Clean Water Made Easy

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Pro-OX 1650 Iron 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 iron free water for many years.

Please review this start-up guide entirely before beginning to install your system, and follow the steps outlined for best results.

PRO-OX MEDIA CONTAINS DUST.

USE PAPER MASK AND VENTILATE AREA TO AVOID BREATHING DUST DURING INSTALLATION

Questions?

Call us toll-free: 1-888-600-5426 or 1-831-462-8500

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Packing List

0.75 Cubic Foot Size System

Quantity (1): CWS 165 control valve w/ bypass assembly and pipe connector kit (1” or 3/4”)

Quantity (1): 8” x 44” standard filter tank with distributor tube

Blue media funnel for adding Pro-OX media

12 lbs. filter gravel

0.75 cubic foot of Pro-OX media

1.0 Cubic Foot Size System

Quantity (1): CWS 165 control valve w/ bypass assembly and pipe connector kit (1” or 3/4”)

Quantity (1): 10” x 44” (or 9” x 48”) standard filter tank with distributor tube

Blue media funnel for adding Pro-OX media

16 lbs. filter gravel

1.0 cubic foot of Pro-OX media

Carbon Filter 1.5 cubic foot size

Quantity (1): CWS 165 control valve w/ bypass assembly and pipe connector kit (1” or 3/4”)

Quantity (1): 10” x 54” standard filter tank with distributor tube

Blue media funnel for adding Pro-OX media

16 lbs. Filter gravel

1.5 cubic foot of Pro-OX 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 turn off the water to your house and you have an electric water heater, shut off the power to the water heater before beginning installation in case the 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, though the Pro-OX 1650 iron filter must also be allowed to run through a complete backwash and rinse cycle after installation.
5. Your water may be discolored or full of sediment and rust for a day or two after installing and running your system, particularly if you have older or corroded piping.

Best Practices for Piping & Drain Installation

1. See typical installation on page 5 (Fig. 2). The iron filter is installed after the pressure tank.
2. Make sure to connect to the IN pipe to the CWS 165 inlet and the OUT pipe to the outlet (See Fig. 3). If you face the control valve from the front, the water will enter on the right and exit on the left. From the back, 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 iron filter and also one after as shown in Fig. 2. The pressure gauges are optional and perhaps not necessary but a hose bib (a faucet to which you can attach a garden hose) is strongly recommended after the iron filter and before the second ball valve. This makes it easy to rinse your new iron 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 CWS 165 control valve, and avoid heating the valve's plastic with your torch.
5. If you have copper pipe before the iron filter and it is too difficult to replace, you may still experience some copper staining of fixtures and have a copper residual in your water, because the copper pipe will still have acidic water flowing through it. We recommend PEX or PVC pipe up to the iron filter and then copper after it, if you will use copper piping.
6. You do not need unions to install your CWS 165 control valve. It has quick-release couplings that make it easy to put the filter on bypass and remove it from your piping.

7. The drain line tubing (not supplied) is connected to a drain from the drain outlet using flexible 1/2" ID tubing. Note that the drain can run up above the CWS 165 control valve 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 Iron Filter Works

See Fig. 1 below. Water enters your iron filter through the top of the tank and flows down through the media and up the distributor tube. Downflow type filters remove sediment and can be backwashed to clean and reclassify the media inside, preventing channeling. During backwash the flow of water is reversed: water flows down the distributor tube and up through the media, lifting, expanding, and cleaning it.

