

# Flexalen® PU

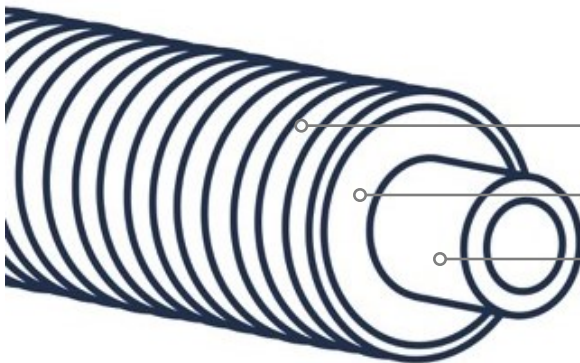
Pre-insulated piping system by Thermaflex®

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 / HDPE 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® 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
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 $\lambda \leq 0.022$ W/m·K @ 50°C**

\*\*semi-flexible pipes (SL): Thermal Conductivity  $\leq 0.029$  W/m·K @ 50°C; both  $\lambda_{DECL}$

### Disclaimer

All recommendations and information provided on this data sheet are based on our knowledge and experience. Product specifications are intended as guidelines. Since conditions of service are beyond our control, users must satisfy themselves that products are suitable for the intended use. No guarantee or warranty is given or implied or that any use of products will not infringe rights belonging to other parties. We reserve the right to change product design and properties without notification.



# Flexalen® PU Heat losses

**Heat loss q [W/m] for one Single line**

Flexalen® PU Single line	Operating temperature T of the flow or return line [°C]							
	20°C	30°C	40°C	50°C	60°C	70°C	80°C	90°C
25 / 91	1.03	2.06	3.09	4.12	5.15	6.18	7.20	8.23
32 / 91	1.26	2.53	3.79	5.05	6.32	7.58	8.84	10.10
40 / 111	1.28	2.57	3.85	5.13	6.41	7.70	8.98	10.26
50 / 126	1.41	2.82	4.23	5.64	7.05	8.46	9.87	11.28
63 / 142	1.61	3.21	4.82	6.43	8.04	9.64	11.25	12.86
75 / 162	1.68	3.37	5.05	6.74	8.42	10.11	11.79	13.48
90 / 182	1.83	3.65	5.48	7.30	9.13	10.95	12.78	14.61
110 / 200 SL	2.66	5.33	7.99	10.65	13.31	15.98	18.64	21.30
125 / 200 SL	3.27	6.55	9.82	13.10	16.37	19.64	22.92	26.19
140 / 225 SL	3.26	6.51	9.77	13.03	16.28	19.54	22.80	26.06
160 / 250 SL	3.44	6.87	10.31	13.75	17.18	20.62	24.06	27.50
225 / 315 SL	4.37	8.74	13.10	17.47	21.84	26.21	30.58	34.94
315 / 450 SL	4.22	8.45	12.67	16.89	21.11	25.34	29.56	33.78

**Heat loss q [W/m] for one Double line**

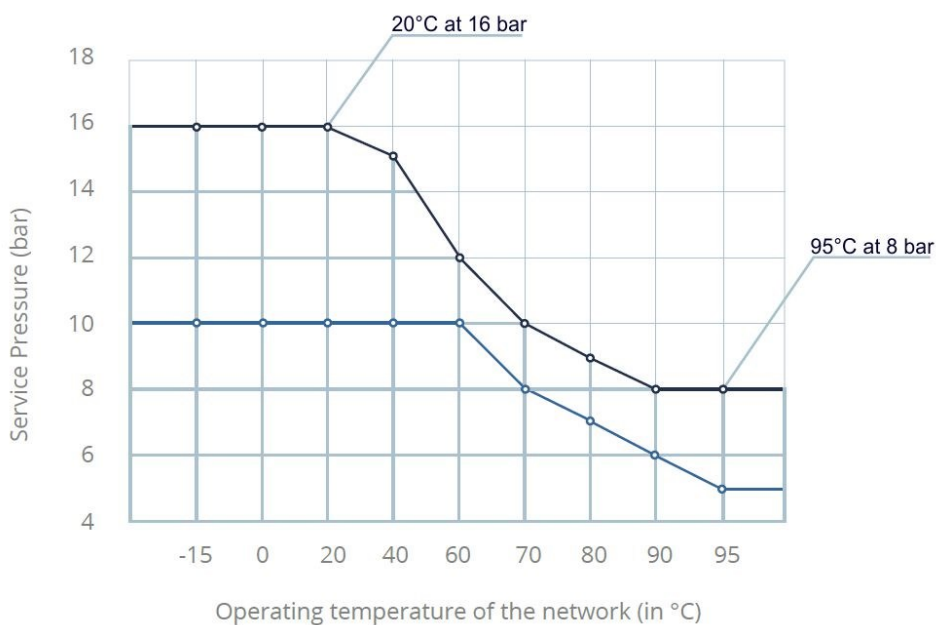
Flexalen® PU Double line	Average operating temperature T of the flow and return line [°C]					
	30°C	40°C	50°C	60°C	70°C	80°C
25 + 25 / 111	2.89	4.33	5.77	7.22	8.66	10.10
32 + 32 / 126	3.23	4.84	6.46	8.07	9.68	11.30
40 + 40 / 142	3.66	5.49	7.33	9.16	10.99	12.82
50 + 50 / 182	3.44	5.15	6.87	8.59	10.31	12.02
63 + 63 / 202	4.05	6.08	8.10	10.13	12.15	14.18
75 + 75 / 202	5.65	8.48	11.31	14.14	16.96	19.79

