Product Guide Flexalen™

FLEXENERGY®

INSULATED PIPE SOLUTIONS

www.flexenergy.co.uk











All information herein is a general indication only and not legally binding.
It is subject to change without prior notice.

Depending on local sales offices variations within the product range are possible.

Polybutene – the perfect material

Our carrier pipes are made from Polybutene (PB-1), commercially available and used successfully for over 40 years.

- Temperature range -15° C up to +95° C
- Compression end connections for small, simple jobs
- Completely welded jointing system produces homogenous connections
- No build up of scale and calcification
- Very low resistance / pressure loss due to smooth interior walls
- High chemical resistance (also suitable for Geothermal water)
- Drinking water certification for Polybutene grey with international approvals (e.g. KIWA, CSTB, DVGW)

Electro fusion fitting

PB pipe for potable applications

PB pipe for heating applications

Polyfusion welding fitting

Compression fitting

Lifetime table for PB pipes

The life cycle of plastics mainly depends on the service temperature. The data required for a calculation are the following:

- Running season (winter / summer season)
- Running time (in hrs) with the operating temperature

Assuming a temperature / time profile usual for district heating systems, the pipes have an expected useful life of > 50 years.

If you would like a service life calculation please contact the sales office on 0845 644 3793

Chemical resistance

Polybutene can be used for water-like media and is also suitable for transporting other media.

Because the durability does, however, depend on the temperature and medium, we ask that you contact your respective customer advisor to ask about individual cases.

We are founding members of the Polybutene Piping Systems Association.

Polybutene
Piping Systems Association

Material properties

Polybutene (carrier pipe)

Density	0,940 g/cm³
Melt index	0,4 g/10 min
Stretch tension	20 N/mm²
Tearing strength	35 N/mm²
Tearing expansion	300%
E-module	450 N/mm²
Shore-hardness	D60
Notch ductility	without breakage
Ductility	without breakage
Length expansion coefficient	0,13 mm/mK

Polyethylene (casing pipe)

Stretch tension	22 N/mm²
Tearing strength	32 N/mm²
Tearing expansion	800%
E-module	800 N/mm²
Notch ductility	without breakage
Ductility	without breakage
Length expansion coefficient	0,18 mm/mK

Polyolefine (insulation)

Volume weight	30 – 40 kg/m³
Temperature resistance	-80 up to +95 °C
closed cells	

Polyurethan (insulation)

Volume weight	50 – 80 kg/m³
Temperature resistance	- 40° C up to +110 °C
closed cells	94%
Load resistance	>0,2 N/mm²

Flexibility of plastic pipes

Material	E-module (stiffness) [N/mm²]
PB	450
PE-X	600 (33% stiffer than Polybutene)
PP-R	800 (78% stiffer than Polybutene)

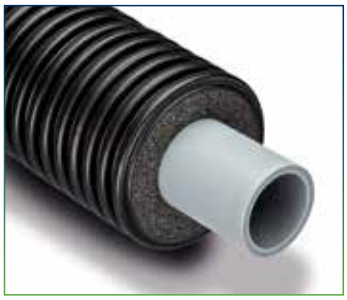
Operating pressure
at +95° C for pipes SDR 11 (z.B. 63 x 5,8)

Material	max. operating pressure [bar / PSI]	
PB	8 bar (116 PSI)	that is 33% higher
PE-X	6 bar (87 PSI)	
PP-R	–	

Did you know! …

that PB is extremely flexible? PB is 25% more flexible than PE-X and 44% more flexible than PP-R!

Flexalen 600™ – the professional pre-insulated pipe



For heating, hot water and thermal pipes up to 95° C and 8 bar.

- Homogeneous connection between insulation and casing pipe
- Closed-cell, water tight Polyolefine insulation
- Polyolefine thermal insulation
- Homogeneous insulation also between double pipes
- Fully weldable system
- Strengthened jacket pipe
- High flexibility at low temperatures
- Continuous quality assurance by third party audits performed by acknowledged certification institute (KIWA)
- Temperature range -15° C up to +95° C
- It satisfies the requirements for sustainable construction

Temperature / Pressure rating

Dimension O.D. 16 – 110 mm

temperature	-15° C	0° C	20° C	40° C	60° C	70° C	80° C	90 °C	95° C
pressure (bar)	16 bar	16 bar	16 bar	15 bar	12 bar	10 bar	9 bar	8 bar	8 bar
pressure (PSI)	232	232	232	218	174	145	131	116	116

Dimension O.D. 125 – 225 mm

temperature	-15 °C	0 °C	20 °C	40 °C	60 °C	70 °C	80 °C	90 °C	95 °C
pressure (bar)	10 bar	10 bar	10 bar	10 bar	10 bar	8 bar	7 bar	6 bar	5 bar
pressure (PSI)	145	145	145	145	145	116	102	87	73

Flexible, pre-insulated pipe system with one carrier pipe for heating and hot water applications

- Homogenous connection between corrugated casing pipe and polyolefine insulation
- High flexibility
- Single pipes O.D.16 – O.D.125
- Pipe system for heating and hot water application
- Temperature range -15° C up to +95° C
- Fully weldable system
- It satisfies the requirements for sustainable construction
- Polyolefine insulation

Product code	DN	Inch	Casing pipe O.D. [mm]	Carrier pipe**		Wall thickness [mm]	No. of carrier pipes	Minimum bending radius [m]	max. length* [m]	Weight [kg/m]
				O.D. [mm]	I.D. [mm]]					
VS-RS40A16	12	½	40	16	11,6	2,2	1	0,16	500	0,25
VS-RS40A20	15	½	40	20	14,4	2,8	1	0,20	500	0,28
VS-RS50A25	20	¾	50	25	20,4	2,3	1	0,30	500	0,37
VS-RS90A25	20	¾	90	25	20,4	2,3	1	0,40	500	0,75
VS-RS63A32	25	1	63	32	26,2	2,9	1	0,40	500	0,58
VS-RS125A32	25	1	125	32	26,2	2,9	1	0,40	300	1,85
VS-RS75A40	32	1 ¼	75	40	32,6	3,7	1	0,50	500	0,86
VS-RS125A40	32	1 ¼	125	40	32,6	3,7	1	0,50	300	1,98
VS-RS90A50	40	1½	90	50	40,8	4,6	1	0,60	500	1,21
VS-RS160A50	40	1 ½	160	50	40,8	4,6	1	0,70	150	2,40
VS-RS125A63	50	2	125	63	51,4	5,8	1	0,80	300	2,43
VS-RS160A63	50	2	160	63	51,4	5,8	1	0,80	150	2,75
VS-RS125A75	65	2 ½	125	75	61,4	6,8	1	0,80	300	2,89
VS-RS160A75	65	2 ½	160	75	61,4	6,8	1	0,80	150	2,97
VS-RS160A90	80	3	160	90	73,6	8,2	1	1,00	150	3,64
VS-R200A110	100	4	200	110	90,0	10,0	1	1,25	110	5,40
VS-R200A125	100	4	200	125	102,2	11,4	1	1,50	80	6,38

*) Any length within the maximum delivery length can be delivered, rounded up to the nearest whole metre.
**) The dimensions for the PB pipes refer to the pressure stage 8 bar at +95° C.

Temperature / Pressure rating

Dimension O.D. 16 – 110 mm

temperature	-15° C	0° C	20° C	40° C	60° C	70° C	80° C	90 °C	95° C
pressure (bar)	16 bar	16 bar	16 bar	15 bar	12 bar	10 bar	9 bar	8 bar	8 bar
pressure (PSI)	232	232	232	218	174	145	131	116	116

Dimension O.D. 125 – 225 mm

temperature	-15 °C	0 °C	20 °C	40 °C	60 °C	70 °C	80 °C	90 °C	95 °C
pressure (bar)	10 bar	10 bar	10 bar	10 bar	10 bar	8 bar	7 bar	6 bar	5 bar
pressure (PSI)	145	145	145	145	145	116	102	87	73

Flexible, pre-insulated pipe system with two carrier pipes for heating and hot water applications

- Homogenous connection between corrugated casing pipe and polyolefine insulation
- High flexibility
- Double pipes O.D.16 – O.D.63
- Pipe system for heating and hot water application
- Temperature range -15° C up to +95° C
- Fully weldable system
- It satisfies the requirements for sustainable construction
- Polyolefine insulation

Product code	DN	Inch	Casing pipe O.D. [mm]	Carrier pipe**		Wall thickness [mm]	No. of carrier pipes	Minimum bending radius [m]	max. length* [m]	Weight [kg/m]
				O.D. [mm]	I.D. [mm]					
VS-RS63A2/16	2 x 12	2 x ½	63	16	11,6	2,2	2	0,35	500	0,53
VS-RS75A2/20	2 x 15	2 x ½	75	20	14,4	2,8	2	0,40	500	0,69
VS-RS125A2/25	2 x 20	2 x ¾	125	25	20,4	2,3	2	0,60	300	1,80
VS-RS125A2/32	2 x 25	2 x 1	125	32	26,2	2,9	2	0,60	300	1,90
VS-RS160A2/40	2 x 32	2 x 1¼	160	40	32,6	3,7	2	0,80	150	2,46
VS-RS160A2/50	2 x 40	2 x 1½	160	50	40,8	4,6	2	0,80	150	3,00
VS-RS200A2/63	2 x 50	2 x 2	200	63	51,4	5,8	2	1,25	125	4,50

*) Any length within the maximum delivery length can be delivered, rounded up to the nearest whole metre.
**) The dimensions for the PB pipes refer to the pressure stage 8 bar at +95° C.

