Product Preservers®
Anti-Scale System

PRODUCT PRESERVERS®
ANTI-SCALE FILTER SYSTEM

TAKAGI

Overview

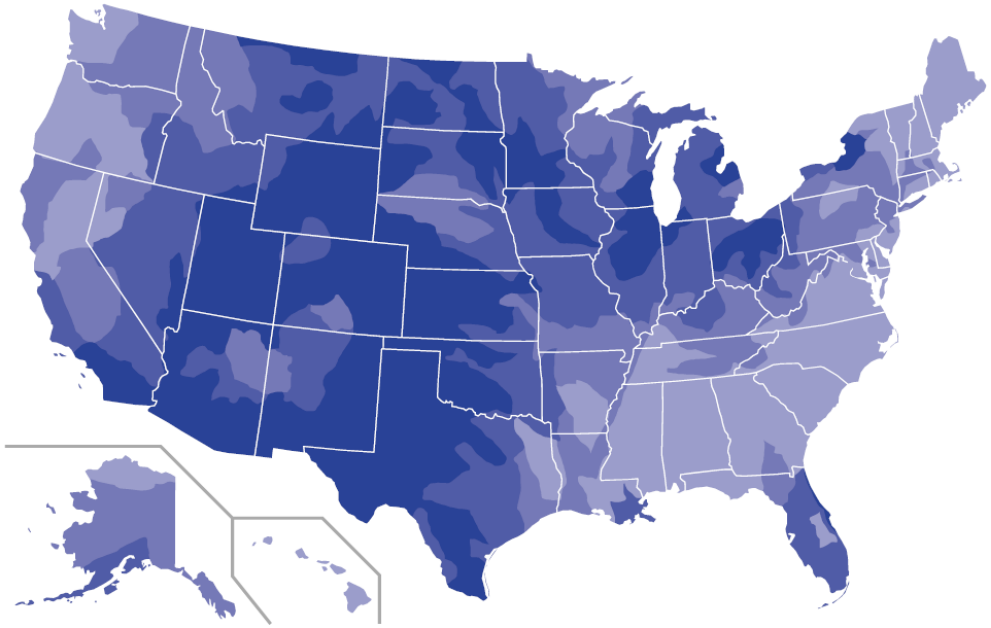
Damage due to hard water scale is a leading cause of tankless water heater failures.

Product Preservers® Anti-Scale System is the best system to protect tankless water heaters because it prevents scale buildup in the first place.

- The filter promotes formation of inactive scale crystals which flow through the water heater without sticking to the heat exchanger. It may also reduce scaling on other downstream appliances and fixtures like a dishwasher or faucet.
- The filter does not add chemicals to the water or require electricity.
- It is virtually maintenance free, only requiring a simple filter change every two years.

Hard Water Conditions

More than 85% of American homes have hard water



LEGEND FOR WATER QUALITY MAP

Hardness	MG/L	Grains Per Gallon
0-60 Slightly Hard	0-60	0-3.5
61-120 Moderately Hard	61-120	3.5-7
121-180 Hard	121-180	7-10.5
181-250 Extremely Hard	181-250	10.5-14.5

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Preventing Scale

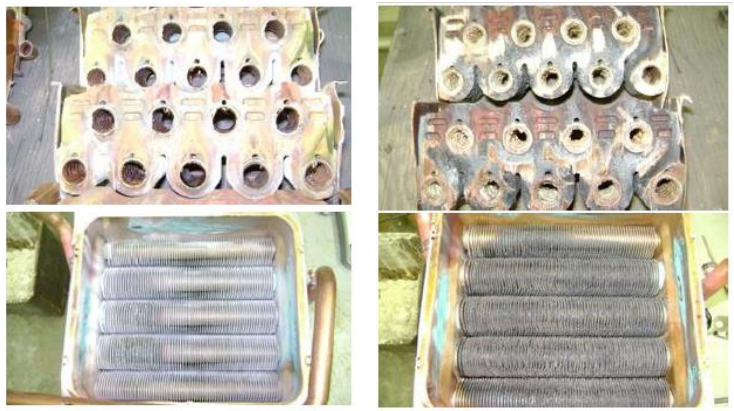
Product Preservers System significantly reduces scale accumulation in the heat exchanger while still being virtually maintenance free

Left Side: PP Filter

330k gallons during test

Significantly less scale inside heat exchanger

Cooler, more consistent flue gas temperatures representing continued high efficiency operation



