

Table of Contents

Section I	1
1.0 General	1
1.1 Application	1
1.2 Scope	1
1.3 Reference Standards	2
Section II	3
2.0 Test Specimens	3
2.1 Samples Submitted for Test	3
2.2 Samples Tested	3
2.3 Drawings	3
2.4 Rejection	3
Section III	4
3.0 Performance Requirements and Compliance Testing	4
3.1 Hydrostatic Pressure Tests	4
Figure 1	4
3.2 Deterioration at Extremes of Manufacturer's Temperature Range	4
Figure 2	5
3.3 Life Cycle Evaluation	5
3.4 Resistance to Bending	6
Figure 3	6
3.5 Freeze Resistant Capabilities	6
Figure 4	7
3.6 Atmospheric Vent Leakage	7
Figure 5	8
3.7 Backflow Through Inlet Check Valve (Types 1 and 2)	8
Figure 6	8
3.8 Backflow Through Outlet Check Valve (All Types)	9
3.9 Backsiphonage	9
Figure 7	9
Figure 8	10
3.10 Backsiphonage and Backpressure (Types 1 and 2)	10
Figure 9	10
3.11 Relief of Intermediate Chamber Pressure (Types 1 and 2)	11
3.12 Backflow Prevention (Types 3, 4 and 5)	11
Figure 10	11
3.13 Backflow Preventer Attachment Requirements	12
3.14 Flow Rates and Pressure Loss	12
Table 1	12
Section IV	13
4.0 Detailed Requirements	13
4.1 Materials	13
4.2 Instructions	13
4.3 Marking	13
Section V	15
5.0 Definitions	15

Performance Requirements for Freeze Resistant Sanitary Yard Hydrant with Backflow Protection

Section I

1.0 General

1.1 Application

The purpose of freeze resistant sanitary yard hydrants is to supply potable water without danger of damage to the hydrant due to freezing, to provide protection of the potable water supply from contamination due to ground water, and to prevent backflow in accordance with the backflow prevention device selected. These devices shall only be used on systems where the low-head backpressure does not exceed that generated by an elevated hose equal to or less than 3 m (10 ft.) in height. This device shall not be subjected to continuous pressure. Continuous pressure shall mean twelve (12) hours use in a twenty-four (24) hour period.

1.2 Scope

1.2.1 Description

This standard covers design and performance requirements for freeze resistant sanitary yard hydrants to prevent backflow due to backsiphonage and back pressure. These units shall be classified as follows:

- a) Type 1 devices shall consist of two independent checks, force loaded or biased to a closed position, with an atmospheric vent located between the two check valves, which is force loaded or biased to an open position, and a means for attaching a hose. When the hose is attached, the Type 1 device shall be freeze resistant.
- b) Type 2 devices shall consist of two independent checks, force loaded or biased to a closed position, with an atmospheric vent located between the two check valves, which is force loaded or biased to an open position, and a means for attaching a hose. When the hose is removed, the Type 2 device shall be freeze resistant.
- c) Type 3 devices shall consist of one check valve, force loaded or biased to a closed position, with an atmospheric vent which is force loaded or biased to an open position, and means for attaching a hose. When the hose is attached, the Type 3 device shall be freeze resistant.
- d) Type 4 devices shall consist of one check valve, force loaded or biased to a closed position, with an atmospheric vent which is force loaded or biased to an open position, and means for attaching a hose. When the hose is removed, the Type 4 device shall be freeze resistant.
- e) Type 5 devices shall consist of a removable mechanical backflow protection device with at least one check valve, force loaded or biased to a closed position, and an atmospheric vent which is loaded or biased to an open position, and a means for attaching a hose. When the hose and backflow protection is removed, the Type 5 device shall be freeze resistant and shall not allow a hose to be attached.

1.2.2 Pressure

1.2.2.1 Operating Pressure Range

The hydrants shall be designed for an operating pressure range of 138 - 690 kPa (20 - 100 p.s.i.).

1.2.3 Temperature Range

The hydrants shall be designed for flow temperatures of 4°C to 60°C (40°F to 140°F).

1.2.4 Connections

1.2.4.1 Outlet Threads

Garden hose connection threads shall be 3/4 NSPN or 1 NSPN garden hose couplings in compliance with ASME/ANSI B1.20.7.

1.2.4.2 Inlet Threads

Pipe threads shall comply with ASME/ANSI B1.20.1.

1.2.5 Water Flow Capacity and Pressure Loss

Devices shall meet the flow rates and pressure losses that are referenced in Table 1

1.2.6 Installation and Service

Hydrants shall be designed and built such that, after installation, if intended by the manufacturer, repair or replacement of the elastomeric parts shall be accomplished without the need to excavate the soil surrounding the hydrant.

1.3 Reference Standards

Reference to Industry Standards listed herein shall mean the latest edition of the standard.

- ANSI/ASME A112.1.2, *Air Gaps for Plumbing Systems*
- ANSI/ASME B1.20.1, *Pipe Threads, General Purpose*
- ANSI/ASME B1.20.7, *Garden Hose Threads*

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