

AEROFLEX[®]

closed cell elastomeric thermal insulation



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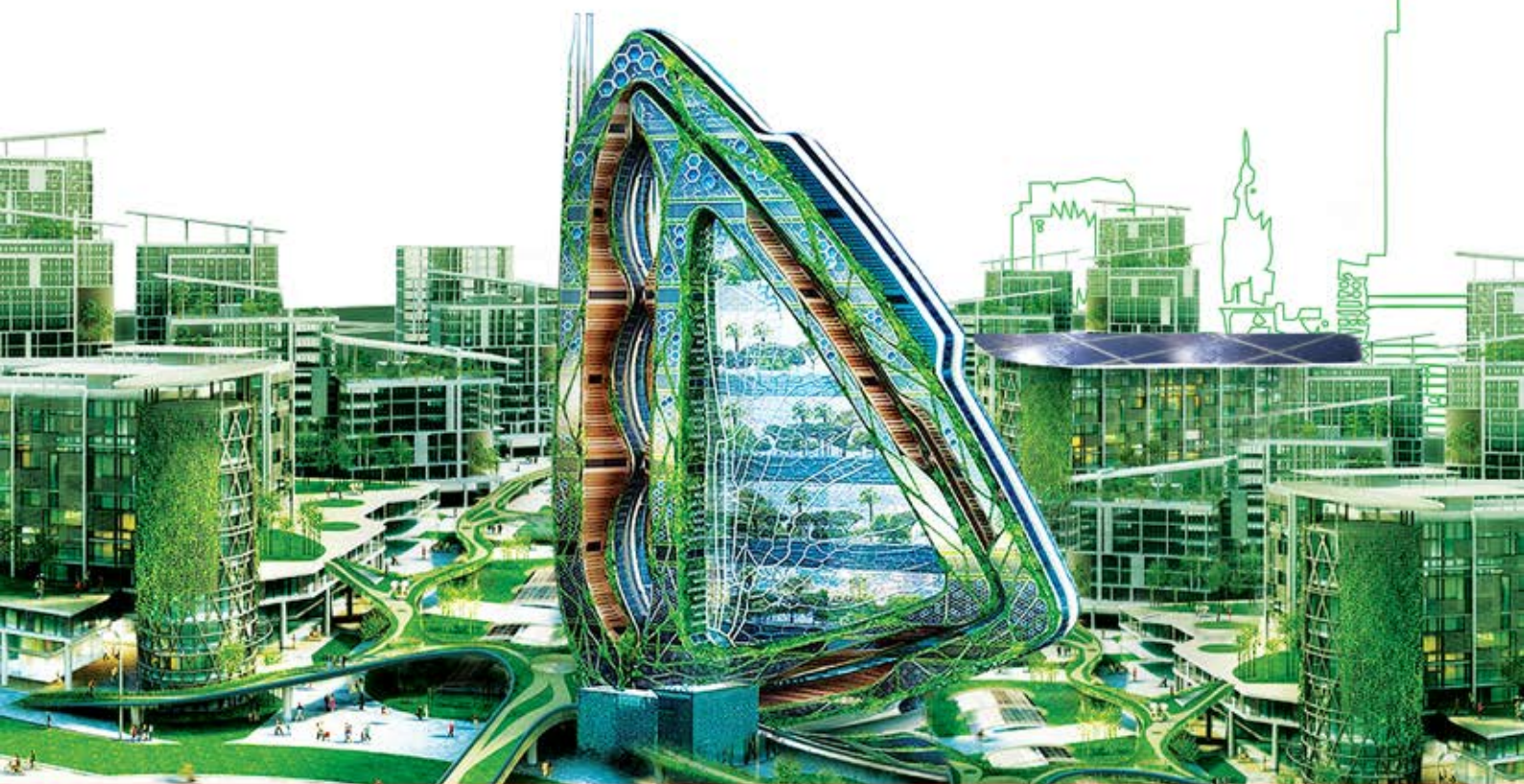
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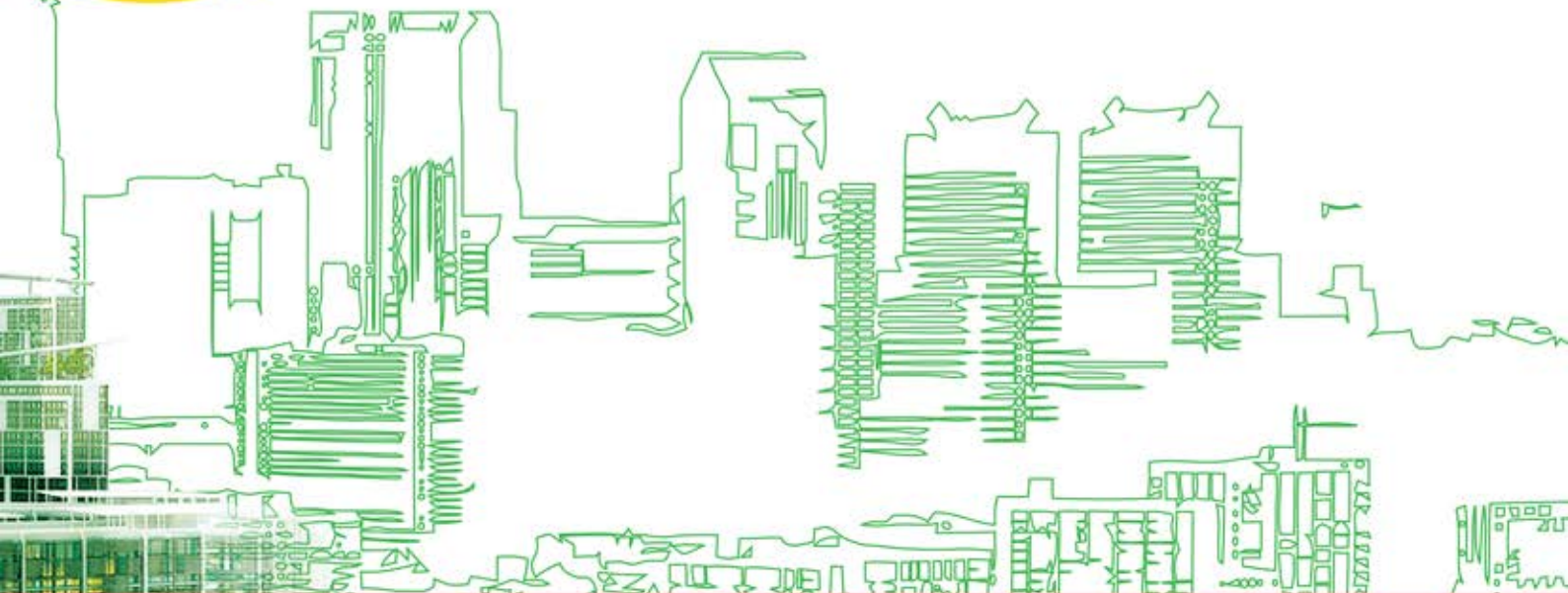


AEROFLEX BRIEF HISTORY

Since 1978, AEROFLEX® has been manufactured by Eastern Polymer Industry Co., Ltd. Through all these years of continuous development, Aeroflex has become the world's leading manufacturer of EPDM (Ethylene Propylene Diene Methylene) synthetic rubber based closed cell light weight elastomeric thermal insulation with multiple manufacturing operations in USA, China, India, Germany, Switzerland, Russia and Thailand. The insulation is marketed under the brand AEROFLEX® which is the ideal EPDM insulation with outstanding physical properties for chilled water, refrigerant, hot water pipings and air duct system in HVAC&R industry. AEROFLEX® has been widely recognized and installed in many international high standard buildings for energy saving and preventing condensation. From January 1, 2013, Aeroflex Division becomes an independent company, named Aeroflex Co., Ltd. (AFC).



" I'm saving your energy."



INTRODUCTION

AEROFLEX closed cell tube and sheet insulation is a flexible and lightweight elastomeric material designed for insulating liquid cooling and heating pipelines. The closed cell structure of Aeroflex provides many advantages over most rigid insulations such as:

- Moisture and vapor resistance without using additional vapor barriers.
- Stable thermal conductivity (K. value / λ value) throughout service life, due to its dense surface skin and closed cell characteristics.
- Flexibility which makes installation work easy and neat. Outstanding ultraviolet and weather resistance.

AEROFLEX is an ideal insulation for frost control on sub-zero piping. It prevents heat gain and condensation problems on chilled water and refrigerant pipelines, and it also prevents heat loss from hot water plumbing, liquid and dual temperature piping.



PRODUCTS & APPLICATIONS

AEROFLEX EPDM TUBE INSULATION

Aeroflex Tube Insulation Standard Product is available from 1/4" (6mm) ID, upto 6" IPS (165 mm) ID with thickness from 1/4" (6mm) upto 2" (50mm). Other sizes are also available upon request. Aeroflex Closed Cell Tube Insulation, made of EPDM (Ethylene Propylene Diene Methylene Synthetic Rubber) as its main raw material, is easily installed to pipe or tubing. The factory-applied coating of talcum powder on the thick and smooth inner skin helps facilitate and speed up preassembly line. When applied to existing lines, tubing should be slitted lengthwise and snapped into place. Slitting can be done on the job easily with razors, blades, knives or shears. Cut edges and joints can be sealed with AeroSeal Adhesive (neoprene based contact cement).

AEROFLEX STANDARD SHEET (S-SERIES)

The standard sheet is available in size of 36"x48" and wall thickness from 1/8" to 2" and 0.5m x 2.0m & 1.0m x 2.0m with the wall thickness from 3 mm upto 50 mm. It prevents heat loss and condensation on large pipeline, tanks, chillers, air ducts and other irregular shaped vessels.

AEROFLEX PRE-CUT SHEET INSULATION (P-SERIES)

The pre-cut sheets are ready-cut in size to suit large pipe size ranging from 4" IPS upwards (1/2" to 2" wall thickness are available in 48" length). The pre-cut series makes fabrication easier and more economical because wastage is minimized. Moreover, Aeroflex pre-cut sheet is manufactured to nominal thickness with smooth and dense skins on both surfaces.

AEROFLEX SHEET ROLL (SR-SERIES)

Aeroflex sheet insulations are also available in continuous roll form. Aeroflex continuous sheet rolls are available from 1/8" (3mm) to 2" (50mm) thickness, and 48" (1,220mm) width or 1,000 mm width. All insulating sheet are made from the same materials as Aeroflex tubing.

AEROFLEX SAPT

Aeroflex insulation with self-adhesive tape and Protape cover, providing fast and easy installation, time and cost-saving, volatile chemical free without the use of adhesive, and extra protection with Protape cover.

AEROFLEX SHEET WITH ALUMINUM FOIL LAMINATION

Aeroflex sheet with aluminum foil lamination is a lightweight insulation installed on air ducts to prevent condensation, save energy and reduce noise. It helps to minimize mold growth and provides better air quality.

ACCESSORIES

Aeroflex offers the widest range of thickness and sizes both tube and sheet forms. To complement its customer needs, other products including AeroSeal glue, Aerotape foam tape, Everseal corks, Aerocoat acrylic emulsion paint, Aerofix rigid foam hanger, etc., are also available at the distribution network of Aeroflex [more details on page 14-16].



CHARACTERISTICS & MAIN ADVANTAGES

TEMPERATURE RANGE

Aeroflex standard product insulate to save energy and prevent condensation when used in operating temperatures down to -57°C (-70°F) and insulate against heat loss up 125°C (257°F). However, for higher temperature up to 150°C (300°F), Aeroflex-HT is recommended which is suitable for low pressured steam application, but not suitable for electric heater and radiator system. Within these recommended operating temperatures, it will not affect the thermal efficiency of Aeroflex.

WATER ABSORPTION & MOISTURE PERMEABILITY

The closed cell structure protects against moisture and assure very low water absorption which can eliminate the need for a water vapor barrier in the most applications. However, under severe condition of high humidity (90% RH up), high temperature (40°C up), low ventilation area like tunnel or gutter and also direct to sun light, metal or polymeric jacketing is recommended to use as additional water vapor barrier and greater protection against severe condition.

THERMAL EFFICIENCY

Aeroflex Insulation made from EPDM based synthetic elastomer has low density and closed cell structure with mainly dry nitrogen gas. The products, therefore, have a stable low K.value of 0.23-0.25 BTU.in/ft² hr.^oF (at $32-75^{\circ}\text{F}$ mean temperature) or 0.033 W/mK at 0°C which can save energy consumption on any heating and cooling lines throughout its service life.

FLAME AND SMOKE PROOF

Aeroflex standard products have been specially compounded to meet and exceed the international fire standards such as ASTM E84, UL94, JIS K 6911, EMPA, IMO A653 and other standards. For other specific international fire standard Aeroflex also offer Aeroflex-EP for FM approved insulation product and Aeroflex-ECE for EN standard. The products have low smoke

density while burning and unlike other thermoplastic materials, Aeroflex will not melt nor drip flaming balls, therefore, it will not cause flame transfer.

UV & WEATHER RESISTANCE

The best advantage of EPDM based insulation is excellent UV and weather resistance. EPDM is widely used in automobile industry, especially for window strip and rubber hose in engine room. That is why Aeroflex service life lasts more than 20 years for indoor applications at proper thickness.

COMPLETE SIZE RANGE

Aeroflex has the widest range of thickness and ID (inner diameter) for all pipes sizes together with complete accessories from Aeroflex for installation, so users can design the most suitable and economical size for their applications.

