

SUPERLON[®]

— *Quality NBR Insulation*



Closed Cell NBR Insulation

**Tubing and Sheet
for the HVAC&R Industry**

About Superlon

SUPERLON®

SUPERLON

Incorporated in Malaysia in 1992, Superlon Worldwide has accumulated more than 20 years of manufacturing experience in nitrile butadiene rubber (NBR) foam. Our utmost priority is to assure consistent excellence of our insulation materials and provide a service that is second to none. We pride ourselves in presenting our customers with quality products together with prompt and reliable services.

Superlon Worldwide is the preferred NBR insulation manufacturer for the HVAC and R industry in Malaysia. Over the years, we have gained a wide array of experienced business partners, and formed various valuable collaborations and distribution networks allowing us to be the market leader.

We are also recognized as one of the most trusted insulation brands around the world. The Superlon brand can be seen in over 60 countries.



Quality NBR Insulation

Our Product

Superlon insulation is engineered with the highest standard. Our closed cell characteristic is the key component to an effective insulator by providing a barrier between the pipe's surface and atmospheric conditions.

- **Low thermal conductivity and high moisture resistance :**
Superlon's insulation materials are produced with a high percentage of close cells.
- **Superior fire performance :**
Superlon's insulation products have been certified with Class 1, class 0, and FM Approved. In addition a high oxygen index.
- **Continuous commitment to provide the best :**
Superlon invests in R&D and are striving to further enhance its formulation to provide the best insulation solution.
- **Fast and easy installation :**
Superlon insulation materials are very flexible allowing installers to fabricate, cut to specific shapes, sizes and fittings for fast and efficient installations.
- **Low allergen :**
Unlike other types of insulation materials, Superlon insulation is dust and fibre free which do not present any health related hazards.
- **Eco Friendly :**
Zero Ozone Depleting Potential (ODP), Zero Global Warming Potential (GWP) and low Volatile Organic Compounds (VOC).
- **Aesthetically pleasing :**
Although Superlon's products are mainly black in color, the surface of the skin is smooth presenting a respectable finish on any given job type. Color products are also available.

With the right installation methods and techniques Superlon insulation will not only provide a good thermal insulator and will also contribute to a longer lifespan to the system that it insulates.



