

# Installation / Operation Manual

## REACTR™ Water Treatment System

### *Signature* Series Control Valve

For Model Numbers :

- |                               |                                |
|-------------------------------|--------------------------------|
| <input type="checkbox"/> RF10 | <input type="checkbox"/> RF10L |
| <input type="checkbox"/> RF15 | <input type="checkbox"/> RF15L |
| <input type="checkbox"/> RF20 | <input type="checkbox"/> RF20L |
| <input type="checkbox"/> RF25 | <input type="checkbox"/> RF25L |
| <input type="checkbox"/> RF30 | <input type="checkbox"/> RF30L |
| <input type="checkbox"/> RF40 | <input type="checkbox"/> RF40L |

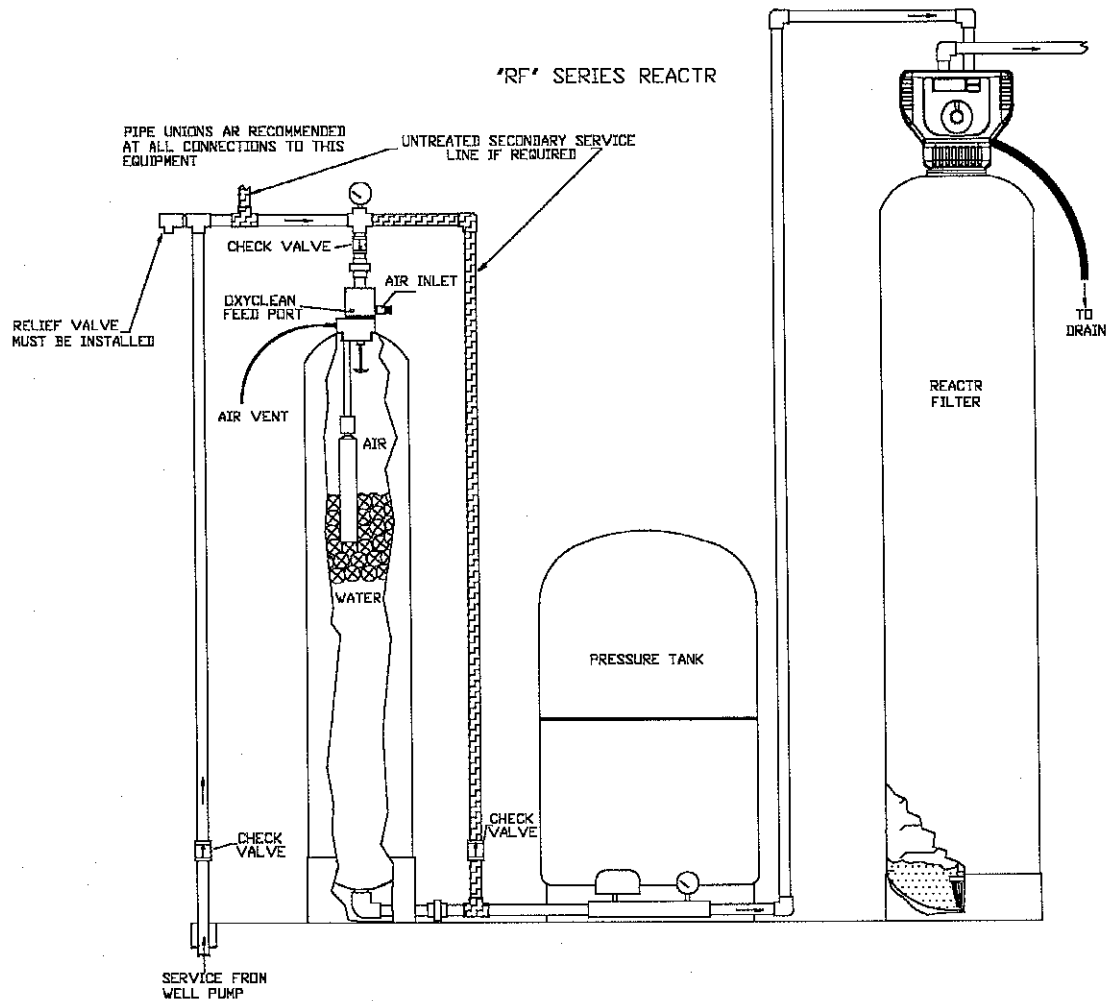


Ashland, Ohio

## How The REACTR™ Works

The REACTR™ requires no chemicals for its operation. It consists of two components : (1) REACTR™ Tank and (2) Filter Tank. The first item serves to oxidize and precipitate iron and sulfur so that they can later be removed by the filter. The water flows down through the mineral bed of the filter and out to the service lines. The collected precipitates must be regularly removed from the filter by reversing the flow of water through the filter and running to drain. Called "Backwashing" and lasting 10 minutes, the process expands the mineral freeing the iron, sulfur and turbidity which is then washed out of the filter to the drain. It is important that the correct amount of water is available for the Backwash cycle. Check pumping capacity to be certain water is available in sufficient volume to adequately backwash the equipment at the specified rate. (See specifications.)

General Specifications	RF10	RF15	RF20	RF25	RF30	RF40
Filter Media Type	REACTR™ Blend					
Filter Media Capacity (cu. ft.)	1.00	1.50	2.00	2.50	3.00	4.00
REACTR™ Tank (polyglass)	9x48	9x48	9x48	9x48	16x40	16x40
Mineral Tank (Vortech)	9x48	10x54	12x52	13x54	14x65	16x65
Service Flow Rate-Continuous (gpm)	4	5	6	8	9	11
Service Flow Rate-Intermittent (gpm)	6	7	8	10	11	13
Backwash Flow Rate (gpm)	5.0	5.0	6.0	7.0	10.0	15.0
Gallons Used / Backwash	100	100	120	140	200	300
Space Required (DxWxH inches) REACTR™ Tank	9x9x62	9x9x62	9x9x62	9x9x62	16x16x51	16x16x51
