CLEAN WATER STORE

Clean Water Made Easy

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J-PRO-22 Alum Installation & Start-Up Guide

No Alum Included in Pump Box

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https://www.cleanwaterstore.com/technical/water-treatment-manuals/J-PRO-22-Alum-Guide.pdf

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 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:
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”.

USE FACEMASK, RUBBER GLOVES AND EYE PROTECTION WHEN HANDLING ALUM POWDER.

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.

Questions?

2806-A Soquel Ave Santa Cruz CA 95062

For assistance call: 1-888-600-5426 or 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.

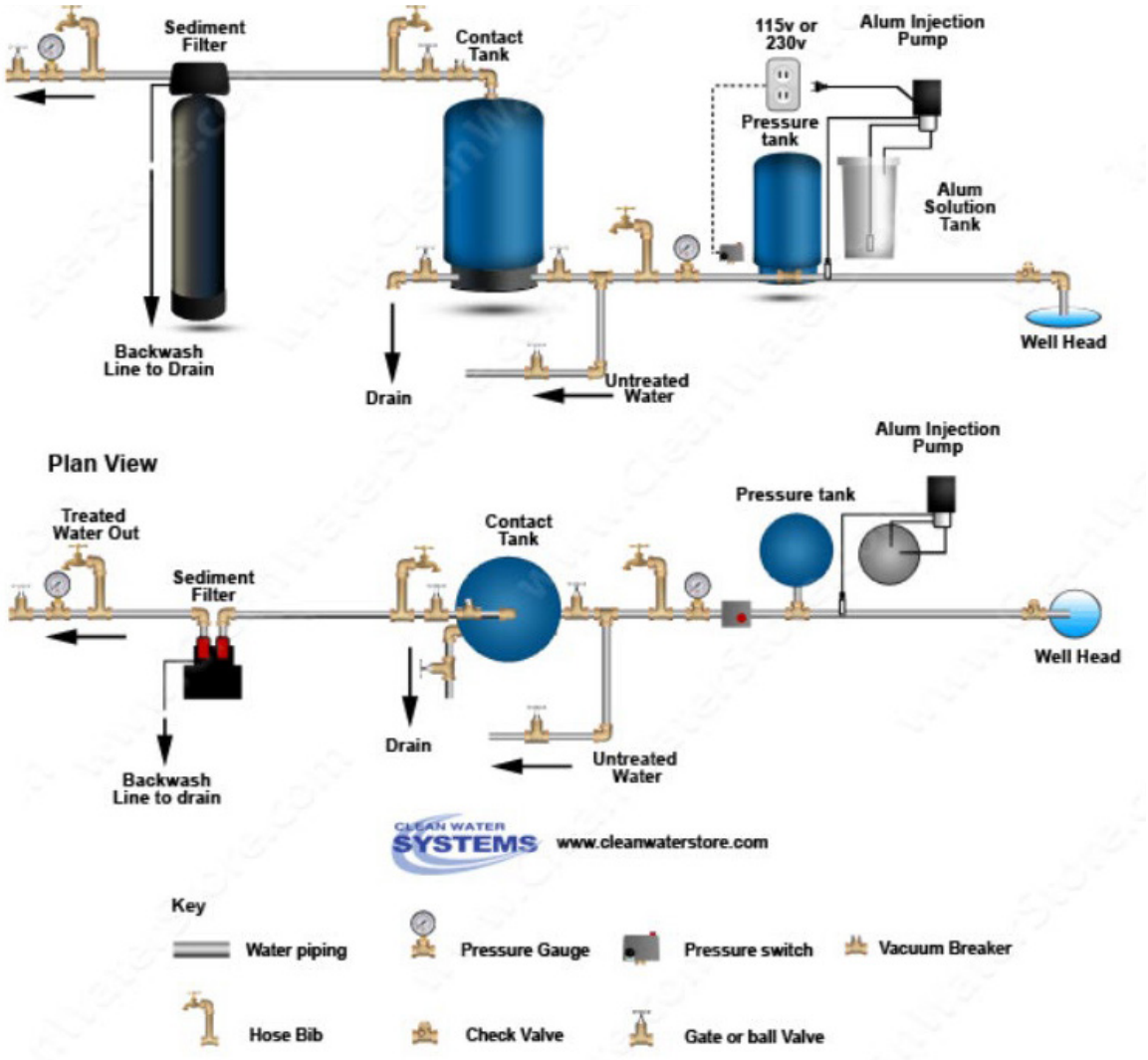
This pump is intended for indoor use only. The pump must never be exposed to freezing temperatures, direct sunlight, or rain. If the cause of failure is determined to be from exposure to any of these environments, the pump does not qualify for replacement and will not be covered under warranty.

