SOLUTION FOR ENERGY SAVINGS

AP ArmaFlex®

Fibre-free, flexible elastomeric insulation for reliable protection against condensation and energy loss.

// Fiber-free, formaldehyde-free, low VOC and non-particulating formulation protects indoor air quality
// Closed-cell structure provides excellent condensation control
// Built-in vapor barrier eliminates need for additional vapour retarder

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ArmaFlex®

TECHNICAL DATA - AP ARMAFLEX

Brief description	AP ArmaFlex is a flexible insulation material that reliably protects against water vapour ingress due to its closed-cell structure. No additional water vapour barrier is required.
Material type	Elastomeric foam based on synthetic rubber.
Colour	Black.
Applications	Insulation for piping and ducting associated with heating, ventilation, air conditioning and refrigeration (HVAC-R) systems, Variable Refrigerant Volume (VRV) and Variable Refrigerant Flow (VRF) systems, chillers as well as hot and cold water plumbing systems.
Installation	Please refer to the ArmaFlex installation manual for advice. ArmaFlex can be used together with ArmaFlex 520 adhesive and ArmaFix® pipehangers for a complete insulation system.

Property	Value/Assessment						Standard/Test method
Temperature range							
Service temperature	Insulation thickness	Min. service temperature[1]		Max. service temperature			ASTM C534 - Grade 1
	3/8" to 1"	-297 °F (-183 °C)[2]		+220 °F (+105 °C)[3]			
	1-1/2" to 2" (tubes)	-297 °F (-183 °C)[2]		+300 °F (+149 °C)[4]			
	1-1/2" to 2" (sheets)	-297 °F (-183 °C)[2]		+220 °F (+105 °C)[3]			
	1-1/2" to 2" (FS sheets)	-297 °F (-183 °C)[2]		+300 °F (+149 °C)[4]			
Thermal conductivity							
		75 °F mean temperature (+24 °C)		90 °F mean temperature (+32 °C)			ASTM C177 or C518
	3/8" to 1"	0.245 Btu·in/h·ft²·°F	0.035 W/(m·K)	0.254 Btu·in/h·ft²·°F	0.037 W/(m·K)		
	1-1/2" to 2" (tubes)	0.280 Btu·in/h·ft²·°F	0.040 W/(m·K)	0.286 Btu·in/h·ft²·°F	0.041 W/(m·K)		
	1-1/2" to 2" (sheets)	0.250 Btu·in/h·ft²·°F	0.036 W/(m·K)	0.256 Btu·in/h·ft²·°F	0.037 W/(m·K)		
	1-1/2" to 2" (FS sheets)	0.280 Btu·in/h·ft²·°F	0.040 W/(m·K)	0.286 Btu·in/h·ft²·°F	0.041 W/(m·K)		
Water vapour diffusion resistance							
Water vapour permeability	3/8" to 1"	0.05 Perm-in		0.725 x 10^{-10} g/(s·m·Pa)			ASTM E96, Procedure A
	1-1/2" to 2" (tubes)	0.08 Perm-in		1.16 x 10^{-10} g/(s·m·Pa)			
	1-1/2" to 2" (sheets)	0.05 Perm-in		0.725 x 10^{-10} g/(s·m·Pa)			
	1-1/2" to 2" (FS sheets)	0.08 Perm-in		1.16 x 10^{-10} g/(s·m·Pa)			
Fire performance and approvals							
Flame spread and smoke developed index	25/50 rated (all products except AP ArmaFlex sheets of 1-1/2" and 2" insulation thickness)						ASTM E84, CAN/ULC S102[5]
Flammability	5V-A, V-0 rating						UL 94
	FM-Approved (up to 1-1/2" insulation thickness for tubes, and up to 1" insulation thickness for sheets)						FM 4924
Other technical features							
Water absorption	0.2%						ASTM C209 or C1763
Outdoor use	Painting with ArmaFinish Paint or protection with Arma-Chek® covering system is required to prevent damage and to comply with the insulation protection sections of the International Energy Conservation Code (IECC) and ASHRAE 90.1.						
Antimicrobial behaviour	Built-in Microban antimicrobial product protection						
Mould growth	Passed						UL 181
Fungal growth	Passed						ASTM G21 or C1338
Health aspects	Manufactured without CFCs, HFCs, HCFC, PBDEs or formaldehyde. GREENGUARD Gold for even lower VOC and total chemical emissions.						
U.S.A. Military specification	AP ArmaFlex meets specifications for products up to 1" insulation thickness.						MIL-P-15280J, FORM S, MIL-P-15280J, FORM T, MIL-C-3133C (MIL STD 670B) Grade SBE

