

**Specification for Removable / Reusable Insulation Blankets
For Use on Steam and Hot Water Components
Such as Valves, Flange Pairs, Strainers, and Pressure Regulators**

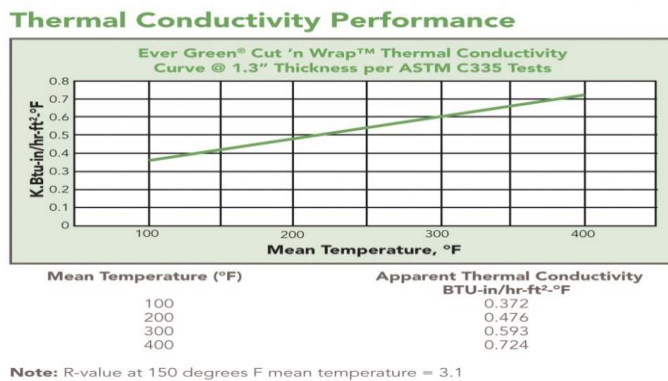
Removable / Reusable Insulation Blankets shall be used on all steam and hot water components that require access for periodic maintenance. These shall be made either at a remote site as a custom designed, pre-fabricated, custom made blanket or on site from special kits such as EverGreen Cut 'n Wrap™ by Auburn Manufacturing, Inc.

All blankets, whether pre-fabricated or made from kits, shall have the following features with minimum performance given in ASTM C1695-10(2015) for interior applications:

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. It shall meet the requirements for odor emission per ASTM C1304.
 - e. Maximum use temperature of 700°F.
2. The silicone coated 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 burst strength, per ASTM D3786, of 150 psi.
 - f. Abrasion resistance, per ASTM D3389, of a maximum 15% weight loss after exposure to a CS-10 wheel with 500 gram of load and 500 revolutions.
 - g. Minimum temperature resistance to 500° F, per ASTM C1263.
 - h. A flame resistance, per ASTM D6413, of a maximum 1 inch char length with a maximum 3 second afterglow and a maximum flame out in 1 second.
3. The hook and loop fasteners shall have a minimum width of ¾ inch. In addition, these fasteners shall meet the following performance requirements:
 - a. Maximum use temperature rating of 220° F.
 - b. Minimum shear strength when new, per ASTM D5189, of 8 psi.
 - c. Minimum shear strength after 2000 cycles, per ASTM 5189, of 7 psi.

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- d. Minimum breaking strength, per ASTM D5035, of 150 pounds per inch.
4. The glass fiber sewing thread shall be PTFE coated and have a minimum diameter of 0.021 inch and a minimum breaking strength of 20 pounds.
5. Sewn seams shall use at least 7 stitches per inch and be spaced ½ inch apart.
6. Hook and loop fasteners shall be attached to the insulation blankets with either a sewing thread or two metal staples.
7. Identification tags shall be made of either embossed stainless steel sheet or a water resistant fabric. 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 stainless steel grommets, sewing thread, or steel staples.
8. The composite insulation blankets shall be tested per ASTM C335 – Hot Pipe Test including both layers of fabric, fibrous glass wool, sewn seams, and steel quilt pins (when used). The maximum thermal conductivity of the composite blanket (in units of Btu-in/hr-ft²-°F) shall be less than each of the following values at the corresponding value of mean temperature:
 - a. @ 100° F mean, k ≤ 0.38
 - b. @ 200° F mean, k ≤ 0.47
 - c. @ 300° F mean, k ≤ 0.59
 - d. @ 400° F mean, k ≤ 0.73
9. The minimum average finished thickness shall be 1.25 inches.
10. Maximum flame spread index / smoke developed index, when tested as a finished composite including both layers of fabric, a layer of fibrous glass wool, and sewn seams per ASTM E84, shall meet a rating of 25 / 50.
11. During installation, the blankets shall cover all bare hot steel surfaces including gate valve bonnets and stems. After installation, the only exposed steel shall be valve handles, faces of strainers, and pressure regulator disks. There shall be no visible gap between valve stems and insulation covering the valve bonnets.



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