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 Alum injection 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.

Typical Installation Diagram



How To Set Up Your Alum Pump To Turn On and Off Automatically

The pump is designed to pull Alum solution out of a solution tank and pump a precise amount of Alum into a pipeline under pressure.

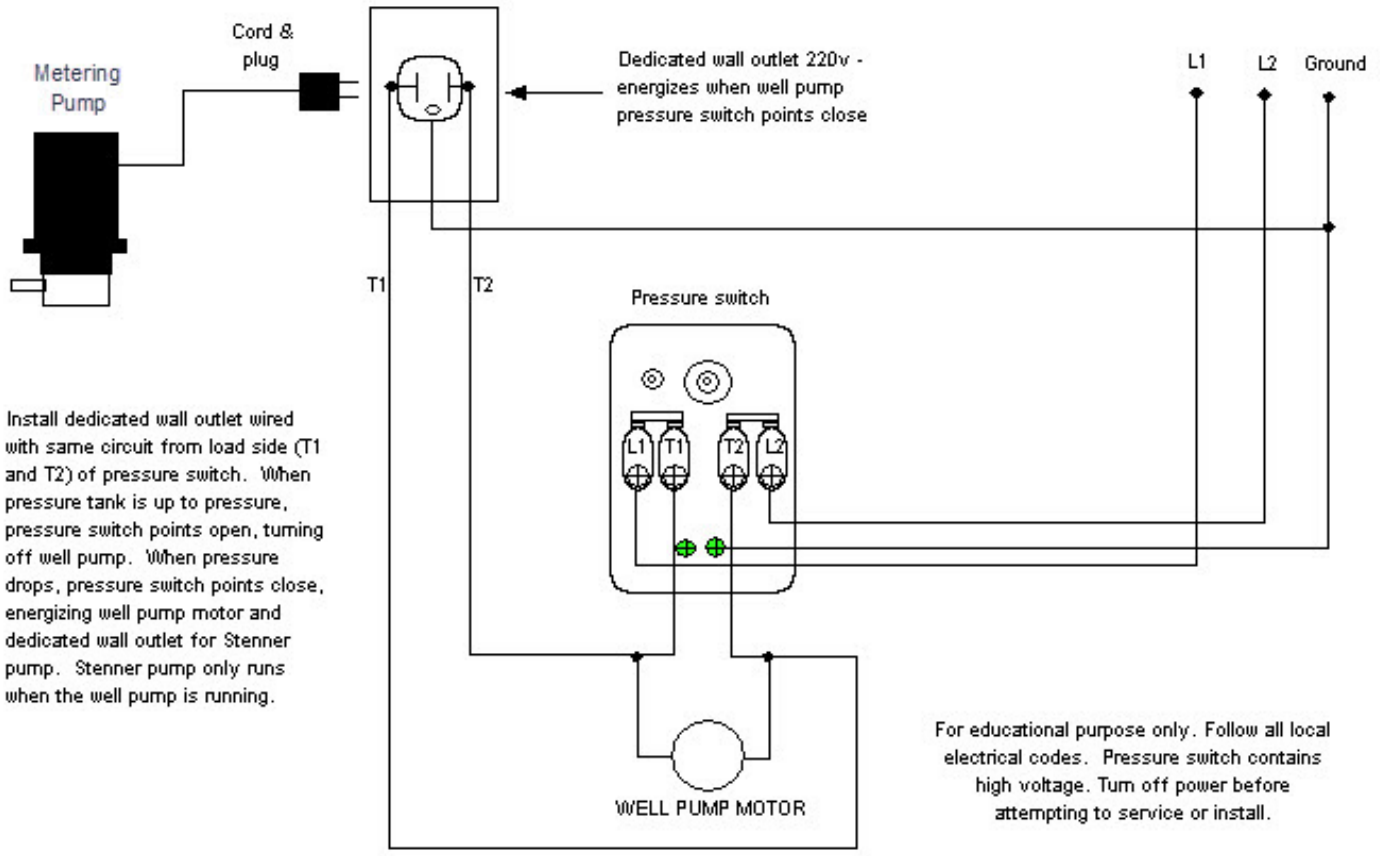
Right out of the box, this is a dual-voltage (110/220) pump. There are several ways to wire the pump such that it triggers when there is water flow.

