

K-FLEX™ LS 3-FOOT SELF-SEAL

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

DESCRIPTION

K-FLEX™ LS SELF-SEAL pipe insulation is an environmentally friendly, CFC-free, flexible, elastomeric insulation. It is black in color and identified as K-FLEX™ LS 3-FOOT SELF-SEAL. This superior closed-cell insulation is designed to retard heat flow and prevent condensation when properly installed. K-FLEX™ LS SELF-SEAL pipe insulation is pre-slit with a factory-applied specially formulated, long-lasting bonding adhesive applied to both seam surfaces. This insulation comes with convenient built-in release liners which allow for easy installation. It is available in wall thicknesses of 1/2" and 1" and in sizes ranging from 3/8" - 2 5/8". K-FLEX™ LS SELF-SEAL's key physical properties are approved through supervision by Factory Mutual Research Corporation. It is non-porous, non-fibrous and resistant to mold growth. K-FLEX™ LS closed cell structure inherently resists mold growth. The Bio-Guard™ antimicrobial system provides added protection against mold, fungal and bacterial growth. The active ingredient in Bio-Guard™ is registered with the EPA.

K-Flex USA elastomeric insulation products are GREENGUARD **certified** as low VOC materials, meeting the requirements of the "Children and Schools" classification, the most stringent requirements. Additionally, all K-Flex USA elastomeric insulation products are GREENGUARD **listed** for mold resistance and meet the "mold resistant" criteria.

APPLICATIONS

K-FLEX™ LS SELF-SEAL has the same excellent insulation properties as standard K-FLEX™ LS and is used on similar applications such as refrigerant lines, cold water plumbing, roof drains and chilled water systems. It is ideal for straight runs, speeding up installation time. K-FLEX™ LS SELF-SEAL is recommended for applications ranging from -70°F to 200°F (-57°C to 93°C) for both new and existing applications. For best results, store and install K-FLEX™ LS SELF-SEAL at temperatures above 40°F (4°C).

K-FLEX™ LS SELF-SEAL's closure system is designed to save labor costs, particularly on straight runs. It greatly reduces the use of contact adhesives, thus allowing for improved working conditions and compliance with OSHA requirements. K-FLEX™ LS SELF-SEAL can be used with heat tracing/heat tapes.

INSTALLATION

K-FLEX™ LS SELF-SEAL is pre-slit with factory-applied adhesive (PSA) on both seam surfaces. Convenient built-in tabs ease installation: slip the tube on the pipe, pull the tab to expose the adhesive, and pinch the sides together applying pressure to the seam. The seam should be positioned to be on the bottom of the pipe.

All butt joints must be sealed with an approved contact adhesive. Fittings are fabricated from miter-cut tubular sections or from K-FLEX™ LS SHEET.

OUTDOOR APPLICATIONS

K-FLEX™ LS SELF-SEAL pipe insulation 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



UL 94
(Recognition No. E147665)

UV resistant Refer to K-Flex USA L.L.C. Technical Bulletin
(Outdoor Applications) for More Information

Protected by the
Bio-Guard™ System



is required, 374 Protective Coating or appropriate jacketing or cladding should be used. For more detailed information refer to the *Installation Guidelines*.

FEATURES & BENEFITS

K-FLEX LS SELF-SEAL in 3-foot lengths offers the advantage of easier handling and installation.

- Easy-to-handle stackable box
- Easier to seal in hard-to-reach areas
- Enhanced safety - avoids overreaching when working from scaffolding or ladders

These advantages are particularly evident when working at high elevations.

RESISTANCE TO MOISTURE VAPOR FLOW

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

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

FLAME AND SMOKE RATING

K-FLEX™ LS 3-Foot Self-Seal pipe insulation (in wall thicknesses of 1/2" (12 mm), 1" (25 mm) and 1-1/2" (38 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 Method of Testing entitled: "Surface Burning Characteristics of Building Materials." K-FLEX™ LS SELF-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 Requirements

UL 94-5V Flammability Classification (Recognition No. E300774)

ASTM E 84 1-1/2" 25/50-tested according to UL 723 and NFPA 255

Complies with requirements of CAN/ULC S102-03

FMRC 2006 Approval Guide Chapter 14 Pipe Insulation

Meets requirements of NFPA 90A Sect. 2.3.3 for Supplementary Materials for Air Distribution Systems

Meets requirements of 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)

Made in USA

K-FLEX™ LS 3 FOOT SELF-SEAL

PRODUCT DATA

Physical Properties

Temperature Range/Tubes	-70°F to +200°F (-40°C to 93°C)	ASTM C 411	Odor	Negligible
Color	Black		Ozone resistance	Good
Thermal Conductivity	75°F Mean temp (24°C) 0.25 BTU-in/hr-ft ² -°F	ASTM C 177 ASTM C 518	% closed cells	>90
Water vapor permeability	<0.06 perm-in	ASTM E 96	Dimensional Stability	<4.0 @ 220°F (104°C) ASTM C 534
Water absorption %	<0.20 by volume	ASTM C 209	Flame Spread (up to 1-1/2" wall)	Not greater than 25 ASTM E 84
Resistance to oil & greases	Good		Smoke Developed (up to 1-1/2" wall)	Not greater than 50 ASTM E 84
Density	3 pcf to 6 pcf	ASTM D 1622 ASTM D 3575	Flexibility	Excellent
Resistance to U.V. & weather	Good ¹			

¹ Outdoor applications should be protected with an approved K-Flex coating applied to the recommended thickness. Two or more coats may be required. Various jacketing and cladding systems are also acceptable.

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.	1/2"	13 mm	1/2"	13 mm	1"	25 mm	1"	25 mm
Over 1-3/8" thru 3" IPS	1/2"	13 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	1"	25 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.	1/2"	13 mm	1/2"	13 mm	1/2"	13 mm	1/2"	13 mm
Over 2-1/8" thru 3" IPS	1/2"	13 mm	1/2"	13 mm	1/2"	13 mm	1"	25 mm
Over 3" IPS thru 4" IPS	1/2"	13 mm	1/2"	13 mm	1"	25 mm	1"	25 mm
Over 4" IPS	1/2"	13 mm	1/2"	13 mm	1"	25 mm	1"	25 mm
Severe Conditions (Max 90°F, 32°C - 80% RH)								
3/8" I.D. thru 1-1/8" I.D.	1"	25 mm	3/4"	19 mm	1-1/4"	32 mm	1-1/4"	32 mm
Over 1-1/8" I.D. thru 4" IPS	1"	25 mm	1"	25 mm	1-1/2"	38 mm	1-1/2"	38 mm
Over 4" IPS	1"	25 mm	1"	25 mm	1-3/4"	44 mm	2"	50 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 1/2" (13 mm) Wall	R Value 1" (25 mm) Wall
3/8"	10 mm	3.3	—
1/2"	13 mm	3.1	—
5/8"	16 mm	3.0	7.2
3/4"	19 mm	3.0	7.2
7/8"	22 mm	3.0	7.0
1-1/8"	29 mm	2.9	6.6
1-3/8"	35 mm	2.9	6.8
1-5/8"	41 mm	2.9	6.6
1-1/2" IPS	48 mm	2.7	6.3
2-1/8"	54 mm	2.8	6.1
2" IPS	60 mm	2.7	6.0
2-1/2" IPS	64 mm	2.8	5.9
2-5/8"	67 mm	2.7	5.8

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.



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