







Pipe & Equipment and Air Handling Insulation

Pipe/KwikFlex™/Pipe and Tank

	Density	Thickness	Width	Length	Thermal Conductivity k-Value (S.I.)	Water Vapor Transmission (ASTM E 96, Procedure A)	Packaging
					ASTM C 335		
Pipe Insulation  ASJ-SSL Plain Redi-Klad® 	Nominal 4.0 PCF (64 kg/m ³)	½" (13 mm)	Complies with ASTM C 585 dimensional standards.	3' (914 mm)	.23 (.033) at 75°F (24°C)	ASJ-SSL jacket has a water vapor permeance of .02 perms or less. Redi-Klad® jacket has a water vapor permeance of zero perms.	Cartons, Polybags
		1" (25 mm)			.24 (.035) at 100°F (38°C)		
		1½" (38 mm)			.28 (.040) at 200°F (93°C)		
		2" (51 mm)			.34 (.049) at 300°F (149°C)		
		2½" (64 mm)			.42 (.061) at 400°F (204°C)		
		3" (76 mm)			.51 (.074) at 500°F (260°C)		
		3½" (89 mm)			.62 (.089) at 600°F (316°C)		
		4" (102 mm)					
		4½" (114 mm)					
		5" (127 mm)					
6" (152 mm)							
					ASTM C 177		
KwikFlex™  Plain ASJ FSK PSK	2.5 PCF (40 kg/m ³)	1" (25 mm)	48" (1219 mm)	52' (15.85 m)	.24 (.035) at 75°F (24°C)	FSK, PSK and ASJ vapor retarders have a maximum rate of .02 perms.	Polybags
		1½" (38 mm)		30' (9.14 m)	.25 (.036) at 100°F (38°C)		
		2" (51 mm)		26' (7.92 m)	.32 (.046) at 200°F (93°C)		
		2½" (64 mm)		21' (6.40 m)	.39 (.056) at 300°F (149°C)		
		3" (76 mm)		18' (5.49 m)	.49 (.070) at 400°F (204°C)		
					.61 (.088) at 500°F (260°C)		
					ASTM C 177		
Pipe and Tank  ASJ Glass Mat FSK	Nominal 2.8 PCF (46 kg/m ³)	1" (25 mm)	36" (914 mm)	48' (14.63 m)	.26 (.037) at 100°F (38°C)	Both FSK and ASJ vapor retarders have a maximum rate of .02 perms.	Cartons
		1½" (38 mm)		32' (9.75 m)	.35 (.050) at 200°F (93°C)		
		2" (51 mm)		24' (7.32 m)	.45 (.065) at 300°F (149°C)		
		2½" (64 mm)		19' (5.79 m)	.57 (.082) at 400°F (204°C)		
		3" (76 mm)		16' (4.88 m)	.75 (.108) at 500°F (260°C)		
		3½" (89 mm)		14' (4.27 m)			
		4" (102 mm)		12' (3.66 m)			