Fig. 1—Iron filter cutaway diagram

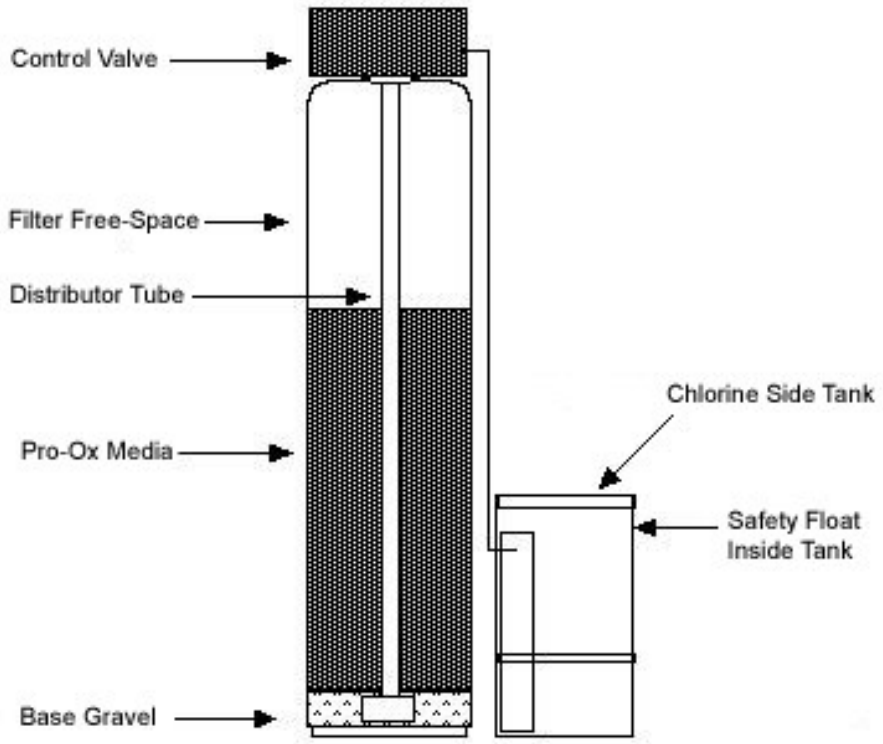


Fig. 2—Typical Pro-OX 1650 iron filter piping installation with ball valve and hose bib after filter

