K-FLEX® LS SEAM-SEAL

Flexible closed cell elastomeric pipe insulation
Available in 3- and 6-foot lengths
Designed for the professional contractor

TUBE SEAM-SEAL

DESCRIPTION

K-FLEX® LS SEAM-SEAL is an environmentally friendly, CFC-free, flexible elastomeric insulation. It is pre-slit with a factory-applied pressure sensitive adhesive applied to both seam surfaces.

It is black in color and is available up to 1" wall thickness and 4" IPS. K-FLEX® LS SEAM-SEAL key physical properties are approved through supervision by Factory Mutual Research Corporation.

K-FLEX® LS SEAM-SEAL is non-porous, fiber-free and resists mold growth. An EPA-registered antimicrobial agent is incorporated into the product to provide additional protection against mold, fungal and bacterial growth.

K-FLEX® LS SEAM-SEAL is GREENGUARD® certified as a low VOC material, meeting the requirements of the "Children & Schools" and "Indoor Air Quality" classifications.

APPLICATIONS

K-FLEX® LS SEAM-SEAL is used to retard heat flow and prevent condensation on refrigerant lines, cold water plumbing, roof drains and chilled water systems. K-FLEX® LS SEAM-SEAL is recommended for applications ranging from -70˚F to 200˚F (-57˚C to 93˚C) for both new and existing applications and can be used with heat tracing/heat tapes. For best results, store and install K-FLEX® LS SEAM-SEAL at temperatures above 40˚F (4˚C).

INSTALLATION

K-FLEX® LS SEAM-SEAL is designed for quick and for easy installation: slip on the tube, pull built-in release liners, pinch it shut and apply pressure to the seams. **The seam should be positioned on the bottom of the pipe.** See Technical Bulletin for installation instructions in cold temperatures.

All butt joints must be sealed with an approved contact adhesive. Fittings are fabricated from miter-cut tubular sections of K-FLEX® LS TUBE, and covers, flanges, etc from K-FLEX® LS SHEET. **K-Fit® factory fabricated fittings are also available.**

K-FLEX® LS SEAM-SEAL's closure system is designed to save labor costs, particularly on straight runs. It greatly reduces the use of contact adhesives, allowing for improved working conditions and compliance with OSHA requirements.

OUTDOOR APPLICATIONS

K-FLEX® LS SEAM-SEAL is made from a UV resistant elastomeric blend. For moderate UV exposure applications, no additional protection is needed. However, for severe UV exposure applications (rooftop applications) or where optimum performance is required, K-Flex® 374 Protective Coating, appropraite jacketing or K-Flex Clad® AL or WT should be used. *For more detailed information refer to the Installation Guidelines.*

FEATURES & BENEFITS

- Faster installation
- Easier handling (3-foot lengths)
- Ideal for straight runs
- Less use of contact adhesives

RESISTANCE TO MOISTURE VAPOR FLOW

The closed cell structure and unique formulation of K-FLEX® LS SEAM-SEAL effectively retards the flow of moisture vapor, and is considered a low transmittance vapor retarder. For most indoor applications, K-FLEX® LS SEAM-SEAL needs no additional protection.

Additional vapor barrier protection may be necessary for K-FLEX® LS SEAM-SEAL when installed on low temperature surfaces that are exposed to continuous high humidity.

FLAME AND SMOKE RATING

K-FLEX® LS SEAM-SEAL in wall thicknesses up to 1" (25 mm) has a flame spread rating of 25 or less and a smoke development rating of 50 or less as tested by ASTM E 84, "Surface Burning Characteristics of Building Materials."

K-FLEX® LS SEAM-SEAL is acceptable for use in duct/plenum applications meeting the requirements of NFPA 90A/B.

Numerical flammability ratings alone may not define the performance of products under actual fire conditions. They are provided only for use in the selection of products to meet limits specified, when compared to a known standard.

SPECIFICATION COMPLIANCE

ASTM C 534 Type 1 (Tubing), Grade 1
ASTM D 1056-00-2C1
New York City MEA 186-86-M Vol. IV

USDA Compliant

RoHS Compliant

UL 94-5V Flammability Classification (Recognition No. E300774)
ASTM E 84 1" 25/50-tested according to UL 723 and NFPA 255

Complies with requirements of CAN/ULC S102-M88

FMRC Approval Guide Chapter 14 Pipe Insulation

Meets requirements of NFPA 90A Sect. 2.3.3 for Supplementary Materials for Air Distribution Systems and ASTM C 411 (Test Method for Hot Surface Performance of High Temperature Thermal Insulation)

Meets requirements of UL 181 sections 11.0 and 16.0 (Mold Growth/Air Erosion)

Meets residential and non-residential requirements for California Energy Commission Building Energy Efficient Standards Title 24

GREENGUARD certified under "Children & Schools" and "Indoor Air Quality" classifications

K-FLEX® LS SEAM-SEAL
PRODUCT DATA

Physical Properties

Temperature Range	-70˚F to +200˚F (-57˚C to 93˚C)		ASTM C 411
Color	Black		
Thermal Conductivity	0.25 BTU-in/hr-ft²-˚F	75˚F Mean temp (24˚C)	ASTM C 177 ASTM C 518
Water vapor permeability	<0.06 perm-in		ASTM E 96
Water absorption %	<0.20 by volume		ASTM C 209
Resistance to oil & greases	Good		
Density	3 pcf to 6 pcf		ASTM D 1622 ASTM D 3575
Resistance to U.V. & weather	Good[1]		

