

## DESCRIPTION

Johns Manville Zeston® 2000 Series Color standard gauge PVC fitting covers are manufactured from high-impact, polyvinyl chloride material designed to provide abuse-resistant protection for insulated piping. The one piece color fittings are available with or without Hi-Lo® Temp Formaldehyde-free fiber glass inserts. Our wide range of products and accessories enable the contractor to design, fabricate and install a complete system with a quality finished appearance.

## AVAILABLE SHAPES AND SIZES

**Fitting Covers.** Zeston 2000 Series PVC Color fittings are available for the following: 45° and 90° (0.8 and 1.6 rad.) short and long radius elbows, FE (fabricated elbow) fittings, tees and valves, flanges, reducers, end caps, soil pipe hubs, traps and mechanical groove-type fittings.

## COMPANION ZESTON COLOR JACKETING

**Jacketing.** Zeston PVC Color Cut & Curled jacketing is available in thicknesses of 20 or 30 mil (0.5 mm or 0.8 mm). It is available in factory-cut sizes to fit up to 30" (762 mm) O.D. All sections of Zeston PVC Color Cut & Curled jacketing are 48" (1219 mm) in length and are factory curled to the insulation size to fit snugly.

## APPLICATIONS

Zeston 2000 Series PVC Color fitting covers are ideally suited for indoor use on chilled water, hot water, steam and other piping systems in commercial, institutional, and industrial applications. When combined with Zeston PVC Color jacketing and solvent welding adhesive or Z-tape, 2000 Series Color PVC fitting covers form a completely sealed system that may be used for chilled water applications. The Zeston PVC Color system of fittings and jacketing provide easy identification for different pipe systems. All Zeston Color fittings and jacketing are not recommended for outdoor application.

## QUALIFICATIONS FOR USE

### General

- Install the appropriate Hi-Lo Temp fiber glass insert by wrapping it completely around the pipe fitting without overly compressing it or leaving any voids. Ensure that the insulation insert covers all exposed surfaces. The Zeston PVC fitting cover should then be installed over the pipe fitting and fiber glass insert by securing the throat using either serrated tacks, Perma-Weld adhesive or Zeston Z-Tape.

### Hot Systems

- Use proper insulation thickness to ensure PVC covers are kept below 150°F (66°C)
- PVC covers should be kept away from contact with and/or exposure to sources of direct or radiated heat
- For fittings where operating temperatures exceed 250°F (121°C) or where pipe insulation thickness is greater than 1½" (38mm), two or more layers of Hi-Lo Temp insulation inserts are required beneath the fitting cover (refer to MECH-261 Zeston Hi-Lo Temp Inserts)



### Operating Temperature Limits:

**PVC:** Up to 150°F (66°C)

**Insert:** 0°F to 450°F (-18°C to +232°C)

### Cold Systems

- An approved vapor-barrier compatible with PVC must be applied between pipe insulation and fitting cover and on fitting cover throat overlap seal. Please refer to Insulspec MECH-261 on jm.com
- For fittings where operating temperature is below 45°F (7°C) or where the pipe insulation thickness is greater than 1½" (38mm), two or more layers of Hi-Lo Temp insulation inserts are required beneath fitting cover (refer to MECH-261 Zeston Hi-Lo Temp Inserts)

### Refrigerant Systems and Cold Systems In Severe Ambient Conditioning

- Mitered pipe insulation segments, fabricated or pre-molded insulation shapes may be used in lieu of Hi-Lo temp insulation inserts
- An intermediate vapor-barrier compatible with PVC is required to completely seal the insulation prior to installing the Zeston 2000 PVC fitting cover
- Care should be taken to ensure the vapor barrier mastic is applied between the pipe insulation and the fitting cover and on the fitting cover throat overlap seam

