Armaflex® ACE Plus

THE FLEXIBLE INSULATION BASED ON ARMAFLEX® TECHNOLOGY

- Reliable condensation control based on closed-cell Armaflex technology
- Effective reduction of thermal losses
- Optimal range for easy application on most common pipes & duct sizes
- Increased system security when installed with Armafix and Armaflex Adhesives

- Euroclass B/B_L-s3,d0 for entire range

Technical Considerations

The following technical considerations should be taken into account when specifying thermal insulation products for HVAC-R, process and industrial pipe and ductwork systems:

Energy saving

The rate of heat flow from a pipe is largely governed by the differential to the ambient temperature, and heat losses can be considerable. The insulation of mechanical services is one of the single most effective measures for improving energy efficiency and prolonging the lifespan of equipment. Optimal pipe insulation of space heating, domestic hot water or cooling systems is still a remaining potential for further reduction of energy use and of the associated greenhouse gas emissions.

Thermal Conductivity and Condensation Control

Thermal conductivity (λ factor), stated in W/(m•K), is the property of a material's ability to conduct heat, measured across a 1m³ block. For example, a material with a high thermal conductivity such as copper has a value of 386 compared to a low thermal conductivity material such as Armaflex ACE Plus at 0.035 at 0 °C. Where pipework and services operate at below-ambient temperature water vapour condenses on the surface. If insulation becomes wet it loses thermal performance, leading to colder surface temperatures, condensation and corrosion issues. Closed cell Armaflex products provide an integral water vapour diffusion barrier with a mu value of >10,000.

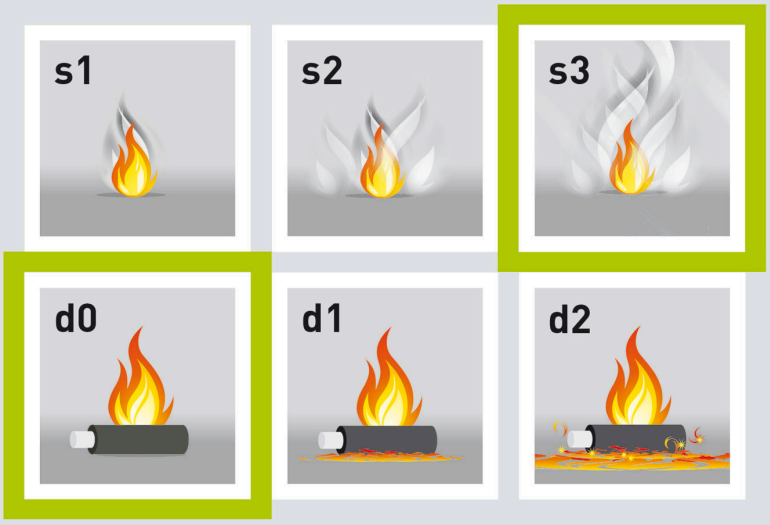
CE Marking

CE marking became a mandatory requirement for thermal insulation construction products governed by a European harmonized standard (hEN) in July 2013. The harmonized standards determine the required characteristics and obligatory properties, including fire behaviour (Euroclasses), dimensions and tolerances, thermal conductivity, dimensional stability and durability characteristics. Once a product has been tested to meet the required properties a designation code is printed on the product label to display the specific technical properties required by the hEN. The producer has to constantly keep the performance of its products at the declared level and prove with valid testing certificates e.g. B-s3,d0.

Euroclass	Contribution to fire
A1	Non Combustible
A2	Limited Combustible No Flashover
B	No Flashover
C	Flashover after 10 minutes
D	Flashover before 10 minutes
E	Flashover before 2 minutes
F	No Performance Determined

The European reaction to fire classification

Fire safety of construction products and building elements in the EU is determined by Euro Classes according to the EN 13501-1 standard. The uniform classification system is based on the performance of products under different fire conditions: the attack of a small flame, exposure to a fully developed fire and some intermediate level.
The main properties determining the Euro class for a specific product discloses if and how fast a product contributes to the fire.



Local regulations for fire protection

The decisions regarding fire resistance classifications of the building elements used in various parts of a building are made at the local level (by country government bodies). The rules for required Euroclass reaction to the fire of products installed in different places within the building are also published locally.

Technical Data - Armaflex ACE Plus

Brief description	Highly-flexible, closed-cell insulation material with high water vapour diffusion resistance and low thermal conductivity.
Material type	Elastomeric foam based on synthetic rubber. Factory made flexible elastomeric foam (FEF) according to EN 14304.
Colour	black
Material Special Information	Self-adhesive coating: pressure-sensitive adhesive coating on modified acrylate basis with mesh structure, covered with polyethylene foil. Traces of silicon can be found on the protection paper/foil used to protect self-adhesive closures.
Applications	Insulation / protection of pipes, air ducts, vessels (incl. elbows, fittings, flanges etc.) of air-conditioning, refrigeration and process equipment to prevent condensation and save energy as well as insulation of pipes in sanitary and heating applications.
Remarks	Declaration of Performance is available in accordance with Article 7(3) of Regulation (EU) No 305/2011 on our homepage: www.armacell.com/DoP