Cert No. 402887

ISO9001



Cert No.: KLR 0197083

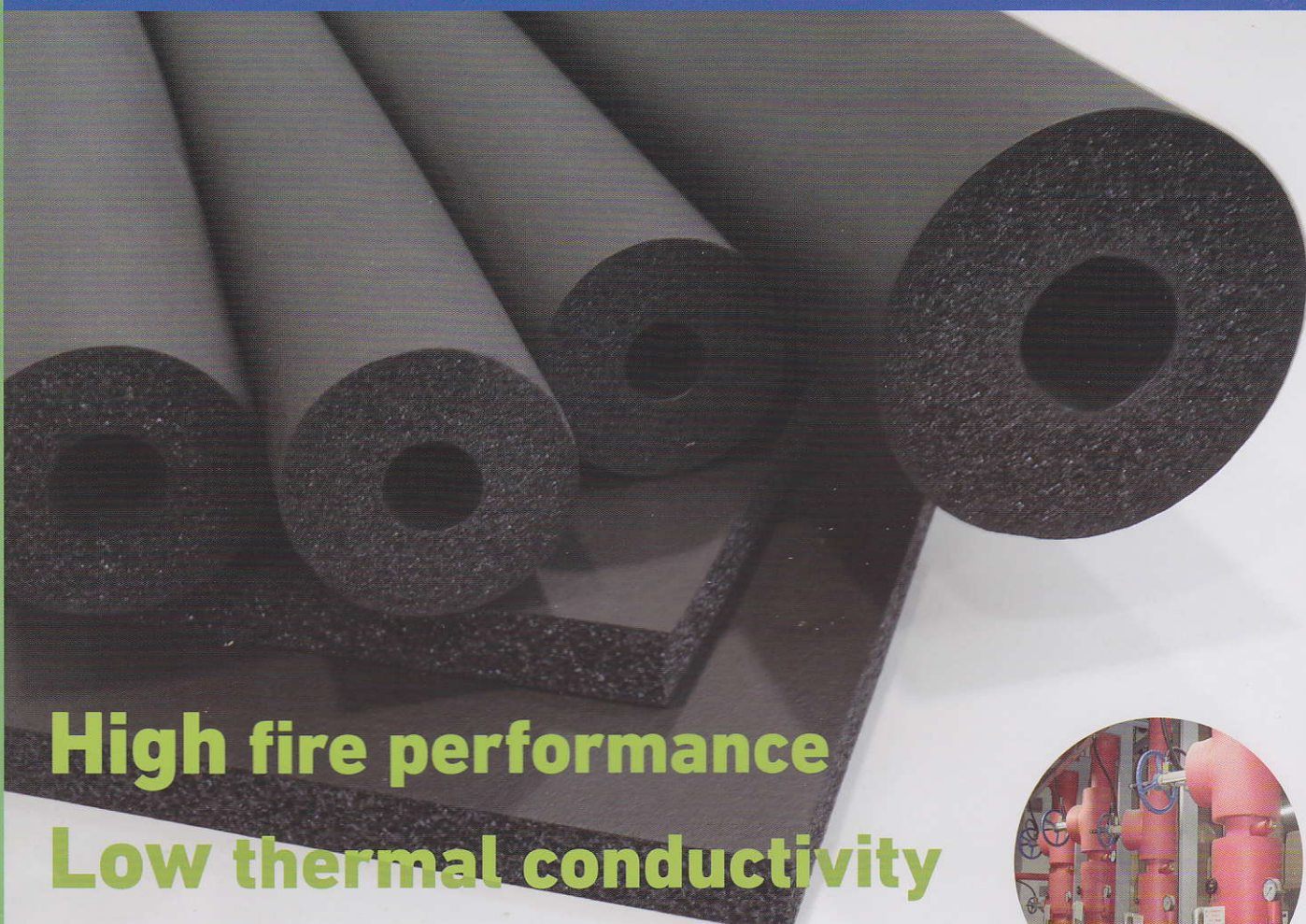
ISO14001



Superlon Class 1 & Class 0

SUPERLON®

Quality NBR Insulation



High fire performance
Low thermal conductivity
High moisture resistance



Superlon Class 1 and Class O is an elastomeric nitrile foamed insulation engineered and designed specifically to control condensation. Its main uses are for an insulating pipework particularly for air conditioning ducting, chilled water lines and refrigerated pipes.

Each insulation in tube or sheet form is made with closed cells that can properly insulate against heat loss and heat gain in many differing environments. With low k-value, water absorption and high moisture resistance, Superlon insulation ensures proper control of condensation in conjunction with reduced energy costs.

While thermal conductivity and water resistance have always been the key elements in determining the functionality and effectiveness of insulation, fire resistance has increasingly gained importance for its role in preventing flame spread.

Superlon's spread of flames is rated Class 1 (BS 476 part 7) for standard insulation tubes and sheets. Superlon's Class O (BS 476 part 6) is a higher standard of fire resistance with fire propagation rated a total index (I) ≤ 12 and sub-index (i_1) of ≤ 6 .

Furthermore, both Class 1 and Class O insulation does not drip and self-extinguishes upon removal of flames. Its flexible black and aesthetically pleasing surface makes installation simple quick and easy.

	Values				Test Methods
Material	Nitrile Foam Rubber				
Cell Structure	Closed Cell				
Density Range	40kg/m ³ -70kg/m ³				
Service Temperature	Maximum 105°C pipes / (85°C for flat surfaces) Minimum -50°C				
FIRE RESISTANCE					
Surface Spread of Flames	Class 1				BS 476 Part 7
Fire Propagation	Total Index (I) ≤ 12 Sub Index (i ₁) ≤ 6				BS 476 Part 6
Fire Performance	Class 0				
Reaction to Fire	V-0, 5VA/ HF-1, Self Extinguishing, Does not Drip				UL94
Thermal Conductivity	Mean Temp	0°C	20°C	40°C	ASTM C518
	W/m · K	0.034	0.036	0.038	
	Btu · in/hr · ft ² · °F	0.24	0.25	0.27	
Water Vapour Permeability	≤ 2.9 x 10 ⁻¹⁴ g/Pa.m.s μ ≥ 7000				ASTM E96
Water Absorption by Volume	≤0.2%				ASTM C209
Ozone Resistance Corrosion Resistance Environment	Good No Corrosion Dust and Fibre Free CFC Free, Zero ODP, Zero GWP				

British Standard (BS) 476 Part 6 (fire propagation) measures the heat that is released under fire conditions and BS 476 Part 7 (spread of flame) measures the material's ability to retard flame spread under fire conditions.

