AquaSolve®

The eco-friendly solution to hard water
Models M8414TM-COM and M8416TM-COM

Connection Sizes: 2"
Flow Rates: 50 gpm to 75 gpm (189 lpm to 284 lpm)

AquaSolve Scale Control System provides protection from scale formation on internal plumbing surfaces. The AquaSolve system may be installed at the point-of-entry to a building, or it can be located directly before a water heater, boiler, or other hot water-using device that requires protection from the ill effects of hard water. AquaSolve prevents scale by transforming dissolved hardness minerals into harmless, inactive microscopic crystal particles. These crystals stay suspended in the water and are passed to drain, thereby having a greatly reduced ability to react negatively like dissolved hardness does. The system requires very little maintenance, no backwashing, no salt, and no electricity. Typical hardness problems, especially build-up of scale in pipes, water heaters, boilers and on fixtures are no longer a concern.

AquaSolve is not a water softener or a chemical additive (like anti-scalants or sequestrants). It is a scale prevention device with proven third party laboratory test data and years of successful commercial applications. AquaSolve is the one water treatment device that effectively provides scale protection and is a great alternative to water softening (ion exchange) or scale sequestering chemicals.

M8416TM-COM

Features

- Chemical-free scale prevention and protection – converts hardness minerals to harmless, inactive microscopic crystals making AquaSolve an effective alternative technology to a water softener for the prevention of scale due to water hardness
- Virtually maintenance free - no control valve
- Uses environmentally friendly technology by using no salt or other chemicals to constantly add, no electricity and no wastewater
- Improves efficiency of all water using appliances – both hot** and cold
- Simple sizing & installation – all you need to know is pipe size and the peak flow rate
- Perfect system for towns or communities where water softeners are banned or restricted
- For high-flow applications, install multiple tanks in parallel AquaSolve does not remove minerals or add sodium to the water supply
- AquaSolve can be installed as pre-treatment to commercial reverse osmosis systems (contact your PVI Representative for further details)

The wetted surface of this product contacted by consumable water contains less than 0.25% of lead by weight.

Systems are certified through WQA against NSF/ANSI/CAN Standard 61, CSAB483.1, and to NSF/ANSI 372 for Lead Free compliance.

WARNING

Do not use with water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system.

Models

Model	Ordering Codes	Maximum Flow Rate
M8414TM-COM	144900	50 gpm (189 lpm)
M8416TM-COM	144901	75 gpm (284 lpm)

Connections

Inlet Connection: 2" Stainless Steel FNPT
Outlet Connection: 2" Stainless Steel FNPT
Two 2 inch MNPT flex connectors are furnished and must be used in installation.

Replacement Media

Model	Ordering Codes	Timing
AM8414-COM-RM	144907	Media should be replaced every 3 years
AM8416-COM-RM	144908	Media should be replaced every 3 years

Specifications

AquaSolve scale prevention system shall be installed on the main water service pipe just after it enters the building, but after other whole building water safety devices (backflow preventers or pressure reducing valves), to effectively address water hardness concerns. A system may also be installed further downstream to protect specific equipment or areas within a plumbing system. The system shall be plumbed with a bypass valve to allow isolation of tank(s) and to allow the bypass of untreated water in the event that service or media replacement be necessary. The installation area should be suitable in size for the tank(s) to be serviced without encumbrance and sit upright on a flat level surface.

The system must operate in an upflow manner and does not require additional water to backwash, flush, or regenerate once put into service. The system does not require any chemical additives and does not require electricity for operation.

Multi-tank systems shall be installed in parallel with PVC/CPVC manifold to meet peak flow rate requirements – see image on next page.

NOTICE

Important notice about iron, manganese and copper in the water supply.

Standards

Independent scientific testing has confirmed Template Assisted Crystallization (TAC) technology provides scale reduction of over 95+%. Testing was conducted under protocol based on DVGW W512 test to access control of scale formation.

Feed Water Chemistry Requirements

pH	6.5-8.5
Hardness (maximum)	30 grains (513 ppm CaCO3)*
Water Pressure	15 psi to 150 psi (1.03 to 10.34 bar)
Temperature	40°F to 100°F (5°C to 38°C)
Free Chlorine	< 2 ppm
Iron (maximum)	0.3 ppm**
Manganese (maximum)	0.05 ppm**
Copper (maximum)	1.3 ppm***
Oil & H2S	Must be Removed Prior to AquaSolve
Total Phosphates	< 3.0 ppm
Silica (maximum)	20 ppm****
TDS	< 1500 mg/l*****

NOTICE

Water known to have heavy loads of dirt and debris may require pre-filtration prior to AquaSolve.

