Radius - Kelit
Infrastructure

TECHNICAL PRODUCT OVERVIEW

PRE-INSULATED, FLEXIBLE PIPE SYSTEMS

2023_V1

Preamble

RK HeatFlex®

RK PEX Sanitär

RK FibreFlex®

RK FibreFlex®Pro

RK FibreFlex®Pro16

Radius-Kelit Infrastructure offers a unique product portfolio of pre-insulated polymer solutions for use in heating and hot water supply.
Radius-Kelit flexible pre-insulated pipes are insulated using a highly-efficient CFC-free polyurethane (PUR) foam. Continuously applied during the manufacturing process, the systems achieve low thermal conductivity values, which offers greater economic and environmental benefits to system owners and operators.
The constituent parts of the pipe, such as the service pipe, thermal insulation and casing are all bonded together. This allows for self-compensation against the effects of thermal expansion and prevents longitudinal water ingress should the casing be accidentally damaged in the future.
A corrugated casing gives Radius-Kelit flexible pre-insulated pipes the ability to achieve tighter bending radii, providing benefits during installation such as avoiding unforeseen obstacles and other existing services in the ground.
This flexibility helps reduce the requirement for additional bend components and speeds up the installation time, resulting in lower costs on site.
Use of innovative Thermoplastic Reinforced Service (TRSP) Pipes with a PE-Xa liner and high-modulus aramid reinforcement mesh in FibreFlex Pro pipe systems allows to increase both operating pressure and temperature, which significantly extends the boundaries for flexible pre-insulated plastic pipes heating applications.
Pre-insulated TRS pipes have been widely used in East European heating networks since 2004 and with a total length of more than 8000 km pipes installed have proven its high reliability and ease of installation.
Due to reduced wall thickness, pre-insulated TRSP have smaller OD compared to thermal plastic service pipes, which allows a thicker insulation layer with same casing dimensions. This, combined with low value of the cyclopenthane-based PUR foam insulation thermal conductivity of 0.021 W/mK, makes pre-insulated TRS pipes an outstanding, highly-efficient solution for heating networks.

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RK HeatFlex®

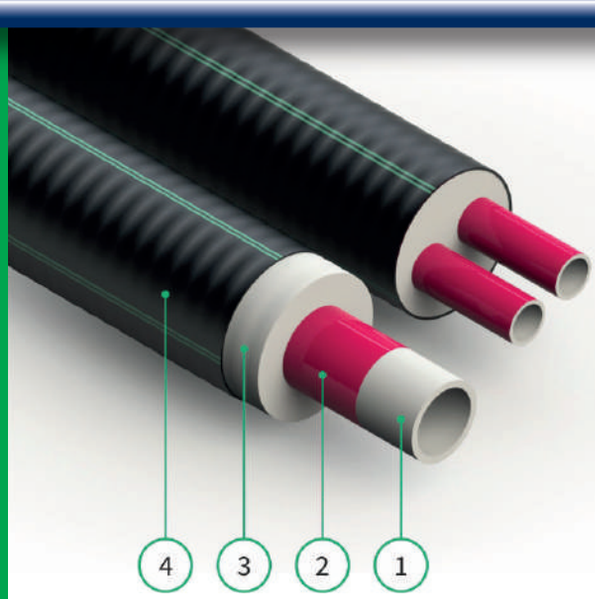
Pre-insulated, flexible pipe system with polyethylene service pipes, and PUR thermal insulation.

The advantages of HeatFlex include quick installation, narrow pipe trenches, tight bending radii and the twin pipe system. The highly efficient pipe system also impresses with an excellent thermal conductivity value of 0.021 W / mK.

For a further reduction in heat loss, a second insulation series with higher insulation is now available.

Type	Dimension	Casing	Max. Coil length	Weight/ Meter	Bending-radius
UNO/IS1	**[mm]**	**[mm]**	**[m]**	**kg**	**r in m**
25/76	25x2.3	76	770	0.90	0.70
32/76	32x2.9	76	770	1.00	0.70
40/91	40x3.7	91	570	1.39	0.90
50/111	50x4.6	111	410	1.97	0.90
63/126	63x5.8	126	300	2.60	1.00
75/142	75x6.8	142	220	2.39	1.10
90/162	90x8.2	162	150	4.56	1.20
110/162	110x10.0	162	150	5.10	1.20
125/182	125x11.4	182	86	6.37	1.30
UNO/IS2	**[mm]**	**[mm]**	**[m]**	**kg**	**r in m**
25/91	25x2.3	91	570	1.22	0.90
32/91	32x2.9	91	570	1.30	0.90
40/111	40x3.7	111	410	1.80	0.90
50/126	50x4.6	126	300	2.32	1.00
63/142	63x5.8	142	220	3.00	1.10
75/162	75x6.8	162	150	3.85	1.20
90/182	90x8.2	182	86	4.90	1.30
110/182	110x10.0	182	86	5.69	1.30
125/202	125x11.4	202	80	6.93	1.40
DUO/IS1	**[mm]**	**[mm]**	**[m]**	**kg**	**r in m**
25+25/91	25+25x2.3	91	570	1.34	0.90
32+32/111	32+32x2.9	111	410	1.87	0.90
40+40/126	40+40x3.7	126	300	2.48	1.00
50+50/162	50+50x4.6	162	150	3.96	1.20
63+63/182	63+63x5.8	182	86	5.28	1.30
75+75/202	75+75x6.8	202	80	6.27	1.40
DUO/IS2	**[mm]**	**[mm]**	**[m]**	**kg**	**r in m**
25+25/111	25+25x2.3	111	410	1.73	0.90
32+32/126	32+32x2.9	126	300	2.23	1.00
40+40/142	40+40x3.7	142	220	2.85	1.10
50+50/182	50+50x4.6	182	86	4.31	1.30
63+63/202	63+63x5.8	202	80	5.61	1.40
75+75/225	75+75x6.8	225	75	6.87	1.60

The specified maximum Coil lengths refer to the standard maxi-coil dimensions of (height x width) 2950x1200 mm.



1. PE-Xa service pipe 2. Oxygen diffusion barrier
3. Flexible Polyurethane-Foam (PUR) 4. Casing

Technical data:

Max. continuous operating temperature:	+80°C
Max. operating temperature:	+95°C (variable*)
Thermal conductivity:	0.021 W/mK
Operating pressure:	6 bar/80°C
Service pipe:	PE-Xa
Thermal insulation:	PUR, CFC-free cyclopenthane-based
Casing:	corrugated PE-LLD

Pipe systems according to EN 15632-2 are designed for a service life of at least 30 years with the following temperature profile:

***29 years at 80°C + 1 year at 90°C + 100h at 95°C**
or
Winter heating season 85°C + Summer heating season 75°C

Other temp./time profiles are applicable according to ISO 13760 (Miners rule).
The maximum operating temperature must not exceed 95°C.

