

# 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 |

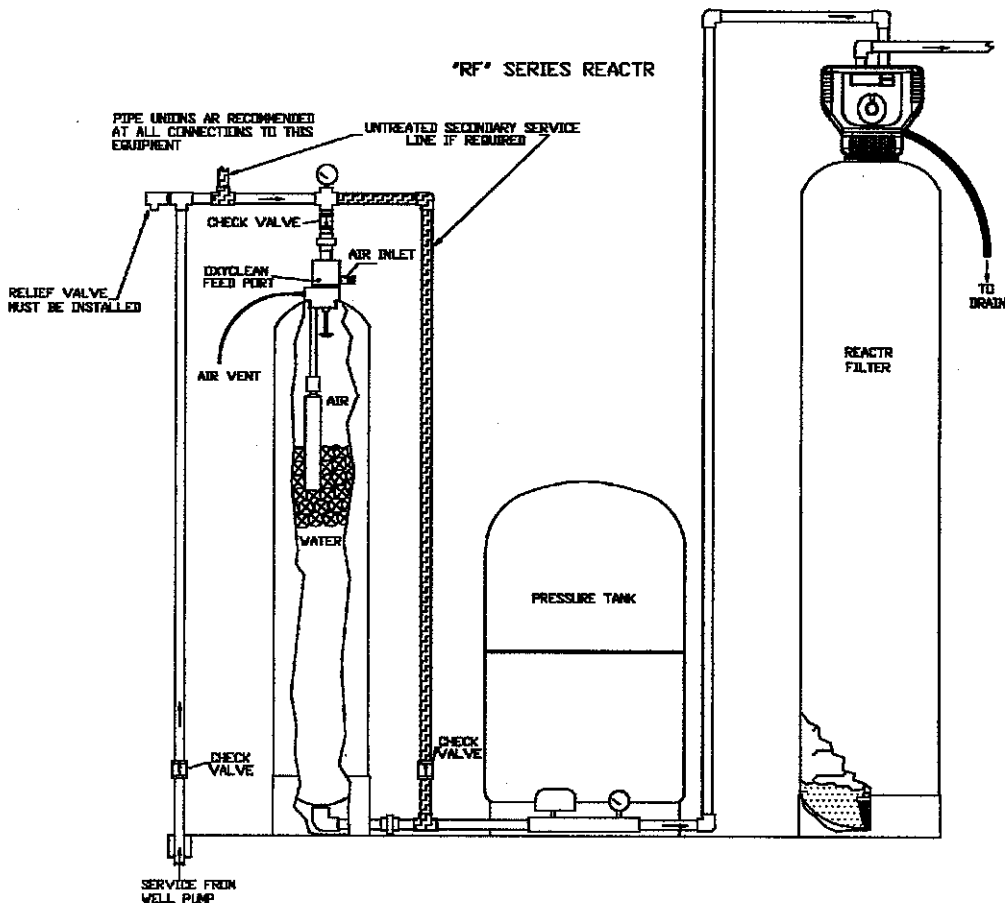
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## How The REACTR™ Works

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
Filter Media Type	REACTR™ Blend				
Filter Media Capacity (cu. ft.)	1.00	1.50	2.00	2.50	3.00
Underbed "D" Gravel Required (pounds)	20	20	50	50	50
REACTR™ Tank (polyglass)	9 x 48	9 x 48	9 x 48	9 x 48	9 x 48
Mineral Tank (polyglass)	9 x 48	10 x 54	13 x 48	13 x 54	14 x 65
Service Flow Rate - Continuous (gpm)	4	5	6	8	9
Service Flow Rate - Intermittent (gpm)	6	7	8	10	11
Backwash Flow Rate (gpm)	5.0	5.0	7.0	7.0	10.0
Gallons Used / Backwash	130	130	156	182	260
Space Required (DxWxH inches) REACTR™ Tank	9 x 9 x 62	9 x 9 x 62	9 x 9 x 62	9 x 9 x 62	9 x 9 x 62
Space Requires (DxWxH inches) Filter Tank	9 x 9 x 56	10 x 10 x 62	13 x 13 x 56	13 x 13 x 62	14 x 14 x 73
Approximate Shipping Weight (pounds)	133	165	210	270	311



## 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 pump and 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. Remove and inspect distributor tube and bottom basket.
  - C. Replace distributor tube and use a cork or tape to place over top of distributor tube to prevent media from entering tube while filling.
  - D. Place media funnel in hole on top of tank.
  - E. Pour several gallons of water in the tank. (Fill tank about 1/3 full.)

**Caution :** *Not following this procedure can cause damage to distributor tube or basket when loading material!!*

- F. First pour in the "D" gravel underbedding and then the filter media.
- G. If using REACTR™ Blend media, go to step H. If using Manganese Greensand or MTM™ media, mix 4 oz. of dry Potassium Permanganate (KMNO<sub>4</sub>) with one (1) gallon of water for each cubic foot of media in filter tank. Pour KMNO<sub>4</sub> 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 gravel and media is listed in the filter specifications.

H. 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.

- I. Remove funnel and clean filter material from tank threads.
- J. Remove cork or tape from distributor tube.
- K. Replace control valve on mineral tank.

**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 / outlet connection on the REACTR™ Tank is 1" FNPT. 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.

**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. (See Typical Installation Diagram.)*

**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!*

- 6. 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).
- 7. Turn the main supply line on to restore water service to the home.
- 8. **OPEN** nearest faucet to evacuate air and repressurize plumbing lines.
- 9. 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 2, item 3 of the Signature Series Service Manual.
3. Reinstall rear cover.

**- Pressurizing The System -**

1. 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.)
2. Open the nearest faucet to evacuate air from plumbing lines.
3. Check for leaks!

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

If using Manganese Greensand or MTM™ Filter Media :

1. Manually index 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. Manually index 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 manually index 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.
2. Upon return, plug in the cord and reset the time of day, if 9 volt battery was not installed. If battery was installed, replace 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 :** The control valve cycle times have been programmed at the factory for the **Oxyclean Option**. If the **Oxyclean Option** is used, no changes to the cycle times are necessary. The **Oxyclean Option** model number for use with the Signature Series REACTR™ is **OXY-08R**.

### **Factory Settings**

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