

Flexalen[®] PU

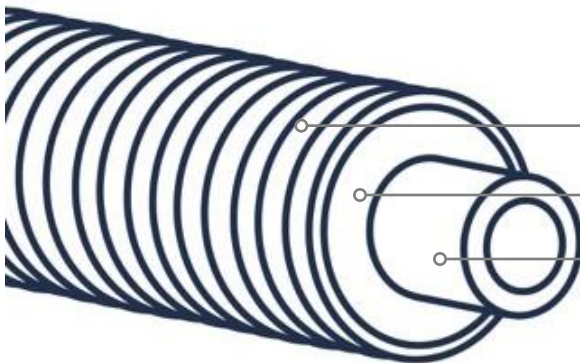
Pre-insulated piping system by Thermaflex[®]

High performance, flexible pre-insulated plastic system for heating applications



Benefits

- Highest insulation class for plastic pipe systems and perfect fit for low temperature heating networks
- Large network capacity with service pipes up to OD315mm
- Full compatibility with Flexalen[®] 600: combine highest insulation class of main lines with the most flexible house connection lines
- Safest choice with homogeneous welding and high-pressure rating 95°C/8bar, for increased reliability
- Thermaflex service: Support with integrated network design, calculation tools, training and on-site support



Design

- LDPE jacket**
Flexibility and mechanical protection
- PUR foam**
Closed-cell, CFC-free
- Polybutene service pipe, PB-1**
With oxygen barrier

Applications

- Local district heating networks
- Biogas / Biomass / Waste heat recovery
- Island networks for Residential, Schools, Hospitals, etc.

Technical Properties

Flexalen[®] PU is a pre-insulated plastic pipe system consisting of fully flexible and semi-flexible pipes (SL). The flexible pre-insulated pipe system is produced conform to the European standard EN15632-1, 2 and KIWA system certified as well as third-party controlled according BRL KOMO 5609-2. The PB service pipes are conform to EN-ISO 15876. The PUR foam and LDPE casing pipe of the semi-flexible pre-insulated pipes (SL) fulfil the functional requirements according EN253.

PB-1 service pipe (EN-ISO 15876)	
Max. service temperature	95°C
Continuous service temperature	80°C
Max. operating pressure	8bar*(95°C)

*depending on the diameter, see Flexalen[®] PU Pressure rating.

Thermal Insulation
Cyclopentane-based PUR foam
Closed-cell structure, CFC-free
Thermal Conductivity $\lambda \leq 0.023 \text{ W/m}\cdot\text{K}$ @ 50°C**

**semi-flexible pipes (SL): thermal conductivity $\leq 0.030 \text{ W/m}\cdot\text{K}$ @ 50°C; both λ_{cecl}

Flexalen® PU Heat losses

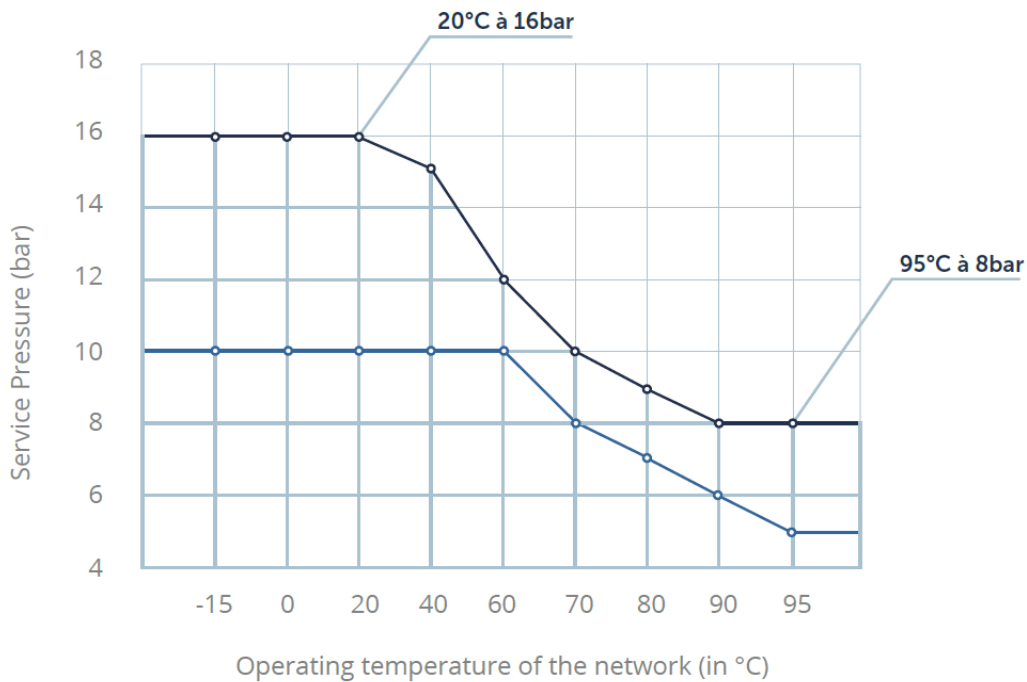
Heat loss q [W/m] for one Single line					
Flexalen® PU Single line	Operating temperature T [°C]				
	40°C	50°C	60°C	70°C	80°C
25 / 91	2.93	4.00	5.11	6.27	7.48
32 / 91	3.61	4.92	6.29	7.71	9.19
40 / 111	3.66	4.99	6.38	7.83	9.33
50 / 126	4.02	5.49	7.01	8.60	10.25
63 / 142	4.55	6.21	7.93	9.73	11.59
75 / 162	4.77	6.50	8.31	10.19	12.14
90 / 182	5.17	7.05	9.01	11.05	13.16
110 / 200 SL	7.67	10.40	13.20	16.09	19.06
125 / 200 SL	9.46	12.81	16.27	19.82	23.46
140 / 225 SL	9.40	12.74	16.17	19.70	23.32
160 / 250 SL	9.93	13.45	17.07	20.79	24.62
225 / 315 SL	12.65	17.12	21.72	26.43	31.28
315 / 450 SL	12.20	16.51	20.95	25.51	30.19