PEX Sanitary

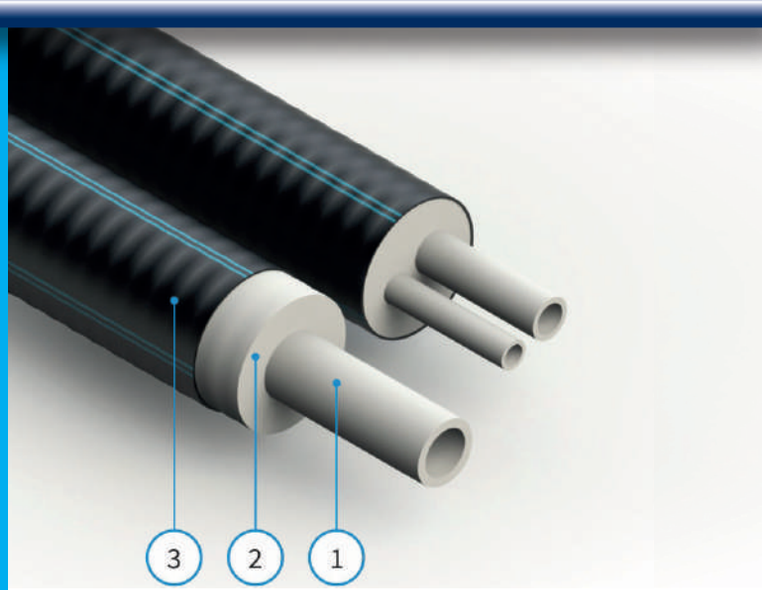
Pre-insulated, flexible pipe system for sanitary applicatons

The pre-insulated, flexible pipe system is suitable for applications in the sanitary area.

To meet the requirements for higher pressures, a medium pipe from the SDR 7.4 pipe series (PN10 at 80 ° C) is used with the PEX 95-10 sanitary.

Type	Dimension	Casing	Max. Coil length	Weight/ Meter	Bending-radius
UNO/IS1	**[mm]**	**[mm]**	**[m]**	**kg**	**r in m**
20/76	20x2.8	76	770	0.95	0.70
25/76	25x3.5	76	770	1.00	0.70
32/76	32x4.4	76	770	1.12	0.70
40/91	40x5.5	91	570	1.56	0.90
50/111	50x6.9	111	410	2.25	0.90
63/126	63x8.7	126	300	3.06	1.00
DUO/IS1	**[mm]**	**[mm]**	**[m]**	**kg**	**r in m**
25+20/91	25x3,5+20x2.8	91	570	1.64	0.90
32+20/111	32x4,4+20x2.8	111	410	1.94	0.90
40+25/126	40x5,5+25x3.5	126	300	2.54	1.00
50+32/142	50x6,9+32x4.4	142	220	3.38	1.10
63+32/162	63x8,7+32x4.4	162	150	3.23	1.20

The specified maximum Coil lengths refer to the standard maxi-coil dimensions of (height x width) 2950x1200 mm.



1. PE-Xa service pipe
2. Flexible Polyurethane-Foam (PUR)
3. Casing

Technical data:

Max. continuous operating temperature:	+80°C acc. EN 15632-2
Max. operating temperature:	+95°C (variable*)
Thermal conductivity:	0.021 W/mK
Operating pressure:	10 bar
Service pipe:	PE-Xa
Thermal insulation:	PUR, CFC-free cyclopenthane-based
Casing:	corrugated PE-LLD

Pipe systems according to EN 15632-2 are designed for a service life of at least 30 years with the following temperature profile:

***29 years at 80°C + 1 year at 90°C + 100h at 95°C**
or
Winter heating season 85°C + Summer heating season 75°C

Other temp./time profiles are applicable according to ISO 13760 (Miners rule).
The maximum operating temperature must not exceed 95°C.

RK FibreFlex®

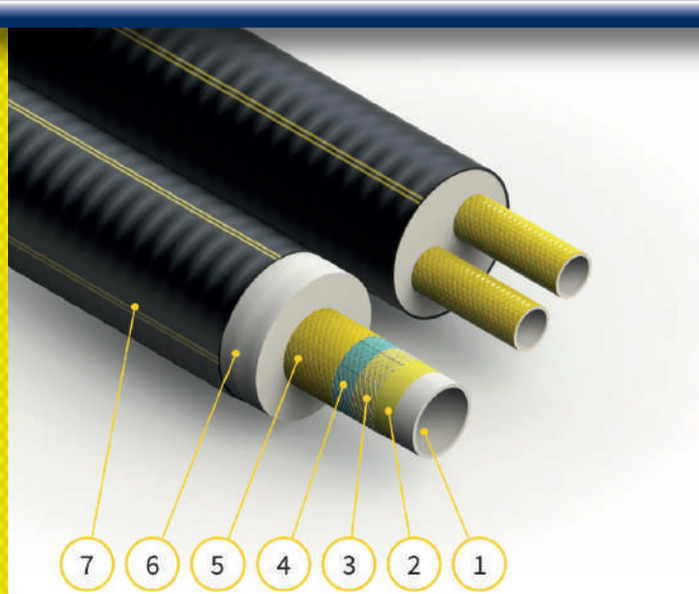
Pre-insulated, flexible pipe system, with a service pipe made of fibrereinforced, crosslinked polyethylene and PUR thermal insulation.

Thanks to the aramid fiber mesh, the pipe wall thicknesses could also be reduced and, due to the resulting smaller outside diameter, the insulation could be improved.

Compared to conventional flexible pipe systems, media can be transported at a pressure of 10 bar at a continuous operating temperature of + 80 ° C.

Type	Dimension	Casing	Max. Coil length	Weight/ Meter	Bending-radius
UNO/IS1	**[mm]**	**[mm]**	**[m]**	**kg**	**r in m**
25/76	25.0x2.2	76	570	1.10	0.70
32/76	32.0x2.5	76	570	1.10	0.70
40/91	40.0x2.8	91	570	1.90	0.90
50/111	47.6x3.6	111	410	2.00	0.90
63/126	58.5x4.0	126	300	2.40	1.00
75/142	69.5x4.6	142	220 (*440)	2.90	1.10
90/162	84.0x6.0	162	150 (*300)	4.00	1.20
110/162	101.0x6.5	162	150 (*300)	4.30	1.20
125/182	116.0x6.8	182	86 (*170)	5.10	1.30
140/202	127.0x7.1	202	80 (*160)	6.30	1.60
160/225	144.0x7.5	225	75 (*150)	7.70	1.60
UNO/IS2	**[mm]**	**[mm]**	**[m]**	**kg**	**r in m**
25/91	25.0x2.2	91	570	1.30	0.90
32/91	32.0x2.5	91	570	1.30	0.90
40/111	40.0x2.8	111	410	1.90	0.90
50/126	47.6x3.6	126	300	2.20	1.00
63/142	58.5x4.0	142	220 (*440)	2.70	1.10
75/162	69.5x4.6	162	150 (*300)	3.50	1.20
90/182	84.0x6.0	182	86 (*170)	4.70	1.30
110/182	101.0x6.5	182	86 (*170)	5.00	1.30
125/202	116.0x6.8	202	80 (*160)	6.00	1.40
140/225	127.0x7.1	225	75 (*150)	7.50	1.60
DUO/IS1	**[mm]**	**[mm]**	**[m]**	**kg**	**r in m**
25+25/91	2x25.0x2.2	91	570	1.40	0.70
32+32/111	2x32.0x2.5	111	410	1.90	0.90
40+40/126	2x40.0x2.8	126	300	2.60	0.90
50+50/162	2x47.6x3.6	162	150 (*300)	3.60	1.20
63+63/182	2x58.5x4.0	182	86 (*170)	4.50	1.30
75+75/202	2x69.5x4.6	202	80 (*160)	5.70	1.40
90+90/225	2x84.0x6.0	225	75 (*150)	7.30	1.60
DUO/IS2	**[mm]**	**[mm]**	**[m]**	**kg**	**r in m**
25+25/111	2x25.0x2.2	111	410	1.80	0.90
32+32/126	2x32.0x2.5	126	300	2.30	0.90
40+40/142	2x40.0x2.8	142	220 (*440)	2.90	1.00
50+50/182	2x47.6x3.6	182	86 (*170)	4.30	1.30
63+63/202	2x58.5x4.0	202	80 (*160)	5.30	1.40
75+75/225	2x69.5x4.6	225	75 (*150)	6.60	1.60

