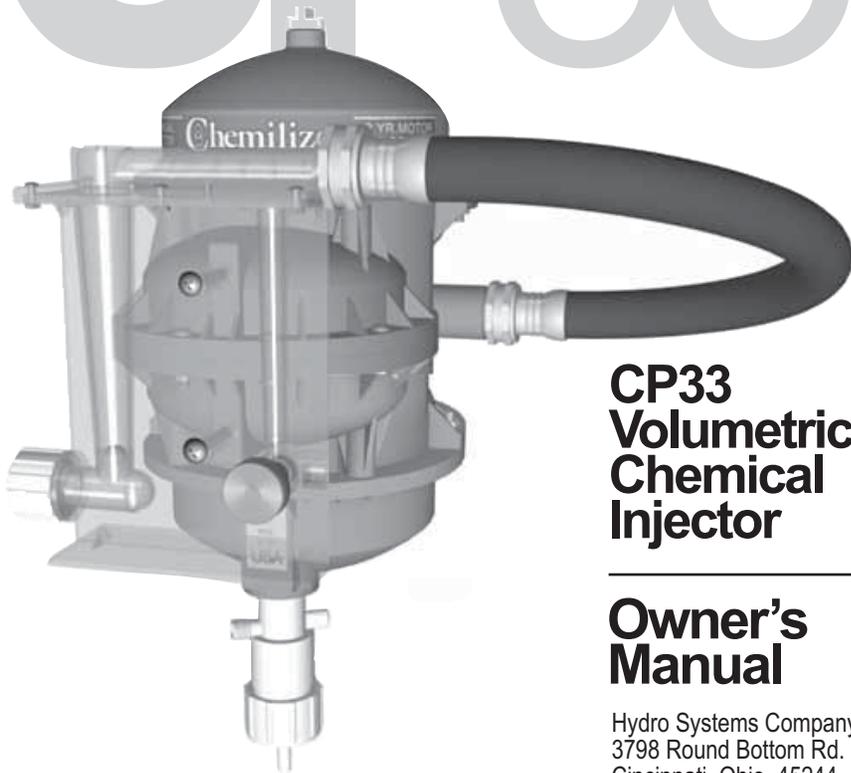


CP33



CP33 Volumetric Chemical Injector

Owner's Manual

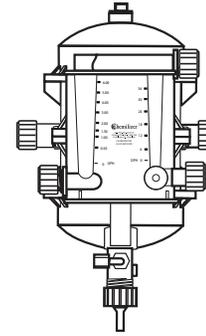
Hydro Systems Company
3798 Round Bottom Rd.
Cincinnati, Ohio 45244

513-271-8800
800-543-7184
fax 513-271-0160

www.hydrosystemsco.com



This CP33 and HN55 are tested and certified by WQA for materials safety according to NSF/ANSI 61 and 50.



Introduction

Your Chemilizer Chemical Injector

Thank you for purchasing a Chemilizer injector. Hydro Systems Company is committed to manufacturing the highest quality product to fill your injection needs.

Contents

Included in the package:

1. Water Motor with Chemical Line
2. Injection Control Panel Meter Hose
3. Chemical Pump with Jaco Nut
4. Injection Hose and Fitting
5. Suction Hose with Filter and Spring Clip
6. Owners Manual
7. Mounting Screws (4) with Template

Also Available: Installation Kit

Water Motor Specifications

Minimum water flow	12 gpm (46 lpm)
Pressure	4 psi to 80 psi metric .276 bar to 5.51 bar
Max. temp	110° F (43.3° C)
Pipe size	3/4" nht(national hose thread)
Ratio	SEE PUMP LABEL*
Size	11" ht x 8 1/2" width metric 27.9 cm x 21.6 cm
Weight	5.72 lbs (5.86 lbs box) metric 2.59kgs (2.65 lbs box)

Chemical Pump Types

Viton (general purpose)

Pumps Pharmaceuticals, Citric Acid, Disinfectants, Fertilizer, Algicides, Fungicides, pH Controller, Chlorine, Hydrogen Peroxide, Iodine, etc.

Silicone..... Pumps Vinegar

Flow Meter Injection Ranges

US	Metric
1 oz. - 128 oz. per hour	50 mL - 4000 mL per hour
3 oz. - 3 gal. per hour	100 mL - 12 L per hour
6 oz. - 6 gal. per hour	200 mL - 24 L per hour

Warning! Risk of Chemical Overdose

To reduce risk, follow proper installation methods and instructions.

