



Pre-Insulated Phenolic Foam Air Duct System



warringtonfire
global safety

SGS



جسي مارك الشرق الأوسط ش م ح
GMARK MIDDLE EAST FZC

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ISO 9001:2008 Certified

Introduction

GMARK MIDDLE EAST is a member of GMARK Group and is one of the leading suppliers of HVAC & MEP materials.

GMARK MIDDLE EAST provides the highest quality of service, thus building a good working relationship with each individual customer. Our philosophy is to create value for our customers by offering them the best materials and prompt services for specific needs with entire satisfaction of clients.

Phenolic Foam is new generation environmental insulation material, when it is burnt, it has no smoke, it gives non-toxic matter, the material is fire-resistant, insulated, water and moisture resistant anticorrosion, anti-aging, sound insulation and energy saving, meanwhile the contractility is low and not brittle, especially the outstanding fire-resistance performance show the broad applying foreground, and it will replace the old insulation material. Phenolic Foam is the best material for fire building performance in polymers.

We introduce a complete set of entirely-auto Extrusion Molding Phenolic Foam composit constant product line, this is the first introduced Extrusion Molding Phenolic Foam composit constant product line, and the product quality and environmental disposal both keep ahead in the world.

We look forward to maintain our long term business partnership in the years to come and we invite you to join us in a positive and profitable partnership.



Characteristic

Insulation and energy-saving

Phenolic Foam has low thermal conductivity, it can meet the requirements of anti condensation, decreasing cold-loss for air conditioner ventilation duct, the energy saving effect is obvious

Excellent fireproofing, safety, non-toxic, long working life

Phenolic Foam is the best fireproofing material among polymers, is the most popular used around the world now. It is smellless and non-toxic, gives off low smoke. The embossed foil makes long using life.



Light and steady, sharply saving resource

The duct weight is only 1.4kg/m², hardness and strength are good enough, and it can endure high wind pressure, it can sharply reduce the using steels quantity.

Good appearance and cleanness

The surface of the duct is composite aluminum foil with anticorrosion epoxy protection, the insulation is environmental Phenolic Foam which is nontoxic, no dust. Thus a perfect environment comes into being.

Working and installation noise is low, make the environment more comfortable

Phenolic foam itself is excellent sound insulation material, the echo and vibration will be absorbed by the material. And no beating is needed, so the installation noise is avoided, the material is especially suitable for the situation that has restrict requirement for installation noise.

