K-FIT®

Closed Cell Flexible Elastomeric Foam Insulation Factory-Fabricated Fittings

DESCRIPTION

K-FIT® fittings are factory-fabricated fittings made from NBR/PVC-based closed cell, flexible elastomeric foam insulation. They are produced under controlled conditions using an automated process to ensure uniformity, good fit and water-tight seams. They are environmentally-friendly as they are free of CFCs, HFCs, HCFCs, PBDEs, formaldehyde and fibers. An EPA-registered antimicrobial agent is incorporated into the product providing additional protection against mold, fungal and bacterial growth. They are UL GREENGUARD® Gold Certified for low VOC emissions. The products are made in K-FLEX USA's ISO 9001:2008-certified manufacturing facility in North Carolina.

AVAILABILITY

K-FIT® fittings are available in elbow (45s and 90s), tee and p-trap form in wall thicknesses of 1/2" up to 2" in diameter sizes ranging from 3/8" I.D. to 6" IPS. (ID range is subject to variation depending on wall thickness). They are also available as Grooved fittings. For pipes greater than 4" IPS, grooved fittings are butterfly design. For pipes 4" IPS and below, grooved fittings are mitered.

APPLICATIONS

K-FIT® fittings are recommended for applications with service temperatures ranging from -297°F (-182°C) to +220°F (+104°C). For applications below -40°F (-40°C), contact K-FLEX technical support. The products are used to retard heat gain and prevent condensation or frost formation on below-ambient applications, including refrigerant, cold water plumbing, chilled water, and industrial process lines, among others. They can be used with heat tracing tapes. They also retard heat loss from medium hot systems, including hot water plumbing, liquid heating, dual temperature, and solar thermal piping, among others.

OUTDOOR APPLICATIONS

K-FIT® fittings are made from a UV-resistant elastomeric blend. For low-to-moderate UV exposure (residential applications), no additional protection is needed. For severe UV exposure (rooftop applications) or for optimum performance, K-FLEX® 374 Protective Coating, approved jacketing or K-FLEX Clad® is recommended.

INSTALLATION

K-FIT® fittings are flexible (even at low temperatures), durable (non-fracturing and skin is resistant to tearing from handling and environment), safe to handle (non-dusting and non-abrasive), and lightweight for an efficient installation.

K-FLEX recommends that insulation is installed on non-operational systems with clean, dry surfaces in ambient conditions between 40°F and 100°F. For best installation results, fittings should be installed prior to straight run insulation. Properly sized fittings can be installed by slitting the fitting (using a sharp, non-serrated knife) and applying contact adhesive to the longitudinal seam of both surfaces. Once the adhesive becomes tacky, the fitting can be placed over the pipe and pressure applied to the seam. Straight pipe insulation can then be installed. with butt joints adhered to those of the fitting. All seams, butt joints, termination points and open ends should be sealed with an approved contact adhesive, making sure both surfaces to be joined are coated.

ASTM C1710, *Installation Guide for Flexible Closed Cell Foams*, and the *K-FLEX Installation Manual* should be used as comprehensive installation guides.

K-FIT® P-Traps are specifically designed to fit Mueller Industries Suction Line P-Traps. K-FLEX USA will not warrant the fit of its K-FIT® P-Trap for any other manufacturer's suction line P-Trap.

RESISTANCE TO MOISTURE VAPOR FLOW

The expanded closed cell structure and unique formulation inherently resists moisture vapor intrusion. For most indoor applications, K-FIT® needs no additional protection. Additional vapor barrier protection may be necessary when installed on cold surfaces that are exposed to continuous high humidity.

FLAME AND SMOKE RATING

K-FIT® in wall thicknesses of 2" (50 mm) and below has a flame spread rating of 25 or less and a smoke development rating of 50 or less as tested to ASTM E84, "Surface Burning Characteristics of Building Materials". It is acceptable for 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.

Technical Data referenced in this document pertains to K-Fit® fittings made from K-FLEX® NBR/PVC-based black elastomeric insulation. For technical information for K-FIT® White and K-FIT® ECO, please see respective product sheets as availability, technical properties, specification compliance, and installation recommendations are subject to change.

SPECIFICATION COMPLIANCE

- ASTM C534 Type 1, Grade 1
- ASTM D1056-00-2B1
- New York City MEA 186-86-M Vol. V
- USDA Compliant
- CFIA Compliant
- RoHS Compliant
- ASTM E84 25/50-rated (to 2") - tested to UL 723, NFPA 255 and CAN/ULC S102-03
- NFPA No. 101 Class A Rating
- NFPA 90A, 90B
- Meets requirements of California ECB Title 24
- UL GREENGUARD® Gold Certified
- Meets energy code requirements of ASHRAE 90.1 and 189.1

