

# DEP-APPROVED PIPE SPECIFICATIONS

## A. Pipe Specifications for Pressure Distribution Systems

Pressure distribution systems develop relatively low working water pressures. They do not require pipe that is pressure rated for water systems. Normally, pipes and fittings capable of withstanding the pressures associated with drain, waste, and vent (dwv) systems have sufficient strength to perform adequately. The solvent joints and plastic pipe required for pressure water (pw) pipe will, however, withstand considerably more pressure than a dosing system will develop and they are acceptable products.

Acceptable plastic pipe for use in a pressurized dosing system may be either PVC (Polyvinylchloride) or ABS (Acrylonitrile-Butadiene-Styrene).

PVC must be marked as meeting one or more of the following standards:

- NSF-dwv
- ASTM-D-2665 (Schedule 40)
- ASTM-D-2949 (Schedule 30)
- NSF-pw
- ASTM-D-1785

Often, PVC of less than 3-inch diameter, which has enough pressure resistance for water systems, will be dual rated as NSF pw (D-1785) and NSF dwv (D-2665).

ABS must be marked as meeting one or more of the following standards:  
NSF-dwv or ASTM-D-2661 (This is the ABS equivalent of PVC ASTM-D-2665.)

Fittings for the above pipe may or may not be marked, depending on the size or type of fitting. It is the responsibility of the installer to ensure that all unmarked fittings meet the required standards.

Solvent or “cement” is marked as ABS or PVC. Generally, PVC solvent is much stronger than ABS so the two cannot be interchanged. If the installer uses a combination of PVC or ABS pipe or fittings, solvent marked as “All-Purpose,” “Universal,” or clearly stating suitability for both materials should be required. All cementing instructions and precautions must be observed to obtain an acceptable joint.

Two other types of plastic pipe that may be used, especially in larger distribution systems, are SDR (Standard Dimension-Ratio) pipe and gasketed PVC. These are not normally used as laterals because they are relatively expensive compared to other acceptable PVC pipe. Because they are available in larger sizes, they are used as delivery lines.

Gasketed pipe has gaskets fitting into a bell end. To be acceptable, this pipe must meet ASTM-D-3033 or 3034. Plastic pipe marked SDR (Standard Dimension-Ratio) is a type of PVC pipe that is rated to hold up under specific water pressures. This type of pipe has a wall thickness that varies with different pipe diameters so that it maintains a specific pressure rating. For that reason, the pipe wall is usually much thicker than those PVC pipes that are rated for DWV (drain, waste, and vent) only. Any pipe with an SDR rating of less than 35 is acceptable for use in a pressure distribution system. This pipe requires fittings with the same SDR ratings.

Corrugated pipe of any kind is unacceptable for pressure dosing. Large-diameter pipe marked “sewer” is also unacceptable. Flexible pipe generally used in wells is unacceptable for these installations because of the type of fittings required and difficulty in leveling the pipe.

There are other piping products that do not display any of the SDR, ASTM numbers or NSF ratings listed in this chapter. Piping that is not marked should be

rejected. Piping with different ASTM numbers may meet more “stringent” standards than those used to determine ASTM D-2665 and D-2949 but are normally used for other purposes. In those cases the applicant has the burden to prove that it is acceptable. Piping made of plastics other than PVC and ABS are also available. Although many of these are of high quality, they are not generally used in onlot systems, because they are either too expensive, require mechanical fittings that increase head losses due to friction, or are not durable enough for this use. Again, those proposing any piping that does not bear any of the ratings in this chapter must provide proof of compliance.

Quick disconnects, check valves, and the fittings associated with siphons may not be marked in any way. Siphons are not rated since they are often cast-iron or polyethylene plastic.

**B. Pipe Fittings (refer to diagrams)**

Double sanitary tee or sanitary cross – used to extend laterals from the manifold as shown in diagrams (1) and (10). Available with all hubs equal or with side hubs reduced – example: 2” x 1<sup>1/2</sup>”.

(2 & 9) Standard tee or vent tee – used to connect delivery pipe to manifold, to connect the first or last pair of laterals to the manifold, or to connect opposing laterals to the manifold, as shown in diagram (9). When opposing tees are used to connect laterals to the manifold, laterals will be slightly offset. Available with all hubs equal or with side hub reduced – example: 3” x 2”.

(3) Sanitary tee – appears to have a “Y” type configuration; has the same use as the standard tee.

(4) Coupling – used to connect sections of pipe. The standard coupling has a “lip” inside (shown by dotted lines) so that each pipe extends into the coupling an equal distance. Also available is a “repair coupling,” which has no lip inside. The repair coupling is placed over one piece of pipe, back from the end; solvent is applied to the two pipe ends, the pipes are aligned, and the repair coupling is slid forward and centered over the joint. This coupling is especially useful to repair pipes, which are already in place.

(5) Elbows or bends – available in 90° (or quarter turn), 60° (or one-sixth bend), 45° (or one-eighth bend), and 22 1/2° (or one-sixteenth bend).

(6) Bushing, sleeve, or adapter – used to reduce the inside diameter of a fitting hub to match a smaller pipe. The most common use would be to reduce manifold fittings to lateral sizes. Example: 4” x 2”; 3” x 2”; 2” x 1 1/2”. A typical bushing installation is shown in diagram (7).

(8) Reducer or increaser coupling – used to increase or decrease pipe diameter in delivery pipes, manifolds; can be used in the same manner as a bushing although not as practical.

(11) Double 90° elbow or long sweep tee – can be used in the same manner as a standard tee or sanitary tee; shown in diagram (11) as the connection of the last laterals to the manifold.

(12) End cap – cemented in place, used to cap the ends of the laterals. A fitting and threaded cap may also be used.

(13) Sanitary tee manifold connection – typical method of connection of the delivery pipe to the manifold, or laterals to manifold. A standard tee or double 90° elbow serves the same purpose.



## C. Other Pipes in the System

Chapter 73 allows local agencies (municipalities) to use local plumbing codes to determine the material and to some extent the size of building sewers and pipes from septic tanks and distribution boxes. Where no local codes exist, the following should apply.

### 1. Building Sewers

Generally, any piping that has sealable joints and a minimum rating of 2,000 pounds crush is acceptable for a building sewer. Piping to be used in traffic areas under driveways or areas subject to heavy weights requires higher ratings, such as cast-iron or PVC Schedule 80 or 120. Piping marked as 1,000 pounds crush or 1,500 pounds crush (D2279 (PE), D2729 (PVC), D2852 (ABS)) is not sufficient for building sewers and if fabricated of PE plastic is not glueable. This piping is intended for use in the absorption area and from the septic tank to the absorption area only.

### 2. Septic Tank Outfall and Distribution Pipe

The pipe leading from the septic tank to the dosing tank should be the same quality as the building sewer. For gravity systems, the piping between the septic tank and header or distribution box has no special requirement except that it should be relatively watertight. A lower grade PVC pipe with flared ends for joints, a brand of PE piping also with flared ends, and rigid corrugated PE are all commonly used. The rigid PE, ABS, and PVC usually are stamped as 1,500 pounds crush-Sewer-D2279, D2729, or D2852 and come in perforated and unperforated sections, while the corrugated plastic pipe is unmarked. Any of these materials is acceptable in the absorption

area of a gravity system as long as care is exercised to prevent breakage or crushing. No piping with a crush of less than 1,500 pounds is recommended.