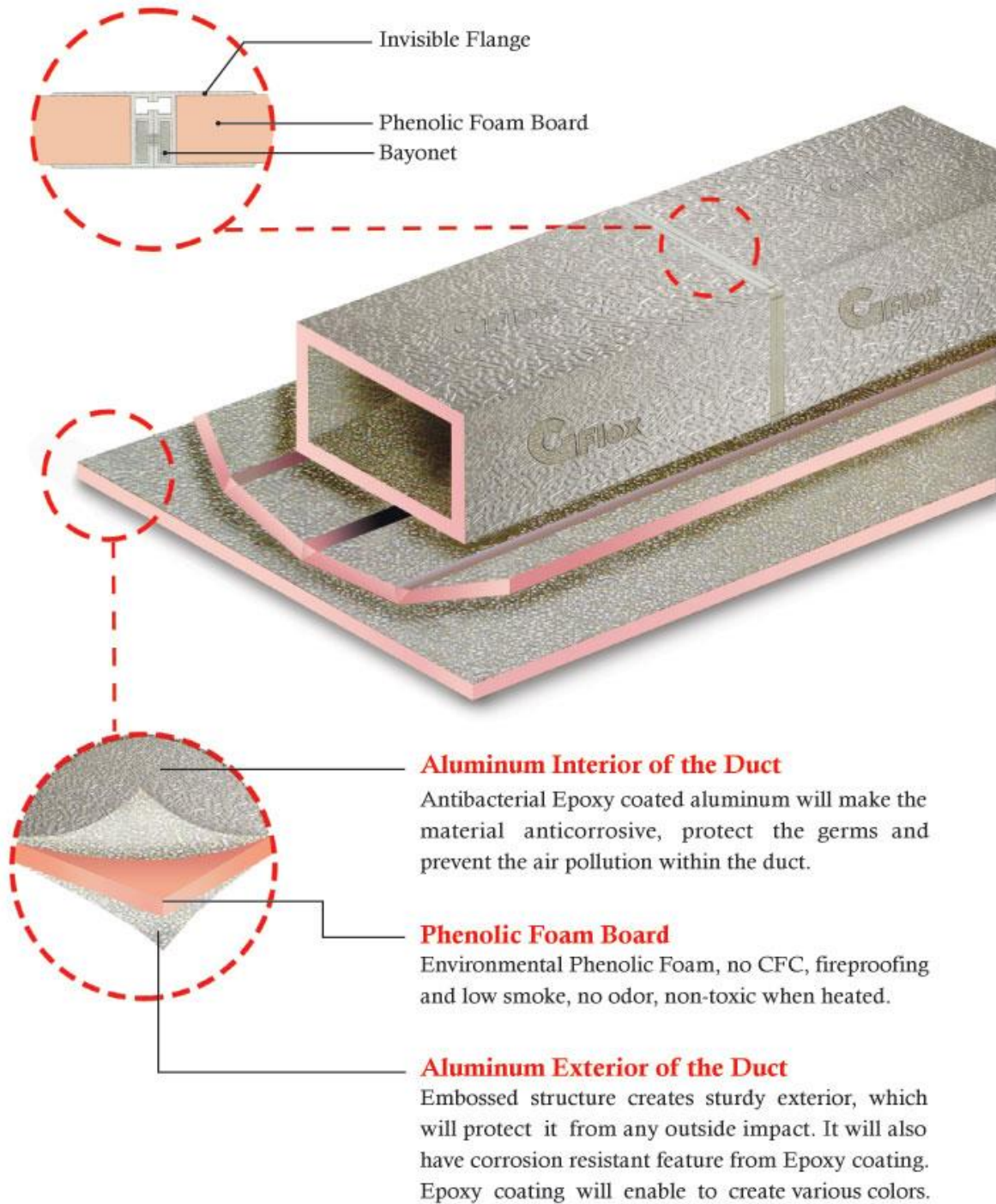


Making, installation is easy and the maintenance is simply

The material is easy to be cut, bent and installed, the maintenance is also simple.



Connection Profile



Accessories & Tools

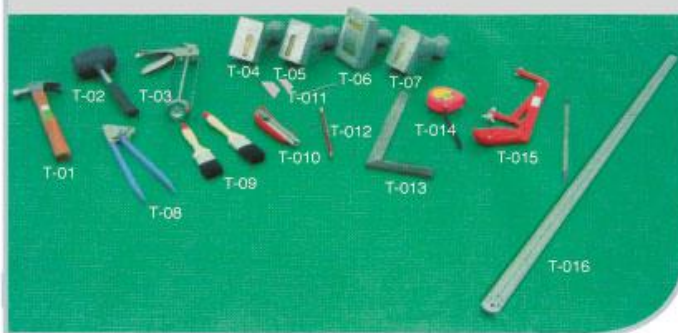
Accessories

- A-01 Covering Angle
- A-02 Hanger Bracket
- A-03 Al. Foil Tape
- A-04 Sealant
- A-05 Knighthead
- A-06 PVC Insulated Pipe
- A-07 U Flange
- A-08 Aluminum Dish
- A-09 Invisible Flange
- A-011 Zinc-Coated Steel Angle Bracket
- A-012 Bayonet
- A-013 Tee Con.Flange
- A-014 Special Glue



Tools

- | | |
|---------------------------------|-------------------------|
| T-01 Iron Hammer | T-09 Brush |
| T-02 Rubber Hammer | T-10 Knife |
| T-03 Rifle for Sealant | T-011 Blade |
| T-04 Right 45° Cutting Tool | T-012 Pencil |
| T-05 Left 45° Cutting Tool | T-013 Right-Angle Ruler |
| T-06 Two Sides 45° Cutting Tool | T-014 Roller Tape |
| T-07 Straight Cutting Tool | T-015 Hacksaw |
| T-08 Compasses | T-016 Steel Ruler |



Parameters

Main Parameters

No.	Test item	Ref.Standard	Result
1	Water vapor transmission	ASTM C1126-03	<1g/(m ² .24h)
2	Water absorption	ASTM C1126-03	1.2%
3	Compression strength	ASTM C1126-03	0.24MPa
4	Thermal conductivity (Thickness:21mm Average temp.30±5°C)	ASTM C518-02e1	0.037W/m·K
5	Appearance density	ASTM C1126-03	62.5kg/m ³
6	Flexural strength	ASTM C203 - 99	1.0Mpa
7	Burning grade	BS 476 part 6&7	Class 1
8	Smoke density	national Standard	4 SDR
9	Oxygen index	national Standard	36-43%
10	Synthetical resistance	national Standard	Roughness Degree k=0.015%
11	Air Leakage	national Standard	≤2%

