



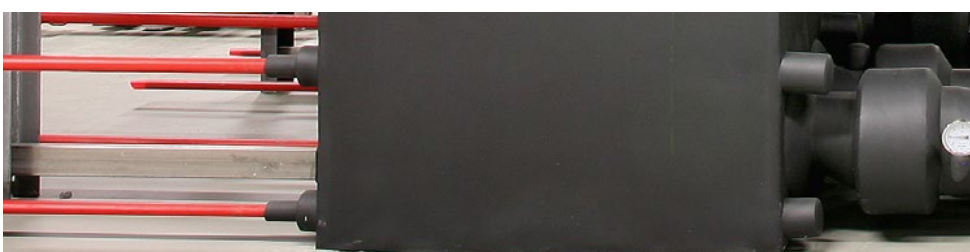
FOR SAFETY, EFFICIENCY &
BETTER INDOOR AIR QUALITY

ArmaFlex[®] Class 0

The trusted insulation system
for HVAC applications

- // Class 0 fire classification according to BS476 Parts 6 and 7
- // Reduces mould and bacteria growth with MICROBAN[®] anti-microbial product protection, unique to Armacell
- // Effectively reduces thermal and energy loss

www.armacell.com



 **armacell**[®]
ArmaFlex[®]

**FOR SAFETY, EFFICIENCY &
BETTER INDOOR AIR QUALITY**

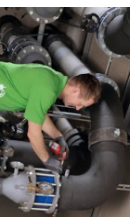
ArmaFlex Class 0

Your trusted insulation system for HVAC applications. Conserves energy and reduces heat loss. Class 0 fire classification according to BS476 Parts 6 and 7. Certified by leading international fire safety agencies. Fibre-free. Infused with Microban anti-microbial protection for even better indoor air quality.

Energy efficient



Easy to install



Better air quality



- // Excellent fire performance**
FM Approved for entire range of insulation thickness. Certified to conform to safety, reliability and performance standards of various local fire safety bodies.
- // Microban protection**
When microbes come into contact with the insulation surface, Microban penetrates the cell wall of the microorganism, disabling its ability to function, grow and reproduce.
- // Environmentally safe**
Zero Ozone Depletion Potential and Global Warming Potential; rated "Excellent" by Singapore Green Building Council.
- // Safer indoor air quality**
Fibre-free, free of formaldehyde and GREENGUARD® Gold certified for low emissions of volatile organic compounds.
- // Energy efficient**
Low thermal conductivity minimises energy losses to give long term energy savings.
- // Easy-to-install**
Highly flexible elastomeric foam that can be installed quickly on irregular shapes and installations in tight spaces.