Corrosion	Puncture Resistance (TAPPI Test T803) (Beach Units)	Specification Compliance	Temperature Range (ASTM C 411)	Surface Burning Characteristics	Features and Benefits
<p>No greater than sterile cotton (AS TM C 665).</p> <p>Stress Corrosion: Complies with ASTM E 795, MIL-I-24244C and NRC 1.36.</p>	Jacket minimum rating of 50 units.	<p>U.S.—MIL-I-22344D; USCG 164.109/4/0 (Plain, unjacketed insulation only); HH-I-558C, Form D, Type III, Class 12, Class 13 (to 1000°F, 538°C); MIL-I-24244C (Ships); NRC Reg. Guide 1.36; NFPA 90A and 90B; ASTM C 547, Type I; ASTM C 585; ASTM C 795; ASTM C 1136 (jackets), Type I, II, III, IV; HH-B-100B (jackets) Type I, II; MEA325-83-M; GREENGUARD Certification (ASJ-SSL only); GREENGUARD For Children & Schools™ Certification (ASJ-SSL only).</p> <p>Canada—CAN/ULC S102-M88; CGSB51-GP-9M; CAN/CGSB 51-GP-52M (jacket); CCG F1-304 (Plain only).</p>	Up to 1000°F (538°C).	<p>UL Classified; Does not exceed 25 Flame Spread, 50 Smoke Developed when tested in accordance with ASTM E 84, CAN/ULC S102-M88, NFPA 255 and UL 723.</p>	<p>Energy Conservation. Offers excellent resistance to heat loss or gain, which saves energy and lowers operating costs.</p> <p>Low Cost Installation. Product is available with self-sealing lap. Fast, easy installation results in labor savings.</p> <p>Condensation Control. Installed properly, foil vapor retarder and pressure-sensitive lap assure positive seal.</p> <p>Complete System. Knauf offers Proto 25/50-rated PVC fittings. These fittings, used in conjunction with Knauf Pipe Insulation and butt strips, provide a complete, reliable system.</p> <p>Sizes Printed on Insulation. Pipe size, wall thickness and Proto 25/50-Rated PVC fitting cover size are printed along the longitudinal lap. Easy identification on job site or in restocking the materials.</p> <p>Zero Perm Rating. Knauf Redi-Klad® pipe insulation comes with factory applied weather and abuse resistant jacketing. Properly installed, it provides a zero permeability rating.</p>
<p>Will not accelerate corrosion of aluminum, steel or copper.</p>	<p>FSK & PSK facing: 25</p> <p>ASJ facing: 50</p>	<p>U.S.—UL/ULC Classified (FSK, ASJ); ASTM C 1393, Type I, II, IIIA, IIIB, Category 2; ASTM C 795; NRC 1.36; MIL-I-24244C.</p>	Up to 850°F (454°C).	<p>Does not exceed 25 Flame Spread, 50 Smoke Developed when tested in accordance with ASTM E 84 and UL 723.</p> <p>FSK and ASJ Facing: UL/ULC Classified.</p>	<p>Excellent Compressive Strength. Maintains flexibility for ease of installation.</p> <p>Low Cost Installation. Flexible, easy to handle and fabricate.</p> <p>Inventory Savings. There are various thicknesses available to meet all your pipe and tank insulation needs so there's no need to stock multiple sizes.</p> <p>Resists Damage. Tough and durable to resist damage during shipment and installation.</p>
<p>Will not accelerate corrosion of aluminum, steel or copper.</p>	<p>FSK facing: 25</p> <p>ASJ facing: 50</p>	<p>U.S.—ASTM C 1136, Type I, II, III, IV (ASJ), Type II, IV (FSK); HH-B-100B (jackets), Type I and II (ASJ); Type II (FSK); HH-I-558C; Form A, Class 3; ASTM C 795; NRC 1.36; MIL-I-24244C.</p>	Up to 850°F (454°C).	<p>All Facing: Does not exceed 25 Flame Spread, 50 Smoke Developed when tested in accordance with ASTM E 84, UL 723 and NFPA 255.</p> <p>FSK and ASJ Facing: UL/ULC Classified.</p>	<p>Excellent Thermal Properties. Low thermal conductivity ratings to 850°F (454°C).</p> <p>Low Cost Installation. Flexible, easy to handle and fabricate.</p> <p>Inventory Savings. No need to stock multiple sizes of pipe insulation. A stock of various thicknesses serves all pipe and tank insulation requirements.</p> <p>Non-Corrosive. Will not accelerate the corrosion of stainless steel.</p>

Elevated Temperature Products

		Density	Thickness	Width	Length	Thermal Conductivity k-Value (S.I.) (ASTM C 177)	Water Vapor Transmission (ASTM E 96, Procedure A)	Packaging		
ET Board 	2.8 PCF (44.9 kg/m ³)	1" (25 mm)	24" (610 mm) and 48" (1219 mm)	24" (610 mm) to 120" (3048 mm)		.25 (.036) at 100°F (38°C)	.01% or less by volume	Cartons, Sleeves		
		1½" (38 mm)				.33 (.048) at 200°F (93°C)				
		2" (51 mm)				.40 (.058) at 300°F (149°C)				
		2½" (64 mm)				.49 (.071) at 400°F (204°C)				
		3" (76 mm)				.57 (.082) at 500°F (260°C)				
		3½" (89 mm)								
		4" (102 mm)								
ET Panel 	2.4 PCF (38.4 kg/m ³)	1" (25 mm)	24" (610 mm)	48" (1219 mm) to 96" (2438 mm)		.25 (.036) at 100°F (38°C)	.01% or less by volume	Sleeves		
		1½" (38 mm)				.32 (.046) at 200°F (93°C)				
		2" (51 mm)				.40 (.058) at 300°F (149°C)				
		2½" (64 mm)				.52 (.075) at 400°F (204°C)				
		3" (76 mm)				.68 (.098) at 500°F (260°C)				
		3½" (89 mm)								
		4" (102 mm)								
ET Batt/ ET HD Blanket 	1.6 PCF (25.6 kg/m ³)	1½" (38 mm)	24" (610 mm)	48" (1219 mm)		.24 (.035) at 100°F (38°C)	.01% or less by volume	Sleeves		
		2" (51 mm)				.33 (.048) at 200°F (93°C)				
		2½" (64 mm)				.44 (.063) at 300°F (149°C)				
		3" (76 mm)				.57 (.082) at 400°F (204°C)				
		3½" (89 mm)				.72 (.104) at 500°F (260°C)				
		4" (102 mm)								
	1.6 PCF (25.6 kg/m ³)	1½" (38 mm)	48" (1219 mm)	120' (36.6 m)						
		2" (51 mm)		80' (24.4 m)						
		2½" (64 mm)		70' (21.3 m)						
		3" (76 mm)		60' (18.3 m)						
		3½" (89 mm)		50' (15.2 m)						
		4" (102 mm)		40' (12.2 m)						
	ET Blanket 	1.1 PCF (17.6 kg/m ³)	1" (25 mm)	48" (1219 mm)	75' (22.9 m)		.28 (.040) at 100°F (38°C)	.01% or less by volume	Sleeves	
1½" (38 mm)			50' (15.2 m)		.38 (.055) at 200°F (93°C)					
2" (51 mm)			75' (22.9 m)		.52 (.075) at 300°F (149°C)					
2½" (64 mm)			60' (18.3 m)		.70 (.101) at 400°F (204°C)					
3" (76 mm)			50' (15.2 m)		.90 (.130) at 500°F (260°C)					
3½" (89 mm)			45' (13.7 m)							
4" (102 mm)			40' (12.2 m)							