Temperature / Pressure rating

Dimension O.D. 16 – 110 mm

temperature	-15° C	0° C	20° C	40° C	60° C	70° C	80° C	90 °C	95° C
pressure (bar)	16 bar	16 bar	16 bar	15 bar	12 bar	10 bar	9 bar	8 bar	8 bar
pressure (PSI)	232	232	232	218	174	145	131	116	116

Dimension O.D. 125 – 225 mm

temperature	-15 °C	0 °C	20 °C	40 °C	60 °C	70 °C	80 °C	90 °C	95 °C
pressure (bar)	10 bar	10 bar	10 bar	10 bar	10 bar	8 bar	7 bar	6 bar	5 bar
pressure (PSI)	145	145	145	145	145	116	102	87	73

Flexalen 600™ heat losses according EN15632

Heat loss double pipe (flow & return)

Product code	Average service temperature [°C]						
	20	30	40	50	60	70	80
VS-RS63A2/16	3,527	5,878	8,230	10,581	12,932	15,284	17,635
VS-RS75A2/20	3,608	6,013	8,418	10,824	13,229	15,634	18,039
VS-RS125A2/25	2,992	4,987	6,981	8,976	10,971	12,965	14,960
VS-RS125A2/32	3,826	6,377	8,928	11,478	14,029	16,580	19,131
VS-RS160A2/40	3,356	5,680	8,004	10,328	12,652	14,976	17,300
VS-RS160A2/50	4,374	7,476	10,579	13,682	16,785	19,887	22,990
VS-RS200A2/63	4,374	7,800	11,226	14,652	18,078	21,504	24,930
	Heat loss [W/m]						

Thermal conductivity of soil	1,00 W/m.K
Thermal resistance factor of earth surface to ambient air	0,0685 m^2.K/W
Soil temperature	10° C
Soil covering	0,8 m

The mentioned heat loss values have been measured, calculated and proven by acknowledged testing institutes according EN 15632. During the expected lifetime this values will increase by 7 – 10%.

Flexalen 600™ heat losses according EN15632

Heat loss single pipe

Product code	Service temperature [°C]						
	20	30	40	50	60	70	80
VS-RS40A16	1,794	3,644	5,548	7,507	9,519	11,585	13,704
VS-RS40A20	2,354	4,776	7,264	9,819	12,439	15,123	17,870
VS-RS50A25	2,344	4,758	7,241	9,793	12,413	15,100	17,853
VS-RS90A25	1,390	2,824	4,302	5,822	7,385	8,990	10,638
VS-RS63A32	2,426	4,923	7,492	10,131	12,841	15,619	18,466
VS-RS125A32	1,411	2,863	4,357	5,892	7,469	9,086	10,743
VS-RS75A40	2,614	5,304	8,070	10,910	13,824	16,811	19,870
VS-RS125A40	1,678	3,405	5,181	7,005	8,877	10,796	12,763
VS-RS90A50	2,965	6,014	9,145	12,358	15,651	19,024	22,476
VS-RS160A50	1,730	3,506	5,327	7,193	9,105	11,060	13,060
VS-RS125A63	2,754	5,583	8,488	11,468	14,521	17,647	20,846
VS-RS160A63	2,109	4,273	6,491	8,764	11,090	13,470	15,904
VS-RS125A75	3,673	7,443	11,307	15,265	19,315	23,458	27,690
VS-RS160A75	2,521	5,106	7,756	10,470	13,248	16,089	18,992
VS-RS160A90	3,204	6,489	9,855	13,299	16,823	20,425	24,104
VS-R200A110	3,386	6,850	10,393	14,012	17,708	21,479	25,326
VS-R200A125	4,114	8,323	12,624	17,018	21,503	26,078	30,743
	Heat loss [W/m]						

Heat loss single pipe pair (flow & return)

Product code	Average service temperature [°C]						
	20	30	40	50	60	70	80
VS-RS40A16	3,376	6,781	10,279	13,868	17,732	21,313	25,168
VS-RS40A20	4,316	8,658	13,106	17,659	22,548	27,070	31,925
VS-RS50A25	4,308	8,644	13,091	17,647	22,553	27,078	31,950
VS-RS90A25	2,672	5,373	8,150	11,002	13,930	16,933	20,009
VS-RS63A32	4,449	8,926	13,516	18,218	23,281	27,949	32,976
VS-RS125A32	2,711	5,450	8,262	11,147	14,105	17,134	20,234
VS-RS75A40	4,762	9,550	14,457	19,479	24,884	29,865	35,225
VS-RS125A40	3,190	6,410	9,713	13,100	16,569	20,120	23,752
VS-RS90A50	5,327	10,677	16,152	21,751	27,770	33,309	39,265
VS-RS160A50	3,286	6,599	9,991	13,461	17,008	20,632	24,331
VS-RS125A63	5,008	10,042	15,195	20,463	26,113	31,340	36,945
VS-RS160A63	3,946	7,921	11,987	16,143	20,390	24,725	29,149
VS-RS125A75	6,426	12,866	19,442	26,151	33,346	39,959	47,052
VS-RS160A75	4,641	9,309	14,082	18,958	23,935	29,013	34,191
VS-RS160A90	5,741	11,505	17,390	23,395	29,811	35,759	42,113
VS-R200A110	6,040	12,102	18,280	24,574	31,267	37,503	44,134
VS-R200A125	7,135	14,281	21,558	28,964	36,851	44,156	51,937
	Heat loss [W/m]						

Thermal conductivity of soil	1,00 W/m.K
Thermal resistance factor of earth surface to ambient air	0,0685 m^2.K/W
Soil temperature	10° C
Soil covering	0,8 m

The mentioned heat loss values have been measured, calculated and proven by acknowledged testing institutes according EN 15632. During the expected lifetime this values will increase by 7 – 10%.

The Compact System

Product code	DN	Inch	Casing pipe O.D. [mm]	Carrier pipe**		Wall thickness [mm]	No. of carrier pipes	Minimum bending radius [m]	Length* [m]	Weight [kg/m]
				O.D. [mm]	I.D. [mm]					
VS-RS40A16	12	½	40	16	11,6	2,2	1	0,16	12,5/25*	0,23
VS-RS40A20	15	½	40	20	14,4	2,8	1	0,20	12,5/25*	0,28
VS-RS50A25	20	¾	50	25	20,4	2,3	1	0,30	12,5/25*	0,37
VS-RS63A32	25	1	63	32	26,2	2,9	1	0,40	12,5/25*	0,58
VS-RS75A40	32	1¼	75	40	32,6	3,7	1	0,50	12,5/25*	0,86
VS-RS90A50	40	1½	90	50	40,8	4,6	1	0,60	12,5/25*	1,35

*) other lengths on request

Advantages

- Available as complete set (incl. 4 connection fittings)
- Individual lengths available
- Easy transport because of the light weight material and the compact coil diameters
- Very flexible Polyolefine insulation foam
- Easy handling without Talkum
- Renewable and recyclable
- Environmentally friendly (H)CFC free

Applications

- Air / Water heat pumps
- Outbuilding
- Swimming pools
- Garden showers
- Indoor-applications

Technical details

Description	Pre-inuslated pipe system for hot water applications (O.D.16 – O.D.50) and heating applications (O.D.25 – O.D.50); connected lines with insulation and casing pipe – excellent insulation values and protection against damages.
Material	Carrier pipe: Polybutene Insulation: Polyolefine foam Casing pipe: HDPE
Temperature range	up to + 95° C
Fire performance	B2
Packaging	12,5 m and 25m coils (other lengths on request)