Property	Value/Assessment				Test*1	Special Remark
Temperature Range						
Temperature Range	max. service temperature	+110 °C		(+85 °C if sheet or tape is glued to the object with its whole surface.)	EU 5772	Tested acc. to EN 14706, EN 14707 and EN 14304
	min. service temperature[1]	-50 °C				
Thermal Conductivity						
Thermal Conductivity	ϑ_m +/-0 °C	.		λ=	EU 5772	Declared acc. to EN ISO 13787 Tested acc. to EN 12667 EN ISO 8497
	Tubes, Sheets, Tape λ ≤ 0,035	W/(m · K)		$[35 + 0{,}1 \cdot \vartheta_m + 0{,}0008 \cdot \vartheta_m^2]/1000$		
Water vapour diffusion resistance						
Water vapour diffusion resistance	sheets 3-32 mm; tubes 6-32 mm	μ	≥	10.000	EU 5772	Tested acc. to EN 12086 EN 13469
	sheets > 32-50 mm; tubes > 32 -45 mm	μ	≥	7.000		
Fire performance						
Reaction to fire	tubes, open tubes (up to 300 mm insulated $Ø_a$)	B_L-s3, d0			EU 5772	Classified acc. to EN 13501-1 Tested acc. to EN 13823 EN ISO 11925-2
	sheets	B-s3,d0				
	tape	B-s3,d0				
Practical Fire Behaviour	Self-extinguishing, does not drip, does not spread flames					
Acoustic Performance						
	Sound insulation capability test in accordance with test method in the FIAT 9.55655 standard					
Other technical features						
Dimensions and tolerances	In accordance with EN 14304, table 1				EU 5772	Tested according to EN 822, EN 823, EN 13467
UV resistance[2]	Protection against UV-radiation is necessary.					
Storage & Shelf life	Self-adhesive tapes, self-adhesive sheets, self-adhesive tubes: 1 year					Can be stored in dry, clean rooms at normal relative humidity (50% to 70%) and ambient temperature (0 °C – 35 °C).
Antimicrobial behaviour	antimicrobian insulation, resistance against mould and bacteria in accordance with ISO 846				EU 6865	tested acc.to EN ISO 846

1. For temperatures below -50 °C please contact our Customer Service Center to request for the corresponding technical information.
2. If Armaflex is applied under UV-radiation the material must be protected within 3 days with a covering or painting.

*1 Further documents such as test certificates, approvals and the like can be requested using the registration number given.

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. For some refrigerants the discharge temperature may exceed +110 °C, please consult our Customer Service Center for further information.

Armaflex ACE Plus tubes

Length 2,0 m, Color black

Pipe max. Outside-Ø [mm]	**6,0 mm** insulation thickness		**9,0 mm** insulation thickness	
	Code	m/carton	Code	m/carton
6	**ACE/P-06X006**	568	**ACE/P-09X006**	362
10	**ACE/P-06X010**	384	**ACE/P-09X010**	266
12	**ACE/P-06X012**	336	**ACE/P-09X012**	234
15	**ACE/P-06X015**	266	**ACE/P-09X015**	192
18	**ACE/P-06X018**	228	**ACE/P-09X018**	166
22	**ACE/P-06X022**	180	**ACE/P-09X022**	136
28	**ACE/P-06X028**	128	**ACE/P-09X028**	104
35	**ACE/P-06X035**	110	**ACE/P-09X035**	76
42	-	-	**ACE/P-09X042**	62
48	-	-	**ACE/P-09X048**	54
54	-	-	**ACE/P-09X054**	52
60	-	-	**ACE/P-09X060**	44
64	-	-	**ACE/P-09X064**	38
76	-	-	**ACE/P-09X076**	40
89	-	-	**ACE/P-09X089**	28
108	-	-	**ACE/P-09X108**	26
114	-	-	**ACE/P-09X114**	24

Pipe max. Outside-Ø [mm]	**13,0 mm** insulation thickness		**19,0 mm** insulation thickness	
	Code	m/carton	Code	m/carton
10	**ACE/P-13X010**	172	-	-
12	**ACE/P-13X012**	162	-	-
15	**ACE/P-13X015**	136	**ACE/P-19X015**	72
18	**ACE/P-13X018**	118	**ACE/P-19X018**	60
22	**ACE/P-13X022**	92	**ACE/P-19X022**	56
28	**ACE/P-13X028**	82	**ACE/P-19X028**	48
35	**ACE/P-13X035**	60	**ACE/P-19X035**	38
42	**ACE/P-13X042**	48	**ACE/P-19X042**	32
48	**ACE/P-13X048**	42	**ACE/P-19X048**	28
54	**ACE/P-13X054**	38	**ACE/P-19X054**	24
60	**ACE/P-13X060**	32	**ACE/P-19X060**	24
64	**ACE/P-13X064**	30	**ACE/P-19X064**	20
76	**ACE/P-13X076**	28	**ACE/P-19X076**	16
89	**ACE/P-13X089**	20	**ACE/P-19X089**	16
108	**ACE/P-13X108**	20	**ACE/P-19X108**	16
114	**ACE/P-13X114**	20	**ACE/P-19X114**	14
133	**ACE/P-13X133**	16	**ACE/P-19X133**	10
140	**ACE/P-13X140**	12	**ACE/P-19X140**	10
160	**ACE/P-13X160**	12	**ACE/P-19X160**	10

