

J-PRO-22 Pump Proportional Feed Chlorinator 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.

Watch Installation Video on Youtube

<https://youtu.be/uMd0Zqi0ddw>



CHLORINE CAN DAMAGE CLOTHING AND IRRITATE SKIN and EYES. USE RUBBER GLOVES AND EYE PROTECTION WHEN HANDLING.

USE ONLY PURIFIED OR SOFTENED WATER TO MAKE UP CHLORINE SOLUTION, NOT RAW WELL WATER.

USE CHLORINE POWDER OR BLEACH CERTIFIED FOR DRINKING WATER, NOT LAUNDRY BLEACH.

NOTE ABOUT 220V INSTALLATIONS: pump is dual voltage 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.

PROTECTION AGAINST VOLTAGE SURGES IS STRONGLY RECOMMENDED

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:

5-gallon model: 10" x 10" x 15". Height including pump is 26"

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".

This pump is intended for indoor use, protect from sunlight and freezing.

For assistance call: 1-831-462-8500

Contents

| | |
|--|----|
| J-Pro-22 Metering Pump Warranty & Returns:..... | 3 |
| Pre-Installation..... | 4 |
| Installation Over-View Steps..... | 5 |
| Mount Pump to Solution tank..... | 7 |
| How to Connect Tubing & Fittings | 7 |
| Install Discharge Tubing..... | 8 |
| Install Suction Tubing from Pump to Solution Tank..... | 9 |
| Connect Tubing from Degassing Port (“Kicker Port”)..... | 10 |
| Connect the Cables (wiring) for the J-PRO-22 Pump..... | 11 |
| Prime & Start the Pump with Water First:..... | 11 |
| Program and Pump Settings | 12 |
| How to Select the Solution Strength and Strokes Per Gallon Setting | 13 |
| How Much Chlorine Should Be Injected? | 14 |
| Example Formula & Calculations..... | 13 |
| Watch How-To Videos on Our YouTube Channel | 14 |
| Priming Problems | 14 |
| Spare Parts..... | 16 |

J-Pro-22 Metering Pump Warranty & 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.

If continuous chlorination of your waters supply is critical, a back-up chlorinator pump should be kept on hand. 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.

This pump is intended for indoor use only. The pump must never be exposed to freezing temperatures, direct sunlight, or rain. If the cause of failure is determined to be from exposure to any of these environments, the pump does not qualify for replacement and will not be covered under warranty.

