



# Product Guide

## Description

Thermaflex FRZ is a fire-retardant flexible insulation foam that is suitable for insulating all HVAC installations. With its superior Thermal Conductivity and closed cell structure, this product ensures that your installation will be protected against risk of corrosion or water vapor into the insulation material. Thermaflex FRZ is also superior with its low smoke emission in fire and toxic-free smoke. In addition to the safety that this product provides, Thermaflex FRZ is also very easy to install with its robust lightweight material, which make it a perfect choice for all your insulation needs.

## Product Range



### ■ Tube Insulation

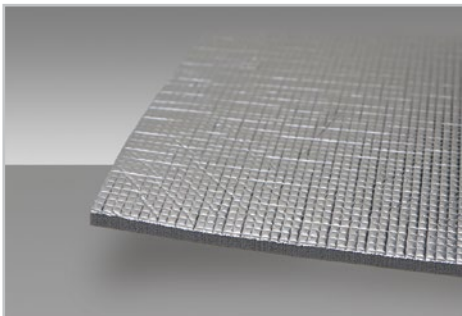
- 9 mm up to 30 mm insulation thicknesses
- 6 mm up to 114 mm inner diameter
- Standard Length: 2 meters



### ■ Sheet Insulation

- 10, 13, 15, 20, 25, 30, 40, 50 mm insulation thicknesses
- Standard Width for 10 - 30 mm thicknesses: 1.5 meters
- Standard Width for 40 - 50 mm thicknesses: 1.2 meters

*\*) Also available with self-adhesive backing*

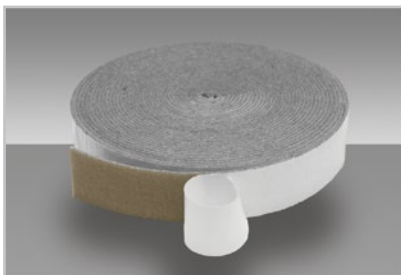


### ■ Sheet Insulation with Aluminium Foil

- 10, 13, 15, 20, 25, 30, 40, 50 mm insulation thickness
- Standard Width: 1.2 meters

*\*) Also available with self-adhesive backing*

## Accessories



### ■ Thermatape

3 mm x 50 mm x 15,000 mm



### ■ Thermaflex Adhesive

1 Liter can

## Technical Properties

Technical Properties	Test Method	Data
Specific Density	ASTM D 1667	30-35 Kg/m <sup>3</sup>
Cellular Structure		Very fine, closed cell
Color		Grey
Thermal Conductivity ( $\lambda$ )	DIN 52 613	0.033 W/m.K at 10°C 0.038 W/m.K at 40°C
Temperature Range	DSC Scan	-80°C up to 95°C
Water-vapor diffusion resistance factor ( $\mu$ )	DIN 52 615	> 3,500
Water absorption	DIN 53 434	After 7 days 1.05% After 28 days > 2.00%
UV Resistance	ISO 4892-2	Excellent with paint
Odor		Neutral
Chemical Resistance	ASTM 543-56T	Excellent
Stress Corrosion	NEN 6481/6645/ 6646	Does not contribute to SCC (Stress Corrossion Cracking)
Pressure Resistance	ISO 844 and DIN 53577	Force 10% 0.035 - 0.045 N/mm <sup>2</sup> Force 20% 0.045 – 0.055 N/mm <sup>2</sup> Force 50% 0.060 – 0.080 N/mm <sup>2</sup>
Tear Strength	DIN 53577	Good
Toxicity in Smoke	ABD 0031	Non-toxic, Cyanide-free
Toxicity in Fire		Complete combustion 99% CO <sub>2</sub> and H <sub>2</sub> O
Smoke Emission	ASTM E662-97  NEN 6066	Flaming: D4 min = 60 Non-Flaming: D4 min = 9 Smoke Number: DL; h; max = 1.7 m
Fire Rating	DIN 4102 BS 476 ASTM D 635 UL 94 clause 12 NEN 6065 AS 1530.3-1999	B1 Part 7 class 1 Self extinguishing HF-1 Flash over: class 1 Spread of flame index: 0

