



J-PRO-6 Pump Chlorinator

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 treated water for many years.

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

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 style plug-end.

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".

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

For assistance call: 1-831-462-8500

Or Email: support@cleanwaterstore.com

Table of Contents

J-Pro-6 Metering Pump Warranty and Returns:.....	3
Pre-Installation	4
Best Practices for Installation	4
How Your Chlorinator Works.....	5
Two Options To Turn ON and OFF Chlorinator Pump Automatically:.....	6
Wire To Pressure Switch Option.....	8
Use a Flow Switch Option.....	8
Installation Instructions	9
Mounting Pump to Solution Tank.....	9
Quick Start Guide.....	11
Installing the Pump Tubing.....	12
Prime & Start The Pump	14
Adjusting the Metering Pump Settings.....	15
How To Select the Chlorine Solution Strength and Pump Setting.....	15
Formula for Determing Solution Strength Pump Settings.....	17
Troubleshooting.....	18
Need Assistance?.....	18

J-Pro-6 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.

If the water supply and its continuous chlorination are critical, a back-up chlorinator pump should be 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 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 the 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. The maximum line pressure is 100 PSI.
4. Get all of your plumbing parts together before beginning installation. Installation typically takes 1 to 5 hours.
5. After the system is installed and running, your water may temporarily be discolored from the initial chlorinated water, or full of sediment or rust, particularly if you have older or corroded piping.

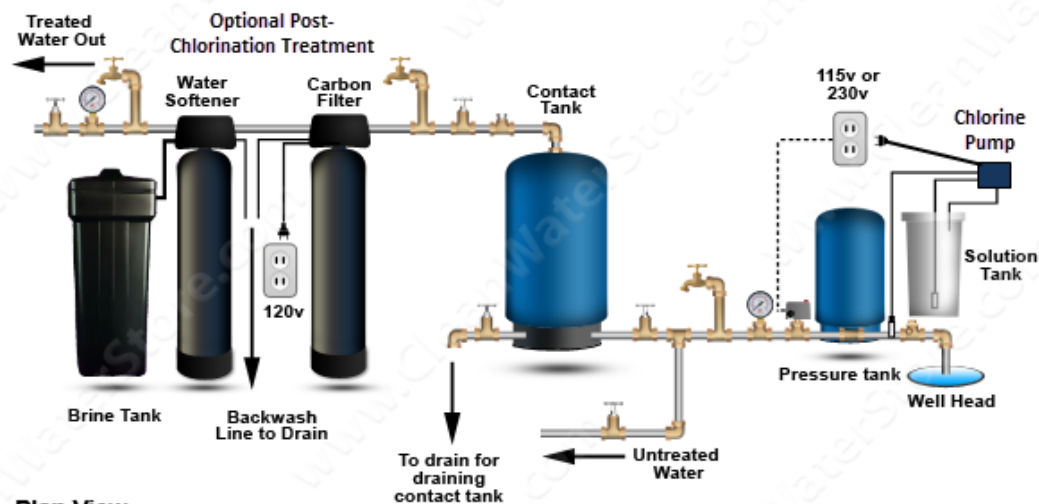
Best Practices for Installation

1. See typical installation for well water (see Fig 1).
2. Make sure that the J-PRO-6 Pump turns on and off with the well pump, or if you are using a flow switch, plug into the flow switch, so the J-PRO-6 Pump is activated based on water flow.
3. Do not cut the cord on the J-PRO-6 Pump for direct wiring to the pressure switch. It is better to install a dedicated wall receptacle that is wired to power on and off with the well pump, unless you are using a flow switch.