The specified maximum Coil lengths refer to the standard maxi-coil dimensions of (height x width) 2950x1200 mm. Project Coil lengths are available up to (*) = (height x width) 2950x2400mm.



1. PE-Xa service pipe 2. Adhesive layer
3. Aramid fibre mesh 4. Adhesive layer including oxygen diffusion barrier
5. Service pipe outer layer 6. Flexible Polyurethane-Foam (PUR) 7. Casing

Technical data:

Max. continuous operating temperature:	+80°C
Max. operating temperature:	+95°C (variable*)
Thermal conductivity:	0.021 W/mK
Operating pressure:	10 bar
Service pipe:	PE-Xa with aramid reinforcement
Thermal insulation:	PUR, CFC-free cyclopenthane-based
Casing:	corrugated PE-LLD

Pipe systems, based on EN 15632-2, are designed for a service life of 50 years.
Other temp./time profiles are applicable according to ISO 13760 (Miners rule).

For example:
***29 years at 80°C + 1 year at 90°C + 100h at 95°C**
or
Winter heating season 85°C + Summer heating season 75°C

The maximum operating temperature must not exceed 95°C.

FibreFlex®Pro

Pre-insulated, flexible pipe system with fiber-reinforced medium pipe for use up to 115°C and 10 bar.

Thanks to the high temperature aramid fiber mesh, the FibreFlex Pro pipe system can be used up to a maximum operating temperature of 115 ° C and a pressure of up to 10 bar.

The FibreFlex Pro pipe system thus combines the advantages of a flexible pipe system with the operating properties of KMR steel pipe systems and is therefore an innovative, cost-effective alternative.

Type	Dimension	Casing	Max. Coil length	Weight/ Meter	Bending-radius
UNO/IS1	**[mm]**	**[mm]**	**[m]**	**kg**	**r in m**
32/76	32.0x2.9	76	570	1.10	0.70
40/91	40.0x3.7	91	570	1.90	0.90
50/111	47.6x3.6	111	410	2.00	0.90
63/126	58.5x4.0	126	300	2.40	1.00
75/142	69.5x4.6	142	220 (*440)	2.90	1.10
90/162	84.0x6.0	162	150 (*300)	4.00	1.20
110/162	101.0x6.5	162	150 (*300)	4.30	1.20
125/182	116.0x6.8	182	86 (*170)	5.10	1.30
140/202	127.0x7.1	202	80 (*160)	6.30	1.60
160/225	144.0x7.5	225	75 (*150)	7.70	1.60
UNO/IS2	**[mm]**	**[mm]**	**[m]**	**kg**	**r in m**
32/91	32,0x2,9	91	570	1.30	0.90
40/111	40,0x3,7	111	410	1.90	0.90
50/126	47,6x3,6	126	300	2.20	1.00
63/142	58,5x4,0	142	220 (*440)	2.70	1.10
75/162	69,5x4,6	162	150 (*300)	3.50	1.20
90/182	84,0x6,0	182	86 (*170)	4.70	1.30
110/182	101,0x6,5	182	86 (*170)	5.00	1.30
125/202	116,0x6,8	202	80 (*160)	6.00	1.40
140/225	127,0x7,1	225	75 (*150)	7.50	1.60
DUO/IS1	**[mm]**	**[mm]**	**[m]**	**kg**	**r in m**
32+32/111	2x32,0x2,9	111	410	1.90	0.90
40+40/126	2x40,0x3,7	126	300	2.60	0.90
50+50/162	2x47,6x3,6	162	150 (*300)	3.60	1.20
63+63/182	2x58,5x4,0	182	86 (*170)	4.50	1.30
75+75/202	2x69,5x4,6	202	80 (*160)	5.70	1.40
90+90/225	2x84,0x6,0	225	75 (*150)	7.30	1.60
DUO/IS2	**[mm]**	**[mm]**	**[m]**	**kg**	**r in m**
32+32/126	2x32,0x2,9	126	300	2.30	0.90
40+40/142	2x40,0x3,7	142	220 (*440)	2.90	1.00
50+50/182	2x47,6x3,6	182	86 (*170)	4.30	1.30
63+63/202	2x58,5x4,0	202	80 (*160)	5.30	1.40
75+75/225	2x69,5x4,6	225	75 (*150)	6.60	1.60

The specified maximum Coil lengths refer to the standard maxi-coil dimensions of (height x width) 2950x1200 mm. Project Coil lengths are available up to (*) = (height x width) 2950x2400mm.

1. PE-Xa service pipe 2. Temperature-resistant adhesive layer 3. High temperature fibre mesh 4. Temperature-resistant adhesive layer including oxygen diffusion barrier 5. Service pipe outer layer 6. Flexible Polyurethane-Foam (PUR) 7. Casing

Technical data:

Max. continuous operating temperature:	+95°C (seasonal)
Max. operating temperature:	+115°C (variable*)
Thermal conductivity:	0.021 W/mK
Operating pressure:	10 bar
Service pipe:	PE-Xa with aramid reinforcement
Thermal insulation:	PUR, CFC-free cyclopenthane-based
Casing:	corrugated PE-LLD

FibreFlex Pro pipe systems are designed for a service life of at least 30 years with the following temperature profile:

***29 years at 90°C + 1 year at 100°C + 100h at 115°C**
or
Winter heating season 95°C + Summer heating season 85°C

Further temp./time profiles can be used in accordance with ISO 13760 (Miners rule).
The maximum operating temperature must not exceed 115°C.

FibreFlex®Pro16

Pre-insulated, flexible pipe system with fiber-reinforced medium pipe for use up to 115°C and 16 bar.

Thanks to the finer-meshed high-temperature fiber mesh made of aramid, the FibreFlex Pro 16 pipe system can be used up to a maximum operating temperature of 115 ° C and a pressure of up to 16 bar.

The FibreFlex Pro pipe system thus combines the advantages of a flexible pipe system with the operating properties of KMR steel pipe systems and therefore represents an innovative, cost-effective alternative.

