

Armaflex®
FRV

THE HIGH PERFORMANCE INSULATION
FOR AIR CONDITIONING, HEATING,
REFRIGERATION AND PLUMBING



- Fire tested for vertical pipe chases to NFPA274
- Complies with National Construction Code (NCC)
- Low thermal conductivity, $\lambda_{23^{\circ}\text{C}} \leq 0.035 \text{ W}/(\text{m} \cdot \text{K})$
- High resistance to water vapour
- Meets GBCA Green Star Insulant ODP requirements
- Complies with AS/NZS 4859.1



 **armacell**
advanced insulation

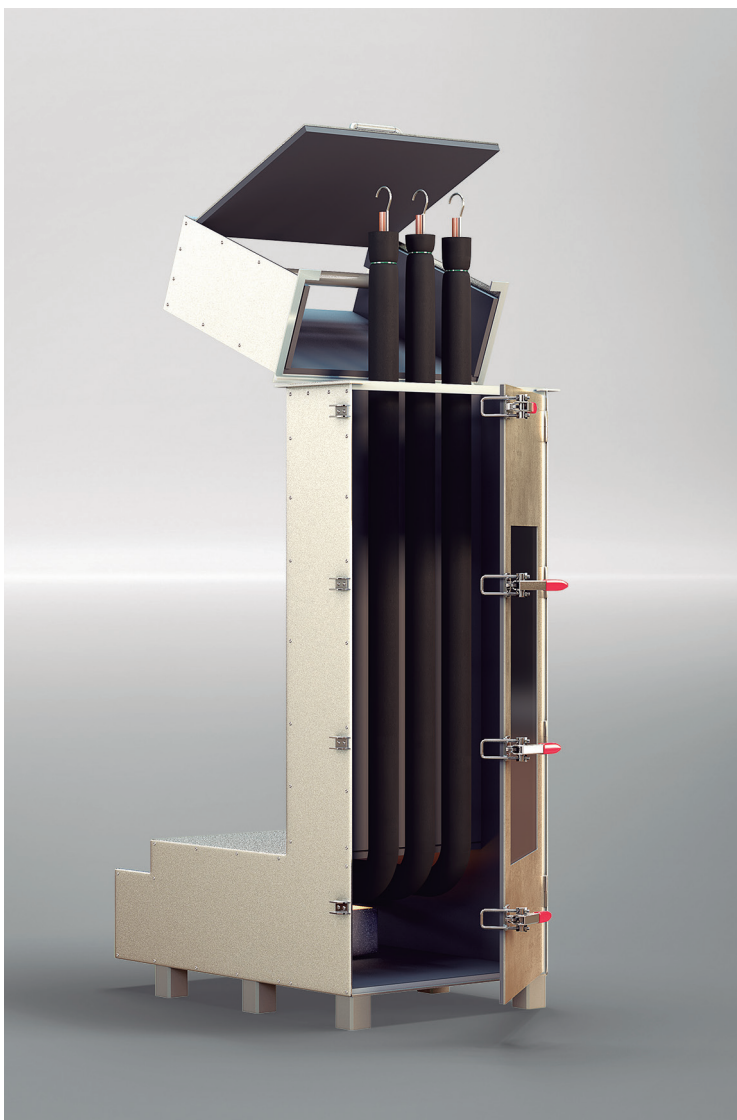
THE MAKERS OF
Armaflex®

Technical Data - Armaflex FRV

Brief Description	Highly-flexible, closed cell insulation material made from nitrile rubber, with high water-vapour diffusion resistance and low thermal conductivity.
Material type	Insulation to prevent heat loss from heated water pipes and hot processing pipes. Insulation to prevent condensation and limit heat gain on airconditioning, refrigerant and chilled pipe lines. Suitable for use in air conditioning, refrigeration, heating & plumbing.
Safety and Environment	ODP zero. Free of zone depleting gases in manufacture & composition GWP zero Dust free & fibre free
Assembly	Light weight and flexible. Closed-cell structure means no additional vapour barrier is required.

Property	Value/Assessment	Special Remark
Temperature Range	Maximum service temperature (tubes) +105 °C Minimum service temperature -50°C	Maximum for sheet = +85°C
Thermal conductivity	λ_m +/-0 + 15 + 23 [°C] ≤ 0.033 0.034 0.035 [W/(m - k)]	Tested according to ASTM C518 and ASTM C335
Water vapour diffusion resistance	$\mu > 5,000$	Tested to EN12086
Fire performance	Compliant with the fire-hazard requirements of the Building Code of Australia. Group Number Classification: 1 According to the New Zealand Building Code Verification Method C/VM2 Appendix A	Tested acc. to AS/NZS 1530.3.1999 Tested acc to ISO 5660
UV resistance	For outdoor applications, covering with Arma-Chek Silver 350 is recommended.	
Water absorption	0.2 % By volume	Test acc. to ASTM C208

All statements and technical information are based on results obtained under typical conditions. It is the responsibility of the recipient to verify with us that the information is appropriate for the specific use intended by the recipient.