Corrosion	Specification Compliance	Temperature Range (ASTM C 411)	Surface Burning Characteristics	Features and Benefits
<p>Will not accelerate corrosion of steel.</p> <p>Stress Corrosion: Complies with ASTM C 795, MIL-I-24244C and NRC Reg. Guide 1.36.</p>	<p>U.S.—ASTM C 612, Type IA, IB, II; ASTM C 795; HH-I-558C (Amend. 3); Form A, Class 1,2,3; MIL-I-22023D, Type III; MIL-I-24244C; NRC Reg. Guide 1.36; USCG 164.109/15/0.</p> <p>Canada—CAN/ULC S102-M88; CCG F1-315; CGSB 51-GP-10M.</p>	<p>Up to 850°F (434°C).</p>	<p>Does not exceed 25 Flame Spread, 50 Smoke Developed when tested in accordance with ASTM E 84, CAN/ULC S102-M88 and UL 723.</p>	<p>Excellent Thermal Properties. Low thermal conductivity ratings to 1000°F (538°C). System efficiency is increased and energy usage is decreased.</p> <p>Low Cost Installation. Lightweight, easy to handle and fabricate. Flexible characteristics make it ideal for flat or irregular surfaces.</p> <p>Damage Resistant. Tough and resilient, resists damage in shipment, during and after installation.</p> <p>Resists Mold Growth. Does not promote the growth of fungi or bacteria, will not rot or sustain vermin.</p>
<p>Will not accelerate corrosion of steel.</p> <p>Stress Corrosion: Complies with ASTM C 795, MIL-I-24244C and NRC Reg. Guide 1.36.</p>	<p>U.S.—ASTM C 612, Type II and III; ASTM C 795; HH-I-558C, Form A, Class 1,3; MIL-I-24244C; NRC Reg. Guide 1.36; USCG 164.109/17/0.</p> <p>Canada—CAN/ULC S102-M88; CCG 100/F1-316; CGSB 51-GP-10M; DND 15280-02 E2.</p>	<p>Up to 1000°F (538°C).</p>	<p>Does not exceed 25 Flame Spread, 50 Smoke Developed when tested in accordance with ASTM E 84, CAN/ULC S102-M88 and UL 723.</p>	<p>Energy Conservation. Offers excellent resistance to heat loss, which saves energy and lowers operating costs.</p> <p>Large Sizes. Sizes up to 4' x 10' reduce the number of joints, reduce installation time and eliminate potential sources of heat leakage.</p> <p>Non-Corrosive. Will not accelerate corrosion of steel. Complies to stress corrosion requirements of MIL-I-24244C.</p>
<p>Will not accelerate corrosion of steel.</p> <p>Stress Corrosion: Complies with ASTM C 795, MIL-I-24244C and NRC Reg. Guide 1.36.</p>	<p>U.S.—ASTM C 795, HH-I-558C, Form B, Type 1, Class 7, 8; MIL-I-22023D; Type 1, Class 4, Type II, Class 4; MIL-I-24244C; NRC Reg. Guide 1.36; USCG 164.109/18/0.</p> <p>Canada—CAN/ULC S102-M88; CCG F1-314; CGSB 51-GP-11M.</p>	<p>Up to 1000°F (538°C).</p>	<p>Does not exceed 25 Flame Spread, 50 Smoke Developed when tested in accordance with ASTM E 84, CAN/ULC S102-M88 and UL 723.</p>	
<p>Will not accelerate corrosion of steel.</p> <p>Stress Corrosion: Complies to ASTM C 795, MIL-I-24244C and NRC Reg. Guide 1.36.</p>	<p>U.S.—ASTM C 795; HH-I-558C, Form B, Class 7,8; MIL-I-22023D, Type I, Class 3, Type II, Class 3; MIL-I-24244C; NRC Reg. Guide 1.36; USCG 164.109/18/0.</p> <p>Canada—CGSB 51-GP-11M; CCG F1-314; CAN/ULC S102-M88.</p>	<p>Up to 1000°F (538°C).</p>	<p>Does not exceed 25 Flame Spread, 50 Smoke Developed when tested in accordance with ASTM E 84, CAN/ULC S102-M88 and UL 723.</p>	