NON-POLAR MATERIAL

Aeroflex is made from EPDM Synthetic rubber. EPDM rubber is classified as Non-Polar material which is highly water resistant while NBR/PVC is classified as Polar, which slowly dissolves in water and causes surface deterioration. Meanwhile water is also polar material, so continuous contact with condensate water as water vapor damages NBR/PVC insulation much faster than EPDM based insulation.

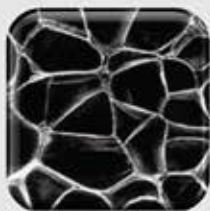
ANTI VIBRATIONS AND RESONANCE

The high elasticity of Aeroflex insulation minimizes the vibrations and resonance of chilled water and hot water pipelines during operation.

NEAT APPEARANCE

The flexibility and smooth surface of Aeroflex offers neat-finished appearance even at joints, elbows and crosses. No decorative or protective coating is required.

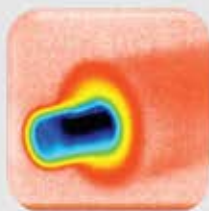
AEROFLEX Outstanding physical properties



Complete cross-linking closed cell structure.



Low density 40-80 kg/m³ [2.5-5 lbs/ft³] ASTM D 1667.



Low thermal conductivity ASTM C 177, C 518



Wide temperature continuous service ranging from -57°C to $+125^{\circ}\text{C}$.



Low water absorption ASTM D 1056, Low water vapor permeability ASTM E 96.



Excellent ozone and weather resistance ASTM D 1171, D 1149.

FLEXIBILITY AND SPACE SAVING

The flexibility of Aeroflex enables quick and easy installation on bent or irregular piping. Due to low and stable thermal conductivity, especially for low temperature application, Aeroflex requires a thinner wall than other semi open cell or open cell insulation. Therefore, lesser space is needed for installation of Aeroflex.

OTHER ADVANTAGES

Aeroflex can be safely handled without causing skin irritations

and health hazard. It has superior resistance to fungus growth, vermin or rodent attack, and some chemicals such as acid and alkali. It is manufactured without the use of CFC's, HFC's, HCFC's, Butane, Pentane or other ozone depletion or flammable gases. It is also formaldehyde free, fiber free and dust free. These make Aeroflex ideal for protecting pipings from corrosion caused by atmospheric agents and industrial ambience.



Self-extinguished property, low smoke density, less toxic gases and non-melting characteristic when burnt, making Aeroflex widely used in air-conditioning systems.



Flexibility and outstanding durability, Aeroflex is the most suitable insulation for split type air-conditioners.



Many advantages described above making Aeroflex suitable for insulating chilled water piping.



Flexibility and easy installation making Aeroflex suitable for chilled water cooling system.



Self-extinguish ASTM D 635, Flame proof ASTM E 84 and other fire safety standards.



No corrosion on copper pipe even after long period of service.



CFC's, HFC's, HCFC's free product - Ozone friendly product.



Most available sizes from 3mm [1/8"] ID to 204mm [8"] ID with thickness from 3mm [1/8"] to 75mm [3"].



Aeroflex is EPDM based insulation, which is non-polar and has long-lasting service life.



Accredited with ISO standards and comply to major standards worldwide.

AEROFLEX- STANDARD

WIDELY USED TO SAVE ENERGY AND
PREVENT CONDENSATION

AEROFLEX standard is an EPDM based closed cell light weight elastomeric thermal insulation specially formulated to meet UL 94 V-0, ASTM E 84, Class 5.3 EMPA (Switzerland), IMO (International Marine Organization) and other international fire standards.

Aeroflex standard sheet and tube elastomeric thermal insulation are widely used to save energy and prevent condensation problem on chilled water and refrigeration systems. They also efficiently reduce heat flow on hot water plumbing, liquid heating and dual temperature piping.



AEROFLEX-Standard Specifaclton :

Properties *1		Aeroflex-Standard					Test Method
Cell Structure		Closed Cell					-
Density lbs/ft ³ (Kg/m ³)		2.5-5.0 (40-80) *2					ASTM D 1667
Thermal Conductivity BTU.in/ft ² hr °F (W/ m.K)	Mean Temp	-4°F (-20°C)	32°F (0°C)	75°F (24°C)	90°F (32°C)	104°F (40°C)	ASTM C 177 ASTM C 518 JIS A 1412 EN ISO 8497
	K-Value	0.215 (0.0310)	0.230 (0.0330)	0.247 (0.0356)	0.256 (0.0365)	0.259 (0.0374)	
Service Temperature *3		-70 °F to 257 °F -57 °C to 125 °C					Becomes hard at -57°C but can be used even at -200°C
Water Absorption		< 10% (by weight)					ASTM D 1056
		< 0.20% (by volume)					ASTM C 209
Water Vapor Permeability perm.in (g/Pa.s.m)		< 0.10 (1.44 x 10 ⁻¹⁰ g/Pa.s.m)					ASTM E 96
Ozone Resistance		Very Good					ASTM D 1149 ASTM D 1171
UV Weather Resistance		Very Good					ASTM G 154
Heat Stability (% Shrinkage) @ 220°F (104°C) x 7 days		< 7%					ASTM C 534
Flammability & Smoke Density		Class V-0					UL 94
		25/50					ASTM E 84
		Self-Extinguishing					ASTM D 635
		Class 5.3					EMPA (Switzerland)
		Non-Flammable					JIS K 6911
		Pass					IMO *4
Mold Resistance		Meet Requirement (Rating 1)					UL 181
Fungi Resistance		No Growth					ASTM C1338
Bacteria Resistance		Meet Requirement (Anti-Bacteria)					ASTM E 2180
Corrosion of Copper/ Stainless Steel		Non Corrosive					DIN 1988
Nitrosamine Contents *5		Not Detected					FDA CPG 7117.11
RoHS		Not Detected					EN Restriction of the Use of Hazardous Substances Directive (RoHS) 2002/95/EC
Sound Reduction (AF)		32 dB (20 mm)					DIN EN ISO10052, DIN 4109-11
Flexibility		Excellent					ASTM C 534

AEROFLEX- HT

FOR HIGH TEMPERATURE
APPLICATION UP TO +150 °C



AEROFLEX-HT is an EPDM based closed cell light weight elastomeric thermal insulation specifically designed for solar and steam heating applications with service temperature up to +150 °C. AEROFLEX-HT has excellent ozone, UV and weather resistance properties suitable for outdoor applications. However, for outdoor installation with long term direct contact to sunlight, protective coating or jacketing are recommended. The flexibility of AEROFLEX - HT enables quick and easy installation on bent or irregular piping. AEROFLEX - HT is self-extinguished and does not melt when burnt.

AEROFLEX-HT Specification :

Properties	Aeroflex-HT						Test Method
Cell Structure	Closed Cell						-
Density lbs/ft ³ (Kg/m ³)	2.5-5.0 (40-80)						ASTM D 1667
Thermal Conductivity BTU.in/ft ² hr °F (W/ m.K)	Mean Temp	68°F (20°C)	104°F (40°C)	140°F (60°C)	176°F (80°C)	212°F (100°C)	ASTM C 177 EN ISO 8497
	K-Value	0.250 (0.036)	0.263 (0.038)	0.277 (0.040)	0.284 (0.041)	0.305 (0.044)	
Service Temperature	Up to +150 °C Up to +302 °F						ASTM C 411
Water Absorption	< 10% (by weight)						ASTM D 1056
	< 0.20% (by volume)						ASTM C 209
Ozone Resistance	No Crack						ASTM D 1149 ASTM D 1171
UV Weather Resistance	Very Good						ASTM G 154
Flammability	Self-Extinguishing Class V-0						ASTM D 635 UL 94
RoHS	Not Detected						EN Restriction of the Use of Hazardous Substances Directive (RoHS) 2002/95/EC

AEROFLEX- HF

HALOGEN FREE
THERMAL INSULATION



AEROFLEX-HF is halogen-free elastomeric thermal insulation especially developed for high standard with requirement of very low halogen content and very low corrosive acid gases from combustion. AEROFLEX-HF is formulated with very low chlorine and bromine content. AEROFLEX-HF is used for heating and cooling piping, tanks and air ducts, and to prevent stress corrosion with stainless steel pipe in the electronic control room, computer center, hospitals, laboratory, ships, trains and other areas where non-halogenated chemical materials are required.

AEROFLEX-HF Specification :

Properties	Aeroflex-HF				Test Method
Cell Structure	Closed Cell				-
Density lbs/ft ³ (Kg/m ³)	2.5-5.0 (40-80)				ASTM D 1667
Thermal Conductivity BTU.in/ft ² hr °F (W/ m.K)	Mean Temp	32°F (0°C)	75°F (24°C)	90°F (32°C)	ASTM C 518 EN ISO 8497
	K-Value	0.242 (0.035)	0.257 (0.037)	0.263 (0.038)	
Service Temperature	-70 °F to 257 °F -57 °C to 125 °C				Becomes hard at -57°C but can be used even at -200°C
Water Absorption	< 10% (by weight)				ASTM D 1056
	< 0.20% (by volume)				ASTM C 209
Water Vapor Permeability perm.in (g/Pa.s.m)	≤ 0.10 (1.44 x 10 ⁻¹⁰ g/Pa.s.m)				ASTM E 96
Ozone Resistance	No Crack				ASTM D 1149 ASTM D 1171
UV Weather Resistance	Very Good				ASTM G 154
Flammability & Smoke Density	Self-Extinguishing				ASTM D 635
	S4				DIN5510 (Railway)
	Pass				IMO
Corrosion of Copper/ Stainless Steel	Non Corrosive				DIN 1988
Nitrosamine Contents	Not Detected				FDA CPG 7117.11
RoHS	Not Detected				EN Restriction of the Use of Hazardous Substances Directive (RoHS) 2002/95/EC
Flexibility	Excellent				ASTM C 534

AEROFLEX- EP



AEROFLEX-EP is an EPDM based closed cell elastomeric thermal insulation specially formulated to meet Factory Mutual Approvals. FM has approved AEROFLEX-EP that it will not contribute significant fire according to FM fire test methods: UBC 26-3 Room Fire Test and Factory Mutual Approvals Full Scale Horizontal Simulated Pipe Chase Test. AEROFLEX-EP elastomeric thermal insulation tube and sheet are used to save energy and prevent condensation on chilled water and refrigeration system. They also efficiently reduce heat flow on hot water plumbing, liquid heating and dual-temperature piping.

AEROFLEX-EP Specification :

Properties	Aeroflex-EP					Test Method
Cell Structure	Closed Cell					-
Density lbs/ft ³ (Kg/m ³)	2.5-5.0 (40-80)					ASTM D 1667
Thermal Conductivity BTU.in/ft ² hr °F (W/ m.K)	Mean Temp	(0°C) 32°F	(10°C) 50°F	(20°C) 68°F	(30°C) 86°F	ASTM C 518 EN ISO 8497
	K-Value	0.250 (0.036)	0.257 (0.037)	0.263 (0.038)	0.272 (0.039)	
Service Temperature	-70 °F to 257 °F -57 °C to 125 °C					Becomes hard at -57 °C but can be used even at -200 °C
Water Absorption	< 10% (by weight)					ASTM D 1056
	< 0.20% (by volume)					ASTM C 209
Water Vapor Permeability perm.in (g/Pa.s.m)	< 0.10 (1.44 x 10 ⁻¹⁰ g/Pa.s.m)					ASTM E 96
Ozone Resistance	No Crack					ASTM D 1149 ASTM D 1171
Flexibility	Excellent					ASTM C 534
Heat Stability (%Shrinkage) @ 220°F (104°C) x 7 days	< 7%					ASTM C 534
Flammability	FM Approved					UBC 26-3
	FM Approved					FM pipe chase test no.4924
	Class V-0					UL 94
RoHS	Not Detected					EN Restriction of the Use of Hazardous Substances Directive (RoHS) 2002/95/EC

AEROFLEX- ECE

EN STANDARD
THERMAL INSULATION



AEROFLEX-ECE is a special polymer based closed cell elastomeric thermal insulation especially developed to meet EN Standard (building material fire test standard). Aeroflex-ECE is classified as low flame spread, low smoke density and no flaming droplets according to EN 13823 & EN ISO 11925-2.

AEROFLEX-ECE Specification :

Properties	Aeroflex-ECE					Test Method
Cell Structure	Closed Cell					-
Thermal Conductivity BTU.in/ft ² hr °F (W/ m.K)	Mean Temp	(0°C) 32°F	(10°C) 50°F	(20°C) 68°F	(30°C) 86°F	ASTM C 177 ASTM C 518 JIS A 1412 EN ISO 8497
	K-Value	0.250 (0.036)	0.257 (0.037)	0.263 (0.038)	0.270 (0.039)	
Service Temperature	-58°F to 230°F -50°C to 110°C					Becomes hard at -50 °C but can be used down to -200 °C
Water Absorption	< 10% (by weight)					ASTM D 1056
	< 0.20% (by volume)					ASTM C 209
Water Vapor Permeability perm.in (g/Pa.s.m)	< 0.15					ASTM E 96
Ozone Resistance	Very Good					ASTM D 1149 ASTM D 1171
Heat Stability (%Shrinkage) @ 220°F (104°C) x 7 days	< 7%					ASTM C 534
Flammability & Smoke Density	Class V-0					UL 94
	B1, s2 d0					EN 13823 EN ISO 11925-2 (Classification according to EN 13501-1)
RoHS	Not Detected					EN Restriction of the Use of Hazardous Substances Directive (RoHS) 2002/95/EC
Flexibility	Excellent					ASTM C 534



HOT WATER SYSTEM

AEROFLEX elastomeric thermal insulation is very effective in reducing heat flow on hot water pipings, liquid heating and dual temperature piping in hospitals, hotels, residential buildings, industrial plants, etc. It's also used on central liquid heating system to heat private houses and public buildings.