TOUGHER FIRE TESTING FOR INCREASED SAFETY

- The BCA sets minimum performance requirements of materials, and does not always account for all installation conditions
- The AS/NZS 1530.3 testing required by the BCA is a single test method, using small samples, and does not provide a full assessment of fire hazard under all fire conditions
- The AS/NZS 1530.3 test alone does not ensure fire safety
- Full-scale tests with large samples can provide more comprehensive assessment of fire hazard
- "Pipe chase" tests can assess how insulated pipes behave in confined spaces more typical of how pair-coil is installed
- One test, the NFPA274, simulates one of the most severe conditions that can be found in a building: a fire involving multiple insulated pipes in a confined vertical configuration
- The NFPA 274 test simulates a small, growing fire that escalates and may be anticipated when combustible materials burn within a vertical chase or a confined ceiling cavity or plenum
- Armaflex FRV, the insulation foam used in Kühlpair, has been tested in accordance with NFPA274 and passed the recommended performance criteria for this standard
- The recommended pass criteria for NFPA 274 includes limits for the Maximum Heat Release, Total Heat Release, Total Smoke Release and extent of flame

Material R-Values for Armaflex FRV Insulation

There are a number of instances where the R-value is specified for the selection of an insulation material and its thickness. R-values are specified in the Building Code of Australia and in several Australian and New Zealand standards. 'R-Value' or thermal resistance is a measure of the ability of a material to retard heat flow.

Thermal resistance is used in combination with numerals to designate thermal resistance values: R-2 equals resistance units. The higher the R-value the higher the insulation value. The following table provides the Material R-Values for Armaflex pipe insulation, and values are calculated in accordance with AS/NZS 4589.1 (clause 2.3.3.8)

Pipe Insulation R-Values

Nominal Pipe Size [mm]	9mm	13mm	19mm	25mm	32mm	38mm	50mm
6	0.48	0.77	1.3	1.8	2.5	3.1	4.3
10	0.41	0.66	1.1	1.5	2.1	2.6	3.8
12	0.39	0.63	1.0	1.5	2.0	2.5	3.6
15	0.37	0.59	0.96	1.4	1.9	2.3	3.3
20	0.35	0.55	0.88	1.3	1.7	2.2	3.1
22	0.34	0.53	0.86	1.2	1.7	2.1	3.0
25	0.33	0.52	0.83	1.2	1.6	2.0	2.9
28	0.33	0.51	0.81	1.1	1.6	1.9	2.8
32	0.32	0.49	0.78	1.1	1.5	1.9	2.7
35	0.31	0.48	0.77	1.1	1.5	1.8	2.6
40	0.31	0.47	0.74	1.0	1.4	1.8	2.5
42	0.31	0.47	0.74	1.0	1.4	1.7	2.5
50	0.30	0.45	0.71	0.99	1.3	1.7	2.4
54	0.30	0.45	0.70	0.97	1.3	1.6	2.3
60	0.29	0.44	0.69	0.95	1.3	1.6	2.2
64	0.29	0.44	0.68	0.94	1.3	1.6	2.2
67	0.29	0.44	0.67	0.93	1.3	1.5	2.2
76	0.29	0.43	0.66	0.91	1.2	1.5	2.1
80	0.28	0.43	0.66	0.90	1.2	1.5	2.1
89	0.28	0.42	0.65	0.89	1.2	1.5	2.0
101	0.28	0.42	0.63	0.87	1.2	1.4	2.0
114	0.28	0.41	0.62	0.85	1.1	1.4	1.9

Thermal resistance (Material R-Value) for flat surfaces such as sheet is easy to calculate. It is simply the thickness of the insulation (in metres) divided by the thermal conductivity of the insulation.

For example a 25mm-thick sheet of Armaflex with a thermal conductivity of 0.035 W/(m.K) has an "R" value equal to 0.71. You cannot directly compare "R" values calculated for flat surfaces with "R" values calculated for radial surfaces.