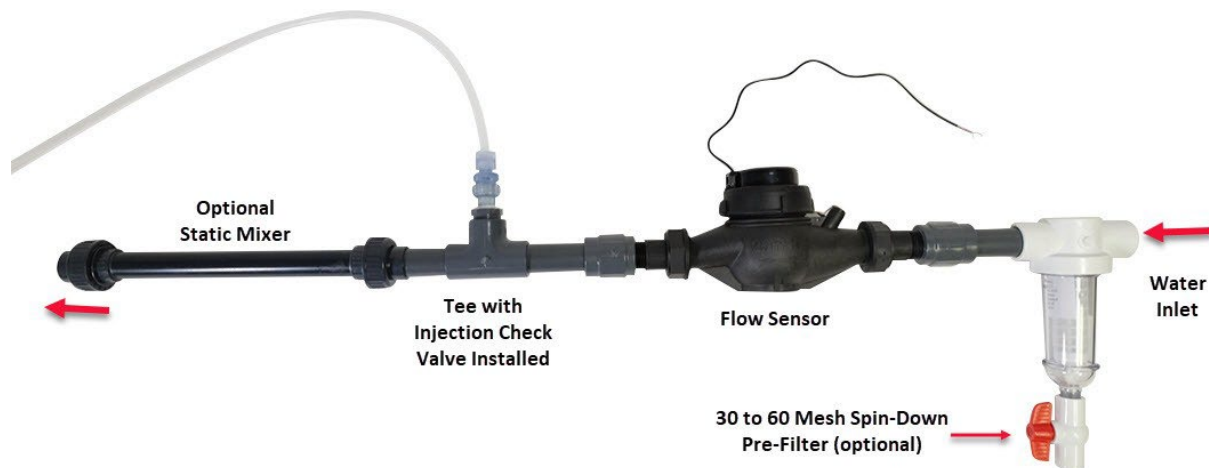
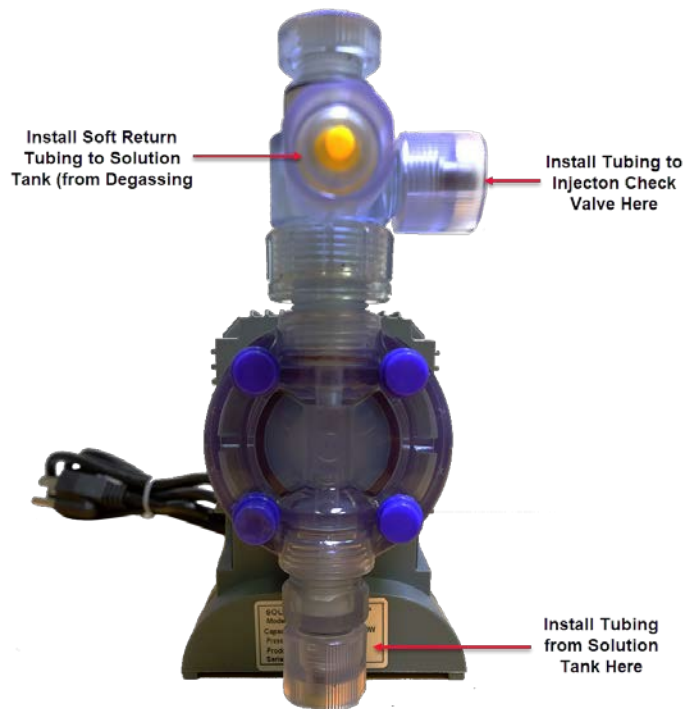
For Returns Contact Clean Water Systems & Stores Inc. 2806-A Soquel Ave Santa Cruz, CA
95062831- 462-8500 support@cleanwaterstore.com

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 chlorination system on a dry level spot where it won't be exposed to freezing temperatures or direct sunlight. Maximum line pressure is 100 PSI.

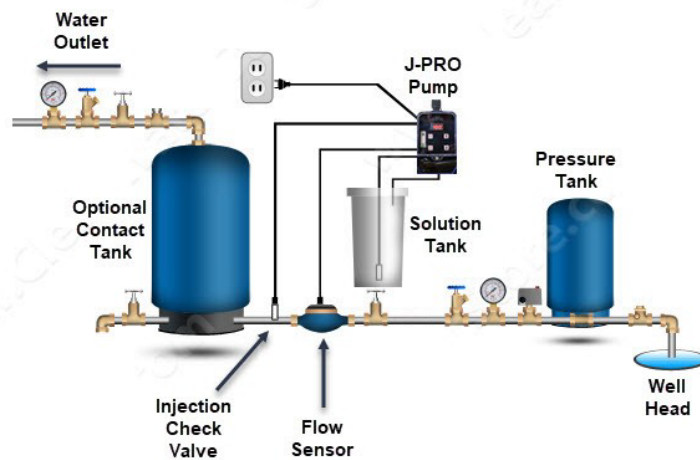
Installation Over-View Steps

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 chlorine injection check valve (included with your order) after the flow sensor into a tee in the 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 J-PRO-22 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 inject chlorine based on the flow of water.