The well pump is controlled by your pressure switch.

Choosing one of the ways outlined below, the J-Pro-22 pump will be installed so that it powers up and injects Alum when the well pump and motor are turned on via the pressure switch.

1. You can wire it to your well pressure switch, using a dedicated electrical wall outlet.
2. You can install a flow switch and plug the J-Pro22 into that.
3. You can cut the plug and wire direct to pressure switch. Note that the ground wire is yellow color, brown and blue are hot wires.

Wire To Pressure Switch Option



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.

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

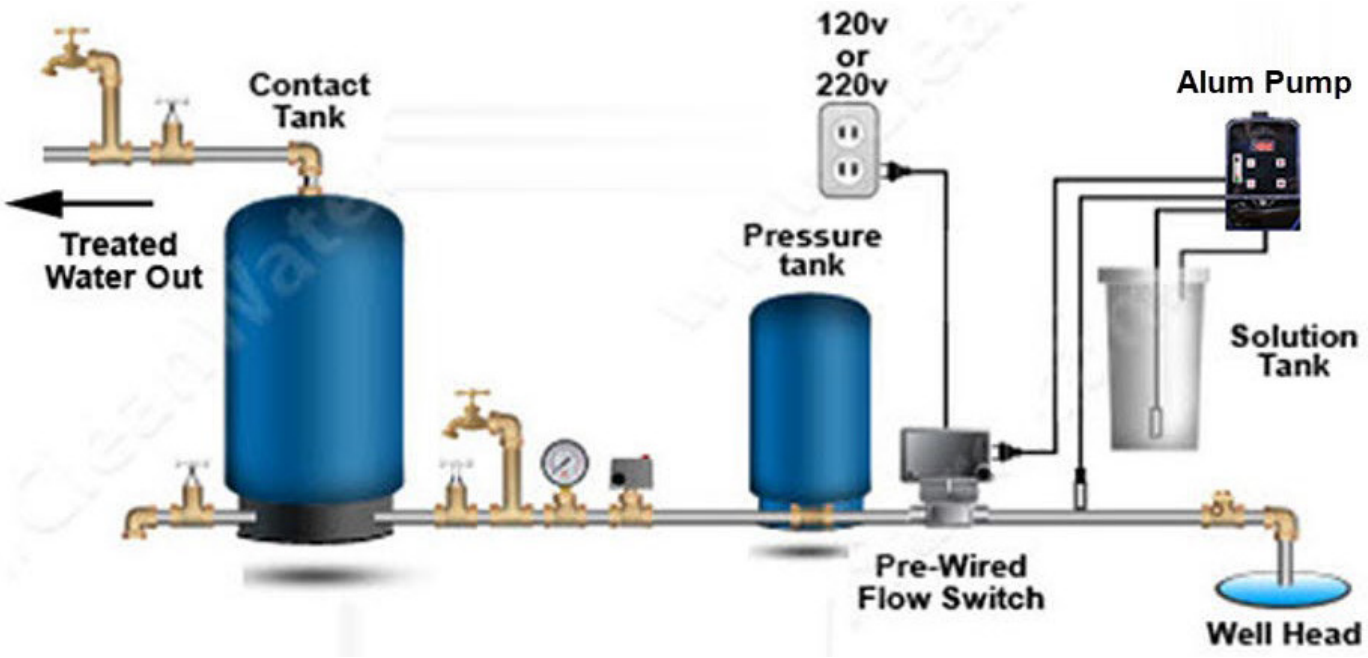
The J-Pro-22 is a dual voltage pump. It has a 110 volt- style plug but can run on 220v or 110v. It uses a maximum of 22 watts power when running.