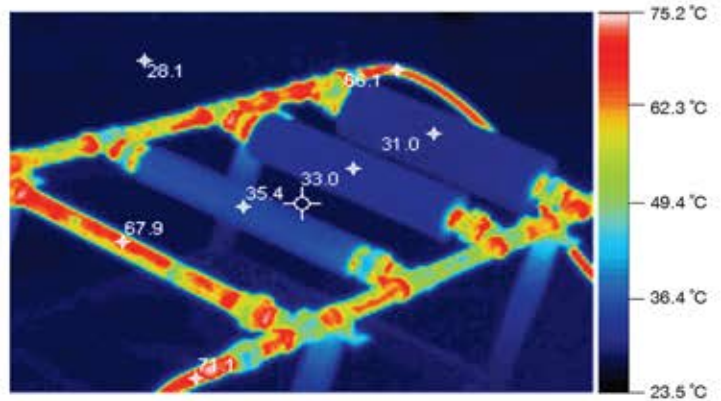
For higher performance in heat resistance and outdoor application, **AEROFLEX-HT** provides exceptional ozone, ultraviolet and weather resistance, also used for solar-heating and steam-heating applications with service temperature up to +150 °C (302 °F).

No danger of fibrous material when installed in place where hygiene is vital. Aeroflex is manufactured from synthetic polymers which contain no asbestos or fibrous material. The is one of many reasons why Aeroflex is widely selected as replacement for fibrous material like fiberglass or rock wool used in hot water and low pressured steam pipeline.

The closed cell structure and superior elastomeric properties provide the following advantages:

- Service temperature up to +125 °C (257 °F) for Aeroflex Standard and up to +150 °C (302 °F) for Aeroflex-HT
- Outstanding ultraviolet and weather resistance when used outdoor
- Very stable thermal conductivity value throughout service life

- Very low water absorption
- No jacket is necessary even for outdoor piping, unless long term direct contact to sunlight jacketing or protective coating are recommended
- Flexibility for easy installation



Infrared photo shows thermal energy emitted from hot water piping without thermal insulation and with various thickness of insulation, illustrating less thermal energy emittance from thicker insulation.



All advantages described above make Aeroflex the ideal insulation for solar heating and hot water system.



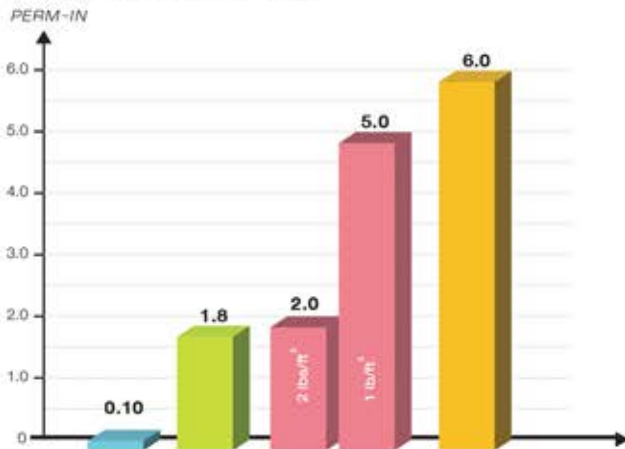
Stable K value and outstanding weather resistance throughout service life, Aeroflex is widely used in heating system to replace fiberglass.



CHILLED WATER & REFRIGERATION SYSTEM

AEROFLEX EPDM closed cell elastomeric thermal insulation is a superior insulation for cooling systems that function at below ambient temperature for energy saving by retarding heat gain and also preventing condensation on chilled water and refrigeration lines. Aeroflex also prevents the water pipes from freezing when ambient temperature is below sub-zero point. In areas with high humidity, condensation problems often occur on chilled water pipelines in central cooling systems. The condensation does not only damage ceiling, carpet and other furniture but also waste energy because of higher heat gain on chilled water pipes.

Water Vapor Permeability



Note : This average water vapor permeability data is based on products without vapor barrier.

Aeroflex : The closed cell structure density 2.5-5 lbs./ft³

Polyurethane Foam : The semi closed cell structure density 2-4 lbs./ft³

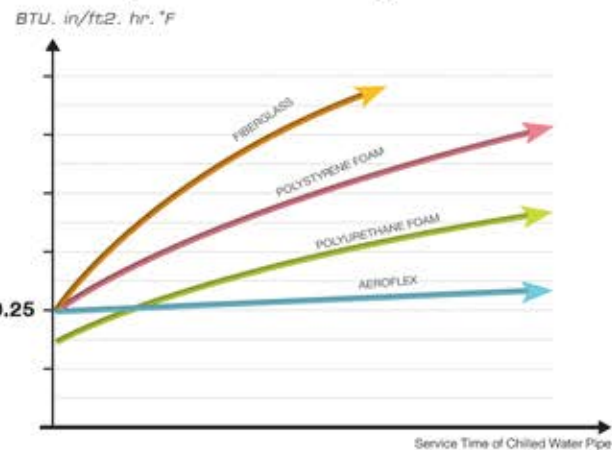
Polystyrene Foam : The interconnecting cell structure density 1-2 lbs./ft³

Fiberglass : The open cell structure density 2-4 lbs./ft³

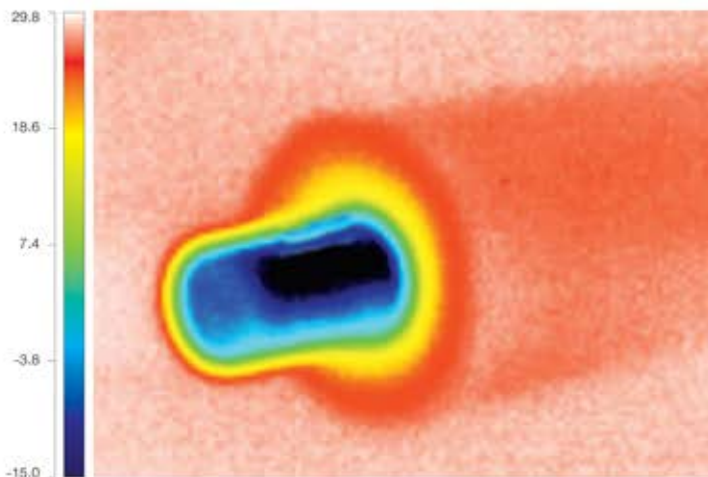
AEROFLEX is EPDM-based material with fine cell structure containing dry air (mainly nitrogen gas) which is high resistant to convection heat transfer, and with thousands of cell walls acting as multi-layer water vapor barrier to retard water and moisture penetration, resulting in low and stable thermal conductivity throughout service time. Aeroflex has been widely used in chilled water and refrigeration systems due to the following superior characteristics:

- Complete cross-linked closed cell structure
- Great resistance to water vapor penetration and very low water absorption
- Low and very stable thermal conductivity (K. Value)
- Non-polar polymer base : high water and moisture resistance

K. Value (Thermal Conductivity)



Note : Service time largely depend on humidity, temperature and installation workmanship. Under high humidity in tropical areas, the low water vapor transmission is important for thermal insulation in chilled water pipeline to maintain stable thermal conductivity (K. value) during service. Condensation problem will occur when the K. value of the insulation increases and the surface temperature of insulation drops below dew point. This happens in insulations with high water vapor transmission and high water absorption. [average K. value of water is approx. 4 BTU in/ft2 hr °F]



Infrared photo shows thermal energy emitted from refrigeration piping with appropriate thickness of thermal insulation for energy-saving and preventing condensation [see more details on page 18,19 and 20 "Condensation Control" and "Recommendation"]



With closed cell structure, low thermal conductivity, low water absorption and flame resistance, Aeroflex is widely used in chilled water cooling system in high standard buildings.

DUCTING SYSTEM

Besides being the ideal insulation for chilled and hot water piping, Aeroflex is also used as insulation for all kinds of ducting systems. Not only saving energy, but also serves as an acoustic absorber and reducing noise generated by equipment, air movement, and the expansion and contraction noise of sheet metal duct. Aeroflex has been favoured over fibrous insulating materials mainly because of the possible dangers and health hazards caused by fibrous materials. Aeroflex made from special modified elastomeric material ensures long service life and can be safely handled without any danger of skin irritation. It is also not hazardous to health, so no special precaution is needed. Aeroflex has superior resistance against moisture, fungus growth, vermin and rodent attack. Not messy and easy to install, it is also neat in appearance of its smooth surface. With low water absorption and low moisture transmission, Aeroflex can be used both as an internal and external insulation for all kinds of ducting

systems. To suit different decorative purposes, Aeroflex can also be coated with Aerocoat, an acrylic latex emulsion paint.



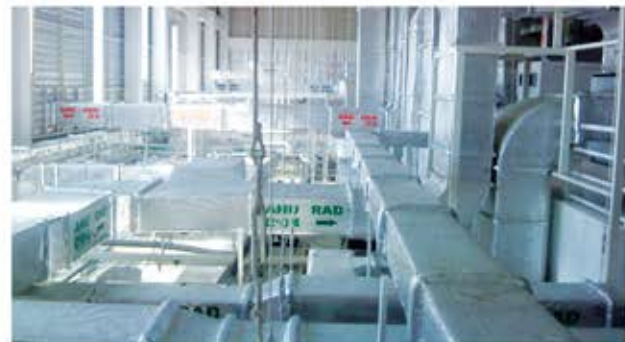
Aeroflex is available in continuous sheet roll both with and without aluminum foil lamination to suit different needs.

Thickness Recommendation for Ducting System

Ambient Condition	Operating Temperature			
	60 °F (15.5 °C)	55 °F (12.7 °C)	50 °F (10 °C)	45 °F (7.2 °C)
80 °F (26.6 °C) 50% RH	1/4" (6 mm.)	1/4" (6 mm.)	1/4" (6 mm.)	3/8" (9 mm.)
85 °F (29.4 °C) 70% RH	3/8" (9 mm.)	3/8" (9 mm.)	3/8" (9 mm.)	1/2" (12 mm.)
90 °F (32.2 °C) 80% RH	5/8" (15 mm.)	3/4" (19 mm.)	3/4" (19 mm.)	1" (25 mm.)
90 °F (32.2 °C) 85% RH	1" (25 mm.)	1" (25 mm.)	1" (25 mm.)	1-1/4" (32 mm.)



Aeroflex can work efficiently as a sound dampening material when used as internal and external insulation for medium and high velocity air duct system.



Because of many advantages, Aeroflex is widely used in clean-room air ducting system for food, pharmaceutical and electronic industries.



Neat appearance when used as external insulation for air ducts in pharmaceutical laboratory facility.



Aeroflex does not contain any fibrous material, so it is safe to use in direct contact with air, provides the excellent IAQ (Indoor Air Quality) Standard.



AEROSEAL

Aeroseal is a modified neoprene contact adhesive specially formulated for bonding Aeroflex insulation firmly together. The high water vapor and weather resistance of Aeroseal can prevent water or moisture from penetrating through joints. Aeroseal forms a strong, firm and permanent bonding, providing long lasting service.



AEROTAPE

Aerotape is a flexible self-adhesive insulation foam tape. Aerotape is ideal for wrapping hot and cold water piping and fitting. It helps to save energy and prevents condensation problems. It's especially designed to have strong adhesive bond adhered to dry and clean rubber insulation and metal surface.



EVERSEAL

Everseal Cork Tape is designed to insulate all kinds of cold pipes including residential and automotive air-conditioners, freezers and refrigerators. It helps to prevent condensation problems and energy loss in cold and hot piping. Everseal can be applied as effective sound dampening and gasket materials. It can stick and seal all types of dry and clean surface including metals.



AEROCOAT

Aerocoat is a water based paint formulated with selected acrylic emulsion for Aeroflex insulation. It is excellent for coating the insulation surface for greater protection against UV and weather conditions. Aerocoat has outstanding elongation property that ensures it can stay firmly and permanently to the coated surface.



AEROFIX

Aerofix is a polymeric rigid foam hanger with rubber foam tape inner-lining, which absorbs vibration of operating pipelines. High density rigid foam makes Aerofix superior for supporting metal pipe weight. The outer cover consists of flame retarding rubber tape, which seals the hanger completely after installation in order to prevent moisture penetration and condensation problems.



AEROFIT

AeroFit Insulating Fitting Covers are designed for insulating warm or cold piping fittings and elbows without the need to field-fabricate into particular shapes. It helps to save time and installation costs. AeroFit is very good in weather resistance without any protective cover required for outdoor application.



AERODUCT

Aeroduct is a fully flexible compressible extendable aluminum air duct. It is made of 2 ply double facing aluminum polyester foil bonded together with quality adhesive and reinforced with high carbon corrosion proof spring wire. Aeroduct is non-flammable which is ideal for residential and industrial applications.



ESCOTAPE

Escotape is an elastomeric closed cell self-adhesive gasket foam tape for cooling and heating air duct joint connections to prevent air leakage, reduce vibration and noise, serves as thermal insulation to prevent condensation and heat transfer. Escotape is laminated with acrylic pressure sensitive adhesive and can be easily installed on surface of connection joints.