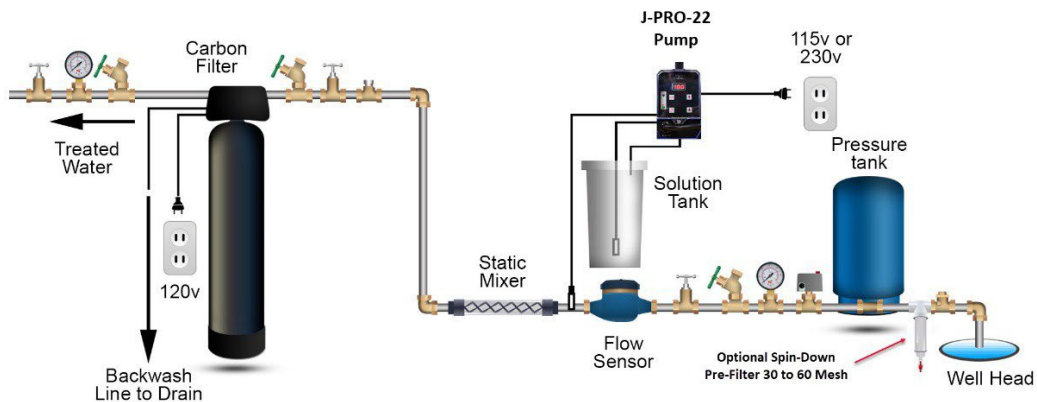


Install the Flow Sensor **horizontally** with the display facing up in a location where it is easy to connect with the J-PRO-22 and electrical outlet. Attach meter cable to pump per instructions below. Whenever water flows through flow sensor, a precise amount of chlorine will be injected.

Example Installation with Optional Contact Tank



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



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.

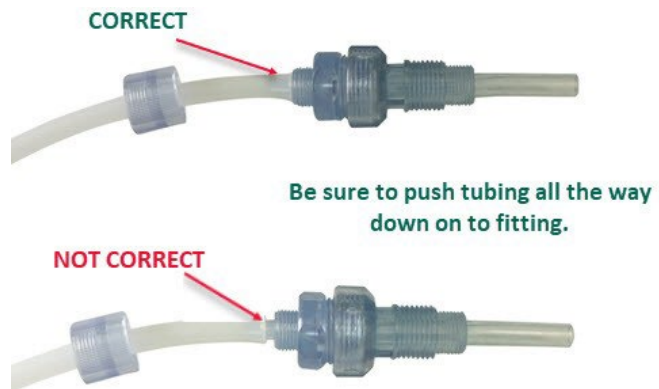
We recommend screwing them in **after** the pump has been primed and the tubing has been hooked up for easiest installation.

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

How to Connect Tubing & Fittings

Note: Warming tube ends with hot water or a hair dryer helps with tubing installation.

- 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 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.

