NSF International
Special Engineered Specification
NSF SE 17304

CPVC Fittings for Use with Gasketed Grooved Couplings

The Public Health and Safety Company.™

NSF SE 17304

SPECIFICATIONS FOR A SPECIAL ENGINEERED (SE) PRODUCT

CPVC Fittings for Use with Gasketed Grooved Couplings

1. Scope of Specification:

This specification defines the product specific requirements for testing, marking, and in-plant quality control (QC) for Chlorinated Poly (Vinyl Chloride) (CPVC) Fittings for Use with Gasketed Grooved Couplings to be used in CPVC piping applications.

2. Application:

Chlorinated Poly (Vinyl Chloride) (CPVC) Fittings meeting this specification are intended for use in cold and hot water potable water applications, to be used with CPVC piping that complies with the recommendation of the fitting manufacturer.

3. Reference Documents:

ASTM D1598	Test Method for Time-to-Failure of Plastic Pipe Under Constant Internal Pressure
ASTM D1599	Test Method for Resistance to Short-Time Hydraulic Pressure of Plastic Pipe, Tubing, and Fittings
ASTM D1784	Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds
ASTM D2122	Test Method for Determining Dimensions of Thermoplastic Pipe and Fittings
ASTM D2846	Specification for Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Hot-and-Cold Water Distribution Systems
ASTM F438	Standard Specification for Chlorinated Poly (Vinyl Chloride) (CPVCP) Plastic Pipe Fittings, Schedule 40
ASTM F439	Standard Specification for Chlorinated Poly (Vinyl Chloride) (CPVCP) Plastic Pipe Fittings, Schedule 80

NSF/ANSI Standard 61 – Drinking Water Systems Components – Health Effects

4. Materials:

4.1 – Fitting Body – Shall be made from CPVC material that meets a minimum cell classification of 23447 as defined in ASTM D1784.

4.2 – Rework Material – The use of clean, rework material of the same formulation from the same manufacturer is acceptable provided that the finished product meet the requirements of this specification.

5.0 Requirements:

5.1 – Workmanship

5.1.1 – Fittings complying with this specification shall not, upon a visual inspection, contain imperfections that would adversely affect the performance of the fitting.

5.1.2 – The surfaces of all thermoplastic shall be free from defects which will adversely affect the performance and service of the fitting.

5.2 – Dimensions
5.2.1 – Measure dimensions in accordance with ASTM D2122.
5.2.1.2 – Grooved Connections – Shall be in accordance with the manufacturer's specifications.
5.2.1.3 – Socket Connections:

5.1.3.1 – Socket connections for solvent-weld to IPS pipe shall comply with the socket dimensions given in ASTM F439 for Sch 80 CPVC or ASTM F438 for Sch 40 CPVC.

5.1.3.2 – Socket connections for solvent-weld to CTS pipe shall comply with the socket dimensions given in ASTM D2846/D2846M.

5.3 – Resistance to Hydrostatic Pressure
5.3.1 – Fittings shall meet the minimum requirements for resistance to hydrostatic pressure when tested in accordance with 5.3.2.

5.3.2 –Test specimens shall consist of assemblies of CPVC fittings and grooved couplings. The assemblies used for each test shall contain the same fittings in the same configuration. Each individual assembly shall contain at least two of each fitting being tested.

5.3.2.1 – The test temperature, with a tolerance of ± 3.6°F (2°C), shall be 180°F, for which the piping system component's recommended maximum operating pressure is being verified.

5.3.2.2 – Conduct hydrostatic pressure testing in accordance with the method and at the times and pressures given in Table 1. Specimens which include an elastomeric seal shall be conditioned for one hour at 50% of the test pressure immediately prior to conducting the 1-h and 1000-h tests.

Table 1 Hydrostatic Testing

Test Pressure, psi	Time	Test Method
3.2 x (P^A) minimum burst pressure	60 s	ASTM D1599[B]
2.5 x (P^A) ±10 psi	1 h	ASTM D1598
2.1 x (P^A) ±10 psi	1000 h	ASTM D1598

(A) P is the manufacturer's recommended pressure at 180°F as indicated in their published literature. It is the responsibility of the manufacturer to establish a recommended maximum operating pressure.
(B) Testing may be stopped upon reaching the minimum required pressure, rather than taking the sample to failure.

5.5 – Potable Water Applications – For Potable Water applications, fittings shall comply with the requirements of NSF/ANSI Standard 61.

6. Product Marking:
6.1 – Marking on fittings shall consist of the following:

- Manufacturer's name (or trademark)
- Material designation
- Nominal size
- The certification mark of the agency making the evaluation

6.2 – The manufacturer's literature shall include assembly instructions which provide adequate information to achieve a connection which will meet the manufacturer's published recommended maximum operating pressure.

7. In-plant Q.C. Requirements:

The following tests are to be performed at start-up and designated frequencies thereafter and performed in accordance with Section 5 of this document

Test	Frequency
Dimensions	
Grooved connection dimensions (per manufacturer spec)	24 h
Body wall thickness	Weekly
Socket bottom average diameter and out of roundness	24 h
Socket entrance average diameter and out of roundness	24 h
Socket depth	24 h
All other dimensions	Weekly
Burst pressure	Weekly