The point of chemical injection should be beyond all pumps, filters and heaters.

Caution! Plumbing

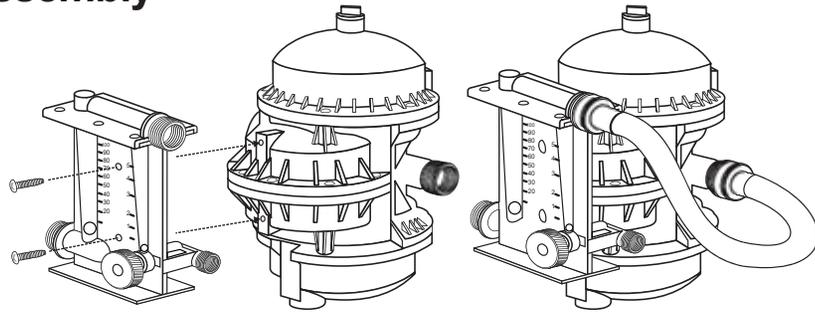
CP33 installations must always adhere to your local plumbing codes and requirements. Check local plumbing codes for guidelines.

Notice:

This injection system and its components have been tested for use with the following solutions: Sodium Hypochlorite (10-15%), Muriatic Acid (20 Baume/31.5%), Heatsavr™

Components of Chemilizer Injectors have been tested for tolerance to a wide variety of chemical compounds at common solution strengths. Chemilizer Injectors provide a means of delivery for chemicals in general. Chemilizer does not suggest or recommend ways or procedures for using any chemical. Chemilizer Products, Inc. is not responsible for injury incurred by the misuse or improper handling of chemicals.

Assembly



Injection Control Panel

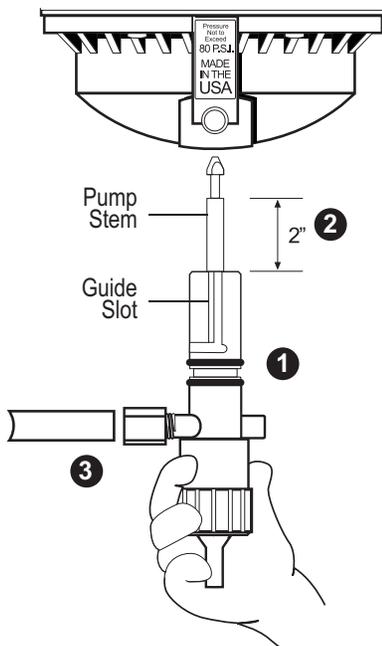
Water Motor

Assembled CP33

Attach the Injection Control Panel to the front of the water motor using the two screws included with the Injection Control Panel.

Attach one end of the connection hose to the Injection Control Panel and the other end to the inlet side of the water motor.

Installing the Pump to the Water Motor



1. Lubricate "O" rings on pump housing with any biodegradable lubricant when pump is removed from motor.

NOTE: a light coating of lubricant is all that is required.

2. **Make sure the pump stem is pulled all the way out (about 2").**

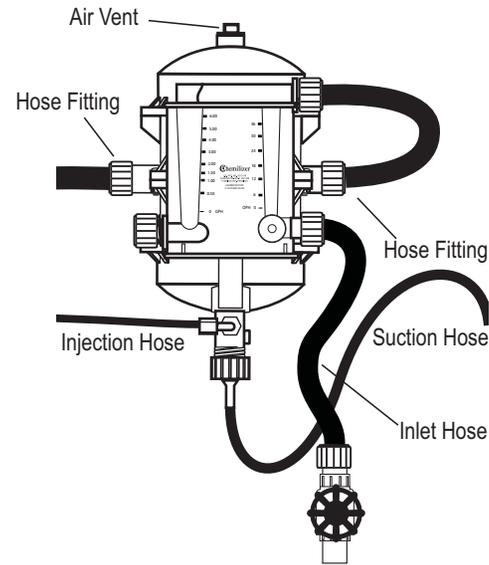
Push the pump up into the water motor, and turn 1/4 turn clockwise, port to front.

NOTE: the guide slot must be aligned to fit into the key on the inside of the water motor.

3. After installing pump into bottom of water motor - loosen Jaco nut on pump and insert hose into fitting. Re-tighten Jaco nut.