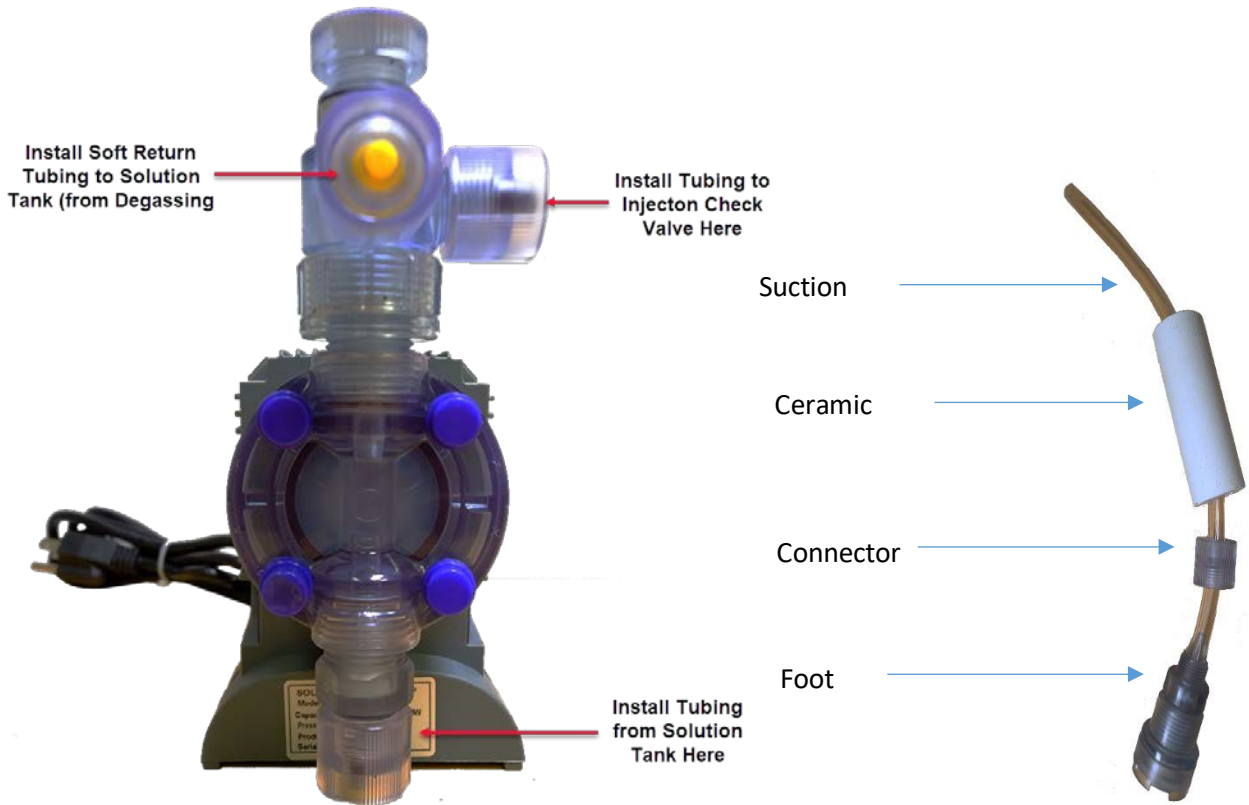


Injection check valve can be installed into PVC, copper or other piping.

Install Suction Tubing from Pump to Solution Tank

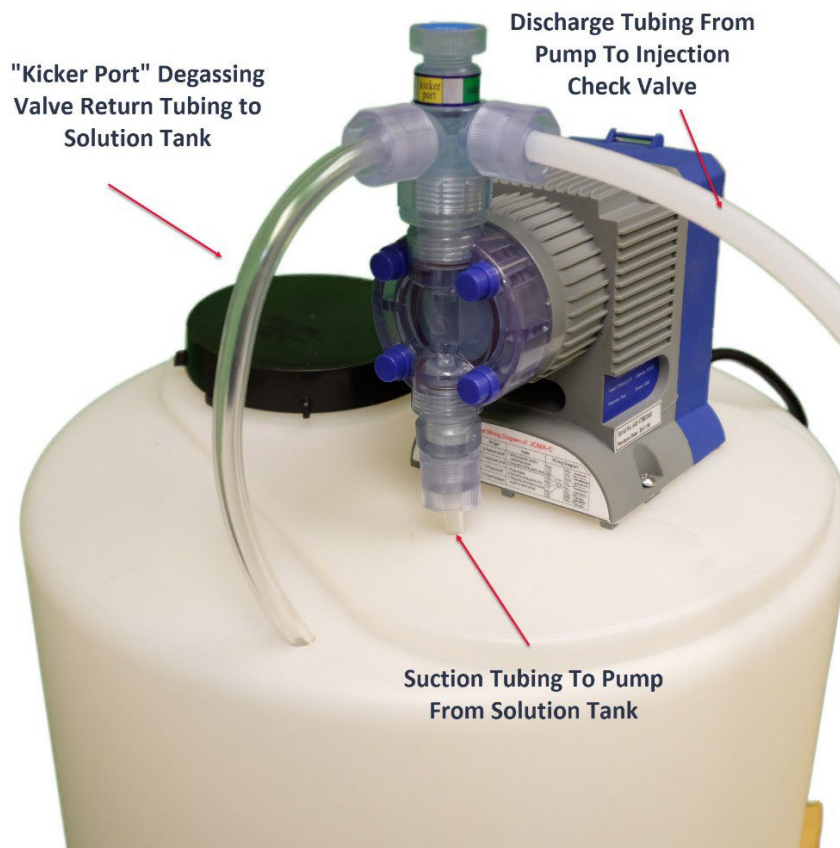
Connect hard tubing from foot valve in Solution Tank to Inlet/ Suction side of metering pump