TECHNICAL DATA - ARMAFLEX CLASS 0

Brief description	ArmaFlex Class 0 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.	
Special features	ArmaFlex sheets is infused with Microban anti-microbial protection to provide additional assurance against mould and bacteria growth. Thermal insulation/protection of pipes, air ducts and vessels (incl. elbows, fittings, flanges etc.) in hot and cold water services, chilled water lines, heating systems, air conditioning ductwork and refrigerated pipework, installed in commercial, industrial, residential and public buildings to control condensation, protect against frost and reduce energy loss.	
Safety and environment	Type III Environmental Product Declaration (EPD). Declaration number 4785944.121.101.1, UL Environment.	
Assembly	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	Max. service temperature +105 °C Min. service temperature -50 °C	+85 °C if sheet or tape is glued to the object with its whole surface.
Service temperature		
Thermal conductivity	0m -20 +/0 +20 +40 [°C] λ ≤ 0.032 0.034 0.036 0.039 [W/(m·K)]	ASTM G518, EN ISO 8497, GB/T 10275,GB/T 10276
Water vapour diffusion resistance	μ ≥ 10,000	DIN EN 13469, DIN EN 12086, GB/T 17146-1997
Water vapour diffusion resistance factor		
Water vapour permeability	≤ 1.96 x 10 ⁻¹¹ g/(m·s·Pa)	
Fire performance & approvals	Class 1 BS 476 Part 7:1997	
Surface spread of flame	Class 0 BS 476 Part 6:1989	
Fire performance according to building regulations	Class B1 GB 8624 -2012	
Burning behaviour of building materials and products	V-0, FM Approved UL 94, FM 4924	
Flammability	Does not generate flaming droplets.	
Practical fire behaviour	Registered by the Fire Services Department of Hong Kong for the entire range of thickness. Product conforms to the requirements for building products under the Fire Safety and Shelter Department, Singapore.	
Others		
Other technical features	Resistance after compression ≥ 70% GB/T 6669-2001	
Water absorption by vacuum	≤ 10% GB/T 1779.4	
Chemical resistance	Excellent resistance to ozone, oil and chemicals (consult product test list).	
UV resistance	For UV protection, ArmaFinish Paint or Arma-Check® covering system is required. For outside use, ArmaFlex should be protected within 3 days of installation.	
Anti-microbial behaviour	Built-in Microban anti-microbial product protection in sheets. No fungal growth is observed. UL2918-2013	
Health aspects	Free of fibre and formaldehyde. Low volatile organic compounds (VOC). Low Total Aldehyde. GREENGUARD Gold for even lower VOC and total chemical emissions.	
Environmental aspect	Zero ODP and GWP. Singapore Green Building Product Certified. "Excellent" rating.	
Storage	Material shall be stored in dry, clean rooms at normal relative humidity (50% to 70%) and ambient temperature (0 °C to 35 °C).	
Sheet (storage life)	Self-adhesive sheets, tubes and tapes: 1 year.	

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. For outside use, ArmaFlex should be protected with ArmaFinish Paint or Arma-Check® covering within 3 days of installation.



Tubes (Length: 2.0m)

6mm		9mm		13mm		19mm		Insulation		Cu pipe		Fe pipe		Nominal	
Item	Carton content	Item	Carton content	Item	Carton content	Item	Carton content	Insulation thickness	Inner diameter	Outer diameter	Outer diameter	Outer diameter	Outer diameter	Outer diameter	DN
[m]	[m]	[m]	[m]	[m]	[m]	[m]	[m]	[mm]	[mm]	[inch]	[inch]	[mm]	[mm]	[mm]	[mm]
COB-09X006*	312	COB-13X006	180	COB-19X006	96	COB-19X006	96	6	6	1-1/4					
COB-09X010*	264	COB-13X010	144	COB-19X010	84	COB-19X010	84	10	10	3/8					6
COB-09X012*	220	COB-13X012	128	COB-19X012	84	COB-19X012	84	12	12	1/2					
COB-09X015*	180	COB-13X015	112	COB-19X015	70	COB-19X015	70	15	15	5/8					8
COB-06X015*	264	COB-13X020	90	COB-19X020	60	COB-19X020	60	20	20	3/4					
COB-06X022*	180	COB-09X022	128	COB-13X022	90	COB-19X022	60	22	22	7/8					15
COB-06X025*	144	COB-09X025	108	COB-13X025	80	COB-19X025	50	25	25	1					
COB-09X028	98	COB-13X028	72	COB-19X028	50	COB-19X028	50	28	28	1-1/8					20
COB-09X032*	84	COB-13X032	64	COB-19X032	40	COB-19X032	40	32	32	1-1/4					25
COB-09X035	82	COB-13X035	58	COB-19X035	40	COB-19X035	40	35	35	1-3/8					
COB-09X038	72	COB-13X038*	54	COB-19X038*	36	COB-19X038*	36	38	38	1-1/2					32
COB-09X042	64	COB-13X042	48	COB-19X042	36	COB-19X042	36	42	42	1-5/8					
COB-09X046*	56	COB-13X046*	42	COB-19X046*	30	COB-19X046*	30	46	46	1-7/8					40
COB-09X054*	54	COB-13X054	42	COB-19X054	30	COB-19X054	30	54	54	2-1/8					
COB-13X057*	36	COB-13X057*	36	COB-19X057*	28	COB-19X057*	28	57	57	2-1/4					57
COB-09X060*	54	COB-13X060	36	COB-19X060	24	COB-19X060	24	60	60	2-3/8					50
COB-13X067*	36	COB-13X067*	36	COB-19X067*	22	COB-19X067*	22	67	67	2-5/8					
COB-13X076	32	COB-13X076	32	COB-19X076	16	COB-19X076	16	76	76	3					76
COB-13X089	24	COB-13X089	24	COB-19X089	12	COB-19X089	12	89	89	3-1/2					80
COB-13X108*	16	COB-13X108*	16	COB-19X108*	10	COB-19X108*	10	108	108	4-1/4					108
COB-13X114*	16	COB-13X114*	16	COB-19X114*	10	COB-19X114*	10	114	114	4-1/2					100
COB-19X140*	6	COB-19X140*	6	COB-19X140*	6	COB-19X140*	6	133	133	5-1/4					125