Sheet Insulation R-Values

Thickness	9mm	13mm	19mm	25mm	38mm	50mm
R-Value	0.26	0.37	0.54	0.71	1.09	1.43



Length 2.0m, colour grey/black

Pipe max. Outside-Ø [mm]	Inner Ø min/ max [mm]	9.0 mm insulation thickness		13.0 mm insulation thickness	
		Code	m/carton	Code	m/carton
6	6.5 - 8.5	FRV-09X006	308	FRV-13X006	198
10	10.2 - 12.2	FRV-09X010	264	FRV-13X010	160
12	13.9 - 16.1	FRV-09X012	198	FRV-13X012	144
15	17.2 - 19.2	FRV-09X015	176	FRV-13X015	126
20	19.9 - 22.5	FRV-09X020	160	FRV-13X020	112
22	23.2 - 25.9	FRV-09X022	144	FRV-13X022	96
25	26.5 - 28.5	FRV-09X025	112	FRV-13X025	84
28	29.6 - 32.5	FRV-09X028	96	FRV-13X028	78
32	32.8 - 35.8	FRV-09X032	90	FRV-13X032	66
35	36.0 - 39.1	FRV-09X035	90	FRV-13X035	66
40	39.1 - 42.2	FRV-09X040	80	FRV-13X040	60
42	42.4 - 45.7	FRV-09X042	72	FRV-13X042	48
50	51.3 - 54.3	FRV-09X050	64	FRV-13X050	40
54	55.0 - 58.3	FRV-09X054	64	FRV-13X054	40
60	62.7 - 66.2	FRV-09X060	48	FRV-13X060	30
67	67.7 - 71.4	FRV-09X067	40	FRV-13X067	30
76	77.1 - 80.1	FRV-09X076	36	FRV-13X076	28
80	80.5 - 84.5	FRV-09X080	36	FRV-13X080	24
89	90.9 - 96.2	-	-	FRV-13X089	20
101	104.7 - 109.2	-	-	FRV-13X101	20
114	118.3 - 123.3	-	-	FRV-13X114	20

Pipe max. Outside-Ø [mm]	Inner Ø min/ max [mm]	19.0 mm insulation thickness		25.0 mm insulation thickness	
		Code	m/carton	Code	m/carton
6	6.5 - 8.5	FRV-19X006	108	-	-
10	10.2 - 12.2	FRV-19X010	100	FRV-25X010	60
12	13.9 - 16.1	FRV-19X012	84	FRV-25X012	50
15	17.2 - 19.2	FRV-19X015	72	FRV-25X015	50
20	19.9 - 22.5	FRV-19X020	72	FRV-25X020	40
22	23.2 - 25.9	FRV-19X022	60	FRV-25X022	40
25	26.5 - 28.5	FRV-19X025	60	FRV-25X025	40
28	29.6 - 32.5	FRV-19X028	50	FRV-25X028	32
32	32.8 - 35.8	FRV-19X032	40	FRV-25X032	32
35	36.0 - 39.1	FRV-19X035	40	FRV-25X035	32
40	39.1 - 42.2	FRV-19X040	36	FRV-25X040	30
42	42.4 - 45.7	FRV-19X042	32	FRV-25X042	24
50	51.3 - 54.3	FRV-19X050	32	FRV-25X050	18
54	55.0 - 58.3	FRV-19X054	24	FRV-25X054	18
60	62.7 - 66.2	FRV-19X060	18	FRV-25X060	18
67	67.7 - 71.4	FRV-19X067	18	FRV-25X067	16
76	77.1 - 80.1	FRV-19X076	16	FRV-25X076	12
80	80.5 - 84.5	FRV-19X080	14	FRV-25X080	12
89	90.9 - 96.2	FRV-19X089	14	FRV-25X089	12
101	104.7 - 109.2	FRV-19X101	12	FRV-25X101	8
114	118.3 - 123.3	FRV-19X114	12	FRV-25X114	8

