

# Flexalen<sup>®</sup> PU

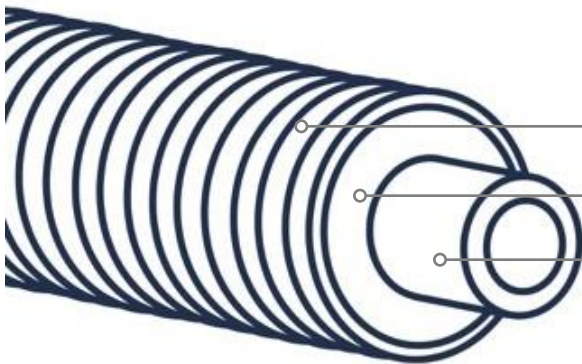
Pre-insulated piping system by Thermaflex<sup>®</sup>

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<sup>®</sup> 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 Casing pipe**  
Flexibility and mechanical protection

**PUR foam**  
Closed-cell, CFC-free

**Polybutene service pipe, PB-H**  
With EVOH layer

### Applications

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

## Technical Properties

Flexalen<sup>®</sup> 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 (DOC), QB08 certified (CSTB) 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-H 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<sup>®</sup> PU Pressure rating.

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

\*\*semi-flexible pipes (SL): thermal conductivity  $\leq 0.030$  W/m·K @ 50°C; both  $\lambda_{DECL}$

## Flexalen® PU Heat losses

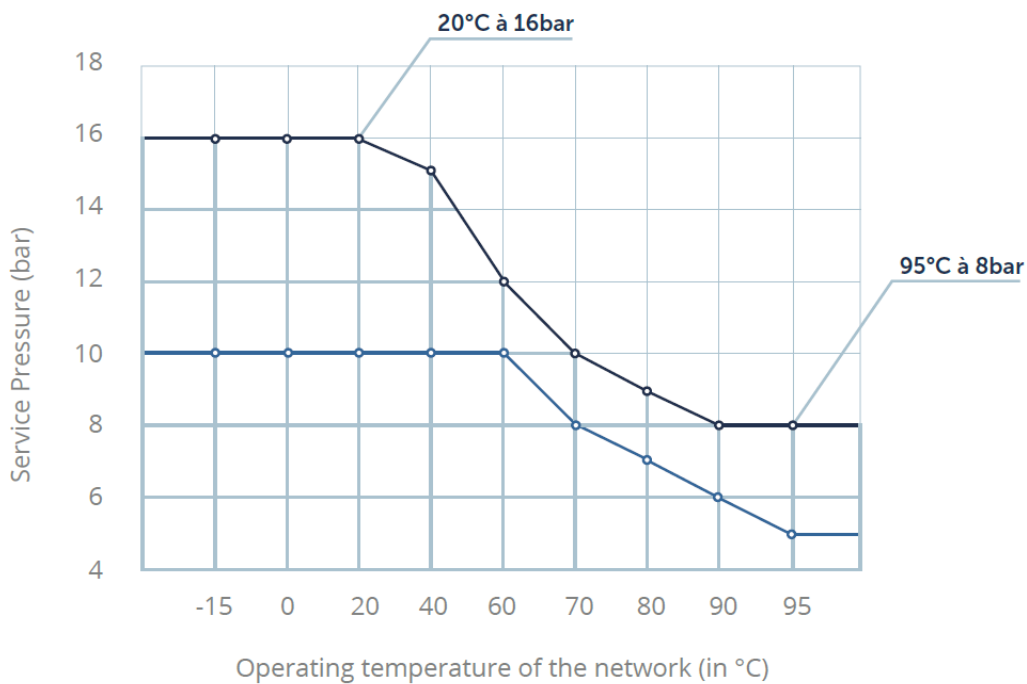
Heat loss q [W/m] for one Single line					
Flexalen® PU Single line	Operating temperature T [°C]				
	40°C	50°C	60°C	70°C	80°C
25 / 91	2.9	4.0	5.1	6.3	7.5
32 / 91	3.6	4.9	6.3	7.7	9.2
40 / 111	3.7	5.0	6.4	7.8	9.3
50 / 126	4.0	5.5	7.0	8.6	10.3
63 / 142	4.6	6.2	7.9	9.7	11.6
75 / 162	4.8	6.5	8.3	10.2	12.1
90 / 182	5.2	7.1	9.0	11.1	13.2
110 / 200 SL	7.7	10.4	13.2	16.1	19.1
125 / 200 SL	9.5	12.8	16.3	19.8	23.5
140 / 225 SL	9.4	12.7	16.2	19.7	23.3
160 / 250 SL	9.9	13.5	17.1	20.8	24.6
225 / 315 SL	12.7	17.1	21.7	26.4	31.3
315 / 450 SL	12.2	16.5	21.0	25.5	30.2

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	4.4	5.8	7.3	8.7	10.2
32 + 32 / 126	4.8	6.4	8.0	9.6	11.2
40 + 40 / 142	5.3	7.0	8.8	10.5	12.3
50 + 50 / 182	5.2	6.9	8.7	10.4	12.1
63 + 63 / 202	5.9	7.9	9.9	11.9	13.9
75 + 75 / 202	7.7	10.3	12.9	15.4	18.0

### Calculation parameter

$\lambda_{\text{soil}}$ :	1.00 W/m·K
R soil surface to ambient air:	0.0685 m <sup>2</sup> ·K/W
T <sub>soil</sub> :	10.0 °C
Soil covering:	0.8 m

