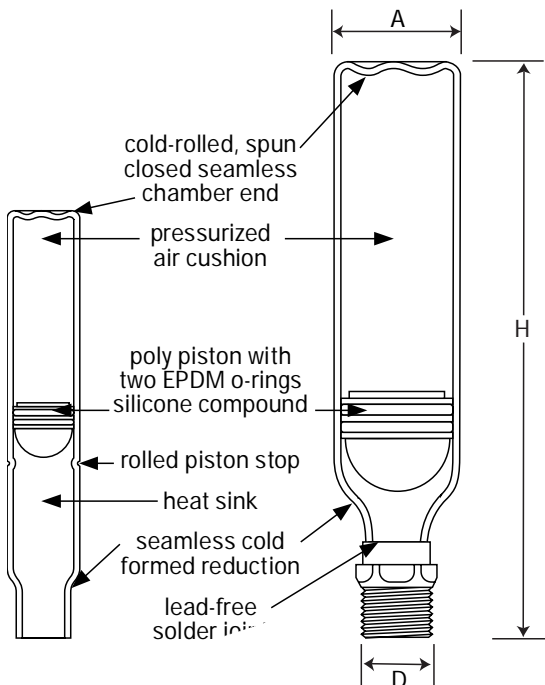


The NSV Water Hammer Arrestors are engineered devices that provide a maintenance-free continuous protection system against detrimental destructive forces generated by the immediate cessation of water flowing in the water distribution system. NSV Water Hammer Arrestors provide a permanently sealed cushion of gas isolated from the waterway providing continuous protection and prolonging the service life of valves, piping, fittings, trim equipment, appliances, appurtenances, and other devices which are part of the distribution system. The products are manufactured from copper tube, with pistons and O-rings made of special materials and the air-layer which is completely isolated from water by O-ring guarantees semi-permanent life span. To ensure perfect operation as a water hammer arrester, volume appropriateness and reliability for each model has been checked and proven through 100,000 cycle tests.

- One moving part in the product: Maintenance-Free
- Designed for vertical and horizontal installations:
Flexible installation options in new or existing plumbing systems.
- Robust and simple construction: Superior reliability and increased service life of other devices in distribution system.
- Suitable for all potable water applications:
Designed to operate domestic and commercial water distribution systems. (Available with BS Thread or Sweat Connection.)
- The temperature range is 0° C to 120° C.
- Air charging pressure: 414 kPa
- Operating pressure: 10 kgf/cm² • Maximum operating pressure: 32 kgf/cm²



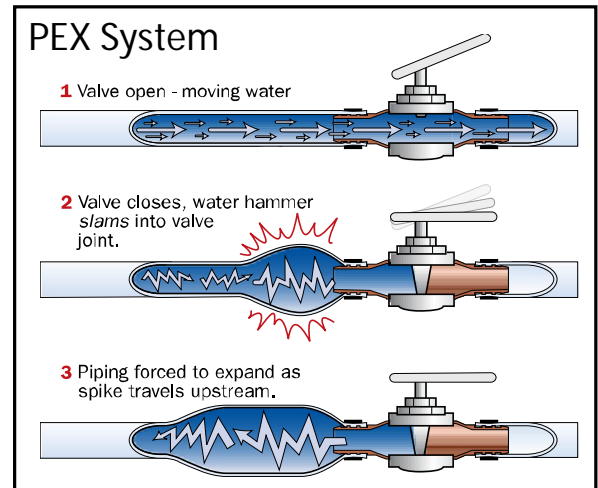
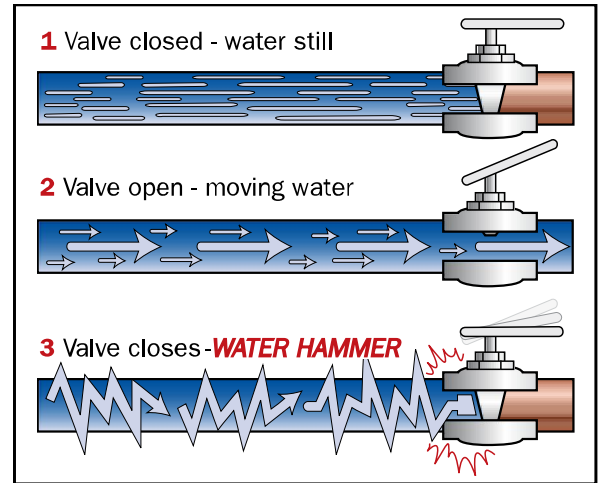
DIMENSIONS AND WEIGHTS



