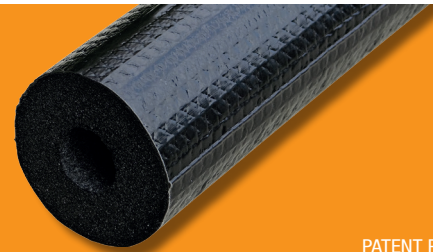


## K-FLEX ▶ TITAN™

### K-FLEX TITAN™

CLOSED-CELL, FLEXIBLE, ELASTOMERIC FOAM INSULATION WITH A FLEXIBLE CO-EXTRUDED JACKETING



PATENT PENDING

#### DESCRIPTION ▶

K-FLEX TITAN™ is a flexible co-extruded jacketed composite material that can be applied to either K-FLEX® NBR/PVC or EPDM (TITAN™ HT) tubular insulation. It is a polymeric jacketed material that offers excellent flexibility, abrasion and weather resistance, making it ideal for outdoor applications. The product is made in K-FLEX USA's ISO 9001 certified manufacturing facility, in North Carolina.

#### AVAILABILITY ▶

K-FLEX TITAN™ is black in color and is available in ½", ¾" and 1" wall thicknesses, non-slit, 6' length tube form. It is available in diameter sizes ranging from ½" I.D. to 2-7/8", 2-3/8", and 1-5/8", respective to the aforementioned wall thicknesses.

#### APPLICATION ▶

K-FLEX TITAN™ can be used for outdoor applications with service temperatures ranging from -70 °F to +300 °F. The applications would be consistent with those recommended for K-FLEX Insul-Tube or K-FLEX HT tubing. The product is used to enhance the weather and abuse resistance of the insulation tubing. K-FLEX TITAN™ is ideal for use on HVAC linesets and flex hose applications. K-FLEX TITAN™ HT (EPDM) is ideal for use on heat pumps and solar hot water heating where higher service temperatures are expected (300 °F).

#### OUTDOOR APPLICATION ▶

K-FLEX TITAN™ provides excellent UV resistance and protection from weather. K-FLEX TITAN™'s proprietary copolymer blend jacket provides excellent protection from mechanical abuse, including incidental impact from lawn equipment such as weed wackers (plastic string type).

#### INSTALLATIONS ▶

K-FLEX TITAN™ is durable (non-fracturing) and the skin is resistant to tearing from handling and the environment, safe to handle (nondusting and non-abrasive), and lightweight for an efficient installation. It is very flexible and easily conforms to bends. Its low modulus allows it to be pushed back for easy installation of fittings.

K-FLEX recommends that insulation is installed on non-operational systems with clean, dry surfaces in ambient conditions between 40 °F and 100 °F.

Properly sized insulation tubing can be slid over piping (tubing should be pushed, not pulled). 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. Vapor stops should be installed as needed. K-FLEX TITAN™ may be slit longitudinally for retrofit applications. ASTM C1710, Installation Guide for Flexible Closed Cell Foams, and the K-FLEX Installation Manual should be used as comprehensive installation guides.

#### RESISTANCE TO MOISTURE VAPOR FLOW ▶

The expanded closed-cell structure and unique formulation inherently resists moisture vapor intrusion. K-FLEX TITAN™ needs no additional protection.

#### SPECIFICATION COMPLIANCE

- 2012 IECC
  - Section R403.3.1 (residential)
  - Section C403.2.8 (commercial)
- 2015 IECC
  - Section R403.4.1 (residential)
  - Section R403.2.10.1 (commercial)
- 2013 California Energy Code, Part 6
  - Subchapter 3, Section 120.3
- ASTM E84 25/50-rated (to 1")

Made in USA



The K-FLEX USA website contains the most recent version of all K-FLEX USA literature. Please refer to the website for current versions of K-FLEX USA literature at [www.kflexusa.com](http://www.kflexusa.com)