Right Side: Without Filter

148k gallons during test

Scale formed throughout the heat exchanger

Higher flue gas temperatures indicating that the efficiency is decreasing

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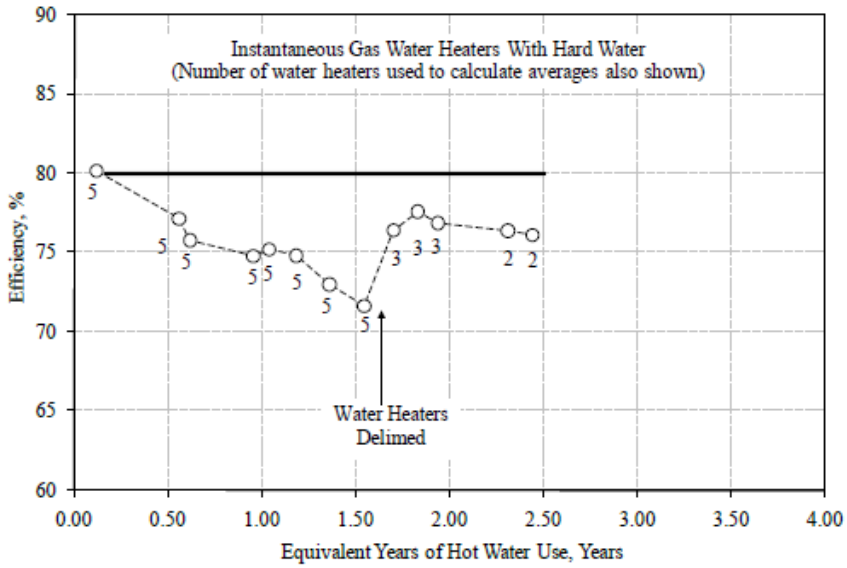
Better than Descaling

Product Preservers System is better at protecting a tankless water heater from hard water than using isolation valves to descale the heater

- Without a Product Preservers System or other water treatment, a tankless water heater must be flushed annually or more often depending on local conditions to remove scale buildup.
- Flushing out scale is a temporary fix that doesn't return the heater to full efficiency[1].

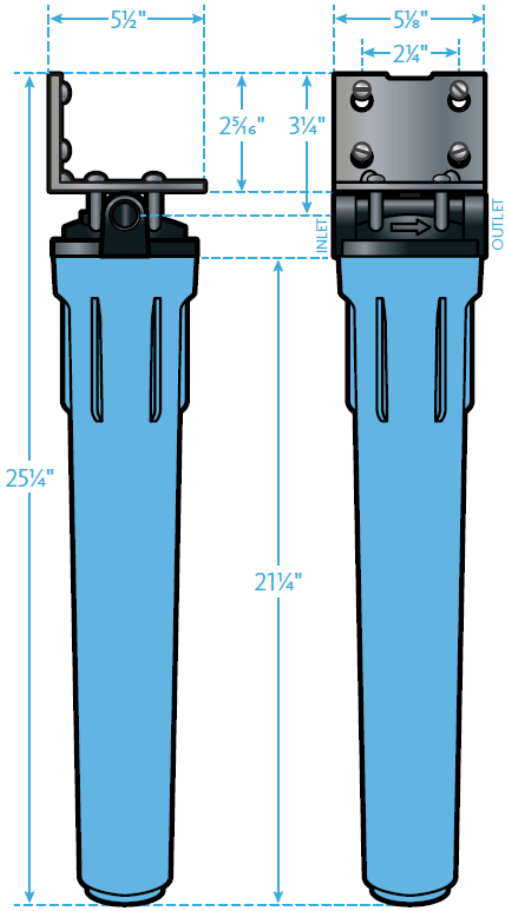


[1] Paul, D. D., Gadkari, V. V., Evers, D. P., Goshe, M. E., & Thornton, D. A. (n.d.). *Study On Benefits of Removal of Water Hardness (Calcium and Magnesium Ions) From A Water Supply* (p. 14, Tech.). Columbus, OH: Battelle Memorial Institute.

Specifications

Connection Size	3/4" NPT
Maximum Flow	7 gpm
Minimum Pressure	20 psi
Maximum Pressure	100 psi
Minimum Temperature	40° F
Maximum Temperature	100° F
Maximum Hardness	45 gpg
Maximum Chlorine	2.0 ppm