*Make to order. Minimum order quantities and different lead times may apply.
Self-adhesive option available upon request. Minimum order quantities and different lead times may apply.

Sheets (rolls)

Item	1.22m width				1.50m width			
	Insulation thickness [mm]	Carton content [sqm]	Length [m]	Item	Insulation thickness [mm]	Carton content [sqm]	Length [m]	Item
COB-06150/E*	6	22.5	15	COB-06150/E*	6	22.5	15	COB-06150/E*
COB-09150/E	9	15.0	10	COB-09150/E	9	15.0	10	COB-09150/E
COB-13150/E	13	12.0	8	COB-13150/E	13	12.0	8	COB-13150/E
COB-16150/E*	16	10.5	7	COB-16150/E*	16	10.5	7	COB-16150/E*
COB-19150/E	19	9.0	6	COB-19150/E	19	9.0	6	COB-19150/E
COB-25150/E	25	7.32	6	COB-25150/E	25	7.32	6	COB-25150/E
COB-30122/E*	30	4.88	4	COB-30150/E	30	9.0	6	COB-30150/E
COB-32122/E*	32	3.66	3	COB-32150/E	32	6.0	4	COB-32150/E
COB-35150/E*	35	3.66	3	COB-35150/E*	35	6.0	4	COB-35150/E*
COB-40122/E*	40	3.66	3	COB-40122/E*	40	3.66	3	COB-40122/E*
COB-50122/E*	50	3.05	2.5	COB-50122/E*	50	3.05	2.5	COB-50122/E*

*Make to order. Minimum order quantities and different lead times may apply.
Self-adhesive option available upon request. Minimum order quantities and different lead times may apply.

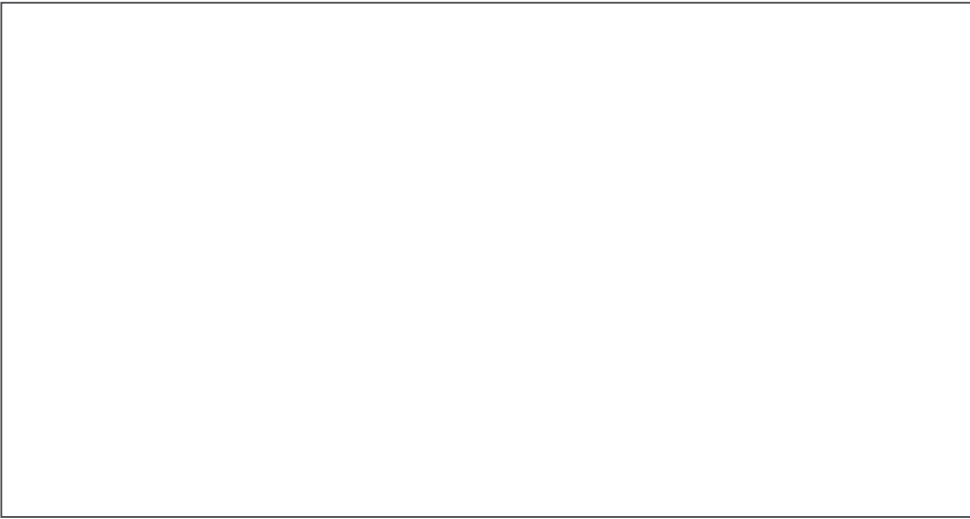
Tubes (Length: 2.0m)

