

Sonic XP[®] Duct Liner

with ECOSE[®] Technology





- Consistent blanket thickness and uniform fiber distribution provides efficient and hassle-free cutting and pinning on all fabrication processes.



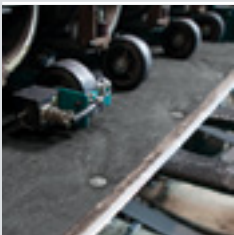
- Ultra-fast Roto Zip processing speed with Knauf Sonic XP Duct Liner.



- Stands up to abuse—Sonic XP Duct Liner's tough mat facing is durable enough to withstand shop and job site wear and tear.



- The encapsulant edge coating eliminates airstream flaring.



- The natural brown base blanket with ECOSE Technology binder has no added phenol, formaldehyde, acrylics or artificial colors.



Facts at a glance

- Excellent sound absorption reduces noise from fans, mechanical equipment, cross-talk and air movement.
- NRC rating of .70 (1.5 PCF, 1").
- More cost-effective than alternative closed cell duct liners.
- Certified for indoor air quality as a low emitting product by UL Environment.
- ECOSE Technology is a revolutionary binder based on rapidly renewable bio-based materials rather than non-renewable petroleum-based chemicals such as phenol, formaldehyde, acrylics or artificial colors.

Sonic XP[®] Duct Liner with ECOSE[®] Technology

Description

Knauf Insulation Sonic XP[®] Duct Liner with ECOSE[®] Technology is a flexible, mat-faced insulation bonded with ECOSE Technology. It is faced with a tightly bonded mat to give the airstream a smooth, tough surface, resisting damage during installation and operation. The encapsulant edge coating eliminates airstream flaring.

ECOSE Technology

ECOSE Technology is a revolutionary binder chemistry that makes Knauf Insulation products even more sustainable than ever. It features rapidly renewable bio-based materials rather than non-renewable petroleum-based chemicals traditionally used in fiber glass insulation products. ECOSE Technology reduces binder embodied energy and does not contain phenol, formaldehyde, acrylics or artificial colors.

Application

Specifically designed as an interior insulation material for sheet metal ducts used in heating, ventilating and air conditioning. Provides an optimum combination of efficient sound absorption, low thermal conductivity and minimal airstream surface friction.

Features and Benefits

- Low thermal conductivity
- Fire-resistant, non-corrosive, durable and resilient
- Tough, tightly bonded mat facing
- Excellent sound absorption
- Energy conservation
- Better temperature control
- Lowers operating costs
- Greatly reduces noise from fans and mechanical equipment as well as cross-talk and air movement
- Withstands damage from normal handling and shop abuse

- If necessary, can be cleaned in accordance with NAIMA's "Cleaning Fibrous Glass Insulated Air Duct Systems Recommended Practices."
- Knauf Insulation achieved GREENGUARD Gold Certification and is verified to be formaldehyde free. Products are certified to GREENGUARD standards for low chemical emissions into indoor air during product usage. Knauf Insulation has achieved a UL Environment claim validation for over 50% post-consumer recycled glass content in our insulation products.

Sustainability

- Carbon negative: meaning Knauf Insulation products used for thermal insulating purposes recover the energy that it took to make them in just hours or a few days, depending on the application. Once installed, the product continues to save energy and reduce carbon generation as long as it is in place.
- Fiber glass insulation with ECOSE Technology contains three primary ingredients:
 - Sand, one of the world's most abundant and renewable resources
 - A minimum 60% recycled post-consumer glass content and UL Environment verification every 6 months
 - ECOSE Technology which reduces binder embodied energy by up to 70%

Specification Compliance

In U.S.:

- ASTM C 1071; Type I
- ASTM G 21
- GREENGUARD Certified
- GREENGUARD Gold Certified and is verified to be formaldehyde free
- NFPA 90A and 90B

In Canada:

- CAN/ULC S102-M88
- CAN/CGSB-51.11-92

Technical Data

Surface Burning Characteristics

- 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

Temperature Range (ASTM C 411)

- Up to 250°F (121°C)

Air Velocity (ASTM C 1071)

- Maximum 6000 fpm (1829 mpm)
- Tested to 15,000 fpm (4572 mpm)

Corrosiveness (ASTM C 665)

- Does not accelerate corrosion on steel, copper or aluminum

Corrosion (ASTM C 1617)

- The corrosion rate in mils/yr will not exceed that of the 1 ppm chloride solution.

Water Vapor Sorption (ASTM C 1104)

- Less than 3% by weight

Water Repellency

- (INDA IST 80.6-92) ≥ 4

Microbial Growth (ASTM C 1338)

- Airstream surface mat facing is treated with an EPA-registered anti-microbial agent to aid in the prevention of fungal and bacterial growth.
- Does not promote or support the growth of mold, fungi or bacteria.