Heat loss q [W/m] for one Double line					
Flexalen® PU Double line	Average operating temperature T [°C]				
	40°C	50°C	60°C	70°C	80°C
25 + 25 / 111	4.37	5.82	7.28	8.74	10.19
32 + 32 / 126	4.79	6.39	7.99	9.59	11.19
40 + 40 / 142	5.27	7.03	8.79	10.54	12.30
50 + 50 / 182	5.20	6.93	8.66	10.40	12.13
63 + 63 / 202	5.94	7.92	9.90	11.88	13.85
75 + 75 / 202	7.72	10.29	12.87	15.44	18.01

Calculation parameter

λ_{soil} :	1.00 W/m·K
R soil surface to ambient air:	0.0685 m ² ·K/W
T _{soil} :	10.0 °C
Soil covering:	0.8 m

Flexalen® PU Pressure rating

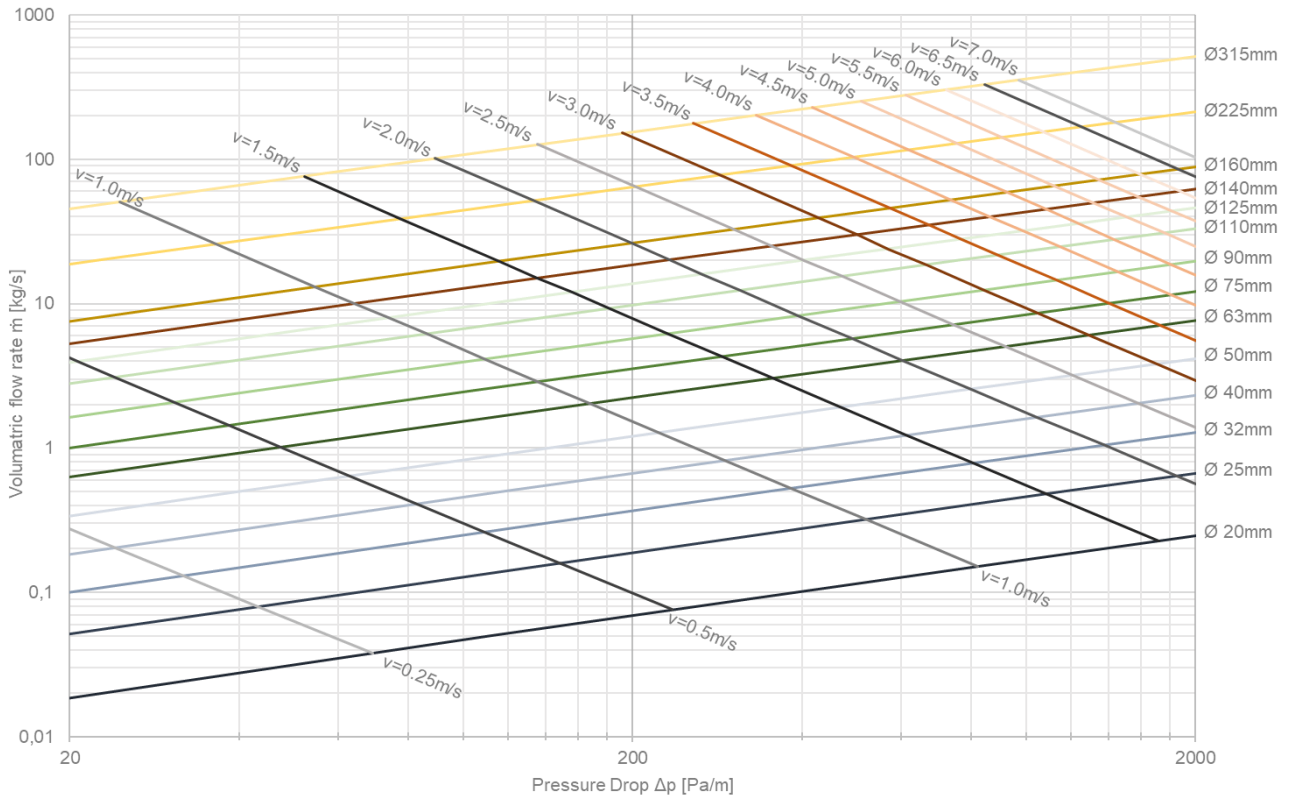


- Up to OD110 20°C/16 bar 95°C/8 bar
- ≥ OD125 20°C/10 bar 95°C/5 bar

Flexalen® PU Pressure drop PB

Determine the pressure drop using Flexalen pipe systems at a flow temperature of 90°C (Flow line). For medium temperature of 60°C the pressure drop is around 10% higher.

For support on a complete district heating network design please contact your Thermaflex partner!



Availability

Single line						
Product code	Dimension	Service pipe OD x s [mm]	Jacket pipe OD [mm]	Weight [kg/m]	min. bending radius [m]	max. length [m]
1210-091025-001	25 / 91	25 x 2.3	91	1.22	0.55	570
1210-091032-001	32 / 91	32 x 3.0	91	1.30	0.55	570
1210-111040-001	40 / 111	40 x 3.7	111	1.80	0.60	410
1210-126050-001	50 / 126	50 x 4.6	126	2.32	1.00	300
1210-142063-001	63 / 142	63 x 5.8	142	3.00	1.00	225
1921-140063-030	63 / 140 SL ^{1,2}	63 x 5.8	140	3.00	12.00	11.8
