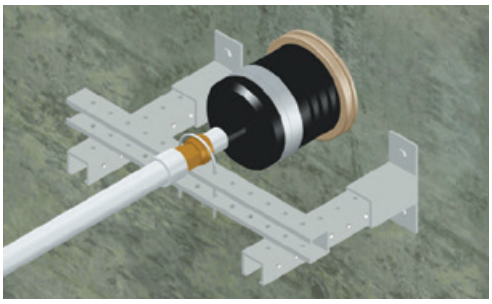


Fixing to pipe elbow with a pipe clamp (OD ≤ 50 mm)



Fixing to a fixed point joint with a pipe clamp (OD > 50 mm)

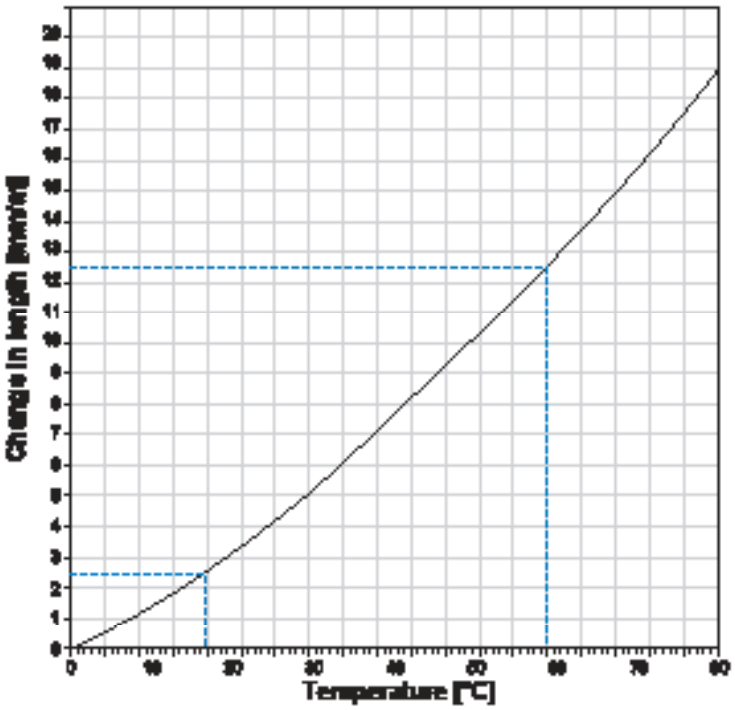
PLEASE NOTE!
Anchoring must not be conducted directly off the medium pipe.



Wall Anchoring

Thermal expansion

For example: When installing a hot tap water pipe, the temperature in the construction site is 20°C. How much longer is the pipe when 70°C water flows through it? The chart shows that the temperature difference from 20°C to 70°C causes a thermal elongation of 12.5 – 2.5 = 10 mm/m.



Normally, providing you have appropriately anchored the pipework both ends and do not lay the pipe in a straight line, there is no expansion allowances required.

Bending radii

Thanks to the structure and the materials used, the pre-insulated pipe systems are extremely flexible. The smallest permitted bending radii listed in the technical specification tables on page 9 to 23 must be taken into account when the pipes are laid.

CAUTION!
The medium pipe can kink or be damaged if the bending radius is smaller than the specified minimum.

Installation in cold temperatures

The installation is not recommended to be carried out in temperatures below -15°C. In cold weather, installation is easier if the pipes are already warm, for example from having been stored in a warm space prior to the installation. On a construction site, heating can also be carried out using a hot air blower. Heating the pipes over an open fire is prohibited.

Above-ground installation

Pre-insulated pipes can be installed above ground when digging is difficult or not feasible (e.g. hard, rocky soil or protected areas).

Special care should be taken to anchor the pipe so that it will not get damaged due to thermal elongation or other movement. Thermal elongation can cause winding of the pipework.

Mounting on the wall or on the ceiling

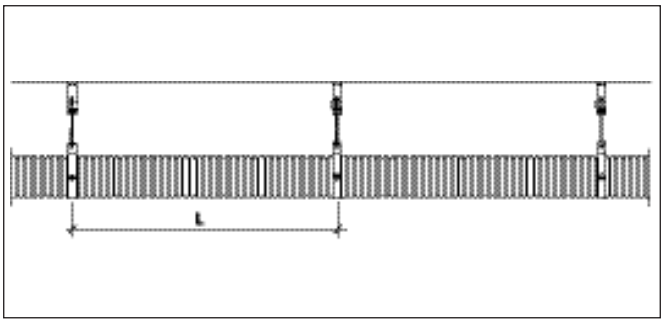
The pipes can also be mounted on the wall or on the ceiling using brackets or placing them on a cable shelf. In order to prevent bending the pipe, install the brackets according to the adjacent table. The table sets out maximum support intervals for horizontal and vertical mounting in order to prevent the pipes from hanging. If required, the interval of the brackets can be shortened.

Storage/UV-Resistance

The jacket pipe is 2 -2,5% carbon black colourised, and can be used below Central Europe atmospheric conditions.

Also please make sure that there are no sharp rocks or machanical stresses which could cause damages in the long run.

Jacket pipe OD [mm]	Maximum support interval [m]
68	0.6
90	0.9
140	1.2
145	1.2
175	1.8
200	2.2
250	2.6



Fire Classification

Uponor Pre-insulated pipework system (including insulation, jacket and pipework) has been certificated to EN 13501-1 Category "E" and tested to EN ISO 11925-2 building material class B2 in accordance with DIN 4102.

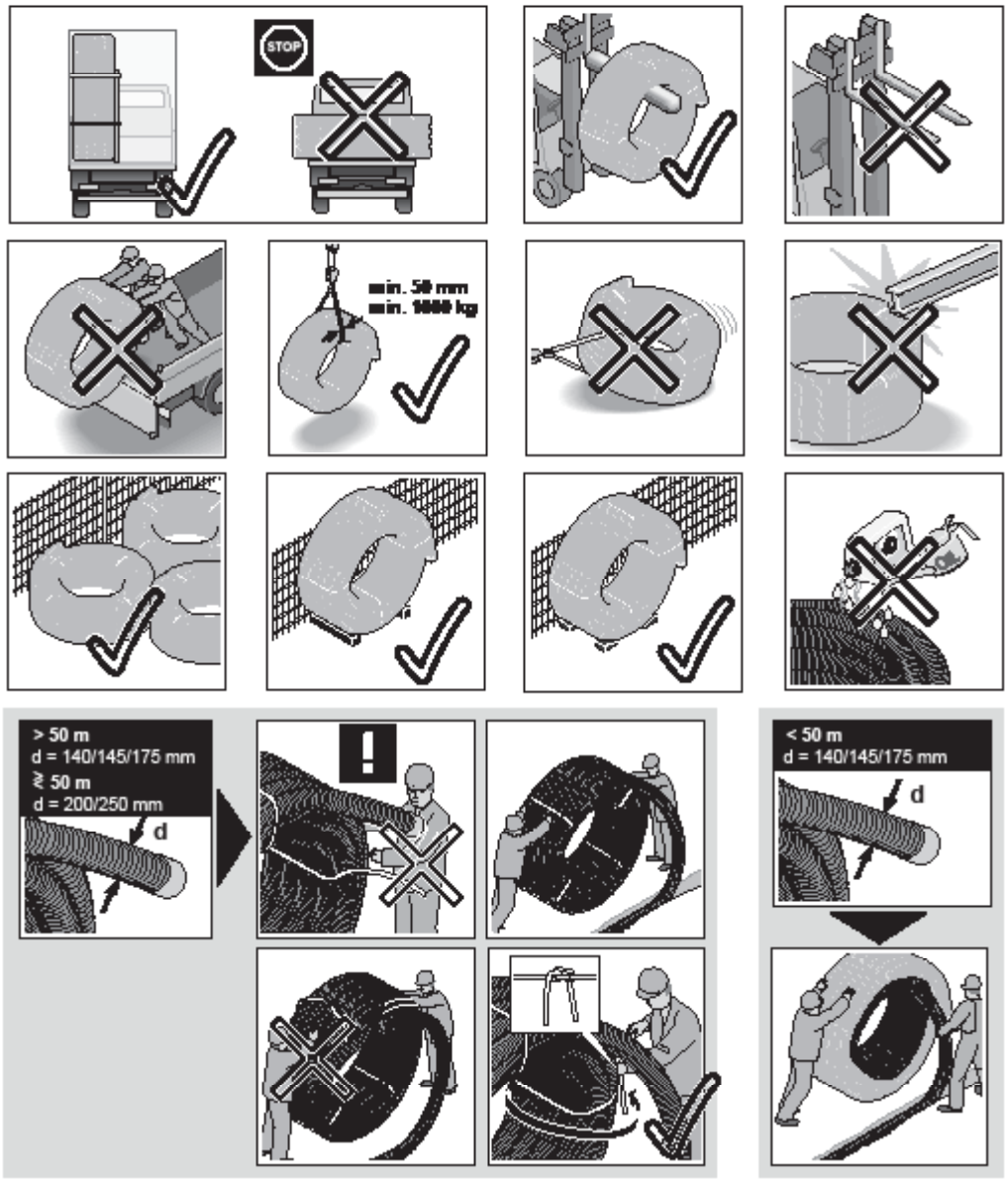
Pipe handling

Storing, lifting and handling the pipe coil

Conical end caps have been mounted on the ends of the pipes to protect the flow pipes against sunlight and other damage, including soiling during transportation. Protect the pipe coil from sharp objects during transportation and storage.

Do not drag the coil across rough surfaces. Ensure that the coil is not squashed and that the pipe is not dented when bent during storage. Store all coils in a horizontal position. Pipe coils and chambers can be stored outside, other components of the system should be stored indoors.

When unloading, do not drop the coils. Do not transport a pipe coil by pulling it. Use belts for lifting the coil.



PLEASE NOTE!
When lifting pipe coils, use at least a 50 mm diameter nylon or textile loop. If you are lifting the coils with a fork truck or other similar equipment, the forks must be rounded or padded. Due to the flexibility and weight of the coils, the diameter of the coils can vary by up to 30 cm.

PLEASE NOTE!
Plastic materials must never be brought into contact with aggressive substances such as motor fuel, solvents, timber preservative or similar.

Uncoiling

Store the delivered coil as far as possible in its protective packaging until installation! Then uncoil the pipe directly into or beside the trench. Never pull the pipe across the ground as pointed objects could cause damage. Should the jacket pipe become damaged, it can be repaired using a shrinkable sleeve.

All pipeline parts and system accessories must be visually inspected prior to installation or processing for damage of influences which impact its function. Parts which are inacceptably impacted must be discarded! If the pipeline is to be installed horizontally in the open, support points (for example, using sand) must be provided to prevent the pipe from slipping later. If the ground is uneven, these supports must be provided every 25 metres.

When embedding pipe sections, a sufficiently free pipe length of 3 to 5 metres must be provided for installing the connecting systems. Where there is a change of material from steel to plastic medium pipe, stress may be transferred from the steel to the plastic pipe during temperature changes. In this case, shear forces particularly are to be avoided; if necessary, provide fixed points around the ends of the steel medium pipe. If installing in extremely low temperatures (increased pipe rigidity), the pipes should be stored in a heated hall or carry out the installation beneath a heated shelter directly at the trench.

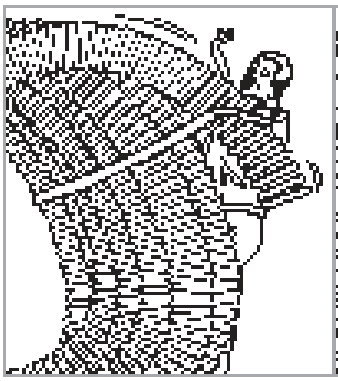


Fig. 1

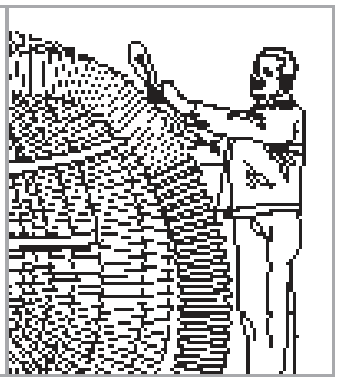
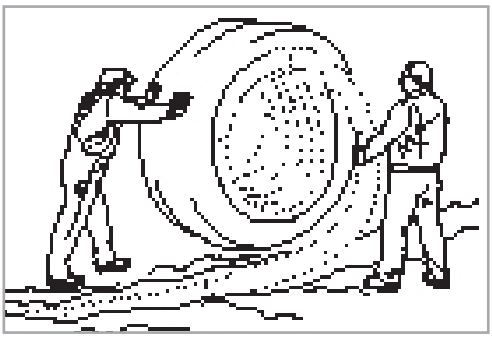


Fig. 2

The pipe ends could whiplash when the textile tapes are opened (see Fig. 1) Therefore make sure the coils are always secured with two to three tapes. (see Fig. 2).

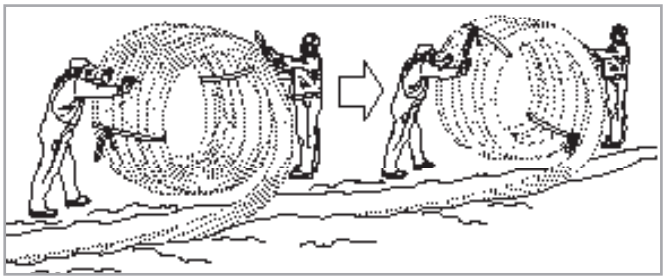
Rolling out the pipes from the inside.
(recommended for jacket pipe diameters 140mm and 175mm or coiled lengths up to 100m):

Do not remove exterior packaging! Cut the nylon securing tapes in the coil. Take out the inner pipe end from the coil (do not remove the end cap until the pipe is connected!). Fix the pipe ends (e.g. by weighing them down or placing sand on top of them). Roll out the pipe, coil by coil.

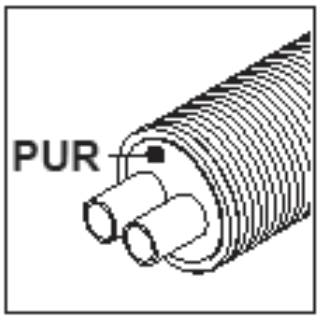


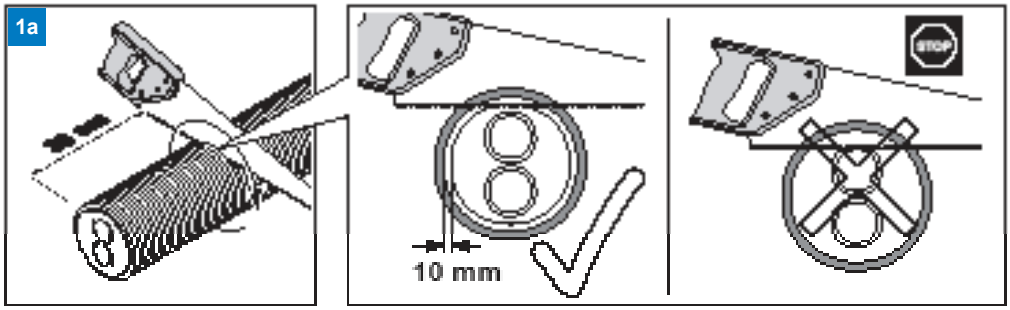
Rolling out the pipe from the outside.
(recommended for jacket pipe diameters 200mm or coiled lengths in excess of 100m):

Remove the packaging foil. Open the first nylon tape at the outside pipe end, loosen the pipe end from the coil and fix the coil once more with the nylon tape. Warning – when opening the first nylon tape, the pipe end is under tension and can whiplash! Fix the loose pipe end (e.g. by weighing it down or placing sand on it) and roll out as far as the next nylon tape. Repeat this process until the coil is completely unrolled.

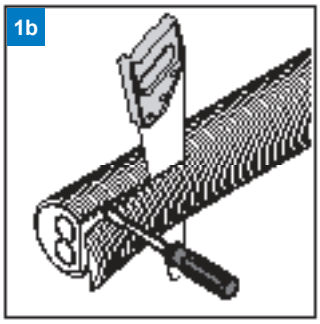


Peeling Thermo PRO

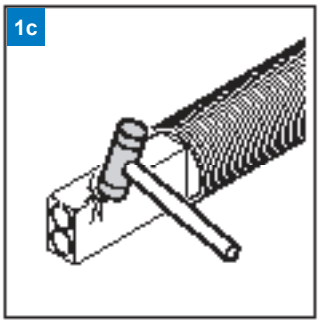




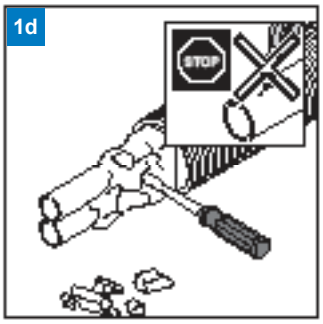
1a Mark 30cm down the pipe and Cut around pipe jacket no deeper than 10mm to prevent damage to the pipework.