Space Requires (DxWxH inches) Filter Tank	9x9x56	10x10x62	12x12x60	13x13x62	14x14x73	16x16x74
Approximate Shipping Weight (pounds)	133	165	210	270	311	430



## Installation Requirements

### REACTR™ Tank

- A level floor position between the well pump and pressure tank. (See Typical Installation Diagram.)
- DO NOT install in an area of direct sunlight or where freezing temperatures may occur!

### Filter Tank

- A level floor position ahead of piping into water heater.
- Unit must be installed at least 10' ahead of the inlet to a water heater to prevent damage due to back-up of hot water.
- DO NOT install the unit in an area of direct sunlight or where freezing temperatures may occur! (See Typical Installation Diagram.)

## REACTR™ Location / Other Requirements

- Locate the filter near an unswitched, 120 volt / 60 Hz grounded electrical outlet.
- Check for distance and proper drain installation (e.g. floor drain, washing machine standpipe).
- Determine type and size of piping required for REACTR™ connection (e.g. galvanized, PVC plastic).

**Note :** If household plumbing is galvanized and you intend to make an installation with copper (or vice versa), obtain di-electric unions to prevent dissimilar metal corrosion.

**Note :** Where the drain line is elevated above the control valve or exceeds 20' in length to reach the drain, use 3/4" I.D. drain line tubing instead of 1/2" I.D. Drain line tubing is not included.

**Caution :** *When sweat soldering copper pipe (remember to always use lead free solder and flux), Cover yoke and bypass valve with wet rags to prevent heat damage to connections and control valve! If using PVC or plastic pipe, primers and solvent cements specifically recommended for use with potable water are required.*

**Note :** All plumbing lines not requiring "filtered" water should be connected "upstream" of the REACTR™ Tank. (See Typical Installation Diagram.)

## Installation Procedure

### - Water Supply Connection and Bypass Valve -

To allow REACTR™ Filter servicing, swimming pool filling or lawn sprinkling, a manual Bypass Valve has been installed at the factory. The Bypass allows raw water to be manually routed around the filter.