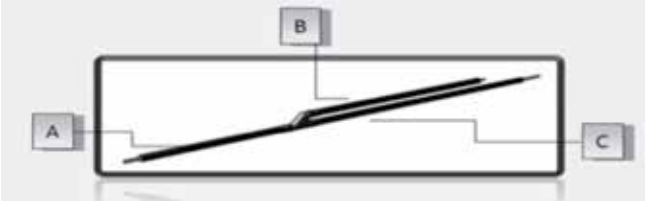
FlexaLink™

Factory-made pre-insulated networks

- With the parallel T-branch solution complete segments of piping networks can be prefabricated, coiled up and delivered to the building site
- Save connections on building sites
- 75% reducing installation time
- 100% watertight
- No build up of scale and calcification
- Very low resistance / pressure loss due to smooth interior walls
- High flexibility
- Top thermal insulation
- Short construction time
- Fabrications made to order

Technical details

Carrier pipes	Polybutene PB max. temperature: +95°C / 8 bar KIWA certified
Insulation material	Polyolefine foam temperature range -80° C up to +95° C closed cell structure
Outer jacket	Polyethylene (HDPE) dimensions 90 mm, 125 mm, 160 mm wall thickness 0,9 – 1,3 mm
Standard lengths	1m + 5m backbone Flexalen SL™ 4m house connection Flexalen 600™ Customization on request



Single pipe system

Main pipe O.D. [mm]	House connection pipe O.D. [mm]			length A [m]	length B [m]	length C [m]
	25	32	40			
25	!	-	-	1	4	5
32	!	!	-	1	4	5
40	x	x	!	1	4	5
50	x	x	x	1	4	5
63	x	x	x	1	4	5
75	x	x	x	1	4	5
90	x	x	x	1	4	5
110	x	x	x	1	4	5

! = option x = standard - at time of publication not possible

Double pipe system

Main pipe O.D. [mm]	House connection pipe O.D. [mm]			length A [m]	length B [m]	length C [m]
	25	32	40			
25	!	-	-	1	4	5
32	!	-	-	1	4	5
40	x	x	-	1	4	5
50	x	x	-	1	4	5
63	x	x	x	1	4	5

! = option x = standard - at time of publication not possible

Flexalen 1000+™ the multi functional system

- Excellent flexibility
- Free moving carrier pipes
- Easy to install
- Assembling on customer specification
- Multi-line capability
- Safe welding connections due to Polybutene pipes
- Full compatibility with Flexalen 600™
- Homogenous connection between carrier pipe and insulation
- Closed cell Polyolefine insulation
- Fit to meet future standards
- It satisfies the requirements for sustainable construction
- Polyolefine insulation value

Special Solutions:
Quattro – the combination of heating and hot water in one insulation conduit. The greatest flexibility is made possible by the free mounting of the medium pipes.

Other pipe combinations, including control cables, can also be produced – such as e.g. 3-wire with trace heating.

The good thermal insulating characteristics of the Polybutene pipes reduce the temperature transmission between the pipes to a minimum.

Hot Water Pipes:
Individual pipes in the dimensional range O.D.25 to O.D.90, also with trace heating, and double pipes with 2 different medium pipes up to O.D.63 for supply and circulation.

Flexalen 1000+™ estimated heat losses

Product code	Average service temperature [°C]						
	20	30	40	50	60	70	80
FV+R125…	3,673	7,443	11,307	15,265	19,315	23,458	27,690
FV+R160…	3,204	6,489	9,855	13,299	16,823	20,425	24,104
FV+R200…	4,114	8,323	12,624	17,018	21,503	26,078	30,743
	Heat loss [W/m]						

Thermal conductivity of soil	1,00 W/m.K
Thermal resistance factor of earth surface to ambient air	0,0685 m^2.K/W
Soil temperature	10° C
Soil covering	0,8 m

Due to the enormous number of possible combinations it is very difficult to give an exact value of heat loss for each type. For that reason we can only give estimations based on the related single pipe values. In general the reading of the table is equal to the Flexalen 600 heat loss determination.

Flexalen 1000+™ Multi pipe system

Flexible, pre-insulated pipe system with three carrier pipes (e.g. for heating flow & return as well as warm water sanitary applications) or four carrier pipes (e.g. for heating flow & return as well as warm water and circulation applications).

Heating / Hot Water / Multi pipe system

Product code	DN	Inch	Casing pipe O.D. [mm]	Carrier pipe**		Wall thickness [mm]	No. of carrier pipes	Minimum bending radius [m]	max. length* [m]	Weight [kg/m]
				O.D. [mm]	I.D. [mm]					
FV+R160H2/25A25	20	¾	160	25	20,4	2,3	3	0,8	50	1,95
FV+R160H2/32A25	25 20	1 ¾	160	32 25	26,0 20,4	3,0 2,3	2 1	0,8	50	2,20
FV+R200H2/32A32	25	1	200	32	26,0 / 26,2	3,0 / 2,9	3	0,8	50	2,80
FV+R200H2/40A25	32 20	1¼ ¾	200	40 25	32,6 20,4	3,7 2,3	2 1	0,8	50	3,00
FV+R200H2/40A32	32 25	1¼ 1	200	40 32	32,6 26,2	3,7 2,9	2 1	0,8	50	3,10
FV+R200H2/50A25	40 20	1½ ¾	200	50 25	40,8 20,4	4,6 2,3	2 1	0,9	50	3,50
FV+R200H2/50A32	40 25	1½ 1	200	50 32	40,8 26,2	4,6 2,9	2 1	0,9	50	3,65
FV+R160H2/25A2/20	20 15	¾ ½	160	25 20	20,4 14,4	2,3 2,8	2 2	0,8	50	2,05
FV+R160H2/25A25A20	20 15	¾ ½	160	25 20	20,4 14,4	2,3 2,8	3 1	0,8	50	2,10
FV+R160H2/32A25A20	25 20 15	1 ¾ ½	160	32 25 20	26,0 20,4 14,4	3,0 2,3 2,8	2 1 1	0,8	50	2,35
FV+R200H2/32A32A20	25 15	1 ½	200	32 20	26,0 / 26,2 20,4	3,0 / 2,9 2,8	3 1	0,8	50	2,95
FV+R200H2/40A25A20	32 20 15	1¼ ¾ ½	200	40 25 20	32,6 20,4 14,4	3,7 2,3 2,8	2 1 1	0,8	50	3,15
FV+R200H2/40A32A25	32 25 20	1¼ 1 ¾	200	40 32 25	32,6 26,2 20,4	3,7 2,9 2,3	2 1 1	0,8	50	3,30
FV+R200H2/50A25A20	40 20 15	1½ ¾ ½	200	50 25 20	40,8 20,4 14,4	4,6 2,3 2,8	2 1 1	0,9	50	3,65
FV+R200H2/50A32A25	40 25 20	1½ 1 ¾	200	50 32 25	40,8 26,2 20,4	4,6 2,9 2,3	2 1 1	0,9	50	3,80

*) Any length within the maximum delivery length can be delivered, rounded up to the nearest whole metre.
**) The dimensions for the PB pipes refer to the pressure stage 8 bar at +95° C.

Temperature / Pressure rating

Dimension O.D. 16 – 110 mm

temperature	-15° C	0° C	20° C	40° C	60° C	70° C	80° C	90 °C	95° C
pressure (bar)	16 bar	16 bar	16 bar	15 bar	12 bar	10 bar	9 bar	8 bar	8 bar
pressure (PSI)	232	232	232	218	174	145	131	116	116

Dimension O.D. 125 – 225 mm

temperature	-15 °C	0 °C	20 °C	40 °C	60 °C	70 °C	80 °C	90 °C	95 °C
pressure (bar)	10 bar	10 bar	10 bar	10 bar	10 bar	8 bar	7 bar	6 bar	5 bar
pressure (PSI)	145	145	145	145	145	116	102	87	73

Flexalen 1000+™ double pipe system

Flexible, pre-insulated pipe system with two carrier pipes in different dimensions, for sanitary applications e.g. warm water and circulation.

Hot Water – Double pipe system

Product code	DN	Inch	Casing pipe O.D. [mm]	Carrier pipe**		Wall thickness [mm]	No. of carrier pipes	Minimum bending radius [m]	max. length* [m]	Weight [kg/m]
				O.D. [mm]	I.D. [mm]]					
FV+RS125A32A25	25 20	1 ¾	125	32 25	26,2 20,4	2,9 2,3	1 1	0,60	300	1,50
FV+RS160A40A25	32 20	1¼ ¾	160	40 25	32,6 20,4	3,7 2,3	1 1	0,80	150	2,60
FV+RS200A50A25	40 20	1½ ¾	200	50 25	40,8 20,4	4,6 2,3	1 1	0,90	125	2,90
FV+RS200A63A32	50 25	2 1	200	63 32	51,4 26,2	5,8 2,9	1 1	1,00	125	3,35

*) Any length within the maximum delivery length can be delivered, rounded up to the nearest whole metre.
**) The dimensions for the PB pipes refer to the pressure stage 8 bar at +95° C.