TYPE	DIMENSION (MM)			AIR VOLUME (CC)	WEIGHT (KG)
	H	A	D		
WHA-S-AA	150	22.2	15A	31	0.2
WHA-I-AA	153				0.1
WHA-S-A	210	28.5	15A	80	0.2
WHA-I-A	215				0.2
WHA-S-B	210	34.9	20A	110	0.3
WHA-S-C	226	53.9	25A	180	0.5
WHA-S-D	265	53.9	25A	320	0.7
WHA-S-E	338	53.9	25A	470	0.8
WHA-S-F	400	53.9	25A	590	0.9

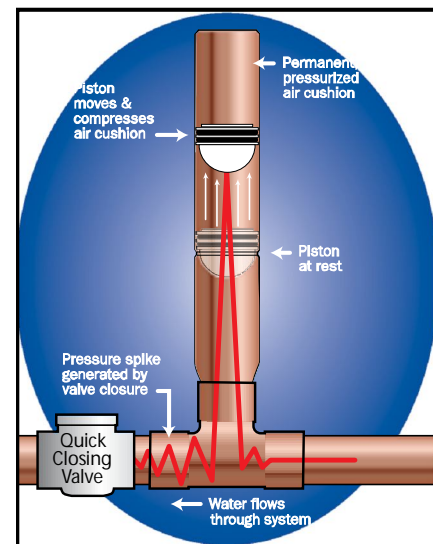
What is Water Hammer

Water hammer is usually recognized by the banging or thumping noise that is heard when valves are shut off. Although this is an easy way to recognize the problem, water hammer doesn't always make these telltale noises. Water hammer occurs when the flow of moving water is suddenly stopped by a closing valve. This sudden stop causes the whole column of water behind the valve to slam into the valve, and itself, like a freight train crashing into a wall. The tremendous spike of pressure that is caused, is called water hammer, and it not only acts like a tiny explosion inside pipes, it can be just as destructive. Uncontrolled water hammer on a water line of just 50 PSIG, will commonly result in pressure spikes of 250 to 400 PSIG. This pressure spike is not just at the valve, it reverberates backwards from the valve throughout the plumbing system, rattling and shaking pipes, until it is absorbed. If there are no measures taken to control it, water hammer will accelerate the failure of water heaters, valves, backflow preventers, washing machines hoses, pipe, fittings, etc. Any quick-closing valve can cause water hammer. In residential systems, these valves are typically found at the washing machine, dishwasher, the tub/shower, and the ice maker at the refrigerator. Kitchen or lavatory faucets, toilet ballcocks and lawn sprinklers systems can also create the problem. Water hammer can occur on both the hot and cold water supply lines.