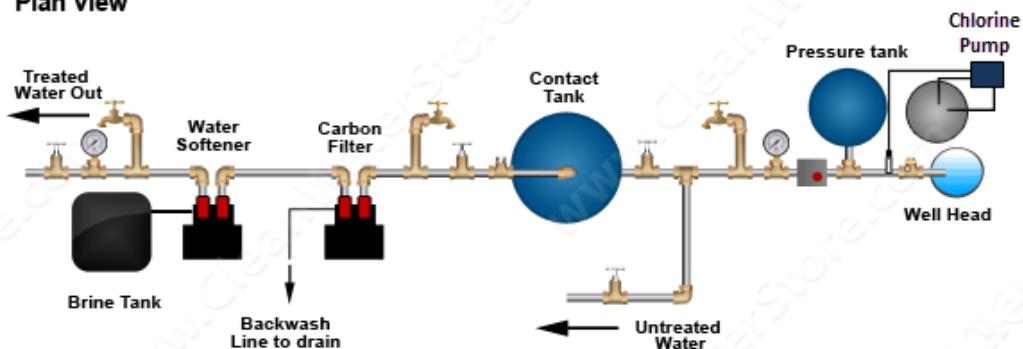
How Your Chlorinator Works

See Fig 1. The pressure switch controls the well pump. A dedicated outlet for the J-PRO-6 Pump is installed and wired, so it is energized when the well pump is energized. When the water pressure in the pressure tank drops below the cut-in point on the pressure switch, the well pump and metering pump turn on. As water is pumped through the system, a small amount of chlorine is pumped into the water by the chlorine metering pump.

Fig 1: Typical installation with contact tank and carbon backwash or iron filter. NOTE – J-PRO-6 Pump must be wired so it switches on and off with well pump by wiring to same circuit as well pressure switch. Alternatively, a Flow Switch can be used (Option 2 on the next page). The J-PRO-6 Pump cannot just be plugged into a wall and left to run for 24 hours a day.



Plan View



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Key

-  Water piping
-  Pressure Gauge
-  Pressure switch
-  Vacuum Breaker
-  Hose Bib
-  Check Valve
-  Gate or ball Valve

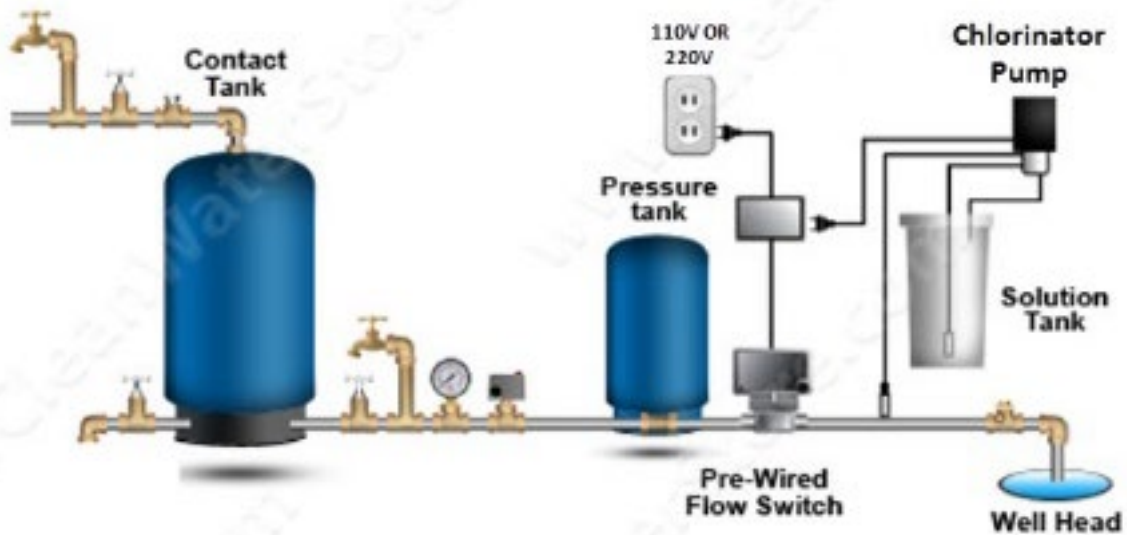
Two Options To Turn ON and OFF Chlorinator Pump Automatically:



Option 1: Wire to your well's pressure switch. This is the lowest cost method. Simply install a dedicated wall outlet, that is wired in to the existing pressure switch and powered up whenever the well pump turns on (and off).