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



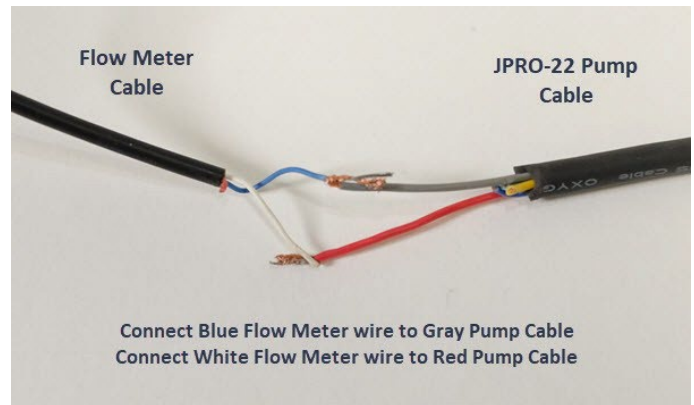
Connect Tubing from Degassing Port (“Kicker Port”)

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 water to solution tank.
2. Adjust the 2FV “kicker port” (which is the Degassing Valve) so it is open approximately a ½-1 turn.
3. Plug the pump in to electrical outlet (either 110 or 220v).
4. When first powered up, pump display will read “100” and be in Manual (non-pulse) mode. “MOTOR” light will be green.
5. Press the ON-OFF button, pump will start pumping.
6. After the pump is primed and is pumping, close the degassing valve. Valve will remain closed for normal operation.
7. Once you see there are no leaks, add ½ gallon of 12% chlorine bleach or 1 gallon of household bleach to solution tank.
8. After the pump has been in operation for a few hours, check / re-tighten the four stainlesssteel bolts on the head. Take care not to overtighten as you may damage the pump

Program and Pump Settings

NOTE: When making programming changes to the pump, you must wait at least 15 seconds for the updated changes to be stored in the memory. Making additional changes or shutting off power to the pump prior to this waiting period will default back to the original settings.

When first plugged in, pump display will read “100” and be in Manual (non-pulse) mode. “MOTOR” light will be green.

1. Press and hold the SET button for several seconds until “AUTO” light turns green.
2. Now press and hold both the SET button and UP Arrow button for a moment and release.
3. Using UP Arrow button only, adjust to 2, which gives you two pump strokes for each gallon of water flowing through the flow meter. If you get into negative numbers, you must scroll the down arrow key to zero in order to scroll up to positive numbers.
4. After you have selected the number of strokes per gallon, press and release the Set button to confirm the setting.
5. Finally press the ON-OFF button once, and now your pump is in automatic mode.

Note: Check to see if pump is operating correctly by running the water and comparing pump actuations vs. programmed strokes per gallon of water flowing through the meter.

During Auto mode, numbers appearing on the readout have no meaning or direct correlation to amount of solution being injected.

Later you can adjust it higher (or lower) depending on the desired chlorine residual. For more information on that, see example calculations below.

How to Select the Solution Strength and Strokes Per Gallon Setting

The goal of a properly functioning chlorine injection system is to have a free-chlorine residual of 0.2 to 1.0 ppm after sufficient contact time, before any carbon filter system.

If no carbon filter or other de-chlorination is used, to have a free-chlorine residual of 0.2 to ppm at the end of the distribution system or furthest point in the plumbing.

This is accomplished by adjusting the chlorine bleach solution strength and setting the J-PRO-22 number of strokes per gallon (each time the pump registers a gallon and sends a pulse to the pump).

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 chlorine 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. You can use household bleach (5%) for emergencies, but in general, you want to only use NSF certified chlorine granules mixed with purified water, or liquid pool chlorine, 10% (sodium hypochlorite). Household bleaches may contain additives and/or heavy metals.

