

RIGID PLENUM LINER



Submittal Sheet

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KNAUF

"This is my insulation."™

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Knauf has regional offices throughout the U.S. and Canada. For the number of the nearest office, call (800) 825-4434.

DESCRIPTION

Knauf Rigid Plenum Liner is a heavy-density fiber glass board insulation made from inorganic glass fibers bonded by a thermosetting resin. Its base board is amber with a black top layer of fiber glass. A black polymer overspray is applied to the airstream side for a smooth, tough finish.

APPLICATION

Knauf Rigid Plenum Liner is specifically designed as an interior insulation material for heating, ventilating and air conditioning plenums and sheet metal ducts. It offers an optimum combination of efficient sound absorption, low thermal conductivity and minimal air surface friction.

FEATURES

- Low thermal conductivity.
- Fire-resistant, non-corrosive.
- Tough and resilient.

BENEFITS

- Energy conservation.
- Better temperature control.
- Lower 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."

SPECIFICATION COMPLIANCE

In U.S.:

- ASTM C 1071; Type II*
- ASTM D 5116
- ASTM G 21, G 22
- California Title 24
- NFPA 90A and 90B
- State of Alaska IAQ Specifications
- State of Washington IAQ Specifications

* Replaces HH-I-545B; Type II

In Canada:

- CAN 4-S102
- CAN/CGSB 51.11-92

TECHNICAL DATA

Surface Burning Characteristics

- UL/ULC listed.
- Does not exceed 25 Flame Spread, 50 Smoke Developed when tested in accordance with ASTM E 84, CAN 4-S102, NFPA 255 and UL 723.

Temperature Range (ASTM C 411)

- Up to 250°F (121°C).

Air Velocity (ASTM C 1071)

- Maximum 5000 fpm (1524 mpm).
- Tested to 12,500 fpm (3810 mpm).

Water Vapor Sorption (ASTM C 1104)

- Less than 3% by weight.

Microbial Growth (ASTM C 1338, G 21, G 22)

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

APPLICATION AND SPECIFICATION GUIDELINES

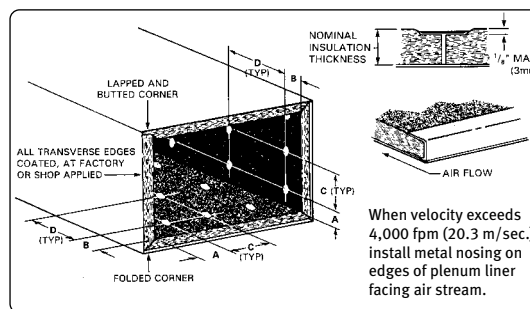
Storage

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

Fabrication and Application

- Install Knauf Rigid Plenum Liner in metal duct and plenums operating at 250°F (121°C) service temperature or less and velocities of 5,000 fpm (1524 mpm) or less.
- Liner shall be applied with the treated surface facing toward the air stream.
- Mechanical fasteners shall not compress the liner more than 1/8" (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 C 916 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 rigid plenum liner and spaced in accordance with the chart and diagram below.
- 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 C 916 at velocities over 2500 fpm (762 mpm).
- All damaged areas to the airstream surface shall be repaired with an adhesive that conforms to ASTM C 916.

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 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)



NOTES

The chemical and physical properties of Knauf Rigid Plenum Liner 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. Check with your Knauf regional office to assure information is current.

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SOUND ABSORPTION COEFFICIENTS (ASTM C 423, TYPE A MOUNTING)

1/3 Octave Band Center Frequency (cycles/sec.)

Type	125	250	500	1000	2000	4000	NRC
3.0 PCF 1" (48 kg/m ³ 25 mm)	.13	.24	.56	.83	.92	.98	.65
3.0 PCF 1.5" (48 kg/m ³ 38 mm)	.19	.41	.89	1.02	1.03	1.04	.85
3.0 PCF 2" (48 kg/m ³ 51 mm)	.33	.67	1.07	1.07	1.03	1.06	.95

STANDARD SIZES

Thickness	Width	Length
1" (25 mm)	24"(610 mm)	48" (1219 mm)
1.5" (38 mm)		
2" (51 mm)		

MADE-TO-ORDER SIZES*

Thickness	Width	Length
1" (25 mm)	24"(610 mm)	36" (914 mm), 72" (1829 mm)
1.5" (38 mm)	48" (1219 mm)	96" (2438 mm), 120" (3048 mm)
2" (51 mm)		

*Consult price sheet for minimum order quantity. Pallets available on made-to-order basis.

THERMAL CONDUCTANCE "C"¹ AND RESISTANCE "R"² (ASTM C 177)

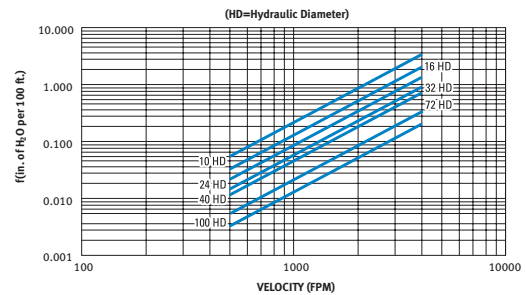
Product	Thermal Conductance "C" at 75°F (24°C) Mean Temperature	Thermal Resistance "R" at 75°F (24°C) Mean Temperature
3.0 PCF 1" (48 kg/m ³ 25 mm)	.23 (1.31)	4.3 (.76)
3.0 PCF 1.5" (48 kg/m ³ 38 mm)	.15 (.85)	6.5 (1.15)
3.0 PCF 2" (48 kg/m ³ 51 mm)	.11 (.62)	8.7 (1.53)

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

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

FRICTION LOSS (INCHES OF WATER PER 100')



FPM	Hydraulic Diameter						
Velocity	10"	16"	24"	32"	40"	72"	100"
500	.047	.026	.016	.011	.008	.004	.003
600	.066	.037	.022	.016	.012	.006	.004
700	.088	.049	.030	.021	.016	.008	.005
800	.113	.063	.038	.027	.020	.010	.007
900	.142	.079	.048	.034	.026	.013	.008
1000	.173	.096	.059	.041	.031	.015	.010
2000	.657	.366	.222	.157	.119	.059	.040
3000	1.449	.808	.491	.345	.263	.130	.087
4000	2.548	1.421	.863	.607	.463	.228	.154
5000	3.954	2.206	1.339	.943	.719	.354	.239