Type	Dimension	Casing	Max. Coil length	Weight/ Meter	Bending-radius
UNO/IS1	**[mm]**	**[mm]**	**[m]**	**kg**	**r in m**
50/111	47.6x3.6	111	410	2.00	0.90
63/126	58.5x4.0	126	300	2.40	1.00
75/142	69.5x4.6	142	220 (*440)	2.90	1.10
90/162	84.0x6.0	162	150 (*300)	4.00	1.20
110/162	101.0x6.5	162	150 (*300)	4.30	1.20
UNO/IS2	**[mm]**	**[mm]**	**[m]**	**kg**	**r in m**
50/126	47.6x3.6	126	300	2.20	1.00
63/142	58.5x4.0	142	220 (*440)	2.70	1.10
75/162	69.5x4.6	162	150 (*300)	3.50	1.20
90/182	84.0x6.0	182	86 (*170)	4.70	1.30
110/182	101.0x6.5	182	86 (*170)	5.00	1.20
DUO/IS1	**[mm]**	**[mm]**	**[m]**	**kg**	**r in m**
50+50/162	2x47.6x3.6	162	150 (*300)	3.60	1.20
63+63/182	2x58.5x4.0	182	86 (*170)	4.50	1.30
75+75/202	2x69.5x4.6	202	80 (*160)	5.70	1.40
90+90/225	2x84.0x6.0	225	75 (*150)	7.30	1.60
DUO/IS2	**[mm]**	**[mm]**	**[m]**	**kg**	**r in m**
50+50/182	2x47.6x3.6	182	86 (*170)	4.30	1.30
63+63/202	2x58.5x4.0	202	80 (*160)	5.30	1.40
75+75/225	2x69.5x4.6	225	75 (*150)	6.60	1.60

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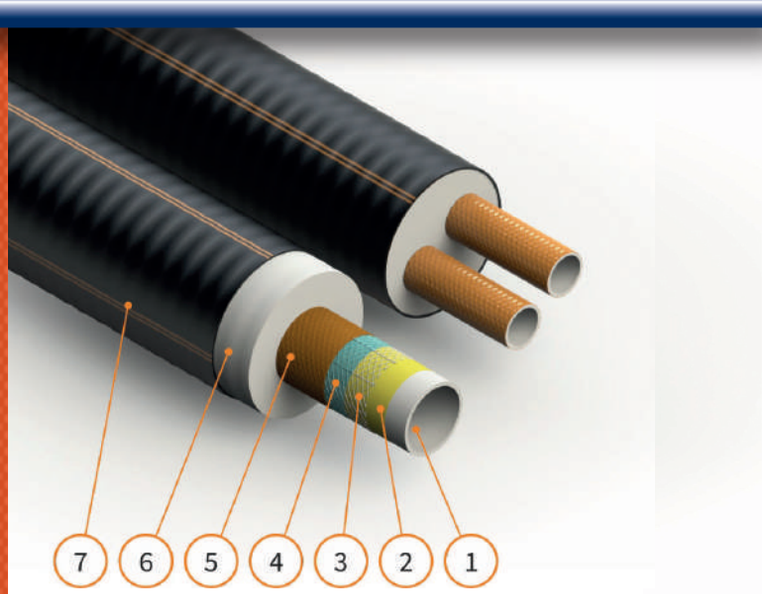


1. PE-Xa service pipe 2. Temperature-resistent adhesive layer 3. Fine mesh, high temperature aramid fibre mesh 4. Temperature-resistent adhesive layer including oxygen diffusion barrier 5. Service pipe outer layer 6. Flexible Polyurethane-Foam (PUR) 7. Casing

Technical data:

Max. continuous operating temperature:	+95°C (seasonal)
Max. operating temperature:	+115°C (variable*)
Thermal conductivity:	0.021 W/mK
Operating pressure:	16 bar
Service pipe:	PE-Xa with aramid reinforcement
Thermal insulation:	PUR, CFC-free cyclopenthane-based
Casing:	corrugated PE-LLD

FibreFlex Pro pipe systems are designed for a service life of at least 30 years with the following temperature profile:

***29 years at 90°C + 1 year at 100°C + 100h at 115°C**
or
Winter heating season 95°C + Summer heating season 85°C

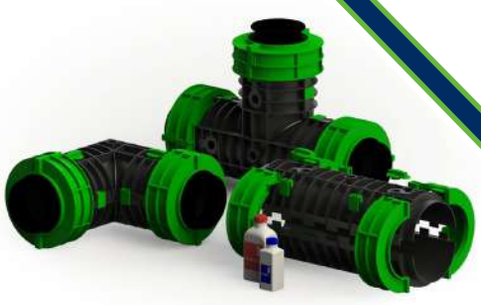
Further temp./time profiles can be used in accordance with ISO 13760 (Miners rule).
The maximum operating temperature must not exceed 115°C.

Fittings and accessories

HeatFlex & PEX sanitary
PE-Xa pipes (SDR11, SDR7.4) are connected via press or clamp connectors (welding adapters, thread adapters, couplings, bends, T-pieces).
A press tool is required to install the fittings. These can be obtained from Radius-Kelit. No special tools are required to install the clamp connections. The clamping force is applied via the outer sleeve by tightening a clamping screw. A conventional hex wrench can be used for this.

FibreFlex / FibreFlex Pro
FibreFlex / FibreFlex Pro press fittings have an additional polymer crimp sleeve between the sliding sleeve and the service pipe. As a result, the support bushing can be inserted directly into the pipe ends during installation without widening. Up to size 110, standard pressing tools such as for PE-Xa pipes (SDR11) can be used. The Radius-Kelit pressing tool is available for larger dimensions. The pressing point is insulated with joint system.

FibreFlex / FibreFlex Pro factory pre-insulated parts
To reduce welding and assembly work on the construction site, a large selection of pre-insulated steel fittings is available. The FibreFlex / FibreFlex Pro press transitions are welded onto the steel parts and can be pressed directly.
Joint systems are used to insulate connection points.



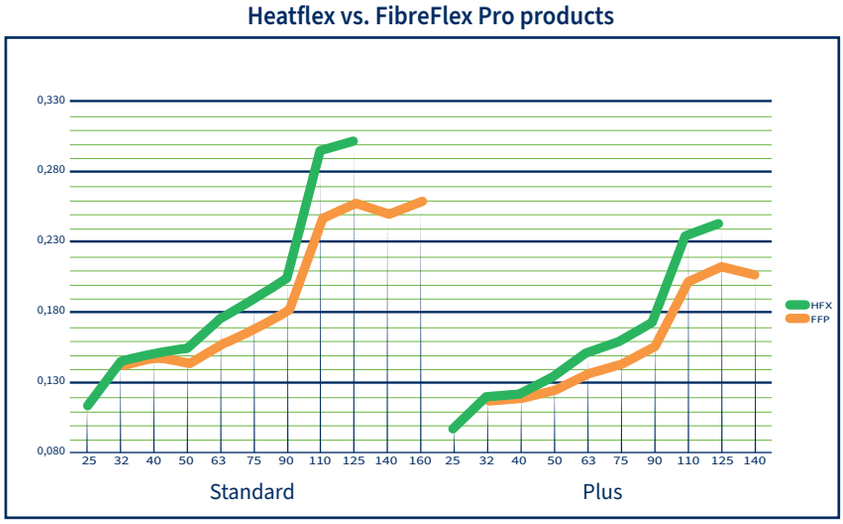
Half shells for HeatFlex, PEX sanitary, FibreFlex / FibreFlex Pro
Half-shells are available in various configurations for our flexible plastic pipe systems. This innovative CLICK system guarantees the highest construction site quality without time-consuming gluing, screwing or shrinking with secure connection technology and the best thermal insulation properties.

