



Pipe and Equipment Insulations



Zeston[®]
PVC Insulated Fitting Covers
Installation Instructions for Hot, Cold and USDA Piping Systems

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The Zeston PVC/Perma-Weld® pipe jacketing system consists of Zeston PVC fitting covers, Zeston PVC jacketing (20 and 30 mil [0.5 and 0.8 mm] material only) and Zeston Perma-Weld solvent welding adhesive.

The Zeston/Perma-Weld protective jacketing system meets USDA requirements for piping systems in meat and poultry processing facilities.

It also meets FDA standards for other food processing, beverage and pharmaceutical facilities. In these and related applications, the Zeston PVC/Perma-Weld system resists contaminant infiltration and withstands repeated washdowns while providing a clean, finished appearance over bare or insulated pipe.

Qualifications for Use

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.

The following sequence describes the installation of Zeston PVC jacketing and fitting covers with Perma-Weld solvent welding adhesive.



1. Position the Zeston PVC fitting cover over the insulated fitting.

Installation Instructions for Cold Systems



1. Zeston PVC insulated fitting covers are quickly installed over ells, tees, valves and other pipe fittings. Combined with Micro-Lok® HP jacketed pipe insulation, they provide a complete, color-coordinated system.



2. Position, tuck, and fold the fiber glass insulation insert as described below in steps 2 and 3 for hot systems.



3. Apply a vapor barrier mastic around the edges of the adjoining pipe insulation.

Installation Instructions for Hot Systems



1. Zeston PVC insulated fitting covers are quickly installed over ells, tees, valves, and other pipe fittings. Combined with Micro-Lok® HP jacketed pipe insulation, they provide a complete, color-coordinated system.



2. Place the pre-cut fiber glass insert around the fitting, positioning the points of the insert on the inside radius of the elbow. For applications with temperatures below 45°F (7°C) or above 250°F (121°C), additional layers of insulation may be required.* In such cases, the first layer is secured by wrapping with fiber glass yarn.



3. Butt the ends of the fiber glass insert against the ends of the pipe covering. Tuck and fold the insulation so that it covers all bare surfaces. Keep the fiber glass fluffed up to the thickness of the adjacent pipe insulation to assure maximum thermal efficiency.



2. Using a standard applicator gun or squeeze bottle, apply a bead of Perma-Weld adhesive along the throat overlap of the fitting cover. Snap the fitting cover into place and secure with elastic cord or PVC tape. Always feather the adhesive along the seam.



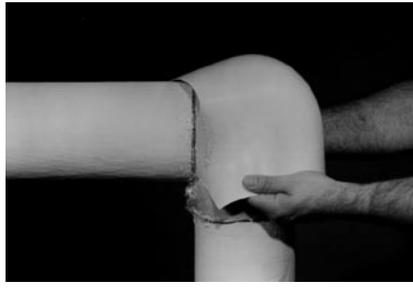
3. After the fitting cover has cured at least 10 minutes, run a bead of adhesive along its circumferential edge. Overlap the fitting cover (by approximately 1" [25 mm]) with a section of Zeston PVC jacketing and secure the circumferential joint with an elastic cord. The cord may be removed after approximately 10 minutes.



4. Overlap the jacketing on itself (approximately 1½" to 2" [38 mm to 51 mm]) and apply a bead of adhesive along the entire length of the longitudinal lap. Place elastic cords or PVC tape around the jacketing.



4. Apply the mastic along the inside of the fitting cover throat overlap seam. Pressure-sensitive Z-Tape or serrated tacks may also be used.



5. Place the fitting cover over the insulation, lapping the mastic-covered edge over the other side of the throat seam.



6. Apply Z-Tape over the circumferential joints. The tape should extend over the adjacent pipe insulation and overlap itself by at least 2" (51 mm) on the downward side of the lap. The tape provides securement, an attractive appearance, and completes the vapor seal.



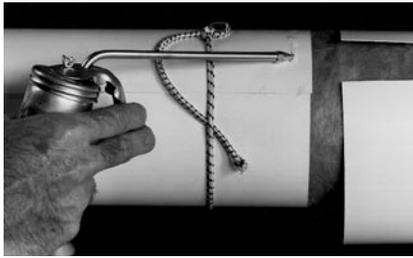
4. Insert two stainless steel serrated tacks approximately ¼" (6 mm) from one of the lap edges of the fitting cover. Then snap the cover in place over the fiber glass insulation.



5. After the fitting cover is in position, push the tacks into the overlapping throat seam. No further fastening is required.



6. As an option, apply color-matched, pressure-sensitive Z-Tape to the butt joints for a more attractive appearance.



5. Additional jacketing sections are applied in the following manner: run a bead of adhesive around the circumferential edge of the most recently installed section. Position the jacketing and bond the circumferential and longitudinal laps as in step #4. When finished, visually check the entire installation. If necessary, use the adhesive to touch up seams, paying particular attention to points where seams were covered by elastic cords or PVC tape. Complete curing of the Perma-Weld adhesive takes approximately 8 to 10 hours.

Adhesive Coverage

Approximately 1 quart (0.95 liters) of adhesive is required to seal 100 linear feet (30.5 m) of fitting covers and pipe jacketing.