*Systems using AquaSolve technology are effective at controlling limescale formation inside the plumbing system at influent hardness levels up to 75 grains per gallon (1282 mg/l) of calcium carbonate. Due to variances in water chemistry, 30 grains per gallon is a recommended hardness maximum due to potential aesthetic issues related to soft scale residue formation outside of the plumbing system. Testing should be performed to determine proper application where hardness levels exceed 30 grains per gallon.

**Just as with conventional water softening media, AquaSolve media needs to be protected from excess levels of certain metals that can easily coat the active surface, reducing its effectiveness over time. Public water supplies rarely, if ever, present a problem, but if the water supply is from a private well, confirm that the levels of iron (Fe) and manganese (Mn) are less than 0.3 mg/L and 0.05 mg/L, respectively.

***Pursuant to the EPA drinking water standards, the copper concentration permitted is up to 1.3 ppm. Typically originating from new copper plumbing, high levels of copper can foul AquaSolve media. For applications with copper concentration greater than 1.3 ppm, please consult Watts Water Quality Technical Service. To further minimize any problem with excess copper, avoid applying excessive flux on the inner surfaces of the pipe and use a low-corrosivity water soluble flux listed under the ASTM B813 standard.

****AquaSolve media does not reduce silica scaling. While silica tends to have a less significant effect on scale formation than other minerals, it can act as a binder that makes water spots and scale residue outside the plumbing system difficult to remove. This 20 ppm limitation is for aesthetic purposes.

*****All other contaminants must meet the requirements of the USEPA Safe Drinking Water Act. Specific Mineral and Metal MCL's, identified in Watts published Feed Water Chemistry Requirements, supersedes the USEPA SDWA.

*It is very important to use flexible connections on the inlet and outlet plumbing in the horizontal orientation as shown in the images on this page. The tanks expand and contract with water pressure fluctuations. Flexible connectors will prevent plumbing and tank leaks. The EDP code for the suggested PVI 2" Flex-ible Connectors is C515285 (Two are included and required for installation).

Anytime AquaSolve systems are installed above the ground floor of a building it is recommended that a vacuum relief valve also be installed to protect against tank collapse in the event the plumbing system is drained. If a vacuum relief valve is not used then the system should be placed in bypass anytime the plumbing system is drained. The EDP code for the suggested vacuum relief valve is 0556031 (not included). The vacuum relief valve should be installed on the outlet of the system.

Typical Installation for single and multi-bank systems
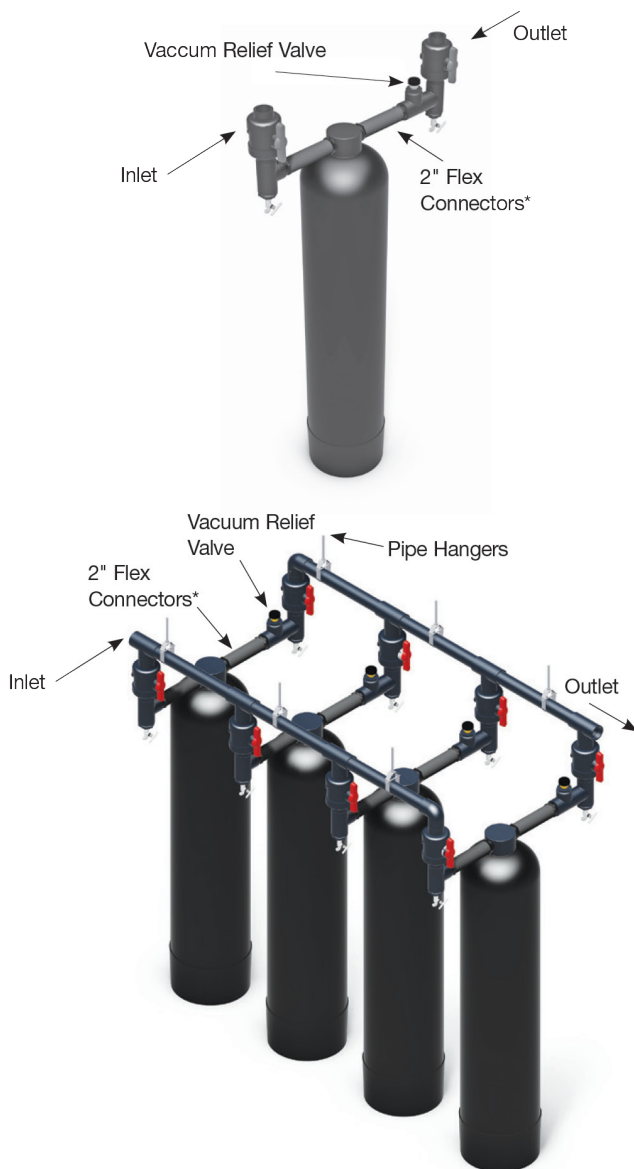
Install Piping

Connect the inlet and outlet plumbing according to your preferences and any applicable local codes. Include sample/drain ports with hose-bibb connections on the inlet and outlet piping to facilitate startup and service.

