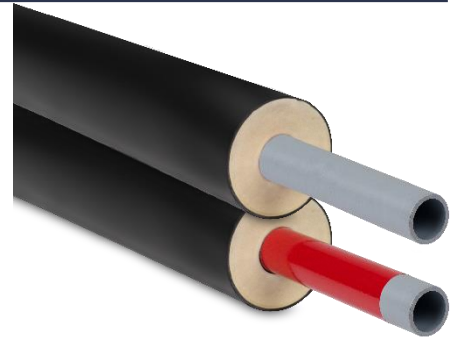


# Flexalen® PU SL

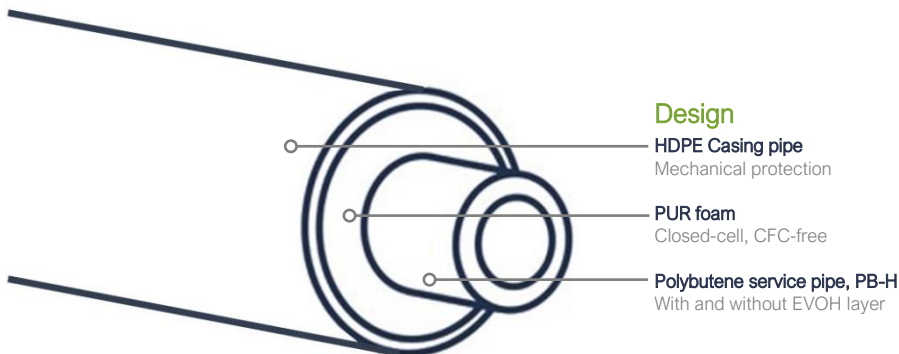
Pre-insulated piping system by Thermaflex®

High performance, pre-insulated plastic pipe system for heating and cooling applications



## Benefits

- High 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 high insulation class of main lines with the most flexible house connection lines
- Safest choice with homogeneous welding and high-pressure rating 95°C/8bar (depending on the diameter, see Flexalen® PU ressure rating), for increased reliability



## Applications

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

## Technical Properties

Flexalen® PU SL is a pre-insulated plastic pipe system. The PB service pipes are conform to EN-ISO 15876. The PUR foam and HDPE casing pipe of the pre-insulated pipes fulfil the functional requirements according EN253.



PB-H service pipe (EN-ISO 15876)	
Service temperature	-10°C to +95°C
Max. operating pressure	<125 OD 8bar*(95°C) >125 OD 5bar*(95°C)

Thermal Insulation
PUR foam, CFC-free
Closed-cell structure
Thermal Conductivity $\lambda \leq 0.021$ W/m·K @ 50°C

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

### 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 the products will not infringe rights belonging to other parties. We reserve the right to change product design and properties without notification.

# Heating Application



## Flexalen® PU SL Heat losses

### Calculation parameter

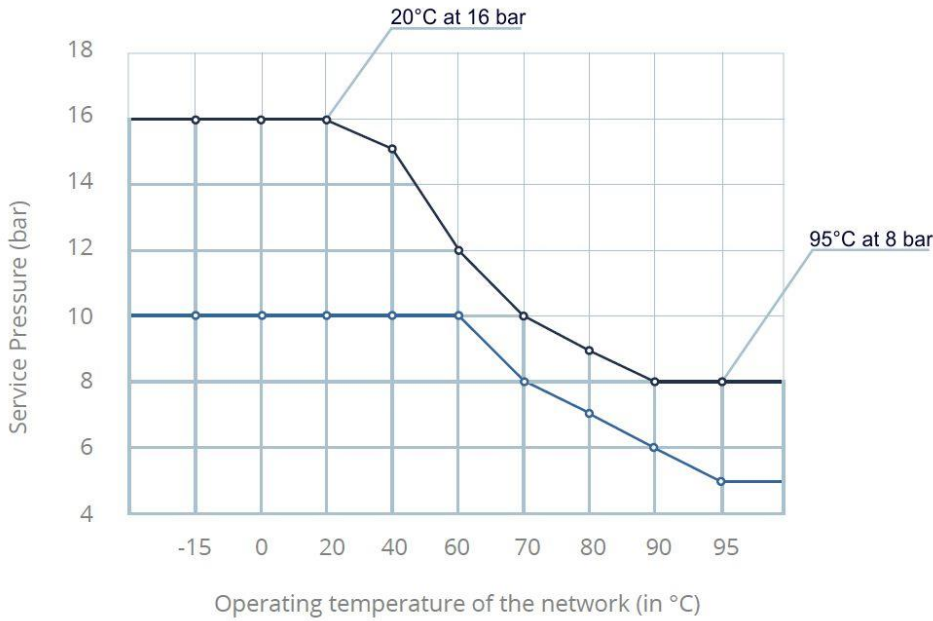
$\lambda_{\text{soil}}$ :	1.00 W/m·K
R soil surface to ambient air:	0.0685 m <sup>2</sup> ·K/W
$T_{\text{soil}}$ :	10.0 °C
Soil covering:	0.8 m

