



Polyester Duct Liner

Fiberglass-Free Duct Liner

- Material Availability for Rectangular or Round Duct Work:
 - R-4.2 (nominal 1")
 - R-6 (nominal 1½")
 - R-8 (nominal 2")
 - R-12 (nominal 3")
- Excellent sound absorption
- Smooth and extremely durable facing
- Made of soft user-friendly polyester
- Made of 25% recycled content
- Labor-saving fiberglass-free alternative



DESCRIPTION

Ductmate PolyArmor duct liner is engineered from strong and safe hypoallergenic polyester. The polyester material is webbed into a thermal blanket which is then bonded with a FSK facing to resist damage during system installation, operation, and cleaning resulting in excellent durability in the airstream. PolyArmor is engineered to provide outstanding R-values with excellent noise reduction values and superior indoor air quality.

BASIC USE

PolyArmor is an internal polyester duct liner used in forced air heating, ventilating, and air conditioning systems. It is engineered to provide industry-leading R-values with excellent noise reduction values and superior indoor air quality.

FEATURES & BENEFITS

High Noise Reduction Coefficient (NRC) value <i>Provides excellent sound absorption</i>
Smooth and extremely durable facing <i>Reduces damage during fabrication, operation, and cleaning</i>
Made of soft user friendly and hypoallergenic polyester <i>Eliminates irritation during handling</i>
Engineered for application with water and solvent based adhesives <i>Provides adhesive alternatives for virtually any system requirement.</i>
Made of 25% recycled content <i>For increased sustainability</i>
Mildew and mold resistant <i>Does not promote or support the growth of mold or mildew</i>
Light weight design with excellent rebound <i>Reduces the overall weight of the duct system</i>
Labor saving alternative to elastomeric duct liner <i>Saves you time and money</i>
Can be used in rectangular or round duct work <i>No matter the duct, get all the benefits of PolyArmor</i>



LIMITATIONS

PolyArmor should not be used in duct systems with fan velocities exceeding 4,000 fpm or at temperatures above 250°F.

Polyester and Mold

Polyester insulation will not support mold growth. However, mold can grow on virtually any surface when it is contaminated with organic materials or becomes wet. Be sure to inspect any insulation that has been exposed to water before installing it. If it shows any sign of mold, it must be replaced with dry insulation. If the material is wet but shows no evidence of mold, it can be dried thoroughly and used. However, if it shows signs of facing degradation from wetting, it should be replaced with intact insulation. Air handling insulation used in the air stream must be discarded and replaced if exposed to water.

STANDARD SIZES

Width	R-Value, Thickness, and Length				Part Number
	R-4.2 1"x 100'	R-6 1½"x 50'	R-8 2"x 50'	R-12 3"x 50'	
47.5"	PA475F1W100	PA475F15W50	PA475F2W50	PA475F3W50	
48"	PA48F1W100	PA48F15W50	PA48F2W50	PA48F3W50	
56.25"	PA5625F1W100	PA5625F15W50	PA5625F2W50	PA5625F3W50	
59"	PA59F1W100	PA59F15W50	PA59F2W50	PA59F3W50	
60"	PA60F1W100	PA60F15W50	PA60F2W50	PA60F3W50	

INSTALLATION

PolyArmor™ is installed using common duct liner installation methods and materials on both rectangular and round ductwork. Please follow guidelines for installing duct liner on rectangular and round ductwork per the *SMACNA HVAC Duct Construction Standards, Metal and Flexible 4th Edition* (see Chapter 7, pages 7.13 - 7.21).

Installation Instructions - Rectangular Duct Work

1. Determine the square foot area of the duct section and cut the PolyArmor to the appropriate size.
2. Apply an approved duct liner adhesive to the duct interior where the PolyArmor will be installed and ensure the FSK facing is toward the airstream.

Note: *If additional pieces of PolyArmor are needed, they should be adhered together where they meet.*

3. Allow the duct liner adhesive to fully cure based on the manufacturer's recommendations and then pin the PolyArmor in place per SMACNA requirements.
4. To complete the installation, ensure that any exposed edges of PolyArmor at transverse connections are properly coated with an approved edge sealer or coating.

Installation Instructions - Round Duct Work

1. Cut PolyArmor to the correct size.
2. With the FSK facing of the PolyArmor facing into the airstream, bring edges together forming the PolyArmor into a round shape, and adhere the edges together with an approved duct liner adhesive.
3. Insert the PolyArmor into the ductwork by folding it in half, leaving the upper half of the duct interior exposed.
4. Apply an approved duct liner adhesive to the exposed duct interior. Once fully coated, release the folded PolyArmor and firmly press it to the duct interior to ensure that it makes even contact.
5. Spin the duct work 90 degrees, fold the other side of the PolyArmor down, and repeat step 4.
Note: If additional pieces of PolyArmor are needed, they should adhere together where they meet.
6. Allow the duct liner adhesive to fully cure based on the manufacturer's recommendations and pin the PolyArmor in place per SMACNA requirements.
7. To complete the installation, ensure that any exposed edges of PolyArmor at transverse connections are properly coated with an approved edge sealer or coating.