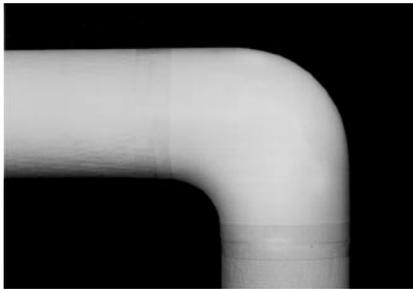
Note

On high-temperature installations, slip-joints should be used to compensate for the thermal expansion and contraction of the piping system. Slip-joints can be formed by increasing the overlap between jacket sections. Apply white flexible caulking to slip-joints to maintain a sealed system.

WARNING

Perma-Weld adhesive and thinner are flammable, and may present a health hazard if not used properly. Please observe the precautions printed on the containers.

Installation Instructions for Refrigerant Systems and Cold Systems in Severe Ambient Conditions

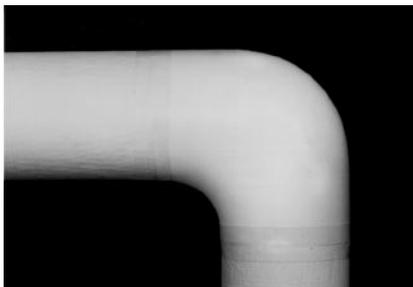


7. The completed insulated fitting cover provides a neat, finished look that enhances the overall appearance of the system. When installed, Zeston PVC insulated fitting covers offer long service life with little or no maintenance, at a low installed cost.

Insulate fittings to the same thickness as the adjacent pipe insulation with either pre-cut fiber glass inserts or segmented pipe insulation which has been mitered to conform to the Zeston PVC fitting cover. Apply an intermediate vapor barrier, compatible with the PVC, over the insulation before installing the fitting cover. Then, as in steps 3 and 4, apply a vapor barrier mastic around the edges of the adjoining pipe insulation and in the fitting cover throat overlap. After the cover is in place, seal the throat seam and circumferential edges with pressure-sensitive, vapor barrier Z-Tape.

All surfaces to be taped should first be wiped clean with a cloth to remove all dust, dirt and grease in order to provide the pressure-sensitive adhesive with a good bonding surface. Cold systems that are designed to prevent condensation should have the circumferential edges of the Zeston cover wrapped with vapor retarder and pressure-sensitive Z-Tape. The tape should extend over onto the adjacent vapor retarder pipe insulation jacket and have an overlap on itself at least 2" (51 mm) on the downward side.

Note: PVC tape has a tendency to creep. Just enough stretch should be used to bridge or cover the gap or contour to give a smooth, flat finish. Too much tension will cause the tape to creep, possibly allowing an opening to form in the system.



7. The completed insulated fitting cover provides a neat, finished look that enhances the overall appearance of the system. When installed, Zeston PVC insulated fitting covers offer long service life with little or no maintenance, at a low installed cost.

***Note:** Where pipe insulation thickness is greater than 1½" (38 mm) or pipe temperature is below 45°F (7°C) or above 250°F (121°C), additional inserts must be used. (A "rule of thumb" for temperatures over 250°F [121°C] or below 45°F [7°C], or insulation thicker than 1½" [38 mm], is to use one Hi-Lo® Temp Insert for each additional 1" [25 mm] of pipe insulation.)

Zeston® 2000/300 PVC

Guide Specifications

Totally Sealed Systems (USDA Acceptance)

The contractor shall furnish and install Zeston 2000/300 PVC insulated fittings covers on all pipe fittings, flanges, valves and pipe terminations. The contractor shall also furnish and install Zeston 2000/300 PVC jacketing in 20 or 30 mil (0.5 or 0.8 mm) thickness as the insulation jacket on all straight piping runs. Zeston Perma-Weld solvent welding adhesive shall be used to permanently seal all the PVC lap joints in the system.

Fittings shall be insulated by applying the proper factory precut Hi-Lo Temp insulation insert to the pipe fitting. The ends of the Hi-Lo Temp insulation insert shall be tucked snugly into the throat of the fitting and the edges adjacent to the pipe insulation tufted and tucked in, fully insulating the pipe fitting. Mitered pipe insulation segments, fabricated or premolded insulation shapes conforming to the Zeston 2000/300 PVC fitting cover may be used in lieu of Hi-Lo Temp inserts.

Cold Systems

The contractor shall furnish and install Zeston 2000/300 PVC insulated fitting covers on all pipe fittings, flanges, valves and pipe terminations.

Fittings shall be insulated by applying the proper factory precut Hi-Lo Temp insulation insert to the pipe fitting. The ends of the Hi-Lo Temp insulation insert shall be tucked snugly into the throat of the fitting and the edges adjacent to the pipe insulation tufted and tucked in, fully insulating the pipe fitting.

An approved vapor retarder mastic compatible with the PVC shall be applied around the edges of the adjoining pipe insulation and on the fitting cover throat overlap seam. The Zeston 2000/300 PVC fitting cover is then applied and shall be secured with pressure-sensitive Z-Tape along the circumferential edges. The tape shall extend over the adjacent pipe insulation and have an overlap on itself at least 2" (51 mm) on the downward side.