Insulation Board/*Friendly Feel*[™] Duct Wrap

		Thickness	Width	Length	Packaging	Thermal Conductivity k-Value (S.I.) (ASTM C 518)**	Thermal Resistance R-Value (S.I.) (ASTM C 518)**		Specification Compliance			
						R-Value (S.I.)						
Insulation Board  Plain FSK ASJ PSK	1.6 PCF (26 kg/m ³)	1½" (38 mm)	24" (610 mm) and 48" (1219 mm)	36" (915 mm) to 120" (3048 mm)	Plain: Cartons, Sleeves Faced: Cartons Only	.24 (.035)	6.3	(1.1)	U.S. —ASTM C 612, Type IA, IB; ASTM D 795; ASTM C 1136 (facings), Type I, II, III, IV (ASJ), Type II, IV (FSK, PSK); California Title 24; HH-B-100B, Type I (ASJ facing), Type II (FSK, PSK facings); HH-I-558C, Form A, Class 1, Class 2; MIL-I- 24244C; NFPA 90A and 90B; NRC Reg. Guide 1.36. Canada —CAN/ULC S102- M88; CGSB 51-GP-10M; NRC Reg. Guide 1.36.			
		2" (51 mm)					8.3	(1.5)				
		2½" (64 mm)					10.4	(1.8)				
		3" (76 mm)					12.5	(2.2)				
		3½" (89 mm)					14.6	(2.6)				
		4" (102 mm)					16.7	(2.9)				
	2.25 PCF (36 kg/m ³)	1" (25 mm)	24" (610 mm) and 48" (1219 mm)	36" (915 mm) to 120" (3048 mm)		.23 (.033)	4.3	(0.8)				
		1½" (38 mm)					6.5	(1.1)				
		2" (51 mm)					8.7	(1.5)				
		2½" (64 mm)					10.9	(1.9)				
		3" (76 mm)					13.0	(2.3)				
		3½" (89 mm)					15.2	(2.7)				
	3.0 PCF (48 kg/m ³)	1" (25 mm)	24" (610 mm) and 48" (1219 mm)	36" (915 mm) to 120" (3048 mm)	.23 (.033)	4.3	(0.8)					
		1½" (38 mm)				6.5	(1.1)					
		2" (51 mm)				8.7	(1.5)					
		2½" (64 mm)				10.9	(1.9)					
		3" (76 mm)				13.0	(2.3)					
		3½" (89 mm)				15.2	(2.7)					
	4.25 PCF (68 kg/m ³)	1" (25 mm)	24" (610 mm) and 48" (1219 mm)	36" (915 mm) to 120" (3048 mm)	.23 (.033)	4.3	(0.8)					
		1½" (38 mm)				6.5	(1.1)					
		2" (51 mm)				8.7	(1.5)					
		2½" (64 mm)				10.9	(1.9)					
		3" (76 mm)				13.0	(2.3)					
		3½" (89 mm)				15.2	(2.7)					
6.0 PCF (96 kg/m ³)	1" (25 mm)	24" (610 mm) and 48" (1219 mm)	36" (915 mm) to 120" (3048 mm)	.22 (.032)	4.4	(0.8)						
	1½" (38 mm)				6.7	(1.2)						
	2" (51 mm)				8.9	(1.6)						
							Out of Package	Installed 25% Comp				
<i>Friendly Feel</i>[™] Duct Wrap  FSK White PSK Black PSK Unfaced	.75 PCF (12 kg/m ³)	1½" (38 mm)	48" (1219 mm)	100' (30.48 m)	Rolls	0.29 (0.042)	5.1	4.2	U.S. —ASTM C 553; Type I, II, III, ASTM D 795, ASTM C 1136; Type II (FSK and PSK facings only); ASTM C 1290; California Title 24 (installed at 25% compression); HH-I- 558C; Form B, Type I, class 7; MIL-I-24244C; NFPA 90A and 90B; NRC Reg. Guide 1.36; GREENGUARD Certification; GREENGUARD For Children & Schools [™] Certification. Canada —CAN/ULC S102- M88; CAN/CGSB 51.5M; Type II (FSK facing); CAN/CGSB-51.11-92.			
		2" (51 mm)		75' (22.86 m)			6.8	5.6				
		2⅝" (56 mm)		75' (22.86 m)			7.4	6.0				
		2½" (64 mm)		75' (22.86 m)			8.5	7.0				
		3" (76 mm)		50' (15.24 m)			10.2	8.4				
	1.0 PCF (16 kg/m ³)	1½" (38 mm)	48" (1219 mm)	100' (30.48 m)		0.27 (0.039)	5.6	4.5				
		2" (51 mm)		75' (22.86 m)			7.4	6.0				
		1½" (38 mm)		40' (12.19 m)			6.1	4.8				
	1.5 PCF (24 kg/m ³)	2" (51 mm)	48" (1219 mm)	40' (12.19 m)		0.24 (0.035)	8.2	6.4				
		2" (51 mm)		40' (12.19 m)								
								** Mean Temperature 75°F (24°C)				

