



DETAILED SPECIFICATION

White PVC casing for above grade Hi-Temp system to 149°C (300°F)

1) General

This product is recommended for above grade installations where the properties of a seamless PVC jacket is desired for hot water applications.

It is critical that all field-installed components of a Hi-Temp polyurethane foam piping system be installed with special care and attention, ensuring that the system is not only insulated properly, but *completely waterproof* as well. Should moisture enter or be trapped in the system by any means after commissioning, the moisture will flash off as steam, permanently damaging the insulation and jacketing.

All pipe system layouts shall be reviewed by Urecon's engineers during the quoting stage to address expansion/contraction considerations, as well as system limitations. The pipe shall be insulated using the unique U.I.P.[®] factory insulation process, as supplied by Urecon, complete with integral conduit for heat trace cable (*if required*). The insulation of associated joints, fittings and accessories shall be as per Urecon's recommendations, dependant on the size and type of pipe involved. The product shall be manufactured in accordance to ISO 9001-2000 standards, or approved equal.

2) Pipe preparation

Pipe and casing shall be cleaned of surface dust or dirt, if necessary, to insure adhesion of the foam to the pipe and casing surface. The pipe and/or PVC casing may be treated by sand blasting, application of a chemical foam-bonding compound, or by flame to enhance adhesion, as deemed necessary by Urecon and project requirements.

3) Insulation

- a) Material: rigid polyurethane foam, factory applied.
- b) Thickness: nominal 50 mm (2 in.), or as required.
- c) Density: (ASTM D 1622) 38,4 to 56 kg/m³ (2.4 to 3.5 lbs/ft³).
- d) Closed cell content: (ASTM D 6226) 90%, minimum.
- e) Water absorption: (ASTM C 272) 4.0% by volume.
- f) Thermal conductivity: (ASTM C518) 0,020 to 0,026 W/m °C (0.14 to 0.17 Btu • in/ft² • hr • °F).

4) System Properties

- a) System compressive strength: (modified ASTM D 1621) approximately 690 to 1379 kPa (100-200 lbs/in²), varies with thickness of PVC jacket material and pipe diameter.
- b) Core pipe service temperature range: from -45° to 149°C (-49° to 300°F); the overall factory insulated system limitations are dependant on core pipe type, the PVC jacket (which gets brittle in cold temperatures) and the application. Call your Urecon representative for details.

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5) Outer Jacket

The outer protective UV stabilized jacket of the PVC jacketed system shall be manufactured from type 1, Grade 1 PVC (cell classification 12454-B) conforming to ASTM resin specification D-1784 , and shall incorporate a UV inhibitor (TiO²) to ensure long term performance for above ground applications. The PVC jacket wall thickness varies with pipe diameter and urethane foam thickness required, ranging from 1,65 to 9,32 mm (.065 to .367 in) for nominal 25-300mm (1 to 12 in) diameter core pipe.

6) Insulated above grade pipe joints

Joints shall consist of prefabricated rigid polyisocyanurate half shells or field 'foamed in place' Hi-Temp polyisocyanurate foam, supplied complete with either-

a.) thin, UV stabilized white PVC flat stock, white adhesive sealant tape for the seams.

- .1 UV resistant, gloss white in colour.
- .2 Thickness: 0,8 mm (30 mil).
- .3 Tensile strength at yield: 41,370 kPa (6,000 psi) (ASTM D 638).
- .4 Elongation at yield: 3.0% (ASTM D 638).
- .5 Flame spread: 25 or less (ASTM E 84).
- .6 Smoke developed: 50 or less (ASTM E 84).

-OR-

b.) 100 or 150 mm (4 or 6 in) wide X 1.39 mm (35 mil) white butyl mastic tape (Renwrap #330) spiraled with a 50% lap over the joint plus 100 mm (4 in) onto the adjacent factory insulated pipe jacket.

7) Insulation kits for above grade fittings

Fittings shall be insulated with polyisocyanurate foam insulation half shells or field 'foamed in place' Hi-Temp polyisocyanurate foam-

- i.- .1 Density: (ASTM D1622) 27 to 32 kg/m³ (1.7 to 2.0 lbs/ft³).
- .2 Compressive strength: (ASTM D1621) 131 to 158 kPa (19 to 23 lbs/in²).
- .3 Closed cell content (ASTM D 6226) 90%, minimum.
- .4 Water absorption: (ASTM D2842) 4.0% by volume.
- .5 Thermal conductivity: (ASTM C 518) 0,027 W/m °C, (0.19 Btu • in/ft² • hr • °F).
- .6 Thickness: to match pipe insulation thickness.

The jacketing for the fittings shall be as per 6 a. or 6 b. above, and shall be the same as that used for the joints.

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CANADA

1800, av. Bédard
St-Lazare-de-Vaudreuil (Québec) J7T 2G4
Tél.: (450) 455-0961 Fax: (450) 455-0350
E-mail: sales.east@urecon.com

5010-43 Avenue
Calmar, Alberta T0C 0V0
Tel: (780) 985-3636 Fax: (780) 985-2466
E-mail: sales.west@urecon.com

Web Site: www.urecon.com

UNITED STATES

ISO 9001:2000
Registered Company

4185 South US1, Suite 102
Rockledge, Florida 32955
Tel.: (321) 638-2364 Fax: (321) 638-2371
E-mail: sales.usa@urecon.com

Local Representative