

DETAILED SPECIFICATION

UreconRed® and UreconBlue® for below grade warm / chilled water systems

1. GENERAL

The pipe shall be insulated using the unique U.I.P.® factory insulation process, as supplied by GF Urecon Ltd. with red or blue UV inhibited polyethylene jacket. The insulation of associated joints, fittings and accessories shall be as per GF Urecon's recommendations. The product shall be manufactured in accordance to ISO 9001 Standards, or approved equal.

2. PIPE PREPARATION

Pipe shall be cleaned of surface dust or dirt to ensure adhesion of the foam to the pipe.

3. INSULATION

- a) Material: Rigid polyurethane foam, factory applied.
 - b) Thickness: nominal 25.4 to 50.8 mm (1 to 2 in) depending on pipe diameter
 - nominal pipe size ≤ 200 mm (8 in) @ 25.4 mm (1 in) thick
 - 200 mm (8 in) < nominal pipe size ≤ 350 mm (14 in) @ 38.1 mm (1 ½ in) thick
 - 350 mm (14 in) < nominal pipe size ≤ 600mm (24 in) @ 50.8 mm (2 in) thick
- Other thicknesses available upon request
- c) Density: (ASTM D1622) 35 to 48 kg/m³ (2.2 to 3.0 lbs/ft³).
 - d) Closed cell content: (ASTM D6226) 90%, minimum.
 - e) Water absorption: (ASTM D2842) 4.0% by volume.
 - f) Thermal conductivity: (ASTM C518) 0.020 to 0.025 W/m°C (0.14 to 0.17 Btu • in/ft² • hr • °F).
 - g) Temperature range: Cryogenic to 93.3 °C (200 °F).

4. SYSTEM PROPERTIES

- a) System compressive strength: (modified ASTM D1621 with 0.38 mm (15 mils) red or blue polyethylene jacket) Approximately 414 to 552 kPa (60-80 lbs/in²) system compressive strength, varies with pipe diameter; other jacket thicknesses are available upon request.
- b) Service temperature range: the overall factory insulated system limitations are dependent on the core pipe type, insulation and application.

5. OUTER JACKET CHARACTERISTICS

- a) Jacket material: UV stable red or blue polyethylene specially formulated and applied waterproof for below grade applications; may be used above grade in UV protected conditions.
- b) Sealant: butyl rubber and resin.
- c) Jacket thickness: 0.38 mm to 1.02 mm (15 to 40 mils) depending on insulation diameter
 - insulation diameter < 381 mm (15 in) @ 0.38 mm (15 mils)
 - 381mm (15.0 in) ≤ insulation diameter < 584 mm (23 in) @ 0.51 mm (20 mils)
 - insulation diameter ≥ 584mm (23.0 in) @ 1.02 mm (40 mils)
- d) Minimum elongation: (ASTM D1000) 300%, 6 month test.
- e) Tensile strength: (ASTM D1000) 6.83 kg/cm wide (38 lbs/in wide).

6. INSULATED PIPE JOINTS

a) Butt-fused and welded joints (plain end pipe)

Insulated pipe joints shall be completed using pre-fabricated rigid polyisocyanurate or polyurethane foam half shells and sealed with the application of 0.25 mm (10 mils) x 50.8 mm (2 in) wide red or blue polyethylene hand roll tape, as supplied by GF Urecon. Tape shall be applied in such a manner as to yield a minimum of 76.2 mm (3 in) overlap on either side of the joint.

b) Bell x spigot joints

Insulated pipe joints shall be sealed with the application of either 0.25 mm (10 mils) x 50.8 mm (2 in) wide red or blue polyethylene hand roll tape, as supplied by GF Urecon. Tape shall be applied in such a manner as to yield a minimum of 76.2 mm (3 in) overlap on either side of the joint.

7. INSULATION KITS FOR FITTINGS

Insulation kits for fittings shall consist of rigid polyisocyanurate or polyurethane foam half shells supplied with 0.25 mm (10 mils) x 50.8 mm (2 in) wide red or blue polyethylene hand roll tape as supplied by GF Urecon. Tape shall be applied in such a manner as to yield a minimum of 76.2 mm (3 in) overlap on either side of the joint, and shall be consistent with what is used at the joints.

a) Rigid polyisocyanurate or polyurethane foam

1. Density: (ASTM D1622) 32 kg/m³ (2.0 lbs/ft³).
2. Compressive strength: (ASTM D1621) 124 to 186 kPa (18 to 27 lbs/in²).
3. Closed cell content: (ASTM D2856) 90%, minimum.
4. Water absorption: (ASTM C272) 2.0% by volume.
5. K factor: (ASTM C518) 0.027 W/m°C (0.19 Btu • in/ft² • hr • °F).
6. Thickness: to match pipe insulation thickness.

Note: Physical characteristics are nominal and may vary depending on pipe type and diameter.

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