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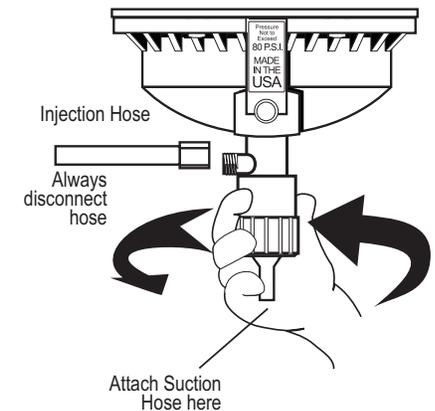
Removing the Pump from the Water Motor



1. Make sure the water is turned off, and water pressure in the water motor is released - this is done by loosening the **Air Vent** (pressure relief valve) on the top of the water motor and turning off the water at both gate valves.

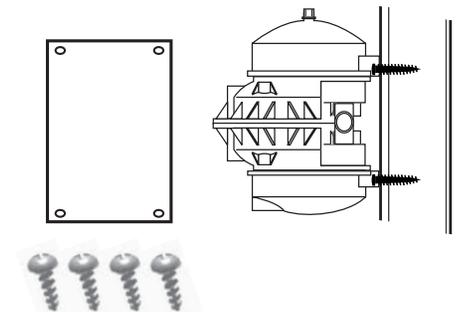
2. Turn pump counter clockwise 1/4 turn, then pull down.

NOTE: always disconnect injection hose from pump before removing.



Mounting Template

In each box is a white envelope containing four screws. The envelope is marked for use as a template. Unit can be mounted to any stationary surface, or to a post. Tighten screws until the head is about 1/8" away from the surface. The brackets on the back of the unit will slide down between the screw head and the surface.

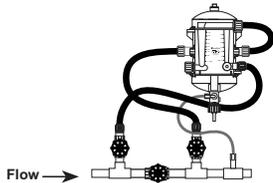
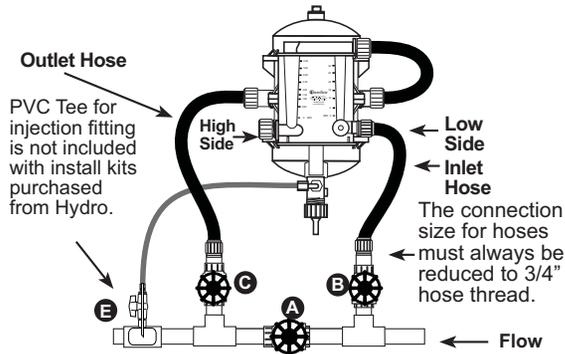


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Basic Installation

A basic installation is made by cutting a section of pipe out of an existing water line and putting in a bypass section with 3 gate valves: **A, B, C**.

The bypass section can be purchased from Hydro as an "installation kit". If you did not purchase an installation kit, you can build your own using standard pvc fittings and brass gate valves.



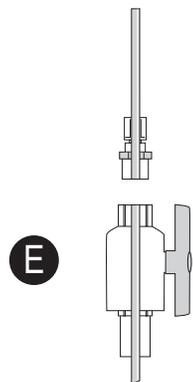
Note: Do Not Hook Motor Up Backward

Water must flow through motor from right to left. If necessary, crisscross hose to accommodate setup.

Prime Manually to Start

Under certain conditions the injection pump may not prime automatically the first time. To avoid this potential problem, after installing the injector simply prime the pump manually.

1. Attach the suction hose and the chemical injection tube to the pump. Make certain the chemical injection tube is connected to the water motor (HN55) or water line (CP33).
2. Drop the suction tube into your chemical solution tank.
3. With the pump removed from the water motor, move the blue stem and down by hand until the liquid is expelled from the injection port.
4. Then with the pump stem fully extended, insert the pump in the motor.
5. Start the motor and watch to be sure the pump is primed.



Injection Fitting

The injection fitting is included with all CP33 injectors. It is made to be glued into a standard pvc "T" fitting with a 3/4" opening. For installation in other size pipes, a "reducer tee" or "reducer bushing" is required.

We recommend a ball valve (for easy on/off). This is not included with your injector purchase, but is available through Hydro Systems Company. FG8010 Remote Injection Kit.

Turn off water to injector before turning off this valve.