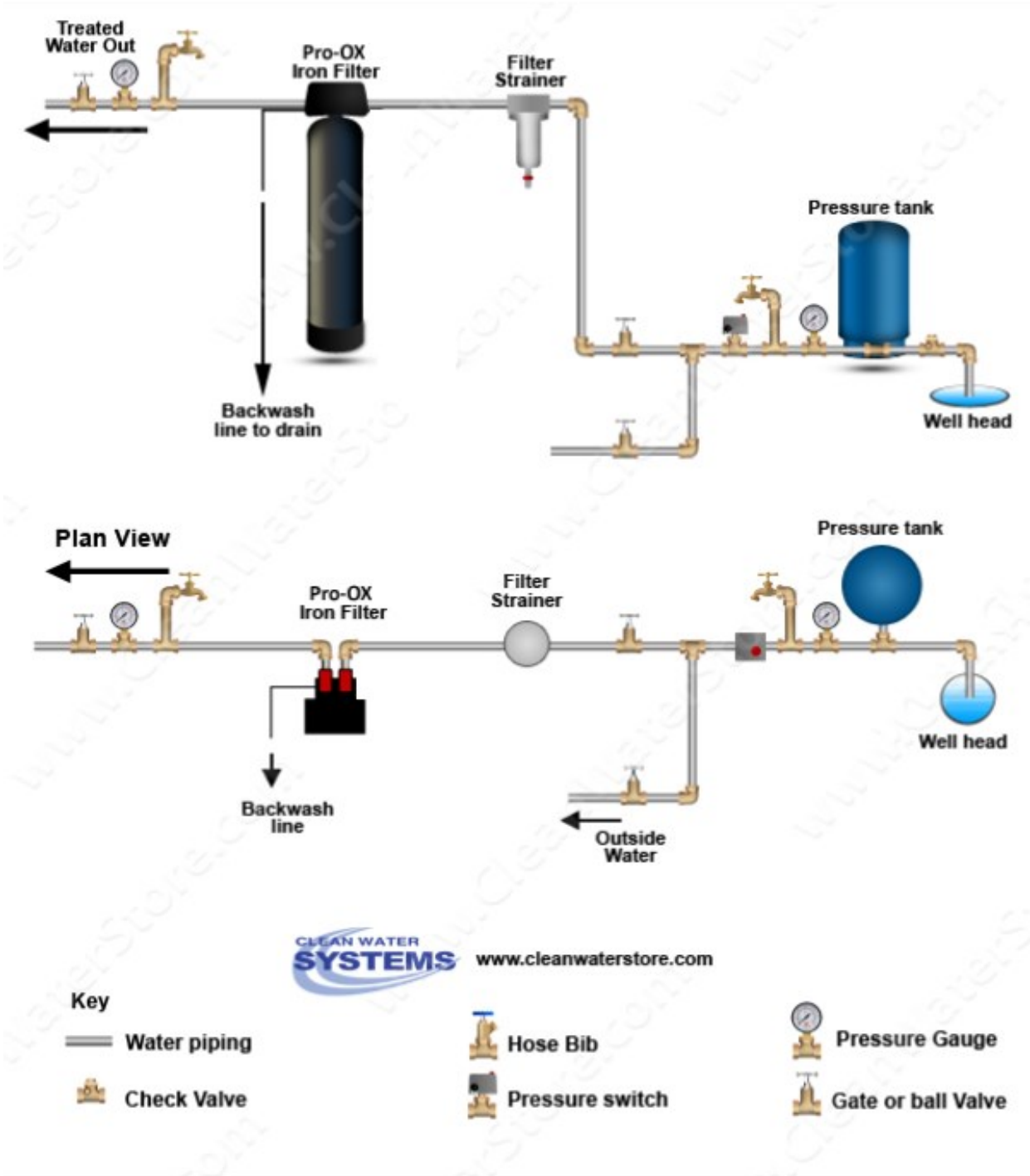
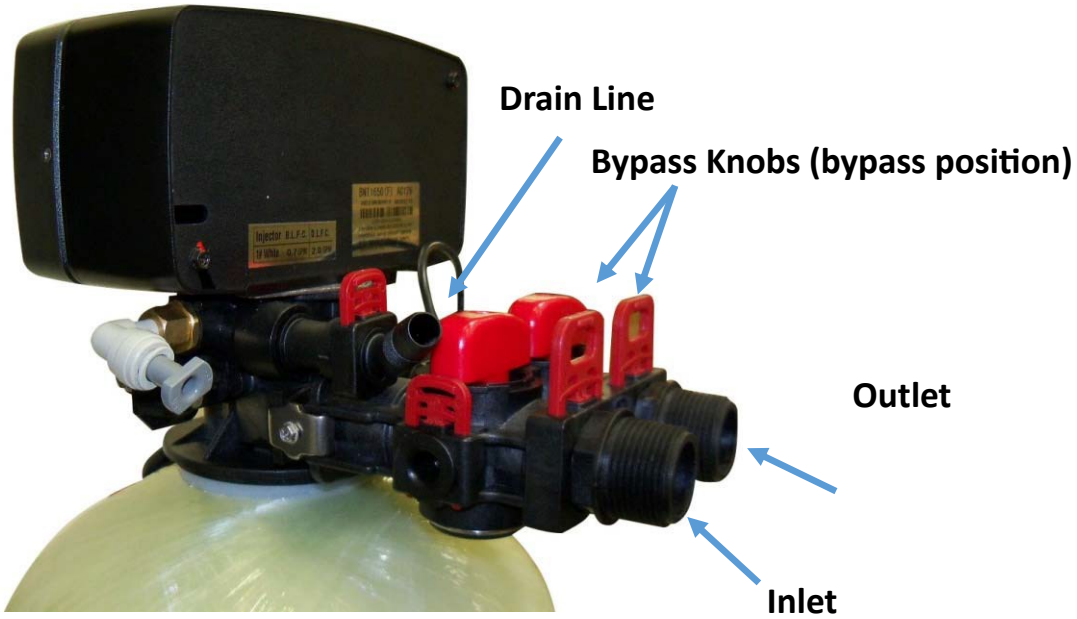


Fig 3—CWS 165 valve from the rear showing the inlet (left) and outlet (right) end-connector fittings (1" or 1-1/4" NPT in Noryl plastic). Brass end-connectors are also available for connecting to copper tubing.

