WATER HAMMER ARRESTER

CATALOGUE

FAHM

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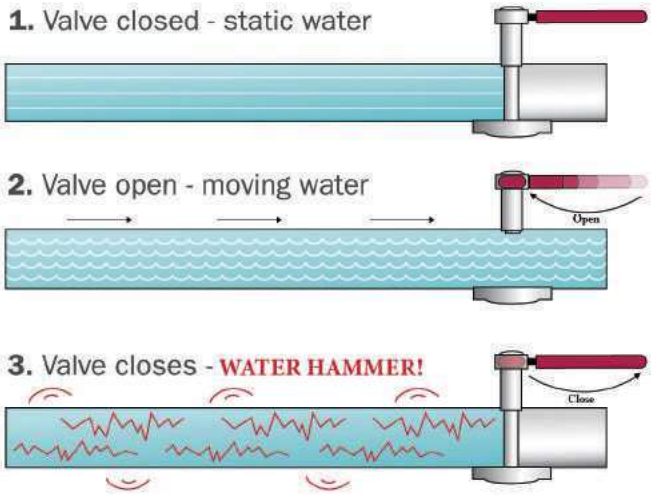
Understanding Water Hammer

Water hammer is a shock wave transmitted through fluid contained in a piping system. The most basic explanation is that water hammer occurs when a fluid in motion is suddenly forced to stop moving. The momentum of the fluid abruptly stopping creates a pressure wave that travels through the media within the pipe system, subjecting everything in that closed system to significant forces.

Velocity of the flowing water and a sudden disturbance to this flowing water's velocity are the two major factors that create water hammer in a piping system. When the flowing water is stopped abruptly in a piping system, the kinetic energy present in this flowing water rapidly transforms into a pressure rise within the pipe.



Product Damages Due to Water Hammer

Uncontrolled water hammer can cause premature failure in the following products:

*** WATER HEATERS:**
Uncontrolled water hammer can lead to cracks in the tank linings resulting in rust and failure.

*** PRESSURE REDUCING VALVES (PRV's):**
The damage caused due to water hammer can eventually result to complete failure of PRVs. It can also harm the brass castings and seats of the device.

*** WASHING MACHINES:**
Fast-closing washer valves cause water hammer. This could possibly damage the pipes and the fixtures attached to the washing machines.

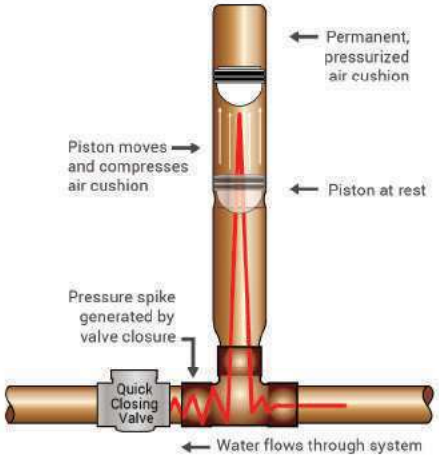
*** FAUCETS:**
It is common for faucet cartridges to malfunction or break down due to water hammer.

*** PIPES AND PIPE FITTINGS:**
Over time, constant water hammer can cause PVC, CPVC and PEX fittings to cause leaks at the joints. It can also cause the pipe walls to crack.

*** HANGERS & BRACKETS:**
Uncontrolled water hammer is the primary cause of loose pipe hangers which may cause failure in the piping support systems.

Solution:

The installation of an engineered water hammer is the most effective way of controlling water hammer. They provide a point of relief for pressure spikes caused by water hammer. These piping system components reduce the characteristic noise and resultant stress on the pipeline system by acting like a shock absorber.



Fixture Unit Size- Table 1

Fixture	Type of Supply Control	Weight in Fixture - Units					
		Public			Private		
		Total	C.W. (Cold Water)	H.W. (Hot Water)	Total	C.W. (Cold Water)	H.W. (Hot Water)
Bathtub	Faucet	4	2	3	2	1½	1½
Shower Head	Mixing Valve	4	2	3	2	1	1
Pedestal Urinal 1.06 PF	Flush Valve	4	4	-	-	-	-
Service Sink	Faucet	3	3	3	-	-	-
Stall or Wall Urinal	Flush Valve 1.06 PF	4	4	-	-	-	-
Stall or Wall Urinal	Flush Tank 1.06 PF	2	2	-	-	-	-
Water Closet 1.66 PF	Flush Valve	8	8	-	5	5	-
Water Closet 1.66 PF	Flush Tank	5	5	-	2.5	2.5	-
Lavatory	Faucet	2	1½	1½	1	1	1
Bathroom Group	Flush Valve Closet	-	-	-	8	8	3
Bathroom Group	Flush Valve Closet	-	-	-	6	6	3
Separate Shower	Mixing Valve	-	-	-	2	1	2
Combination Fixture	Faucet	-	-	-	3	3	3
Laundry Tubs (1-3)	Faucet	-	-	-	3	3	3

