KNAUF

Performance+

Rigid Plenum Liner with ECOSE® Technology

Product Data Sheet *03/2025*

Description

Performance+® Rigid Plenum Liner is a heavy-density mat-faced fiberglass board insulation bonded with ECOSE Technology. Its black mat facing gives the airstream a smooth, tough surface, that resists damage during installation and operation. Airstream surface mat facing is treated with an EPA-registered anti-microbial agent to aid in the prevention of fungal and bacterial growth. It offers an optimum combination of efficient sound absorption, low thermal conductivity and minimal air surface friction.

Application

- Interior insulation material for heating, ventilating and air conditioning plenums and sheet metal ducts

Certifications

Asthma & Allergy Friendly® aafa.org/certified

VERIFIED HEALTHIER AIR

USGBC MEMBER

EUCEB

GREENGUARD GOLD

GREENGUARD

VALIDATED

CLASSIFIED UL US

Contractor: _____

Job: _____

Date: _____

Specification Compliance

U.S.
- ASTM C1071; Type II
- ASTM G21
- California Title 24
- NFPA 90A and 90B
- UL/ULC Classified

Canada
- CAN/ULC S102

Indoor Air Quality

- **Asthma & Allergy Friendly®**
- Verified Healthier Air™
- UL Environment
  - *GREENGUARD Certified*
  - *GREENGUARD Gold Certified*
  - *Validated to be Formaldehyde-Free*
- Does not contain polybrominated diphenyl ethers (PBDE) such as: Penta – BDE, Octa – BDE or Deca – BDE
- EUCEB Certified

Technical Data

Property (Unit)	Test	Performance
Corrosiveness	ASTM C665	Does not accelerate corrosion of steel
Corrosion	ASTM C1617	Pass
Maximum Air Velocity	ASTM C1071, UL 181 Erosion Test	Max. 5,000 ft./min. (25.4 m/sec.)
Maximum Service Temperature	ASTM C411	250° F (121° C), Max. thickness 3"
Mold Growth	ASTM C1338,ASTM G21	Pass
Water Vapor Sorption (by weight)	ASTM C1104	3% or less
Surface Burning Characteristics (flame spread/smoke developed)	ASTM E84, CAN/ULC S102, UL 723	UL/ULC Classified FHC 25/50

**Tested at 12,500 ft/ min per UL 181 - 2.5 times certified velocity rating*

Forms Available*

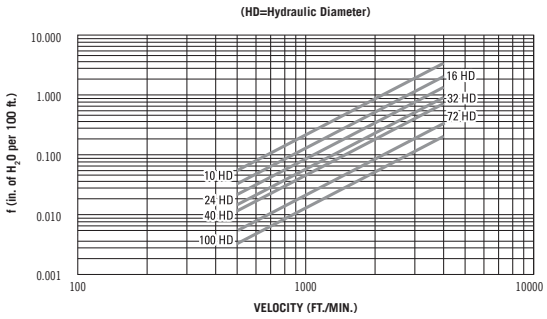
Thickness	Density	Width	Length
1"	3.0 PCF (48 kg/m³)	24" (610 mm), 48" (1219 mm)	48" (1219 mm)
1½"			96" (2438mm)
2"			36" (914 mm)
			72" (1829 mm)
			96" (2438 mm)
			120" (3048 mm)

*Consult Price Book for minimum order quantities. Pallets available on made-to-order basis.

Sound Absorption Coefficients & Noise Reduction Coefficients | ASTM C423, Type A Mounting

Octave Band Center Frequency (cycles/sec.)								
Product		125	250	500	1000	2000	4000	NRC
3.0 PCF (48 kg/m³)	1" (25 mm)	0.13	0.24	0.56	0.83	0.92	0.98	0.65
	1½" (38 mm)	0.19	0.41	0.89	1.02	1.03	1.04	0.85
	2" (51 mm)	0.33	0.67	1.07	1.07	1.03	1.06	0.95
4.25 PCF (68 kg/m³)	1" (25 mm)	0.06	0.24	0.69	0.99	1.05	1.02	0.75

Friction Loss | Inches of water per 100'



ft./min.	Hydraulic Diameter						
Velocity	10"	16"	24"	32"	40"	72"	100"
500	0.056	0.031	0.018	0.013	0.010	0.005	0.003
600	0.080	0.044	0.026	0.018	0.014	0.007	0.004
700	0.108	0.059	0.035	0.025	0.019	0.009	0.006
800	0.140	0.077	0.046	0.032	0.024	0.012	0.008
900	0.176	0.096	0.058	0.040	0.031	0.015	0.010
1000	0.216	0.118	0.071	0.050	0.038	0.018	0.012
2000	0.845	0.463	0.278	0.194	0.147	0.071	0.048
3000	1.887	1.034	0.620	0.432	0.328	0.159	0.106
4000	3.340	1.831	1.097	0.765	0.580	0.281	0.188
5000	5.206	2.854	1.710	1.193	0.904	0.438	0.293