PHYSICAL PROPERTIES		K-FIT®	TEST METHODS
Main Composition		Flame-retarded NBR/PVC-based elastomeric foam	
Thermal Conductivity (K) Btu-in/hr-Ft²-°F (W/mK)	90°F (32°C) Mean Temp 75°F (24°C) Mean Temp 32°F (0°C) Mean Temp	0.258 (0.0372) 0.245 (0.0353) 0.235 (0.0339)	ASTM C177
Density		3-6 lb/ft³	ASTM D1667
Operating Temperature Range		-297°F* (-183°C) TO +220°F (104°C)	ASTM C534
Water Vapor Permeability (Dry Cup)		<0.01 perm-in	ASTM E96
Water Absorption (Volume Change)		0%	ASTM C209
Flame Spread / Smoke Development (up to 2" wall)		<25/50	ASTM E84
Dimensional Stability		<7% Linear Shrinkage	ASTM C534
Hot Surface Performance (220°F)		No Cracking or Delamination	ASTM C411
Ozone Resistance		Pass	ASTM D1171
Odor Emissions		No Objectionable Odor	ASTM C1304
Chemical/Solvent/Oil/Grease Resistance		Good	Compatibility Data Available on Request
Flexibility		Excellent Pass: Cold Crack Test at -40°F (-40°C)	ASTM C534 ASTM D1056
Mildew Growth Resistance/Air Erosion		Pass	UL 181, ASTM G21
Corrosion Risk		pH neutral: 6.6±0.04	DIN 1988
Leachable Chlorides		<0.05% water-soluble chloride ions	DIN 1988
UV / Weather Resistance[1]		Pass	QUV Chamber Test
Sound Transmission Class (1")		13	ASTM E90

Technical Data based on K-FLEX black NBR/PVC-based elastomeric insulation. For technical information for K-FIT® White and K-FIT® ECO, please see respective product sheets.
*For applications below -40°F (-40°C), contact K-FLEX technical support.
[1] Outdoor applications should be protected with an approved K-FLEX® coating or cladding.

THICKNESS RECOMMENDATIONS (TO PREVENT CONDENSATION)

SERVICE TEMPERATURE	50°F (10°C)			35°F (2°C)			0°F (-18°C)			-20°F (-29°C)		
Pipe Size	**Mild**	**Normal**	**Severe**	**Mild**	**Normal**	**Severe**	**Mild**	**Normal**	**Severe**	**Mild**	**Normal**	**Severe**
3/8" ID to 1-1/8" ID	3/8"	3/8"	3/4"	3/8"	1/2"	3/4"	1/2"	3/4"	1-1/2"	1/2"	1"	1-1/2"
1-3/8" ID to 3" IPS	3/8"	3/8"	3/4"	3/8"	3/4"	1"	1/2"	1"	1-1/2"	3/4"	1-1/2"	1-1/2"
4" IPS to 6" IPS	1/2"	1/2"	3/4"	1/2"	3/4"	1"	3/4"	1"	2"	3/4"	1-1/2"	2"

Thickness listed for the specified ranges will prevent condensation on indoor piping under the defined design conditions. Normal: 85°F and 70% R.H. Mild: Most air conditioned spaces and arid climates: 80°F and 50% R.H. Severe: Areas where excessive moisture is introduced or in poorly ventilated areas where the temperature may be depressed below the ambient: 90°F and 80% R.H. Contact K-FLEX technical support for additional information.

PIPE "R" VALUES PER SQUARE FOOT (ALL SIZES ARE NOMINAL)

NOMINAL INSULATION I.D.	1/2" WALL	3/4" WALL	1" WALL	1-1/2" WALL	2" WALL
3/8"	3.6	5.6	8.5	14.6	20.4
1/2"	3.4	5.4	7.9	13.5	18.9
5/8"	3.3	5.4	7.5	12.8	17.8
3/4"	3.1	5.4	7.5	12.4	16.8
7/8"	3.2	5.4	7.2	11.6	16.1
1-1/8"	3.1	5.5	7.1	10.8	15.8
1-3/8"	3.2	5.3	7.3	10.2	14.9
1-5/8"	3.1	5.1	7.1	9.8	14.6
1-1/2" IPS	2.6	4.4	6.2	8.9	13.8
2-1/8"	3.0	4.9	6.6	9.2	13.6
2" IPS	2.9	4.8	6.5	9.0	13.3
2-1/2" IPS	3.0	4.6	6.3	8.6	12.6
2-5/8"	3.1	4.7	6.4	8.8	12.9
3-1/8"	3.0	4.6	6.2	8.5	12.4
3" IPS	3.2	4.6	6.1	8.3	12.2
3-5/8"	3.2	4.6	6.1	8.3	12.1
4-1/8"	3.1	4.6	6.0	8.1	11.7
4" IPS	3.2	4.6	5.5	8.0	11.6
5" IPS	3.0	4.5	5.7	7.7	11.1
6" IPS	3.0	4.4	5.6	7.5	10.9

K-FLEX USA
INNOVATION IN INSULATION

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