Acoustical Performance Sound Absorption Coefficients (ASTM C 423, Type A Mounting)

Temperature Range (ASTM C 411)

Surface Burning Characteristics

Features and Benefits

1/3 Octave Band Center Frequency (Cycles/Sec.)			
Density	Thickness	Facing	NRC
1.6 PCF (26 kg/m ³)	1½" (38 mm)	Plain	.80
	2" (51 mm)		.90
	2½" (64 mm)		1.00
	3" (76 mm)		1.05
3.0 PCF (45 kg/m ³)	1" (25 mm)	Plain	.65
	1½" (38 mm)		.85
	2" (51 mm)		1.00
	3" (76 mm)		1.10
	4" (102 mm)		1.10
	1" (25 mm)	FSK	.75
	1½" (38 mm)		.70
	2" (51 mm)		.75
	1" (25 mm)	ASJ	.65
	1½" (38 mm)		.65
2" (51 mm)	.65		
4.25 PCF (68 kg/m ³)	1" (25 mm)	Plain	.75
	2½" (64 mm)	ASJ	.55
6.0 PCF (96 kg/m ³)	1" (25 mm)	Plain	.80
	1½" (38 mm)		.90
	2" (51 mm)		1.00
	1" (25 mm)	FSK	.50
	1½" (38 mm)		.60
	2" (51 mm)		.60
	1½" (38 mm)	ASJ	.50
	2" (51 mm)		.50

Up to 450°F (232°C).

UL Classified; Does not exceed 25 Flame Spread, 50 Smoke Developed when tested in accordance with ASTM E 84, CAN/ULC S102-M88, NFPA 90A and 90B, NFPA 255 and UL 723.

- Energy Conservation.** Excellent thermal efficiency results in lower operating costs.
- Low Cost Installation.** Lightweight, easy to handle and fabricate resulting in quicker, lower-cost field installation and lower applied costs.
- Noise Reduction.** Acoustical properties reduce sound transmission.
- Appearance.** FSK, ASJ and PSK vapor retardant facings provide a neat, finished appearance.

Rectangular Sheet Metal Duct with Knauf Duct Wrap											
		Duct Wrap		Insertion Loss dB/LF of Duct							
LG DIM	SM DIM	NOM GA	THK	DENS	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz
12"	12"	24	1.5"	0.75	0.6	0.6	0.6	0.7	7.4	14.2	20.9
24"	12"	24	1.5"	0.75	0.6	0.6	0.6	0.7	7.4	14.2	20.9
48"	12"	22	1.5"	0.75	0.5	0.5	0.5	0.6	7.4	14.1	20.9
24"	24"	22	1.5"	0.75	0.5	0.5	0.5	0.6	7.4	14.1	20.9
24"	12"	26	1.5"	0.75	0.8	0.8	0.8	0.8	7.5	14.2	21.0
24"	8"	26	2.0"	0.75	1.0	1.0	1.0	3.6	10.4	17.1	23.9

Faced, can be used on ducts operating up to 250°F (121°C).

Unfaced, up to 350°F (177°C).

UL/ULC Classified (except PSK: ASTM E 84 only); Unfaced or composite (insulation, facing and adhesive) does not exceed 25 Flame Spread, 50 Smoke Developed when tested in accordance with ASTM E 84, CAN/ULC S102-M88, NFPA 255 and UL 723.

- Energy Conservation.** Low "k" factor reduces heat gain or loss when applied with minimum compression.
- Low Cost Installation.** Easily conforms to flat or irregular surfaces. Lightweight rolls enable faster installation.
- Noise Reduction.** Excellent acoustical properties reduce sound transmission.
- Condensation Control.** FSK facing enhances condensation control and prevents moisture formation.
- Damage Resistant.** Tough, resilient, resists damage in shipment and installation.
- KwikStretch™ Markings.** On the FSK staple flap.
- GREENGUARD and GREENGUARD For Children and Schools™-Certified.** Low emitting for IAQ performance.