Class 1 is a widely accepted standard for insulation. If higher fire performance is required, Superlon Class 0 is the preferred choice.

Superlon FM Approved

Public safety is of utmost importance when a building is constructed. Various requirements and standards on building materials have been developed over time to ensure the protection of life inside and the surroundings of the building.

There are several types of insulation materials that are available in the market, most of which are produced by different raw materials and components. The reaction to fire is different based on raw materials and chemicals that are used.

Superlon insulation materials have been tested by various institutions on its fire-resisting performance. We produce Class 1, Class 0 and FM Approved products to supply to different demands in different markets.

Superlon's Factory Mutual (FM) Approved insulation material is tested to the highest and most stringent standards and can help to prevent fire propagation at the most critical times. Some FM Approved insulation materials in the market prevent fire propagation; however, drips whilst being burned and may cause other objects nearby to ignite and start burning as well. Our FM Approved insulation material is not only non-flammable; it does not drip, does not contribute to fire spread and it self-extinguishes once fire stops.

At Superlon we ensure that all products are manufactured at its highest standard. This includes having excellent thermal conductivity and high water vapor resistance, as well as meeting strict fire regulations.



Prevent Flame spread
Low smoke
No dripping

Recognized and respected across the globe, FM Approvals certification assures customers that Superlon products have been objectively tested and conforms to the highest national and international standards.

	Values	Test Methods
Material	Nitrile Foam Rubber	
Cell Structure	Closed Cell	
Density	40kg/m ³ -70kg/m ³	
Service Temperature	Maximum 105°C pipes / (85°C for flat surfaces) Minimum -50°C	
FM Approved	Pipes up to 2" (50mm) Thickness Sheets up to 1½" (38mm) Thickness	
Thermal Conductivity W/m · K (Btu · in/hr · ft ² · °F) Mean Temp 20°C	0.036 (0.25)	ASTM C518
Water Vapour Permeability Water Absorption by Volume	≤2.9 x 10 ⁻¹⁴ g/Pa.m.s μ ≥ 7000 ≤ 0.2%	ASTM E96 ASTM C209
Ozone Resistance Corrosion Resistance Environment	Good No Corrosion Dust and Fibre Free CFC Free, Zero ODP, Zero GWP	

HD Superlon

To tailor for different demands, Superlon offers NBR insulation material with different qualities. High Density products are increasingly popular amongst HVAC&R installers around the world for its characteristics of being harder and tougher.

HD Superlon material is a higher density alternative for the regular line of Superlon insulation materials. It is harder, stronger and tougher with a higher tensile strength than other equivalent materials in the market.

HD Superlon material is highly durable with a shore C hardness greater than 10 and density greater than 70kg/m³. Furthermore, like all other Superlon products, every piece of Superlon HD material is engineered, produced and controlled with stringent procedures to ensure quality and effectiveness.

HD Superlon has been very popular among HVAC&R installers who are looking for rubber insulation with greater density.

	Values	Remarks
Shore C hardness	≥ 10	
Density	≥ 70kg/m ³	
Tensile Strength	290 - 360 Kpa	ASTM D 412
Service Temperature	-50°C to 105°C	
Thermal Conductivity W/m · K (Btu · in/hr · ft ² · °F) Mean temp 20°C	0.038 (0.27)	ASTM C518