Pressure loss and Flow rates

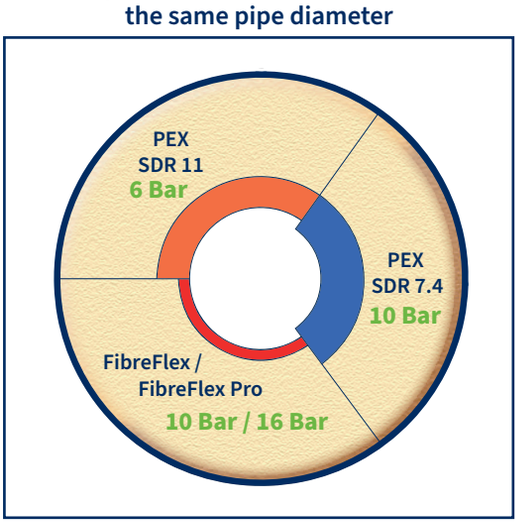
	DN_{KMR} mm	20	25	32	40	50	50/65	65	80	80/100	100	100/125	125
KMR	da_{KMR} mm	26,9	33,7	42,4	48,3	60,3		76,1	88,9		114,3		139,7
	di_{KMR} mm	21,1	27,3	36	41,9	53,9		69,7	82,5		107,1		132,5
	da_{FLEX} mm	25	32	40	50	63	75	90		110	125	140	160
HFX	da_{HFX} mm	25	32	40	50	63	75	90		110	125		
	di_{HFX} mm	20,4	26,2	32,6	40,8	51,4	61,4	73,6		90	102,2		
FF	da_{FF} mm	25	32	40	50 (47,6)	63 (58,5)	75 (69,5)	90 (84)		110 (101)	125 (116)	140 (127)	160 (144)
	di_{FF} mm	20,6	27	34,4	40,4	50,5	60,3	72		88	102,4	112,8	129
FFP	da_{FFP} mm		32	40	47,6	58,5	69,5	84		101	116	127	144
	di_{FFP} mm		26,2	32,6	40,4	50,5	60,3	72		88	102,4	112,8	129
	$di_{average}$ mm	20,7	26,7	33,9	40,9	51,6	60,7	71,8	82,5	88,7	103,5	112,8	130,2
Average pressure loss [Pa/m]												1 bar = 100.000 Pa	
0,28 l/sec.	**1 m^3/h**	356	95	27	10	3	1	1	0	0	0	0	0
0,56	**2**	1 423	379	109	41	12	5	2	1	1	0	0	0
0,83	**3**	3 202	854	245	93	28	12	5	2	2	1	0	0
1,11	**4**	5 692	1 518	436	165	49	21	9	4	3	1	1	0
1,67	**6**	12 807	3 415	980	370	111	48	20	10	7	3	2	1
2,22	**8**	22 767	6 071	1 743	659	197	85	35	17	12	5	3	2
2,78	**10**	35 574	9 487	2 723	1 029	307	132	55	27	18	8	5	3
4,17	**15**	80 042	21 345	6 128	2 315	691	297	124	60	42	19	12	6
5,56	**20**	142 296	37 946	10 894	4 116	1 229	529	220	107	74	33	21	10
8,33	**30**	320 166	85 379	24 511	9 261	2 765	1 190	495	241	166	74	48	23
11,11	**40**	569 185	151 784	43 575	16 463	4 916	2 115	880	429	295	132	85	40
13,89	**50**	889 351	237 163	68 086	25 724	7 681	3 305	1 376	670	461	207	132	63
16,67	**60**	1 280 666	341 514	98 044	37 042	11 061	4 759	1 981	965	664	297	191	91
22,22	**80**	2 276 739	607 137	174 300	65 853	19 664	8 461	3 522	1 716	1 181	529	339	161
27,78	**100**	3 557 405	948 651	272 343	102 895	30 725	13 220	5 503	2 681	1 845	826	530	252
Average flow rate [m/sec]													
0,28 l/sec.	**1 m^3/h**	0,83	0,50	0,31	0,21	0,13	0,10	0,07	0,05	0,04	0,03	0,03	0,02
0,56	**2**	1,65	0,99	0,62	0,42	0,27	0,19	0,14	0,10	0,09	0,07	0,06	0,04
0,83	**3**	2,48	1,49	0,92	0,64	0,40	0,29	0,21	0,16	0,13	0,10	0,08	0,06
1,11	**4**	3,30	1,99	1,23	0,85	0,53	0,38	0,27	0,21	0,18	0,13	0,11	0,08
1,67	**6**	4,95	2,98	1,85	1,27	0,80	0,58	0,41	0,31	0,27	0,20	0,17	0,13
2,22	**8**	6,60	3,98	2,46	1,69	1,06	0,77	0,55	0,42	0,36	0,26	0,22	0,17
2,78	**10**	8,25	4,97	3,08	2,12	1,33	0,96	0,69	0,52	0,45	0,33	0,28	0,21
4,17	**15**	12,38	7,46	4,62	3,18	1,99	1,44	1,03	0,78	0,67	0,50	0,42	0,31
5,56	**20**	16,51	9,94	6,16	4,23	2,66	1,92	1,37	1,04	0,90	0,66	0,56	0,42
8,33	**30**	24,76	14,91	9,23	6,35	3,99	2,88	2,06	1,56	1,35	0,99	0,83	0,63
11,11	**40**	33,02	19,88	12,31	8,47	5,32	3,84	2,74	2,08	1,80	1,32	1,11	0,83
13,89	**50**	41,27	24,85	15,39	10,58	6,65	4,80	3,43	2,60	2,25	1,65	1,39	1,04
16,67	**60**	49,52	29,82	18,47	12,70	7,98	5,77	4,11	3,12	2,70	1,98	1,67	1,25
22,22	**80**	66,03	39,76	24,62	16,93	10,64	7,69	5,48	4,16	3,60	2,64	2,22	1,67
27,78	**100**	82,54	49,70	30,78	21,17	13,30	9,61	6,86	5,20	4,50	3,30	2,78	2,09

Heat loss and transferable performance

U value comparison [W/mK]
Heatflex vs. FibreFlex Pro products



Comparison of wall thicknesses with the same pipe diameter



The specified values are based on an average specific heat capacity [cm] of the water of 4,187 J / (kg • K).
All values are based on an overburden [ÜH] of 0.80 m, a conductivity of the soil [lE] of 1.0 W / (m • K), a soil temperature [TE] of 10 ° C and, for individual pipes, a pipe spacing of 100 mm.
Average temperature TM = (TVL + TRL): 2