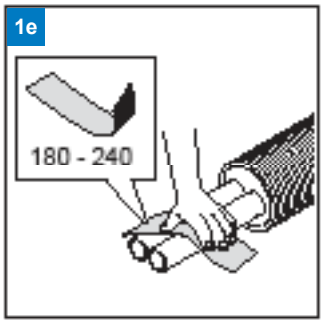


1b Make two cuts down the pipe, one either side of the pipe. Then using a screw driver remove the rest of the casing. (if cutting twin ensure the pipes are vertical as shown)



1c Using blunt tools break away the insulation to reveal the pipe(s). Been careful not to damage the pipe.





1e Using 180-240 grit remove the remaining PUR foam to give a smooth surface for the fitting.

Product line components

Uponor Wipex fitting range

The Wipex coupling is specifically designed for connecting cross linked polyethylene pipes, produced by Uponor, for hot and cold water in domestic and district heating installations. The coupling is available for pipe dimensions 25-110 mm, in two series marked PN 6 and PN 10.

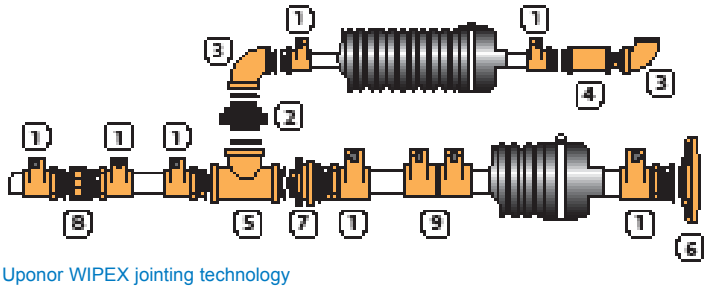
The Wipex coupling is designed to give an excellent tight grip. The gripping strength is higher than the tensile strength of the pipe, and the sealing performance is unaffected by temperature fluctuations.

Wipex couplings are robust and simple in design, can be fitted very easily and quickly even in difficult locations and confined spaces. The ring spanners used when fitting the coupling are very small and convenient to use in relation to the size of the coupling.

Benefits:

- The Wipex coupling is patented, tested according to DVGW (Germany), NKB (Sweden), CSTB (France), KIWA (Holland) and approved
- The main components of the fittings are made of DR brass (resistant to dezincification)
- O-rings are used to make a seal between the couplings and pipe fittings
- Additional sealing using teflon or sealing tape is not required
- The Wipex fitting system allows for an extremely wide range of connection combinations
- No special tools required - only two fixed wrenches and a plier.

Design recommendation:
When connecting from the Uponor Wipex system to third-party components, the terminating Uponor Wipex element must consist of a fitting (bend or socket) with an inside thread.

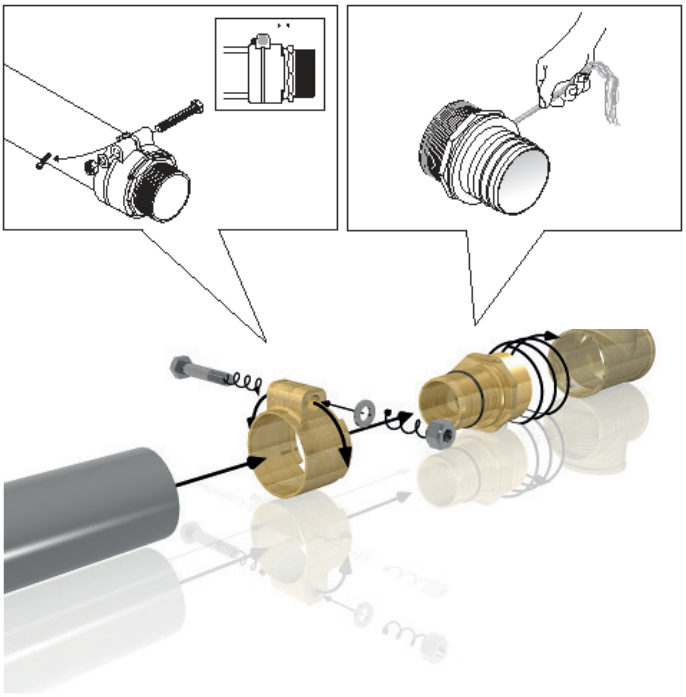


Uponor WIPEX jointing technology

1 Wipex coupling	4 Wipex fix point bushing	7 Reducer
2 Wipex swivel union	5 Wipex tee	8 Wipex sleeve
3 Wipex elbow	6 Wipex flange	9 Wipex jointing equal

Uponor Ecoflex coupling for 125 mm

The Ecoflex coupling is designed for connecting cross linked polyethylene pipes for district heating installations. The coupling is available for pipe dimension 125 x 11.4 mm, PN 6 and fitting base parts in 4 inch. Sealing tape is used to make a seal between the couplings and base parts.



Uponor Ecoflex coupling for pipe dimensions 125 x 11.4 mm, PN 6

Uponor Ecoflex pre-insulated fitting range

The Uponor Ecoflex pre-insulated fitting is used for the connection with pre-insulated Ecoflex pipes in buried installation. The fittings are made from stainless steel, are pre-insulated with foam and covered with a PE-casing. The ends of those fittings are welded with female thread adapters.

Uponor Ecoflex tee twin

Uponor Ecoflex elbow single

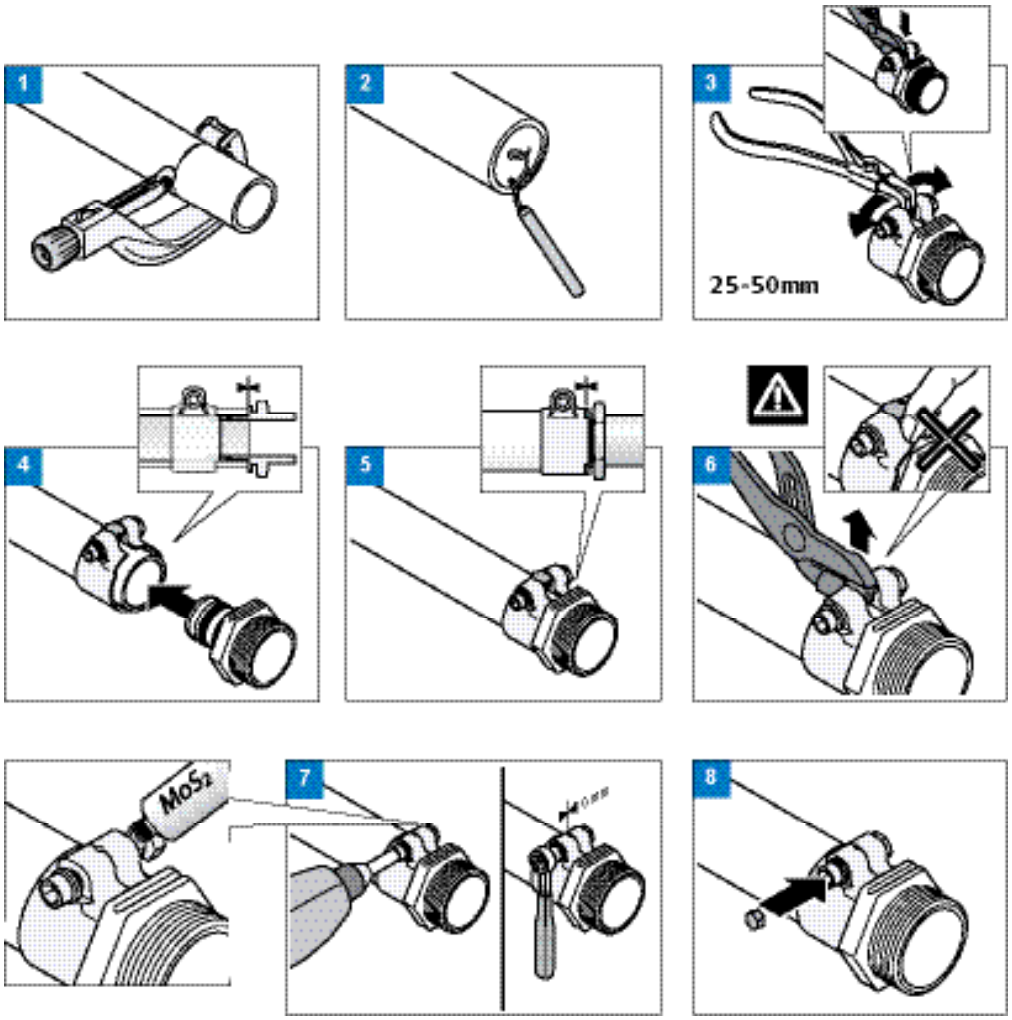
NOTE!
Since this is a make to order item, please call for the delivery time.

Mounting Instructions

Uponor Wipex fittings

Wipex is a complete set of fittings that fits Uponor PEX pipes used in hot tap water and heating systems and certain industrial applications.

Wipex fittings are used for pipes with an external diameter of 25-125mm and pressure class of 6 or 10 bar. Required combinations of fittings are created using Wipex parts. Joints are sealed using the o-rings, supplied with the fittings. (125mm requires a sealing tape)



NOTE!
Do not use an impact driver as this can break the bolt.

Wipex fitting	Allen key size	ISO 4762 DIN 912
25	5	M6x35
32	5	M6x40
40	6	M8x45
50	8	M10x55
63	10	M12x70
75	10	M12x75
90	14	M16x90
110	14	M16x90

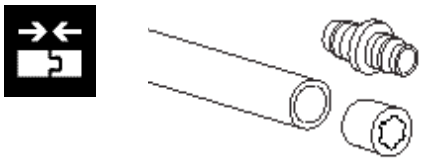
Wipex base parts (tee, elbow, reducer, flange)
Check that the o-ring housing is clean. Only use the o-rings supplied with the base parts. Place the o-ring in the intended groove. Fasten all parts manually, if at all possible. Tighten the parts using a spanner or a pipe-wrench with small jaws all the way down (metal against metal). When other items are mounted on the Wipex base parts or pipe couplings, the threaded coupling must be tightened using sealing tape.

Uponor Q&E fitting range

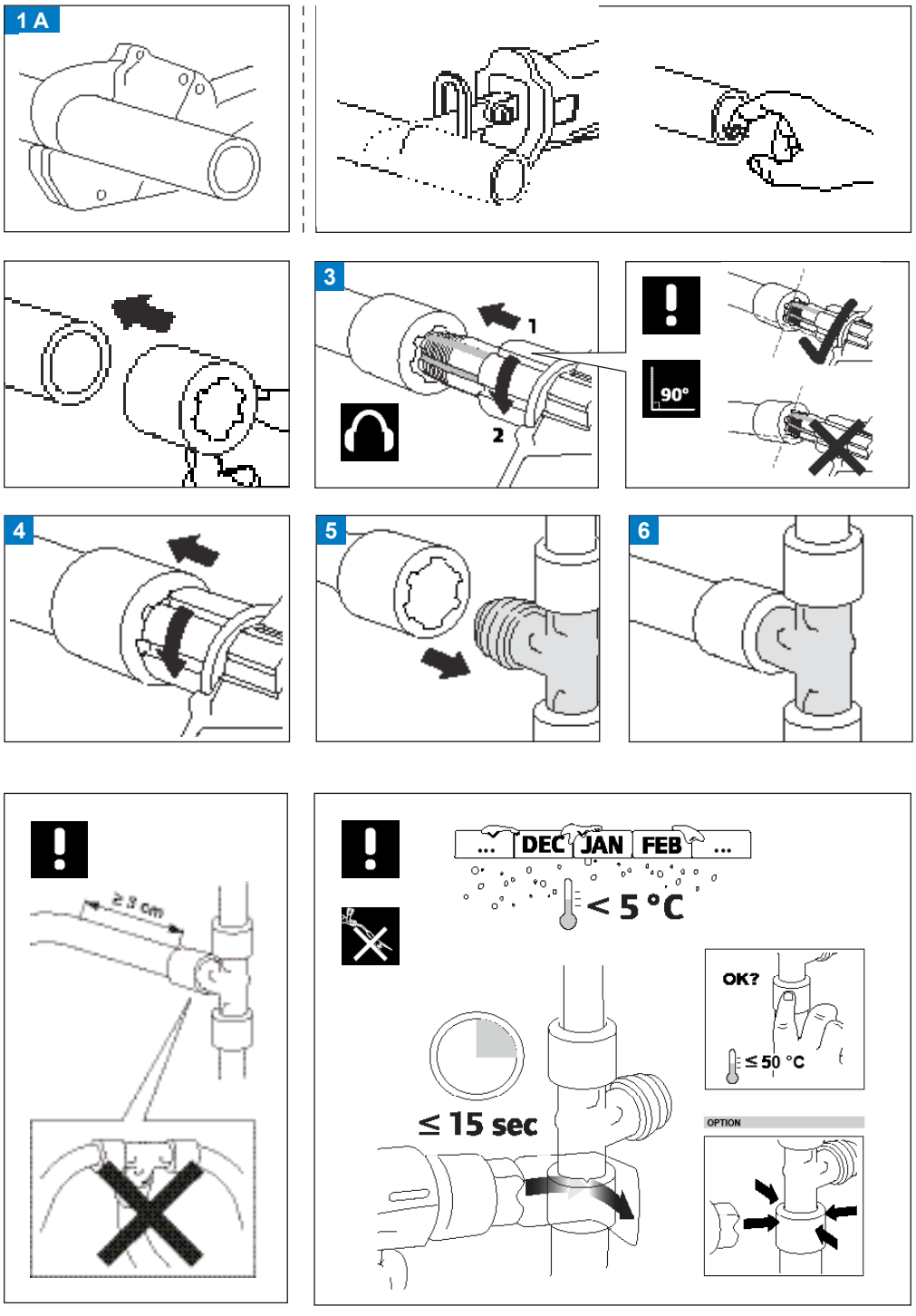
The system is based upon the unique properties of Uponor PE-Xa pipes and the revolutionary Q&E fitting. It enables you to mount a fitting without further tools than the expander tool. Only expand the Uponor PE-Xa pipe together with a Q&E Ring and mount it directly onto the brass or PPSU fitting. The pipe will shrink back and the mounting is complete. The technique has been patented by Uponor and is designed exclusively for Uponor PE-Xa pipe up to dimension 75mm. The fittings have been tested in performance by several independent official accredited laboratories, such as ATG Belgium, KIWA Netherland, MPA Germany, SP Sweden, TGM Austria, QAS Australia as well as in Uponor own laboratories.

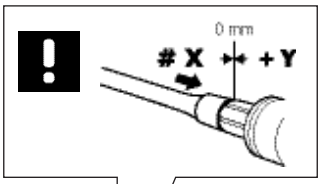
Benefits:

- A total and safe solution for a professional installer
- A simple and reliable fitting design without O-rings, press or push sleeves, which make it easy to use and fast to fit
- By the use of Q&E, a professional makes the installation fast and efficiently
- Once connection is made the joint is non-removable
- An all plastic system can be done



Uponor SDR 11
Uponor SDC 7.4
Pipes only



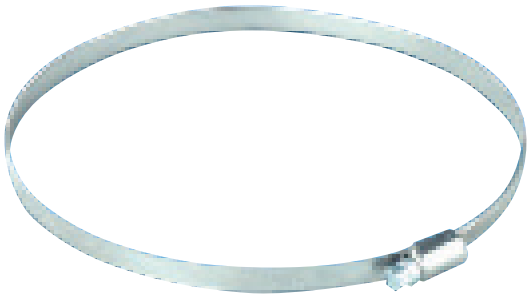


mm			M18/M18 VLD	M18/M18 VLD		M18 VLD	
				M18		M18 VLD	
				21 °C	-10 °C	21 °C	-10 °C
PN6							
25x2.3	25	Q&E 25	25x2.3/3.5	9	9	-	-
32x2.9	32	Q&E 32	32x2.9/4.4	14	14	-	-
40x3.7	40	Q&E 40	40x3.7/5.5	7+1	7+1	3+1	3+1
50x4.6	50	Q&E 50	50x4.6/6.9			3	3
63x5.8	63	Q&E 63	63x5.8/8.6			4	3
75x6.8	75	Q&E 75	75x6.8/10.3			7+1	7+1
PN10							
25x3.5	25	Q&E 25	25x2.3/3.5	19	19	-	-
32x4.4	32	Q&E 32	32x2.9/4.4	7+3	8+2	-	-
40x5.5	40	Q&E 40	40x3.7/5.5	-	-	5+4	5+3
50x6.9	50	Q&E 50	50x4.6/6.9	-	-	4+1	4+1
63x8.7	63	Q&E 63	63x5.8/8.6	-	-	5+1	5
75x10.3	75	Q&E 75	75x6.8/10.3	-	-	11+3	11+2

Rubber end caps

To protect the pipe ends and for component partitioning

Uponor rubber end caps protect the insulation at cut pipe ends and provide partitions between components. It is important to provide this protection against moisture ingress or damage, so that the whole system can maximise the efficiency of the insulation. A gasket ring is also supplied to prevent the entry of water. The end caps can be assembled by easily and conveniently pulling them over the ends of the pipes, after which they are fully secured with a jubilee clip.