Air Duct Boards/KoolDuct® System

		Size	Edge	Packaging	Thermal Conductivity k-Value (S.I.) (ASTM C 518)**	Thermal Resistance R-Value (S.I.) (ASTM C 518)**	Specification Compliance
Air Duct Board-M  EI-475 EI-800	1" (25 mm)	48" x 96" (1219 mm x 2438 mm)	Butt, Shiplap	Cartons, Pallets	EI-475/ EI-800 .23 (.033)	4.3 (.76)	U.S. —ASTM C 1136, Type II (FSK facing); ASTM D 5116; ASTM G 21, 22; BOCA; CABO; California Title 24; Corps of Engineers Guide Specifications, ICBO; International Mechanical Code; NFPA 90A and 90B; SBCCI; State of Alaska IAQ Specifications; State of Washington IAQ Specifications; UL 181, Class 1. Canada —CAN/ULC S102-M88; CAN/CGSB 51-GP-52M (facing); CAN/CGSB 51.10-92; ULC Issue 869C, Class 1.
		48" x 120" (1219 mm x 3048 mm)	Butt, Shiplap				
	1½" (38 mm)	48" x 120" (1219 mm x 3048 mm)	Butt, Shiplap	EI-800 .23 (.033)	6.5 (1.14)		
		2" (51 mm)	48" x 120" (1219 mm x 3048 mm)			Butt, Shiplap	
Eclipse™ Air Duct Board  EI-475 EI-800	1" (25 mm)		48" x 96" (1219 mm x 2438 mm)	Butt, Shiplap	Cartons, Pallets	EI-475/ EI-800 .23 (.033)	4.3 (.76)
		48" x 120" (1219 mm x 3048 mm)	Butt, Shiplap	EI-800 .23 (.033)			
	1½" (38 mm)	48" x 120" (1219 mm x 3048 mm)	Butt, Shiplap		8.7 (1.53)		
		2" (51 mm)	48" x 120" (1219 mm x 3048 mm)	Butt			
KoolDuct® System  The Knauf KoolDuct System is a complete system that includes all fabrication materials, custom tools and machinery.	7/8" (22 mm)		154¾" x 47¼" (1.2 m x 0.60 m)		Boxes, bundles, pallets	0.13 BTU in/hr²F	6.7 (1.2)
	1 3/32" (28mm)	154¾" x 47¼" (1.2 m x 0.60 m)		8.5 (1.5)			

** Mean Temperature 75°F (24°C)

Acoustical Performance									Temperature Range (ASTM C 411)	Surface Burning Characteristics	Air Velocity (UL 181)	Features and Benefits
Acoustical Insertion Loss Testing (dB10LF) (ASTM E 477)									Up to 250°F (121°C).	UL/ULC Listed; Does not exceed 25 Flame Spread, 50 Smoke Developed when tested in accordance with ASTM E 84, CAN/ULC S102-M88, NFPA 255 and UL 723.	Maximum 5000 fpm (1524 mpm) Tested to 12,500 fpm (3810 mpm)	<p>Moisture Prevention. Black Hydroshield® mat facing helps keep moisture from penetrating the airstream surface and is 20% less porous to air than coated products.</p> <p>Low Cost Installation. Fabricate in a shop environment to lower field installation time. Workers can assemble duct on-site.</p> <p>Condensation Control. Assured insulation thickness, shiplap joints and FSK vapor retarder help prevent condensation formation on ducts operating in unconditioned areas.</p> <p>Microbial Growth. Does not promote or support the growth of mold, fungi or bacteria.</p>
1/3 Octave Band Center Frequency (Hz)												
Type	63	125	250	500	1000	2000	4000	8000				
1" (25 mm) 12" x 12"	1.7	13.5	13.8	27.3	38.3	41.3	24.7	19.1				
1" (25 mm) 12" x 24"	0.6	8.9	10.2	21.0	39.0	29.7	18.9	15.7				
1 1/2" (38 mm) 12" x 12"	1.7	12.0	20.9	26.0	46.5	38.9	24.7	20.0				
1 1/2" (38 mm) 12" x 24"	1.7	8.9	15.9	25.2	45.8	28.2	19.1	16.3				
Sound Absorption Coefficients (ASTM C 423, Type A Mounting)									Up to 250°F (121°C).	UL/ULC Listed; Does not exceed 25 Flame Spread, 50 Smoke Developed when tested in accordance with ASTM E 84, CAN/ULC S102-M88, NFPA 255 and UL 723.	Maximum 5000 fpm (1524 mpm) Tested to 12,500 fpm (3810 mpm)	<p>Energy Conservation. Minimum heat loss or gain and lower operating costs due to low thermal conductivity.</p> <p>Quiet, Efficient Air Delivery. Reduces noise generated by air turbulence and mechanical equipment.</p> <p>Smooth Airstream Surface. Non-woven all-glass mat facing reduces fibers in the airstream.</p> <p>Condensation Control. Assured insulation thickness, shiplap joints and FSK vapor retarder prevent condensation on ducts operating in unconditioned areas.</p>
1/3 Octave Band Center Frequency (Cycles/Sec.)												
Type	125	250	500	1000	2000	4000	NRC					
EI-475 1" (25 mm)	.03	.25	.62	.92	1.03	.97	.70					
EI-800 1 1/2" (38 mm)	.02	.44	.96	1.17	1.16	1.12	.95					
EI-800 2" (51 mm)	.19	.64	1.08	1.13	1.06	1.06	1.00					
Sound Reduction Index (dB)									Up to 176°F (80°C).	UL (C-UL) Listed; Does not exceed 25 Flame Spread, 50 Smoke Developed when tested in accordance with ASTM E 84.	Maximum 5000 fpm (1524 mpm)	<p>Significant Installed Cost Savings. Over insulated sheet metal systems depending on the size of the ductwork and complexity of the project. Also resolves issues such as weight, space, installation time and energy performance.</p> <p>A Complete System. All fabrication materials, custom tools and machinery are supplied by Knauf Insulation, ensuring the highest quality and consistency.</p> <p>Virtually Airtight and Leak-free. The patented jointing system combined with fully sealed duct seams produce this airtight HVAC system.</p>
1/3 Octave Band Center Frequency (Hz)												
100	125	250	400	630	1000	1600	2000	2500				
8.0	10.2	11.6	12.6	15.1	15.0	17.2	19.2	20.5				

