Fleck 9100 Nitrate Filter Installation & Start-Up Guide

Thank you for purchasing a Clean Water System! With proper installation and a little routine maintenance your system will be providing filtered water for many years.

Your new system comes with a printed Fleck Service manual, which along with this start-up guide will help guide you in the installation and start-up of your new system. The Fleck service manual covers other types of systems as well such as nitrate filters and filters, so there may be information in your Fleck service manual that does not pertain to your system. Please review this start-up guide entirely before beginning to install your system and follow the steps outlined for best results.

CLEAN WATER SYSTEMS

2806-A Soquel Ave Santa Cruz CA 95062

For assistance call: 1-831-462-8500

Email us: office@cleanwaterstore.com

More information online: www.cleanwaterstore.com

Pre-Installation

1. Review your packing list and make sure you have received all the parts before beginning installation.

2. If you are going to be turning off the water to the house and you have an electric water heater, shut off the power to the water heater before beginning installation in case water heater is accidentially drained.

3. Pick a suitable location for your filter system on a dry level spot where it won't be exposed to freezing temperatures. A minimum of 20 PSI is required. Maximum pressure is 90 PSI.

4. Get all of your plumbing parts together before beginning installation. Installation typically takes 3 to 5 hours. However after installation the Nitrate filter must be allowed to run through a complete backwash and rinse cycle (also called 'regeneration'). You don't have to be present for this first backwash necessarily, but it does take 90 minutes.

5. After the system is installed and running, you may notice sediment or color in your water. This occurs when sediment that is has been in the pipes for years is dislodged by the soft water or by the simple act of turning the water pressur on and off to the house. This rarely lasts for more than a few hours to a few days but if you have old galvanized iron pipe and the rust or color does not stop after a few days it may mean that your pipes are corroded or deteriorated.

Best Practices for Piping & Drain Installation

1. See typical installation (see Fig 1). The nitrate filter is installed after the pressure tank.

2. Make sure to connect the inlet pipe to the Fleck 9100 inlet and the outlet to the outlet (see Fig 2). You can see the in and out arrows on the bypass valve which is where the pipes are connected.

3. Make sure there is a working gate or ball valve before the nitrate filter and also one after as shown in the diagram. If you are installing multiple filter systems (such as iron filter then nitrate filter) you do not need a valve in between each system. The pressure gauges are optional and not necessary but a hose bib (which is a faucet that you can attach a garden hose to) is strongly recommended after the nitrate filter before the second ball valve. This makes it easy to rinse your new nitrate filter on start-up and gives you a place to test the water before it enters your household plumbing.

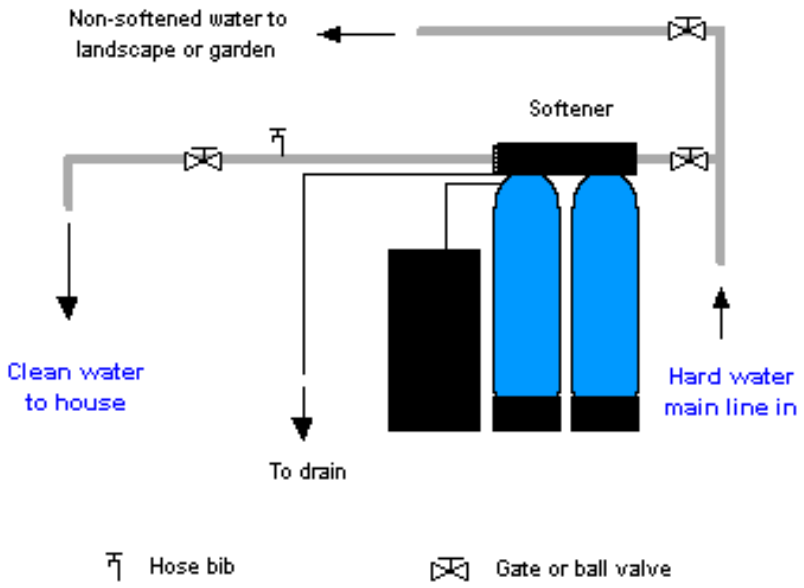
4. If you will be using copper piping, do not sweat the copper pipe directly on to the Fleck 9100 bypass valve. Avoid heating up the bypass valve with the torch.

5. You do not need unions to install your nitrate filter. If you need to remove it, the Fleck 9100 has quick-release couplings on the bypass valve that make it easy to put the nitrate filter on by-pass and remove the filter system from the piping.

6. The drain line tubing (not supplied) is connected to a drain from the drain outlet using flexible ½" ID tubing. Note that the drain can run up above the Fleck 9100 control and into a drain, it does not have to drain down, as the filter backwashes under line pressure from your well pump. Most plumbing codes require an air-gap connection, so that if your sewer or septic tank backs up, it cannot cross connect with the drain tubing.