Option 2: Install a flow switch. This makes it fast and easy. No electrical wiring to do and any plumber, or person familiar with basic plumbing can install the chlorinator. No electrician required or electrical wiring to do.

Simply install the pre-wired flow switch. Plug the flow switch into a standard 120V wall outlet. Then, plug the chlorinator pump into the electrical outlet on the flow switch. Whenever there is flow, the metering pump will then turn on.



Wire To Pressure Switch Option

Install a dedicated wall outlet that is wired in to the pressure switch and powered up whenever the well pump turns on.

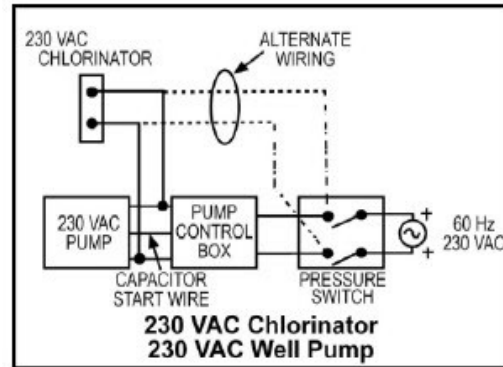
The J-Pro-22 is a dual voltage pump. It has a 110 volt- style plug.

A person who is qualified may (without voiding the warranty) cut off the plug and wire it directly to the pressure switch terminals.

Avoid installing a dedicated wall outlet that looks like it is 110, but is actually 220.

You may cut off the 110 style plug and wire a 220-style plug, and then plug that into a dedicated 220- style wall outlet.

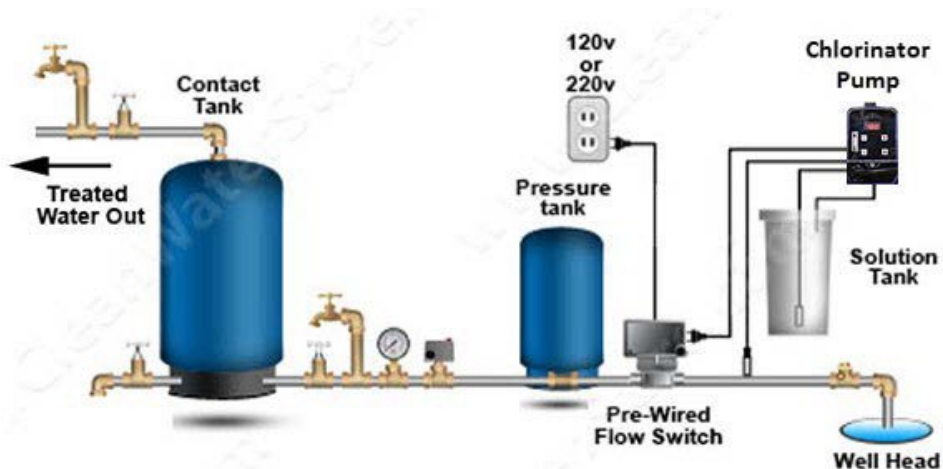
Do not wire to Pump Capacitor Start Wire.



