

Flexalen[®] PB Pipes

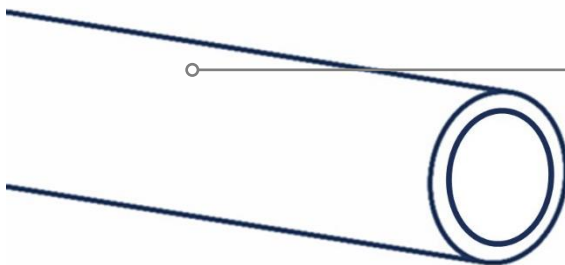
Piping system by Thermaflex[®]

Flexible polybutene service pipes for sanitary and thermal network solutions



Benefits

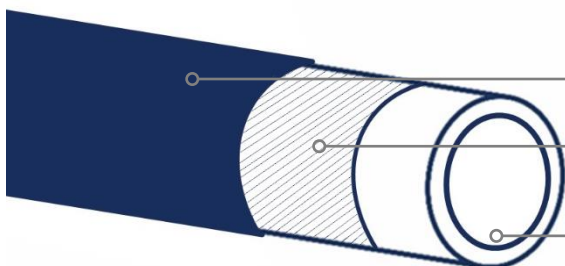
- Long-life performance, high-pressure rating 95°C/8bar and very good acoustic properties
- Ultra-flexibility – small bending radius especially in the small diameters
- Large product range from OD20 - OD315mm
- Multiple connection techniques including homogeneous welded joints
- Best for mechanical fitting systems due to excellent creep behavior
- The only Cradle to Cradle[™] certified pipe system in the world



Design PB Grey
Polybutene service pipe, PB-H
without oxygen barrier

Applications

- All domestic hot-, cold water and plumbing applications
- Drinking water
- Geothermal water
- Compressed air



Design PB Red
EVOH layer
oxygen barrier
Adhesive
ensures secure bonding of polybutene to barrier layer
Polybutene service pipe, PB-H

Applications

- Heating
- Underfloor heating
- Local district heating and cooling networks

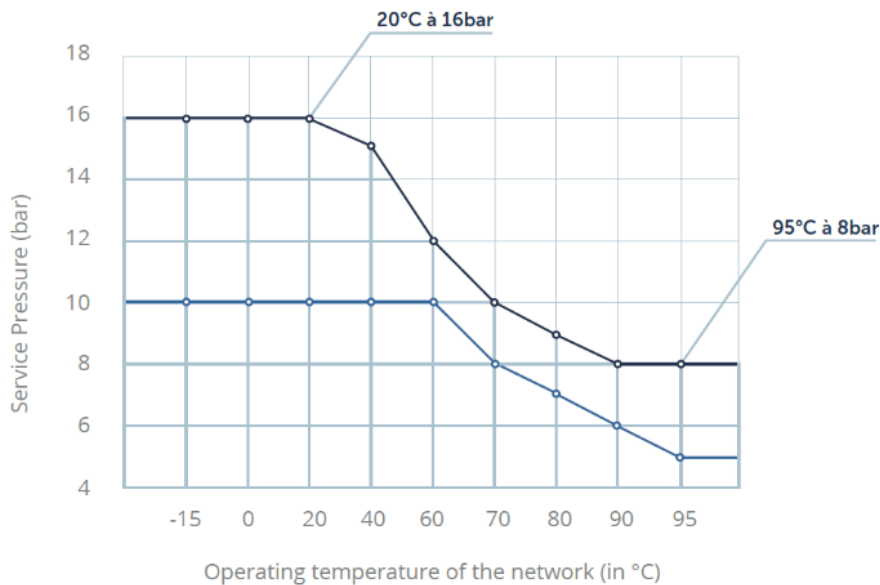


Technical Properties

Flexalen® PB is a Polybutene homopolymer (PB-H) service pipe suitable for cold- and hot water as well as heating applications. The flexible Flexalen® PB service pipes are produced according EN ISO 15876 – 1,2 and third party controlled by KIWA. They also fulfill several national drinking water requirements like WRAS, DWVG / KTW, KIWA / ATA, ACS and many more.