CUTTING METHODS

1. **Waterjet** - Recommended setting is 45,000 psi
 - a. Consult the manufacturer for equipment settings and limitations
2. **Coil Line** - An inline rotary style blade used to make straight cuts
 - a. Consult the manufacturer for available coil line equipment and accessories
3. **Rotary Hand Tools** - Eastman Round Cutting Knives
 - a. Falcon 548 (recommended)
 - b. Can make straight and curved cuts easily



Falcon 548 - Part Number: PAFALCON4

Table Widths

Available: 48" - 144" (1.22m-3.66m)

Motors: 110v, 1ph, 50/60Hz
220v, 1ph or 3ph, 50/60Hz

Horsepower: 110v = .20hp, 1ph
220v = .48hp, 3ph

Weight: 70 lbs. (31.75kg)
With track and lifters

Standard

Features: Toggle Manual Switch, Pull Handle

Options: Manual Lifter, Bias Lifter, Air Lifters, Material Alignment, Push Handle, Swivel Handle

Blade Size: 5" (12.7 cm)

Cutting Capacity: 1" (2.54 cm)

10 week lead time

ADHESIVES AND COATINGS

PolyArmor Polyester duct liner insulation is compatible with a wide range of water-based and solvent-based adhesives sold in the commercial HVAC industry.

While Ductmate offers a wide variety of adhesives formulated and recommended for use in commercial HVAC applications, this does not preclude the use of other specified, suitable, or equivalent brands of adhesives. Use and acceptance of any adhesive are contingent on approval and compliance with all applicable city, state, and local codes. Refer to and follow all manufacturer specifications, instructions, and recommendations for the application of the product.

In addition, a metal nosing or edge coating should be applied per the *SMACNA HVAC Duct Construction Standards, Metal and Flexible 4th Edition*.

PINNING GUIDELINES

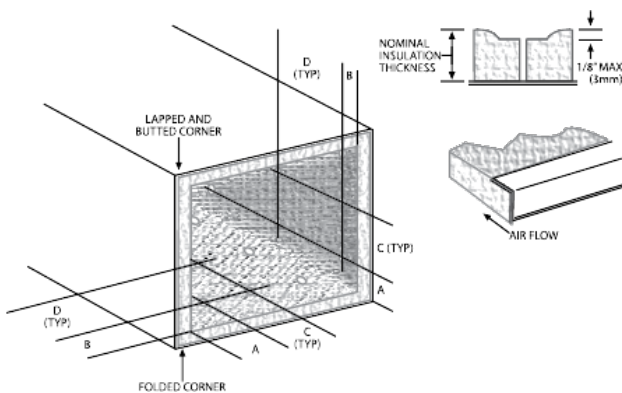
Follow all SMACNA's guidelines for weld pin and mechanical fastener sizing, application, and spacing.

1. Insulated Cupped Head weld pins are preferred for use with the PolyArmor FSK foil facing
2. Consult manufacturer on recommended voltage, pressure, duration, and angle of the weld
 - a. With FSK facing, the suggested voltage range is 85 - 100 volts for most mechanical and handheld welding equipment
3. Important note when using a manual handheld pin spotter
 - a. Voltage, pressure, duration, and pin angle are important factors for a quality weld

RECTANGULAR DUCT PINNING

Mechanical Fastener Locations

Velocity/FPM	0 - 2,500	2,501 - 5,000
A. From corners of ductwork:	4"	4"
B. From transverse of ductwork:	3"	3"
C. Across width of ductwork, on centers (min. 1/side):	12"	6"
D. Across length of duct work, on centers (min. 1/side):	18"	16"



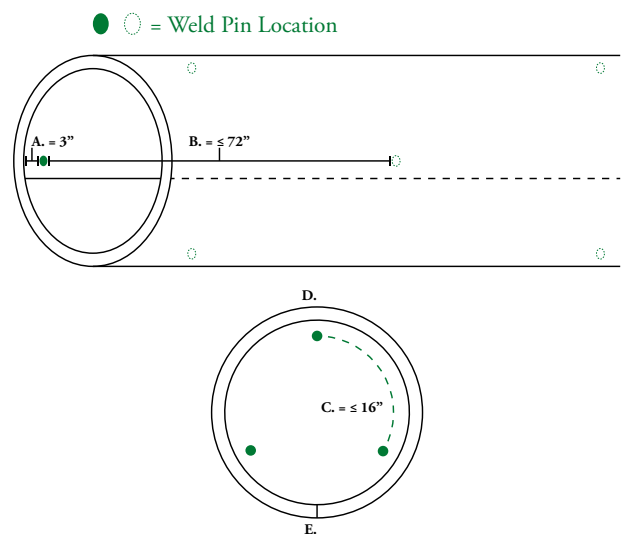
Liner Interior Width

No. Pins	Inches	(mm)
0	≤ 8	≤ 203
2	9 - 16	229 - 406
3	17 - 28	432 - 711
4	29 - 40	737 - 1,016
5	41 - 52	1,041 - 1,321
6	53 - 64	1,346 - 1,626
7	65 - 76	1,651 - 1,930
8	77 - 88	1,956 - 2,235
9	89 - 100	2,261 - 2,540