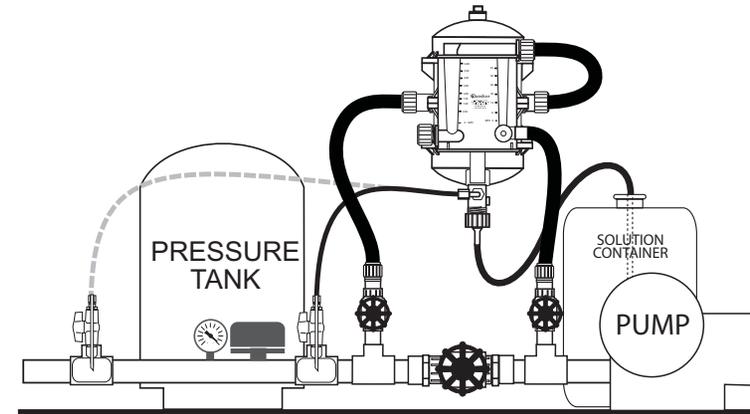
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Installation Placement

The CP33 injector should always be installed between the pump and the pressure switch. By doing this, there is always a consistent flow and pressure rate.

CAUTION

Installations other than between the pump and pressure switch may cause the pump to cycle repeatedly causing premature wear.



General Maintenance Tips

Water Motor

1. Do not let unit freeze.
2. Periodically clean or replace chemical hose (hose between pump & point of injection) and connectors. Chemical buildup will cause the unit not to pump.
3. If chemical pump becomes hard to remove from bottom of water motor, clean inside of opening on bottom cap of water motor with toothbrush & white vinegar.

Chemical Pump

1. When pumping vinegar, use a silicone pump.
2. After injecting your solution flush the chemical pump. Run 5 gallons of clean water through the pump.
3. If you will not be using your injector for an extended period of time we recommend that you remove the chemical pump from the water motor, disassemble the pump, clean parts with clean water using a soft bristle brush if necessary. Lubricate parts with a non-petroleum based lubricant, reassemble the pump, reinsert into water motor for storage until next use.

Other

1. Water is always a factor with the life of any injector. If you know you have problem water, an in-line filter before the injector is a wise investment.
2. Keep your stock solution bucket clean of foreign particles and trash.
3. Keep the suction hose filter off the bottom of the stock solution bucket, insoluble particles may cause clogging and accelerate wear.

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Chemical Volume Options

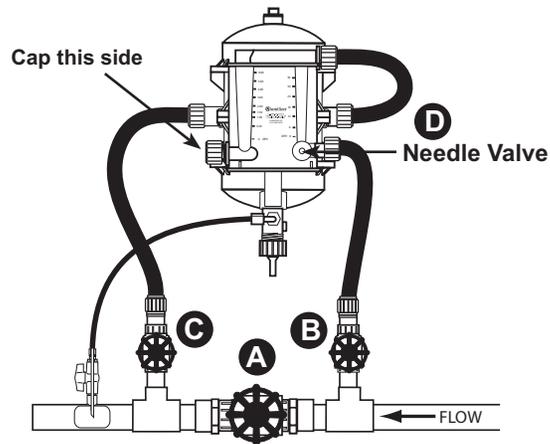
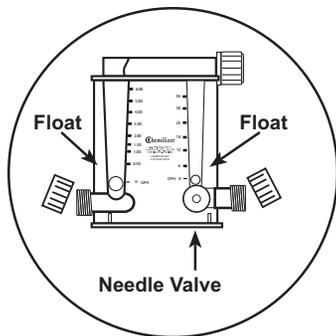
The dual sided Injection Control Panel allows a broad range of chemical delivery rates. For water treatment applications, the **ounces per hour** side of the Injection Control Panel will meet most common needs for light industrial and residential flows.

The **gallons per hour** side is usually chosen for major industrial, municipality and agricultural installations.

Low Volume Installation

Ounces Per Hour Injection

Injection rate is adjusted with the needle valve on the Injection Control Panel.



