NSF International
Special Engineered Specification
NSF SE 16558

Metric Sized CPVC Potable Water Pipe

The Public Health and Safety Company.™

NSF SE 16558

SPECIFICATIONS FOR A SPECIAL ENGINEERED (SE) PRODUCT

Metric Sized CPVC Potable Water Pipe

1. Purpose:

This specification defines the minimum product specific requirements for Metric Sized CPVC Potable Water Pipe.

2. Scope of Specification:

This specification identifies the application, reference documents, testing requirements, material requirements, product marking, and in-plant quality control testing for metric sized CPVC potable water pressure pipe.

3. Application:

Products meeting the requirements of this specification are for use in potable water pressure applications.

4. 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 – Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds

ASTM F441 – Specification for Socket-Type Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe, Schedules 40 and 80

ISO 15877-2 – Plastics piping systems for hot and cold water installations – Chlorinated poly(vinyl chloride) (PVC-C) – Part 2: Pipes.

NSF/ANSI Standard 14 – Plastic Piping System Components and Related Materials

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

5. Materials:

5.1 – CPVC material used in the production of pipe meeting this specification shall meet or exceed a 23447 cell class when tested against ASTM D1784.

5.2 – Post Industrial recycled material is not authorized to be used in the production of fittings certified against this requirement.

5.3 – Rework material shall be from the same formulation and from the same facility.

5.4 – HDB Requirements – CPVC material used in the production of pipe meeting this specification shall meet the requirements for Hydrostatic Design Basis identified in ASTM F441 Section 5.2

6. Requirements:

6.1 – Dimensions:
CPVC pipe produced against this specification shall meet the dimensions as specified in ISO 15877-2.

6.2 – Sustained Pressure:
The pipe shall not fail, balloon, burst, or weep as defined in Test Method ASTM D1597, when tested in accordance with ASTM F441 section 8.4, at test pressures given in Table 1.

TABLE 1 Sustained Pressure Test Conditions for Water at 73°F

Nominal Size (DN/OD) [1]	Pipe Series					
	S 6.3		S 5		S 4	
	Min Wall Thickness [1]	Pressure required for test, psi [2]	Min Wall Thickness [1]	Pressure required for test, psi [2]	Min Wall Thickness [1]	Pressure required for test, psi [2]
12	1.4	1109	1.4	1109	1.4	1109
14	1.4	933	1.4	933	1.6	1084
16	1.4	805	1.5	869	1.8	1065
20	1.5	681	1.9	882	2.3	1092
25	1.9	691	2.3	851	2.8	1059
32	2.4	681	2.9	837	3.6	1065
40	3	681	3.7	856	4.5	1065
50	3.7	671	4.6	851	5.6	1059
53	4.7	817	5.8	1032	7.1	1299
75	5.6	678	6.8	838	8.4	1059
90	6.7	676	8.2	842	10.1	1062
110	8.1	668	10	840	12.3	1058
125	9.2	667	11.4	843	14	1059
140	10.3	667	12.7	838	15.7	1061
160	11.8	669	14.6	843	17.9	1058

[1] Dimensions in millimeters, per ISO 15877-2 Table 3.
[2] The fiber stress used to derive these test pressures is 4200 psi.

6.3 – Burst Pressure:
The minimum burst pressures for CPVC plastic pipe shall be as given in Table 2, when determined in accordance with Test Method ASTM D1599.

TABLE 2 Burst Pressure Requirements for Water at 73°F

Nominal Size (DN/OD) [1]	Pipe Series					
	S 6.3		S 5		S 4	
	Min Wall Thickness [1]	Min Burst Pressure, psi [2]	Min Wall Thickness [1]	Min Burst Pressure, psi [2]	Min Wall Thickness [1]	Min Burst Pressure, psi [2]
12	1.4	1691	1.4	1691	1.4	1691
14	1.4	1422	1.4	1422	1.6	1652
16	1.4	1227	1.5	1324	1.8	1623
20	1.5	1038	1.9	1344	2.3	1663
25	1.9	1053	2.3	1297	2.8	1614
32	2.4	1038	2.9	1276	3.6	1623
40	3	1038	3.7	1305	4.5	1623
50	3.7	1023	4.6	1297	5.6	1614
53	4.7	1246	5.8	1573	7.1	1980
75	5.6	1033	6.8	1276	8.4	1614
90	6.7	1030	8.2	1283	10.1	1618
110	8.1	1017	10	1280	12.3	1611
125	9.2	1017	11.4	1285	14	1614
140	10.3	1016	12.7	1277	15.7	1617
160	11.8	1019	14.6	1285	17.9	1612

[1] Dimensions in millimeters, per ISO 15877-2 Table 3.
[2] The fiber stress used to derive these test pressures is 6400 psi.

6.3 – Flattening
There shall be no evidence of splitting, cracking, or breaking when the pipe is testing in accordance with ASTM F441 Section 8.5.

6.4 – Potable Water Requirements – Pipe intended for use in potable water applications shall comply with the requirements of NSF/ANSI Standard 61.

7. Product Marking:

7.1 – Quality of Marking – The marking shall be applied to the pipe in such a manner that it remains legible (easily read) after installation and inspection.

7.2 – Content of Marking:
7.2.1 – Marking on the pipe shall include the following, spaced at intervals of not more than 5 ft [1.5 m]:

- Manufacturer's name or trademark
- Nominal outside diameter and nominal wall thickness
- Material

- Manufacturer's information, including an appropriate code identifying the day, month, and year of production, the extrusion line, and the compound designation.
- This designation "SE 16558", with which the pipe complies.

8. In-plant Q.C. Requirements:

In-plant QC testing shall be conducted in accordance with the tests and frequencies noted in Table 3, per the procedures defined in NSF/ANSI Standard 14.

TABLE 3 CPVC pipe quality control test frequency

Test	Frequency
Burst Pressure	24 h
Dimensions	
Pipe OD	2 h
Pipe wall thickness	2 h
Flattening	Annually
Sustained pressure	Annually