25mm		32mm		40mm		50mm		Insulation		Cu pipe		Fe pipe		Nominal	
Item	Carton content	Item	Carton content	Item	Carton content	Item	Carton content	Insulation thickness	Inner diameter	Outer diameter	Outer diameter	Outer diameter	Outer diameter	Outer diameter	DN
[m]	[m]	[m]	[m]	[m]	[m]	[m]	[m]	[mm]	[mm]	[inch]	[inch]	[mm]	[mm]	[mm]	[mm]
COB-25X006	60	COB-32X006*	30	COB-40X006*	20	COB-50X006*	12	6	6	1/4					
COB-25X010	54	COB-32X010	36	COB-40X010	24	COB-50X010*	12	10	10	3/8					6
COB-25X012	48	COB-32X012	32	COB-40X012*	24	COB-50X012*	12	12	12	1/2					
COB-25X015	40	COB-32X015	32	COB-40X015	22	COB-50X015*	12	15	15	5/8					8
COB-25X020	36	COB-32X020	24	COB-40X020	18	COB-50X020*	12	20	20	3/4					
COB-25X025	36	COB-32X025	24	COB-40X025	18	COB-50X025*	12	22	22	7/8					15
COB-25X028	32	COB-32X028	22	COB-40X028*	16	COB-50X028*	12	25	25	1					
COB-25X032	32	COB-32X032	20	COB-40X032*	16	COB-50X032*	10	28	28	1-1/8					20
COB-25X035	30	COB-32X035	18	COB-40X035	12	COB-50X035	10	32	32	1-1/4					25
COB-25X038*	24	COB-32X038*	16	COB-40X038*	12	COB-50X038*	8	35	35	1-3/8					
COB-25X042	24	COB-32X042	16	COB-40X042	12	COB-50X042	8	42	42	1-1/2					32
COB-25X045*	24	COB-32X045*	12	COB-40X045*	12	COB-50X045*	8	45	45	1-3/4					
COB-25X048	20	COB-32X048	12	COB-40X048	12	COB-50X048	8	48	48	1-7/8					40
COB-25X054	20	COB-32X054*	12	COB-40X054*	10	COB-50X054*	8	54	54	2-1/8					
COB-25X057*	16	COB-32X057*	12	COB-40X057*	10	COB-50X057*	8	57	57	2-1/4					57
COB-25X060	20	COB-32X060	12	COB-40X060	10	COB-50X060*	8	60	60	2-3/8					50
COB-25X067	14	COB-32X067*	10	COB-40X067*	8	COB-50X067*	6	67	67	2-5/8					
COB-25X076	16	COB-32X076	10	COB-40X076	8	COB-50X076	4	76	76	3					76
COB-25X089*	12	COB-32X089*	8	COB-40X089*	8	COB-50X089*	4	89	89	3-1/2					80
COB-25X108*	8	COB-32X108*	6	COB-40X108*	6	COB-50X108*	4	108	108	4-1/4					108
COB-25X114	6	COB-32X114*	6	COB-40X114	4	COB-50X114	4	114	114	4-1/2					100
COB-25X139*	6	COB-32X139*	6	COB-40X139*	4	COB-50X139*	4	133	133	5-1/4					125
COB-25X140*	6	COB-32X140*	4	COB-40X140*	4	COB-50X140*	4	140	140						150

*Make to order. Minimum order quantities and different lead times may apply.
Self-adhesive option available upon request. Minimum order quantities and different lead times may apply.