### Totally Sealed Systems (USDA Approval)

- 20 or 30 mil (0.5 mm or 0.8mm) Zeston PVC jacketing should be applied to pipe insulation in conjunction with Zeston PVC fitting covers
- Circumferential and longitudinal jacket and fitting cover seams should be sealed with Zeston Perma-Weld solvent welding adhesive
- Circumferential seams should be a minimum of 1" (25mm) overlap and longitudinal seams should be 1½" - 2" (38mm to 51mm) overlap
- Upon completion, all seams should visually be checked for seal and, if necessary, touched up
- Slip joints are periodically required between fixed supports and on continuous long runs of straight piping
- To implement a slip joint, increase the circumferential overlap to 8" to 10" (203 mm to 254 mm) and apply a flexible white caulking in the overlap area to maintain a sealed system
- Refer to Zeston installation instructions CI-35 at www.jm.com

MECHANICAL INSULATION  
**ZESTON® 2000 SERIES COLOR PVC**  
 INSULATED FITTING COVERS AND JACKETING

**PHYSICAL PROPERTIES**

Property	Value	ASTM Test Method
Specific Gravity	1.48	D792
Tensile Strength at Yield, psi (kPa)	6,000 (41370)	D638
Elongation at Yield (MD), %	3.0	D638
Tensile Modulus, psi (kPa)	425,000 (2,930,270)	D638
Flexural Strength, psi (kPa)	11,000 (75,850)	D638 0.125" (min. 0.125" [3 mm] thick specimen)
Flexural Modulus, psi (kPa)	430,000 (2,964,750)	D790
Electrical Conductance	Non-Conductor	D257
Flame Spread	25 or less	*ASTM E84
Smoke Developed	50 or less	*ASTM E84
Gardner - SPI Impact, in. lb/mil by Ductile Failure	20 mil (0.5 mm) 1.5 30 mil (0.8 mm) 1.6	D3679 (4 lb. [1.8 kg] weight; 8 lb. [3.6 kg] for 30 mil [0.8 mm])

Note: Chemical resistance data available on request.

\* Standard test method for surface burning characteristics of building materials

**GENERAL PROPERTIES OF HI-LO TEMP FORMALDEHYDE-FREE™  
 FIBER GLASS INSULATION INSERT**

Compressed Thermal Conductivity	Mean Temperature		"k"	
	°F	°C	Btu•in/(hr•ft²•°F)	W/m•°C
	75	24	0.23	0.033
	150	66	0.27	0.039
	300	149	0.4	0.058
Temperature Limits	0°F to 450°F (-18°C to +232°C)			
Sanitary	Odorless. Will not absorb odors. Provides no food for insects or rodents; will not mildew.			
Vibration Resistant	Will not settle or separate.			
Fire Safety	Meets most requirements of federal, state and local codes. Accepted for commercial, institutional, industrial and residential projects in all parts of U.S. The fiber glass inserts have E84 25/50 rating and are noncombustible per ASTM E136.			

## SPECIFICATION COMPLIANCE

USDA, Agriculture Canada  
New York City MEA #7-87  
ICBO  
SBCCI  
BOCA  
ASTM D1784, Class 16354-C  
L-P-535E,\* Composition A, Type II, Grade GU  
L-P-1035A,\* Composition A, Type II, Grade GU  
Canada: CGSB 51-GP-53M  
CAN/ULC S 102.2

\* Impact strength determined by Gardner-SPI test method rather than Izod, since Gardner is more appropriate for PVC sheeting materials.

## AVAILABLE COLORS



717 17th St.  
Denver, CO 80202  
(800) 654-3103  
JM.com

### NORTH AMERICAN SALES OFFICES, INSULATION SYSTEMS

**Eastern Region**  
P.O. Box 158  
Defiance, OH 43512  
(800) 334-2399  
Fax: (419) 784-7866

**Western Region and Canada**  
P.O. Box 5108  
Denver, CO 80217  
(800) 368-4431  
CI-67 04/25/19 (Replaces 08/11) Fax:  
(303) 978-4661

Technical specifications as shown in this literature are intended to be used as general guidelines only. Please refer to the Safety Data Sheet and product label prior to using this product. The physical and chemical properties of the product listed herein represent typical, average values obtained in accordance with accepted test methods and are subject to normal manufacturing variations. They are supplied as a technical service and are subject to change without notice. Any references to numerical flame spread or smoke developed ratings are not intended to reflect hazards presented by these or any other materials under actual fire conditions. Check with the Regional Sales Office nearest you for current information.