Use Pre-Wired Flow Switch Option

As an option to turn on and off the Alum 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 Alum pump into the electrical outlet on the flow switch. Whenever there is flow, the metering pump will then turn on.



J-PRO-22 Installation Instructions

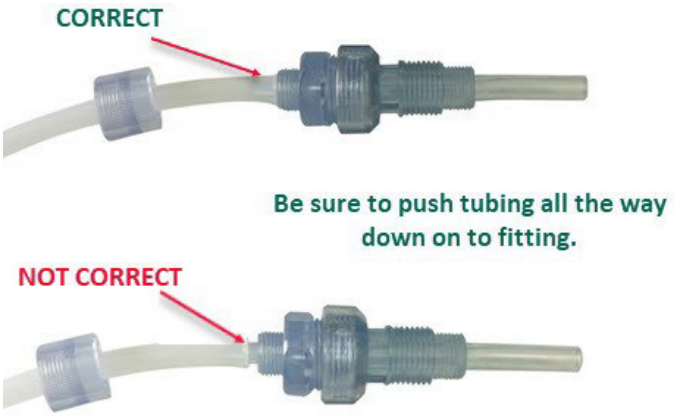
While you can mount the pump on a shelf above the solution tank, it is strongly advised to mount the pump directly on top of the solution tank. If the tubing from the foot valve to the suction side of the pump exceeds 60”, the unit will not have enough lift force to stay primed.

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 valve 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.

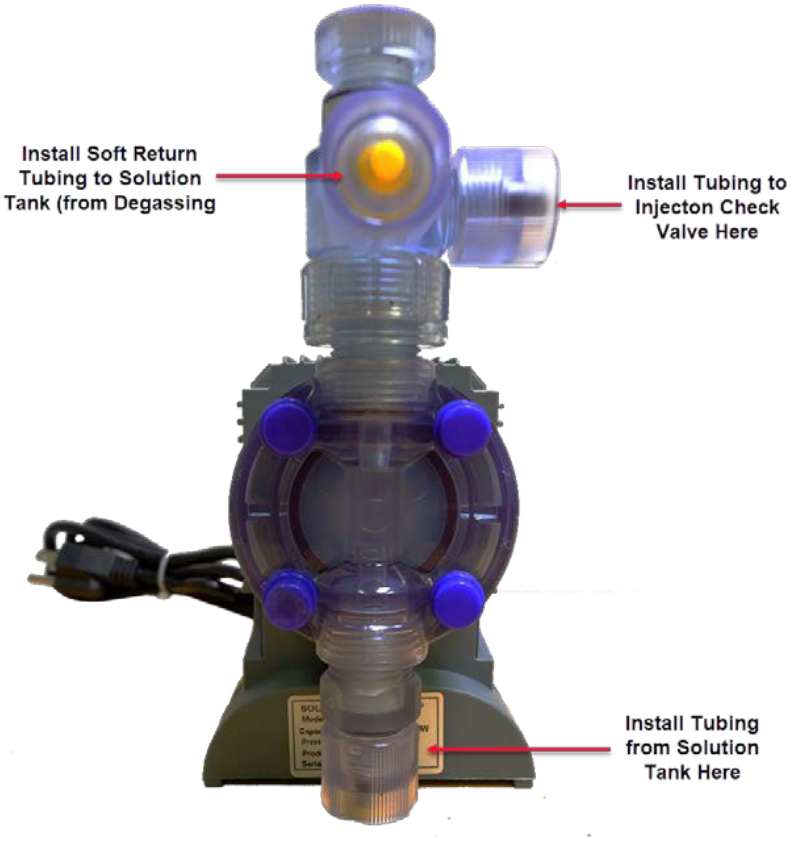
1. Shut off well pump or water supply and de-pressurize service pipe.
2. Install injection check valve by installing a pipe tee in your pipe that has a ½" NPT fitting, where you can screw in the injection check valve (included with your J-PRO-22 pump).
3. Wrap Teflon tape on the ½" pipe threads of the 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 (where the Alum squirts out) 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.