	Service pipe			Casing	Water content	Volume flow		Flow rate		Transferable power with spread of...						Heat transfer coefficient	Heat loss trench at medium operating temperature		
										20°K		25°K		30°K			80°C	70°C	60°C
	Type	DS	OD [mm]	OD [mm]	V [Liter/m]	m_1 [m³/h]	m_2 [m³/h]	v_1 [m/s]	v_2 [m/s]	P_1 [kW]	P_2 [kW]	P1 [kW]	P2 [kW]	P1 [kW]	P2 [kW]	U_{Pipe} [W/mK]	Φtrench [W/m]	Φtrench [W/m]3	Φtrench [W/m]2
HEATFLEX - Heating	HFX		**25**	**76**	0.327	0.6	1.2	0.5	1.0	13	27	17	33	20	40	0.1129	15.80	13.55	11.29
	HFX	Plus	**25**	**91**	0.327	0.6	1.2	0.5	1.0	13	27	17	33	20	40	0.0972	13.61	11.67	9.72
	HFX		**32**	**76**	0.539	1.0	1.9	0.5	1.0	22	44	27	55	33	66	0.1431	20.04	17.18	14.31
	HFX	Plus	**32**	**91**	0.539	1.0	1.9	0.5	1.0	22	44	27	55	33	66	0.1189	16.64	14.26	11.89
	HFX		**40**	**91**	0.835	1.5	3.0	0.5	1.0	34	68	43	85	51	102	0.1487	20.82	17.85	14.87
	HFX	Plus	**40**	**111**	0.835	1.5	3.0	0.5	1.0	34	68	43	85	51	102	0.1209	16.93	14.51	12.09
	HFX		**50**	**111**	1.307	2.4	4.7	0.5	1.0	53	107	67	133	80	160	0.1521	21.29	18.25	15.21
	HFX	Plus	**50**	**126**	1.307	2.4	4.7	0.5	1.0	53	107	67	133	80	160	0.1324	18.53	15.89	13.24
	HFX		**63**	**126**	2.075	3.7	9.0	0.5	1.2	85	203	106	254	127	305	0.1723	24.13	20.68	17.23
	HFX	Plus	**63**	**142**	2.075	3.7	9.0	0.5	1.2	85	203	106	254	127	305	0.1487	20.82	17.85	14.87
	HFX		**75**	**142**	2.961	6.4	12.8	0.6	1.2	145	290	181	362	217	435	0.1851	25.92	22.22	18.51
	HFX	Plus	**75**	**162**	2.961	6.4	12.8	0.6	1.2	145	290	181	362	217	435	0.1564	21.90	18.77	15.64
	HFX		**90**	**162**	4.254	9.2	21.4	0.6	1.4	208	486	260	607	312	729	0.1995	27.93	23.94	19.95
	HFX	Plus	**90**	**182**	4.254	9.2	21.4	0.6	1.4	208	486	260	607	312	729	0.1695	23.73	20.34	16.95
	HFX		**110**	**162**	6.362	16.0	32.1	0.7	1.4	363	727	454	908	545	1.090	0.2864	40.10	34.37	28.64
	HFX	Plus	**110**	**182**	6.362	16.0	32.1	0.7	1.4	363	727	454	908	545	1.090	0.2284	31.98	27.41	22.84
	HFX		**125**	**182**	8.203	23.6	47.3	0.8	1.6	535	1.071	669	1.338	803	1.606	0.2933	41.07	35.20	29.33
	HFX	Plus	**125**	**202**	8.203	23.6	47.3	0.8	1.6	535	1.071	669	1.338	803	1.606	0.2369	33.17	28.43	23.69
	HFX		**25+25**	**91**	0.327	0.6	1.2	0.5	1.0	13	27	17	33	20	40	0.1821	12.75	10.93	9.10
	HFX	Plus	**25+25**	**111**	0.327	0.6	1.2	0.5	1.0	13	27	17	33	20	40	0.1394	9.76	8.37	6.97
	HFX		**32+32**	**111**	0.539	1.0	1.9	0.5	1.0	22	44	27	55	33	66	0.1936	13.55	11.61	9.68
	HFX	Plus	**32+32**	**126**	0.539	1.0	1.9	0.5	1.0	22	44	27	55	33	66	0.1599	11.19	9.59	7.99
	HFX		**40+40**	**126**	0.835	1.5	3.0	0.5	1.0	34	68	43	85	51	102	0.2203	15.42	13.22	11.01
	HFX	Plus	**40+40**	**142**	0.835	1.5	3.0	0.5	1.0	34	68	43	85	51	102	0.1786	12.51	10.72	8.93
	HFX		**50+50**	**162**	1.307	2.4	4.7	0.5	1.0	53	107	67	133	80	160	0.2010	14.07	12.06	10.05
	HFX	Plus	**50+50**	**182**	1.307	2.4	4.7	0.5	1.0	53	107	67	133	80	160	0.1677	11.74	10.06	8.38
	HFX		**63+63**	**182**	2.075	3.7	9.0	0.5	1.2	85	203	106	254	127	305	0.2431	17.02	14.59	12.16
	HFX	Plus	**63+63**	**202**	2.075	3.7	9.0	0.5	1.2	85	203	106	254	127	305	0.1975	13.83	11.85	9.88
	HFX		**75+75**	**202**	2.961	6.4	12.8	0.6	1.2	145	290	181	362	217	435	0.2784	19.49	16.70	13.92
	HFX	Plus	**75+75**	**225**	2.961	6.4	12.8	0.6	1.2	145	290	181	362	217	435	0.2185	15.30	13.11	10.93
HFX Sanitary	SAN		**20**	**76**	0.163	0.7	0.8	1.2	1.4	16	19	20	23	24	28	0.0943	13.20	11.32	9.43
	SAN		**25**	**76**	0.254	1.1	1.3	1.2	1.4	25	29	31	36	37	44	0.1122	15.71	13.47	11.22
	SAN		**32**	**76**	0.423	1.8	2.1	1.2	1.4	41	48	52	60	62	72	0.1421	19.89	17.05	14.21
	SAN		**40**	**91**	0.661	2.9	3.3	1.2	1.4	65	75	81	94	97	113	0.1476	20.67	17.72	14.76
	SAN		**50**	**111**	1.029	4.4	5.2	1.2	1.4	101	118	126	147	151	176	0.1509	21.13	18.11	15.09
	SAN		**63**	**126**	1.633	7.1	8.2	1.2	1.4	160	187	200	233	240	280	0.1709	23.92	20.50	17.09
	SAN		**25+20**	**91**	0.254	1.4	1.6	1.5	1.7	31	35	39	44	47	53	0.1649	11.54	9.89	8.24
	SAN		**32+20**	**111**	0.423	2.3	2.6	1.5	1.7	52	59	65	73	78	88	0.1599	11.19	9.59	7.99
	SAN		**40+25**	**126**	0.661	3.6	4.0	1.5	1.7	81	92	101	114	121	137	0.1735	12.15	10.41	8.68
	SAN		**50+32**	**126**	1.029	5.6	6.3	1.5	1.7	126	143	157	178	189	214	0.2527	17.69	15.16	12.63
	SAN		**63+32**	**162**	1.633	8.8	10.0	1.5	1.7	200	226	250	283	300	340	0.1962	13.73	11.77	9.81