AEROFLANGE

Aeroflange is self-adhesive flange cover for square duct connection. It is made of the same material as AEROFLEX thermal insulation that features the same excellent physical and technical insulation properties. It is the all-in-one ducting work solution that provides clean and fast installation with professional appearance.



PROTAPE

Protape is an EPDM based self-adhesive tape especially made for adhering the joints of Aeroflex tubes and sheets. Protape provides extra protection and holding strength to the joints and serves as water vapor barrier to prevent moisture penetration into the seams. It is flexible, easy to wrap tightly on the insulation surface.



ALUTAPE

Alutape is a solvent based pressure sensitive acrylic adhesive aluminum foil tape, which is excellent for vapor sealing of fiberglass duct boards and metal sheet ducts. Alutape is ideal for masking material and sealing purpose on all kinds of dry and clean surface.



AERO-ROOF

Aerorooft is an insulation sheet laminated with aluminum foil and reinforced fiber. It is a lightweight insulation installed under the roof of the buildings to prevent heat from sunlight. Aerorooft is a thermosetting material which is made of special synthetic rubbers mixed with flame retardants, making it non-melt and non-flame spread when burnt.



AEROSTAND

Aerostand is the rubber load supporter for air condensing unit. It is made of natural rubber blended with EPDM synthetic rubber, which has good compressive strength and weather resistance. Aerostand is designed to be very effective in reducing vibration and noise level.



AEROPAD

Aeropad is the anti-vibration rubber pad for condensing unit that can effectively absorb and reduce vibration and noise level during mechanical operation. Aeropad can be installed underneath the operating machines to reduce vibration against the floor. It is durable with long service life.



ESCOBRACKET

Escobacket is the wall type supporter for condensing units. It is made of pressed electro galvanized metal sheet with extra corrosion proof epoxy powder coating for good weather resistance. It is easy to install with slide adjustment mechanism, which is suitable for all models of residential air-condensing units.



PRODUCT INSTALLATION

Before Assembly

For small pipe size up 4" IPS (115mm), it is easier and more time-saving to apply the insulation before assembling the line. Just slip Aeroflex insulation tube over the pipe. The thick and smooth inner skin is coated with talcum powder for speeding up slipping even around the most bent area of the pipe. Apply brush coating of Aeroseal adhesive to both butt ends to be joined. Allow the adhesive to set until non-tacky to touch (approx. 5-15 minutes) then press the joints together firmly (see picture 1 and 2).

Fittings

Aeroflex insulation tube is easy to cut and fabricate for tees, elbows, crosses and almost any fitting forms on preassembled lines. Use a clean and sharp knife or electric knife to cut the insulation to the desired shape, pressing the insulation as little as possible to avoid irregular cuts. The commonly used fittings require only 45° and 90° cuts. A miter box will offer more accurate cuts but careful free-hand cuts are usually faster and more convenient on job-site installation. After fabricating fitting cover is done, snap fitting cover in place over a fitting and then apply brush coating of Aeroseal adhesive to all joint surfaces. Allow the adhesive to set until non-tacky to the touch (approx. 5-15 minutes), press the joints together firmly. (see picture 3,4,5 and 6).

Pipe Supporting

(AEROFIX Rigid Foam Pipe Support System)

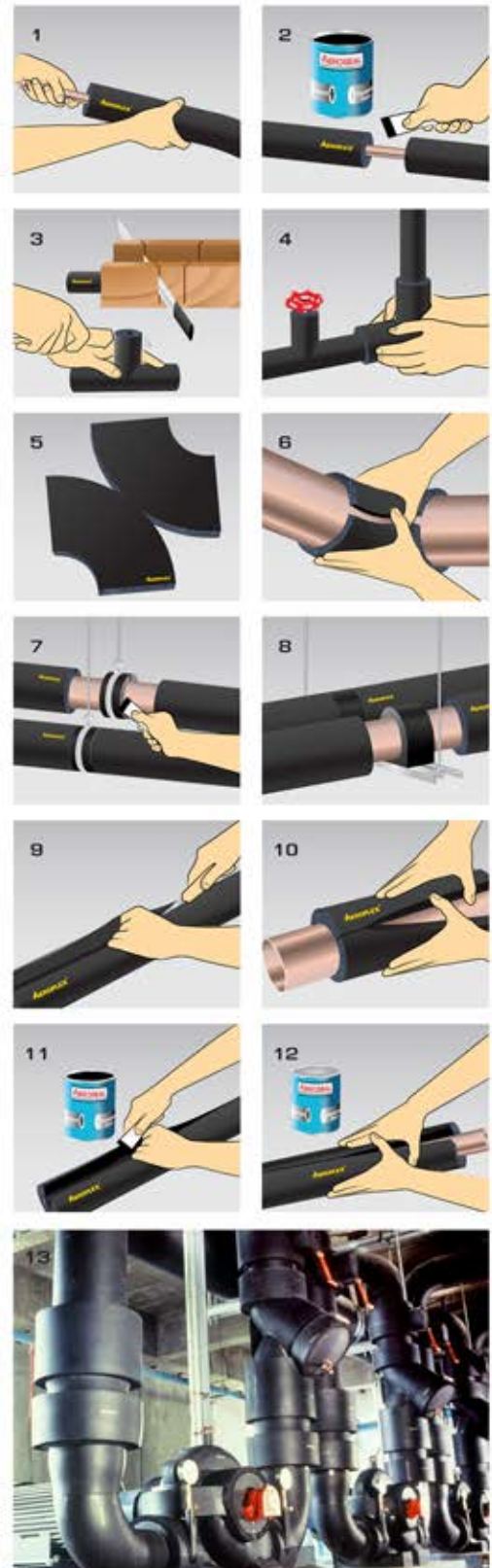
At pipe suspending and resting on the channel areas, Aerofix polymeric rigid foam, is needed to prevent thickness deformation of Aeroflex from pipe weight. Especially for chilled water and low temperature pipeline, condensation problem may occur. After installing Aerofix, apply brush coating of Aeroseal adhesive to both Aerofix and Aeroflex joint surfaces. Allow adhesive to set until non-tacky to touch, and then press joints together firmly. (see picture 7 and 8).

For Existing Line

To insulate existing lines, slit Aeroflex insulation tube lengthwise on one side, or use Aeroflex precut sheet for above 3" IPS (90mm I.D.), and snap over the pipe. Then seal lengthwise-slit surface and butt joints with Aeroseal adhesive. To assure a complete seal, avoiding loss of insulation efficiency, all joint surfaces must be fully and thinly coated with adhesive. Adhesive tape should not be used on seams and joints because tape is less effective than adhesive and may allow passage of moisture and air (see picture 9,10,11 and 12).

For Large Pipes and Irregular Shape

All applications cannot be accomplished by preformed tubular insulation. The flexibility of Aeroflex insulation allows irregular curves and surfaces of duct work, large piping, tanks and vessels. Cut the insulation sheet in a measured size with a clean sharp knife. Apply Aeroseal adhesive on both surfaces to be insulated. Allow the adhesive to set until non-tacky to the touch (5-15 minutes), press the sheet tightly against the surface to be insulated. Be sure it is in the desired position before the adhesive coated surface makes an initial contact since the adhesive forms an instant bond and repositioning after contact is difficult. Then seal both sheet rims with Aeroseal adhesive. (see picture 13)



CONDENSATION CONTROL & RECOMMENDATION

In areas with high humidity, condensation problems often occur on chilled water pipeline in central cooling system as well as other low temperature piping system. The condensation does not only damage ceiling, carpet and furniture, but also waste energy with higher heat gain, shorten insulation service life and so forth. Condensation problems can be avoided by applying 3 main factors: ① appropriate insulation thickness, ② good installation and ③ moist air movement. All details of each factor are as follow:

① Determine the proper thickness

Determine by using CONDENSATION CONTROL NOMOGRAPH

This nomograph is for your quick calculation in determining the required thickness of Aeroflex insulation for low temperature pipeline, when cold pipe temperature, room temperature and relative humidity are already known. More details are shown in Fig.1.

Determine by using AEROFLEX thickness calculation program

Aeroflex thickness calculation program is designed to calculate and determine the appropriate thickness of Aeroflex to prevent condensation, save energy and other calculation reports for HVAC&R system. It is simple to obtain required thickness by using Aeroflex calculation program to prevent condensation problem, just key in all condition factors as example below:

1. Operating Temperature 5 °C
2. Room Temperature 30 °C
3. Relative Humidity 70, 75, 80, 85, 90 and 95%RH
4. Convection Coefficient 8.0 W/m²K
5. K.Value 0.0373W/mK at mean temp of 17.5 °C, which is from (5 °C + 30 °C)/2.
6. Pipe size ID: 35mm up to 508mm

MM	35	60	90	115	140	165	219	273	324	356	406	508
IPS	1"	2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	20"

Thickness calculation results as shown in fig.2

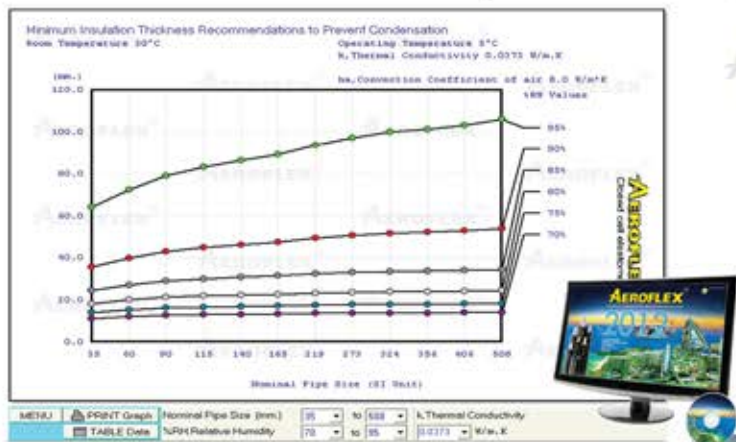
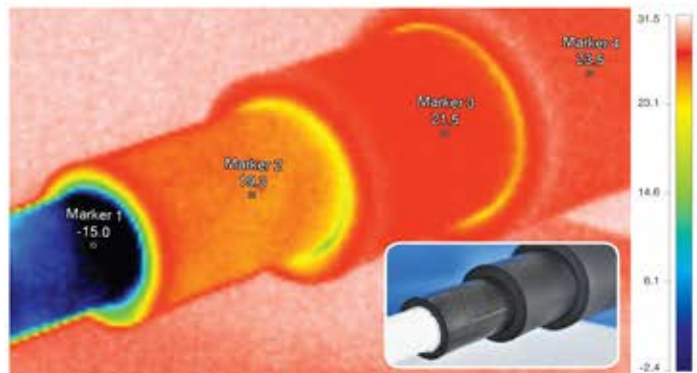


Fig.2 Minimum insulation thickness recommendation graph and data table shows Aeroflex insulation thickness required to prevent condensation at various %RH and various pipe sizes. Aeroflex calculation program also calculates energy loss & gain, economic thickness and other calculation for HVAC&R industry.



Infrared photo shows thermal energy emitted from low temperature pipe without and with various thickness of Aeroflex thermal insulation. If surface temperature of insulation below dew point, condensation occurs.

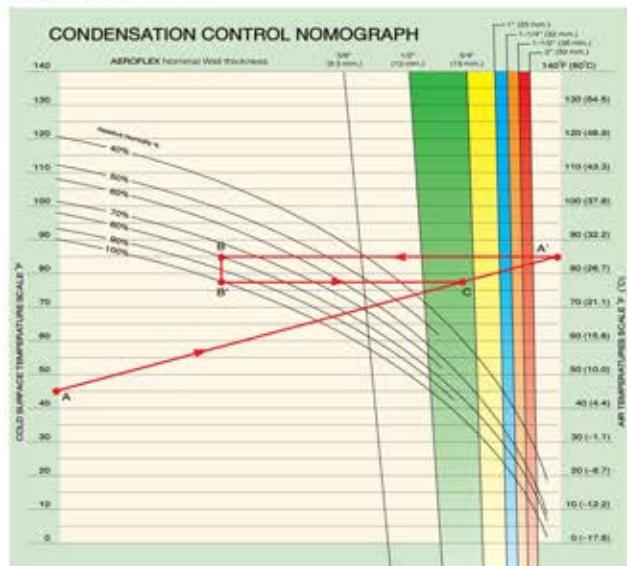


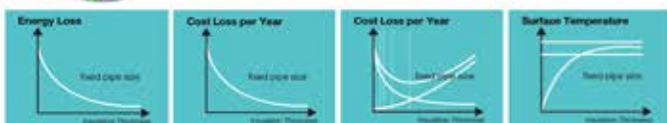
Fig.1 Condensation Control Nomograph is a convenient tool for determining insulation thickness to prevent condensation.