NOTE!
The jubilee clip must not be mounted when Uponor H insulation sets are being used!

NOTE!
The Uponor rubber end caps must be fitted to the ends of the jacket pipes before making a connection to a medium pipe!

NOTE!
Before the rubber end caps are fitted, the insulation must be removed from the pipe back to the proper length. The dimensions of the insulating kit must be observed here.

Uponor Single end cap

Uponor Twin end cap

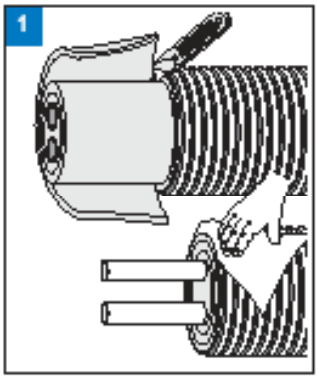
Uponor Quattro end cap

Uponor rubber end caps

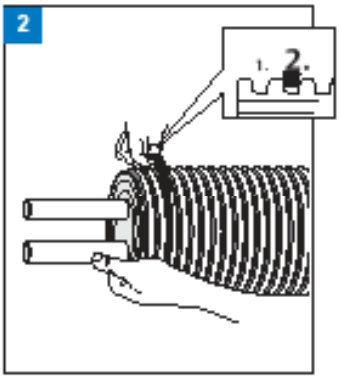
The rubber end caps are always used at the pipe ends. They protect the insulation against moisture and provide partitions between components.

Installing the rubber end caps
Put the end caps in place before the couplings.

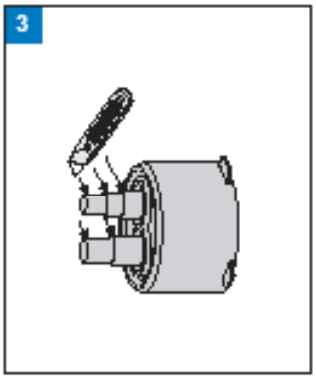
Please note! Follow also the instructions for the Uponor insulation sets.



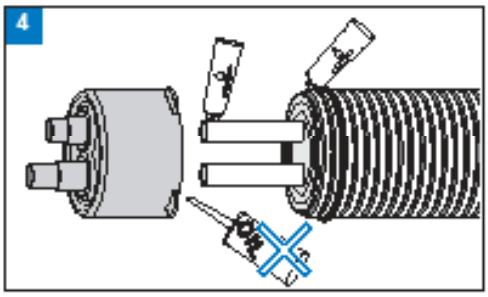
Cut away jacket pipe and peel off insulation layers so that enough flow pipe is visible to join the coupling and the end cap. Be careful not to damage the flow pipe. Clean the surfaces carefully.



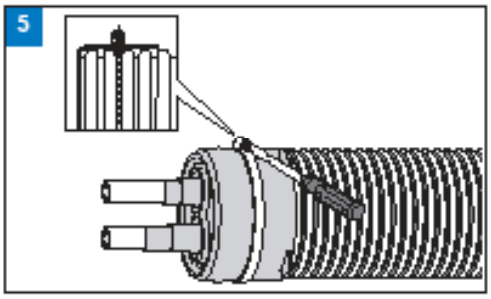
Install the rubber seal in the second groove.



Open outlets on the rubber end cap according to the flow pipe size.



Install the end cap over the end of the pipe using lubricant. A non oil-based lubricant can assist.



Position the jubilee clip over the seal and tighten.

Uponor Ecoflex insulation sets

The selection of insulation includes different T-sets, one elbow, one straight set and two reducer kits. Due to its special design and high quality ABS material the insulation sets resist a traffic load of 60 tons. Additionally the insulation sets are mounted with foam half shells which ensure less heat loss during operation. All sets cover three different dimensions of jacket pipes and they fit single and twin pipes equally well. All necessary components like foam half shells, bolts, sealing kit are included.

NOTE!
Joints should not be located underneath roads because this makes access difficult and heavy vehicles could damage the joint.

If the H-insulation set is installed underneath roads it is necessary to use a concrete slab above the joint to distribute the heavy traffic load.

Uponor Ecoflex T-insulation set

Uponor Ecoflex elbow insulation set

Uponor Ecoflex house connection elbow Single

Uponor Ecoflex straight insulation set

Uponor Ecoflex H-insulation set

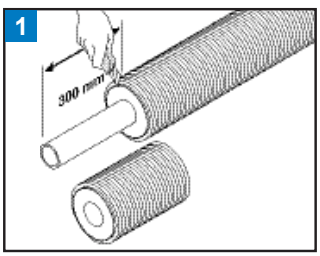
Uponor Ecoflex house connection elbow Twin

Uponor insulation sets

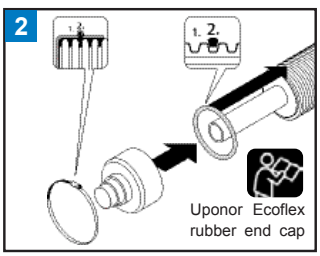
Example: T-branches
Uponor insulation sets are designed to protect underground joint areas from heat loss, external loading forces and water ingress. The T insulation set is designed for use with both twin and single pipe branches and is compatible with three jacket pipe dimensions (140/175/200). Pipes with a 68mm jacket can also be fitted to the insulation sets using reducer rings (supplied separately).

Each set is supplied with two PUR foam half-shells, spacer pieces, sealant, joining bolts with washers and full installation instructions.

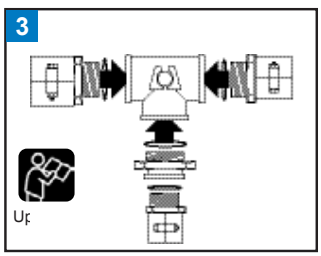
Please note! Conduct the pressure test before closing the T-insulation set.



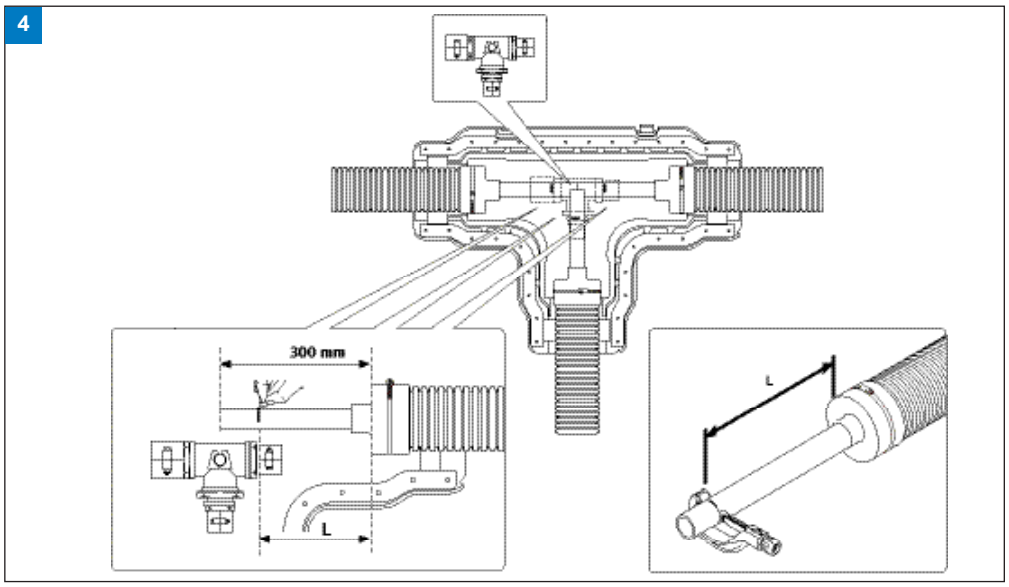
Cut back outer jacket.



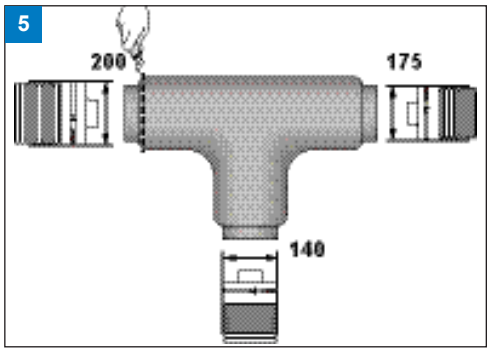
Fit rubber end cap.



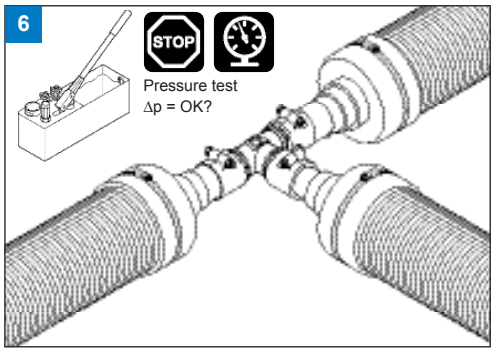
Assemble Wipex fittings.



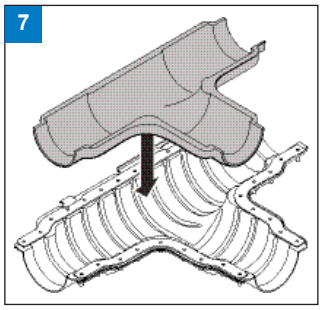
Trim back exposed pipe ends to suit the assembly of Wipex fittings.



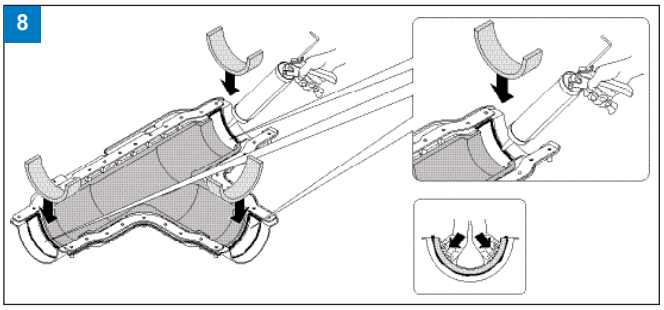
If using 200mm jacket pipe, trim back foam half-shell.



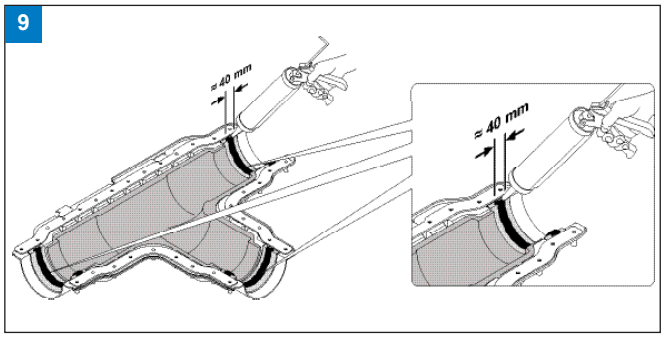
Connect up and pressure test.



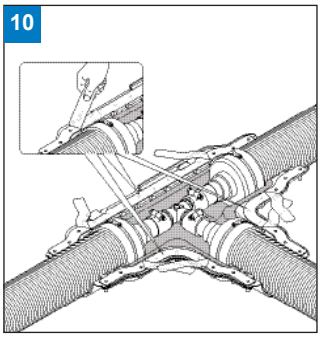
Place foam half-shell in casing.



Fit spacer pieces to suit jacket pipe size using sealant.

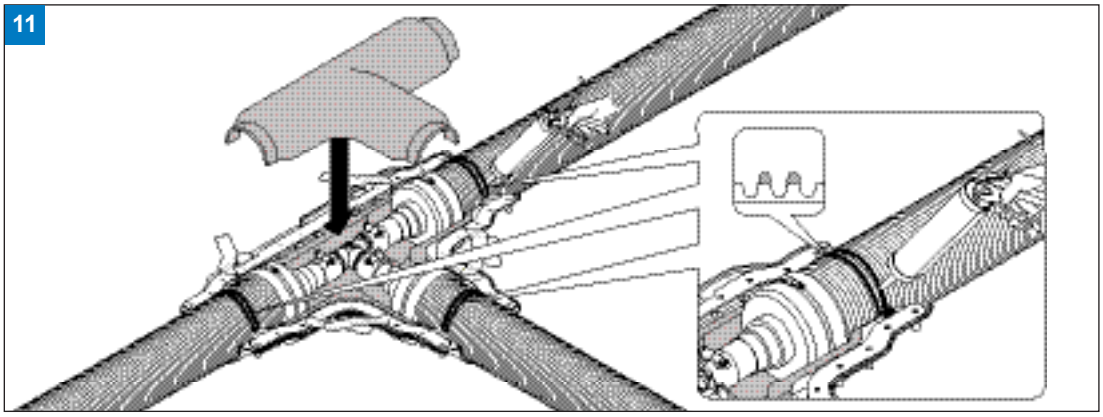


Apply sealant to spacer pieces.



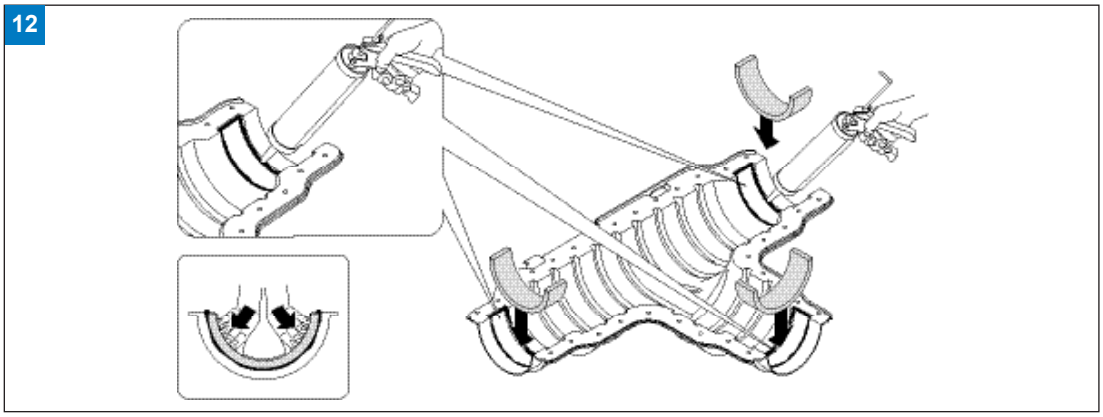
Partially release adhesive strips.

11



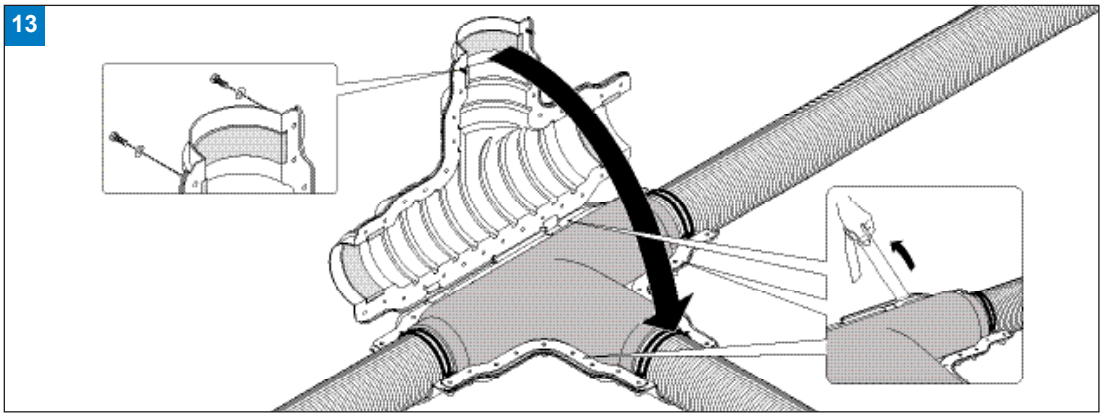
Position upper foam half-shell over joint area. Apply sealant to two corrugations where pipe meets spacer piece.

