



Standard Guide for Selection, Design, and Installation of Thermoplastic Water- Pressure Piping Systems¹

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1. Scope*

1.1 This guide is intended for use in the selection, design, and installation of thermoplastic water systems for use outside buildings. For specific projects, a thorough review of this guide is recommended for the purpose of selecting specific materials, methods of joining, system design factor, and any special procedures deemed necessary to assure a satisfactory system.

1.2 It is recommended that governing codes and project specifications be consulted prior to the use of this guide. Nothing in this guide should be construed as recommending practices or systems at variance with governing codes and project specifications.

1.3 *Units*—The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the standard. The pipe, fittings, and joining materials shall meet the requirements of one or more of the following component product standards listed in 1.3.1 through 1.3.4 to the extent applicable. Those pipe standards followed by (a) are outside diameter-controlled pipes. Those followed by (b) are inside diameter-controlled pipes.

1.3.1 *For poly(vinyl chloride) (PVC) plastic piping components:*

Title of Specification	ASTM Designation
Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80 and 120 (a)	D1785
Poly(Vinyl Chloride) (PVC) Plastic Pipe (SDR-PR) (a)	D2241
Threaded Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80	D2464
Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40	D2466
Socket-Type Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80	D2467
Solvent Cements for Poly(Vinyl Chloride) (PVC) Plastic Pipe and Fittings	D2564
Bell-End Poly(Vinyl Chloride) (PVC) Pipe (a)	D2672

Poly(Vinyl Chloride) (PVC) Plastic Tubing (a)	D2740
Socket-Type Poly(Vinyl Chloride) (PVC) Plastic Line Couplings	D3036
Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals	D3139
Elastomeric Seals (Gaskets) for Joining Plastic Pipe	F477
PVC and ABS Injected Solvent Cemented Plastic Pipe Joints	F545

1.3.2 *For Chlorinated Poly(Vinyl chloride) (CPVC) plastic piping components:*

Title of Specification	ASTM Designation
Chlorinated Poly(Vinyl chloride) (CPVC) Plastic Pipe, Schedules 40 and 80 (a)	F441/F441M
Chlorinated Poly(Vinyl chloride) (CPVC) Plastic Pipe Fittings, Schedule 80	F439
Solvent Cements for Chlorinated Poly(Vinyl chloride) (CPVC) Plastic Pipe and Fittings	F493

1.3.3 *For polyethylene (PE) plastic piping components:*

Title of Specification	ASTM Designation
Polyethylene (PE) Plastic Pipe, (SDR-PR) (b)	D2239
Plastic Insert Fittings for Polyethylene (PE) Plastic Pipe	D2609
Socket-Type Polyethylene Fittings for Outside Diameter-Controlled Polyethylene Pipe (a)	D2683
Polyethylene (PE) Plastic Tubing (a)	D2737
Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Controlled Outside Diameter (a)	D3035
Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing	D3261

1.3.4 *For poly(vinyl chloride) (PVC) and polyethylene (PE) Plastic Piping Components Issued By the American Water Works Association:*

C900 Poly(Vinyl Chloride) (PVC) Pressure Pipe, 4-inch through 12-inch, for Water (a)
C901 Polyethylene (PE) Pressure Pipe, Tubing and Fittings, 1/2-inch through 3-inch, for Water

1.3.5 Pipes with wall thicknesses less than 1.50 mm (0.06 in.) are not recommended.

1.4 *Other Joining Devices*—Joining devices other than those covered by the listed standards may be selected by the user on the basis of his own engineering evaluation and service experience.

1.5 *This standard does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

¹ This guide is under the jurisdiction of ASTM Committee F17 on Plastic Piping Systems and is the direct responsibility of Subcommittee F17.61 on Water.

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