Fig 4—CWS 165 side view

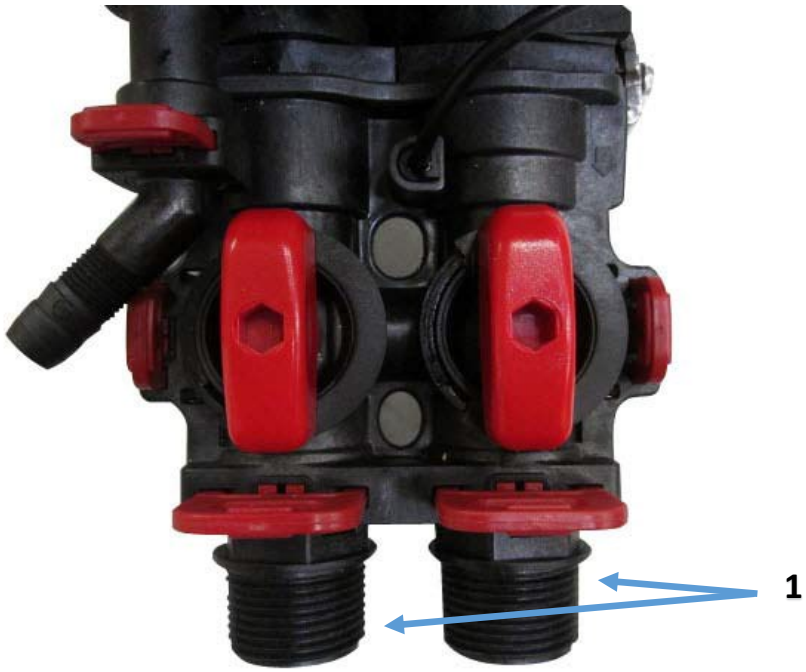


Assembly and Installation Instructions

1. By hand, unscrew the entire CWS 165 control valve from top of tank if it was shipped screwed on. Place distributor tube in tank if not already inside. Make sure the tube is capped, or wrap the top of the tube with electrical or duct tape. This will prevent gravel and Pro-OX media from entering the distributor tube when you add them to your tank.

2. Add the filter gravel that came with your system. You want the gravel to cover the bottom distributor screen before adding the Pro-OX media. **Note: Be sure not to let any parts of the bag or other foreign materials enter the tank when you are adding media.**
3. Next add Pro-OX media. The tank should be about 2/3 full of media.
4. Remove cap or tape from distributor tube, being careful not to pull up on the tube.
5. Fill tank with water. Add 2 cups of household bleach into the tank. This bleach will activate and sanitize the Pro-OX media.
6. Add a small amount of silicone grease or vegetable cooking oil to the tank threads and screw on control valve carefully.
7. **Note regarding Teflon tape and pipe sealants:** It is okay to use Teflon tape and pipe sealant on the water pipe connector threads, where you attach your pipes or plumbing to the CWS 165 control valve. **DO NOT USE any Teflon tapes or pipe joint compound on the tank itself or on the threads where the CWS 165 threads into the tanks.** Also note that when installing the CWS 165 backwash control-timer valve on to the top of the filter tank, do not over-tighten. Tighten by hand; there is no need for a pipe wrench or other wrench.
9. See how the bypass assembly is connected. Note that Items 1 in Fig. 5 below are the pipe connectors, while the other end is what gets attached to the control valve. Your CWS 165 valve is usually shipped in the bypass position, however Fig. 5 is in service mode.

Fig. 5—CWS 165 bypass and pipe connectors (In service mode)



10. Lubricate the bypass valve O-rings with some vegetable oil or silicone grease and connect the bypass assembly to the control valve by sliding the bypass valve firmly into its body.
11. Next, lubricate the end-connectors with some silicone grease or vegetable cooking oil and insert them into the bypass valve. Then, insert the red clips to lock them into place.
12. Make sure both knobs are in the bypass position. It is not necessary to remove the red clips in order to put the bypass valve into either bypass or service mode.
13. Now install your water pipes to the bypass valve's end connectors. Make sure the inlet is installed to the IN pipe connector and the outlet to the OUT connector.
14. Connect some flexible tubing from the drain connection on the CWS 165 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 filter up to 4 feet above the tank. If the drain will be more than 20 feet, use larger diameter tubing such as 3/4" or 1". Note that 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, you may use hard PVC piping for the drain line if you are able to remove it and attach flexible tubing should you ever desire for testing purposes. Make sure the drain line tubing is firmly clamped to the barbed fitting with a hose clamp to prevent leaks.
15. Plug your CWS 165 control valve into an outlet. After being plugged in, the screen may display "WAITING PLEASE" while it finds the service position. By default, the control valve will be set to work like a water softener, which is obviously not correct for this application, so you'll need to program the

system to work as an iron filter. There are a few settings that must be changed before the system can be put into service for this purpose.