Use a Flow Switch Option

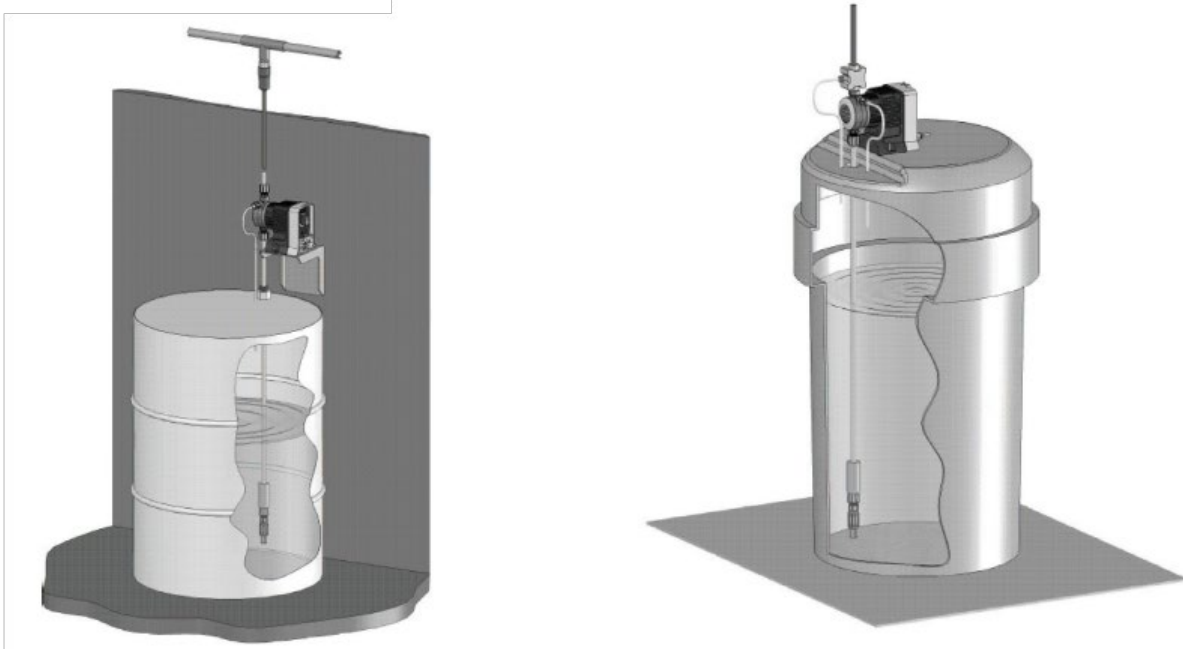
As an option to turn on and off the peroxide pump, install a flow switch. No electrical wiring to do and any plumber, or person familiar with basic plumbing, can install it.

Simply plumb the pre-wired flow switch into your service pipe. Plug the flow switch into a standard 120V wall outlet. Then, plug the chlorinator pump into the electrical outlet on the flow switch. Whenever there is flow, the metering pump will then turn on.



Installation Instructions

Typically the J-PRO-6 Pump is mounted on the tank but can be mounted on a shelf above the tank as long as the pump is less than 60" from the bottom of the suction tubing.



*Wire the J-PRO-6 Pump, so it turns on and off each time well pump runs, or by flow switch if a flow switch is being used.

Mounting Pump to Solution Tank

1. Position pump for installation.



2. Mark where the anchor holes will connect the pump to the tank. Drill the pilot holes with a 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.



3. Mark the hole for the suction tube and the degassing prime valve and drill with a 3/8" drill.



Quick Start Guide

1. Install metering pump so it turns on and when the the well pump runs.
2. Fill suction tubing with plain water.
3. Adjust the Stroke Knob to 100%.
4. Put 2 gallons of clean water in the solution tank (no chlorine yet)
5. Turn on the pump and allow the pump to prime and start pumping.
6. Adjust Speed setting to the desired speed (typically 20 – 60 %) using the up or down arrow speed setting.
7. **Allow pump to run for at least one minute, which saves the Speed setting to memory.**
8. Adjust the Stroke knob to the desired setting (typically 50% to 90%)
9. READ ON FOR MORE DETAILED INSTRUCTIONS

