



J-PRO-22 Pump Proportional Feed Hydrogen Peroxide Installation & Start-Up Guide

Thank you for purchasing a Clean Water System!

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

Specifications:

Pumps 0.1 to 22 gallons of solution per day
Injects into line pressures up to 110 PSI
Dual voltage. 110V or 220V, works on either voltage.
Uses maximum 22 watts of power.

Dimensions:

15-gallon model: 14.5" wide x 24", height including pump is 35".
35-gallon model: 18" wide x 33", height including pump is 44".

HYDROGEN PEROXIDE CAN DAMAGE CLOTHING AND IRRITATE SKIN AND EYES.

USE RUBBER GLOVES AND EYE PROTECTION WHEN HANDLING.

NOTE ABOUT 220V INSTALLATIONS: This pump is dual voltage right out of the box and works on 110v OR 220v.

If you plan to install to run on 220v-240v, we recommend cutting off plug and either hard-wiring to 220v circuit OR installing a 220v plug-end.

This pump is intended for indoor use, or for outdoors if protected from sunlight and freezing.

2806-A Soquel Ave Santa Cruz CA 95062

For assistance call: 1-831-462-8500

Email us: support@cleanwaterstore.com

More information online: www.cleanwaterstore.com



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J-Pro-22 Metering Pump Warranty and Returns:

Your pump comes with a 1 Year Warranty from date of delivery.

If your pump fails under warranty, please call or email our office to obtain a Returns Good Authorization Number before sending us back the pump for repair or replacement under the warranty. No returns can be accepted without an RGA number.

The Warranty covers repair and/or replacement of the metering pump but not shipping costs.

While defects are rare, we do our best to respond to warranty returns fast as we can. Please allow 3 to 5 business days after pump has been returned for your pump to be repaired or a new one supplied under the warranty agreement.

Shipping charges are not covered under warranty. A flat fee of \$9.95 each way will be charged for ground shipping (continental US). Any expedited shipping (overnight, 2-day, etc.) is the customer's responsibility.

Conditions Not Covered by the Warranty:

Power surges or outages that cause pump failure are not covered under warranty.

Surge protection is strongly recommended. If a pump is returned for warranty replacement and the cause of failure is determined to be from a voltage spike, the pump does not qualify for replacement. This is the leading cause of failure. Pump failure during, or because of, power failure is not covered under warranty.