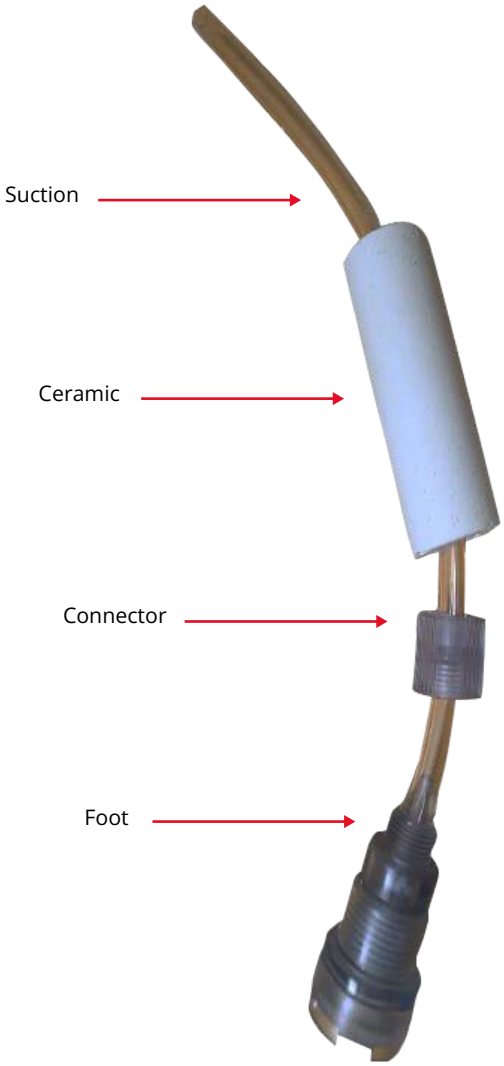
Injection check valve can be installed into PVC, copper or other piping.