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

Heat loss Q [W/m] for Flexalen® PU SL Single line										
Dimensions	U-value [W/mK]	Insulation Class	Insulation Series	Temperature difference [DT] between the waterflow in the pipe and surrounding ground [°C]						
				Q=U*DT [W/m]						
				DT=10	DT=20	DT=30	DT=40	DT=50	DT=60	DT=70
40 / 110	0.125	6	1	1.25	2.50	3.75	5.01	6.26	7.51	8.76
50 / 125	0.137	6	2	1.37	2.74	4.11	5.48	6.85	8.22	9.59
63 / 140	0.158	6	2	1.58	3.16	4.75	6.33	7.91	9.49	11.07
63 / 160	0.136	6	3	1.36	2.71	4.07	5.43	6.79	8.14	9.50
75 / 160	0.165	6	2	1.65	3.31	4.96	6.62	8.27	9.92	11.58
75 / 180	0.144	6	3	1.44	2.87	4.31	5.74	7.18	8.62	10.05
90 / 180	0.179	6	2	1.79	3.58	5.37	7.17	8.96	10.75	12.54
90 / 200	0.156	6	3	1.56	3.13	4.69	6.25	7.81	9.38	10.94
110 / 200	0.205	6	1	2.05	4.10	6.15	8.20	10.25	12.30	14.35
110 / 250	0.153	6	3	1.53	3.06	4.59	6.12	7.65	9.18	10.71
125 / 250	0.180	6	3	1.80	3.59	5.39	7.18	8.98	10.78	12.57
140 / 280	0.180	6	3	1.80	3.60	5.40	7.20	9.00	10.80	12.59
160 / 315	0.186	6	3	1.86	3.71	5.57	7.43	9.29	11.14	13.00
225 / 400	0.217	6	3	2.17	4.34	6.50	8.67	10.84	13.01	15.18
315 / 450	0.336	6	1	3.36	6.73	10.09	13.45	16.82	20.18	23.54

Heat loss Q [W/m] for Flexalen® PU SL Double line								
Dimensions	U-value [W/mK]	Temperature difference [DT] between the waterflow in the pipe and surrounding ground [°C]						
		Q=U*DT [W/m]						
		DT=10	DT=20	DT=30	DT=40	DT=50	DT=60	DT=70
25+25 / 110	0.165	1.65	3.30	4.94	6.59	8.24	9.89	11.54
32 + 32 / 125	0.182	1.82	3.64	5.46	7.28	9.10	10.92	12.74
40 + 40 / 140	0.205	2.05	4.10	6.15	8.20	10.24	12.29	14.34
50 + 50 / 180	0.187	1.87	3.74	5.61	7.48	9.35	11.22	13.09
63 + 63 / 200	0.222	2.22	4.44	6.66	8.88	11.10	13.32	15.55
75+75 / 250	0.200	2.00	3.99	5.99	7.99	9.98	11.98	13.98
90+90 / 280	0.229	2.29	4.58	6.87	9.16	11.45	13.74	16.03
25+25 / 160	0.110	1.10	2.21	3.31	4.41	5.51	6.62	7.72
32+32 / 180	0.119	1.19	2.37	3.56	4.74	5.93	7.11	8.30
40+40 / 200	0.128	1.28	2.56	3.85	5.13	6.41	7.69	8.97
50+50 / 200	0.160	1.60	3.20	4.80	6.40	8.00	9.60	11.20
63+63 / 250	0.157	1.57	3.15	4.72	6.29	7.86	9.44	11.01
75+75 / 280	0.168	1.68	3.36	5.04	6.72	8.41	10.09	11.77
90+90 / 315	0.188	1.88	3.75	5.63	7.51	9.38	11.26	13.13