Heat loss and transferable performance

	Service pipe			Casing	Water content	Volume flow		Flow rate		Transferable power with spread of...						Heat transfer coefficient	Heat loss trench at medium operating temperature		
										20°K		25°K		30°K			80°C	70°C	60°C
	Type	DS	OD [mm]	OD [mm]	V [Liter/m]	m_1 [m³/h]	m_2 [m³/h]	v_1 [m/s]	v_2 [m/s]	P_1 [kW]	P_2 [kW]	P1 [kW]	P2 [kW]	P1 [kW]	P2 [kW]	U_{Pipe} [W/mK]	Φtrench [W/m]	Φtrench [W/m]3	Φtrench [W/m]2
FibreFlex	FF		25	76	0.333	0.6	1.2	0.5	1.0	14	27	17	34	20	41	0.1129	15.81	13.55	11.29
	FF	Plus	25	91	0.333	0.6	1.2	0.5	1.0	14	27	17	34	20	41	0.0973	13.62	11.67	9.73
	FF		32	76	0.573	1.2	2.5	0.6	1.2	28	56	35	70	42	84	0.1434	20.08	17.21	14.34
	FF	Plus	32	91	0.573	1.2	2.5	0.6	1.2	28	56	35	70	42	84	0.1190	16.67	14.28	11.90
	FF		40	91	0.929	2.0	4.0	0.6	1.2	45	91	57	114	68	136	0.1492	20.89	17.91	14.92
	FF	Plus	40	111	0.929	2.0	4.0	0.6	1.2	45	91	57	114	68	136	0.1213	16.98	14.55	12.13
	FF		50	111	1.282	3.2	6.5	0.7	1.4	73	146	91	183	110	220	0.1442	20.19	17.31	14.42
	FF	Plus	50	126	1.282	3.2	6.5	0.7	1.4	73	146	91	183	110	220	0.1264	17.70	15.17	12.64
	FF		63	126	2.003	5.0	10.1	0.7	1.4	114	229	143	286	172	343	0.1577	22.08	18.93	15.77
	FF	Plus	63	142	2.003	5.0	10.1	0.7	1.4	114	229	143	286	172	343	0.1377	19.28	16.52	13.77
	FF		75	142	2.856	8.2	16.4	0.8	1.6	186	373	233	466	280	559	0.1680	23.51	20.15	16.80
	FF	Plus	75	162	2.856	8.2	16.4	0.8	1.6	186	373	233	466	280	559	0.1440	20.15	17.28	14.40
	FF		90	162	4.072	11.7	23.5	0.8	1.6	266	531	332	664	399	797	0.1813	25.38	21.76	18.13
	FF	Plus	90	182	4.072	11.7	23.5	0.8	1.6	266	531	332	664	399	797	0.1562	21.87	18.74	15.62
	FF		110	162	6.082	19.7	39.4	0.9	1.8	447	893	558	1.116	670	1.340	0.2432	34.05	29.19	24.32
	FF	Plus	110	182	6.082	19.7	39.4	0.9	1.8	447	893	558	1.116	670	1.340	0.2001	28.01	24.01	20.01
	FF		125	182	8.235	26.7	53.4	0.9	1.8	605	1.209	756	1.512	907	1.814	0.2536	35.50	30.43	25.36
	FF	Plus	125	202	8.235	26.7	53.4	0.9	1.8	605	1.209	756	1.512	907	1.814	0.2103	29.44	25.24	21.03
	FF		140	202	9.993	32.4	64.8	0.9	1.8	734	1.467	917	1.834	1.100	2.201	0.2460	34.44	29.52	24.60
	FF	Plus	140	225	9.993	32.4	64.8	0.9	1.8	734	1.467	917	1.834	1.100	2.201	0.2050	28.70	24.60	20.50
	FF		160	225	13.070	47.1	94.1	1.0	2.0	1.066	2.132	1.333	2.665	1.599	3.198	0.2550	35.70	30.60	25.50
	FF		25+25	91	0.333	0.6	1.2	0.5	1.0	14	27	17	34	20	41	0.1821	12.75	10.93	9.11
	FF	Plus	25+25	111	0.333	0.6	1.2	0.5	1.0	14	27	17	34	20	41	0.1395	9.76	8.37	6.97
	FF		32+32	111	0.573	1.2	2.5	0.6	1.2	28	56	35	70	42	84	0.1937	13.56	11.62	9.68
	FF	Plus	32+32	126	0.573	1.2	2.5	0.6	1.2	28	56	35	70	42	84	0.1599	11.20	9.60	8.00
	FF		40+40	126	0.929	2.0	4.0	0.6	1.2	45	91	57	114	68	136	0.2206	15.44	13.23	11.03
	FF	Plus	40+40	142	0.929	2.0	4.0	0.6	1.2	45	91	57	114	68	136	0.1788	12.52	10.73	8.94
	FF		50+50	162	1.282	3.2	6.5	0.7	1.4	73	146	91	183	110	220	0.1866	13.06	11.20	9.33
	FF	Plus	50+50	182	1.282	3.2	6.5	0.7	1.4	73	146	91	183	110	220	0.1580	11.06	9.48	7.90
	FF		63+63	182	2.003	5.0	10.1	0.7	1.4	114	229	143	286	172	343	0.2116	14.81	12.70	10.58
	FF	Plus	63+63	202	2.003	5.0	10.1	0.7	1.4	114	229	143	286	172	343	0.1773	12.41	10.64	8.87
	FF		75+75	202	2.856	8.2	16.4	0.8	1.6	186	373	233	466	280	559	0.2353	16.47	14.12	11.76
	FF	Plus	75+75	225	2.856	8.2	16.4	0.8	1.6	186	373	233	466	280	559	0.1928	13.49	11.57	9.64
	FF		90+90	225	4.072	11.7	23.5	0.8	1.6	266	531	332	664	399	797	0.2781	19.47	16.69	13.91
FibreFlex Pro	FFP		32	76	0.539	1.2	2.3	0.6	1.2	26	53	33	66	40	79	0.1431	20.04	17.18	14.31
	FFP	Plus	32	91	0.539	1.2	2.3	0.6	1.2	26	53	33	66	40	79	0.1189	16.64	14.26	11.89
	FFP		40	91	0.835	1.8	3.6	0.6	1.2	41	82	51	102	61	123	0.1487	20.82	17.85	14.87
	FFP	Plus	40	111	0.835	1.8	3.6	0.6	1.2	41	82	51	102	61	123	0.1209	16.93	14.51	12.09
	FFP		50	111	1.282	3.2	6.5	0.7	1.4	73	146	91	183	110	220	0.1442	20.19	17.31	14.42
	FFP	Plus	50	126	1.282	3.2	6.5	0.7	1.4	73	146	91	183	110	220	0.1264	17.70	15.17	12.64
	FFP		63	126	2.003	5.0	10.1	0.7	1.4	114	229	143	286	172	343	0.1577	22.08	18.93	15.77
	FFP	Plus	63	142	2.003	5.0	10.1	0.7	1.4	114	229	143	286	172	343	0.1377	19.28	16.52	13.77
	FFP		75	142	2.856	8.2	16.4	0.8	1.6	186	373	233	466	280	559	0.1680	23.51	20.15	16.80
	FFP	Plus	75	162	2.856	8.2	16.4	0.8	1.6	186	373	233	466	280	559	0.1440	20.15	17.28	14.40
	FFP		90	162	4.072	11.7	23.5	0.8	1.6	266	531	332	664	399	797	0.1813	25.38	21.76	18.13
	FFP	Plus	90	182	4.072	11.7	23.5	0.8	1.6	266	531	332	664	399	797	0.1562	21.87	18.74	15.62
	FFP		110	162	6.082	19.7	39.4	0.9	1.8	447	893	558	1.116	670	1.340	0.2432	34.05	29.19	24.32
	FFP	Plus	110	182	6.082	19.7	39.4	0.9	1.8	447	893	558	1.116	670	1.340	0.2001	28.01	24.01	20.01
	FFP		125	182	8.235	26.7	53.4	0.9	1.8	605	1.209	756	1.512	907	1.814	0.2536	35.50	30.43	25.36
	FFP	Plus	125	202	8.235	26.7	53.4	0.9	1.8	605	1.209	756	1.512	907	1.814	0.2103	29.44	25.24	21.03
	FFP		140	202	9.993	32.4	64.8	0.9	1.8	734	1.467	917	1.834	1.100	2.201	0.2460	34.44	29.52	24.60
	FFP	Plus	140	225	9.993	32.4	64.8	0.9	1.8	734	1.467	917	1.834	1.100	2.201	0.2050	28.70	24.60	20.50
	FFP		160	225	13.070	47.1	94.1	1.0	2.0	1.066	2.132	1.333	2.665	1.599	3.198	0.2550	35.70	30.60	25.50
	FFP		32+32	111	0.539	1.2	2.3	0.6	1.2	26	53	33	66	40	79	0.1936	13.55	11.61	9.68
	FFP	Plus	32+32	126	0.539	1.2	2.3	0.6	1.2	26	53	33	66	40	79	0.1599	11.19	9.59	7.99
	FFP		40+40	126	0.835	1.8	3.6	0.6	1.2	41	82	51	102	61	123	0.2203	15.42	13.22	11.01
	FFP	Plus	40+40	142	0.835	1.8	3.6	0.6	1.2	41	82	51	102	61	123	0.1786	12.51	10.72	8.93
	FFP		50+50	162	1.282	3.2	6.5	0.7	1.4	73	146	91	183	110	220	0.1866	13.06	11.20	9.33
	FFP	Plus	50+50	182	1.282	3.2	6.5	0.7	1.4	73	146	91	183	110	220	0.1580	11.06	9.48	7.90
	FFP		63+63	182	2.003	5.0	10.1	0.7	1.4	114	229	143	286	172	343	0.2116	14.81	12.70	10.58
	FFP	Plus	63+63	202	2.003	5.0	10.1	0.7	1.4	114	229	143	286	172	343	0.1773	12.41	10.64	8.87
	FFP		75+75	202	2.856	8.2	16.4	0.8	1.6	186	373	233	466	280	559	0.2353	16.47	14.12	11.76
	FFP	Plus	75+75	225	2.856	8.2	16.4	0.8	1.6	186	373	233	466	280	559	0.1928	13.49	11.57	9.64
	FFP		90+90	225	4.072	11.7	23.5	0.8	1.6	266	531	332	664	399	797	0.2781	19.47	16.69	13.91
FibreFlex Pro 16	FFP16		50	111	1.282	3.2	6.5	0.7	1.4	73	146	91	183	110	220	0.1442	20.19	17.31	14.42
	FFP16	Plus	50	126	1.282	3.2	6.5	0.7	1.4	73	146	91	183	110	220	0.1264	17.70	15.17	12.64
	FFP16		63	126	2.003	5.0	10.1	0.7	1.4	114	229	143	286	172	343	0.1577	22.08	18.93	15.77
	FFP16	Plus	63	142	2.003	5.0	10.1	0.7	1.4	114	229	143	286	172	343	0.1377	19.28	16.52	13.77
	FFP16		75	142	2.856	8.2	16.4	0.8	1.6	186	373	233	466	280	559	0.1680	23.51	20.15	16.80
	FFP16	Plus	75	162	2.856	8.2	16.4	0.8	1.6	186	373	233	466	280	559	0.1440	20.15	17.28	14.40
	FFP16		90	162	4.072	11.7	23.5	0.8	1.6	266	531	332	664	399	797	0.1813	25.38	21.76	18.13
	FFP16	Plus	90	182	4.072	11.7	23.5	0.8	1.6	266	531	332	664	399	797	0.1562	21.87	18.74	15.62
	FFP16		110	162	6.082	19.7	39.4	0.9	1.8	447	893	558	1.116	670	1.340	0.2432	34.05	29.19	24.32
	FFP16	Plus	110	182	6.082	19.7	39.4	0.9	1.8	447	893	558	1.116	670	1.340	0.2001	28.01	24.01	20.01
	FFP16		50+50	162	1.282	3.2	6.5	0.7	1.4	73	146	91	183	110	220	0.1866	13.06	11.20	9.33
	FFP16	Plus	50+50	182	1.282	3.2	6.5	0.7	1.4	73	146	91	183	110	220	0.1580	11.06	9.48	7.90
	FFP16		63+63	182	2.003	5.0	10.1	0.7	1.4	114	229	143	286	172	343	0.2116	14.81	12.70	10.58
	FFP16	Plus	63+63	202	2.003	5.0	10.1	0.7	1.4	114	229	143	286	172	343	0.1773	12.41	10.64	8.87
	FFP16		75+75	202	2.856	8.2	16.4	0.8	1.6	186	373	233	466	280	559	0.2353	16.47	14.12	11.76
	FFP16	Plus	75+75	225	2.856	8.2	16.4	0.8	1.6	186	373	233	466	280	559	0.1928	13.49	11.57	9.64
	FFP16		90+90	225	4.072	11.7	23.5	0.8	1.6	266	531	332	664	399	797	0.2781	19.47	16.69	13.91