Install Suction Tubing from Pump to Solution Tank

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

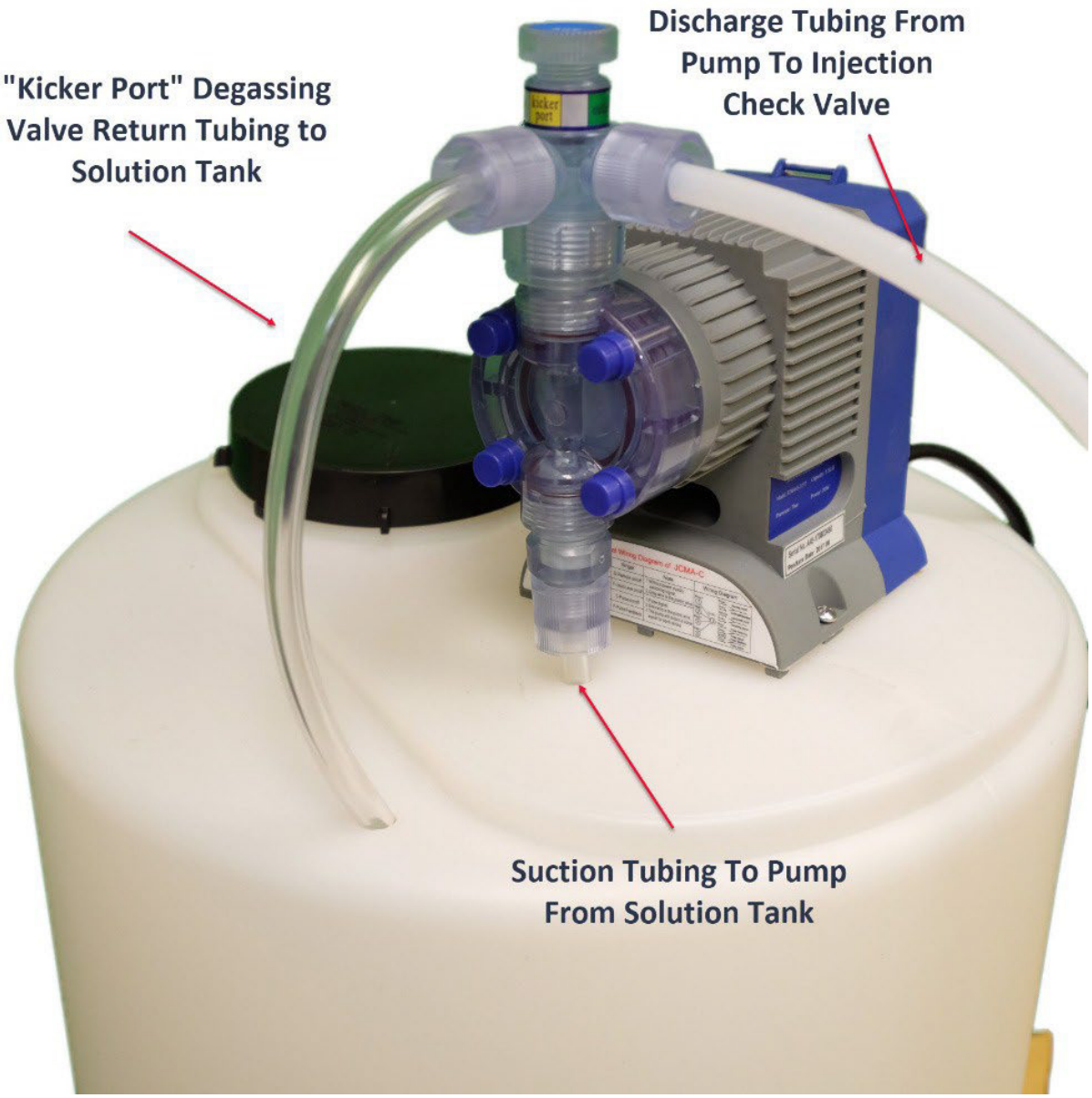
1. Measure the tubing from the outside of the solution tank to ensure it will be 2-3” from the bottom of the solution tank.
2. Do not allow weight to sit at the bottom of the tank. Connect tubing to the foot valve and put the ceramic weight on.
3. Run the tubing up through the hole and connect to the 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, pass tubing through the hole you drilled down into the tank 4-6”.



Prime & Start the Pump

1. Fill solution tank with 5 gallons of softened, distilled or RO water but don't add Alum yet.
2. Connect the suction tubing to the foot valve 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 the degassing prime valve approximately one turn counterclockwise to open. This will allow the solution to be pumped back into the tank for fast priming.
5. Turn on the pump and set Speed to 100% to help prime the pump if not already displaying 100
6. You will quickly see water being pumped up the suction tubing and out of the degassing valve return line port.
7. Close the degassing port valve to allow liquid to pump out the discharge side. Open and close degassing valve as required to prime pump. Close degassing valve once pump is primed for normal operation.
8. To start mix 2 lbs of alum powder (2-1/2 Cups) in to the 5 gallons of water and mix thoroughly. Some alum may not mix and settle which is normal.
9. Turn on system or run water and allow to run for 10-15 minutes. Check for leaks. After your Alum metering pump has been running for a few days, tighten 4 stainless steel bolts on the pump end.

Metering Pump Buttons

Out of the box, when you plug the unit in, the green Motor light is indicating the pump has power. It will be set at 100 and start pumping.