HD SUPERLON

HD SUPERLON Malaysia

HARDER

TOUGHER



DURABLE

STRONGER

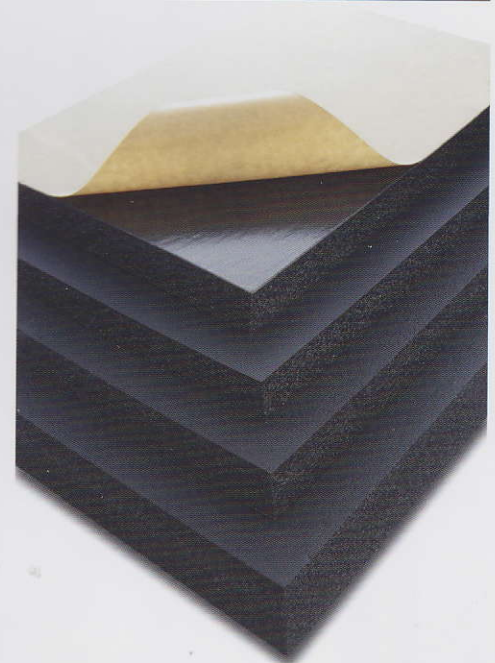
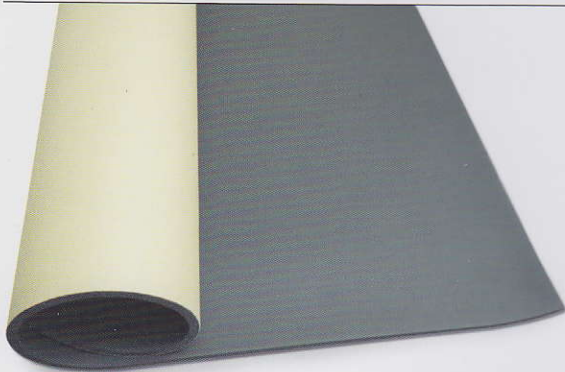
HD SUPERLON Malaysia

Aluminium & Adhesive Sheets



Aluminium sheets:

When applications and installation areas require an aesthetically pleasing feel or to protect the insulation from unnecessary impact, aluminium sheets would be the recommended choice. Most commonly used in open ceiling ducting lines and also chiller systems. UV resistant aluminium jacketing is available upon request should the application is under harsh and extreme UV conditions.



Adhesive sheets:

For your installation convenience adhesive backing with release paper is available. Adhesive sheets offer the ease of installation with the performance of specifically formulated adhesive lamination without the mess and hassle of glue saving you both time and money.

Accessories



Glue:

Available in 1 liter tins and 3.36 liter tins. The glue is specifically formulated for the best adhesion for our rubber foam. It is best used for joining sheets and tubes together. For enhanced performance, please apply foam tape on to joining area when glue dries.

Packing Size :

Size	Packing
1 Litre	15 cans / ctn
3.36 Litre	6 cans / ctn



Paint:

Available in 5 liter tins. Black in color, the paint is best used for prolonging the lifespan of the insulation under normal atmospheric conditions. Should intense heat and continuous harsh UV conditions be present in the application area, we recommend the use of UV resistant jacketing such as UV resistant aluminium. (Available upon request)

Packing Size :

Size	Packing
5 Litre	2 cans / ctn



Foam/Gasket tapes:

Our foam and gasket tapes can be used in a wide array of applications. From vibration dampening to cushioning to reduce impact. It is most commonly used for joining areas where glue was used for adhesion of our insulation materials.

Packing Size :

Size	Packing
3mm x 48mm x 30ft	24 pcs / ctn
5mm x 15mm x 10m	72 pcs / ctn



Colour Products:

Superlon insulation material is also available in various colours upon request.

Superlon Pipe Size Matching Guide

Superlon Tubing Internal Dimension (ID)		Steel Pipes			PVC Pipes		Copper Pipe for Water and Gas		Copper Pipe for Air-Cond and refrigeration	
		ASME B36-1			BS 3505		ASTM B88		ASTM B280	
		Nominal Size	Nominal Size	Actual OD Size	Nominal Size	Actual OD Size	Nominal Size	Actual OD Size	Nominal Size	Actual OD Size
Inches	mm	DN	Inch	mm	Inch	mm	Inch	mm	Inch	mm
1/4"	6								1/4"	6.35
3/8"	10						1/4"	9.52	3/8"	9.52
1/2"	13						3/8"	12.7	1/2"	12.7
5/8"	16						1/2"	15.9	5/8"	15.9
3/4"	19						5/8"	19.1	3/4"	19.1
7/8"	22	15	1/2"	21.3	1/2"	21.5	3/4"	22.2	7/8"	22.2
1"	25									
1 1/8"	28	20	3/4"	26.7	3/4"	26.9	1"	28.6	1 1/8"	28.6
1 1/4"	32									
1 3/8"	35	25	1"	33.4	1"	33.7	1 1/4"	34.9	1 3/8"	34.9
1 1/2"	38									
1 5/8"	42	32	1 1/4"	42.2			1 1/2"	41.3	1 5/8"	41.3
1 7/8"	48	40	1 1/2"	48.3	1 1/2"	48.4				
2"	51									
2 1/8"	54						2"	54	2 1/8"	54
2 1/4"	57									
2 3/8"	60	50	2"	60.3	2"	60.5				
2 1/2"	64									
2 5/8"	67						2 1/2"	66.7	2 5/8"	66.7
2 7/8"	73	65	2 1/2"	73						
3"	76				2 1/2"	75.3				
3 1/8"	80						3"	79.4	3 1/8"	79.4
3 1/2"	89	80	3"	88.9	3"	89.1				
4"	102	90	3 1/2"	101.6						
4 1/8"	105						4"	104.8	4 1/8"	104.8
4 1/4"	108									
4 1/2"	114	100	4"	114.3	4"	114.5				
5"	127	115	4 1/2"	127						
5 1/8"	130						5"	130.2		
5 1/4"	133									
5 1/2"	140	125	5"	141.3	5"	140.4				