# Flexalen® PU SL Pressure rating

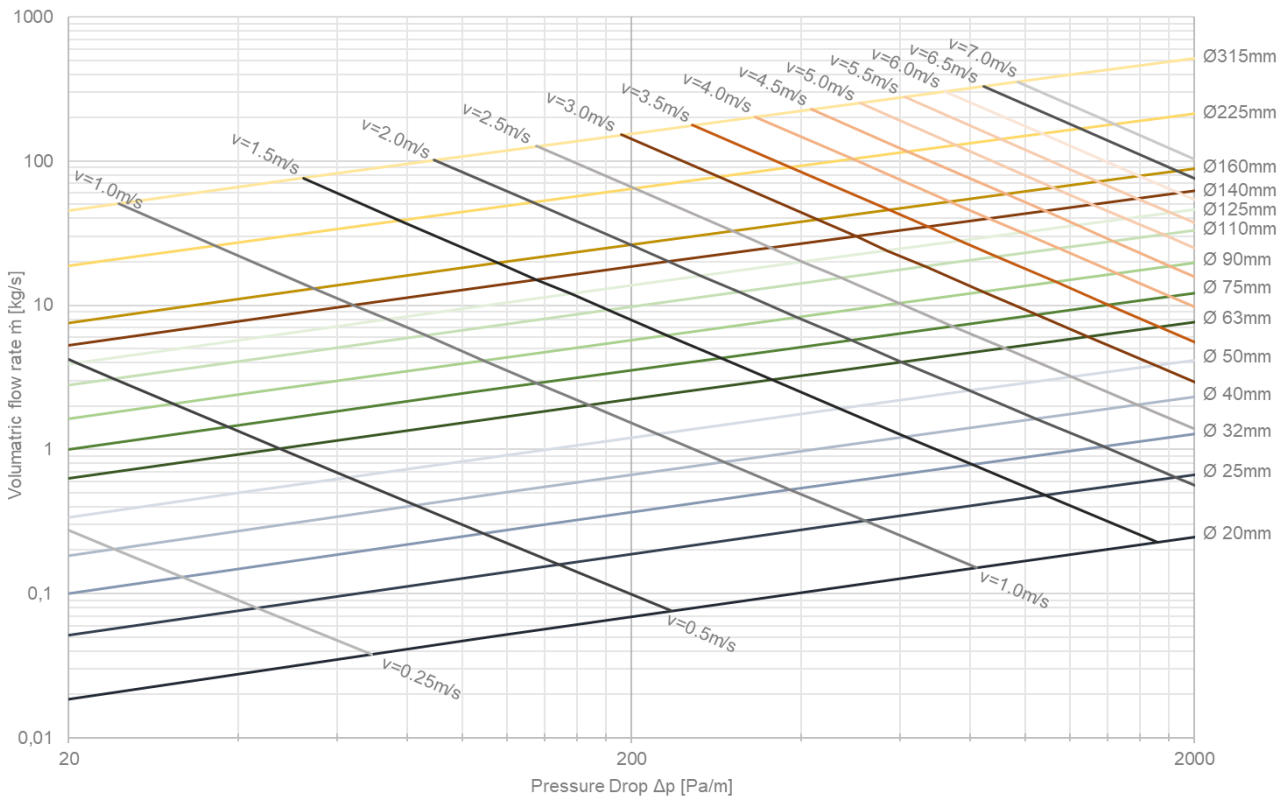


- Up to OD110 20°C/16 bar 95°C/8 bar
- ≥ OD125 20°C/10 bar 95°C/5 bar

# Flexalen® PU SL 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% higher.

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



# Cooling Application



## Flexalen® PU SL Heat loss/gain

### Calculation parameter

$\lambda_{\text{soil}}$ : 1.00 W/m-K  
 R soil surface to ambient air: 0.0685 m<sup>2</sup>-K/W  
 Soil covering: 0.8 m

