NH/Armaflex®

FLEXIBLE HALOGEN FREE TECHNOLOGY



- Reliable solution for shipyard industry
- Professional insulation for clean rooms
- Prevents stress corrosion cracking when installed on stainless steel

EPD
Environmental Product Declaration

APPROVED LR TYPE APPROVAL SCHEME

TYPE APPROVED PRODUCT DNV·GL DNVGL.COM/AF

BUREAU VERITAS 1828 BUREAU VERITAS

NH/Armaflex in the new data centre of Comarch AG

DRESDEN, GERMANY

One of the most secure data centres in Central Germany and the heart of the German headquarters of Polish IT company Comarch was constructed in just under twelve months with an investment of 12 million euros.





CHALLENGE

A consistently low temperature must be guaranteed in order to protect the sensitive electronics in the data centre of Comarch AG in Dresden against overheating and failure. To air-condition the computer centre two water chillers with a cooling capacity of 550 kW each were installed. These cool four cold water storage units with a total water volume of 24,000 litres. The double-redundant system was constructed with pipes up to DN 300. The cooling requirement in data centres is enormous: if the worst comes to the worst, it can account for more than a third of energy consumption.

SOLUTION

The main parameter for increasing energy efficiency in refrigeration applications is the insulation. Because optimal insulation can significantly reduce energy losses. Therefore, AF/Armaflex was used to insulate the refrigeration plant and cooling-water lines as well as the ventilation plant and air ducts in Comarch's new building. The closed-cell insulation material has low thermal conductivity and high resistance to water-vapour transmission. It provides plant components with long-term protection against condensation and energy losses. The halogen-free NH/Armaflex was installed on the pipes in the data centre. In the event of a fire the product minimizes the risk of consequential damage which can cost many times more than the original fire damage. In a fire NH/Armaflex does not release corrosive gases which could form aggressive acids in combination with the water used for fighting the fire. Parts of the insulated systems were then clad with Okabell sheets.

Jörg Uhlig, Owner of Uhlig-Isolierung (Lübben):

"The servers in the new data centre emit a lot of heat and must be cooled continuously. Correctly calculated insulation ensures that the required line temperature is maintained as long as possible and the refrigeration machine does not need to start up so often to lower it. With AF/Armaflex it's possible to reduce the energy costs. What's more the highly flexible material is very easy to install."

Technical Data - NH/Armaflex

Brief description	Halogen free, flexible closed-cell insulation material with certification for use in marine environments, railway wagons and special building types.
Material type	Elastomeric foam based on synthetic rubber. Factory made flexible elastomeric foam (FEF) according to EN 14304.
Colour	dark grey / anthracite
Applications	Insulation / protection for pipes, air ducts, vessels (incl. Elbows, fittings, flanges etc.) of air-conditioning / refrigeration, ventilation and process equipment to prevent condensation and save energy.
Special Features	Without halogens (chloride, bromide) acc. to DIN / VDE 0472, part 815. Fulfils DIN 1988 Parts 200.
Safety and Environment	Type III Environmental Product Declaration (EPD): Declaration number "EPD-ARM-20150106-IBB1-DE", Institut Bauen und Umwelt e.V. (IBU)
Assembly	When installing NH/Armaflex sheets and tubes use special application advice available from Technical Department .
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" : 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 5664	Tested according to EN 14706 EN 14707 EN 14304
	min. service temperature[1]	-50 °C			
Thermal Conductivity					
Thermal Conductivity	ϑ_m +/-0	°C	λ=	EU 5664	Declared acc. to EN ISO 13787 Tested according to EN 12667 EN ISO 8497
	λ ≤ 0,040	W/(m · K)	$[40 + 0{,}1 \cdot \vartheta_m + 0{,}0009 \cdot \vartheta_m^2]/1000$		
Water vapour diffusion resistance					
Water vapour diffusion resistance	μ	≥	2.000	EU 5664	Tested according to EN 12086 EN 13469
Fire performance					
Reaction to fire	tubes, open tubes	D_L-s2, d0		EU 5664	Classified acc. to EN 13501-1 Tested according to EN 13823 and EN ISO 11925-2
	sheets, tape	E			
Other Fire Class	Ship Building:Bureau Veritas, Det Norske Veritas	low- flammable		Ship Building: D 5555 D 5348 EU 5475	Ship Building: Classified acc. to MED 96/98/EC MODULE D and B Tested acc.to IMO Part 5 and Annex 2 Item 2.2
	Railway sheets up to 25 mm	S4 SR2 ST2 FED< 1		Railway: D 6666	Railway:Classified acc. to DIN 5510-2 Tested acc. to DIN 54837
	UL approved	HF-1		UL: D 5837	UL:Tested acc. to UL94, IEC 60695 and Can/CSA-C.22.2 No.0.17., UL 746C
Practical Fire Behaviour	Self-extinguishing, does not drip, does not spread flames				
Other technical features					
Dimensions and tolerances	In accordance with EN 14304, table 1			EU 5664	Tested acc. to EN 822, EN 823, EN 13467
Chemical behaviour	Resistant against commonly used building materials like concrete, lime, gypsum, cement.				
UV resistance[2]	Protection against UV-radiation is necessary.			TB 142	
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).
AGI Designation Code	tubes 36.12.04.07.01 sheets 36.07.04.07.01				

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.