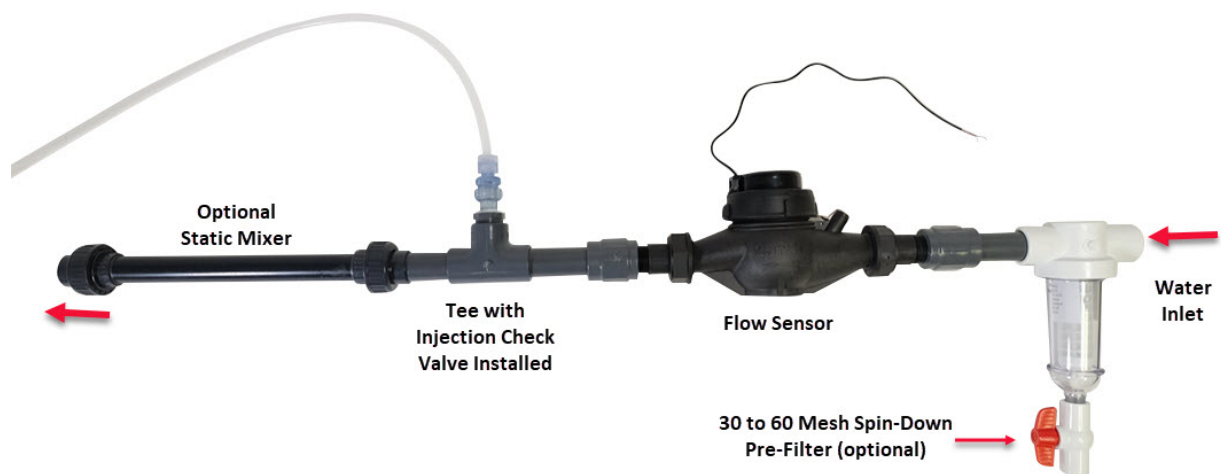
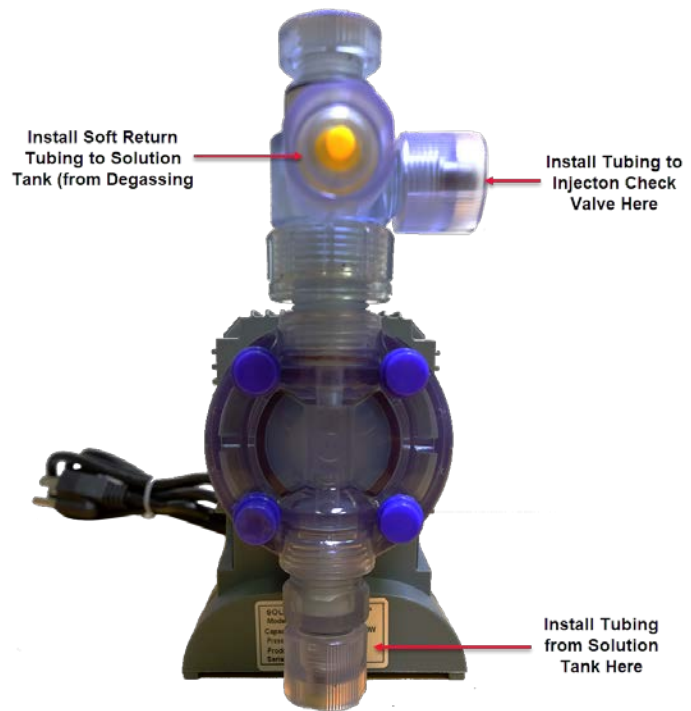
For Returns Contact Clean Water Systems & Stores Inc. 2806-A Soquel Ave Santa Cruz, CA 95062831-462-8500 support@cleanwaterstore.com

Pre-Installation

1. Review your packing list and make sure you have received all the parts before beginning installation.
2. If you turn 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 peroxide system on a dry level spot where it won't be exposed to freezing temperatures or direct sunlight. Maximum line pressure is 100 PSI.
4. Get all plumbing parts together before beginning installation.

Installation Over-View Steps

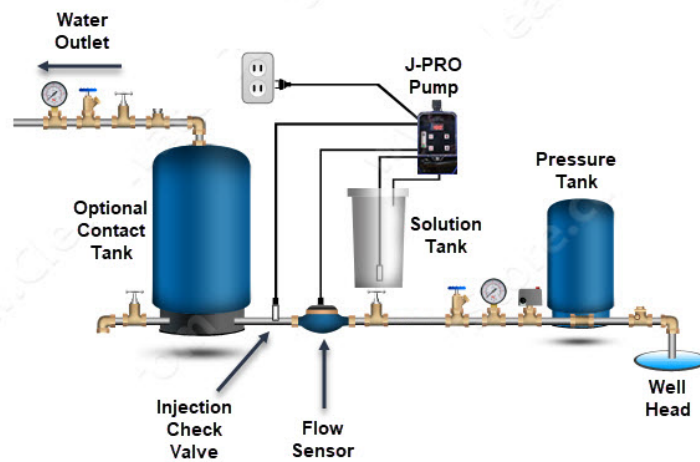
1. Install the Flow Sensor horizontally with the display facing up in a location where it is easy to connect with the J-PRO-22 pump and electrical outlet.
2. Install the peroxide injection valve (included with your order) after the flow sensor in to a tee in your pipe.
3. Install flow sensor and injection valve after existing pressure tank (if you have a pressure tank).
4. Connect the flow sensor cable to the Peroxide Pump cable, follow steps below in this guide to set the pump to automatic.
5. Plug the JPRO-22 into a wall outlet and follow steps later in this guide to program and set pump.
6. Now, when there is water flowing through the Flow Sensor, the JPRO-22 pump will pump peroxide based on the flow of water.