more flexibility due to the new coiling center

The new system enables coil widths of up to 2.4 m. This means that construction sites with excess lengths can be served in order to save connection points and remaining lengths.

DA	max. delivery length for projects	max. outerØ
	[m]	[mm]
142	440	2850
162	300	2850
182	170	2850
202	160	2850
225	150	2980
Coil width 2.4m suitable for megatrailer trucks		


Flexible loading and
unloading thanks to
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SCANIA
Conti Hybrid HS3
RK Radius - Kelit
Infrastructure

Radius-Kelit Infrastructure GesmbH, a member of international Radius-Systems Group, is an Austria-based manufacturer with more than 50 years of experience in the design and production of pre-insulated pipe systems.

Product ranges include high-quality conventional rigid and flexible pipe products and a new class of flexible pre-insulated reinforced plastic pipe systems that open up new opportunities for heating networks.

The high quality of products manufactured by Radius -Kelit Infrastructure is ensured by the continually maintained quality system, which meets the ISO 9001 standard and is certified by TÜV (Association for Technical Inspection).The company is also certified to the environmental standard EN 14001.

The high efficiency of the foamed polyurethane (PUR) thermal insulation layer (0.021 W/mK for cyclopentha-ne-based foam) proven by tgm Austria, combined with a stable continuous insulation process of flexible pre-insulated pipes makes our pre insulated pipe systems a highly -energy-efficient solution for heating networks.

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