

Fleck 7000 Birm 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 neutral pH 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 water softeners 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.

BIRM MEDIA CONTAINS DUST. USE PAPER MASK AND VENTILATE TO AVOID BREATHING DUST.



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Packing List

Birm Filter 1.0 cubic foot size

Quantity 1 Fleck 7000 Backwash Control Valve with Bypass Assembly and Pipe connector kit (1" or ¾")

Quantity 1 10" x 44" filter tank with distributor tube

Blue media funnel for adding the birm media

Filter gravel

1 cubic foot of Birm media

Birm Filter 1.0 cubic foot size

Quantity 1 Fleck 7000 Backwash Control Valve with Bypass Assembly and Pipe connector kit (1" or ¾")

Quantity 1 10" x 54" filter tank with distributor tube

Blue media funnel for adding the birm media

Filter gravel

1.5 cubic foot of Birm media

Birm Filter 1.0 cubic foot size

Quantity 1 Fleck 7000 Backwash Control Valve with Bypass Assembly and Pipe connector kit (1" or ¾")

Quantity 1 13" x 54" filter tank with distributor tube

Blue media funnel for adding the birm media

Filter gravel

2.5 cubic foot of Birm media

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 accidentally 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 Birm Birm Filter Filter must be allowed to run through a complete backwash and rinse cycle.
5. After the system is installed and running, your water may be discolored, or full of sediment or rust, particularly if this is older or corroded piping. Typically this clears up over a day or two.

Best Practices for Piping & Drain Installation

1. See typical installation (see Fig 2). The Birm Filter filter is installed after the pressure tank.
2. Make sure to follow to connect the in pipe to the Fleck 7000 inlet and the outlet to the outlet (see Fig 2). As you face the Fleck 7000 control from the front, the water enters on the right and exits on the left. From the back (see Fig 2) the water enters on the left. The inlet and outlet are attached to the bypass valve which is marked with arrows as well.
3. Make sure there is a working gate or ball valve before the Fleck 7000 Birm Filter filter and also one after as shown in the diagram Fig 2. The pressure gauges are optional and perhaps not necessary but a hose bib (which is a faucet that you can attach a garden hose to) is strongly recommended after the Birm Filter filter before the second ball valve. This makes it easy to rinse your new Birm Filter 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 7000 control valve. Avoid heating up the Fleck 7000 control valve plastic with the torch.
5. If have copper pipe before the Birm Filter and it is too difficult to change it, you may still experience some copper staining of fixtures and have a copper residual in the water, because of course this section of pipe will still have acidic water flowing through it. We recommend PEX or PVC pipe up to the Birm Filter and then copper after it, if you have copper plumbing.

6. You do not need unions to install your Fleck 7000 control. If you need to remove it, the Fleck 7000 has quick-release couplings that make it easy to put the Birm Birm Filter filter on by-pass and remove the filter system from the piping.
7. 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 7000 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.

How Your Birm Filter Works

See Fig 1. In your Birm Filter the water enters the top of the tank (red arrows) and flows down through the media and up the distributor tube (blue arrows). The downflow type Birm Filter removes sediment and can be backwashed, which cleans and re-classifies the Birm, preventing channeling. During backwash, the water flow is reversed and water flows down the distributor tube and up through the media, lifting and expanding the Birm media. During the backwash the Birm is cleaned by the action of the water flowing through it.