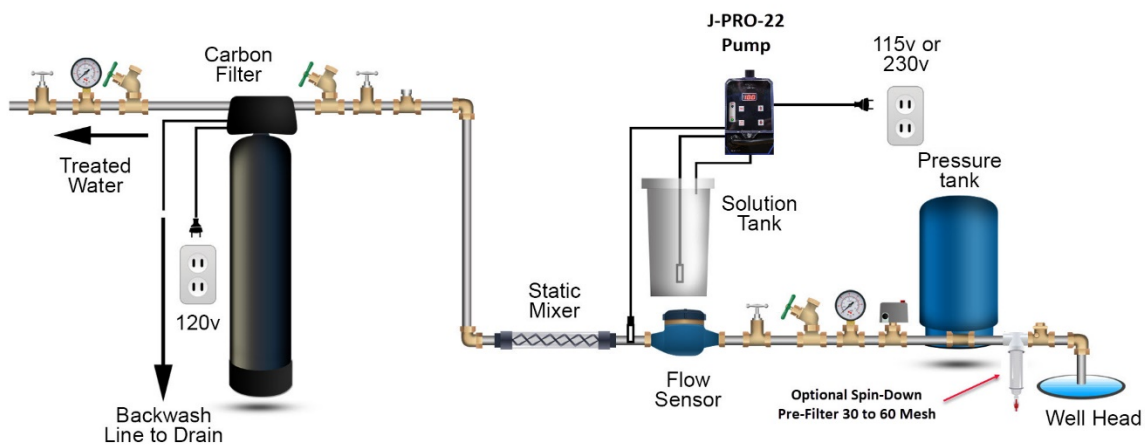
How Your Peroxide Injection System Works

Install the Flow Sensor horizontally with the display facing up in a location where it is easy to connect with the J-PRO-22 and electrical outlet. Whenever water flows through flow sensor, a precise amount of hydrogen peroxide will be injected.

Example Installation with Optional Contact Tank



Example Installation with Optional Static Mixer & Spin-Down Pre-Filter



J-PRO-22 Installation Instructions:

While you can mount the pump on a shelf above the solution tank, it is strongly advised to mount the pump directly on top of the solution tank. If the tubing from the foot valve to the suction side of the pump exceeds 60", the unit will not have enough lift force to stay primed.



Mount Pump to Solution tank

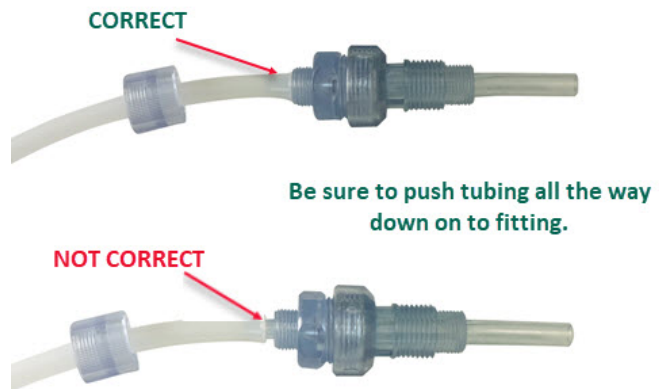
Place pump on tank. Mark where the anchor holes will be drilled. Drill pilot holes with a small drill bit so that the pump can be mounted on the tank with two wood or sheet metal screws.

We recommend screwing them in *after* the pump has been primed and the tubing has been hooked up for easiest installation.

Mark the holes for the suction tube and the degassing return line and drill holes.

How to Connect Tubing & Fittings

- Trim the end of the tubing square (cut with a new box cutter blade).
- Slide the connector nut onto the tube.
- Push the tubing over the conical fitting until the tubing is flush against the end of the fitting.
- Screw the connector nut on, hand tight.
- Do not use Teflon tape/ paste on the tubing fitting connections.



Use the harder/stiffer translucent tubing for connection from discharge-side (12 o'clock) to the injection check valve.

Use the softer clear tubing for the foot valve to suction-side (6 o'clock) connection.

Install Discharge Side Tubing

This is the tubing that goes from the pump discharge (outlet) to injection check valve in pipe tee.