12



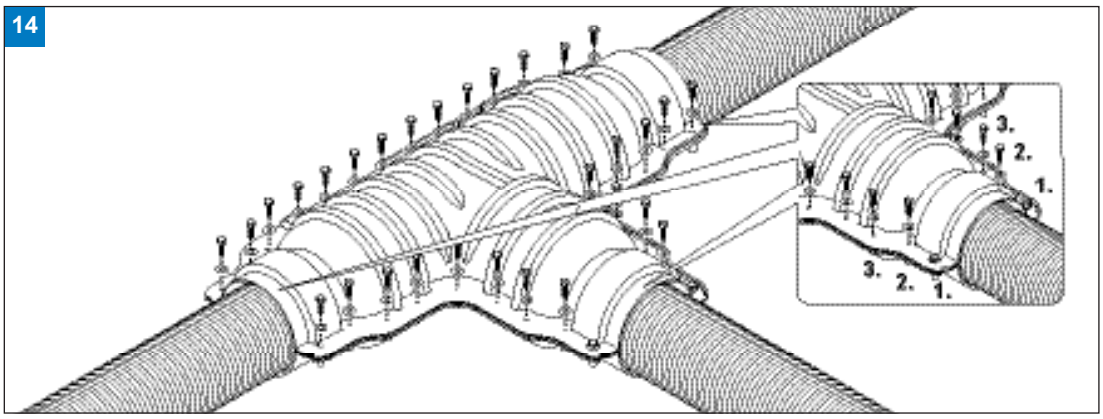
Prepare top half of insulation set casing.

13



Fully release adhesive strips and position top half of casing over joint area.

14



Complete assembly of insulation set using bolts provided.

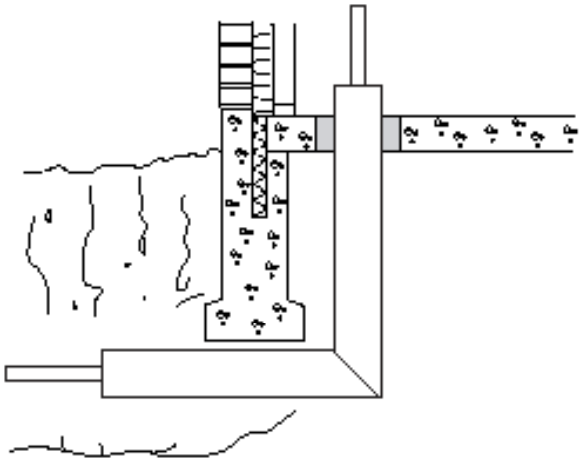
NEW! Uponor house connections

Allowing for greater ease in bringing Uponor pre-insulated pipework into a building where space is very limited.

This pre-formed bend uses Uponor PEX pipework system and Q&E jointing to give you a very tight 90 degree bend. At 1.5m x 1.5m this also gives you plenty of pipework at the end to do your connections onto the rest of the system.

Jointing underground is carried out by the use of either the Wipex coupler or Uponor Q&E coupler. This is followed by the standard Uponor insulation sets (reducer ring required), which are used to complete the joint.

All house connections are made to order and have a 8 week leadtime.



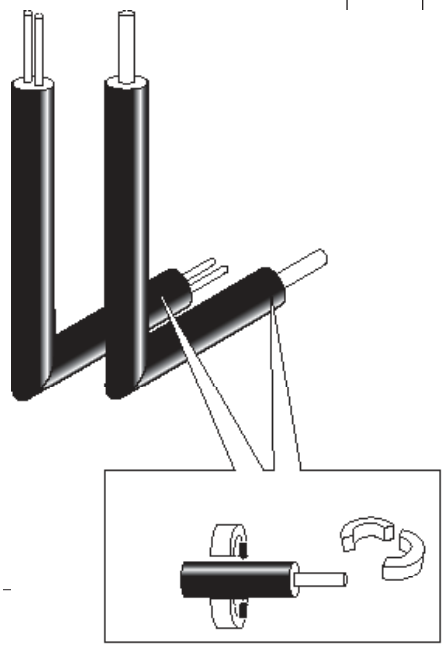
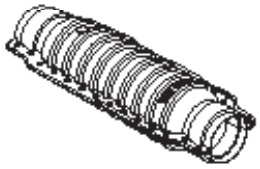
Code	Size (mm)	Height (mm)	Length (mm)	Width (mm)	Weight (KG)
1085104	50	1600	1700	205	20
1085105	63	1600	1700	205	22
1085108	75	1600	1700	205	25

Reducer Rings

These are required for sealing the insulation sets to the house connection.

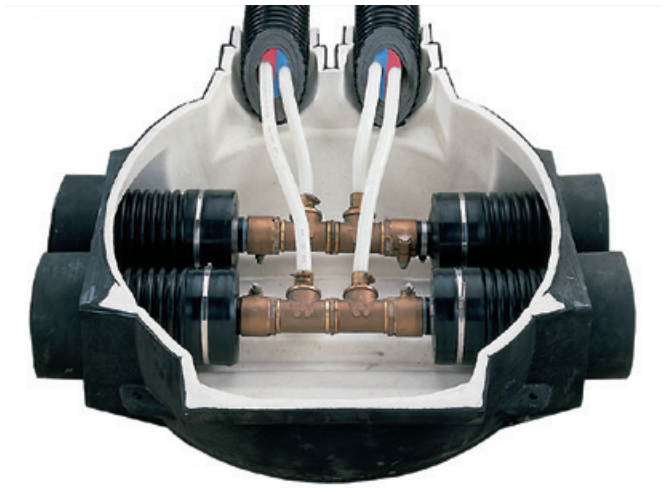
Code	Size (mm)	Width (mm)	Weight (KG)
1085106	205	205	2

Uponor house connections

House connection		Fitting		Insulation set		Pipe
		 or 	+	  	+	

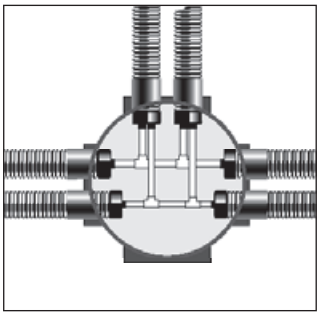
Uponor Ecoflex Chamber

Uponor connecting chambers are designed for pipe joints that cannot be made with an Uponor insulation kit. This includes, for instance, connections between single to two or more twin pipes, or for the Uponor Ecoflex Quattro pipes. The rotationally moulded chamber has walls made of polyethylene and, on the inside, it is coated with a PE insulant. The branching chamber enables the joining of other connections at a later date. The chamber has a watertight structure and is suitable for all pipe dimensions (casing pipe size 140, 145, 175, 200 and 250 mm).

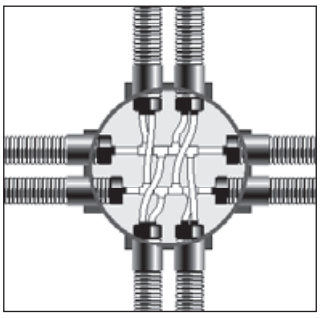


NOTE!
Joints should not be located underneath roads because this makes access difficult and heavy vehicles could damage the joint.
If the H-insulation set or chamber installed underneath roads are unavoidable a concrete slab can be used above the joint to distribute the heavy traffic load.

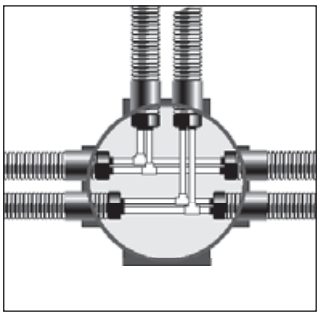
The rotomolded chambers are made of polyethylene and the insulative layer on the inside ensures minimised heat losses.



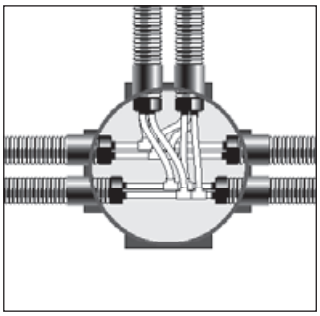
Heating supply from the main line to 2 houses



Heating supply from the main line to 4 houses



Heating and tap water from the main lines to the house



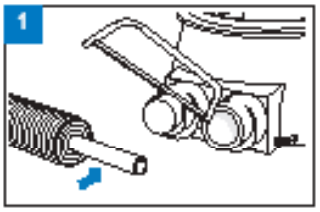
Heating and tap water from the main line to 2 houses using Quattro

The Uponor branching chamber can be used for all pipe dimensions (140 – 250 mm). The chamber is available in both T and X models. End caps are always used in chambers.

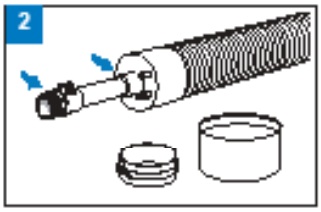
Preparing the trench

Level the bottom of the trench with sand and compress the sand. If required, install an anchoring slab beneath the levelling layer. The normal depth of the chamber cover is 50 cm. 30 cm depth is permitted if no direct load is placed on top of the chamber.

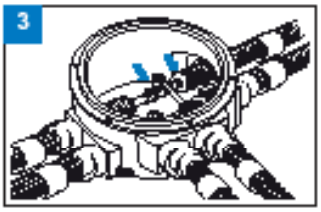
Installing the chamber



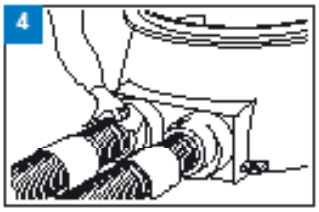
Cut open branches of the chamber according to the required pipe size. Peel off enough of the jacket pipe and insulation to make the joint, 10-20 cm depending on the pipe size.



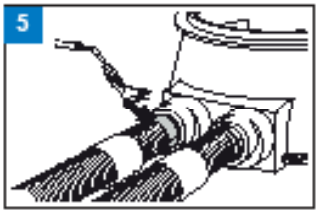
Put the end caps and their seals in place at the ends of the pipes. Mount the connectors to the ends of the flow pipes. Slide the shrink sleeves onto the pipes.



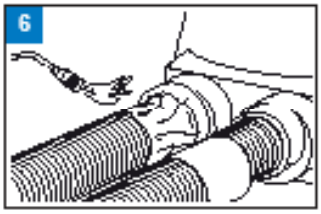
Push the pipes into the chamber. Fasten the rubber end caps on the jacket pipe using jubilee clips. Join the pipes and tighten the couplings.



Roughen up the surface of the jacket and the chamber joint with sand paper around the shrink sleeve. Wipe the joint area clean.



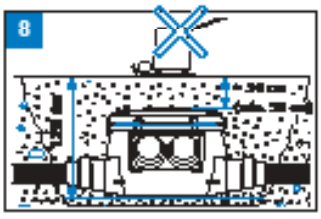
Preheat the area that is left under the shrink sleeve using a soft gas flame. Remove the protective paper from the sleeve and place the sleeve around the joint.



Shrink it with a soft gas flame according to the instructions on the shrink sleeve.
First shrink the end near the chamber, then shrink towards the pipe element. Keep the flame in constant movement.

Filling the trench

Close the chamber lid, but tighten the bolts only after the pipeline has been pressure tested. Begin filling the trench by pushing sand underneath the joints.



Start the filling using a shovel, be careful not to damage the shrink sleeves. Check that the chamber stays upright. Compress the fill in layers of approximately 20-30cm. Mechanical compression directly above the chamber is forbidden.

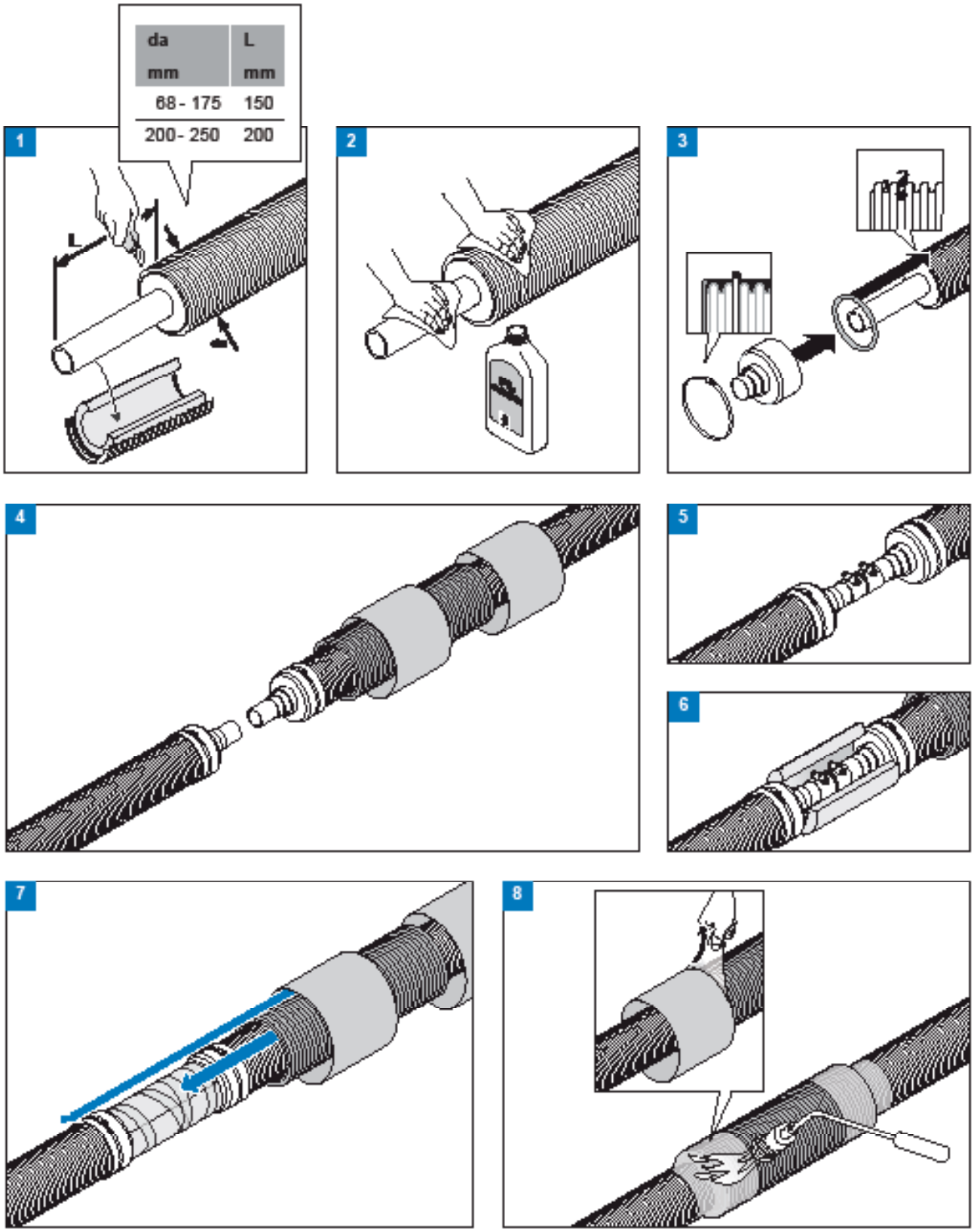
Special cases:

Traffic load: A concrete slab can be used above the chamber to distribute the load. Without a protective slab, a chamber installed in a 50 cm cover depth can withstand an occasional short term load of 3,000 kg (= 6,000 kg/m²; for example, a tractor driving over it). Long-term loading is permissible until 500 kg (= 1,000 kg/m²; for example, a parked car).

If ground water can rise up to the chamber, the use of an anchoring slab is recommended.