Accessories

Item	Carton content	Article description
AS-ARFPCOB-9M	24 rolls	ArmaFlex Class 0 Insulation tape (3mm thickness x 50mm width x 9.14m)
AS-AD-5201G	4 x 3/78 litre cans	ArmaFlex 520 adhesive
AS-PAINT2.SLW	4 x 2.5 litre cans	ArmaFinish paint
SF-CLEANER-1.0	6 x 1.0 litre cans	Solvent-free cleaner for use with ArmaFlex adhesive
CUTTING-SET	1	ArmaFlex cutting set (3 knives and 1 sharpening stone)
GLUEM-BRUSH11MM	5 x 4	GlueMaster (11mm diameter) Comes with extra brush points
GLUEM-BRUSH17MM	5 x 4	GlueMaster (17mm diameter) Comes with extra brush points
GLUEMASTER B	12	GlueMaster adhesive pump



//Cover Photo (Top)

Belfast City Hall, Northern Ireland

Reduce insulation thickness with thermal efficiency and acoustic attenuation in one product

The Belfast City Hall underwent a comprehensive overhaul to improve the thermal and acoustic insulation of its air-conditioning system. Due to the challenges of limited space as well as the need to suppress noise generated by the air-handling units, ArmaFlex Class 0 was used as an internal lining of the ductwork walls. With the benefit of thermal and acoustic insulation in one product, the total installed cost of insulation is effectively reduced.

//Cover Photo (Right)

South Beach, Singapore

All data and technical information are based on results achieved under the specific conditions defined according to the testing standards referenced. It is the customer's responsibility to verify if the product is suitable for the intended application. The responsibility for professional and correct installation and compliance with relevant building regulations lies with the customer. 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 at the time of publication. By ordering/receiving product you accept the **Armacell General Terms and Conditions of Sale** applicable in the region. Please request a copy if you have not received these.

© Armacell, 2018. ® and ™ are trademarks of the Armacell Group and is registered in the European Union, United States of America, and other countries. MICROBAN® is a registered trademark of Microban Products Company.
00008 | ArmaFlex Class 0 | ArmaFlex | TDS | 102018 | APAC | EN MASTER

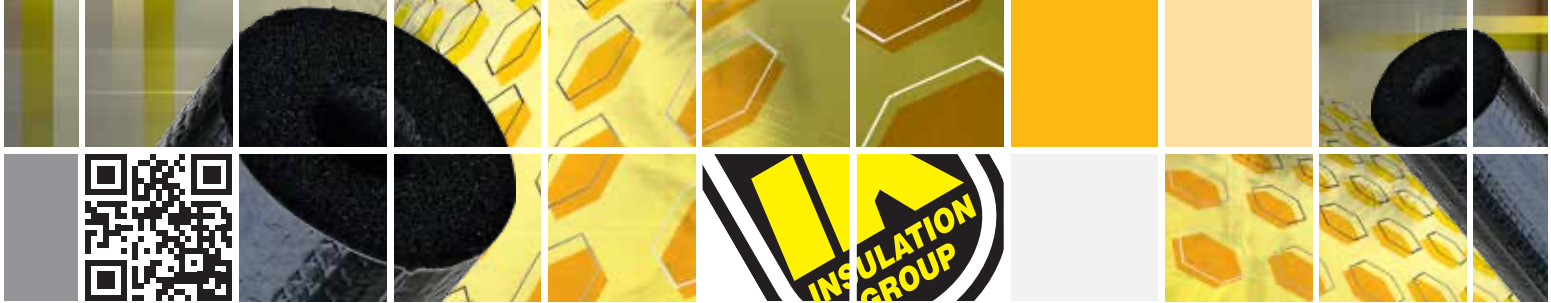
ABOUT ARMACELL

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 3,000 employees and 27 production plants in 17 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



K-FLEX



K-FLEX TITAN



CLOSED-CELL, FLEXIBLE, ELASTOMERIC FOAM
INSULATION WITH A FLEXIBLE CO-EXTRUDED
UV RESISTANT JACKETING

intertek
Total Quality. Assured.



 **K-FLEX**
www.kflex.com

K-FLEX TITAN

DESCRIPTION ▶

K-FLEX TITAN is a flexible co-extruded jacketed composite material applied to K-FLEX NBR/PVC tubular insulation. It is a polymeric jacketed material that offers excellent flexibility, abrasion and weather resistance, making it ideal for outdoor applications. This product is made in K-FLEX MALAYSIA's ISO 9001 certified manufacturing facility in Klang, Selangor.

