Nelsen AIO®

AIR INJECTION OXIDIZING FILTER SYSTEM

Iron & Sulphur Reduction



5600SXT Systems

2510AiQ Systems

Operation & Maintenance Manual

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Nelsen AIO Filter System

General Information Specification Sheet

NOTE: ***This manual covers installation of Iron, Iron-Sulphur and Katalox Light systems. Please read all instructions prior to assembling your system.***

The ***Nelsen AIO*** Filter, when properly applied, is an efficient and cost effective system for the reduction of Iron and Sulphur. The ***Nelsen AIO*** maintains a compressed "air pocket" in the top of the tank while the system is in service. As the water passes thru the air pocket, Iron and Sulphur are oxidized. Additionally, dissolved oxygen is added to the water. The ***Nelsen AIO*** filter media bed then reduces the Iron and Sulphur from the water.

A daily backwash will remove accumulated iron and replenish the filter media bed.
The regeneration process also adds a fresh air pocket to the system.

Application Parameters	w/Iron Filter Media	w/Sulphur Media	w/Katalox Media
pH (Minimum)	6.8	6.8	6.8
Iron (Maximum)	7 ppm	0 ppm	10 ppm
Sulphur (Maximum)	4 ppm	5 ppm	5 ppm
Manganese	—	—	5 ppm

Installation

- Install the ***Nelsen AIO*** after the supply lines to outside faucets (unless outside faucets need the reduction of iron). Also, install the ***Nelsen AIO*** after any sediment filters or neutralizing filters (ie, calcite, corosex), if applicable.
- The ***Nelsen AIO*** should be installed before a water softener or any taste/odor filters (if applicable).
- Insure the inlet check valve is connected as shown to the inlet side of the control valve. The drain line should be installed in accordance with local plumbing codes. Due to the release of the air during regeneration, the drain line must be plumbed in Schedule 40 PVC Pipe and securely fastened or anchored throughout the run.
- Insure the brine line check valve with screen is installed on the brine valve. This is the AIR DRAW point of entry.

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System Limitations

- Chlorine or other strong oxidizers will damage the filter media bed of these systems and should never be used.
- The ***Nelsen AIO*** Filter utilizes air, oxidation and filtration for the reduction of Iron and Sulphur. This process will leave some air or effervescence in the water. The effervescence may give the water a milky appearance and is simply excess air in the water. While a certain amount of effervescence will always be present, it may be most noticeable during the first 30 days after installation of the system.





Media Loading Guide

If it is necessary to load your new ***Nelsen AIO*** Filter System with the filter media provided, please follow these guidelines.

1. Place the media tank on a level surface in an area with adequate ventilation. Proper precautions should be taken to cover your eyes, mouth and nose before pouring the media(s) into the tank.
2. After removing the control valve, center the riser tube in the tank (If using a Vortech tank the riser tube is fixed to the bottom of the tank) and place the PVC plug in the riser to prevent media from entering the tube. It is important that the riser tube stays properly centered in the tank as the media is installed.

For systems utilizing Katalox media skip down to Step 6.

3. The **Base Media** layers are bagged and marked **Media 1**, **Media 2** and **Media 3**. It is necessary to load the tank beginning with the bag marked **Media 1** followed by the bag marked **Media 2**, finally installing **Media 3**. For proper operation of the system, the media must be properly layered in the tank. If your system includes more than one Base Media, add all of the Media 1 at once and the same for the additional Base Media layers.
4. For IRON filters, once the first three Base Media layers are installed, add the provided pre-measured box(es) of BIRM to the tank.

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5. When assembling a Sulphur Filter, use pre-measured box(es) of **CENTAUR.**
6. When using **Katalox Light media**, this is the only type of media that needs to be installed in the tank. There is no specific loading order, simply install the pre-measured bags of **Katalox Light media** into the tank.
7. Once the media has been installed, carefully install the provided diffuser onto the riser tube (tapered side up) then assemble the valve to the tank. The diffuser should be pushed down 1" below the neck of the mineral tank. The riser tube must be properly centered in the valve and should not be forced as the valve is installed.
8. Complete the installation process per local plumbing codes.



Diffuser

Regeneration Cycle (59 minutes)

1. **Backwash** (14 minutes)

   During this cycle, the water carrying the iron runs to the drain. Untreated water is available during regeneration.

2. **Air Recharge** (40 minutes)

   During this cycle, the unit empties the water to the drain and is recharged with air, oxidizing the media. The sound of air being recharged will be heard. Air bubbles should go down to the drain before proceeding to the next step. Adjust cycle time if necessary.

3. **Rapid Rinse** (1 minute or Off)

   During this cycle, water enters the tank, compressing the air into a pocket at the top of the tank.

4. **Brine Refill** (Off)
5. **Unit Returns to the In-Service Position**

NOTE: **Due to the air pocket, exceeding 80 psi will adversely impact performance.**

The frequency and time of regeneration can be changed due to the following reasons.

- Need for the unit to regenerate at a different time of day (DO NOT regenerate any other softener/filter at the same time as the Nelsen AIO, since this will interfere with the regeneration process).
- In conditions of high water usage and/or high levels of iron, the unit may need to regenerate more frequently than once every three days. The unit can be set for daily regeneration or to regenerate every two days. DO NOT set the regeneration frequency for a longer period than 3 days, as the filter medium can become fouled with iron, rendering the unit ineffective.

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