TECHNICAL DATA ▶

| PHYSICAL PROPERTIES                     |                       | K-FLEX TITANTM™ (NBR/PVC)   | K-FLEX TITANTM™ HT (EPDM)  | TEST METHODS |
|---|-----------------------|---|--|--------------|
| Main Composition                        |                       | Flame-retarded NBR/PVC elastomeric foam with proprietary copolymer blend jacket | Flame-retarded EPDM elastomeric foam with proprietary copolymer blend jacket | -            |
| Thermal Conductivity (Btu-in/hr-Ft²-°F) | 75°F (24°C) Mean Temp | 0.245   | 0.263  | ASTM C177    |
| Density                                 |                       | 3-6 lb/ft³  | 3-6 lb/ft³   | ASTM D1667   |
| Operating Temperature Range             |                       | -70°F* (-57°C) to +220°F (+104°C)   | -70°F* (-57°C) to +300°F (+150°C)  | ASTM C534    |
| Water Vapor Permeability (Dry Cup)      | (Core Material Only)  | <0.01 perm-in   | 0.2 perm-in  | ASTM E96     |
| Dimensional Stability                   |                       | <7% Linear Shrinkage  | <7% Linear Shrinkage   | ASTM C534    |
| Corrosion Risk                          |                       | pH neutral  | pH neutral   | DIN 1988     |
| UV Resistance (Artificial Aging)        | (Jacket Material)     | Pass: No Changes to Surface Condition   | Pass: No Changes to Surface Condition  | ASTM G153    |
| Flammability                            |                       | 25/50 (up to 1")  | 25/50 (up to 1")   | ASTM E84     |

\*For applications below -40°F (-40°C), contact K-FLEX technical support.

| THICKNESS RECOMMENDATIONS |                         |             |  |
|---------------------------|-------------------------|-------------|--|
| SERVICE TEMPERATURE       | To Prevent Condensation |             | For Energy Conservation (ASHRAE 90.1-2010) |
|                           | -20°F (-29°C)           | 50°F (10°C) | 105°F - 139°F (40°C - 59°C)                |
| 3/8" ID to 1-1/2" IPS     | 1"                      | 1/2"        | 1"   |
| 1-1/2" IPS to 2-7/8" IPS  | 1"                      | 1/2"        | 1"   |

Thickness listed for the specified ranges will prevent condensation on indoor piping under the defined design conditions. Normal: 85°F and 70% R.H.

| PIPE "R" VALUES PER SQUARE FOOT (ALL SIZES ARE NOMINAL) |            |     |            |     |            |     |
|---|------------|-----|------------|-----|------------|-----|
| NOMINAL INSULATION I.D.                                 | 1/2" WALL  |     | 3/4" WALL  |     | 1" WALL    |     |
|   | Insul-Tube | HT  | Insul-Tube | HT  | Insul-Tube | HT  |
| 1/2"  | 3.4        | 3.1 | 5.4        | 5.0 | 7.9        | 7.4 |
| 5/8"  | 3.3        | 3.1 | 5.4        | 5.1 | 7.5        | 7.0 |
| 3/4"  | 3.1        | 2.9 | 5.4        | 5.0 | 7.5        | 7.0 |
| 7/8"  | 3.2        | 3.0 | 5.4        | 5.1 | 7.2        | 6.7 |
| 1-1/8"  | 3.1        | 2.9 | 5.5        | 5.1 | 7.1        | 6.6 |
| 1-3/8"  | 3.2        | 2.9 | 5.3        | 4.9 | 7.3        | 6.8 |
| 1-5/8"  | 3.1        | 2.9 | 5.1        | 4.8 | 7.1        | 6.6 |
| 1-1/2" IPS  | 2.6        | 2.8 | 4.4        | 4.6 |            |     |
| 2-1/8"  | 3.0        | 2.8 | 4.9        | 4.5 |            |     |
| 2" IPS  | 2.9        | 2.7 | 4.8        | 4.5 |            |     |
| 2-1/2" IPS  | 3.0        | 2.8 |            |     |            |     |
| 2-5/8"  | 3.1        | 2.9 |            |     |            |     |

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