[1] At temperatures below -20°F (-29°C), elastomeric insulation starts to become less flexible. However, this does not affect the performance of AP ArmaFlex in terms of thermal efficiency and resistance to water vapour permeability.
[2] For temperatures below -40 °C, please contact our Customer Service Center.
[3] AP ArmaFlex pipe insulation can withstand temperatures as high as 250 °F (121 °C) when tested according to ASTM C411 - Standard Test Method for Hot-Surface Performance of High-Temperature Thermal Insulation. However, continuous use temperature should be limited to a maximum of 220 °F (+105 °C)
[4] 1-1/2" and 2" AP ArmaFlex tubes and AP ArmaFlex FS sheets are formulated with EPDM rubber giving them a higher maximum service temperature as compared to other AP ArmaFlex products.
[5] AP ArmaFlex meets CAN/ULC S102 through 1" wall.

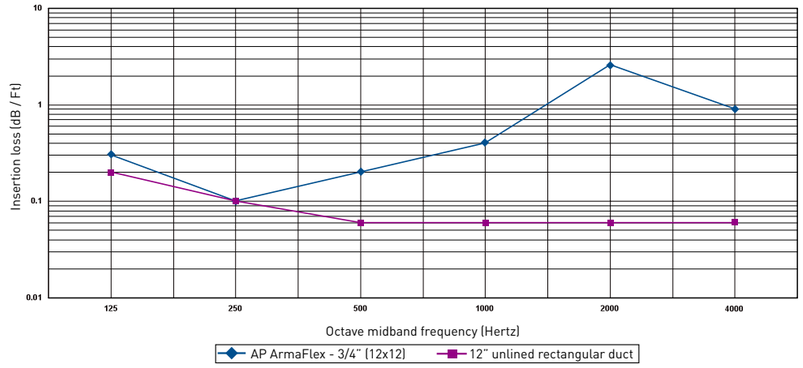
All data and technical information are based on results achieved under typical application conditions. Recipients of this information should, in their own interest and responsibility, clarify with our Technical department in due time whether or not the data and information apply to the intended application area.

AP ArmaFlex and AP ArmaFlex FS sheet insulation

	Sound absorption coefficients frequency (Hz)						NRC	SAA
Nominal insulation thickness	125	250	500	1000	2000	4000		
1" (25mm)	0.01	0.13	0.39	0.69	0.29	0.26	0.40	0.38
1-1/2" (38mm)	0.07	0.26	0.92	0.31	0.49	0.53	0.50	0.49
2" (50mm)	0.14	0.62	0.44	0.43	0.51	0.45	0.50	0.51

Nominal insulation thickness	Sound transmission class (STC)
1/2" (13mm)	25
1" (25mm)	25

Acoustics: Insertion Loss



Tubes (Length: 6', approximately 1.8 m. Some larger sizes are shipped as two pieces of 3' sections)