Duct Liners

		Thickness	Width	Length	Packaging	Thermal Conductance "C" (S.I.) (ASTM C 518)**	Thermal Resistance "R" (S.I.) (ASTM C 518)**	Temperature Range (ASTM C 411)
Duct Liner E•M 	1.5 PCF (24 kg/m³)	1" (25 mm)	35.5**, 46.25", 47", 47.5", 48", 56", 56.25", 56.5", 59", 59.5", 60" (902, 1175, 1194, 1207, 1219, 1422, 1428, 1435, 1499, 1511, 1524 mm)	100' (30.48 m)	Rolls	.24 (1.42)	4.2 (.74)	Up to 250°F (121°C).
		1" (25 mm)	47" (1194 mm)	50' (15.24 m)		.24 (1.42)	4.2 (.74)	
		1½" (38 mm)	47", 48" (1194, 1219 mm)	50' (15.24 m)		.17 (.97)	6.0 (1.06)	
	2.0 PCF (32 kg/m³)	2" (51 mm)	47", 48" (1194, 1219 mm)	50' (15.24 m)		.13 (.74)	8.0 (1.41)	
		½" (13 mm)	35.5**, 47", 47.5", 48", 59", 59.5" (902, 1194, 1207, 1219, 1499, 1511 mm)	100' (30.48 m)		.48 (2.73)	2.1 (.37)	
		1" (25 mm)	47.5", 48" (1207, 1219 mm)	50' (15.24 m)		.24 (1.36)	4.2 (.74)	
		1½" (38 mm)	47", 48" (1194, 1219 mm)	50' (15.24 m)		.16 (.74)	6.3 (1.11)	
Rigid Plenum Liner 	3.0 PCF (48 kg/m³)	1" (25 mm)	24", 48" (610, 1219 mm)	36", 48", 72", 96", 120" (914, 1219, 1829, 2438, 3048 mm)	Cartons	.23 (1.31)	4.3 (.76)	Up to 250°F (121°C).
		1½" (38 mm)				.15 (.85)	6.5 (1.15)	
		2" (50 mm)				.11 (.62)	8.7 (1.53)	
	*Not available with edge coating		** Mean Temperature 75°F (24°C)					