Uponor jacket joint set

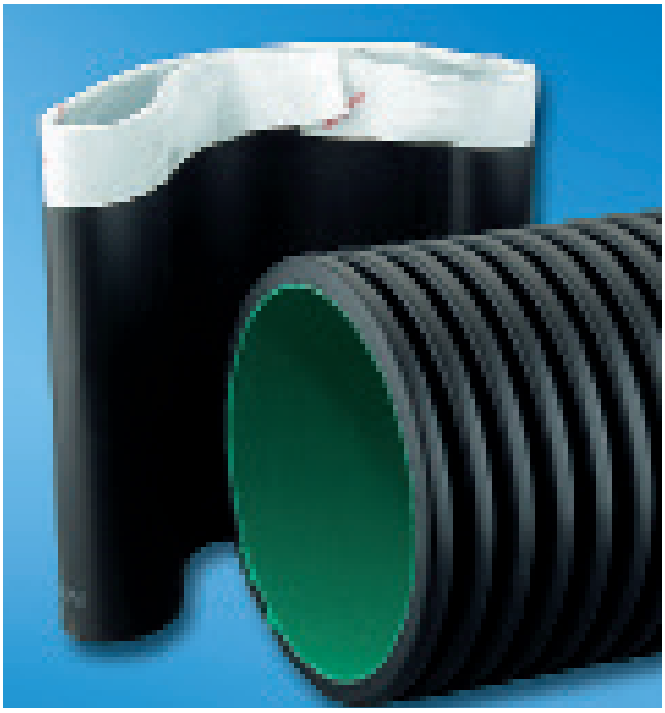
Used for sealing the jacket when connecting pipes together or when connecting to pre-insulated steel fittings.
Contains two heat shrink sleeves.

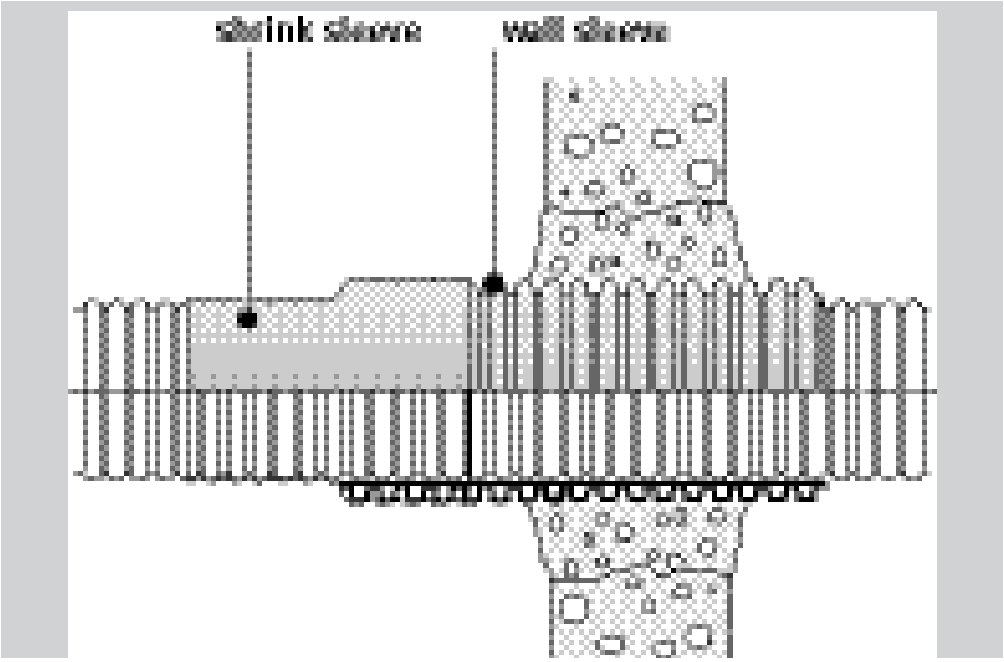


Wall Sleeves and Seals

Uponor wall sleeve NPW (non-pressure waterproof)

This wall sleeve can be used for the feed-through in building foundations wherever there is no pressurized water. It is mounted in place when the foundations are cast or is bricked in a hole drilled afterwards. The shrink sleeve prevents water from leaking into the foundations from in between the pipe and the feedthrough sleeve. The kit contains a 400 mm long feed-through sleeve and a wide shrink sleeve.



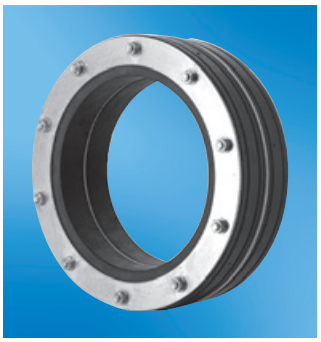


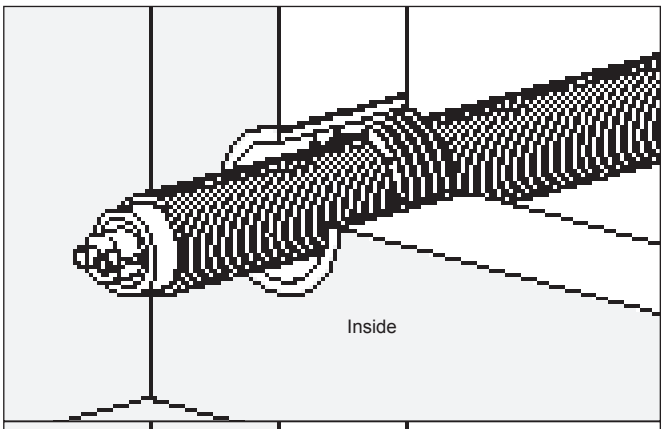
Uponor Ecoflex wall seal PWP (pressure-waterproof)

NOTE!
0.5 bar external water pressure - single insert
1.5 bar max external water pressure - double insert

Double wall seal

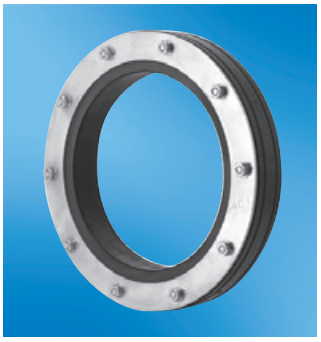
An Uponor Ecoflex double wall seal PWP must be used wherever water pressure is in excess of 0.5 - 1.5 bar. They can either be used directly in a coated tapping drill hole into waterproof concrete, or in a fibre cement pipe that is concreted or bricked into place.

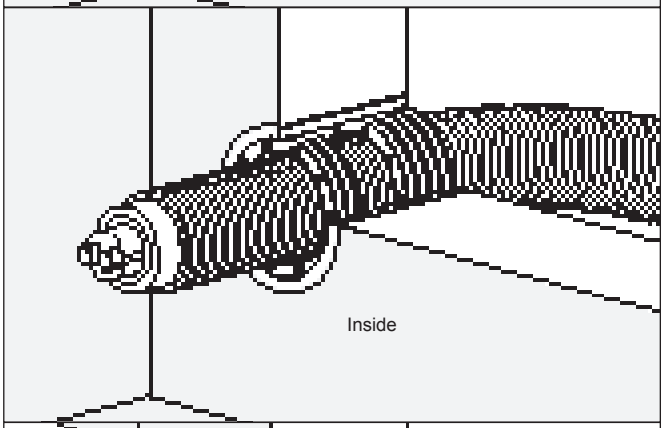




Single wall seal

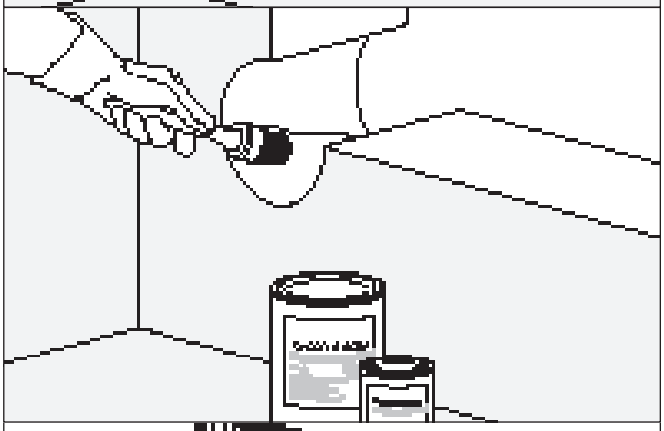
An Uponor Ecoflex single wall seal PWP have two uses. It can be used as a sole wall seal providing up to 0.5 bar external water pressure protection. Or it can also be used as an additional wall seal to align the pipe through the main wall seal. This also helps to reduce the stress on the main wall seal. They can either be used directly in a coated tapping drill hole into waterproof concrete, or in a fibre cement pipe that is concreted or bricked into place.





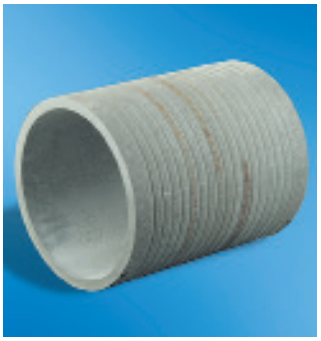
Epoxy resin set PWP

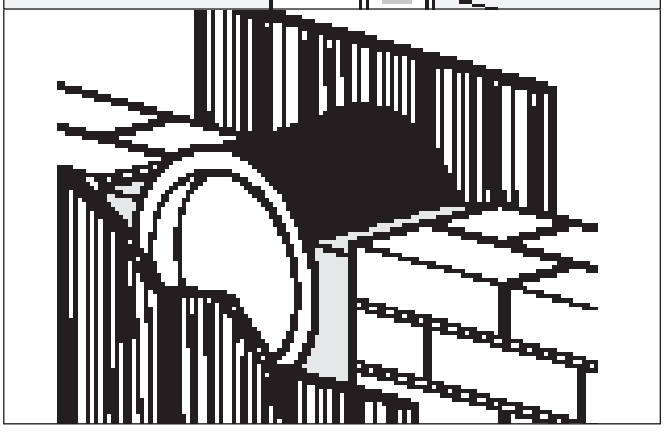
Before an Uponor Ecoflex wall seal PWP is fitted into a tapping drill hole, it must be coated with epoxy resin!



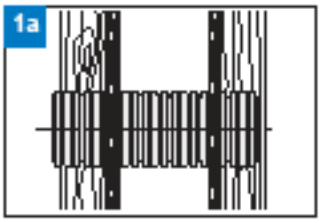
Fibre cement pipe PWP

The wall seal PWP can also be mounted into an Uponor Ecoflex fibre cement pipe PWP. The fibre cement pipe can be fixed in a brick wall or poured in a concrete wall.

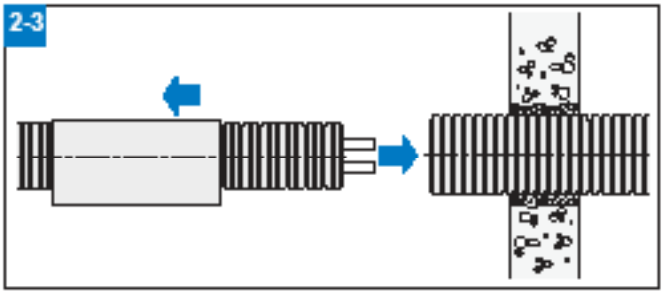




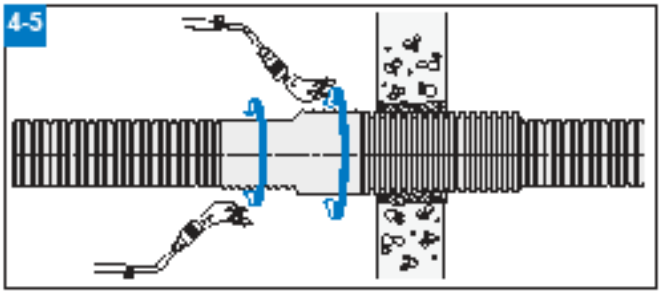
Installing the wall sleeve NPW (non-pressure waterproof)



Place the feed-through sleeve in the structure where the pipe element will be placed and cast into place at ta later stage. Please not that at least 10cm of the sleeve should be left outside the cast.



Install the shrink sleeve on top of the pipe element. Push the pipe element through the feed-through sleeve.

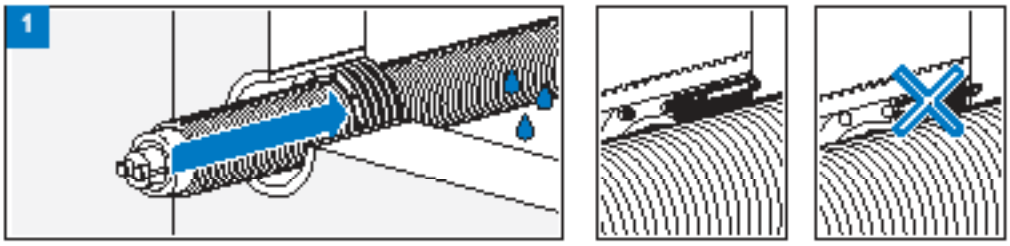


Place the shrink sleeve centrally in the joint between the sleeve pipe and the pipe element and remove any paper that may be left inside the shrink sleeve.
Heat the shrink sleeve with a gas burner using a yellow flame. When the surface of the shrink sleeve is smooth and adhesive is extruding from the ends of the shrink sleeve, the shrink sleeve has received enough warmth. Installation is ready when the shrink sleeve has cooled down to the ambiant temperature.

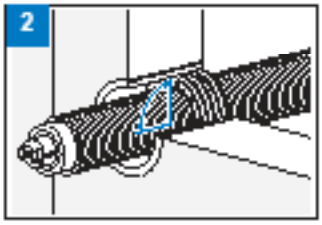
Core drill size

Uponor jacket pipe (mm)	Core hole size (mm)
68	125
140/145	200
175	250
200	300
250	350

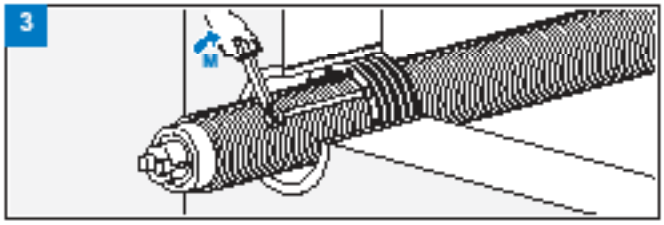
Installation of Uponor PWP wall seal into the core hole or Uponor fibre cement pipe PWP



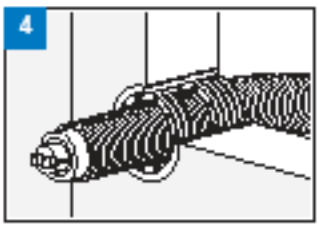
Insert the PWP wall seal as far as the water side (outside) - nuts face the cellar side



Install Uponor PWP wall seal pipe at right angles to Uponor pipe



During final assembly, successively tighten up each nut with torque-wrench clockwise until the maximum torque Mmax is reached. Tighten the nuts several times. Repeate the procedure after two hours.



Use Uponor PWP supplementary set to reduce tension

Pressure and leak testing

Pressure and leak testing for heating pipes according to DIN 18380

Notice

The pressure test must take place before operation of the system begins. In order to ensure that the joints are not leaking, the test must be carried out before they are insulated and closed.

Performance of the pressure test

The pipes that have been assembled, but not yet covered, are to be filled with filtered water in such a way as to exclude air. Heating pipes are to be tested using a pressure that is 1.3 times the total pressure (static pressure) of the installation, but that is at least 1 bar gauge pressure at every part of the installation. Only pressure gauges that allow pressure changes of 0.1 bar to be read properly may be used. The pressure gauge is to be located at the lowest possible part of the installation.

Temperature equalisation between the ambient temperature and the temperature of the water with which the pipes are filled is to be achieved by a suitable waiting time after establishing the test pressure. After this waiting period it may be necessary to re-establish the test pressure.

The test pressure must be maintained for 2 hours, and must not fall by more than 0.2 bar. No leaks may appear during this period. As soon as possible after the cold water pressure test, the temperature is to be increased to the highest hot water temperature on which the calculations were based, in order to check whether the installation remains free from leaks even at the maximum temperature. When the installation has cooled down, the heating lines are finally to be checked to see that there are no leaks at the joints.

System Isolation

Due to the unique nature of Uponor's plastic pipework systems on all current ranges, pipe squeezing can be used as an alternative to pipework freezing. These tools are inexpensive and give very quick system isolation.

Similarly pipework freezing can also be carried out on our full range of plastic pipeworks. (Ensuring the pressure does not exceed the recommended rating of the pipework).

Please note this should only be used as a temporary isolation and please ensure you follow the instructions given by the tool manufacturer.