Fig 1 - Birm Filter Filter Tank Water Flow

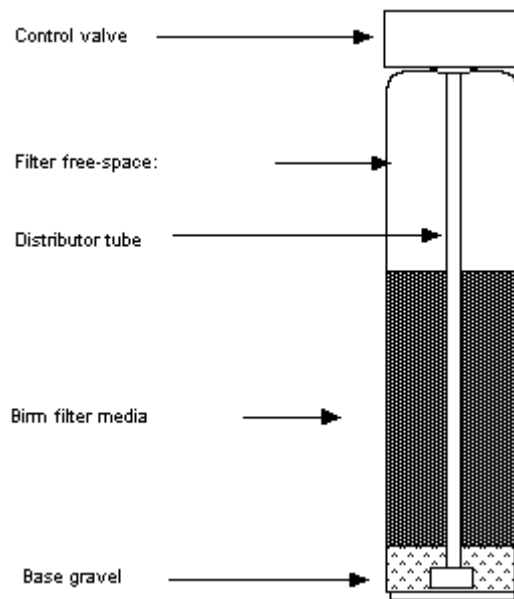
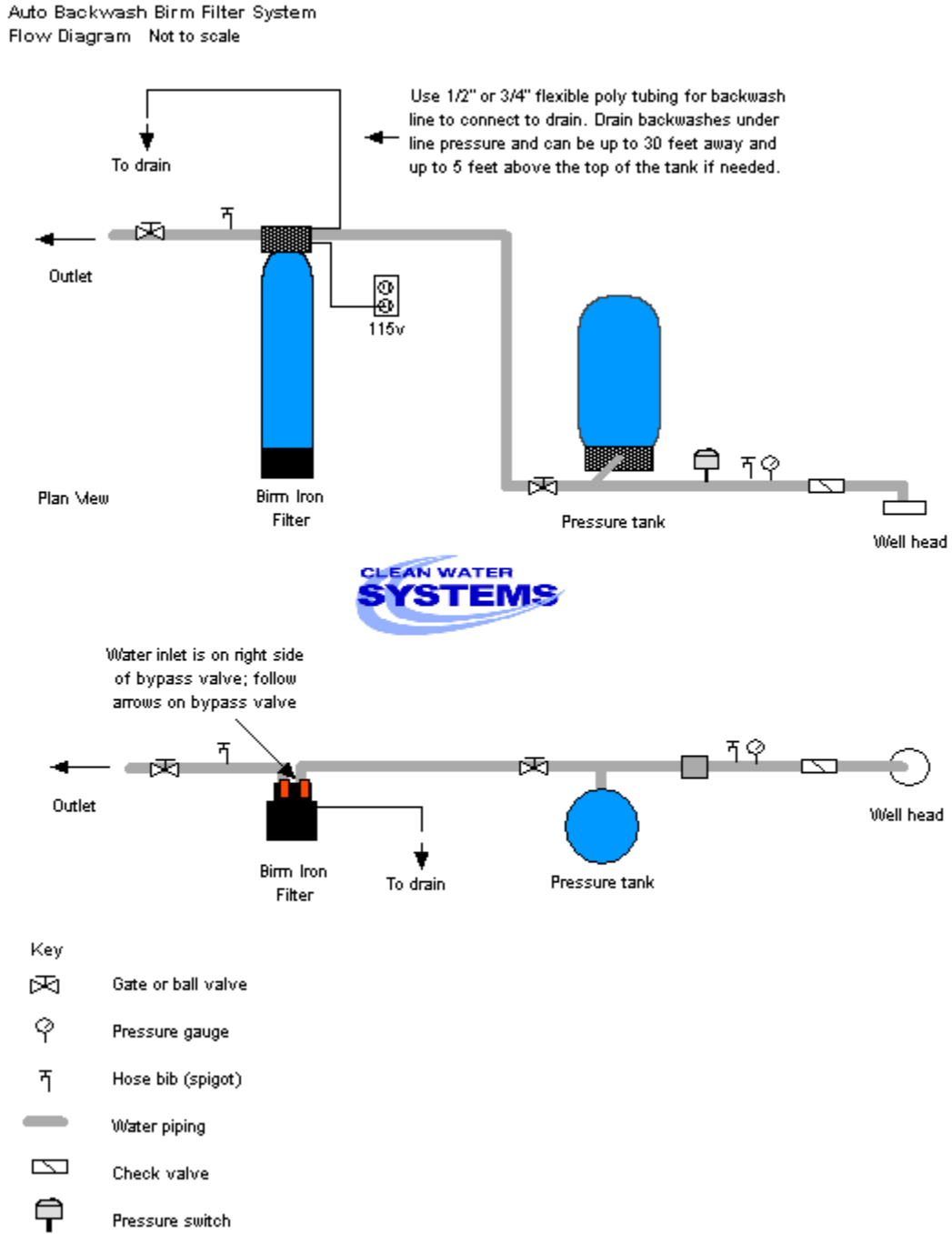