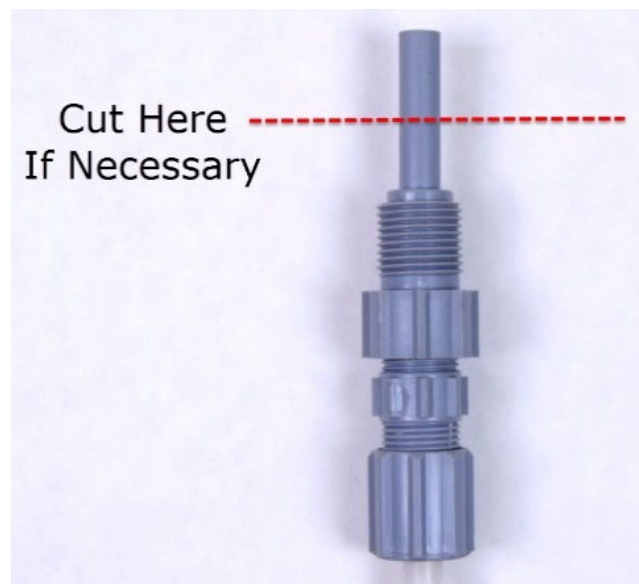
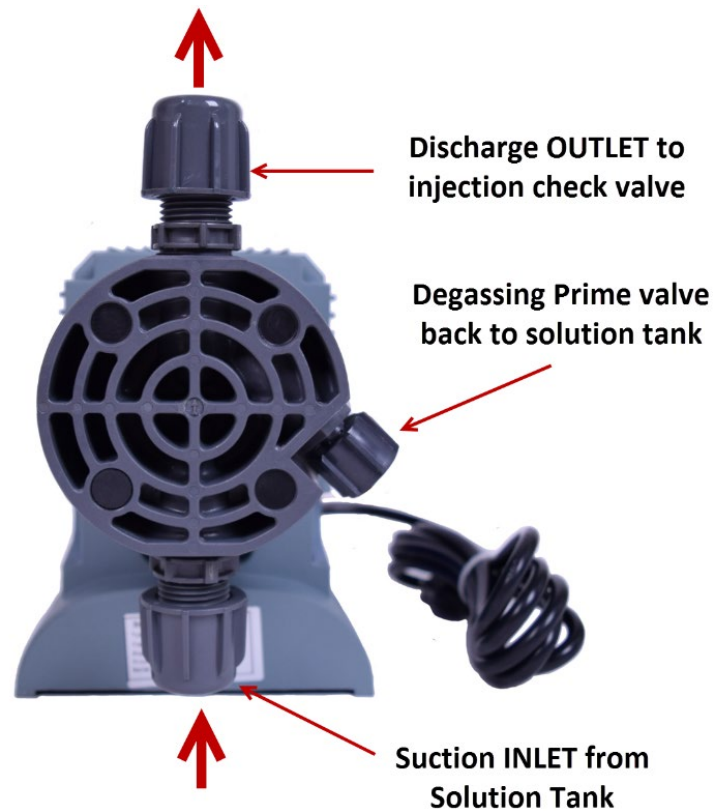
Installing the Pump Tubing

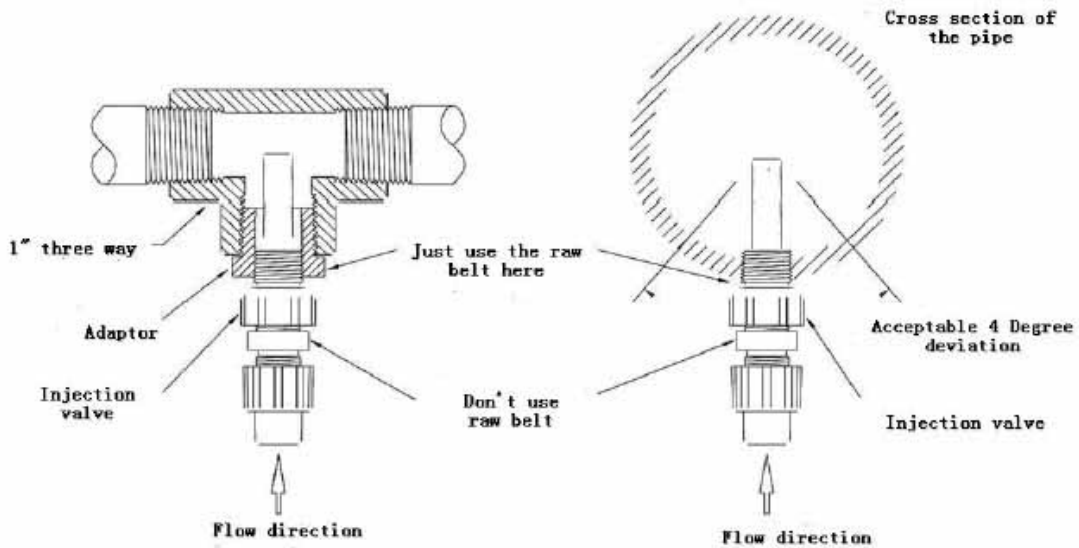
1. Shut off well pump or water supply and de-pressurize pipe.
2. Install the injection check valve by installing a pipe tee in your pipe that has a ½" NPT fitting, where you can screw in the injection check valve (included with your J-PRO-6pump).