Press the Start/Stop button to stop the unit from pumping. The Up and Down arrows are to adjust the Speed of the pump, from 0-100.

The Set button and the Auto light indicator have no function on this model, they are for use with a flow meter.

Solution Strength and Settings for Alum

Alum injection can be used to treat cloudy water. Alum is considered by the FDA as a generally recognized as safe (GRAS) substance. It is an inorganic salt, also called potassium aluminum sulfate.

A typical system for small well water systems can be set up by injecting the alum prior to the well pressure tank and allowing the water to flow through to a contact retention tank to allow the alum to mix and treat the water.

The amount and dosage of Alum varies widely based on water chemistry and we cannot make a firm recommendation as it must be tried out on site with your particular water.

To start with we recommend injection of alum at 3 to 10 PPM then running through a contact tank as large as you can get, for example 120 gallons is good.

After alum contact tank filter the water with a sediment backwash filter, with 25/1 micron big blue filter cartridge and then optionally a Nano-Ceram micro filter to take out very fine particles.

To make up a 2.5% solution (25,000 PPM) mix 1 lbs (which is same as 1-1/4 cups) of alum powder for every 5 gallons of water, which is approximately a 2.5% solution by weight.

It is best to use warm purified distilled or reverse osmosis water to make up your solution.

You can get some alum and do jar testing as well, which is what water treatment plant operators do.

In municipal water treatment it is OK to inject up to 50 PPM, but it does contain aluminum so it's important not to inject more than 50 PPM. 3 to 10 PPM is standard. More alum is not better, generally you want to inject enough to get the flocculation started in the contact tank. Flocculation is where the suspended particles clump together to form larger particles that can be filtered.

Each water chemistry is different and alum injection does take some adjustment to achieve the best results. We recommend starting out with a 5 PPM applied dosage.

After injection, a Sediment / Turbidity Backwash Filter is recommended.

As a final stage, a Nano-Ceram filter system is recommended. This removes fine particles and turbidity as well as filter coliform bacteria if present.

Formula for Calculating Solution Strength and Settings

How Should I Prepare My Alum Solution?

Note that "mg/L" is the same as "Parts Per Million", or PPM.

If you added 1 lbs (1-1/4 cups) of Alum to 5 gallons of purified or distilled water, you would end up with approximately 25,000 PPM solution. This is the solution strength you can start out with in this formula example below.

The simple formula is:

Flow Rate in Gallons Per Minute ("GPM") x Parts Per Million of Applied Dosage ("PPM") x 1440 Minutes in One Day = Gallons of Alum Used Per 24 Hour Period.

This means, that if your well pump or the pipe that you are injecting the Alum into, runs for 24 hours, you would use that number of gallons.

Example:

Assume you wanted to inject 10.0 PPM of Alum into your well water. You added 2 lb of Alum with 5 gallons of distilled water, which is approximately a 50,000 PPM Alum solution strength. You know your well pump flow rate is 12 GPM.

10.0 PPM x 12 GPM x 1440 Divided by 25,000 = 7 Gallons Per Day

What this mean is approximately 7 gallons of the Alum solution will be pumped for every 24 hours your well pump runs. Your well pump does not run 24 hours each day usually.

For example, If your well runs 2 hours a day, in 12 days you would use about 7 gallons of the diluted Alum solution.

In our example here, you need an Alum pump that can pump 7 gallons in 24 hours. The JPRO-22 pump pumps 22 gallons per 24 hours. So: 7 divided by 22 = 30%

Therefore, in this scenario set the JPRO-22 to at 30% speed. If your well flow rate is much lower than 12 gallons per minute, you can use a more diluted alum solution. If your flow rate is higher you can turn up the speed of the pump.

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.

If the pump pumps in manual mode and makes a thumping sound, then it is working.

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 squirts 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 Tips

Check Alum 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 solution tank and discard Alum 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 Alum solution.

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

NOTE: if diluting Alum, 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 us: 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