

# Installation, Operation and Maintenance Manual



Series CH2F-50, CH2F-75  
H2Flow™ Anti-Scale System  
Chemical-Free, Salt-Free Scale Prevention

## Introduction

The H2Flow™ Anti-Scale System provides protection from scale formation on internal and external plumbing surfaces. The H2Flow™ system can be installed at the point of entry to a building to treat both hot and cold water, or it can be located directly before a water heater, boiler, or other water using device that requires protection from hard water.

H2Flow™ prevents scale by transforming the normal dissolved hardness minerals into undissolved crystal microparticles. These crystals stay suspended in the water and have a greatly reduced ability to react and attach to surfaces like dissolved hardness does. Therefore the problem of internal buildup of scale in pipes, water heaters and on fixtures and glass is greatly reduced.

H2Flow™ is not a water softener – Water treatment chemistry (e.g. antiscalants, sequestrants, etc.) will most likely have to be changed to be compatible with H2Flow™ treated water. Laundry and ware-washing chemistry will likewise require adjustments.

## H2Flow™ Benefits

- Chemical free scale prevention. Cost savings and environmental benefits.
- Virtually maintenance free. No salt bags or other chemicals to buy, transport and store.
- No electricity, no wastewater, completely self-contained.
- Improves the efficiency of water-using appliances.
- Simple installation – no electrical and drain hookup.
- Safe for landscaping and lawn watering. No need for costly bypass plumbing.
- Compatible with all on-site and community wastewater treatment systems.
- Not subject to water softener restrictions and “bans”.
- H2Flow™ treated water has no added sodium, is safe to drink and is well suited for use in food and beverage preparation.





## Important Note about Iron, Manganese and Copper in the Water Supply

### Iron and Manganese

Just as with conventional water softening media, H2Flow™ 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. Copper should be less than 1.3 mg/L.

### Copper

Copper usually originates from new copper plumbing upstream of the H2Flow™ system. If this condition exists, we recommend waiting 3-4 weeks before placing the system in operation. This will allow the copper surfaces to be fully flushed and develop a natural protective surface. To further minimize any problem with excess copper, avoid applying excess flux on the inner surfaces of the pipe and to use a low-corrosivity water soluble flux listed under the ASTM B813 standard. Once the plumbing connections are complete, place the H2Flow™ system in bypass prior to following the startup procedure and flush the plumbing for at least 10 minutes.



## Caution

- Do not let the system freeze. Damage to the tank may result.
- System must be operated in a vertical position. Do not lay it down during operation. The system may be placed in any position for shipping and installation but must be operated in the vertical position.
- Place the system on a smooth, level surface. Because the system operates in an upflow, fluidized bed mode, having a level surface is more important than with a softener or media filter.
- A bypass valve should be installed on every system to facilitate installation and service.
- Observe all local plumbing and building codes when installing the system.



## Notes to the Installer

The H2Flow™ system differs from a conventional softener or media filter in a number of key respects.

- The system is light and only partially filled with media. This is normal. The upflow operation of the system requires a lot of freeboard to allow the bed to fully fluidize.
- The system has no underbed so you can tip the system over without any fear of upsetting the media. This makes transportation and installation much easier than conventional systems.
- Because the H2Flow™ system operates in the UpFlow mode, the tank connections are opposite of what you're used to.
- Please see the Important Note about Iron, Manganese and Copper above.
- Please see the note about "Using H2Flow™ with other water treatment equipment" on the next page.