Install on cold water lines only



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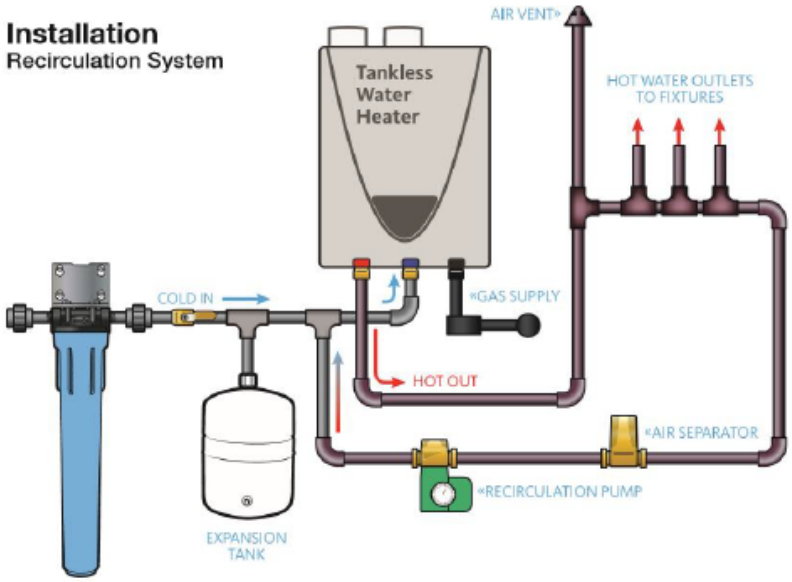
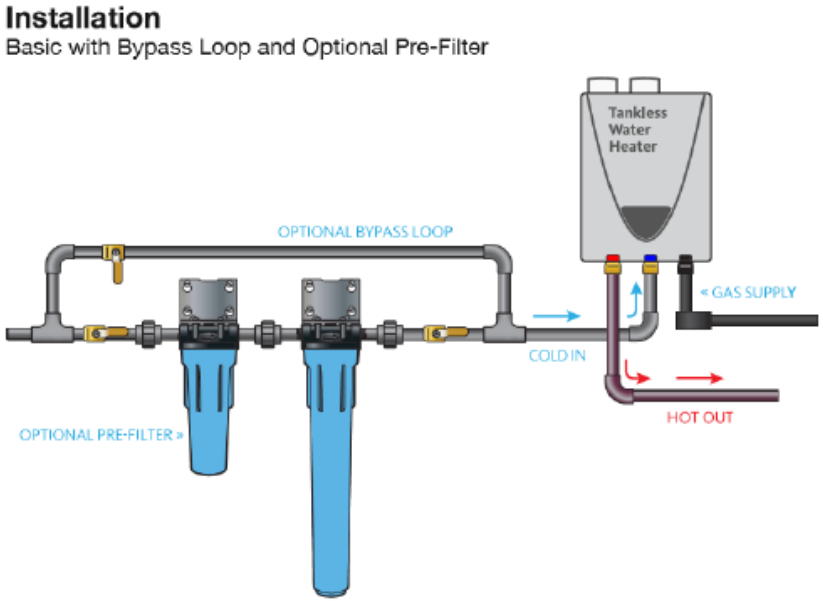
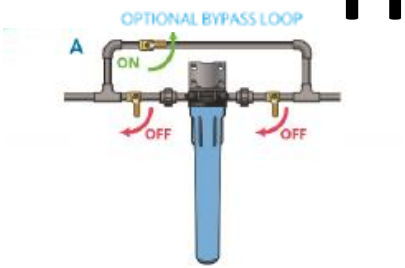
Installation

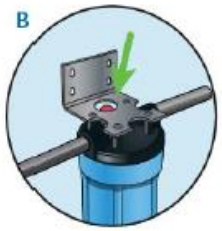


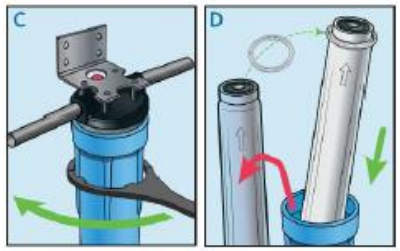


Note installation date for replacement element scheduling.

Filter Cartridge Replacement







1. Replace filter cartridge at least every two years to ensure proper operation.
2. Determine if equipment connected to your Product Preservers System must be turned off before shutting off the water.
3. If bypass line is installed, bypass system during filter change. Open bypass valve, close unit inlet valve, and close unit outlet valve. **Figure A**
4. If no bypass line is installed, turn off feed water.
5. Release pressure to system by pressing red button on top of unit. **Figure B**
6. Unscrew housing sump using included wrench if necessary. **Figure C**
7. Discard old cartridge. Retain spacer. **Figure D**
8. Insert new cartridge into sump. Re-use the spacer that was included with the original unit. **Figure D**
9. Inspect O-ring for any damage and replace if necessary. **Figure E**
10. Re-install filter housing sump. HAND TIGHTEN ONLY.
11. Pressurize system by slightly opening feed valve. Once pressurized, open valve fully. Inspect seals for any leaks. If there is a leak, you may tighten the sump slightly more with the wrench.
12. Flush system for 2 minutes with drain valve open. If no drain valve is installed, disconnect from equipment for flush cycle.
13. Turn on all equipment connected to system.
14. Record filter change date for replacement cartridge scheduling.

Warranty

Limited Warranty

Company warrants its Product Preservers® Anti-Scale System as follows:

- The Product Preservers® cartridge system is warranted to be free of defects in materials and workmanship for **two years** from the date of original shipment.
- Product Preservers® filter cartridges are warranted for performance for a period of two years from the date of original installation when installed and operated in accordance with the instructions in the corresponding Installation and Operation Manual.