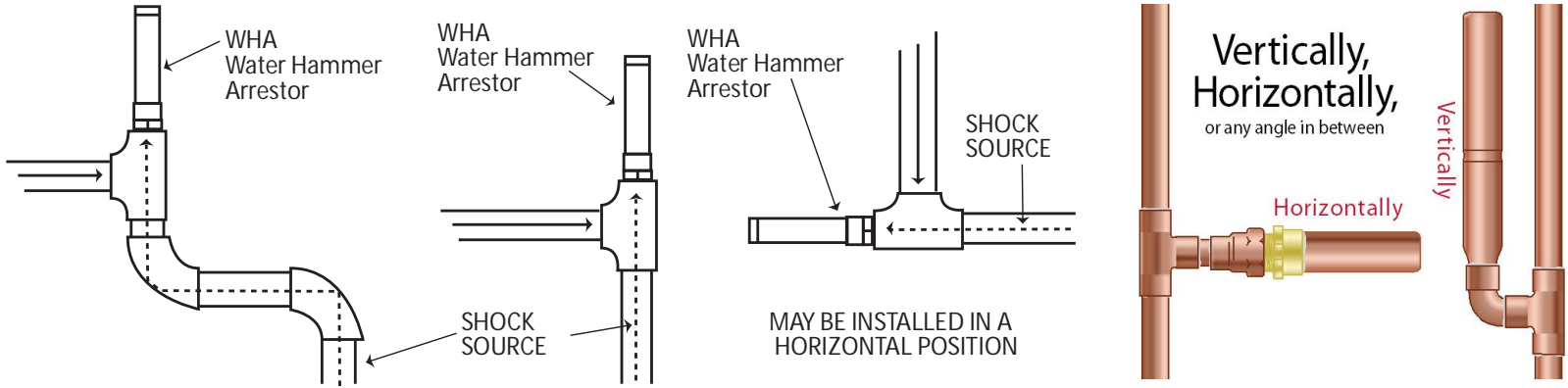
Controlling Water Hammer

The most effective means of controlling water hammer is a measured, compressible cushion of air that is permanently separated from the water system, that is, an engineered water hammer arrester. NSV arresters employ a pressurized cushion of air and a dual o-ring piston, in a sealed seamless chamber, which permanently separates this air cushion from the water in the system. When a valve closes the water column is diverted into the arrester thus pushing the piston up the arrester chamber against the pressurized cushion of air. The air cushion in the arrester reacts instantly, preventing the pressure spike that causes water hammer. The piston then returns to its original position after the shock is absorbed, ready for the next occurrence.

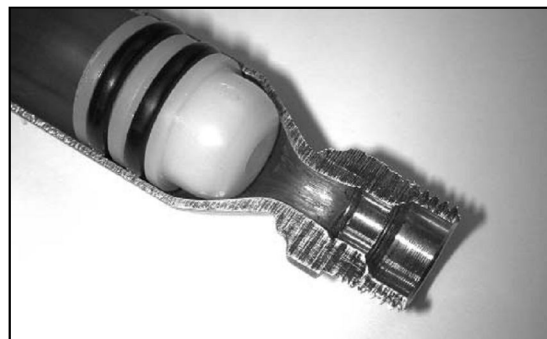


Typical Installation

WHA arresters can be installed vertically, horizontally, or any angle in between.

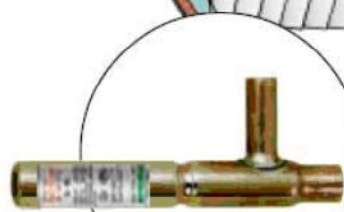
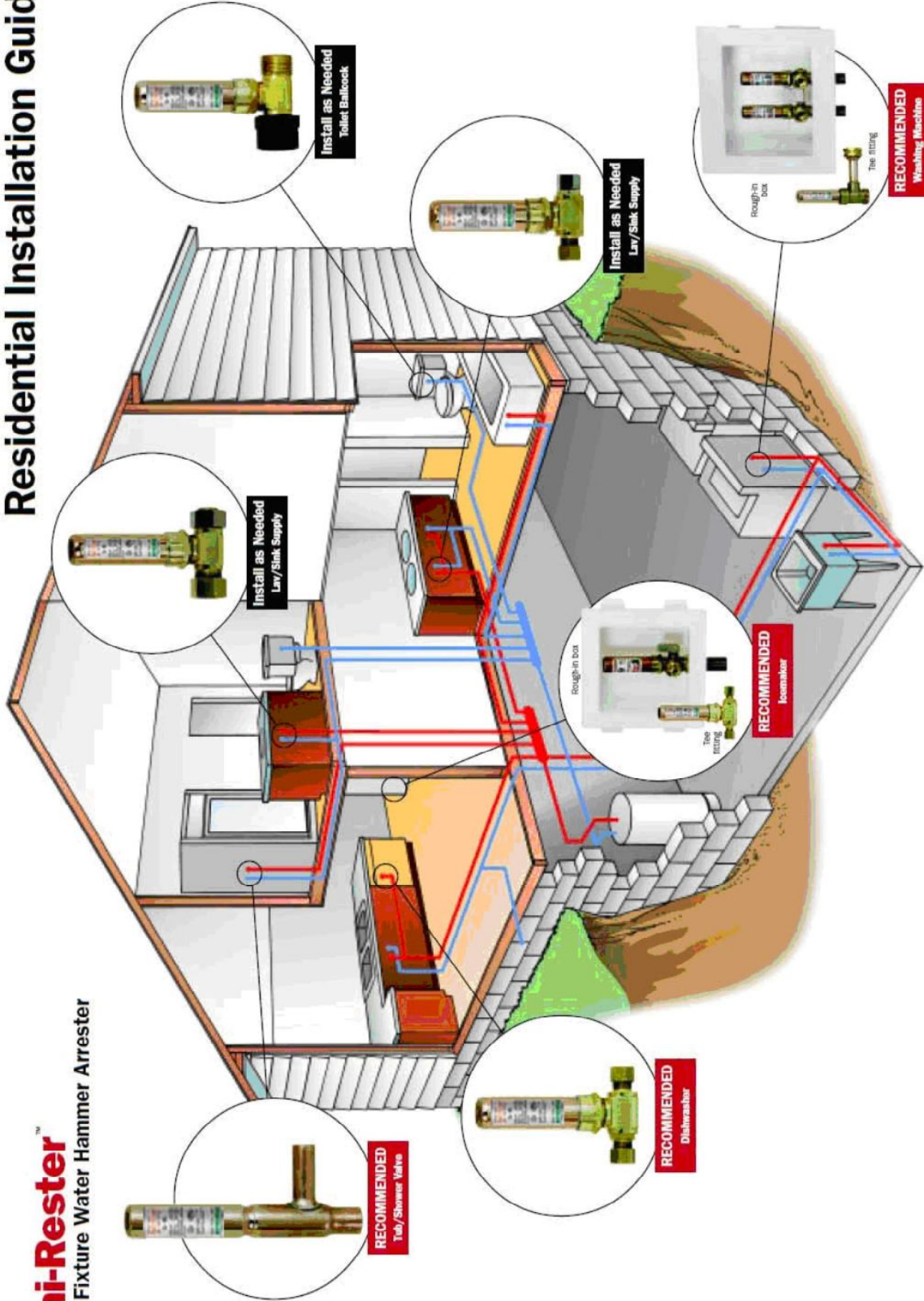