Microbial Resistance

- Using the GREENGUARD protocol, Sonic XP Duct Liner is considered to be "Resistant to Mold Growth."

Application & Specification Guidelines

Storage

- Inside storage is recommended.

Fabrication and Application

- Fabricate in compliance with the latest edition of NAIMA's Fibrous Glass Duct Liner Standard.
- Liner shall be folded and compressed in the corners of rectangular duct sections or shall be cut and fit to assure lapped, compressed joints. Longitudinal joints in duct liner should not occur except at the corner of ducts. Longitudinal



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

Type	Octave Band Center Frequency (cycles/sec.)						
	125	250	500	1000	2000	4000	NRC
1.5 PCF 1" (24 kg/m ³ 25 mm)	.18	.36	.59	.86	.95	.90	.70
1.5 PCF 1.5" (24 kg/m ³ 38 mm)	.35	.51	.83	.93	.97	.96	.80
1.5 PCF 2" (24 kg/m ³ 51 mm)	.34	.64	.96	1.03	1.00	1.03	.90
2.0 PCF .5" (32 kg/m ³ 13 mm)	.09	.14	.40	.60	.73	.82	.45
2.0 PCF 1" (32 kg/m ³ 25 mm)	.25	.35	.69	.89	.96	1.01	.70
2.0 PCF 1.5" (24 kg/m ³ 38 mm)	.27	.55	.87	.99	1.00	.98	.85

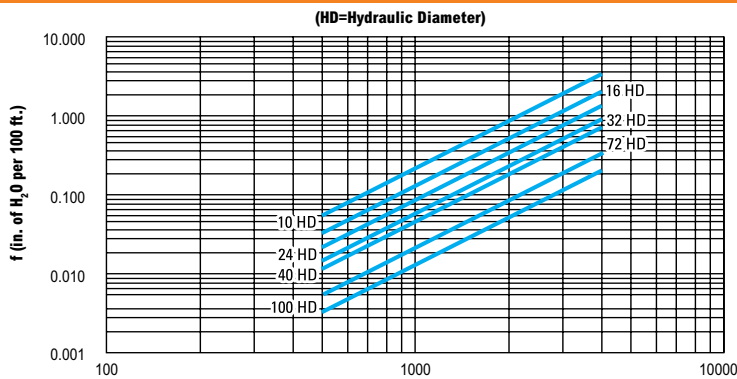
Coefficients determined per ASTM E 795 Type A Mounting.

NOTE: ASHRAE Handbook for HVAC Applications – Sound and Vibration Control contains insertion loss values for lined sheet metal ducts.

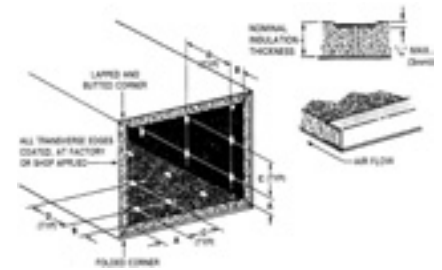
Mechanical Fastener Location

Velocity/FPM (meters/second)	0-2500 (0-12.7)	2501-5000 (12.7-25.4)
A From corners of duct	4" (102 mm)	4" (102 mm)
B From transverse of duct	3" (76 mm)	3" (76 mm)
C Across width of duct, on centers (min. 1/side)	12" (305 mm)	6" (152 mm)
D Across length of duct, on centers (min. 1/side)	18" (457 mm)	16" (406 mm)

Friction Loss (Inches of water per 100')



FPM	Hydraulic Diameter						
Velocity	10"	16"	24"	32"	40"	72"	100"
500	.054	.030	.018	.012	.009	.005	.003
600	.077	.042	.025	.018	.013	.007	.004
700	.104	.057	.034	.024	.018	.009	.006
800	.134	.074	.044	.031	.023	.011	.008
900	.169	.093	.056	.039	.029	.014	.010
1000	.207	.114	.068	.048	.036	.018	.012
2000	.806	.443	.266	.186	.141	.069	.046
3000	1.797	.988	.594	.415	.315	.153	.103
4000	3.179	1.748	1.050	.734	.557	.271	.181
5000	4.952	2.724	1.636	1.143	.867	.422	.283



Liner Interior Width

No. Pins	Inches	(mm)
0	≤ 8	≤ 203
2	9-16	229-406
3	17-28	432-711
4	29-40	737-1016
5	41-52	1041-1321
6	53-64	1346-1626
7	65-76	1651-1930
8	77-88	1956-2235
9	89-100	2261-2540

joints in liner shall be coated with adhesive. All damaged areas of the air stream surface shall be repaired with an adhesive which conforms to ASTM C 916.