AEROFLEX

AEROFLEX
Climate control electronic thermal insulation

Minimum Insulation Thickness Recommendations to Prevent Condensation
Room Temperature 30°C
a) Nominal Pipe Size: (SI Unit)
k_a Convection Coefficient of air 8.0 W/m²K
Operating Temperature 5°C
k_i Thermal Conductivity 0.0373 W/m.K
Insulation Thickness (mm)

d _i (mm.)	RH/Relative Humidity (%)					
	70	75	80	85	90	95
35	11.4	14.3	16.4	24.6	35.7	64.2
60	12.3	15.6	20.1	27.2	40.0	72.5
90	12.8	16.4	21.3	29.1	43.1	79.1
115	13.1	16.8	22.0	30.1	45.0	83.2
140	13.3	17.1	22.5	30.9	46.4	86.5
165	13.5	17.3	22.8	31.6	47.6	89.3
219	13.7	17.7	23.4	32.5	49.4	93.9
273	13.9	17.9	23.8	33.2	50.8	97.4
324	13.9	18.1	24.0	33.7	51.7	100.0
356	14.0	18.1	24.2	33.9	52.2	101.4
406	14.1	18.2	24.3	34.2	52.9	103.3
508	14.1	18.4	24.6	34.7	53.9	106.5



• Determine by using AEROFLEX thickness recommendation

The table below is AEROFLEX thickness recommendation for controlling outer insulation surface sweating.

Pipe Size	Line Temp. 60°F [15.5°C]	Line Temp. 50°F [10°C]	Line Temp. 35°F [1.7°C]	Line Temp. 0°F [-18°C]
Based on Normal Condition Max. 85°F (29.4°C) 70% RH*				
3/8" ID Thru 3" IPS Over 3" IPS	1/4" Thickness 3/8" Thickness	3/8" Thickness 1/2" Thickness	1/2" Thickness 3/4" Thickness	1" Thickness 1-1/4" Thickness
Based on Mild Condition Max. 80°F (26.6°C) 50% RH**				
3/8" ID Thru 3" IPS Over 3" IPS	1/4" Thickness 3/8" Thickness	3/8" Thickness 1/2" Thickness	3/8" Thickness 3/4" Thickness	3/4" Thickness 3/4" Thickness
Based on Severe Condition Max. 90°F (32.2°C) 80% RH***				
3/8" ID Thru 3" IPS Over 3" IPS Thru 10" IPS Over 10" IPS	1/2" Thickness 3/4" Thickness 3/4" Thickness	3/4" Thickness 1" Thickness 1" Thickness	1" Thickness 1-1/8" Thickness 1-1/8" Thickness	1-1/2" Thickness 1-3/4" Thickness 2" Thickness
Based on Extremely Severe Condition Max. 90°F (32.2°C) 85% RH****				
3/8" ID Thru 3" IPS Over 3" IPS Thru 10" IPS Over 10" IPS	3/4" Thickness 1" Thickness 1" Thickness	1" Thickness 1-1/4" Thickness 1-1/4" Thickness	1-1/4" Thickness 1-1/2" Thickness 1-1/2" Thickness	2" Thickness 2-1/2" Thickness 2-1/2" Thickness

* AEROFLEX in the thickness noted and within the specified temperature ranges will prevent condensation on piping under normal design condition max. temp. 85°F (29.4°C), 70% RH.

** condition max. temp. 80°F (26.6°C), 50% RH. Typical of these conditions are air-conditioned areas.

*** conditions max. temp. 90°F (32.2°C), 80% RH. Typical of these conditions are indoor areas, in-which excessive moisture is introduced or in-poorly ventilated areas. [AEROFLEX research and field experience indicate that most tropical regions are in this condition]. Central cooling by chilled water systems in hotels, shopping centres, office buildings are concerned in this condition.

**** AEROFLEX in this thickness is specially designed for extremely severe conditions max. temp. 90°F (32.2°C), 85% RH., in the condition that needs maximum protection from condensation, where excessive moisture is introduced or poorly ventilated [85% RH.]. Designed for central cooling by chilled water systems for hotels, hospitals, computer or electronics installation areas, military weapon warehouses.

NOTE: To prevent condensation problems under extremely severe condition, good ventilation design is recommended to avoid a continuous condensation problems.

② Good Installation

- **Keep insulated pipeline apart** Even use thicker than designed thickness and good installation, but condensation problems still occur if insulated pipeline contact to each other. This condensation is caused by less air movement or still air (Fig.3). So should keep all insulated pipeline apart, normally at least 3" for small pipe (less than 3" IPS) and 4" for pipe larger than 3" IPS (Fig.4). According to DIN 4140, distance between insulated pipe not less than 100 mm. (4") and not less than 1000 mm. (40") for tanks and vessel.

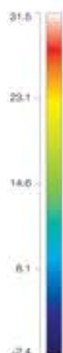


Fig.3 Infrared photo shows thermal energy around the pipes, especially at the bottom contact of insulated pipe, where there is no or less air movement and accumulation of moisture that causes severe condensation.

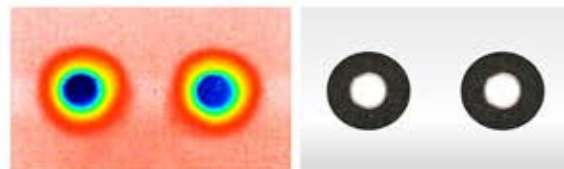


Fig.4 Infrared photo shows thermal energy around insulated pipes located 4" apart, allowing free air movement without accumulation of moisture and no condensation problem.

- **Completely insulated with design thickness** All insulated pipeline should be insulated in designed thickness, no insulation thickness compressed, deformed or torn off and also all joints and seam surfaces must be fully applied with thin coat of AEROSEAL adhesive and press together firmly. During installation, do not stretch the insulation to avoid separation and thickness deformation.

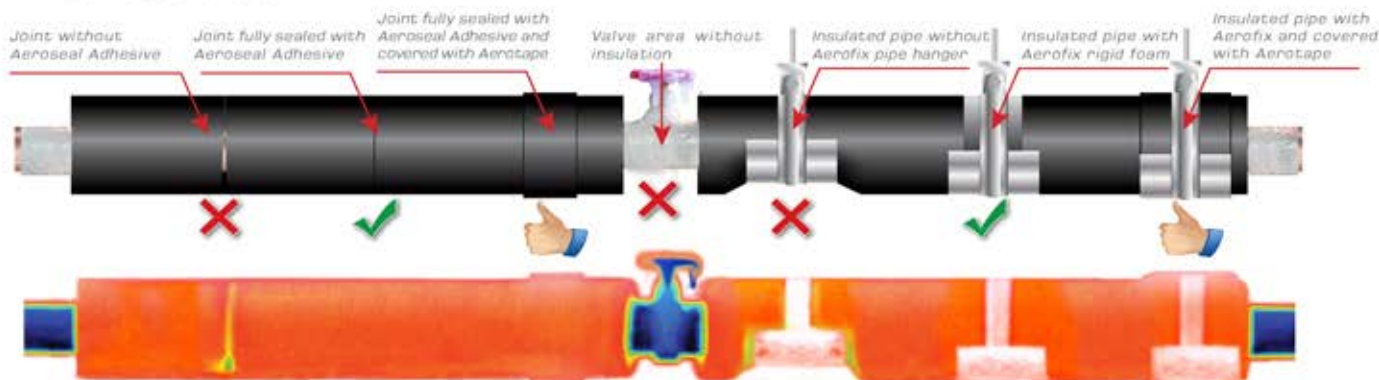
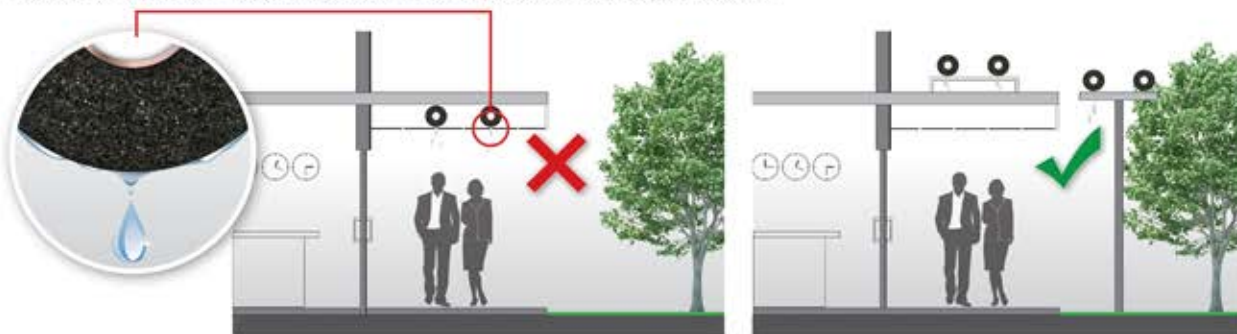


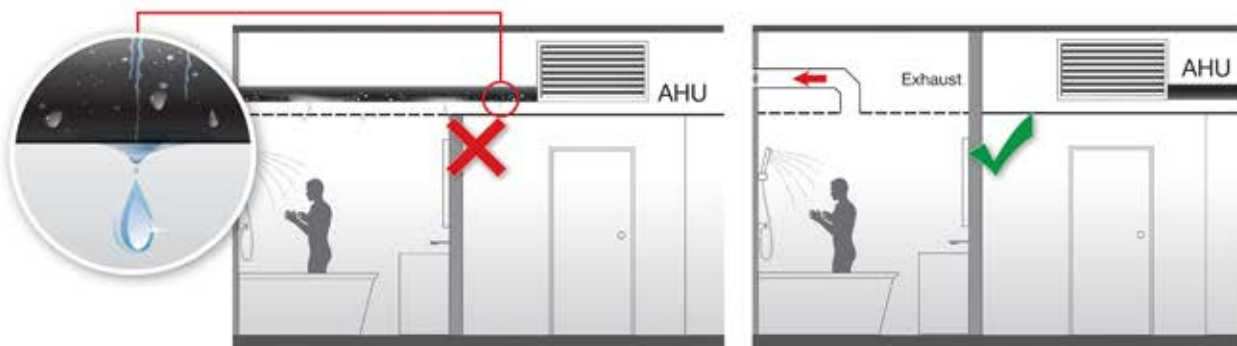
Fig.5 The illustration shows the do and don't when installing Aeroflex insulation on low temperature pipeline to prevent condensation.

③ Location Understanding (Moist air movement)

- **Uncontrolled humidity area** Uncontrolled humidity area is the area that allows atmosphere air to flow in which cause relative humidity (%RH) rise up or go down according to %RH of atmosphere air. If it is raining, %RH of atmosphere air is near to moisture saturated point or 100%RH which condensation cannot be avoided, so low temperature pipeline should be located at the area that condensation water does not cause any problems.



- **Humidity movement in controlled area** Air in the controlled area like hotel, hospital, shopping center and other buildings is normally 25 °C and 40-60%RH. But there may be some area that temperature and humidity of indoor air can be highly up or down such as shower room, room below the roof, room or area that is directly affected by heating sunlight or similar condition. So chilled water pipeline should not be located in this area. If can not avoid then should prevent heat or moisture flow into this area, then make sure that condensation water does not cause any problems.



Chemical Resistance Data

Chemicals	Conc%	Temp(°C)	Resistance
Acetone	100	room temp.	E
Ammonia Water	30	room temp.	E
Aniline	100	room temp.	E
Benzene	100	room temp.	P
Boiling water	-	100 °C	E
Butyl Acetate	100	room temp.	P
Butyl Alcohol	100	room temp.	G
Caustic Soda	50	room temp.	E
Chloric Acid	6	room temp.	G
Cotton Seed Oil	100	room temp.	G
Ethyl Acetate	100	room temp.	F
Ethylene Glycol	100	room temp.	E
Formaldehyde	40	room temp.	G
Glacial Acetic Acid	100	room temp.	G
Hydrochloric Acid	10	room temp.	E
Hydrogen Peroxide	10	room temp.	E
Kerosene	100	room temp.	P
Linseed Oil	100	room temp.	G
M E K	100	room temp.	F
Methyl Alcohol	100	room temp.	E
Methylene Chloride	100	room temp.	P
Nitrobenzene	100	room temp.	G
Phosphoric Acid	85	room temp.	E
Steam	-	120°C	G
Sulfuric Acid	10	room temp.	E
Octane	80	room temp.	P
Toluene	100	room temp.	P
Water	-	(0-100°C)	E

Aeroflex is compounded with special non-polar elastomeric materials which is highly resistant to polar chemicals such as water, moisture vapor, acid and base. But it has moderate or poor resistance to non-polar chemicals such as petroleum solvent. In most applications of thermal insulations especially used in low temperature pipelines, such insulations are always in contact with moisture found in the atmosphere. Under these circumstances, Aeroflex-which is made from non-polar elastomers can be in service longer than polar thermal insulation such as NBR/PVC elastomers. The testing and classification of polarity and non-polarity can be done by using a microwave oven. Highly polar material will be very hot, and can even burn after being heated in a microwave oven for a few minutes. Lower polar material will take a longer time to heat up and non-polar material will only be slightly heated up but not burnt when placed in the same condition or even for a much longer time.



PACKING & SHIPPING FACTOR

AEROFLEX has a wide range of thickness and ID sizes in tube, sheet and sheet roll available in both metric and imperial system, accompanied with complete line of accessories for HVAC&R, which always kept in stock ready for prompt delivery to customers.



AEROFLEX insulation tube standard packing.



AEROFLEX tube, sheet and sheet roll standard products are always kept in stocks ready to ship to customers



AEROFLEX insulation sheet roll standard packing.



AEROFLEX will reach to your port in a satisfactory condition due to our packing and good loading.