Temperature / Pressure rating

Dimension O.D. 16 – 110 mm

temperature	-15° C	0° C	20° C	40° C	60° C	70° C	80° C	90 °C	95° C
pressure (bar)	16 bar	16 bar	16 bar	15 bar	12 bar	10 bar	9 bar	8 bar	8 bar
pressure (PSI)	232	232	232	218	174	145	131	116	116

Dimension O.D. 125 – 225 mm

temperature	-15 °C	0 °C	20 °C	40 °C	60 °C	70 °C	80 °C	90 °C	95 °C
pressure (bar)	10 bar	10 bar	10 bar	10 bar	10 bar	8 bar	7 bar	6 bar	5 bar
pressure (PSI)	145	145	145	145	145	116	102	87	73

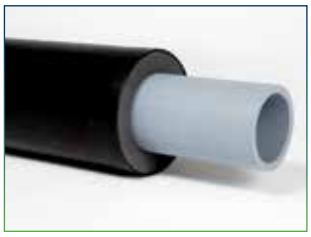
Flexalen SL™ Straight lengths – flexible

Flexible, pre-insulated straight lengths for heating and hot water with a medium pipe made of Polybutene (PB), in accordance with EN-ISO 15876, with a maximum application limit of +95° C and 8 bar (O.D.63 – O.D.110) resp. +95° C and 5 bar (O.D.125), a closed cell Polyolefine insulation and a corrugated casing pipe made of Polyethylene.

Product code	DN	Inch	Casing pipe O.D. [mm]	Carrier pipe**		Wall thickness [mm]	No. of carrier pipes	Minimum bending radius [m]	max. length* [m]	Weight [kg/m]
				O.D. [mm]	I.D. [mm]					
F-SL160A63/6	50	2	160	63	51,4	5,8	1	0,80	6	2,75
F-SL160A75/6	65	2 ½	160	75	61,4	6,8	1	0,80	6	3,05
F-SL160A90/6	80	3	160	90	73,6	8,2	1	1,00	6	3,60
F-SL200A110/6	100	4	200	110	90,0	10,0	1	1,25	6	5,40
F-SL200A125/6	100	4	200	125	102,2	11,4	1	1,50	6	6,50

Flexalen SL™ Straight lengths – semi flexible

Semi flexible, pre-insulated straight lengths for heating and hot water with a medium pipe made of Polybutene (PB), in accordance with EN-ISO 15876, with a maximum application limit of +95° C and 5 bar, insulation made of Polyurethane (PUR) – rigid foam and a casing pipe made of Polyethylene.



Product code	DN	Inch	Casing pipe O.D. [mm]	Carrier pipe**		Wall thickness [mm]	No. of carrier pipes	Minimum bending radius [m]	max. length* [m]	Weight [kg/m]
				O.D. [mm]	I.D. [mm]					
FV-R250A160/12	150	6	250	160	130,8	14,6	1	20	11,80	11,7
FV-R315A225/5,8	200	8	315	225	184,0	20,5	1	26	5,80	22

FLEXALEN SL™ Straight lengths heat losses according EN15632

Heat loss single pipe

Product code	Service temperature [°C]						
	20	30	40	50	60	70	80
F-SL160_63/6	2,109	4,273	6,491	8,764	11,090	13,470	15,904
F-SL160_75/6	2,521	5,106	7,756	10,470	13,248	16,089	18,992
F-SL160_90/6	3,204	6,489	9,855	13,299	16,823	20,425	24,104
F-SL200_110/6	3,386	6,850	10,393	14,012	17,708	21,479	25,326
F-SL200_125/6	4,114	8,323	12,624	17,018	21,503	26,078	30,743
FV-R250A160	4,319	8,185	12,050	15,916	19,781	23,647	27,512
FV-R315A225	5,540	10,450	15,359	20,269	25,178	30,088	34,997
	Heat loss [W/m]						

Heat loss single pipe pair (flow & return)

Product code	Average service temperature [°C]						
	20	30	40	50	60	70	80
F-SL160_63/6	3,946	7,921	11,987	16,143	20,390	24,725	29,149
F-SL160_75/6	4,641	9,309	14,082	18,958	23,935	29,013	34,191
F-SL160_90/6	5,741	11,505	17,390	23,395	29,811	35,759	42,113
F-SL200_110/6	6,040	12,102	18,280	24,574	31,267	37,503	44,134
F-SL200_125/6	7,135	14,281	21,558	28,964	36,851	44,156	51,937
FV-R250A160	7,950	14,827	21,703	28,580	35,457	42,333	49,210
FV-R315A225	9,112	17,707	26,301	34,896	43,491	52,085	60,680
	Heat loss [W/m]						

Thermal conductivity of soil	1,00 W/m.K
Thermal resistance factor of earth surface to ambient air	0,0685 m^2.K/W
Soil temperature	10° C
Soil covering	0,8 m

The mentioned heat loss values have been measured, calculated and proven by acknowledged testing institutes according EN 15632. During the expected lifetime this values will increase by 7 – 10%.

Did you know! …

that PB pipe systems are complete corrosion-resistant and have a expected lifetime up to 100 years*?

*) depends on operating conditions (pressure/temperature)

Protectube

Insulation duct that can be used as a universal duct to protect all kinds of pipes and cables and is suitable for many different fields of applications, for example:

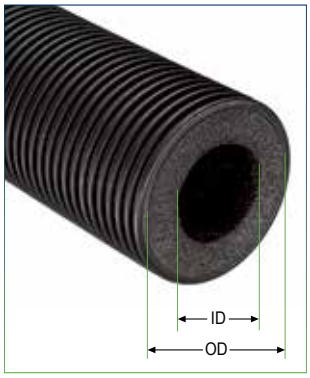
- River crossing
- Lines beneath the railway
- Crossing in street areas
- Feed lines for heat pumps
- Beneath buildings
- In concrete foundations
- and a good deal more…

Properties

The optimal protection is provided by the following features:

PROTECTUBE is robust and flexible at the same time. It can be used for a temperature range from -80° C up to +95° C.

The minimum bending radius for 40/23 is 0,15 m. It offers ideal protection for thermally and mechanically sensitive pipes and cables. The foam is made from extruded polyolefine with a robust inner / outer skin.



The foam has been specially developed by Thermaflex and is fully bonded to the PE outer casing.

The outer casing is made of HDPE and offers superior protection against moisture and mechanical loads. Due to Protectubes light weight and flexibility, it is easy to insert pipes and cables. It is also possible to replace the inner pipes and cables at any time.

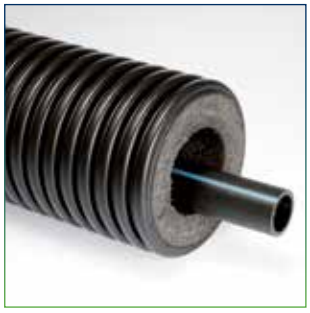
Protectube insulation duct is particularly environment-friendly – made from recyclable and non toxic materials.