7. Usually you do not want to water the garden or irrigate your landscaping with softened water. This will require more salt than usual to be used and in some cases the sodium can build-up in the soil causing some problems to sensitive plants. It is often not difficult to run hard water (not-softened lines) to the irrigation thereby bypassing the nitrate filter. If you do want to irrigate with soft water we recommend you use potassium chloride salt (widely available) instead of regular sodium chloride (nitrate filter rock salt). Any type of salt though can be used in the nitrate filter.

Fig 1 - Typical nitrate filter piping installation with ball valve and hose bib after the filter



Adding Media & Installation Instructions

1. Unscrew by hand the Fleck 9100 control valve from top of the tanks if it was shipped screwed on. Place distributor tubes in tank if not already inside tanks. If not already done, make sure blue cap is on top of distributor tubes, or wrap the top of distributor tubes with electrical or duct tape. The idea is we do not want gravel or resin to go down the distributor tube when you are adding media.

2. Add filter gravel supplied first, using the funnel sent with the nitrate filter dividing gravel equally between tanks.

3. Next add nitrate filter resin media. Tank will be approximately 2/3 to the 3/4 full. Divide resin provide equally between tanks.

4. Remove cap or tape from top of distributor tube. Be careful not to pull up distributor tube when removing cap or tape.

5. If possible at this point, fill tank completely with water. This will allow the nitrate filter resin to settle and eliminate the need of "purging" the air out of the tank later.

6. Add a small amount of vegetable cooking oil to the tank threads and screw on Fleck 9100 control valve carefully. Alternatively you can use silicone grease, but do not use pipe-joint compound, Teflon tape, or Vaseline or other petroleum greases to lubricate tank threads.

7. See how the Fleck by-pass is connected. There is an in and out arrows on the bypass valve for the inlet and outlet pipe. Install inlet and outlet piping, drain tubing and brine line tubing. The brine line tube is included and is shipped inside the brine tank.

8. Note that the over-flow fitting on the side of the brine tank does not need to be connected, unless the nitrate filter is installed in a closet or somewhere where overflowing salt water could cause a problem. Water rarely overflows the brine tank however.

9. Add approximately 5 gallons of water to brine tank, then fill brine tank with salt, about 300 lbs, or 6 50-lb bags. It is OK to use any kind of water softening salt; however we find that extra coarse salt works better than the pellets. You do not have to add water to the brine tank again after this first time during the start-up.

10. Close the valve after the nitrate filter. Connect a garden hose to the hose bib after the nitrate filter and open hose bib. Turn on the water to the nitrate filter and allow the water to run out the garden hose until the water is clear.

11. See the Fleck 9100 Service Manual for instructions on how to program and set nitrate filter. Your Fleck 9100 is already programmed for the size tank you have, but you do need to set the

current time of day and program the nitrate filter with your water hardness. NOTE- "hardness" must be calculated based on your nitrates and your sulfates. See below to determine what that value of hardness is for you to enter. When programming add 2 or 3 grains of hardness to your water hardness as a safety measure if you have iron in the water.

How to Calculate How Often to Set System to Regenerate:

Example: nitrate as nitrogen is 10.0 ppm or 44.4 ppm as nitrate;

Change nitrate to nitrate as nitrate by multiplying times 4.4

Test for sulfate and note sulfate level.

Example calculation:

Nitrate level (as NO3):	44 ppm	x .81	= 36	ppm as CaC04
Sulfate:	34 ppm	x 1.04	= 36	ppm as CaC04

Total sum of N03 and Sulfates as CaC04: 72 ppm
72 ppm divided by 17.1 = 4.2 grains (round to 5 grains for conservative calculation)

Capacity of resin = 16,000 grains per cu ft

Total cubic foot of resin in system: 1.5 cubic foott which = 24,000 grains

24,000 grains divided by 5 grains = 4800

Add in a safety factor to prevent the resin from becoming exhausted each time before regeneration. The safety factor would be the maximum amount of water used in one day. Typically use 80 gallons per person per day. So a four person home would be 320 gallons to use as a buffer or safety factor.

So the nitrate filter in this example would be to set it to regenerate approximately every 4480 gallons.

---

12. Start a manual backwash by pressing and holding the Extra Cycle button for 5 seconds. After nitrate filter has been regenerating for 20 minutes, look inside the brine tank, and you should see that is has sucked out the brine. At the end of the regeneration (90 minutes) check to make sure that the nitrate filter has added water to the bottom of the brine tank to make brine for the next regeneration cycle.