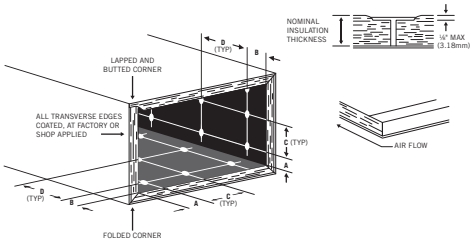
Thermal Conductivity "C"[1] and Resistance "R"[2] | ASTM C177

Mean Temperature 75° F (24° C)			
Product		Conductance "C"	Resistance "R"
3.0 PCF (48 kg/m³)	1" (25 mm)	0.23 (1.31)	4.3 (0.76)
	1½" (38 mm)	0.15 (0.85)	6.5 (1.15)
	2" (51 mm)	0.11 (0.62)	8.7 (1.53)
4.25 PCF (68 kg/m³)	1" (25 mm)	0.225 (1.56)	4.4 (0.78)
	1½" (38 mm)	0.15 (0.85)	6.6 (1.16)
	2" (51 mm)	0.11 (0.62)	8.9 (1.56)
"C Units" $\frac{BTU}{ft^2 \cdot hr \cdot °F}\left(\frac{W}{m^2 \cdot °C}\right)$		"R Units" $\frac{ft^2 \cdot hr \cdot °F}{BTU}\left(\frac{m^2 \cdot °C}{W}\right)$	

[1]The lower the value, the better the performance. [2]The higher the value, the better the performance.

Mechanical Fastener Location

Velocity per ft./min. (m/sec.)	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 end of duct liner	3" (76 mm)	3" (76 mm)
C. Across width of duct, on centers (min. 1/side)	12" (305 mm)	12" (305 mm)
D. Across length of duct, on centers (min. 1/side)	18" (457 mm)	18" (457 mm)



Application and Specification Guidelines

Storage

- Inside storage is recommended. Protect stored product from water damage or abuse. If stored outside, stack cartons on pallets and cover adequately to prevent moisture infiltration.

Fabrication and Application

- Install product in metal duct and plenums operating at 250° F (121° C) service temperature or less and velocities of 5,000 ft./min. (25.4 m/sec.) or less.
- Liner shall be applied with the treated surface facing toward the air stream.
- Mechanical fasteners shall not compress the liner more than ⅛" (3.2 mm) and shall be installed perpendicular to the airstream surface. All fasteners must meet "Standard for Mechanical Fasteners-MF-1-1975."
- Adhesives which conform to ASTM C916 shall be applied to the sheet metal with at least 90% coverage.
- All internal duct areas designated to be lined shall be completely covered with liner. Transverse joints shall be firmly butted together with no gaps, and coated with adhesive. All exposed leading edges shall be coated with adhesive.
- Mechanical fasteners shall be used to secure the Performance+ Rigid Plenum Liner and spaced in accordance with the chart and diagram on the next page.
- Corner joints shall be overlapped so no gaps are present. Top pieces shall be supported by side pieces.
- All longitudinal joints shall be coated with adhesive conforming to ASTM C916 at velocities over 2,500 ft./min. (12.7 m/sec.).
- All damaged areas to the airstream surface shall be repaired with an adhesive that conforms to ASTM C916.

Knauf Insulation, Inc.
One Knauf Drive
Shelbyville, IN 46176

Technical Support
Phone: (317)398-4434 Option 6

info.us@knaufinsulation.com

www.knaufnorthamerica.com

Fiberglass and Mold

Fiberglass 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.

Insulation used in direct contact with air streams that provide conditioning to occupied spaces must be discarded if exposed to water.

Sustainability

Knauf Insulation products with ECOSE® Technology are made using our patented, bio-based binder - a smarter alternative to the phenol/formaldehyde (PF) binder traditionally used in fiberglass products. The bio-based binder holds our product together, gives the product its unique appearance and makes it formaldehyde-free. All of our products are made from sustainable resources, such as recycled glass and sand. And we're proud to be putting glass bottles back to work rather than into landfills. Our products are made with a minimum of 50% recycled glass—totaling an average of 26 million bottles.

Notes

When condensation is permitted to occur between nested Performance+ Rigid Plenum Liner and galvanized steel panels, discoloration of the metal may occur.

Check with your Knauf Insulation Territory Manager to ensure information is current.

The chemical and physical properties of this product represent average values determined in accordance with accepted test methods. The data is subject to normal manufacturing 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.

This product is covered by one or more U.S. and/or other patents. See patent www.knaufnorthamerica.com/patents