



# User manual

## Chemilizer Injector

### Chemilizer Injector:

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

### Safety precautions



**WARNING!** please read these warnings carefully and follow all applicable local codes and regulations.

#### TO AVOID SERIOUS PERSONAL INJURY AND PROPERTY DAMAGE:

<b>WEAR</b>	protective clothing and eyewear when dispensing chemicals or other materials or when working in the vicinity of all chemicals, and when filling or emptying equipment.
<b>ALWAYS</b>	read and follow all safety instructions in safety data sheets (SDS) for all chemicals. observe all safety and handling instructions of chemical manufacturer. dilute and dispense chemicals in accordance with chemical manufacturer's instructions. direct discharge away from you and other persons and into approved containers. regularly inspect equipment and keep equipment clean and properly maintained.
<b>NEVER</b>	mix incompatible chemicals that pose hazards. install an injector directly over the solution tank. The suction hose from the tank to the injector should fall below the top of the tank, then rise back up to the injector (see installation diagrams). leave the injector or water lines full of water during freezing temperatures. Visually inspect the injector and water system for leakage.
<b>ATTACH</b>	only to water tap outlets (25 psi Minimum, 85 psi Maximum and Maximum water temperature 120° F).
<b>NOTE</b>	if the unit is used to fill a sink, or the discharge hose can be placed into a sink. The unit must be mounted so that the bottom of the cabinet is above the overflow rim of the sink.

## Introduction

### Package Contents

- 1) Water Motor with Chemical Line
- 2) Chemical Pump with Jaco Nut
- 3) Suction Hose with Filter and Spring Clip
- 4) User Manual
- 5) Mounting Screws (4) with Template



### 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.

Before you backwash the filter, make sure you turn off valves B and C. When the backwash is complete, return them to the open position. If you fail to do this, water may drain from your unit and you may have to prime the pump.

### Caution! Plumbing

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

### Notice:

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. Hydro Systems Company does not suggest or recommend ways or procedures for using any chemical.

Hydro Systems Company is not responsible for injury by the misuse or improper handling of chemicals.

# Introduction

Water motor specifications	
Water flow	.02 - 11GPM
Pressure	3 psi to 85 psi
Maximum temp	100° F (38° C)
Pipe size	3/4" nht (national hose thread)
Ratio	SEE PUMP LABEL*
Size	11" height x 8 1/2" width
Weight	4.54 lbs. (5.48 lbs. box)

Ratios Available	
Fixed Ratios	Adjustable Ratios
50:1	20:1 to 64:1
64:1	
100:1	50:1 to 164:1
128:1	
250:1	150:1 to 500:1

# Maintenance

## Water Motor

1. Do not let unit freeze.
2. Periodically clean or replace chemical hose (hose between pump & water motor) 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 tooth brush & white vinegar.

## Chemical Pump

1. Clean pump after use by running clean water through the pump for 5 minutes, or by removing the pump and hand cleaning individual parts.

## Other

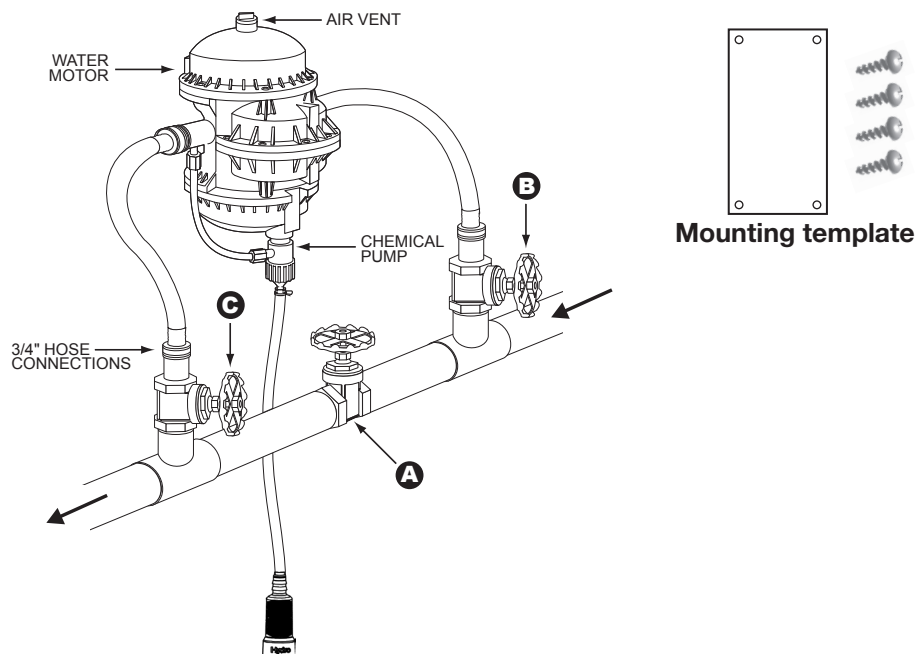
1. Water is always a factor with the life of any injector. If you know you have problem water, an in-line filter before the injector is a wise investment.
2. Keep your stock solution bucket clean of foreign particles and trash.
3. Keep the suction hose filter off the bottom of the stock solution bucket,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