3. Wrap two wraps of Teflon tape on the ½" pipe threads of the injection check valve and apply a light coating of Teflon white pipe paste and install it into pipes. It is ok to trim the end of the injection tube if it does not fit (photo on the right), the end should be centered in the pipe as shown below.

4. Install tubing that came with your pump and connect the pump to the injection check valve. Use harder or stiffer tubing for connection from discharge to injection check valve. Use softer tubing supplied, for the suction connection inlet from the solution tank.

5. Cut the lead tube to the desired length with enough slack to avoid kinks. Hand tightens only. Do not use Teflon tape on the tubing fitting connections.





Suction Side (tubing inside solution tank)



1. Measure the lead tube on outside of solution tank to ensure it will be 2-3" from the bottom of the tank. Do not allow weight to sit at the bottom of the tank.
2. Run the lead tube to the solution tank. Allow for some slack in the tube to avoid kinks.
3. Add the weight, and connect the nut ferrule to the suction side of the pumping head (labeled 'in' on cover of head). Hand tighten only. Do not use Teflon tape.

Degassing Prime Valve (tubing that allows the solution to be pumped back into the tank for fast priming)

1. Connect the 3/4" tubing supplied to the degassing prime valve to the solution by drilling a hole as shown.
2. Insert and trim the tubing so it inserts into the solution tank a few inches but does not touch the solution.

Prime & Start The Pump

1. Fill solution tank with 2 gallons of clean water (don't add chlorine bleach yet). Fill suction tubing with water, by submersing the suction end in the water and rapidly jerking the suction tubing up and down.

Within a few moments, the suction tubing will be full of water. Keeping the open end at a lower elevation will prime it faster. The suction tubing can also be submerged or filled with water manually. This makes it faster to prime. (Picture on right)



2. Connect the suction tubing and discharge tubing to your injection check valve.
3. Connect the degassing prime valve tubing and route to the solution tank, above the water line.
4. Open up the degassing prime valve two turns counter-clock-wise to open it up. This will allow the solution to be pumped back into the tank for fast priming.
5. Turn on the pump and adjust the Stroke Knob to 100% and Speed control to 100%.
6. You will quickly see water being pumped out the discharge tube.
7. Close the degassing prime valve one turn, to allow some chlorine to drip back into tank and gasses to vent back to tank if needed.
8. Your pump is now ready for use!
9. Add 1 gallon of chlorine to 3 gallons of water, or follow your own solution strength and speed settings by consulting the formula below.

Adjusting the Metering Pump Settings

Adjust the output by turning the stroke knob and/or adjusting the speed setting of the pump

Stroke Knob: Adjusts the rate from 10%-100% output of pump



Discharge (Outlet of pump)

Speed Adjustment: Press Up or Down Arrows

***The SET Button serves no function on this pump.**

How To Select the Chlorine Solution Strength and Pump 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. Or, if no carbon filter or other de-chlorination is installed, to have a free chlorine residual of 0.2 to 1.0 ppm at the end of the distribution system or furthest point in the plumbing.

You can accomplish this by adjusting the chlorine bleach solution strength and setting the J-PRO-6 Stroke Knob or adjusting the speed setting until you achieve the desired residual.

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 the solution tank out of the sun and use fresh solutions regularly for the best results.

Step One: Determine flow rate of the water stream you are injecting into, in Gallons Per Minute (GPM)

1. Open any hose bib or faucet until the pump turns on.
2. Close hose bib or faucet and let the pump fill up the pressure tank until it turns off.
3. Using a one or five-gallon bucket, open faucet, collect and measure all water discharged until the pump turns on.