Pipe max. Outside-Ø [mm]	**25,0 mm** insulation thickness		**32,0 mm** insulation thickness	
	Code	m/carton	Code	m/carton
22	**ACE/P-25X022**	36	-	-
28	**ACE/P-25X028**	32	**ACE/P-32X028**	24
35	**ACE/P-25X035**	24	**ACE/P-32X035**	18
42	**ACE/P-25X042**	24	**ACE/P-32X042**	18
48	**ACE/P-25X048**	20	**ACE/P-32X048**	18
54	**ACE/P-25X054**	18	**ACE/P-32X054**	12
60	**ACE/P-25X060**	18	**ACE/P-32X060**	10
64	**ACE/P-25X064**	16	**ACE/P-32X064**	10
76	**ACE/P-25X076**	16	**ACE/P-32X076**	10
89	**ACE/P-25X089**	12	**ACE/P-32X089**	10
108	**ACE/P-25X108**	8	**ACE/P-32X108** ●	6
114	**ACE/P-25X114**	10	**ACE/P-32X114**	8
133	-	-	**ACE/P-32X133** ●	6
140	**ACE/P-25X140**	4	**ACE/P-32X140**	6
160	-	-	**ACE/P-32X160**	4

Armaflex ACE Plus tubes

Length 2,0 m, Color black

Pipe max. Outside-Ø [mm]	**40,0 mm** insulation thickness			
	Code	m/carton		
35	**ACE/P-40X035**	16	-	-
42	**ACE/P-40X042**	12	-	-
48	**ACE/P-40X048**	12	-	-
54	**ACE/P-40X054**	10	-	-
60	**ACE/P-40X060**	10	-	-
64	**ACE/P-40X064**	10	-	-
76	**ACE/P-40X076**	8	-	-
89	**ACE/P-40X089**	6	-	-
108	**ACE/P-40X108**	4	-	-
114	**ACE/P-40X114**	4	-	-
125	**ACE/P-40X125 ●**	4	-	-
140	**ACE/P-40X140**	2	-	-
160	**ACE/P-40X160**	2	-	-
168	**ACE/P-40X168**	4	-	-

Length tolerance for tubes	±1,5 %	
Thickness tolerance	≤ 8 mm:	±1,0 mm
	9 -18 mm:	±1,5 mm
	19 - 31 mm:	±2,5 mm
	> 31 mm:	±3,0 mm

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

Armaflex ACE Plus tubes endless

Pipe max. Outside-Ø [mm]	**6,0 mm** insulation thickness		**9,0 mm** insulation thickness	
	Code	m/carton	Code	m/carton
10	**ACE/P-06X010-E**	46	**ACE/P-09X010-E**	34
12	**ACE/P-06X012-E**		**ACE/P-09X012-E**	32
15	-	-	**ACE/P-09X015-E**	27
18	-	-	**ACE/P-09X018-E**	23
22	-	-	**ACE/P-09X022-E**	19

Armaflex ACE Plus sheets endless

Width 1,0 m, Color black

Sheets endless			
Code	Insulation thickness [mm]	Roll length [m]	m²/carton
ACE/P-06-99-EP	6,0	30	30
ACE/P-09-99-EP	9,0	22	22
ACE/P-13-99-EP	13,0	18	18
ACE/P-19-99-EP	19,0	14	14
ACE/P-25-99-EP	25,0	9	9
ACE/P-32-99-EP	32,0	7	7
ACE/P-40-99-EP	40,0	6	6
ACE/P-50-99-EP	50,0	4	4

Length tolerance for sheets	±1,5 %	
Thickness tolerance for sheets	≤ 6 mm:	±1,0 mm
	7 -19 mm:	±1,5 mm
	>19 mm:	±2,0 mm

Armaflex ACE Plus sheets endless self-adhesive

Width 1,0 m, Color black

Sheets endless self-adhesive			
Code	Insulation thickness [mm]	Roll length [m]	m²/carton
ACE/P-06-99-EAP	6,0	30	30
ACE/P-09-99-EAP	9,0	22	22
ACE/P-13-99-EAP	13,0	18	18
ACE/P-19-99-EAP	19,0	14	14
ACE/P-25-99-EAP	25,0	9	9
ACE/P-32-99-EAP	32,0	7	7
ACE/P-40-99-EAP	40,0	6	6
ACE/P-50-99-EAP	50,0	4	4

Length tolerance for sheets	±1,5 %	
Thickness tolerance for sheets	≤ 6 mm:	±1,0 mm
	7 -19 mm:	±1,5 mm
	>19 mm:	±2,0 mm

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