Odor	Negligible		
Ozone resistance	Good		ASTM D 1171
% closed cells	>90		
Dimensional Stability	<4.0	@ 220˚F (104˚C)	ASTM C 534
Flame Spread (up to 1-1/2" wall)	Not greater than 25		ASTM E 84
Smoke Developed (up to 1-1/2" wall)	Not greater than 50		ASTM E 84
Flexibility	Excellent		
Mildew/Air Erosion	Pass		UL 181

1 Outdoor applications should be protected with K-Flex® 374 Protective Coating (2 or more coats may be required), jacketing or K-Flex Clad® WT or AL applied to the recommended thickness.

Thickness Recommendations* - To Control Condensation

Pipe Size	Line Temp 50°F	10°C	Line Temp 35°F	2°C	Line Temp 0°F	-18°C	Line Temp -20°F	-29°C
Normal Conditions (Max 85°F, 29°C - 70% R.H.)								
3/8" I.D. thru 1-3/8" I.D.	3/8"	10 mm	1/2"	13 mm	3/4"	19 mm	1"	25 mm
Over 1-3/8" thru 3" IPS	3/8"	10 mm	1/2"	13 mm	1"	25 mm	1"	25 mm
Over 3" IPS thru 4" IPS	1/2"	13 mm	1/2"	13 mm	1"	25 mm	1-1/4"	32 mm
Over 4" IPS	1/2"	13 mm	3/4"	19 mm	1"	25 mm	1-1/4"	32 mm
Mild Conditions (Max 80°F, 26°C - 50% R.H.)								
3/8" I.D. thru 2-1/8" I.D.	3/8"	10 mm	3/8"	10 mm	1/2"	13 mm	1/2"	13 mm
Over 2-1/8" thru 3" IPS	3/8"	10 mm	3/8"	10 mm	1/2"	13 mm	3/4"	19 mm
Over 3" IPS thru 4" IPS	1/2"	13 mm	1/2"	13 mm	3/4"	19 mm	3/4"	19 mm
Over 4" IPS	1/2"	13 mm	1/2"	13 mm	3/4"	19 mm	3/4"	19 mm
Severe Conditions (Max 90°F, 32°C - 80% RH)								
3/8" I.D. thru 1-1/8" I.D.	3/4"	19 mm	3/4"	19 mm	1-1/4"	32 mm	1-1/4"	32 mm
Over 1-1/8" I.D. thru 4" IPS	3/4"	19 mm	1"	25 mm	1-1/2"	38 mm	1-1/2"	38 mm

**K-FLEX® LS in thickness noted within the specified temperature ranges will prevent condensation on indoor piping under design conditions defined below.*
Thickness recommendations above 1" can be sleeved to achieve thickness desired.
***Normal:** Maximum severity of indoor conditions seldom exceed 85°F (29°C) and 70% R.H. in United States.*
***Mild:** Typical conditions are most air-conditioned spaces and arid climates.*
***Severe:** Generally found in areas where excessive moisture is introduced or in poorly ventilated areas where the temperature may be depressed below the ambient.*
Under conditions of higher humidity, additional thickness of insulation may be required.

NOTE: Thickness recommendations calculated using 0.2575 K-factor (0.25 plus 3% test error allowance)

Pipe "R" Values

Pipe O.D. or Nominal Insulation I.D.		R Value 3/8" (10 mm) Wall	R Value 1/2" (13 mm) Wall	R Value 3/4" (19 mm) Wall	R Value 1" (25 mm) Wall
3/8"	10 mm	2.6	3.5	5.5	——
1/2"	13 mm	2.5	3.3	5.2	——
5/8"	16 mm	2.4	3.2	5.3	7.4
3/4"	19 mm	2.3	3.0	5.3	7.3
7/8"	22 mm	2.2	3.1	5.3	7.0
1-1/8"	29 mm	2.3	3.1	5.5	7.1
1-3/8"	35 mm	2.1	3.1	5.2	7.2
1-5/8"	41 mm	2.5	3.1	5.2	7.1
1-1/2" IPS	48 mm	2.4	3.0	5.0	6.7
2-1/8"	54 mm	2.5	3.2	5.0	6.8
2" IPS	60 mm	2.5	3.1	4.9	6.6
2-1/2" IPS	64 mm	2.5	3.2	4.8	6.4
2-5/8"	67 mm	2.4	3.2	4.8	6.5
3-1/8"	79 mm	2.3	3.1	4.6	6.2
3" IPS	89 mm	2.4	3.3	4.7	6.2
3-5/8"	92 mm	2.3	3.2	4.6	6.0
4-1/8"	105 mm	2.3	3.1	4.6	5.9
4" IPS	114 mm	2.3	3.2	4.6	5.9

Note: "R" factors were calculated using a K factor of 0.2575 (0.25 plus 3% test error allowance at 75°F, 24°C mean temp.) and nominal wall thickness is each case.
Lower operating temperatures will result in improved R values. Contact Technical Services for specific recommendations.

K-FLEX USA
INNOVATION IN INSULATION

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