Dimensions

Product code	Outer casing O.D. [mm]	Insulation I.D. [mm]	Length [m]	Bending radius [m]
FV+ISR40	40	18/23	100	0,15
FV+ISR50	50	23/28	100	0,20
FV+ISR63	63	30/35	100	0,20
FV+ISR75	75	38/43	100	0,25
FV+ISR90	90	40/45	100	0,30
FV+ISR125	125	63/68	100	0,40
FV+ISR160	160	90/95	100	0,60
FV+ISR200	200	110/115	100	0,80

Physical properties

Physical properties	System component	Technical details
Colour	Outer casing	Black
UV resistant	Outer casing	Yes
Temperature range	Insulation	-80° C up to +95° C
Water vapour resistance	Insulation	> 3.500 µ
Fire classification	Complete system	B2



Flexalen™ Single pipe system with frost protection cable

Flexible, pre-insulated pipe system for cold water applications.
With a medium pipe made of PB and with integrated frost-protection cable.
PE potable water variant available contact the sales office on 0845 644 3793

Product code	DN	Inch	Casing pipe O.D. [mm]	Carrier pipe		Wall thickness [mm]	Minimum bending radius [m]	max. length* [m]	Weight [kg/m]
				O.D. [mm]	I.D. [mm]				
FV+RS63A25-FPC	20	¾	63	25	20,4	2,3	0,40	500	0,57
FV+RS75A32-FPC	25	1	75	32	26,2	2,9	0,50	500	0,82
FV+RS75A40-FPC	32	1 ¼	75	40	32,6	3,7	0,50	500	0,96
FV+RS90A50-FPC	40	1 ½	90	50	40,8	4,6	0,60	500	1,31
FV+RS125A63-FPC	50	2	125	63	51,4	5,8	0,80	300	2,53
FV+RS125A75-FPC	65	2 ½	125	75	61,4	6,8	0,80	300	2,99
FV+RS160A90-FPC	80	3	160	90	73,6	8,2	1,00	150	3,74
FV+R200A110-FPC	100	4	200	110	90,0	10,0	1,25	110	5,50

*) inclusive ELTRACE Traceco 20 frost protection cable.
Max. heat output at 10° C = 20 W/m
Max. heat circuit length at starting temperature 5° C = 110 m

Frost Protection Pipes

- Pipe protection
- Thermal protection
- Frost protection
- Impact protection

Size range:
25 - 40mm in 25m coils
63 - 110mm in 6m lengths

Frost Protection Kits

- Fixed length 240V kit

Ground Source Heat Pump and Geothermal Solutions

Flexible, pre-insulated pipe system for geothermal applications such as ground source heat pumps.

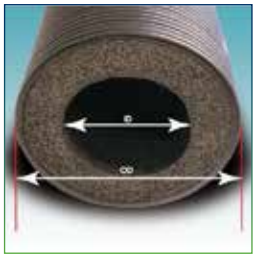
- Pipe protection
- Thermal protection
- Impact protection

Manifold to Heat Pump Solutions

Pre-insulated PE pipes and Insulated duct to suit 40mm to 110mm OD pipework

- Lightweight
- Flexible
- Environment friendly
- HDPE outer casing
- Polyethylene insulation
- PE carrier pipe

Product code Insulation Pipe only	OD	Insulation I.D. [mm]	Length [m]
FV+ISR90	90	40 / 45	10
FV+ISR125	125	63 / 63	10
FV+ISR160	160	90 / 95	10
FV+ISR200	200	110 / 115	10



Product Code PE Pipe and Insulation	Casing pipe O.D. [mm]	PE pipe O.D. [mm]	Length [m]
PE+ISR90A40/25	90	40	25m coil
PE+ISR125A63/6	125	63	6m length
PE+ISR160A90/6	160	90	6m length
PE+ISR200A110/6	200	110	6m length

Pipe Insulation

Thermasmart tube insulation features:-

- Flexible and robust polyolefine foam
- Excellent insulation properties
- Lightweight
- Temperature range -40°c to +95°c
- 35, 42, 54, 70mm OD 13 or 19mm thickness

Transition from plastic to steel






Article	BCA-PB	BCA-PB	RND-TF-PB	PB flange / GF flange	PB-HV / GF-HV	GF-TFP
Description	Compression fitting for PB	Compression fitting for PB	Ground soil connection	Flange connection	Composite union	Ground soil connection
Dimensions	O.D. 16 - 50	O.D. 63 - 110	O.D. 25 – 110	O.D. 63 - 225	O.D. 16 - 63	O.D. 25 - 63
Transition	male thread	male thread	Steel spigot	Flange	male and/or female thread	male thread
Underground laying	yes	yes	yes	no	no	yes
Assembly	Easy fitting without any special tools	Easy fitting without any special tools	Polyfusion- or Electrofusion welding	Electrofusion (63-110) or butt welding (110-225)	Polyfusion welding	Polyfusion- or Electrofusion welding

Compression fitting


Product code	DN	Thread
BCA-PB16/2,2	12	½
BCA-PB20/2,8	15	½
BCA-PB25/2,3	20	¾
BCA-PB32/3,0	25	1
BCA-PB40/3,7	32	1¼
BCA-PB50/4,6	40	1½
BCA-PB63/5,8	50	2
BCA-PB75/6,9	65	2½
BCA-PB90/8,2	80	3
BCA-PB110/10,0	100	MT 4, FT 3½

Brass compression fitting with male thread, optimized for PB

Composite Union

Product code	DN	Thread
PB-HV25/R3/4	20	¾
PB-HV32/R1	25	1
PB-HV40/R5/4	32	1¼
PB-HV50/R6/4	40	1½
PB-HV63/R2	50	2

Elastomeric sealing, male thread and Polybutene-socket for polyfusion welding

Transition fitting with steel spigot

Product code	DN	Inch
RND-TFP-PB25-STE	20	¾
RND-TFP-PB32-STE	25	1
RND-TFP-PB40-STE	32	1¼
RND-TFP-PB50-STE	40	1½
RND-TFP-PB63-STE	50	2
RND-TFP-PB75-STE	65	2 ½
RND-TFP-PB90-STE	80	3
RND-TFP-PB110-STE	100	4

For Polyfusion- or Electrofusion welding on PB pipe and connection to metal (steel spigot)

Valves

Product code	DN	Inch
PB-AV25	20	¾
PB-AV32	25	1
PB-AV40	32	1¼
PB-AV50	40	1½
PB-AV63	50	2

Made of Polybutene for Polyfusion welding on PB pipe. Handweel with green/red changeable marking.

PB-flange

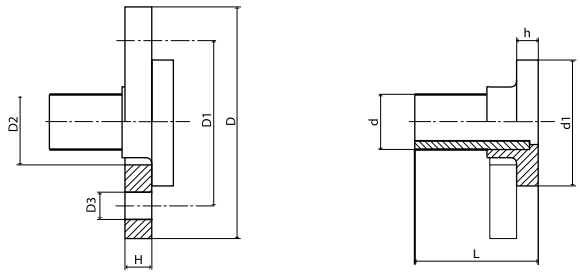
Consisting of flange adapter with PB spigot, backing ring and elastomeric sealing.

Counterflange and screws have to be supplied by the customer.

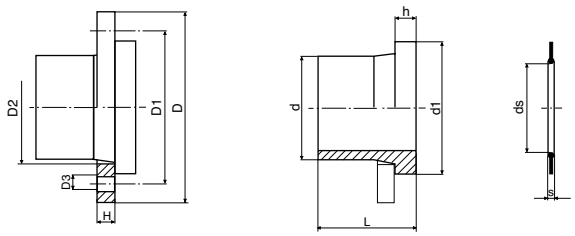
Product code	DN	Inch
GF-FLANSCH63	50	2
GF-FLANSCH75	65	2½
GF-FLANSCH90	80	3
GF-FLANSCH110	100	4
PB-FLANSCH125	100	4
PB-FLANSCH160	150	6
PB-FLANSCH225	200	8

Measurements of flange connections

O.D.63 – 110 mm

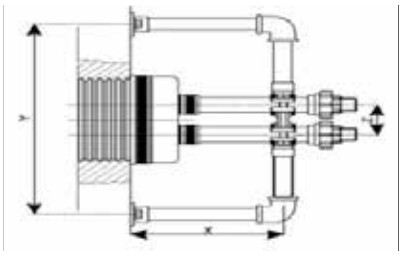


O.D.125 – 225 mm



Pipe diameter d [mm]	63	75	90	110	125	160	225
Flange drilling (DIN 2501)	50PN10	65PN10	80PN10	100PN10	100PN10	150PN10	200PN10
Number of drillings	4	4	8	8	8	8	8
Screws (not included)	M16x85	M16x90	M16x90	M16x95	M16x130	M20x140	M20x160
D [mm]	171	191	206	226	226	296	350
D1 [mm]	125	145	160	180	180	240	295
D2 [mm]	78	92	110	133	135	178	238
D3 [mm]	18	18	18	18	18	22	22
d1 [mm]	90	106	125	150	160	216	268
H [mm]	20	21	21	22	23	28	31
h [mm]	14	15	16	18	25	25	32
ds [mm]	58	69	84	104	123	160	220
s [mm]	5	5	5	6	6	8	8
L [mm]	93	153	167	180	170	200	200

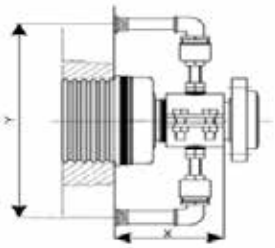
Restraining Clamps for double pipe systems



Double clamp with anchor plates, threaded pipes and elbows to restrain the pipes on constructive necessary places.