1. Position REACTR™ Tank and Filter Tank at desired location for installation. The REACTR™ Tank **must** be installed between the well pump and pressure tank. The filter tank must be installed after the pressure tank. (See Installation Diagram.) If a water softener is to be installed, it should be positioned after the filter tank.
2. The filter material is shipped separately from the Filter Tank. The Filter Tank must be loaded with material after tank has been placed at the desired location.
  - A. Remove the control valve by unscrewing from the tank.
  - B. Use a cork or tape to place over top of distributor tube to prevent media from entering tube while filling.
  - C. Place media funnel (part # U-1006) in hole on top of tank.
  - D. Pour several gallons of water in the tank. (Fill tank about 1/3 full.)
  - E. Pour in the required quantity of filter media. **No gravel is required.**
  - F. If using REACTR™ Blend media, go to step H. If using Manganese Greensand or MTM™ media, mix 4 oz. of dry Potassium Permanganate ( $KMNO_4$ ) with one (1) gallon of water for each cubic foot of media in filter tank. Pour  $KMNO_4$  mixture into Filter Tank then fill tank completely with water. This procedure will activate the media for initial start-up. It is strongly recommended to include the OXY-08R Oxyclean Option to help keep the media activated by automatically adding chlorine to the system during backwash cycles.

**Note :** The required quantity of media is listed in the filter specifications. If rebedding an existing unit and the system utilizes a standard tube and basket style distributor, a "D" Gravel underbedding will be required.

- G. After filling the tank with media, fill the tank completely with water.

**Note :** This will permit the filtering material to become soaked while preparing the installation and will prevent the control valve from being plugged with floating material on initial backwash.

- H. Remove funnel and clean filter material from tank threads.
- I. Remove cork or tape from distributor tube.
- J. Replace control valve on mineral tank. Do not use Teflon tape or paste on valve threads as the valve to tank o-ring seals this joint.

**Caution :** *Be extremely careful to position distributor tube into control valve distributor tube pilot hole.*

- 3. Turn OFF main water supply and OPEN nearest faucet to relieve pressure.
- 4. Cut main line and install appropriate elbows and extensions. Inlet connection on the REACTR™ Tank is 1" FNPT and the bottom outlet is 1" MNPT. Inlet is in the top of the tank and outlet is out the bottom. Inlet / outlet connections on the filter yoke are 3/4" FNPT. (1" FNPT for RF30 and RF40)

**Note :** An optional 1" FNPT yoke is available.

**Caution :** *If a check valve is installed between REACTR™ Tank outlet and pressure tank, it should be relocated prior to REACTR™ Tank inlet. If mineral build up inside of check valve is evident, replacement is advised. If a pressure relief valve is installed prior to REACTR tank inlet, a 125 psi relief valve must be used.*

**Caution :** *Raised arrows located on the sides of control valve body and bypass valve indicate proper direction of water flow. Install inlet and outlet piping in direction of arrows.*

**Caution :** *If using PVC pipe for installation of REACTR™ Tank, assemble inlet tee before installing on tank manifold, to prevent excess solvent from entering REACTR™ manifold assembly. Use only Teflon based tape and paste for threaded connections!*

- 5. Rotate inlet and outlet knobs of the bypass valve to the bypass position (position of bypass knobs are at right angles to inlet / outlet piping).
- 6. Turn the main supply line on to restore water service to the home.
- 7. **OPEN** nearest faucet to evacuate air and repressurize plumbing lines.
- 8. Check for leaks!

#### **- Drain Line Connections -**

- 1. Pull out clip and remove drain line assembly located on the left side of control valve. Remove drain line hose barb and wrap threads with Teflon tape. Reinstall drain line hose barb.  
**Caution : Hand tighten only!!!** Replace drain line assembly and reinstall clip.
- 2. Install 1/2" I.D. drain line tubing (not included) from hose barb to an open drain. A 4" gap between the end of the drain line and the open drain is required to prevent waste water backflow. Keep the drain line as short as possible. An overhead drain line can be used, if necessary, but should discharge below the control valve. A syphon trap (taped loop) at the outlet of the drain line is advisable to keep the drain line full and assure correct flow during backwash. Elbows or other fittings must be kept at a bare minimum.

**Note :** Where the drain line is elevated above the control valve or exceeds 20' in length, 3/4" I.D. drain line tubing should be used.