Armaflex FRV tubes



Length 2.0m, colour grey/black

Pipe max. Outside-Ø [mm]	Inner Ø min/ max [mm]	32.0 mm insulation thickness		38.0 mm insulation thickness	
		Code	m/carton	Code	m/carton
12	13.9 - 16.1	FRV-32X012	32	-	-
15	17.2 - 19.2	FRV-32X015	32	FRV-38X015	20
20	19.9 - 22.5	FRV-32X020	30	FRV-38X020	20
22	23.2 - 25.9	FRV-32X022	30	FRV-38X022	20
25	26.5 - 28.5	FRV-32X025	30	FRV-38X025	20
28	29.6 - 32.5	FRV-32X028	24	FRV-38X028	20
32	32.8 - 35.8	FRV-32X032	24	FRV-38X032	18
35	36.0 - 39.1	FRV-32X035	24	FRV-38X035	18
40	39.1 - 42.2	FRV-32X040	24	FRV-38X040	16
42	42.4 - 45.7	FRV-32X042	22	FRV-38X042	16
50	51.3 - 54.3	FRV-32X050	16	FRV-38X050	16
54	55.0 - 58.3	FRV-32X054	16	FRV-38X054	12
60	62.7 - 66.2	FRV-32X060	16	FRV-38X060	12
67	67.7 - 71.4	FRV-32X067	14	FRV-38X067	10
76	77.1 - 80.1	FRV-32X076	10	FRV-38X076	10
80	80.5 - 84.5	FRV-32X080	10	FRV-38X080	10
89	90.9 - 96.2	FRV-32X089	10	FRV-38X089	8
101	104.7 - 109.2	FRV-32X101	10	FRV-38X101	8
114	118.3 - 123.3	FRV-32X114	8	FRV-38X114	8
101	104.7 - 109.2	FRV-19X101	12	FRV-25X101	8
114	118.3 - 123.3	FRV-19X114	12	FRV-25X114	8

Armaflex FRV self-sealing tubes



Length 2.0m, colour grey/black

Pipe max. Outside-Ø [mm]	Inner Ø min/ max [mm]	9.0 mm insulation thickness		13.0 mm insulation thickness	
		Code	m/carton	Code	m/carton
6	6.5 - 8.5	FRV-09X006-A	140	FRV-13X006-A	198
10	10.2 - 12.2	FRV-09X010-A	110	FRV-13X010-A	160
12	13.9 - 16.1	FRV-09X012-A	90	FRV-13X012-A	144
15	17.2 - 19.2	FRV-09X015-A	72	FRV-13X015-A	126
20	19.9 - 22.5	FRV-09X020-A	64	FRV-13X020-A	112
22	23.2 - 25.9	FRV-09X022-A	54	FRV-13X022-A	96
25	26.5 - 28.5	FRV-09X025-A	44	FRV-13X025-A	84
28	29.6 - 32.5	FRV-09X028-A	40	FRV-13X028-A	78
32	32.8 - 35.8	FRV-09X032-A	80	FRV-13X032-A	66
35	36.0 - 39.1	FRV-09X035-A	-	FRV-13X035-A	66
40	39.1 - 42.2	FRV-09X040-A	-	FRV-13X040-A	60
42	42.4 - 45.7	-	-	FRV-13X042-A	48

Pipe max. Outside-Ø [mm]	Inner Ø min/ max [mm]	19.0 mm insulation thickness		25.0 mm insulation thickness	
		Code	m/carton	Code	m/carton
6	6.5 - 8.5	FRV-19X006-A	108	-	-
10	10.2 - 12.2	FRV-19X010-A	100	FRV-25X010-A	60
12	13.9 - 16.1	FRV-19X012-A	84	FRV-25X012-A	50
15	17.2 - 19.2	FRV-19X015-A	72	FRV-25X015-A	50
20	19.9 - 22.5	FRV-19X020-A	72	FRV-25X020-A	40
22	23.2 - 25.9	FRV-19X022-A	60	FRV-25X022-A	40
25	26.5 - 28.5	FRV-19X025-A	60	FRV-25X025-A	40
28	29.6 - 32.5	FRV-19X028-A	50	FRV-25X028-A	32
32	32.8 - 35.8	FRV-19X032-A	40	FRV-25X032-A	32
35	36.0 - 39.1	FRV-19X035-A	40	FRV-25X035-A	32
40	39.1 - 42.2	FRV-19X040-A	36	FRV-25X040-A	30
42	42.4 - 45.7	FRV-19X042-A	32	FRV-25X042-A	24
50	51.3 - 54.3	FRV-19X050-A	32	FRV-25X050-A	18
54	55.0 - 58.3	FRV-19X054-A	24	FRV-25X054-A	18
60	62.7 - 66.2	FRV-19X060-A	18	FRV-25X060-A	18
67	67.7 - 71.4	FRV-19X067-A	18	FRV-25X067-A	16
76	77.1 - 80.1	FRV-19X076-A	16	FRV-25X076-A	12
80	80.5 - 84.5	FRV-19X080-A	14	FRV-25X080-A	12
89	90.9 - 96.2	FRV-19X089-A	14	FRV-25X089-A	12
101	104.7 - 109.2	FRV-19X101-A	12	FRV-25X101-A	8
114	118.3 - 123.3	FRV-19X114-A	12	FRV-25X114-A	8