1. Shut off well pump or water supply and de-pressurize service pipe.
2. Install injection check valve by installing a pipe tee in your pipe that has a 1/2" NPT fitting, where you can screw in the injection check valve (included with your J-PRO-22 pump).
3. Wrap Teflon tape on the 1/2" pipe threads of the injection check valve and apply a light coating of white Teflon pipe paste and install into Tee fitting.
4. Trim the end of the injection check valve fitting so that the end will be in the center of the service pipe.
5. **Make sure to install injection check valve in to pipe directly.** If the end of the check valve is not in the service pipe, it will not work. Do not install a ball valve, or any length of pipe run, coming off the tee.
6. Using a hack saw or cutter, trim the end of the injection check valve if needed, so it inserts into the water pipe as shown.
7. Install tubing that came with your pump and connect pump to injection check valve.
8. Cut tubing to desired length with enough slack to avoid kinks.

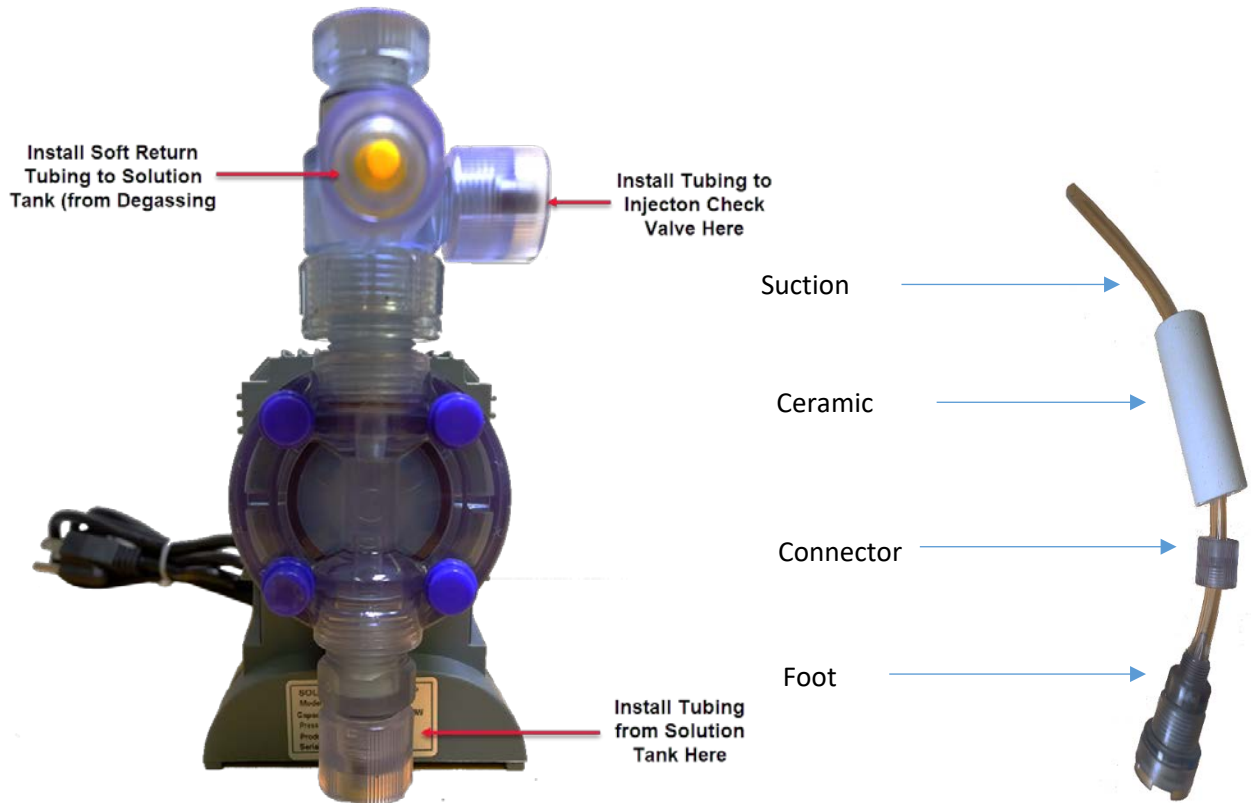


Injection check valve can be installed into PVC, copper or other piping.

