

SPECIFICATIONS

Some information may be appropriate only for certain products/specification formats; therefore, the user must use the information provided as an outline.

1.1 Materials

- A. The pipe and fittings shall be of the same material for both the inner and outer piping. The responsible designer shall exercise good engineering practice in all areas including the selection of the materials of construction.
- B. Black UV stabilized block Homo-polymer polypropylene shall meet the requirements of ASTM D4101. Material shall provide weathering resistance for outdoor use without further coating, covering or wrapping.
- C. High-density polyethylene shall meet the requirements of ASTM D3350 cell classification 345434C or 355434C. All related accessories shall be made from the same resin.
- D. Elastomers shall be selected by the designer with regard to the compatibility of the fluid service anticipated. O-rings must be inspected during installation to verify surface quality, and as with all sealing materials, periodic inspections may be appropriate. Stainless steel bolts, nuts and washers are recommended for flange assemblies.

1.2 Configuration

- A. All pipe shall be one-piece double-wall extruded simultaneously. The primary pipe shall be integral with the secondary pipe via connecting ribs, which are continuous down the entire length of each section of pipe. No centralizing clips, spiders, disks or supports shall be allowed.
- B. Molded double containment fittings shall be of unitary construction. Permanent alignment of the inner and outer fittings shall be maintained via molded-in ribs. The ends of both the inner and outer fittings shall be flush (in one plane). Molded-in supports shall be set back from

the ends of the fittings to allow mixing of any fluids in the annular space.

- C. Fabricated fittings in Polyethylene and Polypropylene shall be allowed provided all welds are butt fusion style. The manufacturer shall provide pressure ratings on fabricated fittings.
- E. Identical wall thickness for the inner and outer walls are mandatory for each size.
- F. Termination of the double containment shall be conducted utilizing a termination flange or Female, Metric socket or IPS spigot adapter.

1.3 Pressure Rating

- A. Pipe and fittings shall be rated for 100 psi in all sizes and materials at 73°F. Molded Flanges shall be rated at 50 psi maximum for all materials and sizes.
- B. Inner and outer fittings shall both be rated for 100 psi, including all termination fittings, transition fittings and drainage fittings.

1.4 Joining Methods

- A. All field welding shall be butt welded per the general guidelines of ASTM D2657 for polyolefin piping, and in general accordance with the manufacturer's printed guidelines.
- B. Mechanical connections in polypropylene can be conducted utilizing a double wall flange adapter. A double wall flange shall be connected to a double wall o-ring flange for proper sealing.

1.5 Installation and Support

Installation procedures shall be as per the manufacturer's written specifications. Pipe support spacing must be adequate to prevent any appearance of sagging. Standard design practice for single wall thermoplastic piping with regard to expansion and contraction shall be followed. Valves and other auxiliary items shall be independently supported.

1.6 System Testing**A. Pressure Systems**

To fully test both the inner and outer containment for full pressure rating a hydrostatic test of both the inner and outer

pipes shall be performed as outlined in the Uniform Plumbing Code Section 318 as directed by the local Administrative Authority. Specifically, a water pressure test at 1.5 times (150%) the normal working pressure of the inner pipe should be applied to both the inner and outer walls in separate tests.

To avoid a possible leak in the carrier from contaminating the containment space, a 5 to 10 psi air test can be first conducted for a quick check of the system.

To avoid moisture in the containment an air test can be conducted on the containment pipe. Pressure test is recommended at 5 psi and shall not exceed 10 psi. The inner carrier pipe shall be full of water and under pressure to avoid any possible collapse.

When testing with air on both the carrier and containment piping the ambient temperature should be above 32 °F and extra safety precautions for personnel shall be put in place during the test

and drainage provisions shall be provided at the float switch locations to test and drain the sensors.

B. Drainage Systems

For systems in drainage applications a hydrostatic test of 1.5x the working pressure is recommended for the carrier pipe. To avoid moisture in the containment an air test can be conducted on the containment pipe. Pressure test is recommended at 5 psi and shall not exceed 10 psi. The inner carrier pipe shall be full of water and under pressure to avoid any possible collapse. When testing with air the ambient temperature should be above 32 °F and extra safety precautions for personnel shall be put in place during the test.

1.7 Leak Detection

- A. Leak detection shall be provided to monitor the integrity of the secondary containment in compliance with the local administrative authority.
- B. Float switch adapter fittings shall be spaced as deemed appropriate by the responsible designer, allowing the use of either magnetic reed switches or optical probes as sensing devices. These shall be wired to a suitable alarm system.
- C. Periodic test filling of the secondary containment (annular space) with water shall be performed at the float switch location only. Suitable water connections