

DUAL-GARD D.I.

Guide Specifications

GENERAL

All underground insulated chilled water or hot water pipe shall be a RICWIL Dual-Gard D.I. System composed of integral sealed 18 or 20 foot (nominal) units of cement lined* ductile iron pipe, insulated with polyurethane foam and covered with a HDPE or PVC. Unit ends shall be protected with factory-applied moisture barrier. *Delete for hot water applications.

MATERIALS

Basic Pipe Units

The carrier pipe shall be ductile iron, Class 51 (3" and 4"), Class 50 (6" and larger) with bell x spigot push-on joints conforming to ANSI/AWWA C151/A21.51. The pipe shall be cement lined to ANSI/AWWA C104/A21.4* externally coated asphalt coating to AWWA C151. The pipe shall be suitable for use at a maximum working pressure of 250 psig (plus 100 psi surge allowance) and maximum temperature of 150 F. (SBR gasket) or 225 F (EPDM gasket). *Delete for hot water applications.

The insulation shall be polyurethane foam completely filling the annular space between the carrier pipe and the outer protective jacket. The insulation will be rigid 90 to 95% closed-cell polyurethane foam with a core density of 1.9 to 2.1 pounds per cubic foot and a coefficient of thermal conductivity (K) of .16 BTU/(HR) (SQ.FT.) (F/IN) at 73 F. Insulation thickness shall be as shown on the drawings.

The insulation shall be sealed with a moisture barrier capable of withstanding 20 ft. head pressure as certified by an independent testing agency.

The jacket shall be HDPE or PVC jacket shall be seamless Polyvinyl Chloride (PVC), cell class 12454-B (formerly Type 1, Grade 1) per ASTM D1784. Jacket wall thickness shall be a minimum of 60 mils.

Joints/Fittings

Units shall be formed with integral bell and spigot push-on joints with gaskets to accommodate expansion and/or contraction.

Fittings are uninsulated and shall be either push joint, mechanical joint, or restrained joint manufactured from ductile iron or gray iron. Fittings are pressure-rated in accordance with ANSI/AWWA C110/A21.10.

INSTALLATION

All pipe and fittings shall be installed in accordance with the pipe and fitting manufacturers recommendations. All steel pipe adjoining this system shall be anchored at, or near the point of connection.

Immediately after the system is installed in the ditch, a partial backfill shall be made in the middle of each unit leaving the joints exposed for inspection prior to the hydrostatic tests. The initial backfill is to be 12" of select materials, hand placed and tamped in 6" layers above the jacket. Do not use frozen fill,

sod, cinders or stones greater than 4" as backfill.

The contractor shall pour concrete thrust blocks prior to testing pipe at every change of direction. The block to be sized according to the engineer's design.

After all thrust blocks are poured and cured, a hydrostatic test of one and one half times the operating pressure shall be required for a period of four hours. No leakage shall be allowed.

After hydrostatic testing, backfill all remaining exposed pipe. Final backfill of selected earth shall be hand- placed and tamped in 12" layers over the top of the initial backfill. The backfill shall be free of rocks over 6" in diameter, frozen earth, or foreign matter. The backfill operation shall now be completed by any convenient means. Do not use wheeled or tracked vehicles for tamping.

PERMA-PIPE, Inc.
A Subsidiary of MFRI, Inc.
7720 North Lehigh Avenue
Niles, Illinois 60714
U.S.A.

Phone: (847) 966-2235

Fax: (847) 470-1204

E-mail:

marketing@permapipe.com

webmaster@permapipe.com