Install Suction Tubing from Pump to Solution Tank

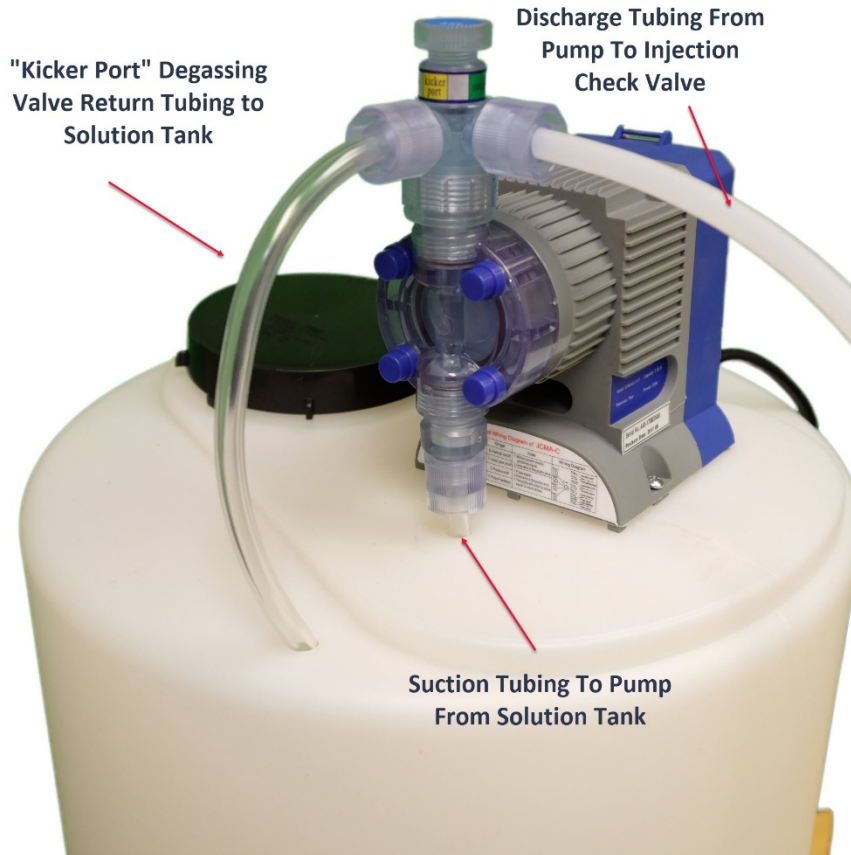
Connect hard tubing from foot valve in Solution Tank to Inlet/ Suction side of metering pump

1. Measure the tubing from the outside of the solution tank to ensure it will be 2-3" from the bottom of the solution tank.
2. Do not allow weight to sit at the bottom of the tank. Connect tubing to the foot valve and put the ceramic weight on.
3. Run the tubing up through the hole and connect to the Inlet/ Suction side of pump



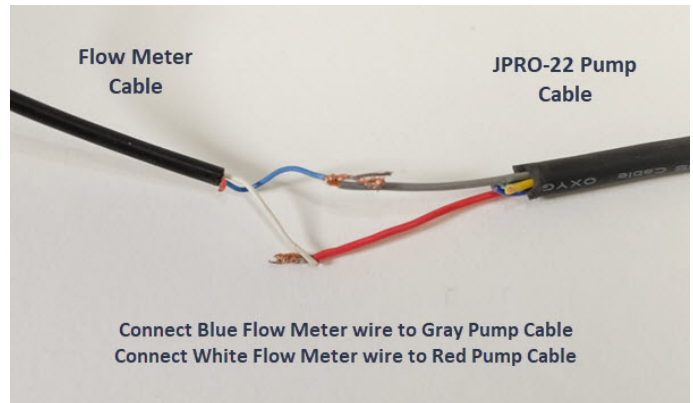
Connect Tubing from Degassing Port (“Kicker Port”)

You can use the soft tubing for this run, connect tubing to the degassing port fitting (labeled on the pump as “Kicker Port”) and pass tubing through the hole you drilled down into the tank 4-6”.