Carton Sizes and Shipping Factors :

Imperial System	Carton Size		Full Container Load	
	H x W x L [cm]	M³	20 Ft	40 Ft HC
1. Tube (6 feet length)	23 x 45 x 192	0.199	150 ctn	342 ctn
2. Sheet (3' x4')	19 x 102 x 130	0.252	108	280
3. Sheet Roll (4 feet width)	46 x 46 x 130	0.275	107	260
4. Continuous Tube Roll Small Carton (CTRS)	23 x 58 x 58	0.077	400	896
5. Continuous Tube Roll Medium Carton (CTRM)	78 x 75 x 75	0.439	63	144
Metric System	Carton Size		Full Container Load	
	H x W x L [cm]	M³	20 Ft	40 Ft HC
1. Tube (2 meters length)	23 x 45 x 210	0.217	138 ctn	311 ctn
2. MS1 Sheet (0.5 x 2m)	19 x 56 x 207	0.220	120	322
3. MS2 Sheet (1.0 x 2m)	19 x 111 x 207	0.413	60	154
4. Sheet Roll (1 m width)	46 x 46 x 110	0.233	120	312
Other Product	Carton Size		Full Container Load	
	H x W x L [cm]	M³	20 Ft	40 Ft HC
1. Everseal Cork Tape	34 x 23 x 45	0.035	780 ctn	1,925 ctn
2. Aertape Foam Tape	29 x 23 x 45	0.030	920	2,340
3. Aero seal Glue Can	14 x 31 x 41	0.018	1568	3,857
4. Aero seal Glue Gallon	27 x 17 x 32	0.015	1872	4,410
5. Escotape Gasket Tape	26 x 30 x 58	0.045	684	1,600
6. Protape Rubber Tape	35 x 20 x 38	0.026	990	2,618
Interior Container Dimensions	20 Ft		40 Ft HC	
	H x W x L [cm]	M³	H x W x L [cm]	M³
	237 x 233 x 580	32	269 x 233 x 1203	75

STANDARD PACKING [Imperial System]

AEROFLEX Insulation Tube : 6 Feet Length/Piece

I.D. SIZE		I.P.S.	Code number [Quantity : Pieces/Carton]									
INCH	MM		1/4" wall [6 mm]	3/8" wall [9 mm]	1/2" wall [13 mm]	3/4" wall [19 mm]	1" wall [25 mm]	1-1/4" wall [32 mm]	1-1/2" wall [38 mm]	2" wall [50 mm]		
1/4"	6	-	1414 (180)	3814-9 (132)	1214 (80)	3414 (32)	1014 (24)	-	-	-	-	-
3/8"	10	-	1438 (140)	3838-9 (110)	1238 (70)	3438 (32)	1038 (24)	11438 (14)	-	-	-	-
1/2"	(12)13	1/4"	1412 (110)	3812-9 (84)	1212 (60)	3412 (32)	1012 (20)	11412 (14)	11212 (10)	2012 (4)	-	-
5/8"	(15)16	3/8"	1458 (80)	3858-9 (70)	1258 (50)	3458 (28)	1058 (18)	11458 (14)	11258 (8)	2058 (4)	-	-
3/4"	(18)19	-	1434 (70)	3834-9 (60)	1234 (40)	3434 (24)	1034 (18)	11434 (14)	11234 (8)	2034 (4)	-	-
7/8"	22	1/2"	1478 (70)	3878-9 (54)	1278 (32)	3478 (20)	1078 (16)	11478 (12)	11278 (8)	2078 (4)	-	-
1"	25	3/4"	1410 (60)	3810-9 (44)	1210 (30)	3410 (18)	1010 (12)	11410 (10)	11210 (8)	2010 (4)	-	-
1-1/8"	28	-	14118 (50)	38118-9 (36)	12118 (28)	34118 (18)	10118 (12)	114118 (8)	112118 (8)	20118 (4)	-	-
1-1/4"	32	-	14114 (40)	38114-9 (34)	12114 (24)	34114 (18)	10114 (12)	114114 (8)	112114 (8)	20114 (4)	-	-
1-3/8"	35	1"	14138 (40)	38138-9 (32)	12138 (20)	34138 (16)	10138 (10)	114138 (8)	112138 (6)	20138 (4)	-	-
1-1/2"	38	-	14112 (32)	38112-9 (30)	12112 (18)	34112 (12)	10112 (10)	114112 (8)	112112 (6)	20112 (4)	-	-
1-5/8"	42	1-1/4"	14158 (30)	38158-9 (28)	12158 (18)	34158 (12)	10158 (8)	114158 (8)	112158 (6)	20158 (4)	-	-
1-3/4"	45	-	14134 (28)	38134 (24)	12134 (18)	34134 (10)	10134 (8)	114134 (8)	112134 (6)	20134 (4)	-	-
1-7/8"	48	1-1/2"	14178 (24)	38178 (20)	12178 (16)	34178 (10)	10178 (8)	114178 (8)	112178 (6)	20178 (3)	-	-
2"	51	-	-	38200 (18)	12200 (14)	34200 (8)	10200 (8)	114200 (8)	112200 (4)	20200 (3)	-	-
2-1/8"	54	-	-	38218 (18)	12218 (14)	34218 (8)	10218 (8)	114218 (8)	112218 (4)	20218 (3)	-	-
2-1/4"	57	-	-	38214 (18)	12214 (14)	34214 (8)	10214 (8)	114214 (8)	112214 (4)	20214 (3)	-	-
2-3/8"	60	2"	-	38238 (16)	12238 (12)	34238 (8)	10238 (6)	114238 (4)	112238 (4)	20238 (3)	-	-
2-1/2"	64	-	-	38212 (16)	12212 (10)	34212 (8)	10212 (6)	114212 (4)	112212 (4)	20212 (3)	-	-
2-5/8"	67	-	-	38258 (14)	12258 (10)	34258 (8)	10258 (6)	114258 (4)	112258 (4)	20258 (3)	-	-
2-7/8"	73	2-1/2"	-	38278 (10)	12278 (10)	34278 (6)	10278 (6)	114278 (4)	112278 (3)	20278 (2)	-	-
3"	76	-	-	38300 (10)	12300 (8)	34300 (6)	10300 (6)	114300 (4)	112300 (3)	20300 (2)	-	-
3-1/8"	80	-	-	38318 (10)	12318 (8)	34318 (6)	10318 (6)	114318 (4)	112318 (3)	20318 (2)	-	-
3-1/4"	83	-	-	38314 (10)	12314 (8)	34314 (6)	10314 (6)	114314 (4)	112314 (3)	20314 (2)	-	-
3-1/2"	90	3"	-	38312 (8)	12312 (8)	34312 (6)	10312 (4)	114312 (4)	112312 (3)	20312 (2)	-	-
3-5/8"	92	-	-	38358 (8)	12358 (8)	34358 (6)	10358 (4)	114358 (4)	112358 (3)	20358 (2)	-	-
3-7/8"	98	-	-	38378 (8)	12378 (8)	34378 (4)	10378 (4)	114378 (2)	112378 (3)	20378 (2)	-	-
4"	102	-	-	38400 (8)	12400 (8)	34400 (4)	10400 (4)	114400 (2)	112400 (2)	20400 (2)	-	-
4-1/8"	105	-	-	38418 (6)	12418 (6)	34418 (4)	10418 (4)	114418 (2)	112418 (2)	20418 (2)	-	-
4-1/2"	115	4"	-	38412 (6)	12412 (6)	34412 (4)	10412 (4)	114412 (2)	112412 (2)	20412 (2)	-	-
5-1/8"	130	-	-	38518 (4)	12518 (4)	34518 (4)	10518 (2)	114518 (2)	112518 (2)	20518 (2)	-	-
5-1/2"	140	5"	-	38512 (4)	12512 (4)	34512 (4)	10512 (2)	114512 (2)	112512 (2)	20512 (2)	-	-
6-1/2"	165	6"	-	38612 (4)	12612 (4)	34612 (2)	10612 (2)	114612 (2)	112612 (2)	20612 (2)	-	-

Note : Other ID and wall thickness are available upon request.

AEROFLEX Pre-Cut Sheet Insulation (4 Feet Length/Sheet)

I.D. Size [IPS]	Sheet Size	Code Number [Quantity : Sheets/Carton]					
		1/2" wall (13 mm)	3/4" wall (20 mm)	1" wall (25 mm)	1-1/4" wall (32 mm)	1-1/2" wall (38 mm)	2" wall (50 mm)
4-1/2" (4"IPS)	17" x 48"	P12412 (24)	P34412 (16)	P10412 (12)	P114412 (10)	P112412 (8)	P20412 (6)
5-1/2" (5"IPS)	21" x 48"	P12512 (12)	P34512 (8)	P10512 (6)	P114512 (5)	P112512 (4)	P20512 (3)
6-1/2" (6"IPS)	24" x 48"	P12612 (12)	P34612 (8)	P10612 (6)	P114612 (5)	P112612 (4)	P20612 (3)
8-1/2" (8"IPS)	30" x 48"	P12812 (12)	P34812 (8)	P10812 (6)	P114812 (5)	P112812 (4)	P20812 (3)
10-1/2" (10"IPS)	36" x 48"	P121012 (12)	P341012 (8)	P101012 (6)	P1141012 (5)	P1121012 (4)	P201012 (3)

Note : The above sheet size is for 1" wall thickness. For other thickness pre-cut sheet size will vary to cover circumference

AEROFLEX Standard Sheet Insulation (4 Feet x 3 Feet Sheet)

Sheet Size	Code Number [Quantity : Sheets/Carton]							
	1/8" wall	1/4" wall	3/8" wall	1/2" wall	3/4" wall	1" wall	1-1/4" wall	1-1/2" wall
36" x 48"	S 1843 (48)	S 1443 (24)	S 3843 (16)	S 1243 (12)	S 3443 (8)	S 1043 (6)	S 11443 (5)	S 11243 (4)
								S 2043 (3)

AEROFLEX Continuous Sheet Roll (4 Feet Width Roll)

Code	Size			
	Thickness (inch)	Width (ft)	Length (ft)	Ft ² /Roll
SR 18"	1/8"	4	150	600
SR 14"	1/4"	4	72	288
SR 38"	3/8"	4	50	200
SR 12"	1/2"	4	36	144
SR 58"	5/8"	4	32	128
SR 34"	3/4"	4	23	92
SR 10"	1"	4	18	72
SR 114"	1-1/4"	4	13	52
SR 112"	1-1/2"	4	10	40
SR 20"	2"	4	8	32

Note : *1/8", 1/4", 3/8", 1/2", thick sheet have one side skin.

Decoding of Aeroflex Insulation (Imperial Unit):

Aeroflex Insulation Tube :

3 4 2 1 8
Wall thickness in inch [=3/4"]
Inner Diameter in inch [=2-1/8"]

Aeroflex Insulation Sheet :

S 1 1 4 4 3
Standard Sheet
Size 4 feet x 3 feet Sheet
Sheet thickness in inch [=1-1/4"]

Aeroflex Insulation Sheet Roll :

S R 1 0
Sheet Roll
Thickness of the sheet in inch [=1"]

STANDARD PACKING (Metric System)

