

K-FLEX DUCT® LINER GRAY for DUCT and AIR HANDLING UNIT (AHU) APPLICATIONS

Description:

K-FLEX DUCT® LINER GRAY is a fiber-free, flexible closed cell thermal and acoustical insulation, gray in color and supplied in continuous rolls (50' or 100') up to 2" nominal thickness and 60" width. It is supplied skin two-side with or without pressure-sensitive adhesive (PSA). The closed cell structure makes it an efficient insulation (low k-factor) and provides an inherent moisture vapor barrier. The smooth integral skin provides a surface that reduces moisture and dirt penetration, reducing the potential for bacteria and mold growth. K-Flex Duct® Liner Gray is protected with an EPA-registered anti-microbial agent. K-Flex Duct® Liner Gray is UL GREENGUARD® GOLD (formerly "Children and Schools) certified as a low VOC material, and UL Validated as Mold Resistant. K-Flex Duct® Liner Gray has been designed to provide excellent thermal and acoustical insulation characteristics while providing the performance benefits of a true closed cell liner material.

Applications:

K-FLEX DUCT® LINER GRAY can be used as a liner for ducts, air handlers and other air systems that require energy efficiency, condensation control and acoustical abatement. K-Flex Duct® Liner Gray meets the requirements of NFPA 90A and 90B for Supplementary Materials for Air Distribution Systems. It also meets the requirements of UL 181 (air erosion and mold growth). It is ideal for applications that must be fiber-free, cleanable, low-emitting, mold resistant and damage resistant. K-Flex Duct® Liner Gray provides the best sound absorption (NRC) performance of any elastomeric closed cell foam insulation.

Installation:

All surfaces must be clean, dry, and free of dirt, grease, oil, and cleaning residues. Denatured alcohol or non-residue containing water-based cleaners are recommended for preparation of metal surfaces. The surface to be insulated should be between 40°F (4°C) and 100°F (38°C) at the time of installation. K-Flex Duct® Liner Gray can be installed with a variety of fastening methods, depending on the application, the environment, project requirements and shop preference. K-Flex® Contact Adhesives (solvent or water based), factory-applied PSA, spray contact adhesives or hot melt adhesives can be used to secure the insulation to the metal surface. In all cases, it is recommended that the insulation be cut slightly oversized to fit the application. K-Flex USA recommends mechanical attachment following SMACNA Guidelines. Acceptable adhesives are listed in technical bulletin TA14.

Using S2S Sheet / Rolls:

K-Flex Duct® Liner Gray may be cut with a well-sharpened knife, electric shears, water jet or rotary blade cutting equipment. Smooth straight edges are required to assure full contact with mating sheets when bonded together. The top and bottom sections should be cut to the full width of the duct plus 1/8 inch. The sides should be cut to 1/8 inch wider than the space between the top and bottom sections. Pieces should never be cut undersized or stretched to join mating pieces since stretching may cause joint separation, resulting in reduced insulation efficiency and possible condensation. Brush, roll or spray a thin, even coat of an Approved Contact Adhesive onto the insulation surface and on the metal surface to be insulated**. Allow the adhesive films to become dry to the touch, but tacky, before joining surfaces. Press the sheet to the surface, taking care not to trap any air. Press firmly. The use of a roller is recommended. Butt joints should be compression fit to prevent opening of the seams. Gluing of butt seams is optional. Mechanically fasten and apply nosing per SMACNA guidelines.

Using Sheet / Rolls with PSA:

For many new and retrofit duct liner and AHU applications, the preferred installation method is factory-applied PSA with mechanical fastening and nosing per SMACNA guidelines. Butt joints require the use of compression joints with optional contact adhesive to prevent the possible opening of seams. See [K-Flex Duct® Liner Gray Installation Guidelines \(CSI formatted\)](#) for more detailed installation instructions.

Warning: Proper surface preparation and fastening of the insulation to the duct wall are critical. The specific application and the environment surrounding the duct must be taken into consideration. Pressure sensitive adhesives are susceptible to loss of bond strength at elevated temperatures (>200°F). See technical bulletin TA46 for Substrate Preparation.

Improper installation may result in insulation separation from the duct or AHU and result in damage to the HVAC system.

** Some contact adhesives develop acceptable bond with application to the sheet metal only.



TECHNICAL BULLETIN

TA4

FEATURES

Integral Anti-Microbial Agent
 Closed-cell structure
 Non-wicking
 Smooth Integral Skin
 Tough Skin Surface
 Fiber-free / non-dusting
 Flexible / easy to cut
 Uniform thickness
 UL GREENGUARD® Gold certified low-emitting (VOC's)
 UL Validated Mold Resistant

BENEFITS

Highly resistant to mold, bacteria and algae growth
 No need for vapor barrier, facing, edge treatment
 Low moisture pick up, maintains insulation value
 Smooth surface reduces dirt accumulation, friction loss
 Cleanable surface, resists tearing
 No dust mask or PPE required, non-itching
 Easy to fabricate, no special tools needed
 Consistent R value/does not compact over time
 Available in rolls to 60" width with optional PSA
 Non-friable, not a mechanical irritant

K-Flex Duct® Liner Gray offers a low cost installation, with assured condensation control, energy conservation, cleanability and acoustical properties to reduce noise generated by mechanical equipment, air turbulence or sheet metal contraction and expansion. It improves indoor air quality (IAQ) by eliminating the potential source for moisture pickup, which is a required element for the growth of bacteria, mold and fungus.

Physical Properties	Description	Test Methods
Temperature Range	-40°F to 220°F (S2S) / 200°F (PSA)	
Thermal Conductivity (k)	0.25 at 75°F (24°C) mean temp.	ASTM C177 / C518
R Value at nominal 1" thickness	4.2	
Water Vapor Transmission	0.06 perm-in.	ASTM E96
Water Absorption	Less than 0.2% by volume	ASTM C209
Surface Burning Characteristics	25/50 for nominal 2" and below	ASTM E84
Microbial Growth	Does not support growth - UL Validated Mold Resistant	ASTM G22 / G21 UL 181, ASTM C1338 ASTM D6329 / UL 2824
Air Erosion Resistance	Does not break away, flake off or show evidence of delamination at velocities of 10,000 ft. /min.	ASTM C1071 UL 181
Corrosiveness	Non-corrosive	ph 7.0 +/- 0.5
Odor Emissions	No objectionable odors	ASTM C1304
Temperature Resistance	Pass 250°F (120°C)	ASTM C411
Low VOC content	UL GREENGUARD GOLD Certified	GREENGUARD Protocol ASTM D5116

ACOUSTICAL PROPERTIES

Sound Absorption Coefficient at Frequency ASTM C 423, Type A Mounting:

Thickness	Sabins/Sq. Ft.						NRC
	125Hz	250Hz	500Hz	1000Hz	2000Hz	4000Hz	
1/2" (12mm)	0.01	0.03	0.06	0.13	0.33	0.23	0.15
1" (25mm)	0.06	0.17	1.06	0.32	0.67	0.54	0.55
2" (50mm)	0.23	0.84	0.32	0.60	0.39	0.31	0.55

Sound Transmission Class (STC), ASTM E90 @ 1" Thickness: 12 insulation only, 27 adhered to 22 gauge sheet metal.



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