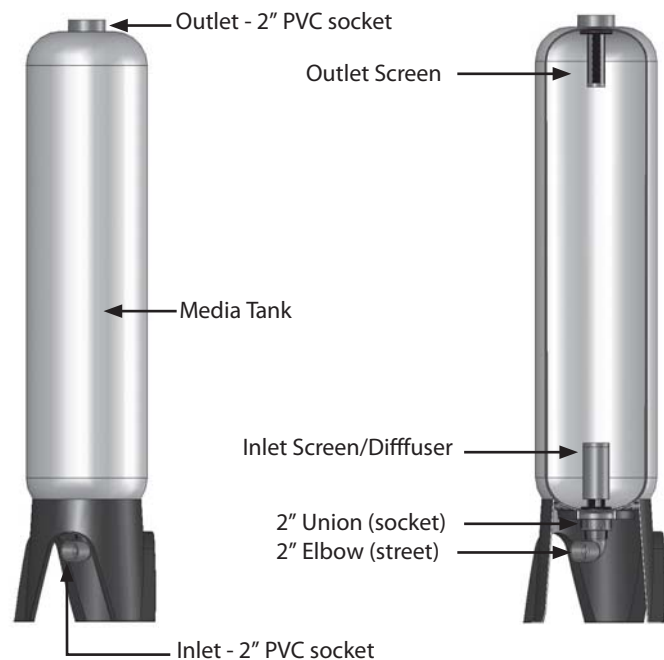


## Installation Precaution

- Do **NOT** install system on line pressure above 125psi.
- Do **NOT** install the system backwards with the feed water line connected to the outlet.
- Do **NOT** install system in direct sunlight or where system is exposed to harsh chemicals or may be subjected to being struck by moving equipment, carts, mops or any other item that may cause damage.
- **IF** water hammer is evident, install water hammer arrestors before the H2Flow™ unit.
- Always back-up valves and fittings with a wrench when installing a fitting to avoid turning the valve.
- Do **NOT** install the unit behind equipment where it may be difficult to access the system for filter replacement.

Position the H2Flow™ unit in a suitable location. Do NOT install the H2Flow™ system near any source of heat. Also, do not install the system near any device or area that would be adversely effected by water.

## System Overview



## Using H2Flow™ with other water treatment equipment.

Due to the unique properties of H2Flow™, there are some unique requirements for using H2Flow™ in conjunction with filtration or other forms of water treatment.

1. H2Flow™ must be the last stage in the treatment chain. Do not install any filters after H2Flow™ or before any devices for which scale prevention is required. POU filters, e.g. carbon or RO are exempt from this requirement.
2. Do not apply phosphate or any other antiscalant either before or after H2Flow™.

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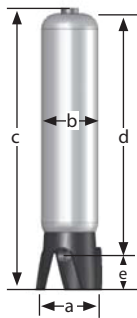
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## Equipment Specifications

H2Flow™ systems are complete, self-contained, loaded with media and ready to use. A simple inlet and outlet connection is all that is required for installation. Please review operating pressures, temperatures and water chemistry limitations to ensure compatibility.

### Specifications

Inlet Connection	2" PVC Union with Socket.
Outlet Connection	2" PVC Socket
Temperature	40° - 110°F
pH	6.5 to 8.5
Ferrous Iron, Max*	0.3 mg/L
Manganese, Max*	0.05 mg/L
Copper, Max*	1.3 mg/L
Water Pressure	15 min, 100 max (PSI)



### Mechanical Specifications

MODEL	CH2F-50	CH2F-75
Dry Weight (lbs)	54	68
Service Weight (lbs)	350	420

Dimensions (nominal - inches)		
a	17	17
b	14	16
c*	79	79
d	65	65
e*	10.25	10.50

\* 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.

## Maximum Service Flow (gpm) vs. Water Temperature

### Continuous Duty Systems:

System	40°F	45°F	50°F	55°F	60°F	65°F	70°F
CH2F-50	40	44	48	50	50	50	50
CH2F-75	45	51	56	59	63	69	75

### Intermittent Duty Systems:

CH2F-50	50 GPM at all temperatures
CH2F-75	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.
- Pressure drop at peak flow rate is less than 10 psi. Pressure drop reading taken with inlet and outlet gauges installed at a common elevation and 80 degree feed water.