WARNING

Support the Piping

2 inch Flex Connectors must be installed horizontally not vertically in the water pipe line. The full weight of the piping and valves must be supported by uni-strut, pipe hangers or other means. The tank connections cannot support the weight of the piping. The image below for a multi-tank system installation shows properly supported piping.

NOTICE

Not for use on closed loop systems.

WARNING

Using AquaSolve with other water treatment equipment.

Due to the unique properties of the media, there are some unique requirements for using AquaSolve in conjunction with filtration or other forms of water treatment.

1. AquaSolve must be the last stage in the treatment chain. Do not install any filters after AquaSolve or before any devices for which scale prevention is required. POU filters, e.g. carbon, RO or Ultraviolet (UV) are exempt from this requirement.
2. Do not apply any other antiscalants before or after AquaSolve.
3. The addition of soaps, chemicals, or cleaners, before or after AquaSolve treatment, may reverse its anti-scale treatment effects and/or create water with a heavy residue or spotting potential. Any adverse conditions caused by the addition of soaps, chemicals, or cleaners are the sole responsibility of the end user.
4. AquaSolve is not a water softener and does not soften the water - water treatment chemistry (e.g. antiscalants, sequestrants, soaps, chemicals or cleaners etc...) will most likely have to be changed to be compatible with AquaSolve treated water. Laundry and ware-washing chemistry will likewise require adjustments.

NOTICE

Spotting May Occur on External Plumbing Surfaces

AquaSolve media systems perform best in single pass potable water applications with NO additional chemical additives. Depending on hardness, soft scale spotting may occur. Soft scale spots in most cases can be easily wiped down with a damp cloth and will not form hard scale deposits. A Point of Use (POU) Water Softener should be used on mandatory spotfree applications (e.g. glass stemware, dishware).

Weights

	M8414TM-COM	M8416TM-COM
Dry Weight	124 lbs / 56 kgs	145 lbs / 66 kgs
Service Weight	458 lbs / 208 kgs	550 lbs / 250 kgs

Maximum Service Flow (gpm) vs. Water Temperature

Continuous Duty Systems:

Models	40°F	45°F	50°F	55°F	60°F	65°F	70°F
M8414TM-COM	40	44	48	50	50	50	50
M8416TM-COM	45	51	56	59	63	69	75

Maximum feed water temperature 100°F.

Intermittent Duty Systems:

M8414TM-COM	50 GPM at all temperatures
M8416TM-COM	75 GPM at all temperatures

Intermittent duty is defined as less than 2 hours of Maximum Flow per 24 hour period. Higher Flow rates can be achieved by combining systems in an array.

Maximum Flow Rate

Models	gpm	lpm	Δp
M8414TM-COM	50	189	<22 psi
M8416TM-COM	75	284	<22 psi

Exceeding maximum flow can reduce effectiveness and void warranty. Pressure drop at peak flow rate is less than 22 psi at 80°F feed water.

Dimensions

Models	A	B
M8414TM-COM	14 in	73.1 in
M8416TM-COM	16 in	73.1 in

The overall height and the height of the inlet fitting varies due to material variations and assembly tolerances. Please allow additional clearance above the tank for making connections.
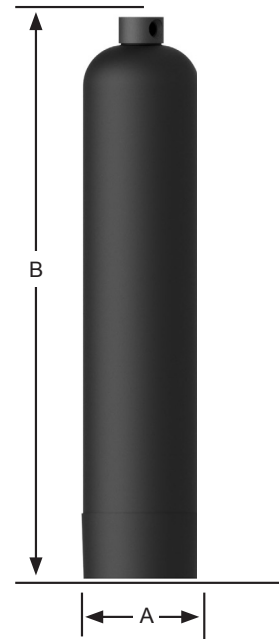

NOTICE

The information contained herein is not intended to replace the full product installation and safety information available or the experience of a trained product installer. You are required to thoroughly read all installation instructions and product safety information before beginning the installation of this product.