4. When the pump turns on, immediately close the faucet and start the timing pump cycle.
5. When the pump turns off, record pump cycle time to refill the pressure tank in seconds.
6. Divide the number of gallons collected in Step 3 by the number of seconds in Step 5.
7. Multiply the answer from Step 6 by 60.
8. The answer in Step 7 is the average pumping capacity of the pump in gallons per minute (GPM).

Step Two: How Much Chlorine Should Be Injected? Determine the parts per million of chlorine you are trying to achieve in parts per million (PPM).

Chlorine is measured in parts per million ('ppm'), which is the same as saying milligrams per liter ('mg/L'). The amount of chlorine depends on the “chlorine demand” of the water. Chlorine demand is the amount of various contaminants in the water that combine with the chlorine after the chlorine has been injected, and sufficient 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, up to a maximum of 1.0 ppm of free chlorine.

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 one 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 3 ppm of chlorine.

Step Three: Determine what solution strength of bleach to use

Household bleach is approximately 5% chlorine; pool chlorine is 10 to 12%. 5% is the same as saying 50,000 parts per million (PPM), and 10% is the same as saying 100,000 PPM.

Regarding the solution strength: If you dilute the bleach by using 3 gallons of pure water to 1 gallon of household bleach, you end up with a solution strength of approximately 1.25% or 12,500 ppm. In other words, household bleach has a solution strength of 50,000 ppm, and if you dilute it with 3 gallon of water, you end up with solution strength of 12,500 ppm, which is a good solution strength to use for most home well water applications with water flow rates of 5 to 20 gallons per minute.

Regarding setting the output of the metering pump: You can vary the applied dosage of chlorine by adjusting the chlorine bleach solution strength and setting the J-PRO-6 Pump Feed Rate Stroke Dial until you achieve the desired residual.

Formula for Determining Solution Strength Pump Settings

The formula is simple; you only have to:

Multiply the Well Pump Flow Rate (in gallons per minute) times the Applied Chlorine Dosage in Parts Per Million Desired times 1440. Then divide by the Solution Strength in PPM that is being used.

Example: Assume that you have a well pump that has a flow rate of 12 gallons per minute (12 GPM) and that you want to inject 3.0 ppm of chlorine into the water. You have decided to use a solution strength of 12,500 ppm or 1 gallon of 5% bleach to 3 gallons of purified or at least softened water. There are 1440 minutes in 24 hour period, and the formula will tell you how many gallons of chlorine you will use for every 24 hours the well pump runs.

The formula is: $12 \text{ GPM} \times 3.0 \text{ PPM} \times 1440$ and then divided by $12,500 = 4.14$ Gallons Per Day

This means that you need a metering pump that has an output of 4 gallons per day.

The maximum output of your J-PRO-6 metering pump is 6.0 gallons per day, but it can be easily adjusted to put out 4.0 gallons per day. This means if the J-PRO-6 Pump were to run for 24 hours, it would pump a total of 4.0 gallons.

We can divide 4 by 6 to get: .67 or same as 67%

To adjust the pump to 67% output, you can set the stroke at 100% and the speed at 67%. Or you could set the stroke at 80% and the speed at 84% which is 67% and for practical purposes the same as 67%.

Your well pump might run for 1 hour a day, so at this rate, you would use 4.0 gallons of your chlorine bleach solution every 24 hours the pump runs. It is better to add more solution every one to two months as the solution can lose its potency over time.

Whatever your initial setting, be sure to test for total and free-chlorine and then adjust the pump or the solution strength to achieve your desired free-chlorine residual in your piping.

Troubleshooting

If the pump does not keep the settings you have programmed, adjust the speed to the desired setting, and allow it to run for more than one minute before turning off the pump. **The pump needs to run for at least one minute to remember the speed setting.**

Maintenance: Check the free-chlorine residual at least once per month and adjust the J-PRO-6 Pump or solution strength if needed. See the J-PRO-6 Pump manual for routine maintenance. Change the pump diaphragm every 1 – 3 years.

Winterizing: do not let the J-PRO-6 Pump 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-6 Pump 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