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Water Hammer Arresters

Section I

1.0 General

1.1 Application

Water hammer arresters (herein referred to as “device”) are installed on water distribution system piping to prevent detrimental surge pressures within water distribution systems, thereby prolonging the service life of valves, piping, fittings, trim, equipment, appliances, appurtenances, and other devices which are part of the distribution system; and to eliminate noise. This standard addresses the test methods and performance requirements for water hammer arresters.

1.2 Scope

1.2.1 Description

This standard applies only to those devices classified as water hammer arresters having a permanently sealed cushion of water or gas isolated from the water way, and designed to provide continuous protection, without maintenance, against detrimental surge pressures within the water distribution system.

1.2.2. Size Range

The size of the device shall be within the range from Type AA which are used for “point of use” residential appliance applications to Types A through F which are used in applications as defined within Table 1 of this standard.

Table 1

Size	Pipe Size		Pipe Length		Total Pressure - Flow + Surge Less Arrester[1]		Max. Reduced Pressure- Flow + Surge with Arrester[2]	
	NPS/CTS	DN	feet	m	psig	kPa	psig	kPa
AA	½	15	50.0	15.2	250.0	1723.8	150.0	1034.3
A	½	15	50.0	15.2	400.0	2760.0	150.0	1034.3
B	¾	20	50.0	15.2	400.0	2760.0	150.0	1034.3
C	1	25	50.0	15.2	400.0	2760.0	150.0	1034.3
D	1¼	32	50.0	15.2	400.0	2760.0	150.0	1034.3
E	1½	40	50.0	15.2	400.0	2760.0	150.0	1034.3
F	2	50	50.0	15.2	400.0	2760.0	150.0	1034.3

1. Peak pressure shall be defined as the highest average total pressure measured over an average 2.5 millisecond portion of the calibration and performance test periods.
2. The device shall pass the endurance test by completing 10,000 cycles without the reduced pressure exceeding 160.0 psig (1103.2 kPa) maximum pressure plus tolerance.

1.2.3. Pressures

1.2.3.1. Hydrostatic Pressure

These devices shall be designed to withstand a maximum pressure of at least 150.0 psi (1034.3 kPa).

1.2.3.2. Operating Pressure

These devices shall operate at pressures from 0 psi (0 kPa) to 60.0 psi (413.7 kPa).

1.2.4. Temperature Range

These devices shall be capable of performing at temperatures from 33.0 °F (0.6 °C) to 180.0 °F (82.2 °C).

1.3 Reference Standards

The following standards, as referenced in this standard, shall be applicable as noted herein. Unless specified, the most current edition of the standards shall apply.

- ANSI/ASME B1.1 Bolts, Screws and Nuts
- ANSI/ASME B1.20.1 Pipe Threads
- ANSI/ASME B1.20.3 Dryseal Threads