How Much Chlorine Should Be Injected?

Determine the parts per million of applied chlorine residual you are trying to achieve.

Determine The solution strength (mix of chlorine to water) and the number of strokes per gallon.

Powdered Bleach: Start with 1 oz of chlorine powder for each 1 gallon of purified or softened water, to achieve a 10,000 PPM solution. Set pump to 3 strokes per gallon

Liquid Bleach: Start with ½ gallon of 12% bleach to 4-1/2 gallons of distilled water (or if using 5% household bleach, use 1 gallon of bleach to 4 gallons of water) to achieve a 10,000 PPM solution strength, and set pump to 3 pulses per gallon.

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

Chlorine demand is the number of various contaminants in the water that combine with the chlorine after the chlorine has been injected and contact time has occurred.

After the chlorine has combined with the various substances such as bacteria, iron, manganese and odor, some level of uncombined or “free” chlorine will exist. The goal is to have some small amount of free-chlorine, usually around 0.2 to 0.4 ppm of free-chlorine in the pipes.

For bacteria you want to inject 1 – 2 ppm of chlorine with approximately 10 minutes of contact time. If the water is colder than 50F (10C) and/or the pH is higher than 7.5 you may need longer contact time or a higher residual.

For each part per million of iron or manganese generally you want to inject 1 ppm of chlorine.

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 chlorine. So, say you have bacteria and 2.0 ppm of iron. For our example here, we will assume you want to inject 4 ppm of chlorine.

The proportion feed system does not have a “pump speed”. How much or how little you open a faucet(s), that rate of flow, small or large, is the “speed” – it is the speed of the water, in Gallons Per Minute, going through the flow meter.

Check for chlorine residual. If you need more chlorine increase pump setting to pump twice per pulse. Always go from lower to higher, that is, you want to gradually raise your chlorine input, until you show a residual, you do not want to over-chlorinate and then work down.

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 but always check the chlorine residual.

Example Formula & Calculations

Chlorine 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 chlorine dose: 4.0 PPM

Solution strength: 1.0% sodium hypochlorite (10,000 ppm) diluted from 10% bleach by adding 9 gallons of distilled or purified water to 1 gallon of 10% pool chlorine.

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

$$\frac{10 \text{ GPM} \times 3785 \times 4}{10,000 \text{ ppm}} = 15 \text{ cc/minute}$$

The J-PRO-22 metering pump has an output of 58 cc/min and can stroke a maximum of 100 strokes a minute.

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

$$\frac{15 \text{ cc/min required output}}{58 \text{ cc/min max. output}} = 26\% \text{ of pump output required (round to 30\%)}$$

Choose Pulses Per Gallon Setting

Since pump can pump 100 strokes per minute, and we want approximately 30% of that, we need 30 strokes per minute, at the maximum flow rate of 10 gallons per minute.

Choose 3 pulse/gallon:

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

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.

Watch How-To Videos on Our YouTube Channel

<https://www.youtube.com/cleanwaterstore>

Priming Problems

1. If you cannot get it to prime, it is either because a fitting is too loose, too tight, or not installed correctly.
2. While the pump is running (usually, on Manual), observe if the fluid is coming up the tube- 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.
3. Sometimes, as mentioned earlier in the guide, it is because the four Allen head bolts on the grey pump head have loosened, and need to be tightened, do not over-tighten.
4. If the solution has filled 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.
5. 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.
6. 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 PS

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

Clean Injection Check valve 1 to 3 times a year depending on use. Remove injection check valve and soak in citric acid, muriatic acid or white vinegar to clean.

Winterizing: do not let the J-PRO-22 Pump, solution tank, or tubing freeze. If you need to winterize, drain the chlorine solution tank and discard chlorine 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 chlorine solution.

Remove the suction from the water and allow the pump to pump dry. Pump is ready to store.

NOTE: when diluting the bleach, 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.



P7007550
Injection
Check Valve



P7007540
Diaphragm
Replacement



P7007570
Foot Valve