## Important Notes

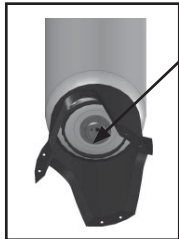
NOTE: We recommend the installation of a dual-union ball-valve on the inlet and outlet to isolate the tank for servicing.

NOTE: A full bypass should be installed so that the full service flow can be routed around the system as needed for servicing.

NOTE: The H2Flow™ system operates in the Up-Flow mode which is opposite of a conventional softener. The inlet is on the bottom, the outlet on the top.

## Installation

### Tighten the Tank Bushings



Tank Bushing - Rotate Clockwise to tighten.

Lay the tank down and check the bushings on the inlet and outlet (bottom and top) of the tank. It is common for them to loosen during shipment. Tighten the bushings with a strap wrench as needed

### 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.

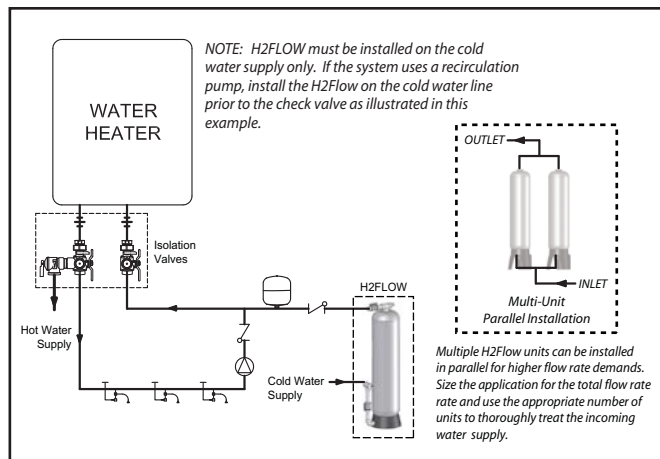


### Support the Piping

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. This photo from a multi-tank system installation shows properly supported piping.



### Example Installation



## Start-Up

Connect a hose to the hose bibb on the outlet of the tank. Run the hose to a drain.

Slowly / partially open the supply water ball valve. Allow the tank to slowly fill with water. When a steady stream of water appears at the drain, close the supply valve.

Open the inlet and outlet valves on the system. Transfer the bypass valves from Bypass to the Service position. Open a nearby faucet downstream from the H2Flow™ system to relieve any air.

Check for leaks. Repair as needed.

The system is now ready for service.



## Maintenance

Routine maintenance of your H2Flow® system involves periodic replacement of the media. If the sizing recommendations have been followed, the H2Flow® media should last three years.

### Media Change Frequency

The media should be changed in response to the following conditions.

CH2FC - 36 months since installation or last media change

### Replacement Media Part Numbers

H2Flow Model	Media Part No.	Max. Service Flow
CH2F-50	CH2FC-50	50 gpm
CH2F-75	CH2FC-75	75 gpm

### Flow Rate Capacity - Multiple Units

Multi-Tank Connection		Maximum Flow Rate*	
Qty	Models	GPM	LPM
1	CH2F-50	50	189.3
1	CH2F-75	75	283.9
2	CH2F-50	100	378.5
2	CH2F-75	150	567.8
3	CH2F-75	225	851.7
5	CH2F-50	250	946.4
4	CH2F-75	300	1135.6
5	CH2F-75	375	1419.5
6	CH2F-75	450	1703.4

NOTE: Exceeding maximum flow can reduce effectiveness and void warranty.

## Limited Warranty

- The H2Flow<sup>®</sup> tank system is warranted to be free of defects in materials and workmanship for 5 years from the date of original shipment.
- The H2Flow<sup>®</sup> media is warranted for performance for a period of 2 years from the date of the original installation when installed and operated in accordance with the instructions in the corresponding Installation and Operation Manual.