Pressure test record according to DIN 18380 for heating pipes

Building project _____

Section _____

Client _____

Installing firm _____

max. permitted operating pressure (measured at the lowest point in the installation) _____ bar

Installation height: _____ m

Design parameter Flow temperature _____ °C

Return temperature _____ °C

Temperature equalization between the ambient temperature and the temperature of the water with which the pipes are filled is to be achieved by a suitable waiting time after establishing the test pressure. After this waiting period it may be necessary to re-establish the test pressure.

Any containers, devices or fittings such as safety valves and expansion vessels that are not suitable for the pressure test must be disconnected from the installation that is being tested during the pressure test. The installation is filled with filtered water and fully vented. A visual check of the pipe joints is carried out during the test.

Start _____ (Date) , _____ (Time) o'clock Test pressure _____ bar (duration 2 hours)

End _____ (Date) , _____ (Time) o'clock Pressure drop _____ bar (max. 0.2 bar)

On the _____ the installation identified above was heated to the design temperatures, and no leaks could be found. After cooling, it was still not possible to find leaks.
Suitable measures (e.g. the use of antifreeze, temperature control of the building) should be taken if there is a risk of freezing. If antifreeze is no longer required for operation of the plant in accordance with specifications the antifreeze should be removed by emptying and flushing the installation, using at least a 3-fold water exchange.

Antifreeze was added to the water ☐ Yes ☐ No

Procedure as described above ☐ Yes ☐ No

_____ Start of test

_____ End of test

_____ Location

_____ Date

_____ Client (Representative)

_____ Installing firm (Representative)

_____

_____

Appendix

Uponor PE-Xa pipes - weight and volume

Heating pipes (Thermo) PN6

Pipe dim OD x s [mm]	ID [mm]	Weight [kg/m]	Volume [l/m]
25 x 2.3	20.4	0.183	0.31
32 x 2.9	26.2	0.268	0.50
40 x 3.7	32.6	0.430	0.85
50 x 4.6	40.8	0.665	1.32
63 x 5.8	51.4	1.048	2.08
75 x 6.8	61.2	1.461	2.96
90 x 8.2	73.6	2.113	4.25
110 x 10	90.0	3.141	6.29
125 x 11.4	102.2	4.050	8.20

Tap water pipes (Aqua) PN10

Pipe dim OD x s [mm]	ID [mm]	Weight [kg/m]	Volume [l/m]
18 x 2.5	13.0	0.116	0.13
25 x 3.5	18.0	0.236	24.5
32 x 4.4	23.3	0.380	0.42
40 x 5.5	29.0	0.592	0.66
50 x 6.9	36.2	0.923	1.03
63 x 8.6	45.8	1.459	1.65
75 x 10.3	54.4	2.077	2.31
90 x 12.3	65.2	2.965	3.26
110 x 15.1	79.8	4.442	4.85

Comparative table of PN6 / SDR 11 pipes

The table shows the corresponding dimensions of PEX and steel pipes.

PEX OD	OD/ID	Steel pipes DN	OD/ID
25	25/20.4	20	26.9/22.9
32	32/26.2	25	33.7/28.1
40	40/32.6	32	42.4/37.2
50	50/40.8	40	48.3/43.1
63	63/51.4	50	60.3/54.5
75	75/61.2	65	76.1/70.3
90	90/73.6	80	88.9/82.5
110	110/90.0	100	114.3/107.1
125	125/102.2	125	139.7/132.5

Comparative table of PN10 /SDR 7.4 pipes

The table shows the corresponding dimensions of PEX and copper pipes.

PEX OD	OD/ID	Copper pipes DN	OD/ID
25	25/18	22	22/20
32	32/23.2	28	28/25.6
40	40/28.6	35	35/32.0
50	50/36.2	42	42/39.0
63	63/45.7	54	54/51.0
75	75/54.4	63	63/59.0
90	90/65.2	76,1	76.1/72.1
110	110/79.8	88,9	88.9/84.9

Supra plus cable

This table shows the Uponor Ecoflex Supra PLUS element thermal losses in different outdoor temperatures. The temperature of the pipe contents has been assumed to be +2°C. When thermal loss is less than 10 W/m, the cable output is enough to keep the element from freezing.

Temp. outside the pipe °C	Pipe dimensions																			
-1	1	1	0	1	1	0	1	1	0	1	1	1	1	1	1	1	1	1	1	1
-2	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	2
-3	1	1	1	2	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	2
-4	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	2	1	2
-5	2	1	1	2	2	1	2	1	1	2	1	1	3	2	1	2	2	2	2	3
-6	2	1	1	3	2	1	2	1	1	2	1	1	3	2	1	2	2	2	2	3
-7	2	2	1	3	2	1	2	1	1	3	2	1	4	2	2	3	2	2	2	3
-8	3	2	1	4	2	2	2	2	2	3	2	2	4	2	2	3	2	3	2	4
-9	3	2	1	4	2	2	2	2	2	3	2	2	4	2	2	3	2	3	3	4
-10	3	2	2	4	3	2	2	2	3	2	2	2	5	3	2	3	3	3	3	5
-11	3	2	2	5	3	2	2	2	4	2	2	2	5	3	2	4	3	3	4	5
-12	4	3	2	5	3	2	2	2	4	3	2	2	5	3	3	4	3	4	4	5
-13	4	3	2	5	3	2	2	2	4	3	2	2	6	3	3	4	3	4	4	6
-14	4	3	2	6	4	2	3	2	5	3	2	2	6	4	3	5	3	4	4	6
-15	4	3	2	6	4	2	3	2	5	3	3	2	7	4	3	5	4	5	4	6
-16	5	3	2	6	4	3	3	2	5	3	3	2	7	4	3	5	4	5	4	7
-17	5	3	3	7	4	3	3	2	5	3	3	2	7	4	3	5	4	5	4	7
-18	5	4	3	7	4	3	3	2	6	4	3	2	8	4	4	6	4	5	5	8
-19	5	4	3	7	5	3	3	2	6	4	3	2	8	5	4	6	5	6	5	8
-20	6	4	3	8	5	3	3	2	6	4	3	2	9	5	4	6	5	6	5	8
-21	6	4	3	8	5	4	3	2	7	4	4	2	9	5	4	7	5	6	5	9
-22	6	4	3	8	5	4	4	2	7	4	4	2	9	5	4	7	5	6	6	9
-23	6	5	3	9	6	4	4	2	7	5	4	2	10	6	4	7	5	7	6	9
-24	7	5	3	9	6	4	4	2	7	5	4	2	10	6	5	7	6	7	6	10
-25	7	5	4	10	6	4	4	2	8	5	4	2	11	6	5	8	6	7	6	10
-26	7	5	4	10	6	4	4	2	8	5	4	2	11	6	5	8	6	7	7	11
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-29	8	6	4	11	7	5	5	2	9	6	5	2	12	7	6	9	7	8	7	12
-30	8	6	4	11	7	5	5	2	9	6	5	2	13	7	6	9	7	9	8	12
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-36	10	7	5	13	8	6	6	2	11	7	6	2	15	8	7	11	8	10	9	14
-37	10	7	5	14	9	6	6	2	11	7	6	2	15	9	7	11	9	10	9	15
-38	10	7	5	14	9	6	6	2	11	7	6	2	16	9	7	11	9	11	9	15
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-42	11	8	6	16	10	7	7	2	13	8	7	2	17	10	8	13	10	12	10	17
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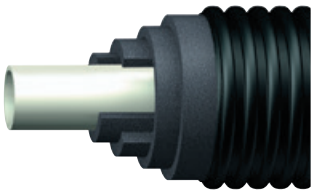
-49	13	9	7	18	11	8	8	2	15	9	8	2	20	11	9	15	11	14	12	19
-50	13	9	7	18	12	8	8	2	15	10	8	2	20	12	9	15	11	14	12	20

The Uponor Delivery Programme for Pre-insulated pipes

Uponor Thermo Single pre-insulated single pipe PE-X, max. 6 bar / 95°C, Heating

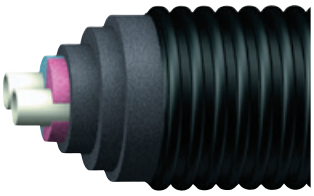
Order Code	Medium pipe da / di / s [mm]	DN	Jacket pipe Da [mm]	Weight [kg/m]	Delivery length max. [m]	Bending radius [m]
1018109	25 / 20.4 / 2.3	20	140	1.18	200	0.25
1018110	32 / 26.2 / 2.9	25	140	1.31	200	0.30
1018111	40 / 32.6 / 3.7	32	175	2.03	200	0.35
1018112	50 / 40.8 / 4.6	40	175	2.26	200	0.45
1018113	63 / 51.4 / 5.8	50	175	2.56	200	0.55
1018114	75 / 61.4 / 6.8	65	200	3.74	100	0.80
1018115	90 / 73.6 / 8.2	80	200	4.20	100	1.10
1018116	110 / 90.0 / 10.0	100	200	5.24	100	1.20
1083868	125 / 102.2 / 11.4	100	250	7.30	80	1.40

On request, available with heating tape HWAT-R. Delivery time on request.



Uponor Thermo Twin pre-insulated double pipe PE-X, max. 6 bar / 95°C, Heating

Order Code	Medium pipe da / di / s [mm]	DN	Jacket pipe Da [mm]	Weight [kg/m]	Delivery length max. [m]	Bending radius [m]
1018134	25 / 20.4 / 2.3 (2x)	20	175	1.92	200	0.50
1018135	32 / 26.2 / 2.9 (2x)	25	175	1.99	200	0.60
1018136	40 / 32.6 / 3.7 (2x)	32	175	2.33	200	0.80
1018137	50 / 40.8 / 4.6 (2x)	40	200	3.59	100	1.00
1018138	63 / 51.4 / 5.8 (2x)	50	200	4.55	100	1.20
1088276	75 / 61.4 / 6.8 (2x)	63	250	6.43	100	1.40

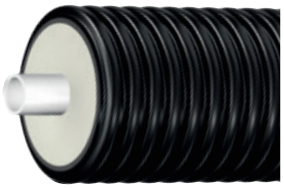


Uponor Thermo Mini pre-insulated single pipe PE-X, max. 6 bar / 95°C, Heating

Order Code	Medium pipe da / di / s [mm]	DN	Jacket pipe Da [mm]	Weight [kg/m]	Delivery length max. [m]	Bending radius [m]
1018132	25 / 20.4 / 2.3	20	68	0.50	200	0.20
1018133	32 / 26.2 / 2.9	25	68	0.55	200	0.25

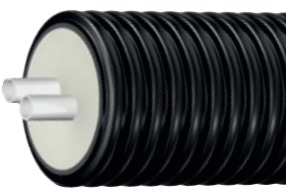
Uponor Ecoflex Thermo PRO Single PN 6 pipe range

Order Code	Medium pipe da / di / s	n	Jacket pipe Da [mm]	Weight [kg/m]	Delivery lengths [m]	Bending radius [m]
1087378	40 x 3.7	32	145	1.99	240	0.50
1087379	40 x 3.7	32	175	3.07	150	0.70
1087383	50 x 4.6	40	145	2.27	240	0.60
1087384	50 x 4.6	40	175	2.96	150	0.70
1087385	63 x 5.8	50	175	3.26	150	0.70
1087386	63 x 5.8	50	200	3.84	100	0.80
1087387	75 x 6.8	65	175	3.60	150	0.80
1087388	75 x 6.8	65	200	4.18	100	0.90
1087389	90 x 8.2	80	200	4.70	100	1.10
1087390	110 x 10.0	100	200	5.51	100	1.20



Uponor Ecoflex Thermo PRO Twin PN 6 pipe range

Order Code	Medium pipe da / di / s	n	Jacket pipe Da [mm]	Weight [kg/m]	Delivery lengths [m]	Bending radius [m]
1087392	25 x 2.3	20 + 20	145	1.97	240	0.60
1087393	25 x 2.3	20 + 20	175	2.71	150	0.70
1087394	32 x 2.9	25 + 25	145	2.15	240	0.60
1087395	32 x 2.9	25 + 25	175	2.87	150	0.80
1087396	40 x 3.7	32 + 32	175	3.13	150	0.80
1087397	40 x 3.7	32 + 32	200	3.70	100	1.00
1087398	50 x 4.6	40 + 40	200	4.08	100	1.10
1087399	63 x 5.8	50 + 50	200	4.69	100	1.20



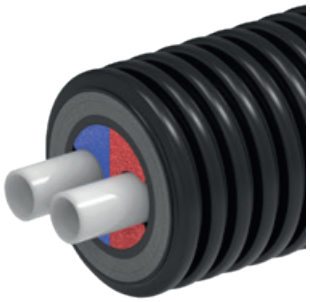
Deliveries are made in accordance with our “General Terms and Conditions of Sale". Subject to technical changes without notice.

Uponor Ecoflex Thermo VIP SIngle PN6 (SDR11)

Type	Medium pipe do1 x s1 [mm]	Jacket pipe [mm]	Bending radius [m]	Weight empty [kg/m]	Volume Medium Pipe [l/m]	Coil Length [m]
40/140	40 x 3.7	140	0.35	1.67	0.83	200
50/140	50 x 4.6	140	0.40	1.93	1.31	200
63/140	63 x 5.8	140	0.50	2.35	2.07	200
75/140	75 x 6.8	140	0.60	2.73	2.96	200
90/140	90 x 8.2	175	0.70	4.00	4.25	100
110/175	110 x 10.0	175	0.90	5.08	6.36	100
125/200	12 x 11.4	200	1.30	6.65	8.20	120

Uponor Ecoflex Thermo VIP Twin PN6 (SDR11)

Type	Medium pipe do1 x s1 [mm]	Medium pipe do2 x s2 [mm]	Jacket pipe do [mm]	Bending radius [m]	Weight empty [kg/m]	Volume Medium Pipe [l/m]	Coil Length [m]
2x25/140	25 x 2.3	25 x 2.3	140	0.40	1.67	1.70	200
2x32/140	32 x 2.9	32 x 2.9	140	0.50	1.93	1.91	200
2x40/175	40 x 3.7	40 x 3.7	175	0.80	2.35	2.90	200
2x50/175	50 x 4.6	50 x 4.6	175	0.90	2.73	3.44	200
2x63/200	63 x 5.8	63 x 5.8	200	1.20	4.00	4.88	100
2x75/250	75 x 6.8	75 x 6.8	200	1.40	5.08	6.77	100

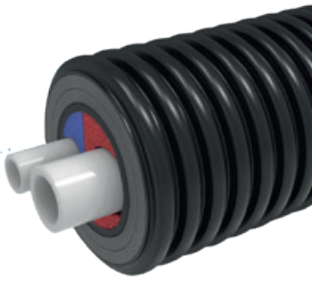


Uponor Aqua VIP Single PN10 (SDR7.4)

Type	Medium pipe do1 x s1 [mm]	Jacket pipe do [mm]	Bending radius [m]	Weight empty [kg/m]	Volume Medium Pipe [l/m]	Coil Length [m]
40/140	40 x 5.5	140	0.40	1.84	0.66	200
50/140	50 x 6.9	140	0.45	2.19	1.03	200
63/140	63 x 8.6	140	0.55	2.76	1.65	200
75/140	75 x 10.3	140	0.70	3.33	2.32	100
90/140	90 x 12.3	175	0.80	4.88	3.36	100
110/175	110 x 15.1	175	1.00	6.33	5.00	100

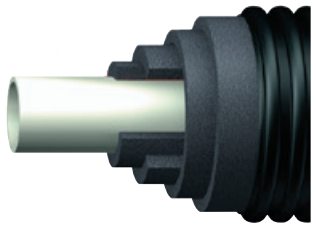
Uponor Aqua VIP Twin PN10 (SDR7.4)

Type	Medium pipe do1 x s1 [mm]	Medium pipe do2 x s2 [mm]	Jacket pipe do [mm]	Bending radius [m]	Weight empty [kg/m]	Volume Medium Pipe [l/m]	Coil Length [m]
25-20/140	25 x 3.5	20 x 2.8	140	0.45	1.74	0.37	200
32-20/140	32 x 4.4	20 x 2.8	140	0.55	1.88	0.51	200
40-25/140	40 x 5.5	25 x 3.5	140	0.70	2.18	0.80	200
50-32/175	50 x 6.9	32 x 4.4	175	0.80	3.36	1.27	200



Uponor Aqua Single pre-insulated single pipe PE-X, max. 10 bar / 95°C, warm water

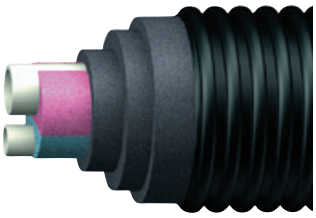
Order Code	Medium pipe da / di / s [mm]	DN	Jacket pipe Da [mm]	Weight [kg/m]	Delivery length max. [m]	Bending radius [m]
1018117	25 / 18.0 / 3.5	20	140	1.24	200	0.35
1018118	32 / 23.2 / 4.4	25	140	1.42	200	0.40
1018119	40 / 29.0 / 5.5	32	175	2.20	200	0.45
1018120	50 / 36.2 / 6.9	40	175	2.54	200	0.55
1018121	63 / 45.8 / 8.7	50	175	3.00	200	0.65
1018122	75 / 54.4 / 10.3	65	200	4.3	100	0.9
1018123	90 / 65.4 / 12.3	80	200	5.3	100	1.2
1036036	110 / 79.8 / 15.1	100	200	6.5	100	1.3



On request, available with heating tape HWAT-R. Delivery time on request.