Product code	Carrier pipe O.D. [mm]	No of pipes	Weight [kg]	Measurements X [mm]	Y [mm]	Z [mm]
F-RCLAMP2/16	16	2	1,41	~175	~326	~48
F-RCLAMP2/20-25	20, 25	2	1,46	~175	~330/~335	~50/~52
F-RCLAMP2/32	32	2	1,50	~175	~345	~55
F-RCLAMP2/40	40	2	1,54	~175	~360	~57
F-RCLAMP2/50	50	2	1,56	~175	~375	~68
F-RCLAMP2/63	63	2	1,68	~175	~410	~78

Restraining Clamps for single pipe systems



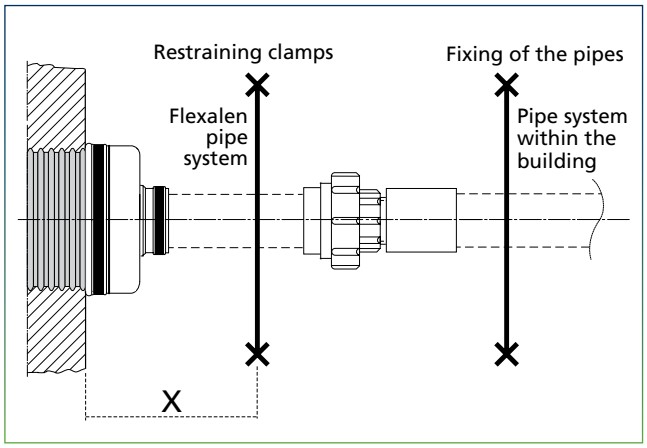
Restraining Clamps for single pipe systems O.D.16 – O.D.50, O.D.160 – O.D.225 and for pipe systems O.D.63 – O.D.125

Product code	Carrier pipe O.D. [mm]	No of pipes	Weight [kg]	Measurements X [mm]	Y [mm]	Z [mm]
F-RCLAMP16	16	1	1,34	~175	~278	-
F-RCLAMP20-25	20, 25	1	1,36	~175	~278/~283	-
F-RCLAMP32	32	1	1,36	~175	~290	-
F-RCLAMP40	40	1	1,40	~175	~303	-
F-RCLAMP50	50	1	1,40	~175	~307	-
F-RCLAMP160	160	1	2,26	~175	~435	-
F-RCLAMP225	225	1	2,36	~175	~505	-

Product code	Carrier pipe O.D. [mm]	No of pipes	Weight [kg]	Measurements X [mm]	Y [mm]	Z [mm]
F-RCLAMP63	63	1	6,10	~175	~420 - 475	-
F-RCLAMP75	75	1	6,50	~175	~435 - 485	-
F-RCLAMP90	90	1	7,00	~175	~455 - 515	-
F-RCLAMP110	110	1	7,60	~175	~485 - 540	-
F-RCLAMP125	125	1	8,00	~175	~485 - 540	-

The linear thermal expansion of PB is 35% lower compared to PE-X. In comparison with steel a 10 times higher thermal expansion is measured for PB. Due to the very much lower E-modulus are the occurring forces caused by thermal expansion only approximately 2% in comparison to steel.

The elasticity of the system allows the total pipe systems to self compensate, so that expansion loops and bellows are not required. Only at the end of the pipeline at the building entry the medium pipe ends and the ongoing installed pipe must be fixed with suitable restraining clamps, in order to avoid excess stress on the transition fittings.



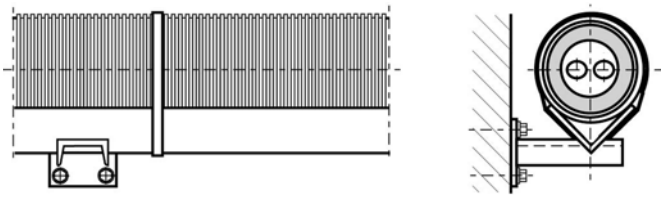
Carrier pipe O.D. [mm]	X *) [mm]	max. elongation force per pipe**) [kN]
25	~ 180	0.35
32	~ 180	0.60
40	~ 180	0.90
50	~ 180	1.40
63	~ 180	2.20
75	~ 180	3.00
90	~ 180	4.30
110	~ 180	6.50
125	~ 180	8.30

*) depending on mountinig situation

**) temperature difference dT = 70K

External pipelines, internal pipelines – horizontal

For above ground horizontal lines, we recommend that all coiled Flexalen™ pipelines are supported along their entire length by securing to an angle bar bed or adequate cable tray with strong clips or ties placed every metre. The Flexalen™ anchoring system must be used with transition ends. (see sketch)



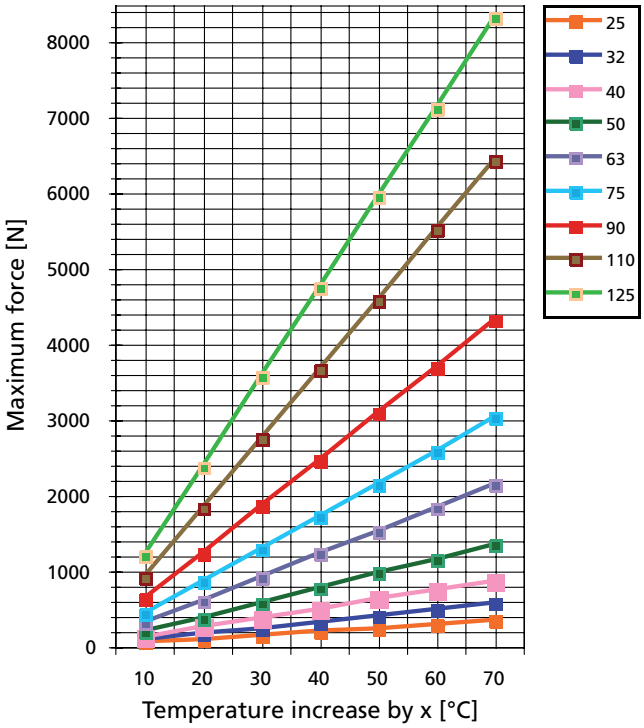
External pipelines, internal pipelines – vertical

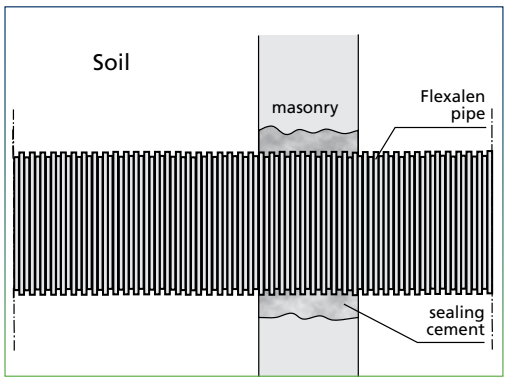
For vertical lines we recommend that the pipeline is secured to the wall or cable tray with strong clips or ties at the casing pipe every metre. The Thermaflex PB pipe in the Flexalen™ pipe systems has to be anchored every 4 to 5 metres (in most cases on each floor.) Suitable restraining clamps must be used on both sides of the branch.

Non insulated Polybutene pipelines

Precautious must be taken against expansion and contraction, as well as for pipe support, when using un-insulated PB. Bare PB pipes have to be permanently and completely sheltered from ultraviolet (UV) radiation (sunlight). The layout of in house pipe works is very much depending on the area (visible or non-visible) where the PB pipes should be installed, and depend on local standardisation.

Elongation forces of PB pipes





Wall entry for corrugated casing pipes (non pressure requirements)

The corrugated construction of Flexalen 600 pipe casing, together with quick-setting sealing cement, offers a water-tight seal between the entry hole and the Flexalen casing.
This means that is not necessary to use extra rubber based wall entry seals when using Flexalen 600 coiled pipe.

Suitable for ground water non-pressure / no contamination.

Annular space sealant for demanding situations

- robust rubber parts guarantee a long useful life
- for use where situation has high head of ground water (only for F-SL with smooth outer casing)
- oil, fuel and solvent resistant, temperature and fire-resistant designs available
- protected location in masonry
- also ideally suited for retrofitting
- easy and rapid installation thanks to prefabricated link construction
- bolts galvanized or stainless steel as requested
- absorption of impact, noise and vibration loads
- difference in colour between the different qualities of rubber
- cathodic pipe

Suitable for ground water non-pressure.

Suitable for ground water pressure up to 0,5 bar for corrugated outer casings and 3 bar for smooth outer casings/ no contamination

For use where annular spaces need to be sealed.

