



ARMAFLEX LTD

FEF INSULATION FOR CRYOGENIC AND
LOW TEMPERATURE APPLICATIONS
DOWN TO -180 °C



- Stays flexible at low temperatures
- Reduces the risk of crack development and propagation
- Reduces the risk of corrosion under insulation (CUI)
- Protects against mechanical impact and shock

- Low thermal conductivity
- Low glass transition temperature
- Easy installation even to complex shapes
- Less wastage compared to rigid / pre-fabricated pieces

Technical Data - Armaflex LTD [ES]

Brief description	Armaflex® LTD is a flexible, high density and mechanically robust, closed cell cryogenic thermal insulation material based on extruded elastomeric foam. The product has been specially developed for use on the import/export pipelines and process areas of LNG facilities.
Material type	Synthetic Diene Terpolymer rubber based foam. Factory made flexible elastomeric foam (FEF) according to EN 14304.
Colour	Blue
Material Special Information	Armaflex® LTD is suitable for a range of operating conditions down to -180 °C including liquefied natural gas (LNG) installations. However, it is not recommended for application to process pipelines and equipment carrying liquid oxygen, or to gaseous oxygen lines and equipment running above 1.5 MPa (218 psi) pressure or running above +60 °C (+140°F) operating temperature. For detailed information or advice please refer to our Customer Service Centre.
Product Range	Tubes, 25 mm thickness, for pipe outer diameters ranging from 18 to 89 mm (¾" to 3" NB). Sheets in rolls, 25 mm thickness.
Applications	Cryogenic thermal insulation / protection of pipes, vessels and equipment (incl. elbows, fittings, flanges etc.) in production plants for petrochemicals, industrial gases, LNG, agricultural chemicals and other process equipment facilities.
Special Features	A high-performance thermal insulation material designed to meet the demands of cryogenic-temperature environments. Armaflex® LTD is part of Armaflex® Cryogenic Systems, providing low temperature flexibility to the system.
Assembly	For industrial applications it is recommended to consult the relevant Armacell installation instructions and application manuals. Please consult our Customer Service Centre.
Remarks	EN 14304 (harmonized construction product standard for FEF) Lloyds approval

Property	Value/Assessment	Special Remark										
Temperature Range												
Temperature Range	max. service temperature +110 °C / + 230 °F min. service temperature ¹ -180 °C / -292 °F	Tested according to EN 14706, EN 14707 and EN 14304										
Thermal Conductivity												
Thermal Conductivity	ϑ_m <table border="1"> <tr> <td>-180 °C</td> <td>-100 °C</td> <td>-50 °C</td> <td>0 °C</td> <td>+50 °C</td> </tr> <tr> <td>λ ≤ 0,031</td> <td>0,039</td> <td>0,040</td> <td>0,040</td> <td>0,044</td> </tr> </table> λ _d (θ _m)=0.04+9×10 ⁻⁵ ×θ _m +1.5×10 ⁻⁷ ×θ _m ² +1.5×10 ⁻⁹ ×θ _m ³ , where θ _m is mean temperature in °C Sheets & Tubes (25mm) [W/(m · K)]	-180 °C	-100 °C	-50 °C	0 °C	+50 °C	λ ≤ 0,031	0,039	0,040	0,040	0,044	Declared according to EN ISO 13787 Tested according to EN 12667 EN ISO 8497 (Equivalent methods ASTM C177 and C518)
-180 °C	-100 °C	-50 °C	0 °C	+50 °C								
λ ≤ 0,031	0,039	0,040	0,040	0,044								
Water vapour diffusion resistance												
Water vapour diffusion resistance	For details on system performance please contact our Customer Service Centre											
Fire performance												
Other Fire Class	BS 476 Part 7 Class 1 ASTM E84 ² Class A (< 25 flame spread)	BS 476 Class 1 Approved by Lloyds										
Practical Fire Behaviour	Self-extinguishing, does not drip, does not spread flames.											
Other technical features												
Density	sheets: 60 to 75 kg/m ³ tubes: 60 to 80 kg/m ³	Tested according to ISO 845, ASTM D1622										
Dimensions and tolerances	According to EN 14304, for detailed values please refer to product range tables.											
UV resistance	In all industrial applications the outer layer of the material must be protected with an adequate covering like Arma-Chek R, metal jacketing or preformed UV-cured GRP (Glass-Reinforced Plastic) cladding. For further information please consult our Customer Service Centre.											
Health aspects	Neutral, MSDS available on request.											
Storage & Shelf life	Material shall be stored indoors, in clean and dry conditions, away from direct sunlight. max. shelf (storage) life: 3 years											
Compression deflection	≥ 10 kPa at 25% deflection	Tested according to ISO 6916-1 (equivalent method ASTM D1056)										
Leachable (water-soluble)chlorides	≤ 80 ppm (mg/kg or µg/g)	Tested according to EN 13468 and ASTM C871										

Technical Data - Armaflex LTD [ES]

PH-value	7 to 9	Tested according to ISO 10523
Water absorption ²	≤ 0.1% by volume (total submersion for 2 hours)	Tested according to ASTM C209
Closed cell content	≥ 90 % declared on the basis of the water absorption test	
Glass transition temperature ²	Below -70 °C / -94 °F	
Application conditions	Ambient temperature: +5 °C to +35 °C Max. relative humidity: 80%	

1. For temperatures above or below those indicated in the "temperature range" above, please contact our Customer Service Center to request for the corresponding technical information.
2. Based on single test results. Can be used for information / reference only

