K-FLEX CLAD® WT

Multi-Layer Laminate Protective Jacketing Factory-Adhered to Closed Cell FEF Insulation

DESCRIPTION

K-FLEX CLAD® WT is a composite product comprised of a multi-ply laminate jacketing (PVC backing and aluminum foil coated with a white protective polyester film) that is factory-adhered to an NBR/PVC-based closed cell, flexible elastomeric foam insulation. It is environmentally-friendly as it is free of CFCs, HFCs, HCFCs, PBDEs, formaldehyde and fibers. An EPA-registered antimicrobial agent is incorporated into the insulation providing additional protection against mold, fungal and bacterial growth. The system is certified by NSF International (Standard 169, "Special Purpose Food Equipment and Devices") for food prep or washdown areas and is UL GREENGUARD® Gold Certified for low VOC emissions. The product is made in K-FLEX USA's ISO 9001:2008-certified manufacturing facility in North Carolina.

AVAILABILITY

K-FLEX CLAD® WT is white in color and is available in 1/2" to 2" wall thickness in pre-slit/pre-glued or non-slit (K-FLEX CLAD® WT NS), 3' length tube form in diameter sizes ranging from 1/2" I.D. to 4" IPS (ID range is subject to variation depending on wall thickness), as well as sheet (3' x 4') and roll (4' wide) form with or without PSA. Molded PVC covers are available for fittings. Jacketing is also available in roll form for use on all insulation types.

APPLICATIONS

K-FLEX CLAD® WT is recommended for applications with service temperatures ranging from -40°F (-40°C) to +220°F (+104°C). When the product is installed fully adhered to the insulated surface (via contact adhesive or PSA), the high temperature limit is +200°F (+93°C). K-FLEX CLAD® WT is ideal for applications with specialized exposed surface requirements (supermarkets / food processing / pharmaceutical / film processing / electronics / clean room facilities) as it has antistatic properties and is resistant to UV, weather, dirt, oxidation, staining and a broad range of chemicals, salts and oils. The product is used to retard heat gain and prevent condensation or frost formation on below-ambient applications, including refrigerant and chilled water lines, among others. It can be used with heat tracing tapes. It also retards heat loss from medium hot systems.

INSTALLATION

K-FLEX CLAD® WT is durable (resistant to punctures, dents and tearing), safe to handle (non-dusting and free of sharp edges), and lightweight for an efficient installation. Factory-jacketed insulation is designed to provide installed cost savings over traditional jacket systems. It requires little to no maintenance and allows for removal and reapplication for pipe inspection. The jacket can be cleaned with a cloth free of detergents and can be painted for aesthetic purposes using a paint suitable for painting furniture, such as Rust-Oleum® plastic spray paint. 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 cold weather installations, it is critical that sufficient pressure levels be applied for proper seam sealing. For properly sized factory-jacketed pre-slit/pre-glued tubes, slip the tube on the pipe, pull the built-in release liner, pinch the tube shut, apply pressure at the seams, and apply the overlap seam using pressure. K-FLEX® Rivets and K-FLEX CLAD® WT Tape are included and should be applied along the longitudinal seam during installation. All butt joints, termination points and open ends should be sealed with an approved contact adhesive, making sure both surfaces to be joined are coated. Longitudinal seams should face downward and vapor stops should be installed as needed. K-Fit® factory-fabricated fittings, K-FLEX CLAD® WT Molded Elbow / Tee Covers (sealed via K-FLEX® 120 Adhesive and white stainless steel tacks), and K-FLEX CLAD® WT Tape for sealing butt joints and covering edges complete the installation. Special parts (flanges, valves, etc.) can be field-fabricated from insulation tubes / sheets and jacketing, which is flexible and easily cut with a sharp, non-serrated knife. Properly sized factory-jacketed insulation sheets are recommended for use on flat surfaces, using either factory-applied adhesive or 100% coverage on both surfaces of an approved contact adhesive. For large diameter round applications (duct or pipe), jacketing should be field-applied to the insulation for optimum performance against expansion-contraction from process and ambient temperature fluctuations. For applications subject to heavy moisture, K-FLEX recommends caulking seams. The *K-FLEX Installation Manual* should be used as a comprehensive installation guide.

PROTECTION AGAINST CUI

K-FLEX CLAD® WT's low permeance jacket provides a secondary moisture vapor and gas barrier to the inherently moisture-resistant closed cell foam core, which is considered a Class 1 vapor retarder per ASHRAE. The installed system is 100% sealable with moisture-tight seams, has a high emissivity value, and is resistant to puncture. Factory-jacketed tubes have a unique overlap closure system to eliminate moisture penetration through seams.

FLAME AND SMOKE RATING

K-FLEX Clad® WT 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".