Specification Compliance	Sound Absorption Coefficients (ASTM C 423, Type A Mounting) 1/3 Octave Band Center Frequency (cycles/sec)							Surface Burning Characteristics	Air Velocity (UL 181)	Features and Benefits
	125	250	500	1000	2000	4000	NRC			
<p>U.S.—ASTM C 1071, Type I; ASTM D 5116; ASTM G 21, 22; California Title 24 (1.5 PCF, 1" and above); NFPA 90A and 90B; State of Alaska IAQ Specifications; State of Washington IAQ Specifications; GREENGUARD Environmental Institute™; SMACNA Application Standard for Duct Liners; NAIMA Fibrous Duct Liner Installation Standards.</p> <p>Canada—CAN/ULC S102-M88; CAN/CGSB 51.11-92.</p>	.18	.36	.59	.86	.95	.90	.70	<p>UL/ULC Classified; Does not exceed 25 Flame Spread, 50 Smoke Developed when tested in accordance with ASTM E 84, CAN/ULC S102-M88, NFPA 255 and UL 723.</p>	<p>Maximum 6000 fpm (1829 mpm)</p> <p>Tested to 15,000 fpm (4572 mpm)</p>	<p>Energy Conservation. Low, thermal conductivity offers excellent resistance to heat loss or gain.</p> <p>Sound Absorption. Greatly reduces fan and mechanical equipment noise.</p> <p>Durability. Fire-resistant, non-corrosive, tough and resilient. It will withstand damage from normal handling and shop adjustments.</p> <p>Microbial Growth. Does not promote or support growth of mold, fungi or bacteria.</p> <p>Cleanability. Can be cleaned if necessary, per NAIMA's guidelines.</p> <p>GREENGUARD Certified. Low emitting for IAQ performance.</p>
	.18	.36	.59	.86	.95	.90	.70			
	.35	.51	.83	.93	.97	.96	.80			
	.34	.64	.96	1.03	1.00	1.03	.90			
	.09	.14	.40	.60	.73	.82	.45			
	.25	.35	.69	.89	.96	1.01	.70			
.27	.55	.87	.99	1.00	.98	.85				
<p>U.S.—ASTM C 1071, Type II; ASTM D 5116; ASTM G 21, 22; California Title 24 (1.5 PCF, 1" and above); NFPA 90A and 90B; State of Alaska IAQ Specifications; State of Washington IAQ Specifications; GREENGUARD Environmental Institute™.</p> <p>Canada—CAN/ULC S102-M88; CAN/CGSB 51.11-92.</p>	.13	.24	.56	.83	.92	.98	.65	<p>UL/ULC Classified; Does not exceed 25 Flame Spread, 50 Smoke Developed when tested in accordance with ASTM E 84, CAN/ULC S102-M88, NFPA 255 and UL 723.</p>	<p>Maximum 5000 fpm (1524 mpm)</p> <p>Tested to 12,500 fpm (3810 mpm)</p>	<p>Energy Conservation. Low thermal conductivity offers excellent resistance to heat loss or gain.</p> <p>Sound Absorption. Greatly reduces fan and mechanical equipment noise.</p> <p>Durability. Fire-resistant, non-corrosive, tough and resilient. Will withstand abuse from normal handling and fabrication.</p> <p>GREENGUARD Certified. Low emitting for IAQ performance.</p>
	.19	.41	.89	1.02	1.03	1.04	.85			
	.33	.67	1.07	1.07	1.03	1.06	.95			

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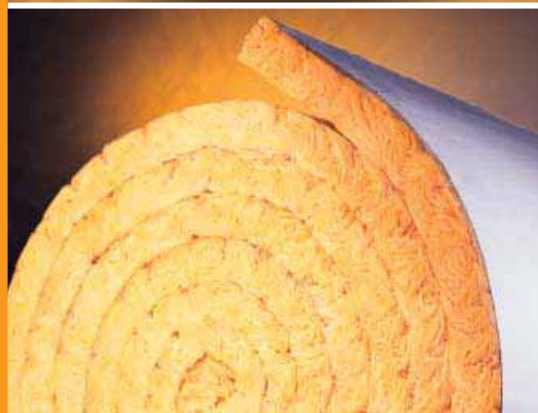
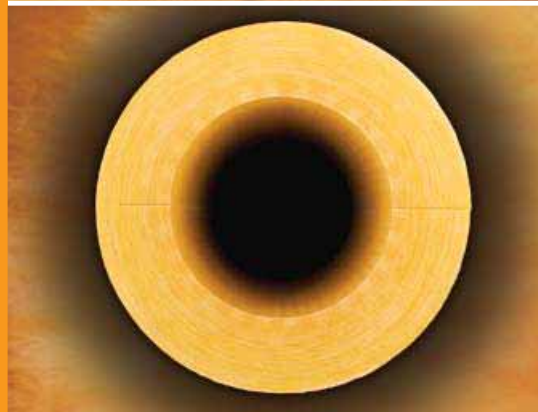
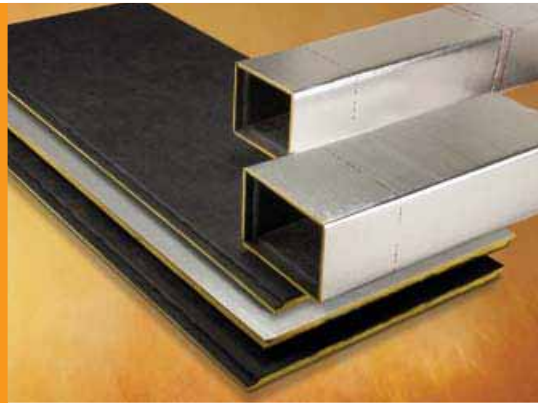
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