## Flexalen® PU Pressure rating

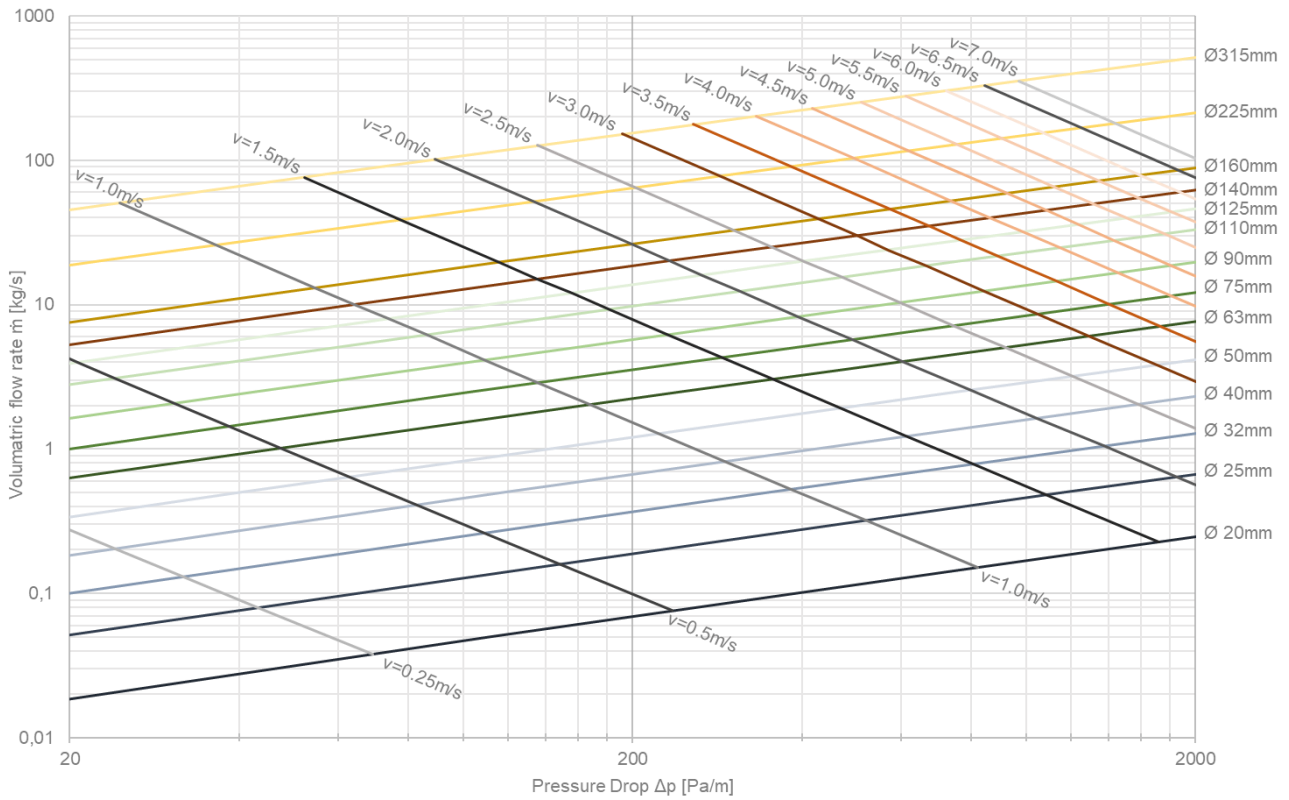


- Up to OD110 20°C/16 bar 95°C/8 bar
- ≥ OD125 20°C/10 bar 95°C/5 bar

## Flexalen® PU Pressure drop PB

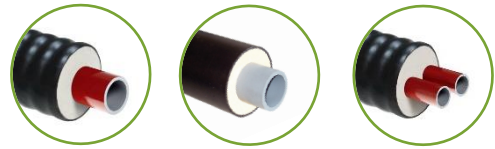
Determine the pressure drop using Flexalen pipe systems at a flow temperature of 90°C (Flow line). For lower medium temperatures the pressure drop is higher: e.g. for 60°C 10%; for 10°C 20% higher.

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



# Availability

- Single lines on coils, Flexalen PU OD25-90mm
- Single lines in sticks, Flexalen PU SL with corrugated (OD63, 75, 90mm) or smooth (OD110-315 mm) casing pipe
- Double lines on coils, Flexalen PU OD25-75 mm



Single line						
Product code	Dimension	Service pipe OD x s [mm]	Casing 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 <sup>1,2</sup>	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 <sup>1,2</sup>	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 <sup>1,2</sup>	90 x 8.2	180	4.90	16.00	11.8
1920-200110-030	110 / 200 SL <sup>1</sup>	110 x 10.0	200	6.30	16.00	11.8
1920-200125-030	125 / 200 SL <sup>1</sup>	125 x 11.4	200	7.40	16.00	11.8
1920-225140-030	140 / 225 SL <sup>1</sup>	140 x 12.7	225	9.00	18.00	11.8
1920-250160-030	160 / 250 SL <sup>1</sup>	160 x 14.6	250	11.70	20.00	11.8
1920-315225-010	225 / 315 SL <sup>1</sup>	225 x 20.5	315	22.00	26.00	5.8
1920-315225-030	225 / 315 SL <sup>1</sup>	225 x 20.5	315	22.00	26.00	11.8
1920-450315-005	315 / 450 SL <sup>1</sup>	315 x 28.6	450	36.00	-	3.0
1920-450315-010	315 / 450 SL <sup>1</sup>	315 x 28.6	450	36.00	-	6.0

Note: OD110-315 without EVOH layer <sup>1</sup> semi-flexible pipe system, straight lengths (available in sticks) <sup>2</sup> on request

Double line						
Product code	Dimension	Service pipe OD x s [mm]	Casing 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 <sup>3</sup>	75 x 6.8	202	6.27	1.40	80

<sup>3</sup> on request and only recommended to use for A-B connections

- 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