AVAILABILITY ▶

K-FLEX TITAN is black in color and is available in 1/2", 3/4", 1" and 1-1/2" wall thicknesses, non-slit and pre-slit 6' length tubes. It is available in diameter sizes ranging from 1/4" I.D. to 2-1/8" I.D. across all wall thicknesses and additional IDs dependent on wall thickness.

APPLICATIONS ▶

K-FLEX TITAN can be used for outdoor applications with service temperatures ranging from -70 °F to +220 °F. The applications would be consistent with those recommended for K-FLEX Insul-Tube tubing. The product is used to enhance the weather and abuse resistance of the insulation tubing. K-FLEX TITAN is ideal for use on HVAC linesets and flex hose applications.

OUTDOOR APPLICATION ▶

K-FLEX TITAN provides excellent UV resistance and protection from weather. K-FLEX TITAN's proprietary copolymer blend jacket provides excellent protection from mechanical abuse, including incidental impact from lawn equipment such as weed wackers (plastic string type). The product has a 5-year warranty.

INSTALLATION ▶

1-Step Install: No field applied protective coating or additional jacketing required.

K-FLEX TITAN is durable (non-fracturing) and the skin is resistant to tearing from handling and the environment, safe to handle (nondusting and non-abrasive), and lightweight for an efficient installation. It is very flexible and easily conforms to bends. Its low modulus allows it to be pushed back for easy installation of fittings.

K-FLEX recommends that insulation is installed on non-operational systems with clean, dry surfaces in ambient conditions between 40 °F and 100 °F.

Properly sized insulation tubing can be slid over piping (tubing should be pushed, not pulled). All seams, butt joints, termination points and open ends should be sealed with an approved contact adhesive, making sure both surfaces to be joined are coated.

Vapor stops should be installed as needed. K-FLEX TITAN may be slit longitudinally for retrofit applications. ASTM C1710, Installation Guide for Flexible Closed Cell Foams, and the K-FLEX Installation Manual should be used as comprehensive installation guides.

RESISTANCE TO MOISTURE VAPOR ▶

The expanded closed-cell structure and unique formulation inherently resists moisture vapor intrusion. K-FLEX TITAN needs no additional protection.

DIRECT BURIAL APPLICATIONS ▶

K-FLEX TITAN can be installed in direct burial application if the lines are above the water table and not in a flood zone. K-FLEX TITAN should be installed in a single layer with all butt joint and longitudinal seams completely sealed with an approved contact adhesive (see technical bulletin TA 14). Install in a PVC conduit to prevent insulation compaction or increase insulation thickness by a minimum one wall size to compensate for compaction. Backfill materials shall not contain any angular/sharp edges and shall allow for drainage. For applications below the water table or in a flood zone, install K-FLEX TITAN in a sealed conduit or trench. See technical bulletin TA 10 for additional information.



TECHNICAL DATA ▶

PHYSICAL PROPERTIES		K-FLEX TITAN	TEST METHODS
Main Composition		Flame-retarded NBR/PVC elastomeric foam with proprietary copolymer blend jacket	-
Thermal Conductivity	20°C Mean Temp	0.034 W/(m.K)	ASTM C177
Density		55 to 70 kg/m ³	ASTM D1667
Operating Temperature Range		-57°C +104°C	ASTM C534
Water Vapor Permeability (Dry Cup)	(Core Material Only)	<0.01 perm-in	ASTM E96
Water Vapor Permeance	(Jacket Material)	≤0.05 perms	ASTM E96
Dimensional Stability		<7% Linear Shrinkage	ASTM C534
UV Resistance (Artificial Aging)	(Jacket Material)	Pass: No Changes to Surface Condition	ASTM G153
Flammability		25/50 (up to 1-1/2") HF-1, V-0, 5VA	ASTM E84 UL 94

*For applications below -40°C, contact K-FLEX technical support.