Properties	Units SI	Values	Standard requirement	Testing method
Physical properties				
Melt Flow Rate MRF 190°C/2.16 kg	dg/min	0.4		ISO 1133-1
Density	g/cm ³	0.938		ISO 1183-1
Mechanical properties				
Flexural Elastic Modulus	MPa	450		ISO 178
Tensile strength at yield	MPa	17		ISO8986-2
Tensile strength at break	MPa	30		ISO8986-2
Tensile elongation at Break	%	200		ISO8986-2
Thermal properties				
Service Temperature	°C	-15 to 95	Thermafex declaration	-
Thermal conductivity (20°C)	W/(m·K)	0.19		ASTM C177
Coefficient of linear thermal expansion	mm/(m·K)	0.13		ASTM D696
Melt point	°C	131		DSC
Glass transition temperature	°C	-16		DMTA
Fire classification	-	B2	DIN4102-1	DIN50050-1(1/88)
Other properties				
Color	-	grey		EN 13469
Wet abrasion	%	1		Sand Slurry Test, 23°C, 100h
Surface roughness of pipe	mm	0.007		
Oxygen tightness (PB-H service pipes 25-90 with EVOH, 110 - 315 without)	mg/m ² d @ 80°C	< 1.8	EN15632-3:2010+A1:2014	ISO 17455