Armaflex FRV self-sealing tubes



Length 2.0m, colour grey/black

Pipe max. Outside-Ø [mm]	Inner Ø min/ max [mm]	32.0 mm insulation thickness		38.0 mm insulation thickness	
		Code	m/carton	Code	m/carton
12	13.9 - 16.1	FRV-32X012-A	32	-	-
15	17.2 - 19.2	FRV-32X015-A	32	FRV-38X015-A	-
20	19.9 - 22.5	FRV-32X020-A	30	FRV-38X020-A	20
22	23.2 - 25.9	FRV-32X022-A	30	FRV-38X022-A	20
25	26.5 - 28.5	FRV-32X025-A	30	FRV-38X025-A	20
28	29.6 - 32.5	FRV-32X028-A	24	FRV-38X028-A	20
32	32.8 - 35.8	FRV-32X032-A	24	FRV-38X032-A	20
35	36.0 - 39.1	FRV-32X035-A	24	FRV-38X035-A	20
40	39.1 - 42.2	FRV-32X040-A	24	FRV-38X040-A	16
42	42.4 - 45.7	FRV-32X042-A	22	FRV-38X042-A	16
50	51.3 - 54.3	FRV-32X050-A	16	FRV-38X050-A	16
54	55.0 - 58.3	FRV-32X054-A	16	FRV-38X054-A	16
60	62.7 - 66.2	FRV-32X060-A	16	FRV-38X060-A	12
67	67.7 - 71.4	FRV-32X067-A	14	FRV-38X067-A	10
76	77.1 - 80.1	FRV-32X076-A	10	FRV-38X076-A	10
80	80.5 - 84.5	FRV-32X080-A	10	FRV-38X080-A	10
89	90.9 - 96.2	FRV-32X089-A	10	FRV-38X089-A	8
101	104.7 - 109.2	FRV-32X101-A	10	FRV-38X101-A	8
114	118.3 - 123.3	FRV-32X114-A	8	FRV-38X114-A	6

Armaflex FRV continuous tubes



Length 2.0m, colour grey/black

Pipe max. Outside-Ø [mm]	Inner Ø min/ max [mm]	9.0 mm insulation thickness		13.0 mm insulation thickness	
		Code	m/carton	Code	m/carton
6	6.5 - 8.5	FRV-9-006/E	70	FRV-13-006/E	45
10	10.2 - 12.2	FRV-9-010/E	50	FRV-13-010/E	35
12	13.9 - 16.1	FRV-9-012/E	45	FRV-13-012/E	32
15	17.2 - 19.2	FRV-9-015/E	40	FRV-13-015/E	32
20	19.9 - 22.5	FRV-9-020/E	34	FRV-13-020/E	28
22	23.2 - 25.9	FRV-9-022/E	30	FRV-13-022/E	26
25	26.5 - 28.5	FRV-9-025/E	26	FRV-13-025/E	20
28	29.6 - 32.5	FRV-9-028/E	26	FRV-13-028/E	20

Armaflex FRV sheets



Width 1.0m, Length 1.5m

Code	Thickness [mm]	m ² /carton
FRV-9MM	9.0	30
FRV-13MM	13.0	22.5
FRV-19MM	19.0	15
FRV-25MM	25.0	12
FRV-32MM	32.0	9
FRV-38MM	38.0	7.5

Armaflex FRV rolls



Width 1.0 m

Code	Thickness [mm]	Roll length [m]
FRV-9MM/E	9.0	10
FRV-13MM/E	13.0	8
FRV-19MM/E	19.0	6
FRV-25MM/E	25.0	4
FRV-32MM/E	32.0	3

Armaflex FRV tapes self-adhesive



Code	Width [mm]	Length [m]	Thickness [mm]	Rolls/carton
FRV-TAPE	50	9.14	3	12

Armaflex FRV accessories



Code	Article description	Pieces/carton
9Y000001	Knife set (3 pieces)	1
9Y000035	Gluemaster applicator	1
9Y000040	Gluemaster extra brush points with cap (17mm diameter)	5x4
9Y000045	Gluemaster extra brush points with cap (11mm diameter)	5x4
9Y000055	Gluemaster extra brush points with cap (25mm diameter)	5x4
9Z000252	Armaflex 520 adhesive, 1-litre cans	12
9Z000261	Armaflex 520 adhesive, 5-litre cans	4
9Z000351	Armaflex 520 adhesive, 500ml cans	12
9Z000751	Armaflex Special Cleaner, 1-litre cans	4



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