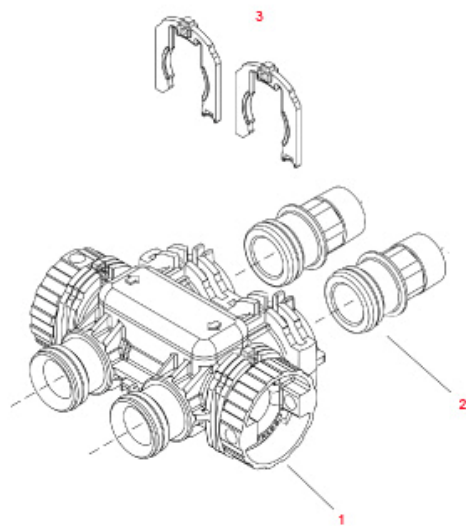
Fig 2 - Typical Birm Filter Fleck 7000 piping installation with ball valve and hose bib after the filter



Assembly and Installation Instructions

1. Unscrew by hand the entire Fleck 7000 control valve from top of tank if it was shipped screwed on. Place distributor tube in tank if not already inside tank. If not already done, make sure blue cap is on top of distributor tube, or wrap the top of distributor tube with electrical or duct tape. You do not want gravel or Birm to go down the distributor tube.
2. Add the filter gravel that came with your order. You want the gravel to cover the bottom distributor screen before adding the Birm media.
3. Next add Birm media. The tank will be about 2/3rds full of media.
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 Birm Filter media to settle and eliminate the need of "purging" the air out of the tank later.
6. Add a small amount of silicone grease or vegetable cooking oil to the tank threads and screw on Fleck 7000 control valve carefully. 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. Note that Items 2 in Fig 3 below are the pipe connectors and the other end is what gets attached to the control valve. Items 3 are the red clips that hold the pipe connectors to the by-pass valve. **Your Fleck 7000 is usually shipped in the by-pass position.**

Fig 3 Fleck 7000 By-Pass and Pipe Connectors



8. Lubricate the by-pass valve o-rings with some vegetable oil or silicone grease and connect the bypass assembly to the Fleck 7000 control by sliding the bypass valve firmly into the body of the Fleck 7000. Once bypass is in far enough, you will be able to insert the red connector clips.
9. Next lubricate the end-connectors (#2 in Fig 3) with some silicone grease or vegetable cooking oil and insert them into the bypass valve and then insert the red clips (#3).
10. Note that the Fleck 7000 is usually shipped in the bypass position. There is a bypass valve knob on both the inlet and the outlet (Fig 3 #1). You can easily tell if it is in bypass because the two holes on the bypass knob will be in the vertical position. If the valve is in the Service position (by which is the filtering position or 'in service' position) the holes will be in the horizontal position. Make sure both sides are in the by-pass position.
11. Do NOT remove the red clips in order to put the bypass valve in either bypass or service, it is not necessary nor desired to remove the red clips on the bypass valve hand knobs (see Fig 3 item 1, which are the knobs you will turn to move the bypass valves).
12. Now install your water pipes to the Fleck 7000 bypass end connectors. Make sure inlet is installed to the 'In" pipe connector on the bypass valve and outlet is on the "Out" connector.
13. Connect some flexible tubing from the drain connection on the Fleck 7000 control valve to a suitable drain such as a septic tank or drain to a sewer. It is OK to run the drain line up and over the Fleck 7000 Birm Filter up to 4 feet above the top of the tank. If the drain line will be more than 20 feet, use larger diameter tubing such as $\frac{3}{4}$ " or 1". Note that it is desirable to be able to run the drain line into a bucket in order to test the backwash flow rate in the future. This is why hard piping the drain line is discouraged, however, if you do use hard PVC piping for the drain line, and you are able to remove the hard PVC drain piping and attach flexible tubing should you ever desire for testing purposes, it is OK to use rigid PVC pipe for the drain. Make sure the drain tubing is firmly clamped to the barbed fitting with a hose clamp to prevent leaks.
14. **For the 2.5 cubic foot systems only: these larger tank systems have an external stainless steel flow control that comes with the system.** This must be installed. If you have a 1.0 or 1.5 cubic foot system, the flow control is internal and there is no external drain flow control.
15. Plug in your Fleck 7000 control valve to an outlet. Your Birm Filter 7000 control valve is already pre-programmed. All you need to do is to set the time of day, and then set the number of days the Birm Filter will run before it backwashes and regenerates automatically. The default number of days between back wash is seven.
16. Press and hold either the Up or Down buttons until the programming icon replaces the service icon and the parameter display reads TD. Set the time of day by pressing the up or down arrows until it is the current time of day. When the desired time is set, press the Extra Cycle button to

resume normal operation, or wait 5 seconds and the unit will return to normal operation if no button is pressed.