## Description

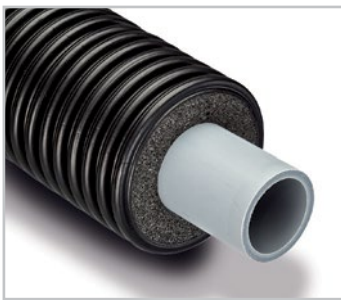
Flexalen is a flexible pre-insulated pipe system that is perfect for all HVAC needs. In general, Flexalen system consists of a Polybutylene (PB) Pipe, Insulation Foam, and an outer casing.

**PB-1 Pipe** is a strong and flexible pipe that can be used safely for potable/drinking water. Its smooth surface ensures that there will be no build up of scale and calcification over a prolonged period of usage time. The smooth surface of the interior wall also gives very low resistance and minimal pressure loss, thus making your whole system that much more efficient. Aside from safety with drinking water, PB pipe is also highly resistant to chemicals.

**Insulation Foam** used for Flexalen system is an upgraded version of our already superior insulation foam. It has a lower Thermal Conductivity value, which in turn gives a better performance in preventing condensation and heat loss. Thanks to an integrated manufacturing process, there is no gap between the insulation foam and the pipe, thus increasing the system's resistance to condensation.

**Outer Casing** is corrugated and made of High-Density Polyethylene (HDPE). It is strong enough to sustain various kinds of pressure from outside to prevent damage to the insulation underneath it. Because of this strength, Flexalen system with outer casing can be buried underground without the need of cement trench, thus speeding up installation time tremendously, while cutting the cost needed to build the trench when using conventional steel pipes.

## Product Range and Properties



### ■ Flexalen 600

Suitable for heating, potable, and thermal pipes up to 95°C and 8 bar.

### 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



## ■ 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

## ■ 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.

## ■ Accessories



Electrofusion Elbow 45° Socket / Spigot



Electrofusion Reducer



Electrofusion Reduced T-piece



Electrofusion Socket Connection



Electrofusion Reducer



Electrofusion T-piece



Electrofusion Elbow 90°



Electrofusion Elbow 45°



Polyfusion Endcap



Polyfusion T-piece



Polyfusion Reducer



Polyfusion Elbow 90°

## Description

ThermaSmart Pro is an innovative material based on thermoplastic elastomeric foams. It has a closed cell structure and remains flexible within the temperature range of -80°C to +95°C. The material is definitely stronger than other traditional elastomers and has a better resistance against outside influences. Additionally, ThermaSmart Pro is UV resistant and is therefore suitable for indoor and outdoor applications. In addition, ThermaSmart Pro has achieved a class "O" fire rating, which is the highest rating according to the British Standard test method. This is the main difference between ThermaSmart Pro and Thermaflex FRZ.



### Environmental friendly:

- completely recyclable
- free of (H)CFC's
- complies with highest ecological standards
- ozone Depletion Potential and Global Warming influence = 0



### Fire and smoke behaviour:

- complies with the most stringent European Standards
- smoke index (D=1,5 m-1) significantly lower than other elastomers
- hardly any toxic fumes during combustion



### UV/ weathering-resistance:

- built in UV protection
- weathering resistance 5 -10 times higher compared to other elastomers
- designed also for outdoor use



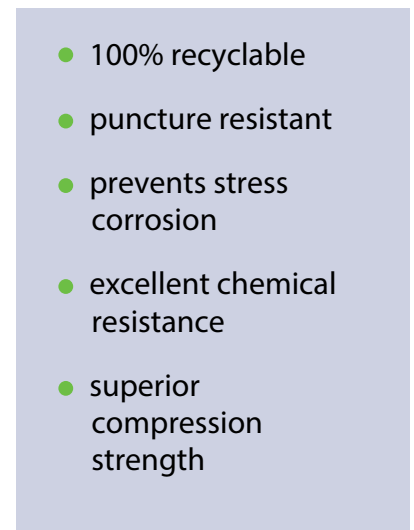
### Mechanical strengths:

