



INNOVATIONS FOR LIVING®

Product Data Sheet



Description

SOFTR® Duct Wrap is a blanket of glass fiber insulation factory-laminated to FRK vapor retarder facing. A 2" (50mm) stapling and taping flange is provided on one edge. This product is designed to meet existing performance standards such as NFPA 90A and 90B and other model building and energy codes.

Uses

SOFTR® Duct Wrap FRK is used for external insulation of commercial and residential heating, air conditioning and dual-temperature ducts operating at temperatures from 40°F (4°C) to 250°F (121°C). This insulation, when applied in accordance with installation instructions, will provide the "installed R-value" as published for the product and printed on the facing, assuring specified in-place thermal performance and condensation control.

Product Attributes

Assured Thermal Performance

When installed in accordance with instructions so that compression is controlled, SOFTR® Duct Wrap FRK provides specified thermal

Availability and Installed R-Values

Standard roll width: 48" (1.2m), 60" (1.5m)

Installed R (RSI) values: When installed in accordance with recommended installation procedures, SOFTR® Duct Wrap FRK will provide installed R (RSI) values as follows:

Nominal Thickness		Out-of-Package R (RSI) Value ¹		Installed Thickness ²		Installed R (RSI) Value ^{1,2}	
in.	mm			in.	mm		
Type 75 – 0.75 pcf (12 kg/m³)							
1½	(38)	5.1	(0.90)	1⅝	(29)	4.2	(0.74)
2.2	(56)	7.4	(1.30)	1⅞	(42)	6.0	(1.06)
3	(76)	10.0	(1.76)	2¼	(57)	8.3	(1.46)
Type 100 – 1.00 pcf (16 kg/m³)							
1½	(38)	5.6	(0.99)	1⅝	(29)	4.5	(0.79)
2	(51)	7.4	(1.30)	1½	(38)	6.0	(1.06)
Type 150 – 1.50 pcf (24 kg/m³)							
1½	(38)	6.0	(1.06)	1⅝	(29)	4.8	(0.85)
2	(51)	8.0	(1.41)	1½	(38)	6.4	(1.13)

1. hr•ft²•°F/Btu (m²•°C/W) at 75°F (24°C) mean temperature.

2. Assumes 25% compression of insulation.

Specification Compliance

ASTM C 1290, Flexible Fibrous Glass Blanket Insulation Used to Externally Insulate HVAC Ducts, Type III

ASTM C 1136, Flexible Low Permeance Vapor Retarders for Thermal Insulation, Type II (facing only)

ASTM C 553,* Mineral Fiber Thermal Insulation: Type I – Fiberglas™ Duct Wrap Type 75; Type II – SOFTR® Duct Wrap FRK Types 100 and 150. (Operating temperatures to 250°F (121°C) and thermal values to 150°F (66°C) mean.

* Preferred specification is ASTM C 1290.

NOTE TO SPECIFIERS – Federal Specification HH-I-558B (Amendment 3), Form B (covering the duct wrap), and Federal Specification HH-B-100B (Covering the facing and CAN/CGSB-51.11), are obsolete. These are replaced by the above referenced ASTM specifications.

Physical Property Data

Property	Test Method	Value		
Operating Temperature	ASTM C 411	up to 250°F (121°C)		
Insulation Jacket Temperature Limit	ASTM C 1136	up to 150°F (66°C)		
Jacket Puncture Resistance	ASTM C 1136	25 units (0.7 joules)		
Water Vapor Permeance	ASTM E 96*	0.02 perms		
Water Vapor Sorption	ASTM C 1104	<3% by weight at 120°F (49°C), 95% R.H.		
Fungi Resistance	ASTM C 1338	Meets requirements		
Thermal Conductivity K at 75°F Mean, Btu•in/hr•ft ² •°F (λ at 24°C Mean, W/m•°C)	ASTM C 518	Type 75 0.30 (0.043)	Type 100 0.27 (0.039)	Type 150 0.25 (0.036)
Surface Burning Characteristics	ASTM E 84*			
Flame Spread		25*		
Smoke Developed		50		

*The surface burning characteristics of these products have been determined in accordance with ASTM E 84. This standard should be used to measure and describe the properties of materials, products or assemblies in response to heat and flame under controlled laboratory conditions and should not be used to describe or appraise the fire hazard or fire risk of materials, products or assemblies under actual fire conditions. However, results of this test may be used as elements of a fire risk assessment which takes into account all of the factors which are pertinent to an assessment of the fire hazard of a particular end use. Values are reported to the nearest 5 rating.



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performance. See R-value table. Operating costs are controlled due to reduction of heat loss or gain through duct walls.

Features

- Condensation Control
- Enhanced Comfort Control
- Meets Model Energy and Mechanical Codes
- Flexible and Easy to Install
- Facings

Condensation Control

To determine thickness to prevent condensation at various ambient temperature and humidity levels, based on installed thickness 75% of nominal (out-of-package) thickness, 55°F (13°C) air duct internal temperature:

1. Referring to nominal duct thickness to prevent surface condensation select maximum expected relative humidity (R.H.) on the lower scale.
2. Move up vertically until that line intersects the expected maximum ambient air temperature.
3. Select the thickness indicated by the intersection point.
4. Specified design thickness should be adequate to prevent exterior surface condensation.