1210-162075-001	75 / 162	75 x 6.8	162	3.85	1.10	150
1921-160075-030	75 / 160 SL ^{1,2}	75 x 6.8	160	3.85	12.00	11.8
1210-182090-001	90 / 182	90 x 8.2	182	4.90	1.30	86
1921-180090-030	90 / 180 SL ^{1,2}	90 x 8.2	180	4.90	16.00	11.8
1920-200110-030	110 / 200 SL ¹	110 x 10.0	200	6.30	16.00	11.8
1920-200125-030	125 / 200 SL ¹	125 x 11.4	200	7.40	16.00	11.8
1920-225140-030	140 / 225 SL ¹	140 x 12.7	225	9.00	18.00	11.8
1920-250160-030	160 / 250 SL ¹	160 x 14.6	250	11.70	20.00	11.8
1920-315225-010	225 / 315 SL ¹	225 x 20.5	315	22.00	26.00	5.8
1920-315225-030	225 / 315 SL ¹	225 x 20.5	315	22.00	26.00	11.8
1920-450315-005	315 / 450 SL ^{1,3}	315 x 28.6	450	36.00	--	3.0

¹ semi-flexible pipe system, straight lengths (available in sticks) ² on request ³ on request - MOQ 67 pcs. / 201m

Double line						
Product code	Dimension	Service pipe OD x s [mm]	Jacket pipe OD [mm]	Weight [kg/m]	min. bending radius [m]	max. length [m]
1230-111025-001	25 + 25 / 111	25 x 2.3	111	1.73	0.60	410
1230-126032-001	32 + 32 / 126	32 x 3.0	126	2.23	1.00	300
1230-142040-001	40 + 40 / 142	40 x 3.7	142	2.85	1.00	225
1230-182050-001	50 + 50 / 182	50 x 4.6	182	4.31	1.30	86
1230-202063-001	63 + 63 / 202	63 x 5.8	202	5.44	1.40	80
1230-202075-001	75 + 75 / 202	75 x 6.8	202	6.27	1.40	80

- FlexaLink, prefabricated house connections
- All types of homogenous plastic welded Prefabrications
- Full range of weldable PB fittings
- Compression fitting system
- Full range of accessories and tools

