

URECON **PRE-INSULATED PIPE** **DETAILED SPECIFICATION**

PVC Casing jacket with standard UIP[®] system

1) General

This product is recommended for either above or below ground installations where the properties of a white PVC jacket are desired; primarily for chilled and warm (to 93C° (200°F) water applications in temperate climates only. The pipe shall be insulated using the U.I.P.[®] factory insulation process, as supplied by Urecon Ltd.. Insulation of associated joints, fittings and accessories shall be as per Urecon's recommendations, depending on the size and type of pipe involved. The product shall be manufactured in accordance to ISO 9001-2000 Standards.

2) Pipe preparation

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

3) Insulation

- a) Material: rigid polyurethane foam, factory applied.
- b) Thickness: nominal 38 mm (1 1/2 in), or as required.
- c) Density: (ASTM D 1622) 35 to 48 kg/m³ (2.2 to 3.0 lbs/ft³).
- d) Closed cell content: (ASTM D 6226) 90%, minimum.
- e) Water absorption: (ASTM C272) 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 cryogenic to 93°C (200°F); the overall factory insulated system limitations are dependant on core pipe type, the PVC jacket and the application.

5) Outer PVC jacket

The outer protective jacket on 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 2,08 to 4,06mm (.082 to .160 in.) for nominal 25-300mm (1 to 12 in.) diameter core pipe.

6) Insulated pipe joints, bell X spigot

For PVC and ductile iron core pipe, the insulated pipe joints shall be completed using a 150 mm (6 in.) wide heat shrink sleeve or white butyl mastic tape to seal the insulation between pipes. Half shells are not required as Urecon typically insulates flush to the end of the bell and provides a cut back on the spigot end for the insertion depth.



b) Butt-fused and welded joints

For high density polyethylene and steel core pipe, the insulated pipe joints shall be completed using rigid polyisocyanurate or urethane foam half shells and the application of suitable wrap around adhesive lined heat shrink sleeves or white butyl mastic tape as supplied by Urecon. The sealant specified shall overlap the insulation jacket by a minimum of 75 mm (3 in.) on either side of the joint.

7) Insulation kits for fittings*

Insulation kits for fittings shall consist of rigid polyisocyanurate or urethane foam insulation with the following physical characteristics:

- .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: 90%, minimum.
- .4 Water absorption: (ASTM C272) 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 insulation half shell shall be jacketed with either:

a.) Polymer Coating, Urecon BL-75-20EP

- .1 Two component high density polyurethane coating, black in color.
- .2 Density: 1170 kg/m³ (73 lbs/ft³).
- .3 Durometer D scale 60.
- .4 Tensile strength: 11,100 kPa (1610 lbs/in²).
- .5 Tear strength: 26,5 N/mm (151 lbs/in).
- .6 Thickness: 1,9mm (75 mils) outside surfaces, 0,51 mm (20 mils) inside surfaces.

The polymer coated style kit shall be supplied with silicone caulking for the seams, stainless steel straps and clips, and either 150 mm (6 in) wide heat shrink wrap or butyl mastic tape for each end (the same material used to seal the pipe joints shall be used at the fitting ends for project consistency.

b.) Renwrap 330 – 0,89 mm (35 mil) white butyl mastic tape, spiral applied with a minimum 19mm (3/4 in) overlap onto itself and 75 mm (3 in) onto the adjacent factory insulated piping jackets.

c.) White PVC covers with PVC roll stock for the ends, supplied complete with white PVC tape for all seams.

*Factory insulated fittings are available with a full range of outer protective jackets.

Note: -Physical characteristics are nominal and may vary depending on pipe type and diameter (Revised June 2011).