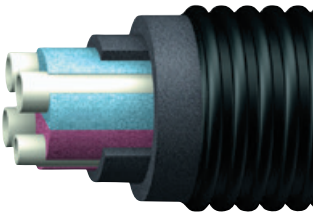
Uponor Aqua Twin pre-insulated double pipe PE-X, max. 10 bar / 95°C, warm water

Order Code [mm]	Medium pipe da / di / s	DN [mm]	Jacket pipe Da [kg/m]	Weight [m]	Delivery length max. [m]	Bending radius
1018139	1) 25 / 18.0 / 3.5 2) 25 / 18.0 / 3.5	20 20	175	2.05	200	0.65
1018140	1) 32 / 23.2 / 4,4 2) 25 / 18.0 / 3.5	25 20	175	2.20	200	0.70
1018141	1) 40 / 29.0 / 5.5 2) 25 / 18.0 / 3.5	32 20	175	2.45	200	0.90
1018142	1) 50 / 36.2 / 6.9 2) 25 / 18.0 / 3.5	40 20	175	2.73	200	1.00



Uponor Quattro pre-insulated quad-pipe PE-X, max. 6 bar / 95°C, Heating and/or max. 10 bar / 95°C / warm water

Order Code [mm]	Medium pipe da / di / s	DN [mm]	Jacket pipe Da [kg/m]	Weight [m]	Delivery length max. [m]	Bending radius
1018147	(2x) 25 / 20.4 / 2.3 (2x) 25 / 18.0 / 3.5	20 20	175	2.41	200	0.80
1018148	(2x) 32 / 26.2 / 2.9 (2x) 25 / 18.0 / 3.5	25 20	175	2.64	200	0.80
1018149	(2x) 32 / 26.2 / 2.9 32 / 23.2 / 4.4 25 / 18.0 / 3.5	25 25 20	175	2.78	200	0.80

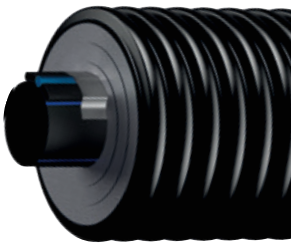


Uponor Supra pre-insulated single pipe PE-HD, max. 16 bar / 20°C, cold water

Order Code [mm]	Medium pipe da / di / s	DN [mm]	Jacket pipe Da [kg/m]	Weight [m]	Delivery length max. [m]	Bending radius
1095722	25 / 20.4 / 2.3	20	68	0.52	200	0.20
1095723	32 / 26.2 / 2.9	25	68	0.62	200	0.25
1095724	40 / 32.6 / 3.7	32	140	1.47	200	0.30
1095725	50 / 40.8 / 4.6	40	140	1.67	200	0.40
1095726	63 / 51.4 / 5.8	50	140	1.97	200	0.50
1095727	75 / 61.4 / 6.8	65	175	2.72	100	0.60
1095728	90 / 73.6 / 8.2	80	175	3.14	100	0.70
1095729	110 / 90.0 / 10.0	100	200	5.24	100	1.20

Uponor Supra Plus fitted with self-regulating, freeze protection cable, rated at 10 w/m.

Order Code	Medium pipe da / di / s [mm]	n	Jacket pipe Da [mm]	Weight [kg/m]	Delivery lengths [m]	Bending radius [m]	Insulation thickness [mm]
1095730	25 / 20.4 / 2.3	1	68	0.52	150	0.20	15
1095731	32 / 26.2 / 2.9	1	68	0.62	150	0.25	12
1095734	40 / 32.6 / 3.7	3	140	1.44	150	0.30	39
1095736	50 / 40.8 / 4.6	3	140	1.67	150	0.40	34
1095737	63 / 51.4 / 5.8	2	140	1.97	150	0.50	27
1095738	75 / 61.4 / 6.8	3	175	2.89	100	0.60	38
1095739	90 / 73.6 / 8.2	2	175	3.31	100	0.70	28
1095740	110 / 90.0 / 10.0	3	200	5.24	100	1.20	30

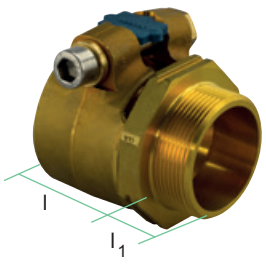


Uponor Wipex male connector 6 bar

6 bar / 95°C for Uponor pipe systems Thermo Single, Thermo Twin, Thermo Mini, Quattro

Order Code	Pipe size da / di / s [mm]	Connection Male thread [inch]	Weight [kg/piece]	l [mm]	l_1 [mm]
1018328	25 / 20.4 / 2.3	1“	0.20	26	13
1018329	32 / 26.2 / 2.9	1“	0.30	38	13
1018330	40 / 32.6 / 3.7	1 ¼"	0.50	44	14
1018331	50 / 40.8 / 4.6	1 ¼"	0.70	51	14
1018332	63 / 51.4 / 5.8	2"	1.20	67	16
1018333	75 / 61.4 / 6.8	2"	1.50	71	17
1018334	90 / 73.6 / 8.2	3"	2.40	80	17
1018335	110 / 90.0 / 10.0	3"	3.50	92	17
1078368*	125 / 102.2 / 11.4	4"	5.24	94	43

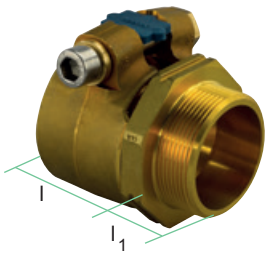
*Requires sealing tape or thread sealant when connecting to 4" base parts



Uponor Wipex male connector 10 bar

for Uponor pipe systems Aqua Single, Aqua Twin, Quattro (DVGW-approved)

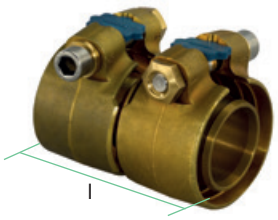
Order Code	Pipe size da / di / s [mm]	Connection Male thread [inch]	Weight [kg/piece]	l [mm]	l_1 [mm]
1018336	25 / 18.0 / 3.5	1"	0.20	26	13
1018338	32 / 23.2 / 4.4	1"	0.30	38	13
1018339	40 / 29.0 / 5.5	1 ¼"	0.50	44	14
1018340	50 / 36.4 / 6.8	1 ¼"	0.70	51	14
1018341	63 / 45.8 / 8.7	2"	1.20	67	16
1018342	75 / 54.4 / 10.3	2"	1.55	71	17
1018343	90 / 65.4 / 12.3	3"	2.40	80	17
1023170	110 / 79.8 / 15.1	3"	3.50	92	17



Uponor Wipex Jointing Equal 6 bar

for Uponor pipe systems Thermo Single, Thermo Twin, Thermo Mini, Quattro

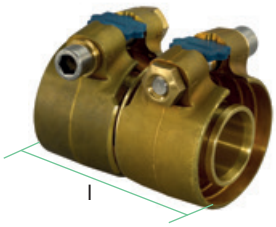
Order Code	Pipe size	For Pipe dim [mm]	Weight [kg]	l [mm]
1042972	25 PN6	25 x 2,3	0,168	54
1042973	32 PN6	32 x 2,9	0,358	64
1042980	40 PN6	40 x 3,7	0,554	72
1042984	50 PN6	50 x 4,6	0,984	86
1042981	63 PN6	63 x 5,8	1,575	106
1042985	75 PN6	75 x 6,8	2,405	124
1042986	90 PN6	90 x 8,2	3,622	143
1042987	110 PN6	110 x 10	5,127	167
1078365	125 PN6	125 x 11.4	8.15	170



Uponor Wipex Jointing Equal 10 bar

for Uponor pipe systems Aqua Single, Aqua Twin, Quattro

Order Code	Pipe size	For Pipe dim [mm]	Weight [kg]	l [mm]
1042970	25 PN10	25 x 3,5	0,179	54
1042974	32 PN10	32 x 4,4	0,345	64
1042979	40 PN10	40 x 5,5	0,551	72
1042983	50 PN10	50 x 6,9	0,974	86
1042982	63 PN10	63 x 8,7	1,582	106

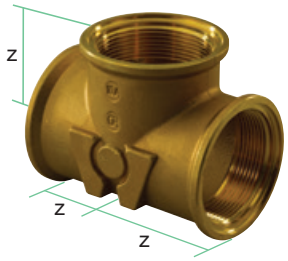


Uponor Wipex T-piece

for Uponor pipe systems Aqua Single, Aqua Twin, Thermo Single, Thermo Twin, Thermo Mini, Quattro. Incl. O rings.

Order Code	Dimensions O-Ring di x s [mm]	Connection Female thread [inch]	Weight [kg/piece]	z [mm]
1018345	35.0 x 3.0	1"	0.31	35
1018346	43.5 x 3.0	1 ¼"	0.48	42
1018347	61.91 x 3.53	2"	1.01	55
1018348	90.0 x 4.0	3"	2.64	75
1078367	See note 1	4"	3.96	91

Note 1: When connecting to 125 x 4" male connector (item 1078368), thread sealent must be used to seal the threads.

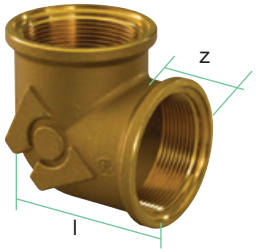


Uponor Wipex elbow

for Uponor pipe systems Aqua Single, Aqua Twin, Thermo Single, Thermo Twin, Thermo Mini, Quattro. Incl. O rings.

Order Code	Dimensions O-Ring di x s [mm]	Connection Female thread [inch]	Weight [kg/piece]	l [mm]	z [mm]
1018350	35.0 x 3.0	1"	0.27	58	35
1018351	43.5 x 3.0	1 ¼"	0.45	68	42
1018352	61.91 x 3.53	2"	0.94	91	55
1018353	90.0 x 4.0	3"	2.20	126	75
1078366	See note 1	4"	3.28	157	92

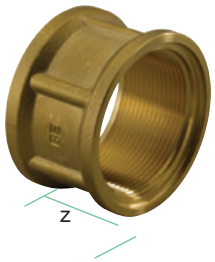
Note 1: When connecting to 125 x 4" male connector (item 1078368), thread sealent must be used to seal the threads.



Uponor Wipex joint

for Uponor pipe systems Aqua Single, Aqua Twin, Thermo Single, Thermo Twin, Thermo Mini, Quattro. Incl. O rings.

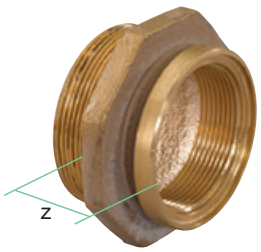
Order Code	Dimensions O-Ring da x s [mm]	Connection female thread [inch]	Weight [kg/piece]	z [mm]
1018355	35.0 x 3.0	1"	0,18	30
1018356	43.5 x 3.0	1 ¼"	0,20	37
1018357	61.91 x 3.53	2"	0,39	45
1018358	90.0 x 4.0	3"	0,70	55



Uponor Wipex reducer

for Uponor pipe systems Aqua Single, Aqua Twin, Thermo Single, Thermo Twin, Thermo Mini, Quattro. Incl. O rings.

Order Code	Dimensions O-Ring di x s [mm]	R 1 male thread [inch]	R 2 female thread [inch]	Weight [kg/piece]	z [mm]
1018368	35.0 x 3.0	1 ¼"	1"	0.22	20
1018369	43.5 x 3.0	1 ½"	1 ¼"	0.25	21
1018371	35.0 x 3.0	2"	1"	0.41	21
1018372	43.5 x 3.0	2"	1 ¼"	0.46	25
1018374	35.0 x 3.0	3"	1"	0.92	23
1018375	43.5 x 3.0	3"	1 ¼"	1.03	27
1018376	61.91 x 3.53	3"	2"	0.99	31
1078369	90.0 x 4.0	4"	3"	1.43	12

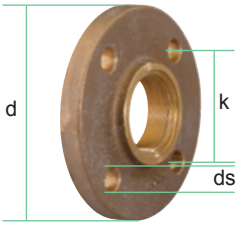


Uponor Wipex flange

for Uponor pipe systems Aqua Single, Aqua Twin, Thermo Single, Thermo Twin, Thermo Mini, Quattro. Incl. O rings.

Order Code	DN	Bolt holes Number	Dimensions O-Ring di x s [mm]	Connection female thread [inch]	Weight [kg/piece]	k [mm]	ds [mm]	d [mm]
1018359	25	4	35.0 x 3.0	1"	1.33	85	14	115
1018360	32	4	43.5 x 3.0	1 ¼"	1.96	100	18	140
1018362	50	4	61.91 x 3.53	2"	2.96	125	18	165
1018364	80	8	90.0 x 4.0	3"	4.36	160	18	200
1078370	100	8	See note 1	4"	4.50	180	18	220

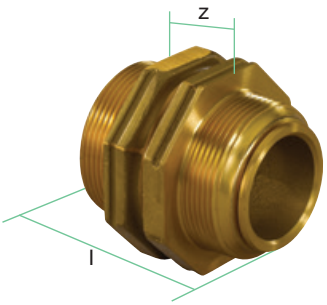
Note 1: When connecting to 125 x 4" male connector (item 1078368), sealing tape or similar must be used to seal the threads.



Uponor Wipex swivel union

For connecting wipex bodies together when installed in a chamber or H insulation set.

Order Code	R 1 male thread [inch]	R 2 male thread [inch]	Weight [kg/piece]	l [mm]	z [mm]
1045455	1"	1"	0,291	51	19,0
1045456	1¼"	1"	0,384	51	17,0
1045457	1¼"	1 ¼"	0,493	59	21,3
1045458	2"	1 ¼"	0,993	68	27,0
1045459	2"	2"	1,134	74	29,0
1045460	3"	2"	1,780	82	33,0
1045461	3"	3"	2,690	90	35,4



Uponor rubber end-cap

incl. clamping ring and sealing ring

Order Code	For medium pipe da [mm]	For jacket pipe Da [mm]	Weight [kg/ piece]	Use with product	l [mm]	l_1 [mm]
1018316	25+32	68	0.15	Thermo Mini, Supra	80	140
1018315	25+28+32	140	0.29	Thermo Single/Aqua Single	90	184
1018313	32+40+50	175	0.39	Thermo Single/Aqua Single	90	184
1018314	40+50+63	140	0.30	Supra	90	184
1018312	63+75	175	0.41	Thermo Single/Aqua Single/Supra	90	184
1086685	50+63	200	0.73	Thermo PRO Single	90	184
1018310	75+90+110	200	0.45	Thermo Single/Supra	90	184
1018311	90+110	175	0.43	Supra	90	184
1018309	2x25+32+40	175	0.41	Thermo Twin/Aqua Twin	90	184
1018308	2x25+32+50	175	0.41	Thermo Twin/Aqua Twin	90	184
1018307	2x40+50+63	200	0.49	Thermo Twin	90	184
1018306	4x25+32	175	0.45	Quattro	90	184
1083869	125	250	0.75	Thermo Single	90	184

Material: EPDM, clamping ring: stainless steel

Uponor Ecoflex house connection elbow Single

Pre-insulated Elbow for the connection with pre-insulated Ecoflex Single pipes in buried installation.
The Elbow made from PE-X pipe, pre-insulated with foam and covered with PE-jacket.

Order Code	dxs [mm]	d2 [mm]	l1 [mm]	l2 [mm]	l3 [mm]	l4 [mm]	Weight [kg/piece]
1085108	75x6.8	205	1600	1700	600	400	22

Note: Made it order item. Please ask for delivery time.

Uponor Ecoflex house connection elbow Twin

Pre-insulated Elbow for the connection with pre-insulated Ecoflex Twin pipes in buried installation.
The Elbow made from PE-X pipes, pre-insulated with foam and covered with PE-jacket.