Connect the Cables (wiring) for the J-PRO-22 Pump

1. Flow Meter Cable WHITE wire Connects to Pump Cable RED wire (trim back, disregard other color wires)
2. Flow Meter Cable BLUE wire connects to Pump Cable GRAY wire. (trim back, disregard other color wires)
3. Solder or connect the wires with wire nuts, or electrical tape and then seal with shrink wrap or electrical tape.



Prime & Start the Pump with Water First:

1. Add 4 gallons of distilled or purified or softened to solution tank.
2. Adjust the 2FV “kicker port” (which is the Degassing Valve) so it is open approximately a ½ turn.
3. Plug the pump in to electrical outlet.
4. Pump will be in Manual Mode, with the % at 100%
5. “Motor” light will be Green. “Auto” light will be off.
6. Press the ON-OFF button, pump will start pumping.
7. You will quickly see water being pumped out the discharge tubing.
8. After the pump is primed and is pumping, close the degassing valve until almost closed. The valve should be just slightly open, so a small amount of peroxide solution can be pumped back into the tank.
9. After the pump has been in operation for an hour or so, you should check the liquid end of the pump (back end) and re-tighten the four stainless steel Allen-head screws on the head in a crisscross fashion.

Program and Set the Pump

1. If not already, plug the pump in to a 110 or 220v receptacle.
2. When first plugged in, pump display will read “100” and be in Manual (non-pulse) mode. “MOTOR” light will be green.
3. Press and hold the SET button for several seconds until “AUTO” light turns green.
4. Now press and hold both the SET button and UP Arrow button for a moment and release.
5. Using UP Arrow button only, adjust to 3, which gives you three pump strokes for each gallon of water flowing through the flow meter.
6. Later you can adjust it higher (or lower) depending on the desired peroxide residual. For more information on that, see example calculations below.
7. Finally press the ON-OFF button once, and now your pump is in automatic mode.

How to Select the Peroxide Solution Strength and Pump Setting

- The goal of a properly functioning peroxide injection system is to have a peroxide residual of 0.2 to 1.0 ppm before any carbon filter system.
- This is accomplished by adjusting the peroxide solution strength and setting the J-PRO-22 Proportional number of pump strokes per gallon. A “stroke” is each time you hear the pump thump.
- In determining your metering pump’s settings and solution strength, keep in mind that it’s best to make up fresh solution once every 1 to 3 months.
- The peroxide solution loses strength as it ages and is sensitive to heat and light. Generally, keep solution tank out of the sun and use fresh solution regularly for best results.
- We recommend using stabilized 7% hydrogen peroxide as it is safer to transport and handle, however there is industrial peroxide grades available up to 35%.

How Much Peroxide Should Be Injected?

Peroxide is injected in parts per million ('ppm') which is the same as saying milligrams per liter ('mg/L'). The amount of peroxide to add depends on the “peroxide demand” of the water.

“Peroxide demand” is the PPM of various contaminants in the water that combine with the peroxide after the peroxide has been injected and sufficient contact time has occurred such as iron, manganese, hydrogen sulfide, etc.

- After the peroxide has combined with the various substances such as bacteria, iron, manganese and odor, some level of uncombined or “free” peroxide will exist.
- The goal is to have some small amount of peroxide, usually around 0.2 to 0.4 ppm of free-peroxide, up to a maximum of 1.0 ppm of free-peroxide.
- For bacteria you want to inject 1 – 2 ppm of peroxide with approximately 10 minutes of contact time. Note that peroxide is NOT considered to be an adequate disinfectant method by USEPA. If you do suspect contamination by e.coli or other pathogenic bacteria we recommend a separate disinfection system, such as UV light system as a final step in the treatment process.
- For each part per million of iron or manganese generally you want to inject 1 ppm of peroxide. For each 1.0 ppm of hydrogen sulfide gas (which causes the rotten egg smell in water) you want to inject 2 to 3 ppm of peroxide.
- There are two parameters that you need to adjust, to obtain a peroxide residual: The **solution strength** (mix of peroxide to water) and the number of times the pump pumps (also called **strokes per gallon**) for each gallon of water flowing through the flow meter. Start with 3 to 4 strokes per gallon for standard residential well systems pumping 5 to 20 gallons per minute.
- Once you get the residual, then you will use the same solution strength from batch to batch, and you should not have to further adjust the pump- always check the residual after making a new batch.