Standard Specification

1	Dimension	4000x1200x(20-30)mm
2	Board weight	1.4kg/m ²
3	Aluminum thickness	80 μ m
4	Temperature range	-180--+140°C

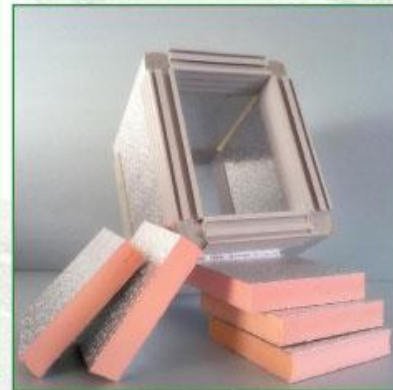
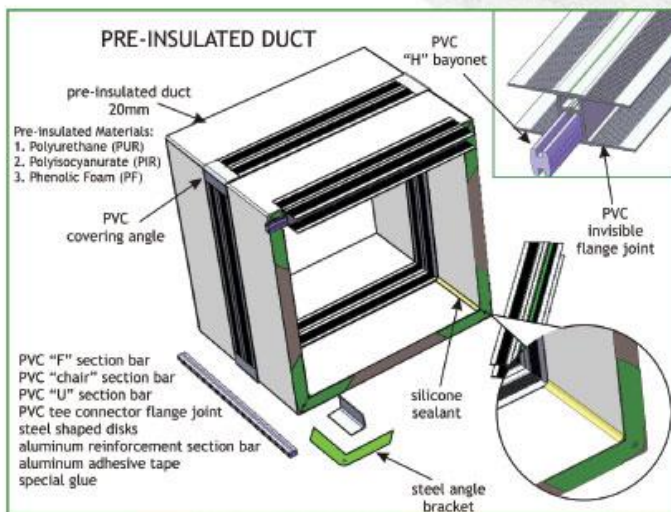
Comparison Chart

Contrast of Air Duct Performances with Economic Indicators

Item	Unit	Wide-extrusion molding phenolic foam air duct	Sheet iron air duct	Glass fiber composite air duct	Polyurethane composite aluminum foil air duct
Thermal conductivity	w/m.k	0.020-0.037	0.035-0.043	0.033	0.02-0.032
Applicable temperature	°C	-180- +140	-50- +80	——	-50- +120
Volume weight	kg/m ²	1.4 (20mm thick)	7.08 (sheet iron 0.8mm thick glass wool 25mm thick)	4-7 (20mm thick)	1.4 (20mm thick)
Fireproofing performance	——	Glass 1 BS	Glass wool grade A rubber and plastic grade B2 or B1	Grade B1	Grade B1 or B2
Oxygen index	%	36-43	Rubber and plastic 20-32	32	≤32
Grade of smoke density	SDR	4	Grade B1 60-75	——	50-75
Material of smoke density	%	<1.5	1.5-3.0	1.5-3.0	<0.5
Quantities	m ² /day	20-30	4.0-5.0	15	20-30
Mechanical loss rate	%	1	2.60	1	1
Recycle rate	%	60-80	0	60-80	60-80
Service life	year	20-30	Glass wool	10-30	15-20
Safety and health	——	Non-toxicity and innocuity, double-face composite Aluminum foil, used for cleaning air conditioner	Air duct is easy to rust and generate bacteria	Easy to generate bacteria, adhered with adhesive, glass fiber fallen off, influence on air quality.	Non-toxicity and innocuity, double-face composite Aluminum foil, used for cleaning air conditioner
Manufacture and Installation	——	Short construction cycle, high space utilization rate, convenient exposed and concealed installation and on the spot change	Long construction cycle, low space utilization rate, complicated installation and difficult on the spot change	Bad strength, most of them needs being reinforced, complicated installation and high space utilization rate	Short construction cycle, convenient exposed and concealed installation and on the spot change
Repair and maintenance	——	Convenient repair, optional pipe cutting, applicable to the spot change and little waste	Difficult repair, incapable of being reused during scheme modification after installation and serious waste	Convenient repair, optional pipe cutting, applicable to on the spot change, glass fiber fallen off during cutting, pollution caused	Convenient repair, optional pipe cutting, but bad rigidity, deformation after long term use and bad repair result
Application place	——	Widely used for the places such as civil building, hotel, hospital, office building, marketplace, etc.	Widely used, but short service life under high temperature environment	Inapplicable to the places with dust control requirements, such as hospital, foodstuff processing shop, etc.	Because it is difficult to reach fire control requirements, its use range is strictly restricted

The Air Duct System Features

1. Low heat conductivity, higher thermal efficiency
2. Light weight
3. Foamed with CFC / HCFC free, Zero ODP environment friendly.
4. Seal hermetically and reduce the air leakage
5. With aluminum foil reinforced on both sides, corrosion protection, Sanitation and beautiful appearance
6. Foamed with closed cell structure, water proof and sound insulation
7. Accessories completely, installing rapidly
8. No protruded flange, saving the building space
9. Easy making and convenience maintenance



Test Report & Certificate

Gflex Pre-insulated Phenolic Foam Duct Sheet has been undergone a series of tests in abroad laboratories by using hi-tech instuments. It is identified and certified with class I for fire-resistance according to BS476 PART 6&7. Some selected test reports of Gflex Pre-insulated Phenolic Foam are demonstrated as below:



- BS 476: Part 6: 1989 Method of Test for Propagation for Products
- BS 476: Part 7: 1997 Surface Spread of Flame Test for Materials

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- Water vapor transmission
- Water absorption
- Compression strength
- Thermal conductivity
- Flexural strength
- Dimensional stability



- Burning Test
- Surface burning Characteristics test



Project Achievement







GFlex Insulated Materials are widely used in many projects. And they have got good comments and confide for their high quality and service.

Marketed by

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