AEROFLEX Insulation Tube : 2 Meters Length/Piece

I.D. SIZE		I.P.S.	Code number [Quantity : Pieces/Carton]									
MM	INCH		6 mm wall	9 mm wall	13 mm wall	19 mm wall	25 mm wall	32 mm wall	38 mm wall	50 mm wall		
6	1/4"	-	M06006 (180)	M09006 (132)	M13006 (80)	M19006 (32)	M25006 (24)	-	-	-	-	-
10	3/8"	-	M06010 (140)	M09010 (110)	M13010 (70)	M19010 (32)	M25010 (24)	M32010 (14)	-	-	-	-
(12)13	1/2"	1/4"	M06013 (110)	M09013 (84)	M13013 (60)	M19013 (32)	M25013 (20)	M32013 (14)	M38013 (10)	M50013 (4)		
(15)16	5/8"	3/8"	M06016 (80)	M09016 (70)	M13016 (50)	M19016 (28)	M25016 (18)	M32016 (14)	M38016 (8)	M50016 (4)		
(18)19	3/4"	-	M06019 (70)	M09019 (60)	M13019 (40)	M19019 (24)	M25019 (18)	M32019 (14)	M38019 (8)	M50019 (4)		
22	7/8"	1/2"	M06022 (70)	M09022 (54)	M13022 (32)	M19022 (20)	M25022 (16)	M32022 (12)	M38022 (8)	M50022 (4)		
25	1"	3/4"	M06025 (60)	M09025 (44)	M13025 (30)	M19025 (18)	M25025 (12)	M32025 (10)	M38025 (8)	M50025 (4)		
28	1-1/8"	-	M06028 (50)	M09028 (36)	M13028 (28)	M19028 (18)	M25028 (12)	M32028 (8)	M38028 (8)	M50028 (4)		
32	1-1/4"	-	M06032 (40)	M09032 (34)	M13032 (24)	M19032 (18)	M25032 (12)	M32032 (8)	M38032 (8)	M50032 (4)		
35	1-3/8"	1"	M06035 (40)	M09035 (32)	M13035 (20)	M19035 (16)	M25035 (10)	M32035 (8)	M38035 (6)	M50035 (4)		
38	1-1/2"	-	M06038 (32)	M09038 (30)	M13038 (18)	M19038 (12)	M25038 (10)	M32038 (8)	M38038 (6)	M50038 (4)		
42	1-5/8"	1-1/4"	M06042 (30)	M09042 (28)	M13042 (18)	M19042 (12)	M25042 (8)	M32042 (8)	M38042 (6)	M50042 (4)		
45	1-3/4"	-	M06045 (28)	M09045 (24)	M13045 (18)	M19045 (10)	M25045 (8)	M32045 (6)	M38045 (6)	M50045 (4)		
48	1-7/8"	1-1/2"	M06048 (24)	M09048 (20)	M13048 (16)	M19048 (10)	M25048 (8)	M32048 (6)	M38048 (6)	M50048 (3)		
51	2"	-	-	M09051 (18)	M13051 (14)	M19051 (8)	M25051 (8)	M32051 (6)	M38051 (4)	M50051 (3)		
54	2-1/8"	-	-	M09054 (18)	M13054 (14)	M19054 (8)	M25054 (8)	M32054 (6)	M38054 (4)	M50054 (3)		
57	2-1/4"	-	-	M09057 (18)	M13057 (14)	M19057 (8)	M25057 (8)	M32057 (6)	M38057 (4)	M50057 (3)		
60	2-3/8"	2"	-	M09060 (18)	M13060 (12)	M19060 (8)	M25060 (6)	M32060 (4)	M38060 (4)	M50060 (3)		
64	2-1/2"	-	-	M09064 (16)	M13064 (10)	M19064 (8)	M25064 (6)	M32064 (4)	M38064 (4)	M50064 (3)		
67	2-5/8"	-	-	M09067 (14)	M13067 (10)	M19067 (8)	M25067 (6)	M32067 (4)	M38067 (4)	M50067 (3)		
73	2-7/8"	2-1/2"	-	M09073 (10)	M13073 (10)	M19073 (6)	M25073 (6)	M32073 (4)	M38073 (3)	M50073 (2)		
76	3"	-	-	M09076 (10)	M13076 (8)	M19076 (6)	M25076 (6)	M32076 (4)	M38076 (3)	M50076 (2)		
80	3-1/8"	-	-	M09080 (10)	M13080 (8)	M19080 (6)	M25080 (6)	M32080 (4)	M38080 (3)	M50080 (2)		
83	3-1/4"	-	-	M09083 (10)	M13083 (8)	M19083 (6)	M25083 (6)	M32083 (4)	M38083 (3)	M50083 (2)		
90	3-1/2"	3"	-	M09090 (8)	M13090 (8)	M19090 (6)	M25090 (4)	M32090 (4)	M38090 (3)	M50090 (2)		
92	3-5/8"	-	-	M09092 (8)	M13092 (8)	M19092 (6)	M25092 (4)	M32092 (4)	M38092 (3)	M50092 (2)		
98	3-7/8"	-	-	M09098 (8)	M13098 (8)	M19098 (4)	M25098 (4)	M32098 (2)	M38098 (3)	M50098 (2)		
102	4"	-	-	M09102 (8)	M13102 (8)	M19102 (4)	M25102 (4)	M32102 (2)	M38102 (2)	M50102 (2)		
105	4-1/8"	-	-	M09105 (6)	M13105 (6)	M19105 (4)	M25105 (4)	M32105 (2)	M38105 (2)	M50105 (2)		
115	4-1/2"	4"	-	M09115 (6)	M13115 (6)	M19115 (4)	M25115 (4)	M32115 (2)	M38115 (2)	M50115 (2)		
130	5-1/8"	-	-	M09130 (4)	M13130 (4)	M19130 (4)	M25130 (2)	M32130 (2)	M38130 (2)	M50130 (2)		
140	5-1/2"	5"	-	M09140 (4)	M13140 (4)	M19140 (4)	M25140 (2)	M32140 (2)	M38140 (2)	M50140 (2)		
165	6-1/2"	6"	-	M09165 (4)	M13165 (4)	M19165 (2)	M25165 (2)	M32165 (2)	M38165 (2)	M50165 (2)		

Note : Other ID and wall thickness are available upon request.

AEROFLEX Standard Sheet Insulation

Sheet Size	Code Number [Quantity : M ² /Carton]									
	3mm wall	6mm wall	9mm wall	13mm wall	19mm wall	25mm wall	32mm wall	38mm wall	50mm wall	
0.5mx2.0m (1m ² /sheet)	MS1-03 (48)	MS1-06 (24)	MS1-09 (16)	MS1-13 (12)	MS1-19 (8)	MS1-25 (6)	MS1-32 (5)	MS1-38 (4)	MS1-50 (3)	
1.0mx2.0m (2m ² /sheet)	MS2-03 (96)	MS2-06 (48)	MS2-09 (32)	MS2-13 (24)	MS2-19 (16)	MS2-25 (12)	MS2-32 (10)	MS2-38 (8)	MS2-50 (6)	

AEROFLEX Continuous Sheet Roll (1 Meter Width Roll)

Code	Size			
	Thickness (mm)	Width (m)	Length (m)	Area/Roll (m ²)
MSR 03*	3	1.0	45	45
MSR 06*	6	1.0	22	22
MSR 09*	9	1.0	15	15
MSR 13*	13	1.0	11	11
MSR 16	16	1.0	10	10
MSR 19	19	1.0	7	7
MSR 25	25	1.0	5	5
MSR 32	32	1.0	4	4
MSR 38	38	1.0	3	3
MSR 50	50	1.0	2	2

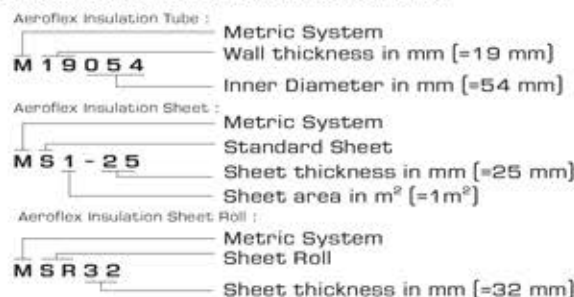
Note : *3, 6, 9, 13mm thick sheet have one side skin.

AEROFLEX Average Nominal Wall Thickness Insulation Tube

I.D. SIZE	nominal wall 1/4" (6mm)	nominal wall 3/8 (9mm)	nominal wall 1/2" (13mm)	nominal wall 3/4" (19mm)	nominal wall 1" (25mm)	nominal wall 1-1/4"(32mm)	nominal wall 1-1/2"(38mm)	nominal wall 2" (50mm)
9mm. to 28mm.	6 ± 1 mm.	9 ± 1	12.5 ± 1	19 ± 1	25 ± 1	32 ± 2	38 ± 2	50 ± 2
32mm. to 80mm.	7 ± 1 mm.	9.5 ± 1	13.5 ± 1	20 ± 1	26 ± 1	33 ± 2	39 ± 2	51 ± 2
90mm. to 140mm.	-	10 ± 1	14.5 ± 1	21 ± 1	27 ± 1	34 ± 2	40 ± 2	52 ± 2

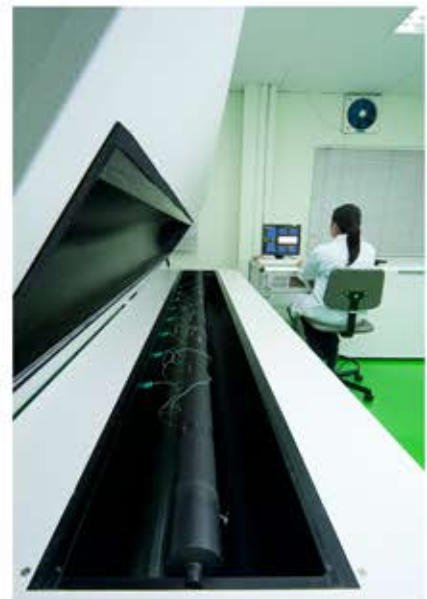
Note : I.D. size 9mm to 28mm : +approx. 1.5mm ; I.D. size 35mm to 80mm : +approx. 2.0mm ;
I.D. size 90mm to 140mm : +approx. 3.0mm ; Aeroflex 6 feet length : 182±3cm ; Aeroflex 2m length : 202±3cm

Decoding of Aeroflex Insulation (Metric Unit):



QUALITY CONTROL

AEROFLEX is a quality product which has undergone complete control at every stage starting from raw materials, rubber compound and finished products. All these tests are performed by modern and sophisticated instruments. Inspection is done in every step of processing until the final stage. All these quality controls ensure that our products meet our customers' requirements and satisfaction. Moreover, constant research and development has been conducted, so Aeroflex is supplied in accordance to various international standards with high quality and reasonable price.



SAVE ENERGY, SAVE THE EARTH

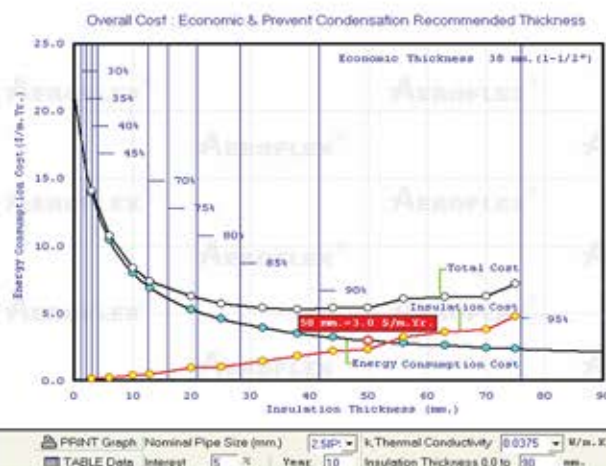
AEROFLEX closed cell elastomeric thermal insulation is designed for insulating heating and cooling lines to save energy and prevent condensation which also means saving money as shown in the table and graph below and saving the earth by less greenhouse gases (GHG) emission. Less GHG emission is less global warming, in general 1 kilowatt hour of electricity generates 0.50 kg. of CO₂ (IEA'S estimate of 500 grams CO₂/kWh from electricity and heat generator as world average value in the year 2009).

Energy consumption & CO₂ Emission

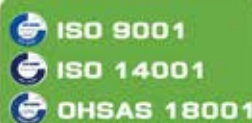
Insulation thickness (mm)	No Insulation	13 mm	25 mm	38 mm	50 mm	63 mm	75 mm
Surface Temp. (°C)	5	24.1	26.8	27.9	28.5	28.9	29.1
Prevent Condensation (% RH)	21	71	83	89	92	94	95
Energy Consumption (kw.hr/m/yr)	142.8	46.4	30.6	23.6	20.1	17.5	15.8
Energy cost (US\$/m/yr)	21.4	6.9	4.6	3.5	3.0	2.6	2.4
CO ₂ Emission (kg/yr)	61.4	23.2	15.3	11.8	10.1	8.8	7.9

Table & Graph show energy saving, cost saving and preventing condensation, in which the calculation is based on 2-1/2" IPS pipe (73mm OD), operating temp. at 5°C, room temp. at 30°C, K. value at 0.0375 W/mK, in 24 hrs.x365 days, and energy cost of US\$ 0.15/kw.hr.

AEROFLEX is manufactured without use of CFCs, HFCs, HCFCs, Propane, Butane or other ozone depletion or flammable gases. It is also formaldehyde free, nitrosamines free, fiber and dust free. Aeroflex is complied to RoHS, Green Label and Ship wheel Mark. Moreover, Aeroflex manufacturing company, has been accredited with ISO 9001 (Product Quality Management System), ISO 14001 (Environment Management System) and OHSAS 18001 (Occupation, Health and Safety Management System) which ensures that Aeroflex thermal insulation not only save energy but also save environment... save the earth.



AEROFLEX has been accredited with:



and also complied to



AEROFLEX is manufactured:

WITHOUT CFCs, HCFCs, HFCs and other ozone depletion gases.

WITHOUT Propane, Butane, Pentane and other flammable gases.

and also:

FREE FROM Formaldehyde, Nitrosamine

FREE FROM Fiber and Dust.

SAVE ENERGY SAVE ENVIRONMENT
SAVE THE EARTH

Green Activities

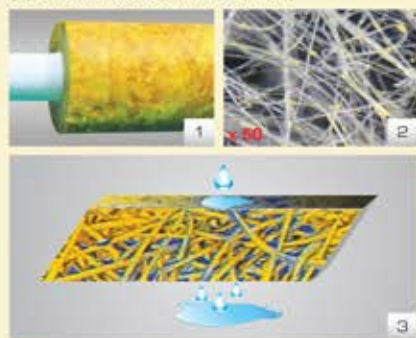
Together **AEROFLEX** FAMILY joins hands to help restore the richness of Eynngroen forest and mangrove forest, where much carbon dioxide can be absorbed and green house effects can be reduced.



WATER ABSORPTION & K VALUE OF VARIOUS THERMAL INSULATIONS

FIBERGLASS

(open-cell structure insulation)



Fiberglass thermal insulation is made from compacted small glass fibers (fig. 1, 2). Air occupies the spaces between the fibers which allow atmospheric air, moisture or water penetrate into the insulation. Fiberglass insulation is an open cell structure insulation, very high water absorption and water vapor permeability. When pouring water on the fiberglass, water can pass thru (fig. 3) and fiberglass insulation becomes wet which means much less thermal insulation property (very high K. Value). Especially when insulation on low temperature application, moisture from atmosphere will be forced to penetrate into insulation mass and then insulation becomes wet throughout the insulation. K. Value will increase rapidly (K. Value of water = 0.60 W/m K), condensation will occur continuously not only condensation area but also whole insulation system.