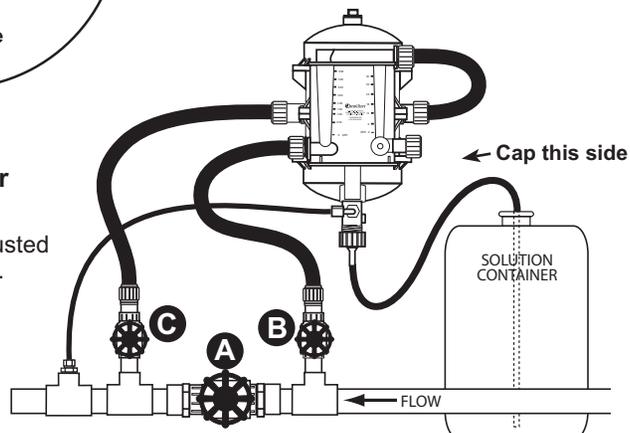
Injection Control Panel

Depending on which side of the Injection Control Panel you use, the other side is **capped off** (cap included)

High Volume Installation

Gallons Per Hour Injection

Injection rate is adjusted by turning valve "B".

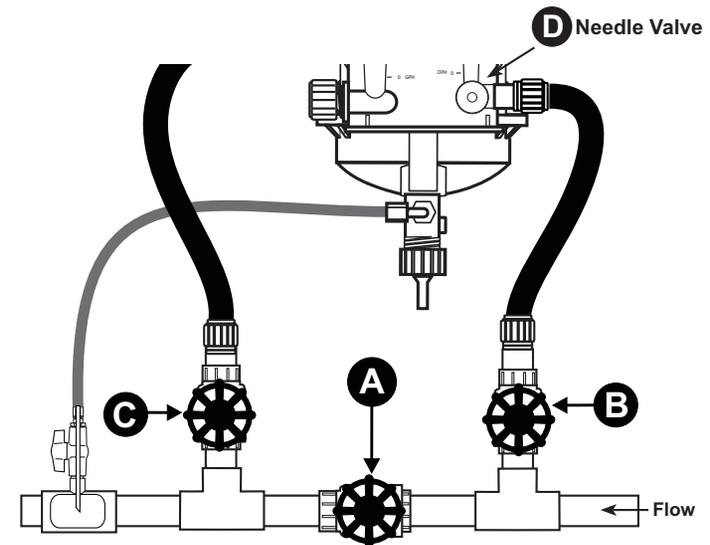


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Setting the Injection Control Panel

1. Locate the **inlet gate valve (B)**, **outlet gate valve (C)**, **needle valve (D)** and **control valve (A)** in the diagram below.
2. Connect water inlet hose at valve **(B)** to the desired side of your Injection Control Panel.
3. Fully open valve **(A)**, turn on water system to maximum water flow possible.
4. With valve **(B)**, **(C)**, and **(D)**, fully open, slowly close valve **(A)** until float is positioned at the top of the tube. Note: Bounce of the float is a normal condition, the meter setting is read at the high point of the bounce.
5. If the inlet hose is connected to the low volume (ounces per hour) side of the Injection Control Panel, use the **needle valve (D)** to move the float to the exact setting you want.
6. If the inlet hose is connected to the high volume (gallons per hour) side of the Injection Control Panel, use the inlet control valve **(B)** to move the float to the exact setting you want.

Remember, the float may bounce and the position of the top of the float at the highest point of the bounce is the flow rate the Injection Control Panel will achieve.



All valves open when turned counter clockwise and close in a clockwise direction. The outlet gate valve (C) remains open during operation.

For the latest updates or modifications, please check our website at: www.hydrosystemsco.com

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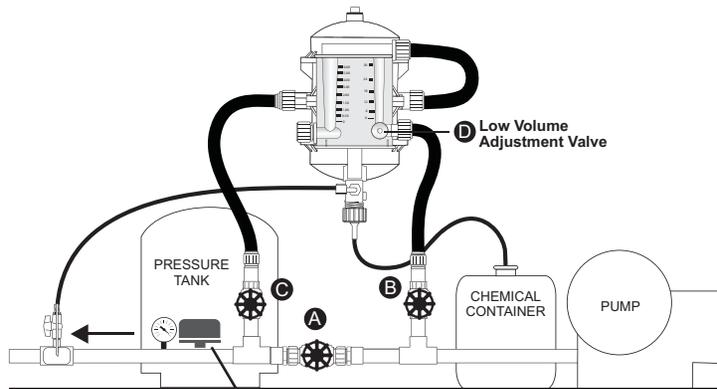
TROUBLESHOOTING - CP33

Troubleshooting the Water Motor

Note: When the water motor is working properly, you should hear a clicking sound.