Flexalen® PB Pipes Pressure rating

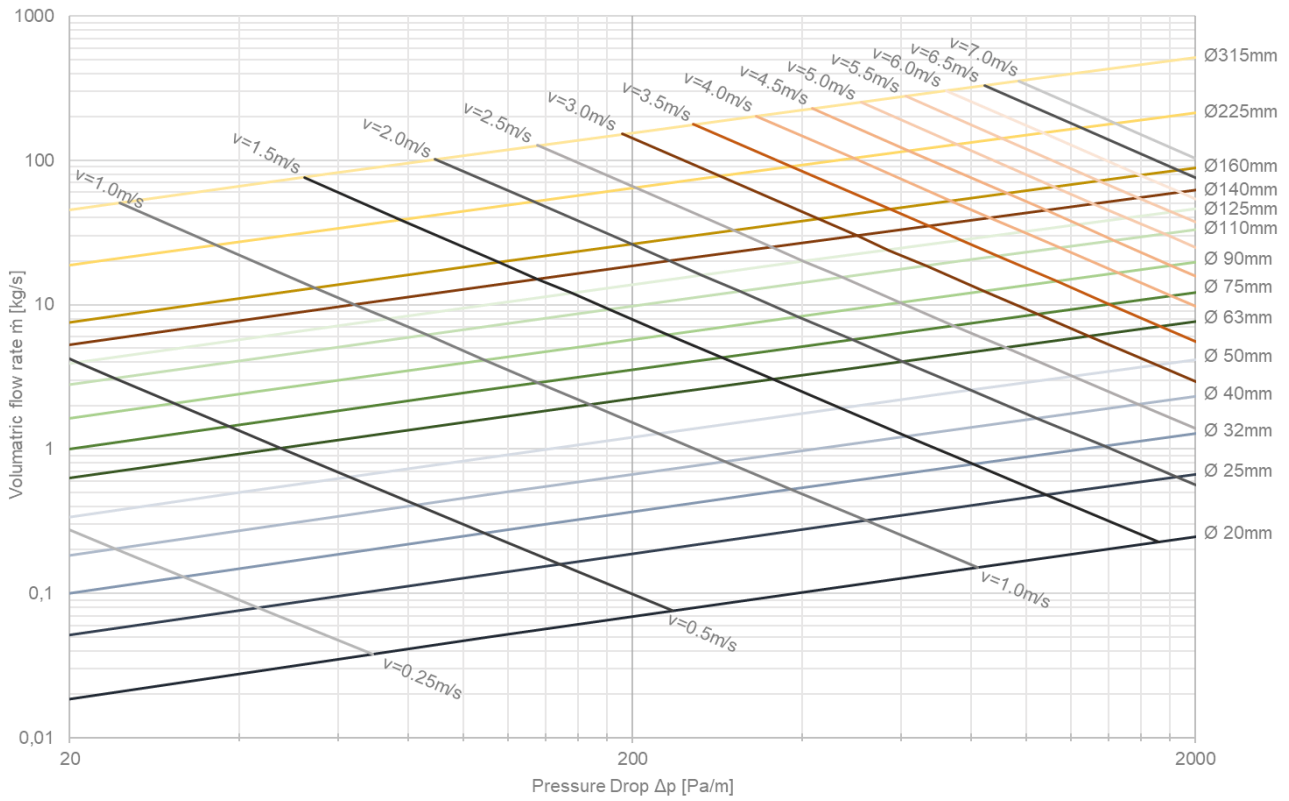


- Up to OD110 20°C/16 bar 95°C/8 bar
- ≥ OD125 20°C/10 bar 95°C/5 bar

Flexalen® PB Pipes Pressure drop

Determine the pressure drop using Flexalen pipe systems at a flow temperature of 90°C (Flow line). For a medium temperature of 60°C the pressure drop is around 10% higher. For a medium temperature of 10°C the pressure drop is around 20% higher.

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



Joining techniques

- Polyfusion socket welding
- Electrofusion socket connections
- Butt fusion welding
- Mechanical fittings



Availability

- Sticks, PB Pipes in straight length, uncoiled
- PB Pipe Package, 1.5m sticks in different sales units
- Coils with inner diameter of 1.5m



Without EVOH layer – Sticks, PB Pipe Packages and Coils

Dimension	OD x s [mm]	SDR class	Weight [kg/m]	min. bending radius [mm]	Product version - stick			Product version - coil	
					Length [m]	Sales unit [pcs]	Product code	Length [m]	Product code
20	20 x 2.8	7.4	0.14	200	5.8	1	1301-020000-010	102	1302-020000-102
								400	1302-020000-400
25	25 x 2.3	11	0.15	250	1.5	4	1301-025000-002	102	1302-025000-102
					6.0	1	1301-025000-015	300	1302-025000-300
32	32 x 2.9	11	0.26	320	1.5	4	1301-032000-002	102	1302-032000-102
					6.0	1	1301-032000-015	300	1302-032000-300
40	40 x 3.7	11	0.4	400	1.5	3	1301-040000-002	102	1302-040000-102
					6.0	1	1301-040000-015		
50	50 x 4.6	11	0.62	500	1.5	3	1301-050000-002	102	1302-050000-102
					6.0	1	1301-050000-015		
63	63 x 5.8	11	0.98	630	1.5	2	1301-063000-002	102	1302-063000-102
					6.0	1	1301-063000-015		
75	75 x 6.8	11	1.39	750	1.5	2	1301-075000-002	102	1302-075000-102
					6.0	1	1301-075000-015		
90	90 x 8.2	11	1.98	900	1.5	2	1301-090000-002		
					6.0	1	1301-090000-015		
110	110 x 10.0	11	2.95	1100	1.5	2	1301-110000-002		
					6.0	1	1301-110000-015		
					11.8	1	1301-110000-030		
125	125 x 11.4	11	3.82	1250	6.0	1	1301-125000-015		
					11.8	1	1301-125000-030		
140	140 x 12.7	11	4.77	-	6.0	1	1301-140000-015		
					11.8	1	1301-140000-030		
160	160 x 14.6	11	6.27	-	6.0	1	1301-160000-015		
					11.8	1	1301-160000-030		
225	225 x 20.5	11	12.38	-	5.8	1	1301-225000-010		
					11.8	1	1301-225000-030		
315	315 x 28.6	11	24.16	-	3.0	1	1301-315000-005		

With EVOH layer – Sticks and Coils

Dimension	OD x s [mm]	SDR class	Weight [kg/m]	min. bending radius [mm]	Product version - stick			Product version - coil	
					Length [m]	Sales unit [pcs]	Product code	Length [m]	Product code
25	25 x 2.3	11	0.15	250	6.0	1	1311-025000-015	102	1312-025000-102
								300	1312-025000-300
32	32 x 2.9	11	0.26	320	6.0	1	1311-032000-015		
32	32 x 3.0	11	0.26	320				102	1312-032000-102
								300	1312-032000-300
40	40 x 3.7	11	0.4	400	6.0	1	1311-040000-015	102	1312-040000-102
50	50 x 4.6	11	0.62	500	6.0	1	1311-050000-015	102	1312-050000-102
63	63 x 5.8	11	0.98	630	6.0	1	1311-063000-015	102	1312-063000-102
75	75 x 6.8	11	1.39	750	6.0	1	1311-075000-015	102	1312-075000-102
90	90 x 8.2	11	1.98	900	6.0	1	1311-090000-015		