Order Code	dxs [mm]	d1xs1 [mm]	d2 [mm]	l1 [mm]	l2 [mm]	l3 [mm]	l4 [mm]	Weight [kg/piece]
1085104	50x4.6	50x4.6	205	1600	1700	600	400	20
1085105	63x5.8	63x5.8	205	1600	1700	600	400	25

Note: Made it order item. Please ask for delivery time.

Uponor Ecoflex reducer ring customized

to balance different customized jacket pipe dimensions in an insulaion set.

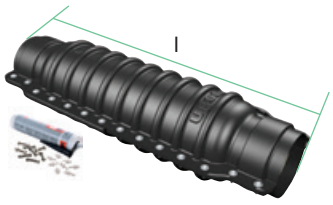
Order Code	l [m]	Weight kg
1018382	70	0.03
1085106	70	0.06

Uponor T-insulation set

Old Code	Order Code	Jacket pipe diameter [mm]	Length l [mm]	Width b [mm]	Weight [kg/set]
1021990	1060982	140/175/200	1125	788	13.53

Comprises insulating half-shells (ABS lined with PUR foam), stainless steel bolts and solvent-free sealant.

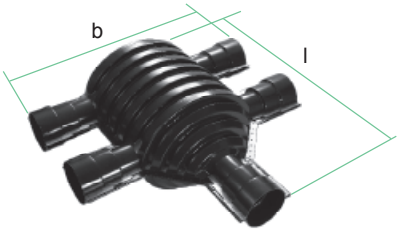
Uponor straight insulation set



Old Code	Order Code	Jacket pipe diameter [mm]	Length l [mm]	Width b [mm]	Weight [kg/set]
1021992	1060984	140/175/200	1200	270	9.66

Comprises insulating half-shells (ABS lined with PUR foam), stainless steel bolts and solvent-free sealant.

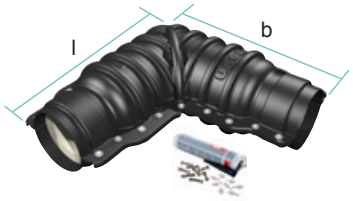
Uponor double tee (H) insulation set



Old Code	Order Code	Jacket pipe diameter [mm]	Length l [mm]	Width b [mm]	Weight [kg/set]
-	1007355	140/175/200	1290	1260	19.00

Comprises insulating half-shells (ABS lined with PEX foam), stainless steel bolts, plastic rivets and solvent-free sealant.

Uponor elbow insulation set



Old Code	Order Code	Jacket pipe diameter [mm]	Length l [mm]	Width b [mm]	Weight [kg/set]
1021991	1060985	200 / 175 / 140	805	805	10.55

Comprises insulating half-shells (ABS lined with PUR foam), stainless steel bolts and solvent-free sealant.

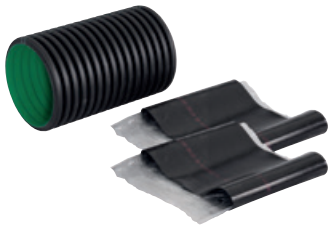
Uponor reducer rings

used with 25mm and 32mm Thermo Mini and Supra pipes when connecting into insulation sets.

Order Code	Diameter
1060991	200/68

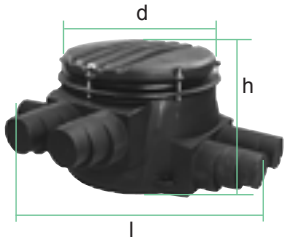
Uponor jacket joint set

for sealing the jacket when connecting pipes together or when connecting to pre-insulated steel fittings (p61). Contains two heat shrink sleeves.



Order Code	Jacket pipe Diameter [mm]	Diameter [mm]	l [mm]	Weight [kg/set]
1084574	200	250	500	2.78
1083872	250	315	720	4.67

Uponor chamber

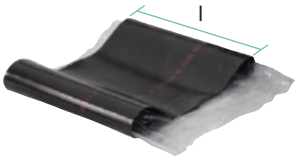


Order Code	Diameter outer d [mm]	Number connections x jacket pipe diameter [mm]	Height h [mm]	Length l [mm]	Weight [kg/piece]
1018326	980	6 x 140 / 175 / 200	685	1660	50
1018327	980	8 x 140 / 175 / 200	685	1660	52

Material: chamber PE + PE-foam, cover: PE, sealing ring: SBR, screws: stainless steel

Uponor heat-shrinkable sleeve

for sealing jacket pipe in the Uponor chamber outlet



Order Code	Jacket pipe Diameter [mm]	Length l [m]	Weight [kg/piece]
1018380	175	0.25	0.25
1018381	200	0.30	0.30
1084575	250	0.30	0.72

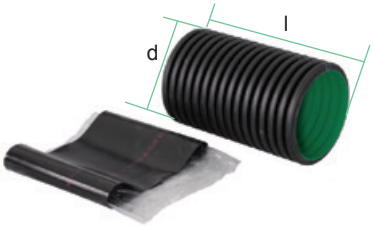
Material: PEX

Uponor sealing tape chamber

Order Code	l [m]
1018382	10

Uponor wall sleeve NPW (non-pressure waterproof)

with heat-shrinkable sleeve, non pressure waterproof



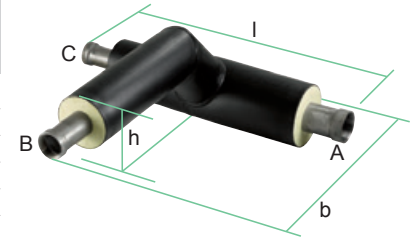
Order Code	Jacket pipe diameter [mm]	Diameter wall sleeve d [mm]	Length l [mm]	Weight [kg/piece]
1018266	68	90	375	0.80
1018269	140	175	375	1.0
1018268	200/175	250	375	2.10
1083871	250	315	465	2.8

Material: wall sleeve PE-HD, heat-shrinkable sleeve: PEX

Uponor pre-insulated single tee

Pre-insulated fitting used for branch connections to/from 125mm Thermo Single **pipes.**

Order Code	A	B	C	Length l [mm]	Height h [mm]	b [mm]	Weight [kg/piece]
1084580	4" / 250	3" / 200	4" / 250	1000	490	625	20.5
1084581	3" / 200	3" / 200	4" / 250	1000	490	625	20.5
1084582	4" / 250	3" / 200	3" / 200	1000	490	625	20.5
1084583	3" /200	4" / 250	3" /200	1000	545	725	20.5
1084584	3" /200	4" / 250	4" / 250	1000	545	725	20.5
1084585	4" / 250	4" / 250	3" /200	1000	545	725	20.5

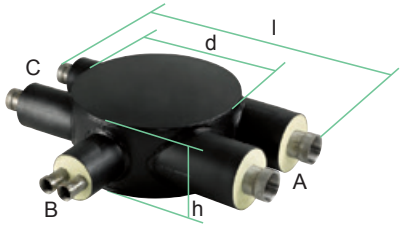


Material: stainless steel pipes, ends welded with female thread adapters; insulation foam - PUR; outer jacket - PE
Note: 4"/250 denotes 4" thread connection/250mm outer jacket.

Uponor pre-insulated twin tee

Pre-insulated fitting used for branch connections to/from 125mm Thermo Single pipes.

Order Code	A	B	C	Length l [mm]	Height h [mm]	Dia. d [mm]	Weight [kg/piece]
1084586	4" / 250	2 x 2" / 200	4" / 250	1190	320	710	46.5
1084587	3" / 200	2 x 2" / 200	4" / 250	1190	320	710	46.5
1084588	4" / 250	2 x 2" / 200	3" / 200	1190	320	710	46.5
1084589	4" / 250	3" /200	2 x 2" / 200	1190	320	800	46.5
1084590	2 x 2" / 200	3" /200	4" / 250	1190	320	800	46.5

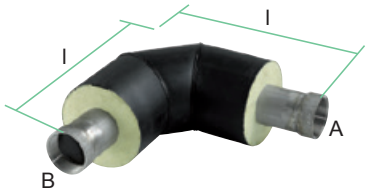


Material: stainless steel pipes, ends welded with female thread adapters; insulation foam - PUR; outer jacket - PE
Note: 4"/250 denotes 4" thread connection/250mm outer jacket.
2x2"/200 denotes twin 2" connections/200mm outer jacket.

Uponor pre-insulated elbow

Pre-insulated elbow for use with 125mm Thermo Single pipes.

Order Code	A	B	Length l [mm]	Weight [kg/piece]
1084579	4" / 250	4" / 250	625	8.8

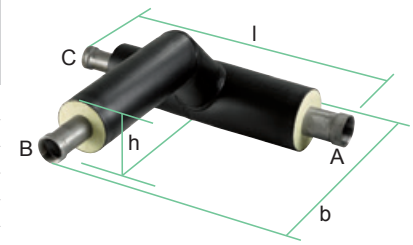


Material: stainless steel pipes, ends welded with female thread adapters; insulation foam - PUR; outer jacket - PE
Note: 4"/250 denotes 4" thread connection/250mm outer jacket.

Uponor pre-insulated single tee

Pre-insulated fitting used for branch connections to/from 125mm Thermo Single **pipes.**

Order Code	A	B	C	Length l [mm]	Height h [mm]	b [mm]	Weight [kg/piece]
1084580	4" / 250	3" / 200	4" / 250	1000	490	625	20.5
1084581	3" / 200	3" / 200	4" / 250	1000	490	625	20.5
1084582	4" / 250	3" / 200	3" / 200	1000	490	625	20.5
1084583	3" /200	4" / 250	3" /200	1000	545	725	20.5
1084584	3" /200	4" / 250	4" / 250	1000	545	725	20.5
1084585	4" / 250	4" / 250	3" /200	1000	545	725	20.5

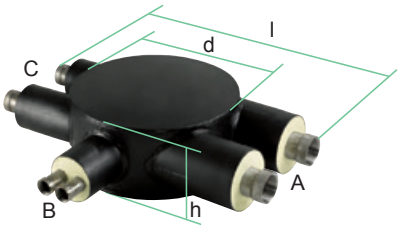


Material: stainless steel pipes, ends welded with female thread adapters; insulation foam - PUR; outer jacket - PE
Note: 4"/250 denotes 4" thread connection/250mm outer jacket.

Uponor pre-insulated twin tee

Pre-insulated fitting used for branch connections to/from 125mm Thermo Single pipes.

Order Code	A	B	C	Length l [mm]	Height h [mm]	Dia. d [mm]	Weight [kg/piece]
1084586	4" / 250	2 x 2" / 200	4" / 250	1190	320	710	46.5
1084587	3" / 200	2 x 2" / 200	4" / 250	1190	320	710	46.5
1084588	4" / 250	2 x 2" / 200	3" / 200	1190	320	710	46.5
1084589	4" / 250	3" /200	2 x 2" / 200	1190	320	800	46.5
1084590	2 x 2" / 200	3" /200	4" / 250	1190	320	800	46.5



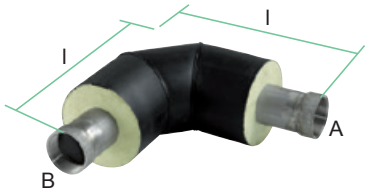
Material: stainless steel pipes, ends welded with female thread adapters; insulation foam - PUR; outer jacket - PE

Note: 4"/250 denotes 4" thread connection/250mm outer jacket.
2x2"/200 denotes twin 2" connections/200mm outer jacket.

Uponor pre-insulated elbow

Pre-insulated elbow for use with 125mm Thermo Single pipes.

Order Code	A	B	Length l [mm]	Weight [kg/piece]	
1084579	4" / 250	4" / 250		625	8.8



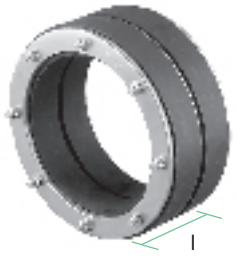
Material: stainless steel pipes, ends welded with female thread adapters; insulation foam - PUR; outer jacket - PE

Note: 4"/250 denotes 4" thread connection/250mm outer jacket.

Uponor wall seal PWP (pressure waterproof)

pressure waterproof. For direct use in a water-proof concrete core hole or in a walled-in fibre cement pipe

Order Code	Jacket pipe diameter [mm]	Core hole diameter [mm]	length l [mm]	Weight [kg/piece]
1007358	68	125	110	1.21
1007360	140	200	110	2.42
1007361	175	250	110	3.70
1007362	200	300	110	4.90

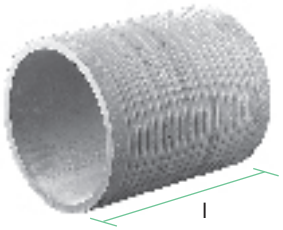


Material: rubber ring: EPDM, screws: yellow chromated, metal core: yellow chromated

Uponor fibre cement pipe PWP (pressure waterproof)

for wall seal, pressure waterproof

Order Code	Liner pipe diameter DN	For jacket pipe diameter [mm]	Length l [mm]	Weight [kg/piece]
1007368	125	68	400	8.00
1007370	200	140	400	15.20
1007371	250	175	400	18.80
1007372	300	200	400	22.00



Material: Fibre cement

Uponor supplementary set PWP (pressure waterproof)

for wall seals, PWP, to reduce any tension of the jacket pipe when it is not perpendicular to the wall

Order Code	Jacket pipe diameter [mm]	Core hole diameter [mm]	Length l [mm]	Weight [kg/piece]
1007363	68	125	65	0.72
1007365	140	200	65	1.43
1007366	175	250	65	2.30
1007367	200	300	65	3.30

Material: rubber ring: EPDM, screws: yellow chromated

Uponor supra plus connection set

set includes Supra Plus Control Unit, 2 rubber end caps, 5m sensor cable, fixing screws, cable connections and full instructions. Control unit requires 230V supply.

Order Code	For medium pipe diameter [mm]	Jacket pipe diameter [mm]	Weight [kg/set]
1048697	25+32	68	1
1048699	40+50+63	140	1.08
1048700	75	175	1.53
1048701	90	175	1.64
1048702	110	200	1.92

Uponor end cover

for use in dry areas in buildings where the pipe exits the floor. Non waterproof. Set comprises two plastic half-shells and foam inserts for single, twin and quattro pipes.

Order Code	Jacket pipe diameter [mm]	Weight [kg/piece]
1045310	140	0.1
1045311	175	0.14
1045312	200	0.18

Uponor trench warning tape

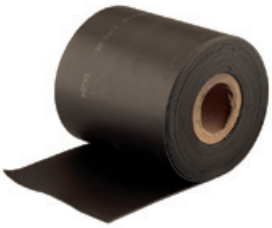
to mark position of buried pipes. Red, tear-proof plastic tape imprinted with "Uponor" and symbols for trench identification.

Order Code	l [m]	w [mm]	Weight [kg/piece]
1018385	250	40	2

Uponor shrinkable tape

shrinkable tape used for sealing damaged outer jacket.

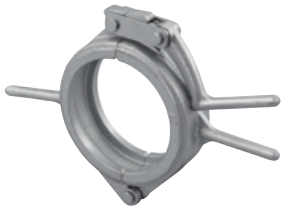
Order Code	l [m]	w [mm]	Weight [kg/piece]
1018378	30	255	0.49



Uponor re-rounding pliers

tool to assist the mounting of fittings by re-rounding the pipe end.

Order Code	Size	Weight [kg/piece]
1084142	125	2.7



Uponor Limited (“Uponor") guarantees [to the original purchaser/customer] that pipes and fittings sold by it are free of defects in materials or manufacture under normal conditions of use for a period of 25 years and in case of electrical and mechanical products for 2 years from the date of installation. This guarantee only applies to the products stored, installed, tested and operated in accordance with the fitting instructions issued by Uponor and valid at the time the products were installed.

Where a claim is made during the guarantee period and products are proven to be defective in materials and/or manufacture at the time of delivery, Uponor will supply replacement products free of charge. This is the exclusive remedy under this guarantee.

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This guarantee does not affect the statutory rights of the consumer.

The contents of this brochure are provided for guideline only, please consult our technical manuals for full up-to-date information.

Uponor reserves the right to alter specifications and operating parameters for all their Underfloor Heating and Plumbing & Heating Systems at any time as part of its policy of continuous product development.

Care has been taken to ensure that the information in this price guide is correct at the time of going to press. Uponor Limited reserve the right to alter prices and the details of designs and performance of products without notice. E&OE.

Uponor Limited
The Pavilion
Blackmoor Lane
Watford
Hertfordshire
WD18 8GA

T 01923 927000
F 01923 223760

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