

**SIMTECH GUIDE SPECIFICATION
CONTAINTECH® - DOUBLE CONTAINMENT SYSTEM - ALPHAPLUS**

1. **GENERAL**

All double containment piping shall be factory manufactured. All straight sections, fittings and other acces­sories shall be factory pre-manufactured to job dimensions to minimize the number of field connections. Components shall be factory assembled to allow for the placement of the leak detection cable. The contain­ment shall be drainable, dryable and air pressure testable.

The manufacturer shall have at least ten (10) years experience in the manufacturing of double containment piping systems and offer an integrated sensor cable leak detection/location alarm system. The manufacturer of the secondary containment piping system will provide guidelines to calculate the need for and location of expansion anchors.

1. **CARRIER PIPE**

Carrier pipe shall be extruded from Group 1, Class 2, Alpha nucleated homopolymer material in accord­ance with ASTM D-41 01 . The alpha nucleated resin shall achieve a minimum tensile strength of 300 bar when tested at 23°C according to ASTM D 638. Material shall allow continuous operating temperatures to 95° C. Alpha nucleated resin shall comply with relevant food substance regulation, U.S. FDA guidelines as specified in Code of Federal Regulators (CFR), Title 21, Chapter 1: Section 177.1520 and Section 1 78.3297 suitable for contact with foodstuff, pharmaceutical use and potable water.

Carrier pipe shall be stress relieved (annealed) by a post extrusion annealing process to ensure that the pipe material will have increased impact resistance, longer life, low shrinkage and dimensional stability required for simultaneous butt fusion welding process.

Carrier pipe shall be pressure rated in accordance with ASTM D-2837 and Din 8077 for hydrostatic design basis.

Pipe shall be manufactured to an SDR (standard dimensional ratio) in order to provide the same pressure rat­ing in all diameters. Pipe shall be (select one):

|  |  |
| --- | --- |
| SDR 11 = | 150 PSI (PN10)\* |
| SDR 17.6 = | 90 PSI (PN6) |
| SDR 32.5 = | 45 PSI (PN3.2) |

\*PN = Nominal Pressure Rating in Bar

1. **CONTAINMENT PIPE**

Containment pipe shall be extruded from Group 1, Class 2, Alpha nucleated homopolymer material in ac­cordance with ASTM D-41 01. Alpha nucleated resin shall achieve a minimum tensile strength of 300 bar when tested at 23°C according to ASTM D 638. Material shall allow continuous operating temperatures to 95° C. Alpha nucleated resin shall comply with relevant food substance regulation, US FDA guidelines as specified in Code of Federal Regulators (CFR), Title 21, Chapter 1: Section 177.1520 and Section 1 78.3297 suitable for contact with foodstuff, pharmaceutical use and potable water.

Containment pipe shall be stress relieved (annealed) by a post extrusion annealing process to ensure that the pipe material will have increased impact resistance, longer life, low shrinkage and dimensional stability required for the simultaneous butt fusion welding process. No socket fusion or electro-fusion joints will be allowed.

Carrier pipe shall be pressure rated in accordance with ASTM D-2837 and Din 8077 for hydrostatic design basis. Pipe shall be manufactured to an SDR (standard dimensional ratio) in order to provide the same pres­sure rating in all diameters. Pipe shall be (select one):

|  |  |
| --- | --- |
| SDR 11 = | 150 PSI (PN10)\* |
| SDR 17.6 = | 90 PSI (PN6) |
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1. **DIMENSIONS and TOLERANCES**

All pipe and fittings shall comply with the dimensions and tolerances outlined in ASTM D-3261. Pipe shall have a 2.5 safety factor for a 50-year life. Pipe shall be furnished in 5-meter (16.4 ft) length.

1. **PIPE SUPPORTS**

Supports shall be designed and factory installed by the manufacturer. No field-assembled supports will be allowed. The manufacturer shall design and fabricate the system taking into account pressure and tempera­ture requirements when placing the pipe supports. Double supports will be required throughout the system to minimize stresses due to point loading. All pipe supports shall be circular and welded to the carrier pipe. Pipe supports will have leak detection ports at ninety degrees. The supports at both ends of every straight section shall be factory welded to both the carrier and containment pipes in order to facilitate the simultane­ous welding of all secondary contained pipe and fittings. Support clips will not be allowed.

1. **SUBASSEMBLIES**

End seals and other subassemblies shall be designed and factory prefabricated to prevent the ingress of mois­ture into the system. All subassemblies shall be designed to allow for complete draining of the secondary containment.

1. **FITTINGS**

All fittings shall be injection molded or thermo fused at the factory. All secondary contained fittings shall be of unitized construction with the carrier and containment integrally anchored together to prevent the move­ment of the carrier relative to the containment within the fitting. Manufacturer will calculate end loads and specify the placement of anchors in the system. Anchors shall be of sufficient thickness to withstand the maximum possible end loads that will be generated by the carrier pipe during the life of the system.

1. **INSTALLATION**

Factory trained field representatives of the manufacturer shall provide technical field support during critical periods of piping and leak detection system installation including final test of the leak detection/location system. Manufacturer shall certify each field installer on simultaneous butt fusion equipment prior to begin­ning of project. The contractor shall install the system in accordance with the directions furnished by the manufacturer and as approved by the engineer.

1. **TESTING**

The containment piping shall be air tested at 5 psig, and the carrier pipe shall be hydrostatically tested at 1 .5 times operating pressure. The test pressures shall be held for not less than one (1) hour. The contractor shall strictly adhere to the installation guidelines supplied by the system manufacturer and shall keep the second­ary containment system clean and dry at all times during the installation process

1. **BACKFILL**

A four (4) inch layer of sand or fine gravel shall be placed and tamped in the trench to provide a uniform bedding for the containment pipe. The entire trench shall be evenly backfilled with a similar material as the bedding in six (6) inch compacted layers to a minimum height of six (6) inches above the top of the piping system. The remaining trench shall be evenly and continuously backfilled in uniform layers with suitable excavated soil. Bedding and backfill materials shall be as recommended by the manufacturer.