- 3. Install included 3/8" x 1/4" tubing to air vent hose barb on REACTR™ Tank Manifold and run to drain. An air gap **must** be provided.

**Warning :** *Do not tee air vent line to drain line or soil line. Protect air vent line from freezing.*

#### **- Electrical Connection -**

- 1. Connect the power supply to the control valve and plug into a 115 volt / 60 Hz receptacle.

**Note :** Do not plug into an outlet controlled by a wall switch or pull chain that could inadvertently be turned off.

**- Install Battery Back Up -**

1. Remove the rear cover.
2. Install a 9 volt battery. Refer to page 3, item 3 of the Signature Series Service Manual.
3. Reinstall rear cover.

**- Pressurizing The System -**

1. Make certain Signature Series Control Valve is in **SERVICE** position.
2. Slowly rotate inlet knob of the bypass valve to the **SERVICE** position. Slowly rotate outlet knob to the **SERVICE** position. (Position of bypass knobs are parallel to inlet / outlet piping.)
3. Open the nearest faucet to evacuate air from plumbing lines.
4. Check for leaks! If water is observed leaking from bottom of bypass knobs, close and open bypass knobs several times to seat o-rings.
5. After air is evacuated from plumbing lines, close inlet knob (position of bypass knob is perpendicular to direction of inlet pipe) on bypass valve.

**- Programming The Control Valve -**

Refer to page 2 of the Signature Series Service Manual for main menu programming and instruction.

1. Set time of day.
2. Set a.m. or p.m.
3. Set number of days between backwash. (This generally will be every 4 or 6 days.)

Refer to page 7 of the Signature Series Service Manual for master programming and instruction.

1. Set regeneration time if other than 12:00 a.m. is desired.

**- Pressurizing The System And Control Valve Operation -**

Refer to page 4, item 2 of the Signature Series Service Manual instructions.

If using REACTR™ Blend Filter Media :

1. Advance **control valve** to **BACKWASH** (cycle 1) position and allow water to run to drain for 3 to 4 minutes.

**Warning :** Close **inlet** valve on bypass prior to selecting the backwash position. After backwash position has been established, **slightly** open inlet valve on bypass to evacuate air from the media tank. Fully open inlet valve when all air is depleted. This procedure will prevent media from being uplifted into control valve.

2. Advance **control valve** to **RAPID RINSE** (cycle 3) position and allow water to run to drain for 3 to 4 minutes.
3. Advance **control valve** to **SERVICE** (cycle 0) position.

If using Manganese Greensand or MTM™ Filter Media :

1. Advance **control valve** to **RAPID RINSE** (cycle 3) position and allow water to run to drain until  $KMNO_4$  is evident in the effluent (dark purple color).
2. Advance **control valve** to **SERVICE** position (cycle 0).
3. Put filter in bypass and let soak for one (1) hour.
4. Place filter in service and advance **control valve** to **BACKWASH** (cycle 1) position and allow filter to complete entire cycle (backwash and rapid rinse).
5. Repeat step 4 until water to drain runs clear.

## Operation, Care and Cleaning

When the inlet / outlet knobs of the bypass valve are in **SERVICE** position (position of bypass knobs are parallel to the inlet / outlet piping), water is directed through the water filter. Water may be bypassed by turning the inlet / outlet knobs to the **BYPASS** position (position of bypass knobs are at right angles to inlet / outlet piping). Water to the home will bypass the filter and be **untreated**.

You should manually bypass the filter if :

1. The outside lines do not bypass the water filter and water is to be used for lawn sprinkling or other similar uses.
2. Servicing the water filter.
3. A water leak from the water filter is evident.
4. "Shock treating" water well and piping with chlorine or other disinfectant.

### - Extra Backwash -

If water demands are unusually heavy, an extra backwash can be initiated manually. Refer to page 4, item 2 of the Signature Service Manual.

### - To Skip A Backwash -

1. For vacations or extended periods of absence, the power supply can be pulled from the receptacle. It is recommended that the 9 volt battery be removed.
2. Upon return, plug in the cord and reset the time of day. Replace 9 volt battery.