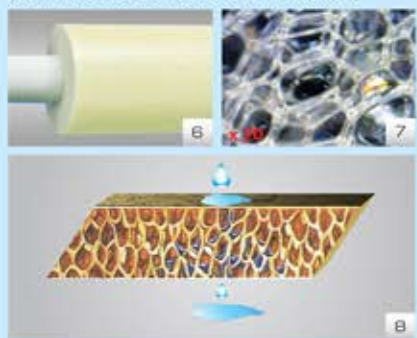
Fig. 4 Infrared photo shows thermal energy emitted from the fiberglass insulated on low temperature pipe before water absorption test, which shows good thermal insulation performance of dry fiberglass insulation.



Fig. 5 Infrared photo shows thermal energy emitted from the fiberglass insulated on low temperature pipe after 20 minutes of water absorption test, (ASTM D 1056 water absorption approx. 400% by weight) which shows poor thermal insulation performance of wet fiberglass insulation.

POLYURETHANE FOAM

(semi-closed cell structure insulation)



Polyurethane Foam (PU Foam) is made of polyols and polyisocyanates mixed with HCFCs or similar gases (ozone depletion gases) as a blowing agent. PU foam contains a lot of tiny independent cells and each cell contains HCFCs gases which makes PU foam has a very low K. Value. If the density is below 120 kg/m³, the wall of each cell is very thin and easily be broken during process (fig. 6, 7 & 8). This makes low density PU foam has water absorption value over 10% by weight according to ASTM D 1056, which is not classified as closed cell insulation. Lower density PU foam has higher water absorption and water vapor permeability, while HCFCs gases slowly moving out from the insulation. When insulated on low temperature application, moisture from atmosphere will be forced to penetrate into insulation mass, and then K. Value will increase rather fast after use for a period of time.



Fig. 9 Infrared photo shows thermal energy emitted from PU foam (45 kg/m³) insulated on low temperature pipe before water absorption test, which shows a very good insulation performance of dry PU foam insulation.

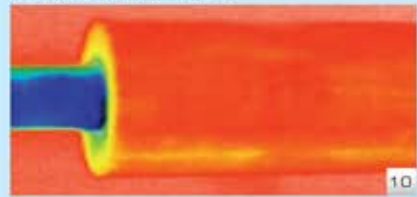
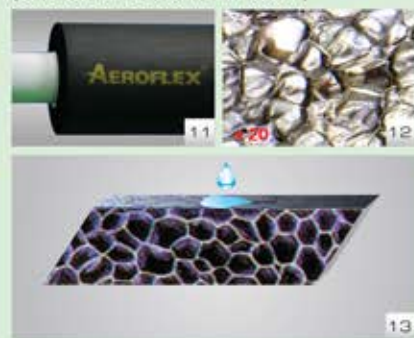


Fig. 10 Infrared photo shows thermal energy emitted from PU foam (45 kg/m³) insulated on low temperature pipe after 20 minutes of water absorption test, (ASTM D 1056, water absorption is approx. 40% by weight) which shows fair thermal insulation performance.

AEROFLEX®

(closed cell structure insulation)



Aeroflex is made from synthetic elastomers based material with a great number of tiny singular closed cell. A single cell is enclosed by walls, each cell contains dry gases (mainly nitrogen gas) emitted from blowing agent. Elastomeric closed cell is classified as closed cell when water absorption value is less than 10% by weight according to ASTM D 1056. Thousands of cell walls act as multi-layer water and moisture barrier (fig. 11, 12 & 13), resulting in very low water absorption and water vapor permeability in comparison with other types of insulation materials. As described above, Aeroflex has a low and stable thermal conductivity property of the insulation (low and stable K. Value), which is an ideal thermal insulation for low temperature applications.



Fig. 14 Infrared photo shows thermal energy emitted from Aeroflex insulated on low temperature pipe before water absorption test, which shows very good thermal insulation performance of dry Aeroflex insulation.



Fig. 15 Infrared photo shows thermal energy emitted from Aeroflex insulated on low temperature pipe after 20 minutes of water absorption test, (ASTM D 1056 water absorption approx. 4% by weight) which shows good thermal insulation performance.

K Value of Various Materials:

Material	K Value (W/mK)	Material	K Value (W/mK)	Material	K Value (W/mK)
Copper	386	Plastic	0.2-0.3	Cork	0.04
Aluminum	204	Rubber	0.2-0.3	Cotton	0.06
Iron	54	Dry Air	0.026	Wool	0.04
Marble	2.1 - 2.9	N ₂	0.026	Fiber Glass	0.04
Sand	1.85	O ₂	0.026	Polystyrene Foam	0.04
Glass	0.25 - 0.80	CO ₂	0.016	Elastomeric Foam	0.04
Wood	0.062	CF ₂ Cl ₂	0.009	Polyurethane Foam *	0.025
Plywood	0.12	Butane	0.016	Water	0.60
Saw Dust	0.06	Pentane	0.014	Ice at 0°C	2.40

Less than 10% by volume of mass-type thermal insulation is solid material like glass or polymers, while more than 90% by volume is gas (N₂, CFC, HCFC, butane, pentane or other gases). K. values of these various elements contained in thermal insulation are shown in "K. value of Various Materials Table". By using the numbers in this table, the estimated K. value of thermal insulation can be calculated. However, water absorption, water vapor permeability, gas pressure, boiling point of gas contained in the insulation, durability of materials are also crucial factors that affect K. value during service time.

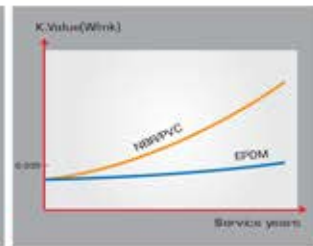
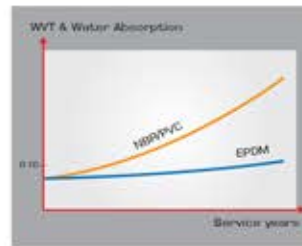
Remark: *Polyurethane foam mostly contains HCFCs or similar gases (ozone depletion gases) which cause low K. value, PS foam contains pentane gas, while Aeroflex insulation contains mainly nitrogen gas.

DURABILITY OF MATERIAL & K. VALUE



AEROFLEX - EPDM (NON CRACK) OTHERS - NBR/PVC (CRACK)

After three months exposed to tropical sunlight, the experiment proves that Aeroflex's weather resistance quality is much better than other insulations that are made of NBR/PVC material. The service life of Aeroflex under roof in normal condition is estimated to be more than 10 years.

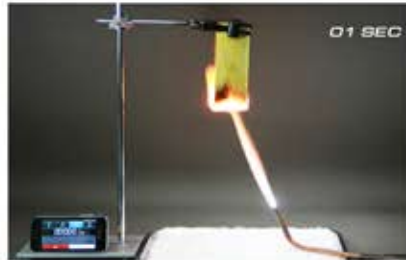


Low water vapor transmission, low water absorption and durability of material are very important factors for maintaining insulation properties during service, especially used in cooling system. EPDM based insulation has excellent durability, so Aeroflex is more stable in thermal conductivity (K value), less water absorption and less moisture penetration than other insulations that are made of NBR/PVC.

FLAMMABILITY TEST



PE Foam : this plastic insulation is manufactured from polyethylene plastic with tiny cells containing butane or similar gases, making the density approx. 2 lb/ft³. Most PE Foam insulation is highly combustible and can cause rapid flame transfer. It will melt and generate flaming balls (fire balls), causing flame transfer to other materials in buildings such as ceilings, carpets, and furniture.



PU Foam : polyurethane foam insulation made of polyols, polyisocyanates mixed with pentane gas or HCFC's or similar gases. Although there may be some self-extinguishing grades, it will still produce large quantities of smoke while burning releasing hydrogen-cyanide gas (HCN). It is one of the most noxious gases which is fatal to victims within a short time (only HCN 300 ppm will be fatally noxious within 2-3 minutes).



AEROFLEX : Aeroflex is made from high quality synthetic elastomers mixed with optimum quantity of fire extinguishing chemicals. It will not melt nor generate flaming drops with low smoke density. The gases released when burnt are hydrocarbon and carbon dioxide which are not hazardous to health, unlike hydrogen cyanide gases that are highly toxic. Aeroflex is self-extinguishing within a short time when flame is removed. The main flame retardant used in Aeroflex is Aluminium Trihydrate (ATH), which gives out water when decomposed, serving as the function of flame retardant under the equation below:



Aeroflex can be classified as a Fire Safety Insulating Material.

Note : The tests are conducted similarly to the standards of UL-94V, ASTM D835 and DIN 4102 by using insulation with sample size of 3/4" x 2" x 6". For easy inflammable insulation, flame from lighter will be directed at the corner for 15 seconds, but for hardly inflammable insulation, flame from welding torch will be directed to the sample for the same amount of time. These experiments demonstrate relative combustibility of the materials.



AEROFLEX IN SERVICE WORLDWIDE

AEROFLEX thermal insulation has been widely installed in thousands of high standard buildings including hotels, hospitals, office buildings, universities, shopping centers, international airports, nuclear power stations, and other industrial buildings worldwide.



● MBK Shopping Center, Thailand



● Ferrari World, Abu Dhabi



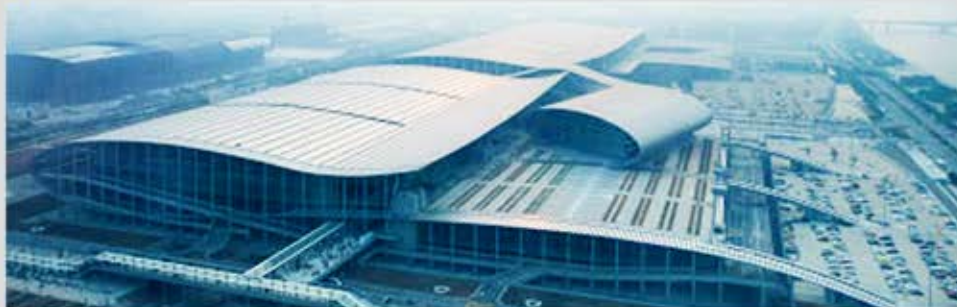
● Fukushima Nuclear Power Plant, Japan



● Burj Khalifa, Dubai



● Suwanaphumi International Airport, Thailand



● Guangzhou International Exhibition Center, China



● Crown Regency Hotel, Philippines



● Atlantis Palm Jumeirah, Dubai



● Ambassador City Hotel, Pattaya



● Super Brand Mall, Shanghai



● Skypark Marina Bay Sands Resort, Singapore



● Central Park, Indonesia



● Royal Cliff Resort, Pattaya



● Swiss Prime Site Tower



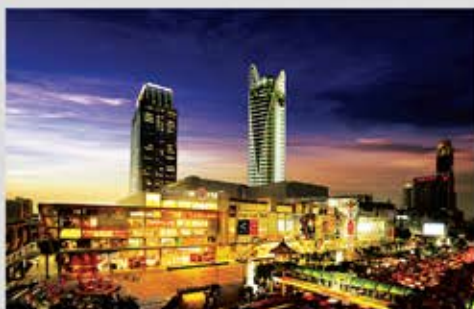
● Chulalongkorn Hospital, Thailand



● Swiss International Airport



● Siam Paragon, Thailand



● Central World Bangkok, Thailand



● Shangri La Mactan, Philippines



● PTT Oil Rig, Thailand



● Swiss Federal Institute of Technology Zurich (ETH), Switzerland



● Queen Sirikit National Convention Center, Thailand



● ... and many other high standard projects.

AEROFLEX INTERNATIONAL NETWORK

AEROFLEX is a well-recognized international brand name that is marketed worldwide in more than 80 countries spreading across 5 continents. The production facilities of AEROFLEX are located in USA, Germany, China, India and Thailand with licenses production in Switzerland and Russia. AEROFLEX's superior quality is highly accepted in HVAC&R industry and has been distributed through the efficient international network comprised of AEROFLEX's production plants, agents and distributors who apply the best of their expertise to promote AEROFLEX and provide timely services. AEROFLEX international network continues to expand extensively in order to satisfy global demands.



Eastern Polymer Industry Co., Ltd. / Aeroflex Co., Ltd. THAILAND



Aeroflex USA, Inc. Manufacturing Plant, Tennessee USA



Aeroflex Europe GmbH, Germany



Aeroflex Polymer Technologies [Shanghai] Co., Ltd., CHINA



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ALP Aeroflex [India] Pvt. Ltd., INDIA

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AEROFLEX CO., LTD (Total area 100,000 m²)

EASTERN POLYMER INDUSTRY CO., LTD.

AFC AEROFLEX CO., LTD.

HEAD OFFICE:

770 MU 6, TEPARAK RD., TEPARAK, SAMUTPRAKARN 10270, THAILAND
TEL: +(66) 0 2383 6599 FAX: +(66) 0 2383 6531, 0 2759 5550
EMAIL: marketing@aeroflex.co.th WEBSITE: www.aeroflex.co.th

BANGKOK OFFICE:

117B/21-25 RAMA 4 RD., KLONGTOEY, BANGKOK 10110, THAILAND
TEL: (66) 0 2249 3976 FAX: (66) 0 2249 4098
EMAIL: marketing@aeroflex.co.th WEBSITE: www.aeroflex.co.th

For more information, please contact your local distributor.



NHÀ PHÂN PHỐI VẬT TƯ ĐIỆN LẠNH

CÔNG TY CP CĐL BKRE BÁCH KHOA

Số 58 Tôn Đức Thắng, Q. Đống Đa, TP. Hà Nội

☎ 04 3733 9158 + 04 3733 9903

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✉ kinhdoanh@bkre.vn | 🌐 http://www.bkre.vn

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