Hot Systems

The contractor shall furnish and install Zeston 2000/300 PVC insulated fitting covers on all pipe fittings, flanges, valves and pipe terminations. The temperature of the PVC fitting cover must be kept below 150°F (66°C) by the use of a proper thickness of insulation and by keeping the PVC cover away from contact with, or exposure to, sources of direct or radiant heat.

Fittings shall be insulated by applying the proper factory precut Hi-Lo Temp insulation insert to the pipe fitting. The ends of the Hi-Lo Temp insulation insert shall be tucked snugly into the throat of the fitting and the edges adjacent to the pipe insulation tufted and tucked in, fully insulating the pipe fitting. The Zeston 2000/300 PVC fitting cover is then applied and shall be secured by tack fastening, banding or taping the ends to the adjacent pipe insulation.

The Zeston 2000/300 PVC fitting cover is then applied and shall be sealed in the throat overlap with Perma-Weld solvent welding adhesive. Elastic cord or PVC tape shall be used to hold the cover in place for at least 10 minutes while the adhesive takes an initial set. Exposed adhesive in the lap area shall be feathered along the lap seam.

The Zeston 2000/300 PVC jacketing is then applied over the pipe insulation and shall overlap the fitting cover by approximately 1" (25 mm). Perma-Weld adhesive shall be applied in the circumferential lap between the jacket and the fitting cover as well as along the 1½" to 2" (38 mm to 51 mm) longitudinal overlap of the jacket. Elastic cord or PVC tape shall again be used to hold the jacket in place for at least 10 minutes. Subsequent sections of the jacketing shall be applied as noted above with the appropriate amounts of circumferential and longitudinal overlap. Upon completion, all seams shall be visually checked for sealing and touched up with adhesive where necessary. Complete curing of the Perma-Weld adhesive takes approximately 8 to 10 hours.

On fittings where the operating temperature is below 45°F (7°C) or where the pipe insulation thickness is greater than 1½" (38 mm), two or more layers of the Hi-Lo Temp insulation inserts shall be applied with the first layer being secured with a few wrappings of fiber glass yarn to eliminate voids. One additional insert shall be used for each additional 1" (25 mm) of pipe insulation above 1½" (38 mm).

Refrigerant Systems and Cold Systems in Severe Ambient Conditions

The contractor shall furnish and install Zeston 2000/300 PVC insulated fitting covers on all pipe fittings, flanges, valves and pipe terminations.

Fittings shall be insulated to a full thickness the same as the adjacent pipe insulation with factory precut Hi-Lo Temp insulation inserts tucked snugly into the throat of the fitting and the edges adjacent to the pipe insulation tufted and tucked in, fully insulating the pipe fitting. When two or more insulation inserts are used to

On fittings where the operating temperature exceeds 250°F (121°C) or where the pipe insulation thickness is greater than 1½" (38 mm), two or more layers of the Hi-Lo Temp insulation inserts shall be applied prior to the installation of the PVC fitting cover. The first layer shall be applied with a few wrappings of fiber glass yarn to eliminate voids or hot spots. One additional Hi-Lo Temp insert shall be used for each additional 1" (25 mm) of pipe insulation above 1½" (38 mm).

Zeston® 2000/300 PVC

Guide Specifications

For high-temperature installation, slip-joints shall be applied periodically between fixed supports and on continuous long runs of straight piping. Slip-joints shall be formed by increasing the amount of circumferential overlap to 8 to 10 inches (203 mm to 254 mm) and by applying a white flexible caulking in the overlap area to maintain a sealed system.

For refrigerant systems or cold systems in severe ambient conditions, an intermediate vapor retarder shall be applied prior to the installation of the PVC fitting covers and jacketing.

➡ *Continued from previous page*

provide full thickness, the first layer shall be secured with a few wrappings of fiber glass yarn to eliminate voids. Mitered pipe insulation segments, fabricated or premolded insulation shapes conforming to the Zeston 2000/300 PVC fitting cover may be used in lieu of Hi-Lo Temp inserts. An intermediate vapor retarder compatible with the PVC shall then be applied, completely sealing the insulation prior to installing the Zeston 2000/300 PVC fitting cover.

An approved vapor retarder mastic compatible with the PVC shall then be applied around the edges of the adjoining pipe insulation and on the fitting cover overlap seam. The Zeston 2000/300 PVC fitting cover is then applied and shall be secured with pressure-sensitive PVC Z-Tape along the throat seam and the circumferential edges overlapping itself 2" (51 mm) on the downward side.

➡ *Continued from previous page*



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The physical and chemical properties of Zeston® PVC Insulated Fitting Covers 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. Numerical flame spread and 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 to assure current information. **All Johns Manville products are sold subject to Johns Manville's standard Terms and Conditions including Limited Warranty and Limitation of Remedy. For a copy of the Johns Manville standard Terms and Conditions, Limited Warranty and Limitation of Remedy, and information on other Johns Manville thermal insulations and systems, call (800) 654-3103.**