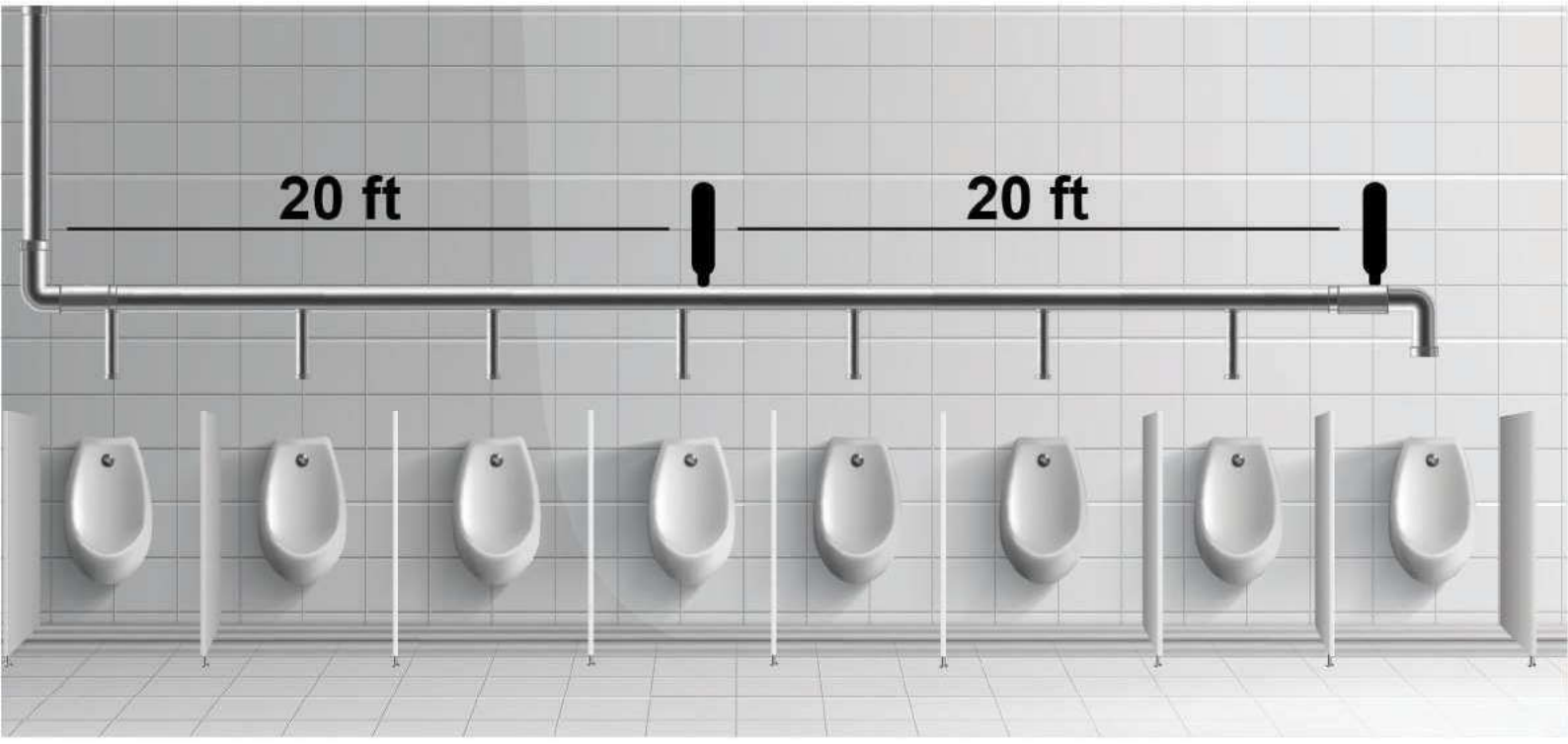
Table 1 lists the fixture unit values for various fixtures for both hot and cold water supplies. These fixture unit values are widely used by engineers to help them size their water distribution systems. These values can be used in the sizing and placement of engineered water hammer arresters at the same time that the piping systems are sized.

Sizing and Selection- Table 2

PDI Symbol	Connection Size	Model Size	Fixture Unit
AA	1/2" (15 mm)	FWHA-AA15	1-4
A	1/2" (15 mm)	FWHA-A15	1-11
B	3/4" (20 mm)	FWHA-B20	12-32
C	1" (25 mm)	FWHA-C25	33-60
D	1" (25 mm)	FWHA-D25	61-113
E	1" (25 mm)	FWHA-E25	114-154
F	1" (25 mm)	FWHA-F25	155-330

The size of the water hammer arrester is to be based on the capacity of the arrester to control the shock wave in different piping systems. Table 2 takes into consideration all design factors, thereby, providing an easy, accurate method of determining the proper sized water hammerr arrester for each multiple fixture branch line.

If the branch line is 20 ft (6m) or less in length, place one arrester at the end of the line.



If the branch line is more than 20 ft in length, place an additional arrester at the end of the 20 ft section.

FWHA- Series - Lead Free

Water Hammer Arrestors

Size: 1/2" (15mm) - 1" (25mm)
Available in PDI Unit Size AA - F

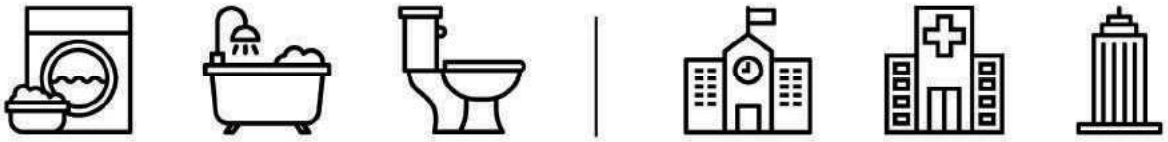
- Install as close to shock source as possible
- Install a shock arrestor on both hot and cold lines

Operating Pressure

Designed to operate on all domestic and commercial line at 150 psi (10.3) working pressure. Systems which exceed 60 psi (414 kPa) shall be installed with a pressure reducing valve upstream of the unit.

Temperature Range: 33° to 180° F (0.5° C - 82°C)

Installation Guide:



Standards

AS PER P.D.I. WH201 STANDARDS