Tested and Listed



Residential Installation Guide

Mini-Rester[™]
Single Fixture Water Hammer Arrester



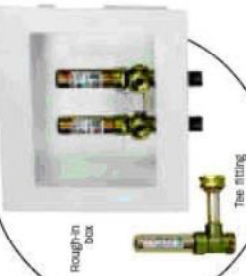
RECOMMENDED
Tub/Shower Valve



RECOMMENDED
Dishwasher



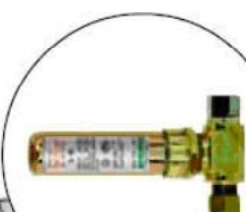
RECOMMENDED
Iceemaker



RECOMMENDED
Washing Machine



Install as Needed
Lav/Sink Supply



Install as Needed
Lav/Sink Supply



Install as Needed
Toilet Ballcock

The Mini-Rester™ . . . Well Connected

No matter what your application, we have the connection you need.



Washing Machine
Install between laundry supply valves and hoses



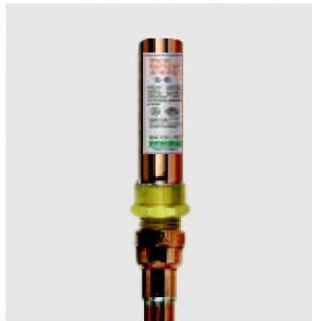
Tub & Shower Valve
Sweats directly into hot & cold supply of mixing valve.



Stop Valve Connection
Unique fitting installs between $\frac{3}{8}$ " Compression stop and supply tube, or between stub out and $\frac{5}{8}$ " Compression stop



Male Sweat
Rough-in sweat anywhere in a system. $\frac{1}{2}$ " or $\frac{3}{4}$ " male swt.



$\frac{1}{2}$ " Male Thread
New rough-in installations with $\frac{1}{2}$ " female thread fittings.



Straight Compression
 $\frac{5}{8}$ " OD is perfect for $\frac{1}{2}$ " nom. air chamber replacement.



Full-Slip Sweat Tee
 $\frac{1}{2}$ " Full-slip tee easily sweats onto any copper system.



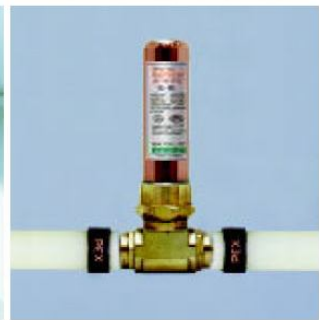
$\frac{1}{2}$ " CPVC
Easy rough-in or retrofit installation in any CPVC system



Compression Tees
Compression tees for $\frac{1}{4}$ " OD, $\frac{3}{8}$ " OD, & $\frac{5}{8}$ " OD



Ballcock Connection
Installs under tank between ballcock and supply tube



PEX Connection
Straight or tee pattern insert fitting for PEX systems



Available with MIP/FSWT, PEX, CPVC, or ProPEX connection

Laundry Box

Quality rough-in laundry box available with dual drain and single lever shut-off; or center drain with hot/cold shut-offs



Available with MIP/FSWT, PEX, or CPVC connection

Icemaker Box

Rough-in wall outlet box with arrester & quarter-turn shut off



ProPEX Tee

Barbed insert connection for ProPEX applications



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