All data and technical information are based on results achieved under typical application conditions. Recipients of this information should, in their own interest and responsibility, clarify with us in due time whether or not the data and information apply to the intended application area. Installation instructions are available in our Armaflex installation manual. Please consult our Customer Service Center before insulating stainless steels. Armaflex 520 or Armaflex HT 625 Adhesive must be used to guarantee proper installation. For outside use, Armaflex should be protected with a suitable outer covering within 3 days of installation. For applications related to the processing or storage of oxygen, please consult our technical services department. Armacell takes every precaution to ensure the accuracy of the data provided in this document and all statements, technical information and recommendations contained within are believed to be correct. However, Armacell cannot guarantee that the data are 100 % accurate. Furthermore, minor deviations in colour, quality and dimensions are unavoidable and in most cases do not influence the performance of the product. Armacell expressly disclaims any and all liability in relation to any results obtained or arising from any use of the product or reliance on such information. No warranty of fitness for any particular purpose, warranty of merchantability or any other warranty, expressed or implied, is made concerning the goods described or the information provided herein. All the statements and technical information within this document should be read in conjunction with the customer's own specification. It is the responsibility of the recipient to inform all involved parties about the content of these documents. The described and recommended methods should be strictly followed. If there is a requirement to deviate from our recommendations, please contact us in advance to discuss possible suitable alternatives. Armacell will not be liable for any claim resulting from a failure to observe our specification or any other agreed solutions and from non-observance of the customer's specification. For temperatures above +110 °C please contact our Customer Service Centre to request the corresponding technical information.

Technical Data - Armaflex LTD Anti-abrasive foil [ES]

Brief description	Insulation laminate used as a vapour barrier and reflection layer for insulation facings.
Material type	Foil construction: - 12 µ Alufoil, glossy - Glass scrim 5x5mm - 22 g/m ² LDPE Coating
Product Range	Rolls, with the following make up: Width: 1,020 mm Core: 76 mm, cardboard Length: 1300 m

Property	Value/Assessment	Special Remark
Temperature Range		
Temperature Range ¹	max. service temperature min. service temperature	110 °C -180 °C
Water vapour diffusion resistance		
Water vapour diffusion resistance	Water Vapour Transmission	< 0.03 g/m ² /24h DIN 53122
Other technical features		
Weight	Approx. 70 g/m ²	EN ISO 2286-2
Tensile strength	MD 250 N/50mm CD 250 N/50 mm	EN ISO 13934-1
Elongation	MD 4% CD 4%	EN ISO 13934-1
Infrared reflection	Approx. 85%	

1. For temperatures above +100 °C please contact our Customer Service Center to request for the corresponding technical information.

All data and technical information are based on results achieved under typical application conditions. Recipients of this information should, in their own interest and responsibility, clarify with us in due time whether or not the data and information apply to the intended application area. Please consult our Customer Service Center before insulating stainless steels. Armaflex 520 or Armaflex HT 625 Adhesive must be used to guarantee proper installation. Armacell takes every precaution to ensure the accuracy of the data provided in this document and all statements, technical information and recommendations contained within are believed to be correct. However, Armacell cannot guarantee that the data are 100 % accurate. Furthermore, minor deviations in colour, quality and dimensions are unavoidable and in most cases do not influence the performance of the product. Armacell expressly disclaims any and all liability in relation to any results obtained or arising from any use of the product or reliance on such information. No warranty of fitness for any particular purpose, warranty of merchantability or any other warranty, expressed or implied, is made concerning the goods described or the information provided herein. All the statements and technical information within this document should be read in conjunction with the customer's own specification. It is the responsibility of the recipient to inform all involved parties about the content of these documents. The described and recommended methods should be strictly followed. If there is a requirement to deviate from our recommendations, please contact us in advance to discuss possible suitable alternatives. Armacell will not be liable for any claim resulting from a failure to observe our specification or any other agreed solutions and from non-observance of the customer's specification.

Armaflex LTD [ES] tubes



Length 2,0 m

Pipe max. Outside-Ø [mm]	Inner Ø min/ max mm	25,0 mm insulation thickness	
		Code	m/carton
18	19,5 - 21,0	LTD-25X018	36
22	23,5 - 25,0	LTD-25X022	32
28	29,5 - 31,0	LTD-25X028	24
35	36,5 - 38,5	LTD-25X035	24
42	44,0 - 46,0	LTD-25X042	20
48	50,0 - 52,0	LTD-25X048	18
60	62,0 - 64,0	LTD-25X060	12
76	78,0 - 80,0	LTD-25X076	10
89	91,0 - 94,0	LTD-25X089	8

Length tolerance for tubes

± 1,5 %

Remark

Armaflex LTD is a part of the Armaflex Cryogenic System and should only be installed as a part of it.

Armaflex LTD [ES] sheets endless



Code	Insulation thickness [mm]	Roll length [m]	m ² /carton
LTD-25-99/E	25,0	4	4

Remark

Armaflex LTD is part of the Armaflex Cryogenic System and should only be installed as a part of it.

Armaflex LTD [ES] anti-abrasive foil



Color silver, Aluminium vapour barrier foil, thickness 12 µ

Code	Width [mm]	Roll length [m]	Rolls/carton	m ² /carton
LTD-1/50-ALU •	1.000,0	50	1	50

Remark

Rolls of 50m length can be replaced by two 25 m rolls.

• Item not in stock. Delivery on request. [MTO]

Armaflex LTD [ES] accessories



Code	Article description	Pieces/carton
ADH-HT625/1,0	Armaflex® HT625 one-component adhesive, 1,0 litre cans	12
CLEANER/1,0	Special cleaner for use with Armaflex® Adhesive 520 and Armaflex® Adhesive HT625.	4