Note :

- 1) Superlon's wide range of ID ensures that pipes can be fitted properly over a variety of sizes
- 2) For other pipes and pipes from other standards, it is recommended to check the actual size (OD) of the pipes
- 3) Superlon can assist if customers are unsure about the correct sizing

Sizes & Packing Quantities

Insulation Pipes (pieces per carton box)

Internal Diameter		Insulation Wall Thickness							
		1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
Inches	mm	6	10	13	19	25	32	38	50
1/4"	6	250	156	110	49	30			
3/8"	10	200	120	90	42	30			
1/2"	13	150	100	72	36	24	12	9	6
5/8"	16	120	90	63	36	20	12	9	6
3/4"	19	100	72	56	30	20	12	9	6
7/8"	22	90	64	48	25	18	9	9	6
1"	25	80	56	42	20	16	9	9	6
1 1/8"	28	72	49	36	20	16	9	9	6
1 1/4"	32	56	42	30	20	15	9	9	4
1 3/8"	35	48	36	30	16	12	9	9	4
1 1/2"	38	42	34	25	16	12	9	8	4
1 5/8"	42		30	25	16	12	9	8	4
1 7/8"	47		28	20	15	10	8	6	4
2"	51		24	20	12	9	8	6	4
2 1/8"	54		21	20	12	9	8	6	4
2 1/4"	57		21	20	12	9	6	6	4
2 3/8"	60		20	18	12	9	6	6	3
2 1/2"	64		18	15	9	8	6	6	3
2 5/8"	67		18	15	9	8	6	6	3
2 7/8"	73		18	13	9	8	4	4	3
3"	76		18	12	8	8	4	4	3
3 1/8"	80		16	12	8	6	4	4	
3 1/2"	89		16	12	8	6	4	4	
4"	102		14	12	6	6			
4 1/8"	105		14	12	6	5			
4 1/4"	108		14	12	6	5			
4 1/2"	114		14	12	6	4			
5"	127		10	9	6	4			
5 1/8"	130		10	9	6	3			
5 1/4"	133		10	9	6	3			
5 1/2"	140		10	8	6	3			

Insulation Rolls

Thickness		Size	
Inches	mm	Feet	Metres
1/8"	3	4' x 30'	1.22 x 9.14
1/4"	6	4' x 30'	1.22 x 9.14
3/8"	1	4' x 30'	1.22 x 9.14
1/2"	13	4' x 30'	1.22 x 9.14
5/8"	16	4' x 30'	1.22 x 9.14
3/4"	19	4' x 30'	1.22 x 9.14
1"	25	4' x 30'	1.22 x 9.14
1 1/4"	32	3.29' x 30'	1 x 9.14
1 1/2"	38	3.29' x 30'	1 x 9.14
2"	50	3.29' x 6.57'	1 x 2

Insulation Sheets

Thickness		Size		Pcs per Carton
Inches	mm	Feet	Metres	
1/8"	3	4' x 3'	1.22 x 0.914	80
1/4"	6	4' x 3'	1.22 x 0.914	40
3/8"	10	4' x 3'	1.22 x 0.914	26
1/2"	13	4' x 3'	1.22 x 0.914	20
5/8"	16	4' x 3'	1.22 x 0.914	16
3/4"	19	4' x 3'	1.22 x 0.914	14
1"	25	4' x 3'	1.22 x 0.914	10
1 1/4"	32	4' x 3'	1.22 x 0.914	8
1 1/2"	38	4' x 3'	1.22 x 0.914	7
2"	50	4' x 3'	1.22 x 0.914	5