- pressure tight annular sealing between all Flexalen pipe systems and core drilled holes / scabbard tubes for wall openings
- for use where situation has high head of ground water
- oil, fuel and solvent resistant, temperature and fire-resistant designs available
- protected location in masonry
- bolts stainless steel
- absorption of impact, noise and vibration loads
- difference in colour between the different qualities of rubber
- cathodic pipe

Product code	Carrier pipe O.D. [mm]	Core drilling [mm]	Description
FV-MD90KB	90	120	Wall entry for jacket pipe/ medium pipe at core drilling. Suitable for ground water non-pressure.
FV-MD125KB	125	150	
FV-MD160KB	160	200	
FV-MD200KB	200	250	
FV-MD250KB	250	300	
F-WB040B100	40	100	Wall entry for jacket pipe/ medium pipe at core drilling. Suitable for ground water pressure up to 0,5 bar.
F-WB050B100	50	100	
F-WB063B125	63	125	
F-WB075B125	75	125	
F-WB090B150	90	150	
F-WB125B200	125	200	
F-WB160B250	160	250	
F-WB200B300	200	300	
F-WB250B350	250	350	
F-WB315B400	315	400	

Polyfusion socket welding
(O.D. 16 - 110 mm)

GF-Electrofusion welding
(O.D. 16 - 110 mm)

Butt welding
(O.D. 110 - 225 mm)

The Polybutene medium pipes can be connected homogenously by means of fusion welding.

The following welding procedures are applied:

- Polyfusion socket welding (O.D.16 – O.D.110 mm)
- GF-Electrofusion welding (O.D.16 – O.D.110 mm)
- Butt welding (O.D.110 – O.D.225 mm)

It is recommended that all welding of PB pipes must be undertaken only by trained operatives. Furthermore our laying instructions and the instruction manual for the recommended individual welding machines and equipment must be considered.

Call your local representative for details and butt fusion hire facilities.

Please see also our laying instructions for the laying and processing guidelines.

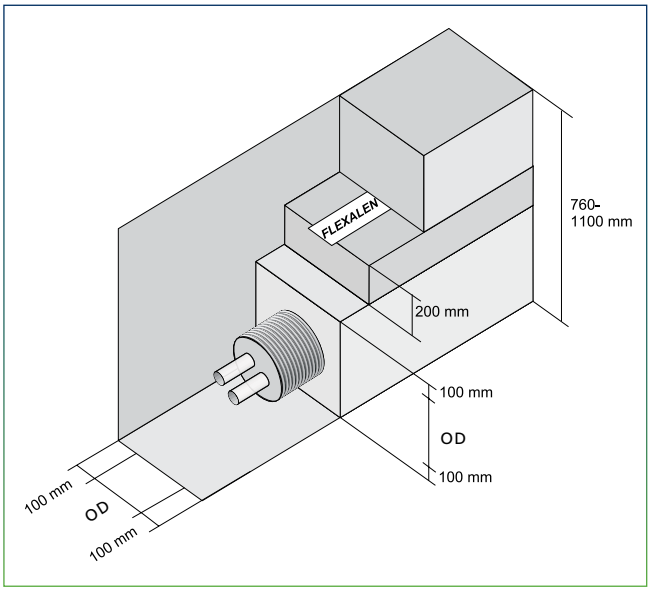
Structure of the pipe trench for long-distance heating pipes

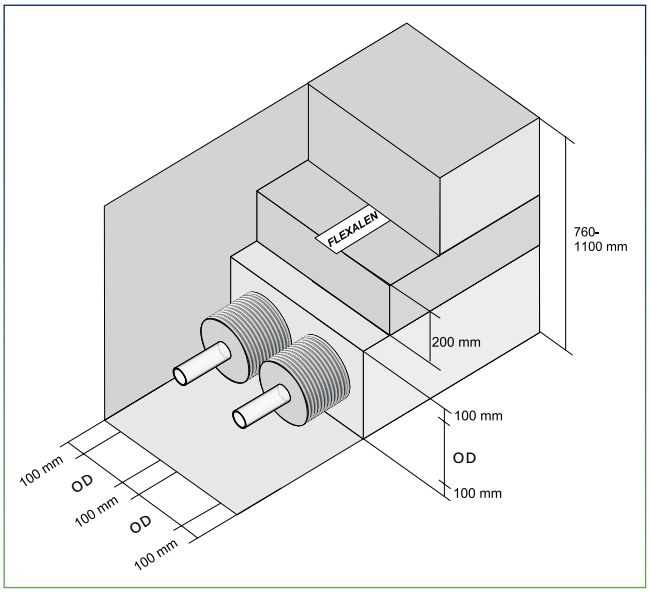
The structure of a long-distance heating pipe is determined by the designer on the basis of the instructions supplied by the pipe manufacturer, the valid standards and the individual circumstances in the building.

A sand bed of at least 10 cm in any direction must surround the pipeline after the sand has been compressed. The size of the grains of sand should not be bigger than 3 mm. There must be no coarse grains. After the back filling, the sand is compressed. Thus some small air holes remain in the sand which are only connected by narrow channels (high flow resistance -no air convection in the sand).

Further back filling is normally undertaken using spoil from the trench. Coarse-grain gravel or road metal with or without a small soil portion are not suitable for the filling as they produce air channels with relatively big cross-sections and thus encourage the convection of the encircled air or the water which has invaded the trench. The filling must have a portion of fine-grained material, which prevents the development of continuous air channels. After the filling has been poured in, it must be compressed to produce a compact packing of the material.

The covering depends on the location of the ditch. In roads it is formed by the building profile of the road, in meadows and fields it is formed by a „humus layer“. In no case the filling may reach the surface. A clear layering of the materials represents an additional barrier for the heat transportation in transitional areas between the different layers.





The ditch must be prepared in accordance with the above pictures. For those areas that must bear transport loads, the law provides a minimum cover of 0.8 m (load class SLW 60); in areas without transport load a minimum cover of 0.5 m is required.

Please consider the corresponding standards and regulations regarding the pipeline course of long-distance heating pipes.

During construction, the trench must be kept dry. For very damp soil, drainage of the trench is recommended to improve the heat insulation effect of the distributing network.

End caps FLEXALEN™

Rubber end caps to make the sealing between carrier pipes and corrugated casing pipes (water-tight).

Product code	Casing pipe O.D. [mm]	No of pipes	Carrier pipe O.D. [mm]	Weight [kg]
VS-MAN40A20-A16	40	1	16, 20	0,025
VS-MAN50A25-A20	50	1	20, 25	0,029
VS-MAN63A32-A16	63	1	16, 20, 25, 32	0,043
VS-MAN75A40-A16	75	1	16, 20, 25, 32, 40	0,075
VS-MAN90A50-A20	90	1	20, 25, 32, 40, 50	0,095
VS-MAN125A75-A32	125	1	32, 40, 50, 63, 75	0,180
VS-MAN160A90-A50	160	1	50, 63, 75, 90	0,220
VS-MAN200A125-A110	200	1	110, 125	0,225
VS-MAN63A2/20-A2/16	63	2	16, 20	0,045
VS-MAN75A2/20-A2/16	75	2	16, 20	0,055
VS-MAN90A2/25-A2/16	90	2	16, 20, 25	0,080
VS-MAN125A2/32-A2/20	125	2	20, 25, 32	0,185
VS-MAN160A2/50-A2/32	160	2	32, 40, 50	0,205
VS-MAN200A2/63	200	2	63	0,225

End caps for
single pipe systems

End caps for
double pipe systems

Product code	Casing pipe O.D. [mm]	No of pipes	Carrier pipe O.D. [mm]				Weight [kg]
			Outlet 1	Outlet 2	Outlet 3	Outlet 4	
FV+MAN160ML	160	4	25, 32, 40	20, 25, 32	20, 25	20, 25	0.22
FV+MAN200ML	200	4	32, 40, 50, 63	32, 40, 50	25, 32, 40	20, 25, 32	0.40

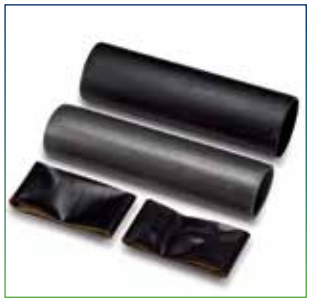
End caps for
multi pipe systems

End caps Flexalen SL™ Straight Lengths

Product code	Description
FV-MAN160FL	End caps to make the sealing between medium pipes and smooth casing pipe.
FV-MAN225FL	