**All Johns Manville products are sold subject to Johns Manville's standard Terms and Conditions, which includes a Limited Warranty and Limitation of Remedy. For a copy of the Johns Manville standard Terms and Conditions or for information on other Johns Manville thermal insulation and systems, visit [www.jm.com/terms-conditions](http://www.jm.com/terms-conditions) or call (800)654-3103.**

## DESCRIPTION

Zeston® Hi-Lo Temp fiberglass insulation inserts are flexible, pre-cut inserts for PVC pipe fittings. They are sized for each specific PVC fitting and are a lower-cost alternative to preformed or fabricated insulated elbows. The inserts are designed to meet the thermal requirements of ASTM C553 and ASHRAE 90.1.

Zeston Hi-Lo Temp Insulation Inserts are manufactured from rotary-process fiberglass bonded with a Formaldehyde-free™ resin. They are cut to size to be used in conjunction with JM's Zeston PVC fittings. Zeston Hi-Lo Temp Insulation Inserts are flexible, odorless, and vibration resistant. They can save time and labor during installation and are designed to meet corresponding pipe insulation thermal value. The Zeston Hi-Lo Temp Insulation Inserts are made with a formaldehyde-free binder; however, all bonded fibrous insulation products made with formaldehyde-free binders will result in some formaldehyde emissions at temperatures that exceed 450°F.

## USES

Zeston Hi-Lo Temp Insulation Inserts are used to insulate PVC fittings in operating temps between 0°F-850°F/-18°C-454°C. JM recommends installing one (1) Zeston Hi-Lo Temp Insulation Insert for every 1" of corresponding pipe insulation thickness. The insulation insert may emit minimal smoke and odor during the initial exposure to elevated temperatures. Keep the area well-ventilated during the initial heat-up.

## PHYSICAL PROPERTIES

- 2" thick 1.0 PCF density
- Formaldehyde-free™ binder
- Insulation is a white, light-weight, highly resilient, blanket-type thermal insulation manufactured from rotary process fiber glass
- Inserts are tabbed on sizes 2-10 and cut all the way through for large-size fitting inserts, to accommodate easy separation and resist tearing
- Service Temp. Range (ASTM C411) 0°F - 850°F/-18°C - 454°C
- Corrosivity (ASTM 1617) Pass
- Limited Combustibility <3500 BTU/LB
- Microbial Growth (ASTM C1338) Pass
- Moisture Sorption <5% by weight
- pH 7.5 - 12
- Surface Burning Characteristics (ASTM E84) ≤ 25/50 (flame/smoke)
- Uncompressed Insulation thickness/density 2" Thick/1 PCF Density



## COMPRESSED THERMAL CONDUCTIVITY

Mean Temperature		K	
°F	°C	BTU • in/(hr • ft <sup>2</sup> • °F)	W/m•°C
75	24	.23	.033
150	66	.27	.039
300	149	.40	.058

## SPECIFICATION COMPLIANCE

ASTM C553  
 ASHRAE 90.1  
 ASTM E84 25/50 rating  
 NRC 1.36, ASTM C795, MIL-DTL-24244\*

\*Before ordering material to comply with these specifications, a statement of the fact must appear on the purchase order. Specific lot testing will be conducted and a certification of compliance can be provided.

## SUSTAINABLE BUILDING ATTRIBUTES

Recycled Content: 20%



717 17th St.  
 Denver, CO 80202  
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 JM.com

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