Thickness Recommendation

Using the correct thickness in a particular operating environment can prevent condensation from occurring. Below are some typical conditions that are based in a more hot and humid environment. Please make sure that the conditions do not go over its maximum severity to ensure proper condensation control. Thicknesses recommended within the specified temperature and humidity range will control condensation if installed correctly.

	Piping Line Surface Temperature		
	15°C	5°C	-18°C
<p>Normal Conditions Based on the weather conditions experienced in tropical regions</p> <p>Maximum severity of 29°C and RH of 78%</p>	1/2" (13mm)	1" (25mm)	1 1/2" (32mm)
<p>Severe Conditions Confined and poorly ventilated areas with excessive moisture</p> <p>Maximum severity of 35°C and RH of 85%</p>	1" (25mm)	1 1/2" (38mm)	2" (50mm)
<p>Mild Conditions Well ventilated, low humidity conditions</p> <p>Maximum severity of 26°C and RH of 70%</p>	3/8" (10mm)	1/2" (13mm)	1" (25mm)

For a more accurate calculation, Superlon's specially designed computer software can help calculate the specific insulation thickness in a particular environment. The following needs to be known for an accurate calculation: maximum temperature, maximum humidity, line temperature and pipe line size. Please refer to your local distributors for more information.

Superlon recommends using one size higher for 3" (76mm) IPS and above applications.



Superlon Installation Manual

- Correct installation will improve the lifespan and performance of the insulation
- Installing insulation materials in ventilated areas will improve insulation performance

Before you install —

First, determine the appropriate thickness of your insulation materials based on the following five factors:

1. Ambient Temperature
2. Relative Humidity
3. Pipe Size (outer diameter of pipe)
4. Line Temperature
5. Medium (gas or liquid)

Second, observe the Ambient Temperature and Relative Humidity of the area you are working on. Choose the thickness of insulation materials according to the highest **Ambient Temperature, Relative Humidity, Pipe Size and Line Temperature**. Please refer to the Recommended Thickness guide on page 12 or speak to Superlon advisors.



Apply glue to both sides/ends.



Allow 3-5 minutes for glue to dry while holding the sides/ends together.

Superlon glue works best when both sides are dry.



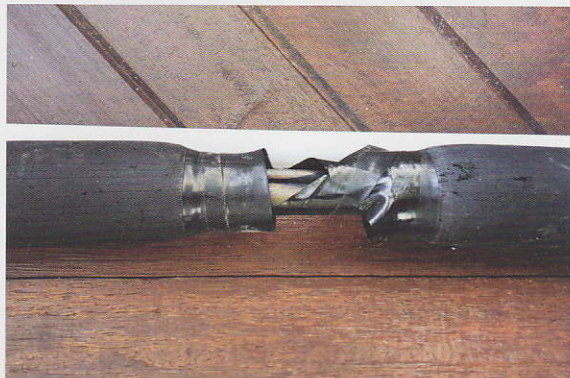
Once dry, prepare foam tape and apply foam tape to the joined area.

*Do not apply too much pressure when applying foam tape. Do not stretch.
Make sure the gap is completely sealed will enhance insulation performance.*



Good installation -

Joining area sealed with foam tape to avoid temperature loss through contact with air



Bad installation -

Two copper tubes inserted into one insulation tube, may cause damage to the copper tubes due to friction. Joining area sealed tightly with duct tape causing damage to the foam structure, reducing the insulation thickness and may lead to condensation.

Superlon tips:

1. Use one insulation tube per pipe. It is important for the pipe to fit nicely inside the insulation tube to avoid excessive air around the pipe. Excessive air will cause the pipe to lose temperature.
2. Be gentle when you apply insulation materials. Applying too much pressure will cause deformation to the thickness of insulation, thus insulation will lose its effectiveness.
3. Always use aluminum jacketing or weather paint to protect your outdoor insulation installation. Without these, the lifespan and performance of the insulation material can be reduced.
4. Do not insert wires together.

Distributor

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