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 is based on K-FLEX black NBR/PVC-based elastomeric insulation. For technical information on other K-FLEX® FEF substrates and other insulation material types, contact K-FLEX Technical Support.

SPECIFICATION COMPLIANCE

- ASTM C534 Type 1 & 2, Grade 1
- USDA Compliant
- RoHS Compliant
- ASTM E84 25/50-rated - tested to UL 723, NFPA 255 and CAN/ULC S102-03
- UL 94-5V Flammability Classification (#E300774)
- UL GREENGUARD® Gold Certified
- Meets energy code requirements of ASHRAE 90.1 and 189.1
- NSF/ANSI Standard 169

PHYSICAL PROPERTIES	K-FLEX CLAD® WT JACKET	TEST METHODS
Main Composition	Multi-ply laminate (PVC backing and aluminum foil coated with a white polyester film)	
Thickness	0.012"	
Weight	0.1 lb/ft^2	
Flame Spread / Smoke Development	<25/50	ASTM E84
Water Vapor Permeance	0.001 perms	ASTM E96
Water Resistance	Pass: No Unforced Delamination	ASTM C1775
UV Resistance	Excellent (Sunlight & Rain / Dew) UV Stability: >10 years Artificial Aging: >2000 hours (320 MJ/m^2) Solar Radiation: >3,600,000 kJ/m^2	ASTM G53 Internal Weatherometer Test EN 13859-1
Corrosion Risk	Protects against corrosion under insulation: 100% sealable, high emissivity, resistant to moisture vapor intrusion, puncture and tear	
Chemical Resistance	Resistant to Acids (Acetic, 50% Formic, 10% hydrochloric, 35%hydrofluoric, 10% nitric, 85% phosphoric), Aldehydes (acetaldehyde, formaldehyde), Alcohols (cyclohexanol, ethyl, glycerine, glycol, isopropyl, methyl), Esters (ethyl acetate), Hydrocarbons (aliphatic, benzene, petroleum, mineral oil, toluene, xylene), Acetone, Ether, Salt Solutions (bichromates, cyanides, fluorides). Partial resistance to Alkaline solutions, Chlorinate solvents, and select Alcohols and Acids. Additional Compatibility Data Available On Request.	
Fungi / Bacteria Resistance	Excellent	ASTM G21
Impact / Puncture Resistance	No Failure: 20mm diameter punch from 1 kg mass 100 N	UNI EN 12691 prEN 14 477
Emissivity	0.80	ASTM C1371
Tensile Strength	90 lbf/in	ASTM D828
Burst Strength	230 psi	ASTM D774
Dimensional Stability	-1% (length change)	ASTM D1204
Surface Temperature Exposure	Pass: No Cracks or Delamination (-20°F to +150°F)	ASTM C1263
Peel Adhesion (180° peel)	>46 oz/in	ASTM D3330
Color	White	
	K-FLEX® SELF-SEAL INSULATION	
Main Composition	Flame-retarded NBR/PVC-based elastomeric foam	
Thermal Conductivity (K) Btu-in/hr-Ft^2-°F (W/mK)	90°F (32°C) Mean Temp: 0.258 (0.0372) 75°F (24°C) Mean Temp: 0.245 (0.0353) 32°F (0°C) Mean Temp: 0.235 (0.0339)	ASTM C177
Density	3-5 lb/ft^3	ASTM D1667
Operating Temperature Range	-40°F (-40°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
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	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
Sound Transmission Class (1")	13	ASTM E90
	COMPOSITE SYSTEM	
Water Vapor Permeability	0.001 perm-in	ASTM E96
Water Vapor Permeance at Taped Seam	<0.004 perms	ASTM E96
	K-FLEX CLAD® WT MOLDED ELBOW / TEE COVERS	
Main Composition	Heavy-gauge PVC specially sized to fit over elastomeric insulation fittings	
Thickness	0.03"	
Flame Spread / Smoke Development	<25/50	ASTM E84
Water Vapor Permeance	0.027 perms	ASTM E96
Puncture Resistance	221 Beach Units	ASTM D871
	K-FLEX® 120 ADHESIVE (SEALANT FOR CLAD® WT MOLDED ELBOW / TEE COVERS)	
Main Composition	One-part, solvent-free (non-flammable) elastomeric adhesive sealant formulated from a silane-terminated polymer	
Properties: VOC - 10 g/L (<4%) / Tack Free Time - 75 minutes / Cure Rate - 50% after 24 hours, 90% after 48 hours / Tensile Strength - 300 psi / Modulus - 150 psi / Elongation - 400% / Solids - 98% / Adhesion-in-Peel - 29 / Flash Point - 392°F / Extrusion Rate - 250 g/min / Packaging - 10 oz plastic tube (covers ~50 fittings) / Shelf Life - 12 months		

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K-FLEX USA
INNOVATION IN INSULATION

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KFDS-0043-0914