Typical Solution Strength and Pulses Per Gallon Settings

1. Peroxide Solution: Use 7% peroxide undiluted
2. Pulses Per Gallon setting on pump: Set to 3 or 4

Example Formula & Calculations

(Using an example or assumed maximum flow rate of 10 gallons per minute, which is a typical maximum flow rate for many homes. You can change the calculations by using your number, this is an example only.)

Max flow rate: 10 Gallons Per Minute (“GPM”)
Applied peroxide dose: 4.0 ppm
Solution strength: 7000 PPM

Formula Steps: (formula below uses cubic centimeters, or milliliters of which there are 3785 mL’s in one gallon)

$$\frac{10 \text{ GPM} \times 3785 \times 4.0 \text{ PPM}}{12,000} = 12 \text{ milliliters or CC's per minute}$$

Figure Percent of pump output required related to maximum output of pump:

$$\frac{12 \text{ cc/min required output}}{58 \text{ cc/min max. output}} = 21\% \text{ of pump output required}$$

Choose Pulses Per Gallon Setting

Since pump can pump 110 strokes per minute, and we want 21% of that, we need 24 strokes per minute (round up to 30 to make pulse adjustments):

Choose 3 pulse/gallon;

10 GPM x 3 Pulses Per Gallon Setting = 30 pulses/minute to pump at the maximum speed.

Troubleshooting and Maintenance

Most problems occur with the connections, it can sometimes be hard to push the tubing onto the cones, sometimes fittings are over-tightened, or people use Teflon tape and paste on fittings that do not need it.

Remember, above all, if the pump pumps in manual mode (makes a ka-thunk, ka-thunk sound), **then it works.**

Too much peroxide?

Adjust the strokes per gallon down to 1 or 2, and/or make the peroxide solution more diluted by adding more distilled water.

If you cannot get it to prime, it is either because a fitting is too loose, too tight, or not installed correctly.

If you see the water going up and down in the tubing, this indicates the foot valve is not tight, or you installed the pump too high above the solution tank, or you mounted the pump improperly.

Sometimes, as mentioned earlier in the guide, it is because the four Allen head bolts on the pump head have loosened, and need to be tightened, do not over-tighten. If the solution has filled up the tubing, but it is not discharging, make sure the de-gas is opened, and then close it until the point when it starts pumping.

The tubing going from the outlet/discharge to injection check valve will twitch and move at the same time the pump triggers, that is how you can confirm you are pumping solution.

If this does not work, remove the discharge-to-injection check valve tubing from the outlet fitting, and see if it strokes out of the top- if it does, this indicates that the problem is in the injection check valve, or that you are trying to pump against greater than 100 psi.

Maintenance

Check free-peroxide residual at least once per month and adjust the J-PRO-22Pump and/or solution strength if needed.

Winterizing: do not let the J-PRO-22Pump or tubing freeze. If you need to winterize, drain the peroxide solution tank and discard peroxide solution. Place the suction of the pump into a bucket of clean water and allow the pump to run until the J-PRO-22Pump is free of any peroxide solution. Remove the suction from the water and allow the pump to pump dry. Pump is ready to store.

NOTE: when diluting the peroxide, use only distilled water, water from a reverse osmosis system, or at least softened water. Do not use untreated well water.

Need Assistance? Call us at 831-462-8500 or email support@cleanwaterstore.com

Spare Parts:

These installation parts are included with initial order, but you may wish to have spares on hand, or replace the injection check valve, foot valve or diaphragm later.



P7007540 Diaphragm
Replacement



P7007570
Foot Valve



P7007550
Injection Check
Valve