ROUND DUCT PINNING

Mechanical Fastener Locations

A. From ductwork edge:	3" O.C.
B. Across length of ductwork:	72" O.C.
C. Pin spacing around ductwork circumference:	16" O.C.
D. Exposed edges should be coated or sealed	
E. Adhere seam together with an approved duct liner adhesive	



TECHNICAL SPECIFICATIONS

Item	Test Method	Result
Thermal Resistance 1" material, ft2.F/hr/Btu 1½" material, ft2.F/hr/Btu 2" material, ft2.F/hr/Btu 3" material, ft2.F/hr/Btu	ASTM C518, 75 F	R-4.2 R-6 R-8 R-12
Surface Burning Characteristics Flame Spread index Smoke Developed	ASTM E84	<25 <50
Density, lb/ft3 1" material 1½" material 2" material 3" material	ASTM D 1667	1.6 1.5 1.4 1.2
Corrosiveness	ASTM C665	Pass
Fungi Resistance	ASTM C1338	Pass
Mold Growth	ASTM G-21	Meets Requirements
Odor	ASTM C1304	Pass
Moisture Vapor Absorption, %	ASTM C1104	0.24
Temperature Resistance Upper Limit	ASTM C411	Up to 250°F
Erosion Resistance	ASTM C 1071 (tested to maximum throughput of 10,000 fpm (4,719 lps))	Rating 4,000 fpm
Smoke Density and Toxicity Density, optical Ds at 4 minutes Toxicity, ppm CO HBr, HCl, HCN, HF, NOx, So2	ASTM E662/ ASTM E800 ASTM E662 flaming (non flaming) ASTM E800 (flaming exposure)	2.5 (0.54) 21 0
Volatile Organic Content (VOC), ppm	ASTM D5116 (CA1350)	0
Greenguard® Environmental Institute		Compliant, CS

SOUND ABSORPTION COEFFICIENTS AT FREQUENCY - ASTM Standard C423

PolyArmor

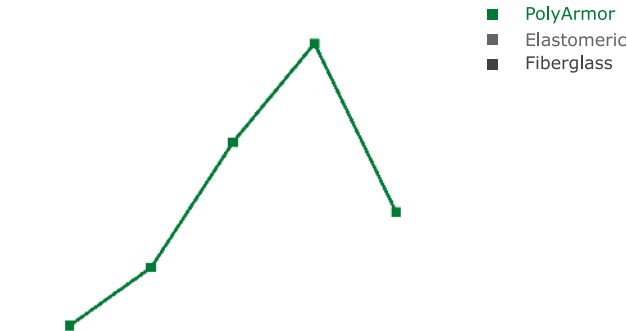
Material	125 Hz	250 Hz	500 Hz	1,000 Hz	2,000 Hz	NRC
Min. 1"	0.10	0.30	0.73	1.07	0.49	0.65

Elastomeric

Material	125 Hz	250 Hz	500 Hz	1,000 Hz	2,000 Hz	NRC
Min. 1"	0.10	0.15	0.31	0.57	0.36	0.35

Fiberglass

Material	125 Hz	250 Hz	500 Hz	1,000 Hz	2,000 Hz	NRC
Min. 1"	0.18	0.36	0.59	0.86	0.95	0.70



LIMITED PRODUCT WARRANTY

Ductmate warrants that PolyArmor™, when properly installed and maintained, will be free from defects in material and workmanship, and will comply with all written specifications made by Ductmate at the time of sale. Ductmate's warranty shall run for one year from the date of manufacture.

Warranty Limitation

The warranty stated above is in place of all other warranties, express or implied, including but not limited to the implied warranties of MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Although Ductmate may have suggested the product or provided written or oral advice to the Purchaser, it is the Purchaser's responsibility to test and determine the suitability of PolyArmor™ for the intended use and purpose and the Purchaser and/or its customer assumes all risk and liability whatsoever regarding such suitability.

Limitation of Liability

In the event of a breach of the above warranty, Ductmate's sole obligation, and Purchaser's sole and exclusive remedy, shall be, at Ductmate's option, repair or replacement of any defective products, or refund of an applicable portion of the purchase price. Ductmate shall have no liability for costs of removal or reinstallation of the product. The Purchaser agrees that no other remedy, including but not limited to loss of profits, loss of sales, injury to person or property, or any other special, incidental, or consequential damages, shall be available to the Purchaser for any claim arising out of this agreement, regardless of whether such claim is made in contract or tort, including strict liability in tort. In no event will Ductmate be obligated to pay damages to the Purchaser in any amount exceeding the purchase price that the Purchaser paid to Ductmate for the allegedly defective product.

Notes

The technical specifications of Ductmate PolyArmor represent typical values determined by accepted test methods. The data is subject to normal manufacturing and testing variations. The information is supplied as a technical service and can be changed without notice. The values stated for the flame spread ratings are not intended to indicate actual hazards by these or any other materials under real fire conditions.

Check with a Ductmate sales representative to assure information is current or to receive current material.



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