- Liner should be adhered to the duct with 90% minimum area coverage of an adhesive which conforms to ASTM C 916.
- Mechanical fasteners should not compress the insulation more than 1/8" (3 mm), and shall be installed perpendicular to the duct surface. All fasteners should comply with the guidelines of NAIMA's Fibrous Glass Duct Liner Standard and the Mechanical Fastener's Standard MF-1-1975.
- Metal nosings shall be securely installed over transversely oriented liner edges facing the airstream at fan discharge, at access doors and at any interval of lined duct preceded by unlined duct. In addition, where velocities exceed 4000 fpm (1219 mpm), metal nosing shall be used on upstream edges of liner at every transverse joint (See illustration)

Limitations

- Knauf Sonic XP Duct Liner with ECOSE Technology should not be used in systems operating at velocities exceeding 6000 fpm (1829 mpm) or at temperatures above 250°F (121°C).

Fiber Glass and Mold

Fiber glass insulation will not sustain mold growth. However, mold can grow on almost any material when it becomes wet and contaminated. Carefully inspect any insulation that has been exposed to water. If it shows any sign of mold, it must be discarded. If the material is wet but shows no evidence of mold, it should be dried rapidly and thoroughly. If it shows signs of facing degradation from wetting, it should be replaced. Air handling insulation used in the air stream must be discarded if exposed to water.

Thermal Conductance "C" and Resistance "R" (ASTN C 177)

Product	Mean Temperature 75°F (24°C)	
	Conductance "C"	Resistance "R"
1.5 PCF 1" (24 kg/m ³ 25 mm)	.24 (1.42)	4.2 (.74)
1.5 PCF 1.5" (24 kg/m ³ 38 mm)	.17 (.97)	6.0 (1.06)
1.5 PCF 2" (24 kg/m ³ 51 mm)	.13 (.74)	8.0 (1.41)
2.0 PCF .5" (32 kg/m ³ 13 mm)	.48 (2.73)	2.1 (.37)
2.0 PCF 1" (32 kg/m ³ 25 mm)	.24 (1.36)	4.2 (.74)
2.0 PCF 1.5" (32 kg/m ³ 38 mm)	.16 (.91)	6.3 (1.11)

"C" Units: $\frac{\text{BTU}}{\text{ft}^2 \cdot \text{hr} \cdot ^\circ\text{F}} \left(\frac{\text{W}}{\text{m}^2 \cdot ^\circ\text{C}} \right)$ "R" Units: $\frac{\text{ft}^2 \cdot \text{hr} \cdot ^\circ\text{F}}{\text{BTU}} \left(\frac{\text{m}^2 \cdot ^\circ\text{C}}{\text{W}} \right)$

* The lower the value, the better the performance. † The higher the value, the better the performance.

Forms Available

Density	Thickness**	Width	Length
1.5 PCF	1"	34" - 36** (864 mm - 915 mm)	50' (15.24 m)
			100' (30.48 m)
			140' (42.67 m)
			200' (60.96 m)
1.5 PCF	1.5"	46" - 48" (1168 mm - 1219 mm)	50' (15.24 m)
			90' (27.43 m)
1.5 PCF	2"	56" - 72" (1422 mm - 1829 mm)	50' (15.24 m)
2.0 PCF	.5"		100' (30.48 m)
			100' (30.48 m)
2.0 PCF	1"		50' (15.24 m)
			100' (30.48 m)

*Widths of 34"-36" not available with edge coating.

**Non-standard widths for all .5", 1", 1.5", and 2" products from 34"-36", 46"-48" and 56"-72" are available in 25" (6.35 mm) increments of minimum order quantity.

For more information call (800) 825-4434, ext. 8283

or visit us online at www.knaufinsulation.us



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Notes

The chemical and physical properties of Knauf Sonic XP Duct Liner with ECOSE Technology represent typical average values determined in accordance with accepted test methods. The data is subject to normal manufacturing and testing variations. The data is supplied as a technical service and is subject to change without notice. References to numerical flame spread ratings are not intended to reflect hazards presented by these or any other materials under actual fire conditions.

When condensation is permitted to occur between nested Sonic XP Duct Liner and galvanized steel panels, discoloration of the metal may occur.

Check with your Knauf Insulation sales representative to assure information is current.



LEED Eligible Product

Use of this product may help building projects meet green building standards as set by the Leadership in Energy and Environmental Design (LEED) Green Building Rating System. MR Credit 4.1 - 4.2 Recycled Content MR Credit 5.1 - 5.2 Regional Materials



This product has been tested and is certified to meet the EUCEB requirements.



GREENGUARD Gold and Formaldehyde Free

Knauf Sonic XP[®] Duct Liner with ECOSE[®] Technology is certified by UL Environment for indoor air quality as low emitting products, have achieved GREENGUARD Gold certification and are verified to be formaldehyde free.

Post-Consumer Recycled Glass Content

Knauf Insulation has achieved a UL Environment claim validation for over 50% post-consumer recycled glass content in our insulation products.