### - General Care and Cleaning -

1. Do not place heavy or sharp objects on water filter.
2. Use only mild soap and warm water to clean exterior of the unit. Never use harsh, abrasive cleaners.
3. Protect the water filter and drain line from freezing.
4. Reset time for daylight saving time periods.
5. Replace 9 volt battery once a year.

**Note :** If the **Oxyclean Option** is used, changes to the cycle times are necessary. The **Oxyclean Option** model number for use with the Signature Series REACTR™ is **OXY-08R**.

### Cycle Settings for Oxyclean Option

Backwash - 10 minutes  
Rest Period - 20 minutes  
Rapid Rinse - 16 minutes

**Note :** Refer to page 8, item 4 of the Signature Series Service Manual for instruction.



# 10 - 5 - 3 - 1 "LIMITED" WARRANTY Water Treatment Equipment

During the time periods and subject to the conditions hereinafter set forth, CSI Water Treatment, will repair or replace to the original user or consumer, any portion of your new CSI Water Treatment product which proves defective due to defective materials or workmanship of CSI Water Treatment. Contact your nearest authorized CSI Water Treatment dealer for warranty service. At all times CSI Water Treatment shall have and possess the sole right and option to determine whether to repair or replace defective equipment, parts, or components. Damage due to conditions beyond the control of CSI Water Treatment is **NOT COVERED BY THIS WARRANTY**. (Contact parcel or freight company for claims on freight damage in transit.)

**WARRANTY PERIODS :**

ITEM	*10 YRS	*5 YRS	*3 YRS	*1 YRS
Residential Mineral Tanks	●			
Commercial Mineral Tanks		●		
Softener/Filter Control		●		
Brine Tank Assemblies			●	

ITEM	*5 YRS	*3 YRS	*1 YRS
Reverse Osmosis System	●		
Other Accessories & Parts			●

\* From Date of Installation

**LABOR, ETC., COSTS :** CSI Water Treatment shall **IN NO EVENT** be responsible or liable for the cost of field labor or other charges incurred by any customer removing and/or reaffixing any CSI Water Treatment product, part or component thereof.

**THIS WARRANTY WILL NOT APPLY :** (a) To defects or malfunctions resulting from failure to properly install, operate or maintain the unit in accordance with printed instructions provided; (b) to failures resulting from abuse, accident or negligence; (c) to normal maintenance services and parts used in connection with such service; (d) to units which are not installed in accordance with applicable local codes, ordinances and good trade practices; (e) if the unit is moved from its original installation location; (f) unit is used for purposes other than for what it was designed and manufactured, and (g) filter media and exchange resins.

**RETURN OF REPLACED COMPONENTS :** Any item to be replaced under this Warranty must be returned to CSI Water Treatment in Ashland, Ohio, or such other place as CSI Water Treatment may designate, freight prepaid.

**PRODUCT IMPROVEMENTS :** CSI Water Treatment reserves the right to change or improve its products or any portions thereof without being obliged to provide such change or improvement of units sold and/or shipped prior to such change or improvement.

**WARRANTY EXCLUSIONS :** As to any specific CSI Water Treatment product, after the expiration of the time period of the warranty applicable thereto as set forth under the heading "Warranty Periods" above, **THERE WILL BE NO WARRANTIES, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.**

Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. No warranties or representations at any time made by any representative of CSI Water Treatment shall vary or expand the provisions hereof.

**LIABILITY LIMITATION : IN NO EVENT SHALL CSI WATER TREATMENT BE LIABLE OR RESPONSIBLE FOR CONSEQUENTIAL, INCIDENTAL OR SPECIAL DAMAGES RESULTING FROM OR RELATED IN ANY MANNER TO ANY CSI WATER TREATMENT PRODUCT OR PARTS THEREOF.**

Some states do not allow the exclusion of limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

The Warranty gives you specific legal rights and you may also have other rights which vary from state to state.

For your warranty protection (Magnason-Moss Warranty Act) the warranty card must be completed and returned to CSI Water Treatment within ten (10) days of installation. In the absence or other suitable proof of installation date, the effective date of this warranty will be based upon the date of manufacture plus thirty (30) days.

Direct all notices, etc. To : Service Department, CSI Water Treatment, 710 Orange Street, Ashland, Ohio 44805

Date : December, 2007