End caps straight lengths

Insulation socket Flexalen™



Insulation connector for straight socket connections

Product code	Casing pipe O.D. [mm]	Sliding muff				Shrink sleeve	Insulation	Weight [kg]
		O.D. [mm]	Wall thick-ness [mm]	Shrinkable	Length [mm]			
FV-UM40PO	40	~69	3	no	600	FV-SCHRB63-40	~ ø 30mm x 13mm	0,52
FV-UM63-50PO	50, 63	~84	3	no	600	FV-SCHRB90-75	~ ø 50mm x 13mm	0,74
FV-UM90-75PO	75, 90	~103	3	yes	700	FV-SCHRB90-75	~ ø 76mm x 13mm	1,02
FV-UM125PO	125	~140	3	yes	700	FV-SCHRB125	~ ø 108mm x 13mm	1,34
FV-UM160PO	160	~177	3	yes	700	FV-SCHRB160	~700x600mm x 20mm	1,78
FV-UM200PO	200	~218	3,5	yes	700	FV-SCHRB225-200	~700x1000mm x 20mm	2,80

Socket Connections

Socket connection for PB pipes – heating and sanitary

Product code	Inch	Description
GF-EM16	½	Polybutene electro fusion welding socket for homogenous carrier pipe connection.
GF-EM20	½	
GF-EM25	¾	
GF-EM32	1	
GF-EM40	1¼	
GF-EM50	1½	
GF-EM63	2	
GF-EM75	2½	
GF-EM90	3	
GF-EM110	4	
GF-EM125	4	
GF-EM160	6	
GF-EM225	8	

Warning tape

Product code	Description
DETECTAFLEX	Caution heating mains below-detectable tape 100M roll


Electrofusion Elbow 45° Socket / Spigot


Electrofusion Reducer


Electrofusion Reduced T-piece


Electrofusion Reducer


Electrofusion T-piece

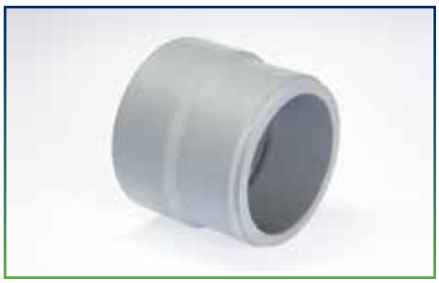

Electrofusion Elbow 90°


Electrofusion Elbow 45°

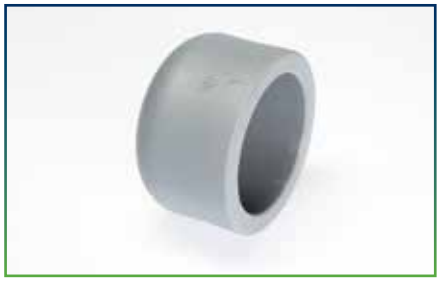

Electrofusion Endcap


Electrofusion Socket Connection


Polyfusion T-piece


Polyfusion Reducer


Polyfusion Elbow 90°


Polyfusion Endcap

Insulation kits

T-half shell set

Double T-half shell

Product code	Outer casing O.D. [mm]	Measurement		Adhesive sealant	Insulation		Screws quantity	Weight [kg]
		l_1 [mm]	l_2 [mm]		Polyolefine	Insulation tape		
FV-T125HS	125	800	400	1x tube	tba***	tba***	tba***	tba***
FV-T125-200HS	125, 160, 200	1200	690	1x tube	ø 114mm / 25mm	25m x 50mm	33	6
FV-DT125-200HS	125, 160, 200	1200	820	2x tube	ø 114mm / 25mm	25m x 50mm	55	10
FV-W125-200/90HS	125, 160, 200	790	690	1x tube	ø 114mm / 25mm	25m x 50mm	33	5
HS-RED40-125	40,50,63,75,90	220	---	---	---	---	---	tba***

***) to be announced

Pre-insulated branches

Following pre-insulated branches can be offered on special request.

Pre-insulated T-piece for double pipes

Pre-insulated double T-piece

Pre-insulated T-piece raised

Y-piece for transition from single to double pipes

Range of Pre-insulated elbows and tees single and double pipes

Pre-insulated elbow (90°, 45° available) for single pipes

Branches on customer request

Branches on customer request

Branches on customer request

FLEXALEN HT™ Solar

Corrugated stainless steel pipe

- Single pipe with high temperature Polyolefine insulation
- In a stable and flexible Polyolefine outer casing tube
- UV resistant outer casing
- Specially made for solar heat installations, for connection of heat pumps with split technology as well as for other applications up to +150° C constant temperature (peak temperature up to +175° C).

Technical Details

Product code	Corrugated steel pipe VA: 1.4404 / AISI 316L								FLEXALEN HT™				
	DN	Inch	O.D. [mm]	I.D. [mm]	Tolerance O.D., I.D. [mm]	Bending radius min. [cm]	Operating pressure max. at 20° C [bar]	Content carrier pipe [l/m]	Weight [kg/m]	Bending radius min. [cm]	Casing pipe O.D. [mm]	max. del. Length [m]	insulation tickness [mm]
VS-HTS50DN16	16	½	21,4	16,3	+/-0,4	2,5	16	0,273	0,4	20	50	500	~13
VS-HTS50DN20	20	¾	26,7	20,4	+/-0,4	3	10	0,43	0,55	20	63	375	~17
VS-HTS50DN25	25	1	31,8	25,4	+/-0,4	3,5	10	0,633	0,76	25	75	250	~20

Accessories


fitting set


tape


tools (optional)


Quickfit

Transmissible power with Flexalen™ pipe systems 600 and 1000+ (heating) as well as Straight Lengths.

DN	12	15	20	25	32	40	50	65	80	100	100	150	200
	1/2	1/2	¾	1	1¼	1½	2	2½	3	4	4	6	8
I.D.	11,6	14,4	20,4	26,2	32,6	40,8	51,4	61,2	73,6	90	102,2	130,8	184,0
O.D.	16	20	25	32	40	50	63	75	90	110	125	160	225

Temperature difference 5 K (e.g.: 7° C – 12° C)

kW	2	3	6	11	17	27	43	61	89	133	172	282	557

v=1m/s (velocity)

Temperature difference 11 K (zB: 82° C – 71° C)

kW	5	7	14	24	38	60	95	135	196	293	378	619	1226

v=1m/s

Temperature difference 20 K (zB: 90° C – 70° C)

kW	9	14	28	44	69	110	173	246	356	533	687	1126	2228

v=1m/s

Temperature difference 25 K (zB: 90° C – 65° C)

kW	11	17	35	56	87	137	217	308	445	666	859	1408	2785

v=1m/s

Temperature difference 30 K (zB: 90° C – 60° C)

kW	13	21	42	67	104	165	260	370	534	800	1031	1690	3342

v=1m/s

Temperature difference 35 K (zB: 90° C – 55° C)

kW	16	24	49	78	121	193	303	432	623	933	1203	1972	3898

v=1m/s

Temperature difference 40 K (zB: 90° C – 50° C)

kW	18	28	56	89	140	220	346	494	712	1066	1375	2253	4456

v=1m/s

Pressure loss approx.:

Pa/m	1150	900	555	402	300	231	175	140	112	88	75	56	38

(1m/s)

Pa/m								510	410	319	274	204	135

(2m/s)

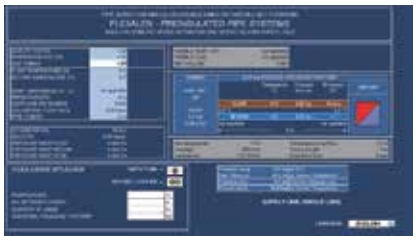
Pa/m											595	440	284

(3m/s)

Please use the following multipliers for authorized higher flowing speed:

v=2m/s	factor: 2
v=3m/s	factor: 3

The factors only refer to the transmittable performance, not to the pressure loss!!!



The "Nomogramm" to determine the pressure losses when using Flexalen™ as well as our pipe sizing program is available under www.thermaflex.com .

Heat Meters

Heat meters used to measure Heat Energy Consumption for :

- Hot water
- Heating applications

Residential Compact Meter

- RHI approved class 2 meter
- Accurate measurement
- Ease of installations
- Easy Reading
- QP 0.6 – 15M³/h
- DN15 to DN50
- Data collection options available

Bulk Heat Meter

- High Measuring Precision and Stability
- Reliable up to 130 deg c
- Max pressure 16 bar
- Wide load range
- Pulse output works with calculator
Multi data S1 and N1 pulse value 100/1000 l/imp
- DN50 – 200mm

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54 Nasmyth Road, Southfield Industrial Estate, Glenrothes, Fife KY6 2SD

Tel: 0845 644 3793 • **Fax:** 0845 644 3893

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Flexenergy Limited Registered Office: Crescent House, Carnegie Campus Dunfermline KY11 8GR.

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