Problem	Cause	Solution
Water motor does not click.	Gate valve "A" may be incorrectly set.	Verify that gate valve "A" is partially closed, forcing water into the injection panel.
	Water motor is in by-pass condition due to worn or broken parts inside of the motor.	Send unit to a service center or Hydro Systems for repair. *
Motor clicks a few times, then stops.	Water motor is in by-pass condition due to worn or broken internal parts.	See above.
	Unit is in by-pass condition.	Shut off water flow. Relieve pressure by loosening air vent. Restart water flow.
	Clogged chemical feed tube.	Inspect chemical feed tube for blockage and clean or replace tube.
Needle valve "D" is clogged (if the low side of the Injection Control Panel is used).	Clean needle valve by unscrewing needle completely out of the valve seat. If valve seat is clogged water dribbles out with minimum force. Once cleared water flows in with a strong stream.	
Pump may have excessive wear on upper "O" ring allowing water to seep past, stopping motor.	Replace pump with a known good pump. If motor starts working, rebuild old pump with Chemilizer pump rebuild kit.	

* RGA number must be obtained before unit is returned. Call for further information.



Injector must be installed before pressure switch

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TROUBLESHOOTING - Pump

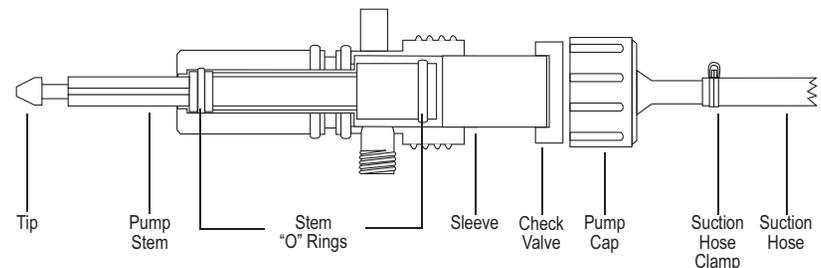
Troubleshooting the Chemical Pump

Note: The chemical pump will NOT work properly if the pump cap is not tight enough.

Problem	Cause	Solution
Motor clicks, but chemical is not drawn up into the suction hose.	Large "O" ring on lower seal is worn or damaged.	Replace stem assembly with a rebuild kit.
	Sleeve may be broken or extremely worn.	Replace sleeve.
Pump cap is loose.		Hydro ships all units and pumps with the pump caps loose. At installation caps need to be tightened to a minimum of 20 inch pounds of torque (hand-tighten only).
Pump stem is not engaged into the piston clip in water motor.		Remove pump, check for a broken or worn pump stem at tip. Pump stem must be pulled out completely (approx. 2.5 in.) before being inserted into the bottom of the water motor.
	Piston clip may be broken or worn on the inside of the water motor.	This is an extremely rare occurrence but if the pump stem was not pulled out when initially installed this could cause excessive wear of the piston clip. The water motor must be sent to an authorized repair center or Hydro Systems for repair.*
Chemical solution is drawn up in the suction hose, but then falls back down.	Vacuum leak.	Check valve may need cleaning or replacing.
		Tighten pump cap to recommended 20 inch pounds of torque.
		Check suction hose to insure a tight fit with clamp in place.
		Prime pump by hand and verify that chemical solution stays up in the suction hose.

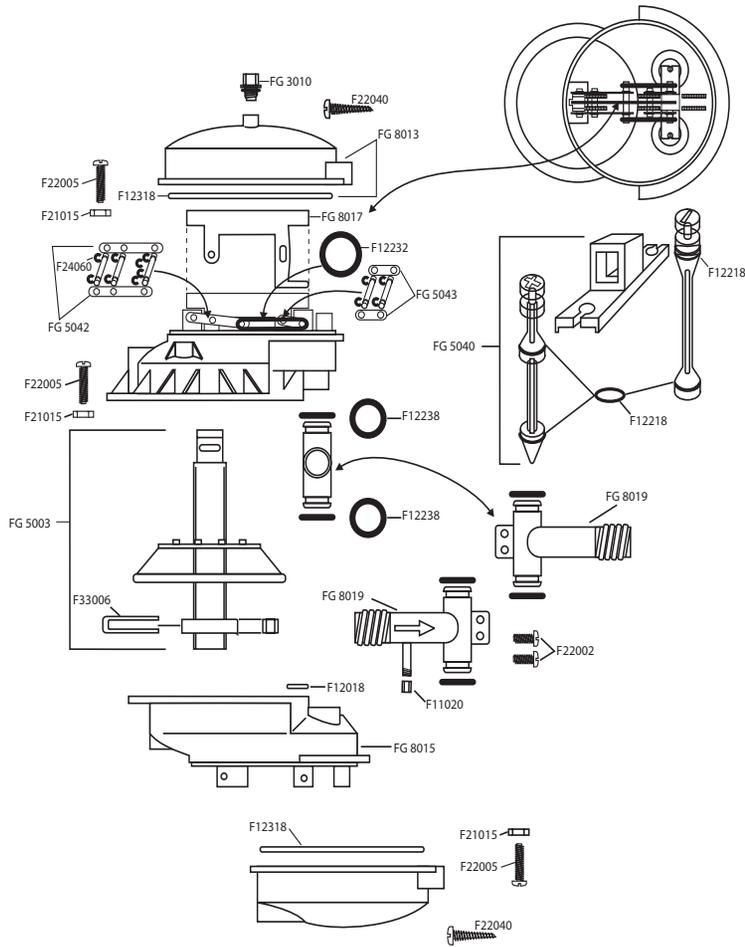
Cutaway view of pump.