17. Hold down the up arrow and down arrow at the same time for 5 seconds. Set the number of days between backwashes, typically for 7 days. If your water is very clean (no sediment or iron) you can set the backwash frequency to as little as every 14 days but its best to leave it to backwash every 7 days.
18. Press the Extra Cycle button once. Set the time of the night that you want the Birm Filter filter to backwash. The default time is 2:00 am. Adjust the time by pushing the up or down arrow if you want.
19. Now press the Extra Cycle button once more. You are done programming!
20. Now you are ready to turn on the water. Turn on the water and leave the Birm Filter on bypass and check for leaks. Leave the ball valve after the Birm Filter closed, so water is still off to the house, but connect a garden hose and open up the hose bib after the Birm Filter and allow the water to run for several minutes. This important step clears out any foreign material that may be in the pipes from the piping installation. If you do not have a valve installed after the Birm Filter and you do not have a hose bib, you will need to turn the water on inside the house to let the water run. Use a bathtub or laundry sink or other fixture that does not have an aerator screen.
21. Press the Extra Cycle button for a second or two which will start a manual backwash.
22. Now you can slowly turn the bypass valve to the service position. You do NOT remove the red clips on the bypass knobs in order to turn the bypass valves from the bypass to the service position. First open the Inlet Side of the bypass valve. Second slowly open the Outlet Side of the bypass until it is in the full service position. The Fleck 7000 bypass valve knobs are a little stiff, so you can use a screw driver placed in the holes to turn the knobs. Make sure you are turning the bypass valve knobs in the correct direction which is clockwise as you face the bypass valve knobs.
23. There should be no Birm media coming out of the drain line, but the water will be gray or dirty looking. At this point the Birm Filter will be in a backwash cycle. The backwash takes 10 minutes. If the water slows down or stops during the first 10 minutes of backwash, press the Extra Cycle to move the Fleck 7000 control to the next cycle, the Rinse cycle. Then repeat the backwash and rinse after the rinse cycle is done, by pressing the Extra Cycle again. If you have high water pressure you may need to turn on the water slowly to the Birm Filter at first to prevent some Birm fines from coming out the backwash. However it is normal for some small amount of fines to come out during the backwash, although you do not want to see a large amount of media coming out, which would mean you have very high water pressure, or the drain flow for the Fleck 7000 is missing.

24. If possible verify that the backwash flow is 5 gallons per minute, which is the recommended backwash flow rate for 1.0 and 1.5 cubic foot models. If you have a 2.5 cubic foot Birm Filter it should be backwashing at 10 gallons per minute. You can easily run the drain hose to a bucket and using a watch verify the flow rate in gallons per minute. An adequate backwash is critical to properly clean the Birm media and prevent it from cementing together.
25. The next cycle is the Rinse cycle and this also runs for 10 minutes.
26. After the Birm Filter has gone through the backwash and rinse, press the Extra Cycle button and repeat the backwash and rinse. This is the same procedure that needs to be done each time you add Birm media in the future, that is, the Birm media must be thoroughly backwashed and rinsed.
27. Refer to your Fleck 7000 service manual for more information about how your control valve is programmed if desired.

Troubleshooting the Fleck 7000 Birm Filter Filter

One problem that may occur is if you do not have enough backwash flow rate to properly clean the Birm Filter filter. You can verify the backwash flow rate by running the drain line into a bucket and timing it when the Fleck 7000 is in Cycle 1 or backwash. A 1.0 or 1.5 cubic foot system should have 5 gallons per minute and a 2.5 cubic foot system should have 10 gallons per minute of backwash.

In some cases, the Fleck 7000 may not be programmed correctly. See the Fleck 7000 service manual for instructions on how to access the master programming.