Noritz America Corporation warrants its H2Flow<sup>®</sup> cartridge systems as follows:

- The H2Flow<sup>®</sup> cartridge system is warranted to be free of defects in materials and workmanship for 1 year from the date of original shipment.
- H2Flow<sup>®</sup> cartridges are warranted for performance for a period of one year from the date of original installation when installed and operated in accordance with the instructions in the corresponding Installation and Operation Manual.
- Carbon replacement filter cartridges are not warranted to perform for any period of time because the service life of replacement carbon filter cartridges varies significantly with local water conditions and volume.

## Conditions

1. The H2Flow<sup>®</sup> system must be installed in applications with municipally supplied water adhering to EPA guidelines.
2. Any component failure must not result from abuse, fire, freezing or other acts of nature, violence, or improper installation.
3. Equipment must be installed and operated in compliance with the local plumbing codes and on an approved water supply.
4. Equipment is limited to use at water pressures and temperatures that do not exceed our published specifications.
5. Water supply must not exceed 2.0 PPM chlorine. For water supply exceeding 2.0 PPM chlorine, pretreatment is required. (Please contact your water treatment specialist)
6. Information, including model number, serial number, and date of installation, must be provided for any claims pertaining to equipment in warranty.
7. Defective parts are subject to inspection by either Noritz America Corporation or any authorized representative before final commitment of warranty adjustment is made.
8. Noritz America reserves the right to make changes or substitutions in parts or equipment with material of equal quality or value and of then current production.
9. This warranty shall not apply to any H2Flow<sup>®</sup> system installed or used for residential applications. For purposes of this warranty, a residential application is an application for a building with 4 or fewer dwelling units.

## Limitations

Our obligation under this warranty with respect to the tank or valve is limited to furnishing a replacement for, or at our option, repairing any part or parts to our satisfaction that prove defective within the warranty period stated above. Such replacement parts will be delivered to the owner F.O.B. nearest factory, at no cost, excluding freight and local labor charges, if any.

Our obligation under this warranty with respect to the H2Flow<sup>®</sup> media will be limited to furnishing a replacement for the media within two years from date of original installation. Such replacement media will be delivered to the owner F.O.B. nearest factory, at no cost, excluding freight and local labor charges, if any. Damage to the media due to chlorine, other oxidizers or fouling caused by local water conditions or any other operation outside of the limits shown under Specifications, is not covered by this warranty.

THE WARRANTY SET FORTH HEREIN IS GIVEN EXPRESSLY AND IS THE ONLY WARRANTY GIVEN BY NORITZ AMERICA CORPORATION WITH RESPECT TO THE PRODUCT. WATTS REGULATOR COMPANY MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED. NORITZ AMERICA CORPORATION HEREBY SPECIFICALLY DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

The remedy described under this warranty shall constitute the sole and exclusive remedy for breach of warranty, and Noritz America Corporation shall not be responsible for any incidental, special or consequential damages, including without limitation, freight, handling, lost profits or the cost of repairing or replacing other property which is damaged if this product does not work properly, other costs resulting from labor charges, delays, vandalism, negligence, fouling caused by foreign material, damage from adverse water conditions, chemical, or any other circumstances over which Noritz America Corporation has no control. This warranty shall be invalidated by any abuse, misuse, misapplication or improper installation of the product.

Some states do not allow limitations on how long an implied warranty lasts, and some states do not allow the exclusion or limitation of incidental or consequential damages. Therefore the above limitations may not apply to you. This warranty gives you specific legal rights, and you may have other rights that vary from state to state. You should consult applicable state laws to determine your rights. SO FAR AS IS CONSISTENT WITH APPLICABLE STATE LAW, ANY IMPLIED WARRANTIES THAT MAY NOT BE DISCLAIMED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO THE APPLICABLE WARRANTY PERIODS STATED ABOVE.

### CALIFORNIA PROPOSITION 65 WARNING

**WARNING:** This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. (California law requires this warning to be given to customers in the State of California.)



Noritz America Corporation

USA: 11160 Grace Avenue, Fountain Valley, CA 92708; [www.noritz.com](http://www.noritz.com)

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