* RGA number must be obtained before unit is returned. Call for further information.

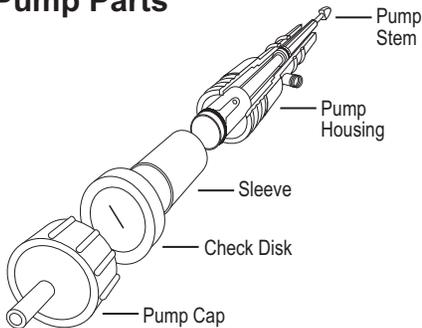


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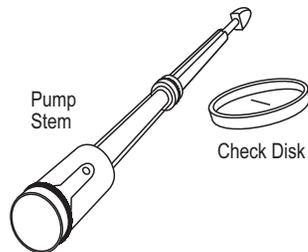
Water Motor Parts



Pump Parts



Pump Rebuild Kit



United States Warranty Policy*

Water Motor Limited Warranty.

The water motor is warranted to be free from defects in materials and workmanship for a period of two years from the date of purchase. During the first six-month period, should the water motor fail, it will be replaced with a new water motor. For the balance of the warranty period, should the water motor fail, it will be rebuilt or replaced, at the option of Hydro Systems, and warranted for the balance of the original warranty period. This warranty does not cover damage due to misuse, abuse, neglect, or alteration. This warranty does not cover any labor or shipping charges for removal and reinstallation. This warranty is void if the serial number label is removed from the unit. This warranty is non-transferable.

Injection Control Panel Limited Warranty.

The Injection Control Panel is warranted to be free from defects in materials and workmanship for a period of one year from the date of purchase. At its discretion, Hydro will repair or replace the Injection Control Panel at no charge if the Injection Control Panel is determined to be defective when operated under normal operating conditions, and warranted for the balance of the original warranty period. This warranty policy applies only to units and component parts purchased and installed in the United States. This warranty does not cover damage due to misuse, abuse, neglect, damage resulting from continued direct exposure to sunlight, or alteration. This warranty does not cover any labor or shipping charges for removal and reinstallation. This warranty is non-transferable.

Chemical Pump. The Chemical Pump is not covered under warranty. Hydro Systems Company has no control over the types of materials or chemicals that will be used in this equipment, therefore we can not guarantee the chemical pump to be impervious to each and every chemical. Wear of seals and other components is normal and will vary depending on operating conditions and the chemicals being used. Wear to the pump and components, due to use or chemical attack, are not covered by warranty.

Miscellaneous Products.

Hydro does not warrant parts manufactured by outside sources which are used in the assembly of other products offered by Hydro. This includes parts used in installation kits such as gate valves and PVC components.

Warranty Claims.

Return to your local dealer, or to Hydro Systems Company. Proof of purchase date, serial number, and an explanation of the complaint must accompany the merchandise along with a Returned Goods Authorization (RGA) Number. In the event no warranty card is on file or proof of purchase is not available, manufacture date on the unit will be used to determine warranty period. Final determination of all warranty claims will be made by manufacturer.

Before sending merchandise to Hydro Systems, call for a return authorization number.
1-800-543-7184.

* This warranty policy applies only to units and component parts purchased and installed in the United States.