- high strengths from -80° C to +95° C (-112° F to +203° F)
- no brittleness below freezing point
- high tear resistance throughout the material



### Stability of the material:

- carries higher pipe loads compared to other elastomers
- ensures constant insulation thickness
- resistant to stretching



- 100% recyclable
- puncture resistant
- prevents stress corrosion
- excellent chemical resistance
- superior compression strength

## Technical Properties

Physical properties	Test method	Data
Density	ASTM D 1667	25 – 35 kg/m <sup>3</sup>
Cell structure	Digital analyse	Uniform, small, closed cells
Colour		Anthracite
Thermal conductivity ( λ )	DIN 52612/52613	0,032 W/mK at 0°C 0,036 W/mK at 40°C
Temperature range	DSC scan	From -80°C to +95°C
Water-vapour diffusion resistance ( μ )	DIN 52615	μ > 10.000
UV resistance	ISO 4892-2 Xenon-arc sources Laboratory calculation Europe	> 10 years
Odour		Neutral
Compression strength	ISO 844 / DIN 53577	Force 10% 0,035-0,045 N/mm <sup>2</sup> Force 20% 0,045-0,055 N/mm <sup>2</sup> Force 50% 0,060-0,080 N/mm <sup>2</sup>
Compression set	ISO 844 / DIN 53577	0 (direct rebound): 90-95%
Fire performance	Germany: DIN 4102	B1
	The Netherlands: NEN 6065	Flash over class1 Spread of flame class 2
	UK: BS 476 Part 7	Class 1
	UK: BS 476 Part 6	Class 0
	UK: BS 476 Part 5	Passed
	France: P - 92507	M1
Smoke density	The Netherlands: NEN 6066	Smoke number: DL:max = 1,5m-1
	ASTM E662 – 97	Burning D4 min = 70 Not burning D4 min = 25
Toxicity	Airbus Directive ABD 0031	Pass (both burning and not burning, fumes do not contain cyanides, nitrous and sulphurous gasses)
Puncture resistance	Shearing force caused by a 1 mm rounded point	No damage
Tear strength	DIN 53577	Good
Chemical resistance	ASTM D 543	Excellent

### ■ Tube Insulation

- 6 mm up to 30 mm thickness
- 6 mm up to 114 mm inner diameter
- Standard Length: 2 meters

### ■ Sheet Insulation

- 10, 13, 15, 20, 25, 30, 40, 50 mm thickness
- Standard Width: 60 cm

# Thermaflex

taking care of energy and environment

**Thermaflex aims to reduce energy losses** by providing innovative and sustainable energy saving solutions for renovation and new buildings. By creating efficient long life networks, with reduced complexity, cost and time to connect, more use can be made of renewable resources.

**Thermaflex provides energy saving**, environmentally friendly and cost effective distribution networks for heating, cooling, sanitary and air-conditioning. Flexible Insulation and pre-insulated piping systems form the basis of our solutions, designed for indoor and underground networks. All products are made to the highest environmental standards.

**Thermaflex contributes to comfort of climate** and sanitary for communities worldwide, regardless of ambient conditions, culture or income. Already represented in over 40 countries, of which five with own production, Thermaflex is a rapidly growing organization committed to professional service and support of all stakeholders involved in the production, distribution and use of thermal energy.



Certificate No 0751-CPD.2-004.0-01  
PEF-EN14313-ST(+)-95-WS01  
Euro class C<sub>s</sub>-s1, d0

[www.thermaflex.com](http://www.thermaflex.com)



ISO 9001  
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910276-EN