*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 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.

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NH/Armaflex tubes

Length 2,0 m

Pipe max. Outside-Ø [mm]	9,0 mm insulation thickness		13,0 mm insulation thickness	
	Code	m/carton	Code	m/carton
10	**NH-09X010**	266	**NH-13X010**	156
12	**NH-09X012**	200	**NH-13X012**	162
15	**NH-09X015**	192	**NH-13X015**	120
18	**NH-09X018**	166	**NH-13X018**	112
22	**NH-09X022**	136	**NH-13X022**	98
28	**NH-09X028**	98	**NH-13X028**	78
35	**NH-09X035**	76	**NH-13X035**	56
42	**NH-09X042**	60	**NH-13X042**	48
48	**NH-09X048**	50	**NH-13X048**	40
54	-	-	**NH-13X054**	34
60	-	-	**NH-13X060**	32
76	-	-	**NH-13X076**	22
89	-	-	**NH-13X089**	18

Pipe max. Outside-Ø [mm]	19,0 mm insulation thickness		25,0 mm insulation thickness	
	Code	m/carton	Code	m/carton
15	**NH-19X015**	78	**NH-25X015**	40
18	**NH-19X018**	60	**NH-25X018**	40
22	**NH-19X022**	56	**NH-25X022**	40
28	**NH-19X028**	48	**NH-25X028**	32
35	**NH-19X035**	36	**NH-25X035**	24
42	**NH-19X042**	32	**NH-25X042**	22
48	**NH-19X048**	24	**NH-25X048**	18
54	**NH-19X054**	24	**NH-25X054**	16
60	**NH-19X060**	18	**NH-25X060**	12
76	**NH-19X076**	12	**NH-25X076**	10
89	**NH-19X089**	12	**NH-25X089**	8
114	**NH-19X114**	8	**NH-25X114**	6
125	-	-	**NH-25X125**	4

Pipe max. Outside-Ø [mm]	32,0 mm insulation thickness			
	Code	m/carton		
15	**NH-32X015**	32	-	-
18	**NH-32X018**	28	-	-
22	**NH-32X022**	24	-	-
28	**NH-32X028**	24	-	-
35	**NH-32X035**	22	-	-
42	**NH-32X042**	16	-	-
48	**NH-32X048**	12	-	-
54	**NH-32X054**	12	-	-
60	**NH-32X060**	10	-	-
76	**NH-32X076**	8	-	-
89	**NH-32X089**	6	-	-
114	**NH-32X114**	4	-	-
140	**NH-32X140**	4	-	-

Length tolerance for tubes	± 1,5 %	
Thickness tolerance	3 - 6 mm	± 1,0 mm
	9 - 13 mm	± 1,5 mm
	>19 mm	± 2,5 mm

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NH/Armaflex tubes self-adhesive



Pipe max. Outside-Ø [mm]	13,0 mm insulation thickness		19,0 mm insulation thickness	
	Code	m/carton	Code	m/carton
15	**NH-13X015-A** •	120	**NH-19X015-A** •	78
18	**NH-13X018-A** •	112	**NH-19X018-A** •	60
22	**NH-13X022-A** •	98	**NH-19X022-A** •	56
28	**NH-13X028-A** •	78	**NH-19X028-A** •	48
35	**NH-13X035-A** •	56	**NH-19X035-A** •	36
42	**NH-13X042-A** •	48	**NH-19X042-A** •	32
48	**NH-13X048-A** •	40	**NH-19X048-A** •	24
54	**NH-13X054-A** •	34	**NH-19X054-A** •	24
60	**NH-13X060-A** •	32	**NH-19X060-A** •	18
76	-	-	**NH-19X076-A** •	12
89	-	-	**NH-19X089-A** •	12

Length tolerance for tubes	± 1,5 %
Thickness tolerance	9 - 13 mm ± 1,5 mm >19 mm ± 2,5 mm

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

NH/Armaflex sheets endless



Width 1,0 m

Code	Insulation thickness [mm]	Roll length [m]	m²/carton
NH-03-99/E	3,0	30	30
NH-06-99/E	6,0	15	15
NH-10-99/E	10,0	10	10
NH-13-99/E	13,0	8	8
NH-19-99/E	19,0	6	6
NH-25-99/E	25,0	4	4
NH-32-99/E	32,0	3	3

Length tolerance for sheets	± 1,5 %
Thickness tolerance for sheets	3-6 mm ± 1,0 mm 10-19 mm ± 1,5 mm 25-32 mm ± 2,0 mm

NH/Armaflex sheets endless self-adhesive



Width 1,0 m

Code	Insulation thickness [mm]	Roll length [m]	m²/carton
NH-03-99/EA	3,0	30	30
NH-06-99/EA	6,0	15	15
NH-10-99/EA	10,0	10	10
NH-13-99/EA	13,0	8	8
NH-19-99/EA	19,0	6	6
NH-25-99/EA	25,0	4	4
NH-32-99/EA	32,0	3	3

Length tolerance for sheets	± 1,5 %
Thickness tolerance for sheets	3-6 mm ± 1,0 mm 10-19 mm ± 1,5 mm 25-32 mm ± 2,0 mm

NH/Armaflex tapes self-adhesive



Code	Width [mm]	Length [m]	Thickness [mm]	Rolls/carton
NH-TAPE	50,0	15	3	12

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