

Model Specification for Potable Water Service and Distribution Piping

This is intended as a guideline for developing specifications for High Density Polyethylene pipe to be used in Potable Water Service and Distribution Systems.

The user of this specification may use any or all of this specification as they relate to the application.

1.0 General Terms and Conditions

- 1.1 Scope: This specification covers requirements for Charter Plastics High Density Polyethylene pipe, PE 3408/3608 to be used in Potable Water Service and Distribution Systems. All work shall be in accordance with these specifications.
- 1.2 Engineered and Approved Plans: The pipe shall be installed in accordance with engineered construction plans approved by Professional Engineer.
- 1.3 Referenced Standards: All standards referenced in this document shall be the latest edition and revision.
- 1.4 Work: All pipe installation shall be completed by a licensed and bonded Contractor experienced in installing polyethylene piping systems.
- 1.5 Safety: Safe pipe unloading, storage and handling procedures shall be followed by the contractor. Refer to the Plastics Pipe Institute's "Handbook of Polyethylene Pipe" and follow all local, state and federal guidelines.

2.0 Polyethylene Pipe and Fittings

- 2.1 Materials: Materials used for the manufacture of polyethylene pipe shall be PE 3408/3608 High Density Polyethylene resin formulation listed in PPI TR4 and have a PPI recommended Hydrostatic Design Basis (HDB) of 1600 PSI (PE 3408/3608) at a temperature of 73.4 degrees F.

Heat fusion fittings should be made from PE 3408/3608 or PE 4710 High Density polyethylene. Socket fittings shall comply with ASTM D2683. Butt Fusion fittings shall comply with ASTM D3261. Electrofusion Fittings shall comply with ASTM F1055.

- 2.2. Cell Classification: The PE 3408/3608 High Density Polyethylene shall have a cell classification per ASTM D 3350 that is \geq 345464C for Black Pipe or 345464E for Black Pipe with a Blue Stripe.

- 2.3. Potable Water: The material shall be listed in NSF Standard 14 & 61. It should also be manufactured and tested in accordance with AWWA 901 for ½”- 3” pipe and AWWA C906 for 4” – 63” pipe.
- 2.4 Certification: The manufacture shall certify that the materials used to manufacture pipe and fittings meet these requirements.

3.0 Polyethylene Pipe

- 3.1 Polyethylene pipe shall be manufactured in accordance with the following ASTM Standard(s):

Potable Water Service:

¾” – 2” Copper Tube Size (CTS) tubing

ASTM D 2737: Standard Specification for Polyethylene (PE) Plastic Tubing (Copper Tube Size (CTS) - based on outside diameters.

Or

¾” – 2” Standard Inside Diameter Ratio (SIDR) pipe

ASTMD 2239: Standard Specification for Polyethylene (PE) Plastic Pipe (SIDR-PR) Based on Controlled Inside Diameter.

Potable Water Distribution:

1” – 24” Iron Pipe Size (IPS) pipe

ASTM D 3035 – Standard Specification for Polyethylene (PE) Plastic pipe (DR-PR) Based on Controlled Outside Diameter.

Or

3” – 24” Iron Pipe Size (IPS) or Ductile Iron Pipe Size (DIPS) pipe

ASTM F714 – Standard Specification for Polyethylene (PE) Plastic Pipe (SDR –PR) Based on Outside Diameter.

4.0 Joining

- 4.1 SIDR Pipe: Standard Inside Diameter Controlled pipe shall be joined with insert barbed fittings and clamps or with special OD controlled fittings specifically designed for ASTM D2239 Inside diameter Controlled Pipe.
- 4.2 CTS, IPS, DIPS Pipe: Heat Fusion is the preferred method for joining CTS, IPS and DIPS plain end polyethylene pipe and fittings.
Pipe ¾” – 1-1/4” pipe shall be joined via socket or butt fusion.
Pipe 1-1/2” and larger shall be joined via butt fusion.

Joints between the main and branch fittings or corporation stops should be made using saddle fusion or electro fusion joints.

External and internal beads shall not be removed.

All personnel conducting heat fusions should be trained by the pipe manufacturer, their representative or by the fusion equipment manufacturer and maintain current heat fusion certification. They should follow guidelines published by the pipe manufacturer or by the Plastics Pipe Institute (PPI) in TR 33.

4.3 ID Stiffeners and Restraints: A stiffener shall be installed in ≤ 2 " polyethylene pipe when using an OD Compression fitting and when connecting plain end PE pipe to a mechanical joint pipe, fitting or appurtenance.

5.0 Installing

High Density Polyethylene Pipe is designed for direct burial. It must be supported by proper embedment material. Refer to the Plastics Pipe Institute's "Handbook of Polyethylene Pipe" and follow all local, state and federal guidelines.

6.0 Testing

All pipes should be hydrostatically tested after installation following the guidelines set forth in the Plastics Pipe Institute's "Handbook of Polyethylene Pipe". Pneumatic testing is prohibited.

7.0 Disinfection

New water mains and service lines should be disinfected according to AWWA C651. The disinfection should take place after the initial flushing and pressure testing. Prolonged exposure or concentrated levels of disinfection chemicals may cause damage to the inside diameter of the pipe. The disinfection chemicals should never contain more than 12% active chlorine. The test duration shall not exceed 24 hours and upon completion, the system be thoroughly flushed with fresh water.