Insulation thickness											
3/8" (9mm)			1/2" (13mm)			3/4" (19mm)			Inner diameter of insulation	Nominal pipe size	
Item	Carton content		Item	Carton content		Item	Carton content			Cu	IPS
	[ft]	[pcs]		[ft]	[pcs]		[ft]	[pcs]	[inch]	[inch]	[inch]
APT01438	660	110	**APT01412**	570	95	**APT01434**	270	45	1/4	3/16	
APT03838	600	100	**APT03812**	450	75	**APT03834**	240	40	3/8	1/4	
APT01238	480	80	**APT01212**	396	66	**APT01234**	210	35	1/2	3/8	1/4
APT05838	390	65	**APT05812**	300	50	**APT05834**	144	24	5/8	1,'2	3/8
APT03438	330	55	**APT03412**	240	40	**APT03434**	138	23	3/4	5/8	
APT07838	270	45	**APT07812**	210	35	**APT07834**	120	20	7/8	3/4	1/2
APT11838	210	35	**APT11812**	150	25	**APT11834**	90	15	1-1/8	1	3/4
APT13838	180	30	**APT13812**	120	20	**APT13834**	72	12	1-3/8	1-1/4	1
APT15838	120	20	**APT15812**	90	15	**APT15834**	60	10	1-5/8	1-1/2	1-1/4
APT11038	96	16	**APT11012**	90	15	**APT11034**	60	10			1-1/2
APT21838	96	16	**APT21812**	60	10	**APT21834**	54	9	2-1/8	2	
APT20038	84	14	**APT20012**	60	10	**APT20034**	48	8			2
APT25838	72	12	**APT25812**	60	10	**APT25834**	48	8	2-5/8	2-1/2	
APT21038	60	10	**APT21012**	48	8	**APT21034**	42	7			2-1/2
APT31838	54	9	**APT31812**	42	7	**APT31834**	36	6	3-1/8	3	
APT30038	42	7	**APT30012**	36	6	**APT30034**	30	5			3
			APT35812	36	6	**APT35834**	30	5	3-5/8	3-1/2	
			APT41812R	30	5	**APT41834R**	24	4	4-1/8	4	
			APT40012R	24	4	**APT40034R**	24	4			4
			APT50012R	18	3	**APT50034R**	12	2			5
			APT60012R	12	2	**APT60034R**	6	1			6
			APT80012R	6	1	**APT80034R**	6	1			8
											10

Sheets

36" width, 48" length (0.915m x 1.22m)				
Item	Insulation thickness		Carton content	
	[inch]	[mm]	[pcs]	[sq ft]
APS18043	1/8	3	48	576
APS14043	1/4	6	24	288
APS38043	3/8	9	16	192
APS12043	1/2	13	12	144
APS34043	3/4	19	8	96
APS10043	1	25	6	72
APS11243FS	1-1/2	38	4	48
APS20043FS	2	50	3	36

Minimum order quantities and different lead times may apply.

Sheets

36" width, 48" length (0.915m x 1.22m)				
Item	Insulation thickness		Carton content	
	[inch]	[mm]	[pcs]	[sq ft]
APS11243	1-1/2	38	4	48
APS20043	2	50	3	36

This material is not 25/50 rated.

Tubes (Length: 6', approximately 1.8 m. Some larger sizes are shipped as two pieces of 3' sections)

