

## Specification for Removable / Reusable Insulation Blankets

### For Use on Chilled Water Components

#### Such as Butterfly Valves, Flange Pairs, Strainers, and Vibration Isolators

Removable / Reusable Insulation Blankets shall be used on all chilled water components that require access for periodic maintenance. These shall be made on site from special kits such as EverGreen Chill-In™ by Auburn Manufacturing, Inc. These shall have fibrous glass wool insulation blankets material covered, on each surface, with plain, woven glass fiber fabric, with sewn seams, and that covered with a continuous, puncture-free, water vapor retarder and have sealed edges using a matching pressure sensitive adhesive tape.

All blankets, whether pre-fabricated or made from kits, shall have the following features with minimum performance:

1. Fibrous glass wool insulation shall meet or exceed the requirements of ASTM C553: "Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications", Type V. These include the following performance requirements:
  - a. Maximum water sorption, per ASTM C1104/1104M, shall be less than 5% by weight.
  - b. Flexible per ASTM C1101/C1101M.
  - c. When tested in accordance with ASTM Practice C1617, the mass loss corrosion rate of the unfaced insulation extract shall not exceed that of the 5-ppm chloride solution.
  - d. Requirements for odor emission per ASTM C1304.
  - e. Maximum use temperature of 700°F.
2. The plain glass fabric, on both surfaces, which meet or exceed the following performance:
  - a. Maximum use temperature of 500°F.
  - b. Minimum weight of 13.5 ounces per square yard.
  - c. Minimum breaking strength, per ASTM D5034 or D5035, of 125 pounds per inch in the warp direction and 100 pounds per inch in the fill direction.
  - d. Minimum tear strength, per ASTM D5587, of 30 pounds in the warp direction and 20 pounds in the fill direction.
  - e. Minimum temperature resistance to 500° F, per ASTM C1263.
3. The glass fiber sewing thread, used in fabrication prior to application of the sheet vapor retarder, shall be PTFE coated and have a minimum diameter of 0.021 inch and a minimum breaking strength of 20 pounds.

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4. Sewn seams on the plain glass fiber fabric shall use at least 7 stitches per inch and be spaced ½ inch apart.
5. The continuous water vapor retarder and matching tape shall meet the requirements of ASTM C1136, Type IX and have one layer of metallic foil with a minimum thickness of 0.00095 in. It shall meet the following performance requirements:
  - a. Permeance  $\leq 0.005$  Perm per ASTM E96, Procedure B.
  - b. Burst strength  $\geq 80$  psi per ASTM D774.
  - c. Tensile strength  $\geq 7$  pounds per inch per ASTM D828 in both the warp and fill directions.
6. Identification tags shall be made of water resistant paper with a pressure sensitive adhesive. These include information on the component type and identity (this information must be printed or written on the tag either in advance or on-site by the installer). The tags shall be attached either with the pressure sensitive adhesive.
7. The minimum average finished thickness shall be 1.125 inches.
8. Maximum flame spread index / smoke developed index, when tested as a finished composite including both layers of vapor retarder, fabric, and a layer of fibrous glass wool per ASTM E84, shall meet a rating of 25 / 50.
9. During installation, the blankets shall cover all bare hot steel surfaces including except valve handles. All cut edges shall be sealed using the pressure sensitive tape which matches the sheet vapor retarder so no fibrous glass wool is exposed. Penetrations such as valve handles and instrumentation lines shall be sealed using silicone sealant such as Dow Corning 732.

R-value at 50 degrees F mean temperature = 4.76

K-value = 0.21 Btu-in/hr-ft<sup>2</sup>. F



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