16. PROGRAMMING:

    a. First, press the menu button labeled " " once. If it says "SCREEN LOCKED," you may have to press and hold the upper left button labeled " " about 3 seconds until a beep sounds to unlock the display screen.

    b. NOTE: Use the up and down arrows to cycle through the various program settings. To change any setting, press " " . When the display flashes, the value may be changed. Press either the up or down arrow to change the value. Press " " once more to accept the value, and the display should stop flashing to indicate that the setting has been saved.

    c. Step 1: REGIONAL US GAL—this stands for US gallons format; if it is different, change it to US GAL. When it is set, press the down button to proceed.

    d. Step 2: The display should be set to CALENDAR CLOCK. By default, the system is most likely set to METER IMMEDIATE or METER DELAYED. We recommend CALENDAR CLOCK for the operation of your iron filter, to backwash after a set number of days. Change the setting, then press the down arrow to proceed. It is ok to set it to backwash every 600 to 1200 gallons, but we also recommend every 3 – 4 days as well, a 3 – 4 day override, depending on usage.

    e. Step 3: TIME—set the time of day and press the down button to proceed.

    f. Step 4: REG. TIME—set to 2:00 AM or some other time when no water is being used and no other filter or softener is likely to be in a regeneration cycle. Press the down button to proceed.

    g. Step 5: REG. DAYS—this tells the iron filter to how often to regenerate, in days. It can be set for anywhere from 1 to 10 days, with 7 being the commonly recommended setting. If you are having problems with bleed-through of iron after your filter has been running for a few days, change this setting to 2 or 3 days.

    h. Step 6: BACKWASH—stands for backwash length in minutes. It should be set to 10 MIN, which means 10 minutes of backwash. If your water is extremely high in iron you can change this setting to 12 or 14 minutes to allow some extra backwash time. Generally, though, 10 minutes

is a good setting. Press the down button again to proceed.

i. Step 7: BRINE—this stands for Brine Draw. This does not apply to an iron filter, so lower this setting to the absolute minimum value, which is 3. The display should read 3 MIN, meaning the cycle will be 3 minutes long. Press the down button to proceed.

j. Step 8: RINSE—this is the rapid rinse cycle, and should be set to 10 MIN. Press the down button to proceed.

k. Step 9: REFILL—This does not apply to an iron filter, so lower this setting all the way down to 00.0. When it is properly set, it should display 00.0 MIN. Press the down button to proceed.

l. Programming is complete—to exit, press the upper menu button " " one more time to return to service mode.

17. Now you can start the initial manual backwash. Turn the manual knob clockwise to "BA. WA" and a manual backwash will begin.

18. Very slowly turn the inlet knob on the bypass valve towards the service position (the bypass valve knobs may be a little stiff at first) but **DO NOT** open the valve all the way. You want to allow all of the air in the tank to escape before allowing the water to flow freely.

19. Once water begins to flow from the drain line, open the inlet valve all the way. Continue to let the water run from the drain line until there are no longer any media fines present. This may take 1-2 backwash cycles.

20. If possible, verify that the backwash flow is 5 gallons per minute for the 1.0 cubic foot and 7 gallons per minute for the 1.5 cubic foot. 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 cleaning the Pro-OX media and preventing it from cementing together.

21. Next, open the outlet on the bypass valve and then open the nearest treated water faucet to the unit and allow the water to run until it is clear. We advise using a bathtub, laundry sink, or other fixture that does not have an aerator screen, as any remaining residue may get caught in the screen.

Troubleshooting the Pro-Ox 1650 Iron Filter

Measure the backwash flow rate by putting the system into a backwash mode and putting the drain tube into a 5 gallon bucket and timing the flow rate. A 0.75 cubic foot system should flow at 5 gallons in one minute, so the 5 gallon bucket should fill in one minute. The 1.0 cubic foot system should flow at 7 GPM during backwash.

In some cases, the CWS 165 valve has simply been programmed incorrectly. Double-check your settings against those described above in step 16 of Assembly and Installation Instructions ("PROGRAMMING", page 10) or consult your system's service manual for instructions. In some cases a nightly backwash is required for best results. Adjust backwash frequency to every 1 to 2 nights if necessary.

What To Do If Your Filter Tank Does Not Sit Level On the Floor

Your black filter tank base is not glued to the bottom of your tank. Occasionally tank bases will become crooked during shipment. If you find that that your tank does not sit level on the floor, you can easily adjust it by holding the empty tank and rapping it on a concrete or solid floor once or twice in order to level it.