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

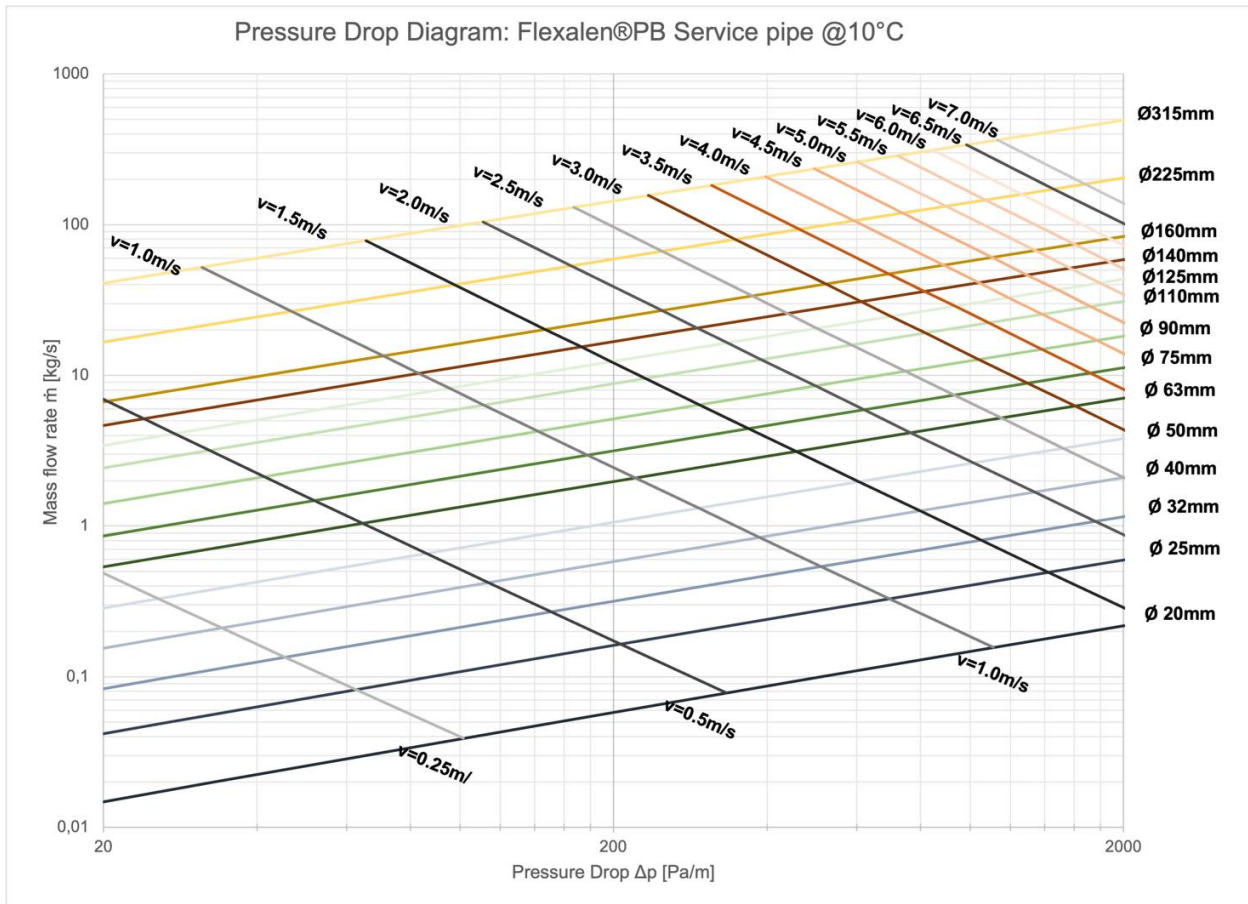
Heat loss/gain q [W/m] at 6°C medium temp.					
	Soil temperature T [°C]				
	11°C	16°C	21°C	26°C	31°C
40 / 110	-0.63	-1.25	-1.88	-2.50	-3.13
50 / 125	-0.68	-1.37	-2.05	-2.74	-3.42
63 / 140	-0.79	-1.58	-2.37	-3.16	-3.96
63 / 160	-0.68	-1.36	-2.04	-2.71	-3.39
75 / 160	-0.83	-1.65	-2.48	-3.31	-4.13
75 / 180	-0.72	-1.44	-2.15	-2.87	-3.59
90 / 180	-0.90	-1.79	-2.69	-3.58	-4.48
90 / 200	-0.78	-1.56	-2.34	-3.13	-3.91
110 / 200	-1.03	-2.05	-3.08	-4.10	-5.13
110 / 250	-0.76	-1.53	-2.29	-3.06	-3.82
125 / 250	-0.90	-1.80	-2.69	-3.59	-4.49
140 / 280	-0.90	-1.80	-2.70	-3.60	-4.50
160 / 315	-0.93	-1.86	-2.79	-3.71	-4.64
225 / 400	-1.08	-2.17	-3.25	-4.34	-5.42
315 / 450	-1.68	-3.36	-5.05	-6.73	-8.41

Heat loss/gain q [W/m] at 12°C medium temp.				
	Soil temperature T [°C]			
	17°C	22°C	27°C	25°C
40 / 110	-0.63	-1.25	-1.88	-2.50
50 / 125	-0.68	-1.37	-2.05	-2.74
63 / 140	-0.79	-1.58	-2.37	-3.16
63 / 160	-0.68	-1.36	-2.04	-2.71
75 / 160	-0.83	-1.65	-2.48	-3.31
75 / 180	-0.72	-1.44	-2.15	-2.87
90 / 180	-0.90	-1.79	-2.69	-3.58
90 / 200	-0.78	-1.56	-2.34	-3.13
110 / 200	-1.03	-2.05	-3.08	-4.10
110 / 250	-0.76	-1.53	-2.29	-3.06
125 / 250	-0.90	-1.80	-2.69	-3.59
140 / 280	-0.90	-1.80	-2.70	-3.60
160 / 315	-0.93	-1.86	-2.79	-3.71
225 / 400	-1.08	-2.17	-3.25	-4.34
315 / 450	-1.68	-3.36	-5.05	-6.73