Insulation thickness											
1" (25mm)			1-1/2" (38mm)			2" (50mm)			Inner diameter of insulation	Nominal pipe size	
Item	Carton content		Item	Carton content		Item	Carton content			Cu	IPS
	[ft]	[pcs]		[ft]	[pcs]		[ft]	[pcs]	[inch]	[inch]	[inch]
APT01410	210	35							1/4	3/16	
APT03810	192	32	**APT03815R**	60	10	**APT03820**	36	6	3/8	1/4	
APT01210	144	24	**APT01215R**	54	9	**APT01220**	30	5	1/2	3/8	1/4
APT05810	120	20	**APT05815R**	54	9	**APT05820**	30	5	5/8	1/2	3/8
APT03410	90	15	**APT03415**	48	8	**APT03420**	30	5	3/4	5/8	
APT07810	90	15	**APT07815**	36	6	**APT07820**	30	5	7/8	3/4	1/2
APT11810	72	12	**APT11815**	36	6	**APT11820**	24	4	1-1/8	1	3/4
APT13810	60	10	**APT13815**	30	5	**APT13820**	18	3	1-3/8	1-1/4	1
APT15810	48	8	**APT15815**	24	4	**APT15820**	18	3	1-5/8	1-1/2	1-1/4
APT11010	42	7	**APT11015**	24	4	**APT11020**	18	3			1-1/2
APT21810	36	6	**APT21815**	24	4	**APT21820**	12	2	2-1/8	2	
APT20010	36	6	**APT20015**	24	4	**APT20020**	12	2			2
APT25810	36	6	**APT25815**	18	3	**APT25820**	12	2	2-5/8	2-1/2	
APT21010	30	5	**APT21015**	18	3	**APT21020**	12	2			2-1/2
APT31810	30	5	**APT31815**	12	2	**APT31820**	12	2	3-1/8	3	
APT30010	24	4	**APT30015**	12	2	**APT30020**	12	2			3
APT35810	24	4	**APT35815**	12	2	**APT35820**	12	2	3-5/8	3-1/2	
APT41810R	18	3	**APT41815R**	12	2	**APT41820R**	6	1	4-1/8	4	
APT40010R	18	3	**APT40015R**	12	2	**APT40020R**	6	1			4
APT50010R	12	2	**APT50015R**	6	1	**APT50020R**	6	1			5
APT60010R	6	1	**APT60015R**	6	1	**APT60020R**	6	1			6
APT80010R	6	2 x 3'	**APT80015R**	6	2 x 3'	**APT80020R**	6	2 x 3'			8
APT100010	6	2 x 3'	**APT100015**	6	2 x 3'	**APT100020**	6	2 x 3'			10

Sheets (rolls)

48" width (1.22m)					
Item	Insulation thickness		Length		Carton content
	[inch]	[mm]	[ft]	[m]	[sq ft]
APR14040	1/4	6	140	42.6	560
APR38040	3/8	9	100	30.5	400
APR12040	1/2	13	70	21.4	280
APR34040	3/4	19	50	15.2	200
APR10040	1	25	35	10.7	140
APR11240FS	1-1/2	38	25	7.6	100
APR20040FS	2	50	18	5.4	72

Minimum order quantities and different lead times may apply.

Sheets (rolls)

48" width (1.22m)					
Item	Insulation thickness		Length		Carton content
	[inch]	[mm]	[ft]	[m]	[sq ft]
APR11240	1-1/2	38	25	7.6	100
APR20040	2	50	18	5.4	72

This material is not 25/50 rated.

//Cover Photo (Top)
New Orleans Superdome, Louisiana, USA
Worry-free solution for contractors who needed one less thing to worry about during a challenging renovation project.
When Hurricane Katrina hit New Orleans, it tore off part of the roof of the Superdome, leaving the large ductwork in what is known as the "gladiator ring" exposed. The duct, along with the fibrous insulation inside, was infiltrated with mould. Remediation teams removed all contaminated materials and the Associated Design Group and Mechanical Insulation of Baton Rouge replaced the old ductwork with new sheet metal and 80,000 sq ft of AP/ArmaFlex insulation sheet.

//Cover Photo (Right)
Empire State Building, New York, USA
AP/ArmaFlex complements Empire State Building's green initiatives.
AP/ArmaFlex was written in the building's original specifications, and was the obvious choice when the building underwent a US$20 million renovation project, guided by a partnership between the Clinton Climate Initiative (CCI), Johnson Controls Inc. (JCI), Jones Lang LaSalle (JLL), and the Rocky Mountain Institute.

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ABOUT ARMACELL

As the inventors of flexible foam for equipment insulation and a leading provider of engineered foams, Armacell develops innovative and safe thermal, acoustic and mechanical solutions that create sustainable value for its customers. Armacell's products significantly contribute to global energy efficiency making a difference around the world every day. With 3,100 employees and 24 production plants in 16 countries, the company operates two main businesses, Advanced Insulation and Engineered Foams. Armacell focuses on insulation materials for technical equipment, high-performance foams for high-tech and lightweight applications and next generation aerogel blanket technology.

For more information, please visit:
www.armacell.com