TITAN RANGE ▶

Copper Pipe		Iron Pipe		13 • 1/2"		19 • 3/4"		25 • 1"	
OC Inches	ø OD mm	IPS Inches	ø OD mm	size	m/box	size	m/box	size	m/box
1/2"	12			13x13	128	19x13	72	25x13	50
5/8"	15	1/4"	13.5	13x16	112	19x16	60	25x16	50
3/4"	20			13x19	104	19x19	60	25x19	40
7/8"	22	1/2"	21.3	13x22	98	19x22	60	25x22	38
1-1/8"	28	3/4"	26.9	13x28	78	19x28	48	25x28	32
1-3/8"	35	1"	33.7	13x35	58	19x35	36	25x35	24
1-5/8"	42	1-1/2"	48.3	13x42	48	19x42	32	25x42	22
2-1/64"	51			13x51	36	19x51	24		
2-1/8"	54			13x54	34	19x54	24		
2-3/8"	60	2"	60.3	13x60	32	19x60	22		
2-41/64"	67			13x67	30	19x67	20		

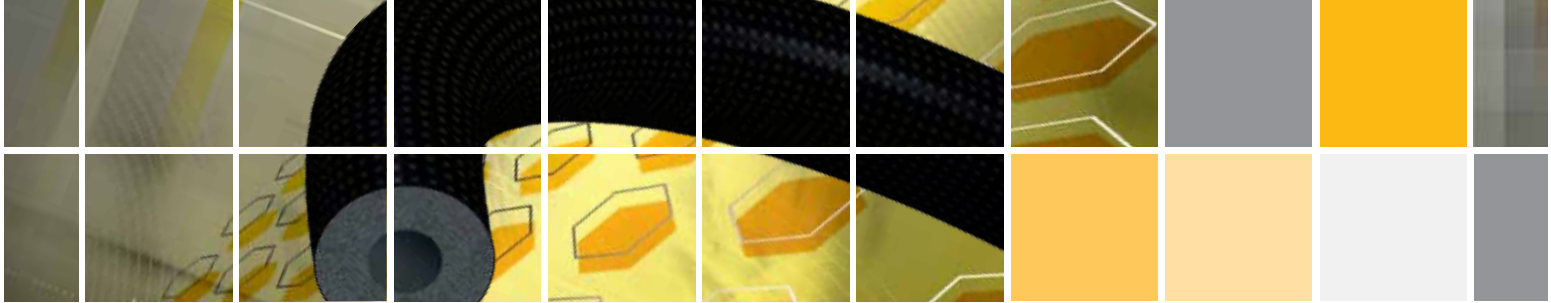
PIPE "R" VALUES PER SQUARE FOOT (ALL SIZES ARE NOMINAL)

NOMINAL INSULATION I.D.	1/2" WALL	3/4" WALL	1" WALL	1-1/2" WALL
	K-Flex	K-Flex	K-Flex	K-Flex
1/4"	4.0	6.1	9.6	16.5
3/8"	3.6	5.6	8.5	14.6
1/2"	3.4	5.4	7.9	13.5
5/8"	3.3	5.4	7.5	12.8
3/4"	3.1	5.4	7.5	12.4
7/8"	3.2	5.4	7.2	11.6
1-1/8"	3.1	5.5	7.1	10.8
1-3/8"	3.2	5.3	7.3	10.2
1-5/8"	3.1	5.1	7.1	9.8
1-1/2" IPS	2.6	4.4	6.2	8.9
2-1/8"	3.0	4.9	6.6	9.2
2" IPS	2.9	4.8	-	-
2-1/2" IPS	3.0	4.6	-	-
2-5/8"	3.1	-	-	-

K-FLEX TITAN



K-FLEX TITAN



K-FLEX MALAYSIA SDN BHD

Lot 2752 Jalan Raja Nong, Taman Klang Jaya, 41200 Klang,
Selangor Darul Ehsan, Malaysia
tel: +603-5162 7899 / fax: +603-5162 3799
e-mail: sales@k-flex.com.my / kflexmktg@k-flex.com.my