Limitations

SOFTR® Duct Wrap FRK is not recommended for use on duct systems subject to continuous service at temperatures in excess of 250°F (121°C). It should not be used in conditions where condensation might occur on the facing nor exposed to weathering or mechanical abuse without proper protection. It should not be used on the inside of ducts.

Application Recommendations

Before applying SOFTR® Duct Wrap FRK, ducts shall be clean, dry and tightly sealed at all joints and seams. SOFTR® Duct Wrap FRK shall be cut to "stretch-out" dimensions and a 2" (50mm) (approx.) piece of duct wrap removed from the facing at the end of the piece of duct wrap to form an overlapping staple and tape flap, as shown below.

Install duct wrap tightly butted with facing outside. Overlap 2" (50mm) formed tape flap and facing at other end of piece of duct wrap. If ducts are rectangular or square, install so insulation is not excessively compressed at duct corners. Seams shall be stapled 6" (150mm) (approx.) on center with outward clinching staples. Adjacent sections of duct wrap shall be tightly butted with the 2" (50mm) tape flap overlapping.

Where a vapor retarder is required, seal all seams and joints with pressure-sensitive tape matching the facing (either plain foil or FRK backing stock) or with glass fabric and mastic. Cloth duct tape of any color and finish using reclaimed rubber adhesives is not recommended for use on SOFTR® Duct Wrap FRK.

Where rectangular ducts are 24" (600mm) in width or greater, duct wrap shall be additionally secured to the bottom of the duct with mechanical fasteners such as pins and speed clip washers, spaced on 18" (425mm) centers (maximum) to prevent sagging of insulation. It is neither necessary nor desirable to adhere duct wrap to duct surfaces.

Where a vapor retarder is required, seal all tears, punctures and other penetrations of the duct wrap facing using one of the above methods to provide a vapor-tight system.

The installed R-value is based on installation of product over sealed sheet metal ductwork with the average installed thickness at 75% of nominal thickness and thermal conductivity (k) at the installed compressed density as shown in Thermal Conductivity table.



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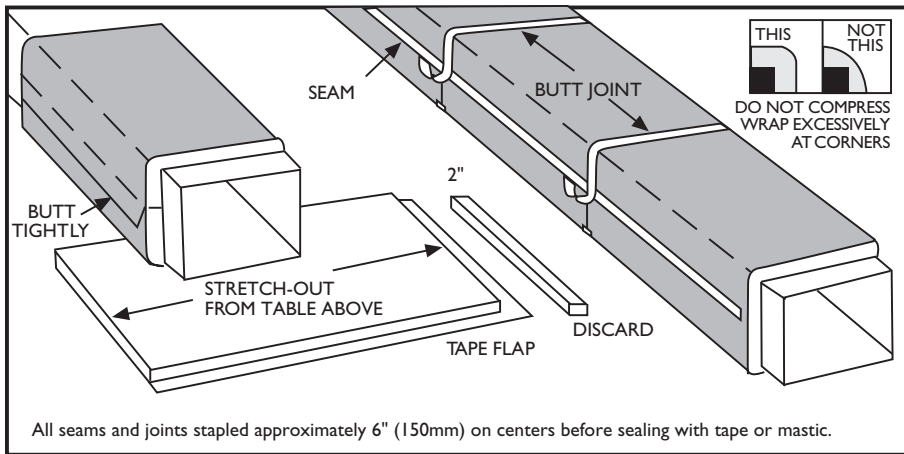
SOFTR®
Duct Wrap FRK

Product Data Sheet

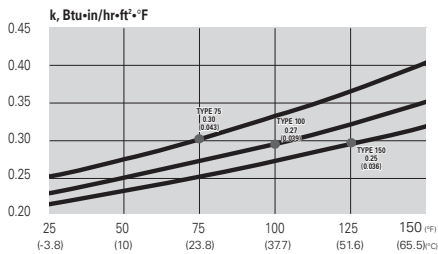
Material Requirements to Achieve Installed R-Value

Nominal Thickness in. (mm)	Installed Thickness in. (mm)	Stretch Out Dimensions, in. (mm)		
		Round and Oval Ducts	Square Ducts	Rectangular Ducts
1½ (38)	1½ (29)	P+9½ (240)	P+8 (205)	P+7 (180)
2 (51)	1½ (38)	P+12 (305)	P+10 (255)	P+8 (205)
2½ (56)	1¾ (41)	P+13 (330)	P+11 (280)	P+8½ (215)
3 (76)	2¼ (57)	P+17 (430)	P+14½ (370)	P+11½ (290)
4 (102)	3 (76)	P+22 (560)	P+19 (483)	P+16 (406)

P = measured duct perimeter

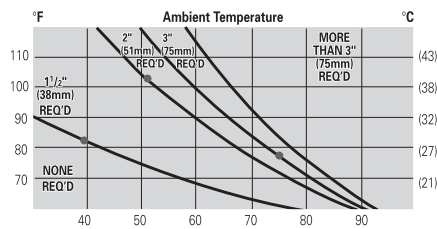


Thermal Conductivity



Apparent thermal conductivity curve determined in accordance with ASTM Practice C 1045 with data obtained by ASTM Test Method C 177. Values are nominal, subject to normal testing and manufacturing tolerances.

Nominal Duct Wrap Thickness to Prevent Surface Condensation



The above chart is based on indoor conditions so far as wind and other factors are concerned



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