# Flexalen® PU Pressure drop PB



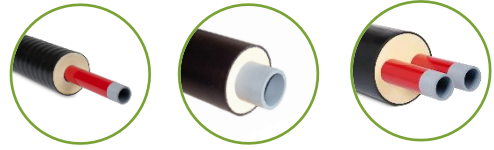
Determine the pressure drop using Flexalen PB pipe systems at a temperature of 10°C for District cooling systems. For support on a complete district heating network design please contact your Thermaflex partner!





## Availability

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



Single line					
Product code	Dimension [mm]	Service pipe OD x s [mm]	Casing pipe OD [mm]	Weight [kg/m]	Max. length [m]
<b>With Oxygen Barrier</b>					
1921-110040-015	40 / 110	40 x 3.7	110	1.83	5.8
1921-125050-015	50 / 125	50 x 4.6	125	2.33	5.8
1921-140063-015	63 / 140	63 x 5.8	140	2.99	5.8
1921-140063-030	63 / 140	63 x 5.8	140	2.99	11.8
1921-160063-015	63 / 160	63 x 5.8	160	3.42	5.8
1921-160063-030	63 / 160	63 x 5.8	160	3.42	11.8
1921-160075-015	75 / 160	75 x 6.8	160	3.81	5.8
1921-160075-030	75 / 160	75 x 6.8	160	3.81	11.8
1921-180075-015	75 / 180	75 x 6.8	180	4.28	5.8
1921-180075-030	75 / 180	75 x 6.8	180	4.28	11.8
1921-180090-015	90 / 180	90 x 8.2	180	4.89	5.8
1921-180090-030	90 / 180	90 x 8.2	180	4.89	11.8
1921-200090-015	90 / 200	90 x 8.2	200	5.49	5.8
1921-200090-030	90 / 200	90 x 8.2	200	5.49	11.8
<b>Without Oxygen Barrier</b>					
1920-160075-030	75/160	75 x 6.8	160	3.81	11.8
1920-200110-030	110 / 200	110 x 10.0	200	6.46	11.8
1920-250110-030	110 / 250	110 x 10.0	250	8.17	11.8
1920-250125-030	125 / 250	125 x 11.4	250	9.04	11.8
1920-280140-030	140 / 280	140 x 12.7	280	11.21	11.8
1920-315160-030	160 / 315	160 x 14.6	315	14.17	11.8
1920-315160-015	160 / 315	160 x 14.6	315	14.17	5.8
1920-400225-010	225 / 400	225 x 20.5	400	24.66	5.8
1920-450315-005	315 / 450	315 x 28.6	450	39.46	3



### Double line with Oxygen Barrier

Product code	Dimension [mm]	Service pipe OD x s [mm]	Casing pipe OD [mm]	Weight [kg/m]	Max. length [m]
1922-110025-015	25 + 25 / 110	25 x 2.3	110	1.74	5.8
1922-125032-015	32 + 32 / 125	32 x 2.9	125	2.21	5.8
1922-140040-015	40 + 40 / 140	40 x 3.7	140	2.81	5.8
1922-180050-015	50 + 50 / 180	50 x 4.6	180	4.14	5.8
1922-200063-015	63 + 63 / 200	63 x 5.8	200	5.47	5.8
1922-250075-015	75 + 75 / 250	75 x 6.8	250	7.95	5.8
1922-280090-015	90 + 90 / 280	90 x 8.2	280	10.40	5.8
1922-160025-015	25 + 25 / 160	25 x 2.3	160	2.75	5.8
1922-180032-015	32 + 32 / 180	32 x 2.9	180	3.41	5.8
1922-200040-015	40 + 40 / 200	40 x 3.7	200	4.31	5.8
1922-200050-015	50 + 50 / 200	50 x 4.6	200	4.75	5.8
1922-250063-015	63 + 63 / 250	63 x 5.8	250	7.18	5.8
1922-280075-015	75 + 75 / 280	75 x 6.8	280	9.18	5.8
1922-315090-015	90 + 90 / 315	90 x 8.2	315	11.86	5.8

- 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