**Calculation parameter**

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

The heat loss characteristics are in accordance with the European standard for flexible heating pipes systems EN15632.

# Flexalen® PU Pressure rating



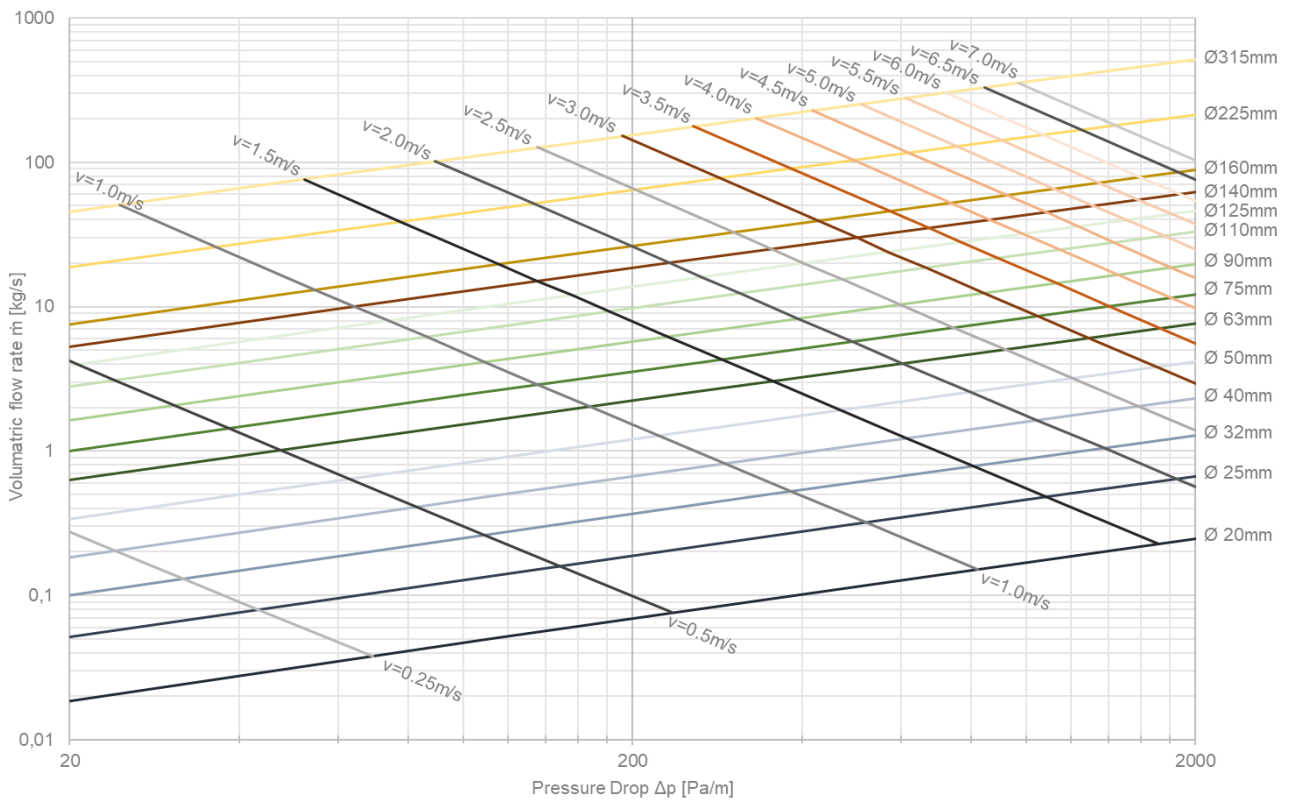
- Up to OD110 20°C/16 bar 95°C/8 bar
- ≥ OD125 20°C/10 bar 95°C/5 bar



# 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.

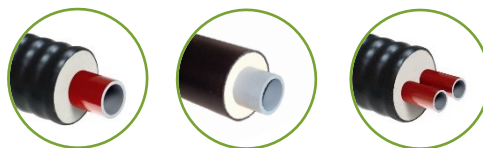
For support on a complete district heating network design please contact your Thermaflex partner!





# Availability

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



Single line						
Product code	Dimension [mm]	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 [mm]	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

- 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