# Removal & Installation

## Fixed Pump

### Mounting template

1. In each box provided a white envelope containing four screws. The marked envelope is used as a template to mount the unit at any stationary surface, or to a post.
2. Tighten the 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.

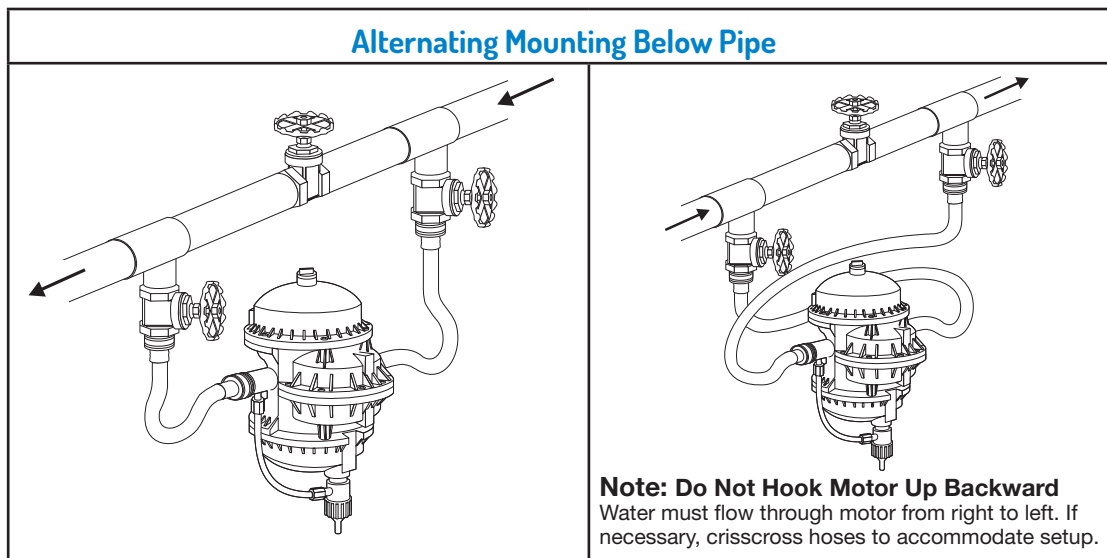


### Starting the Unit

1. Be sure chemical pump is locked into the bottom of the water motor. (1/4 turn to the right)
2. Open valves (B) and (C)
3. Close valve (A)
4. Open air vent until all trapped air is released

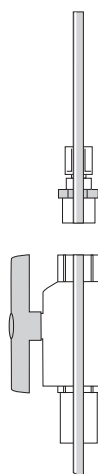
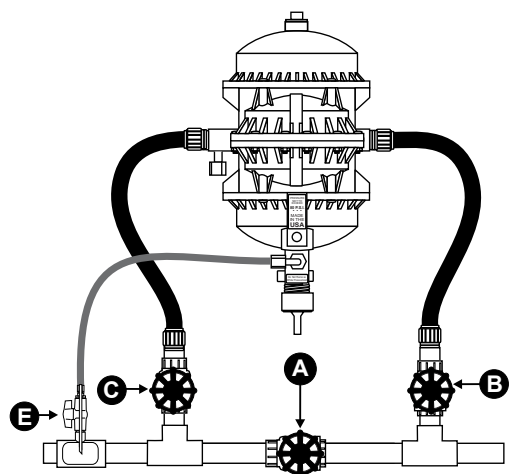
### Stopping the Unit

1. Open valve (A), then close valves (B) and (C)



# Installation & Removal

## Injection Fitting



This optional remote injection fitting is made to be glued into a standard pvc "T" fitting with a 3/4" opening.

Plug is included in remote injection kit should be threaded into inlet port to plug water and prevent leaking.

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.

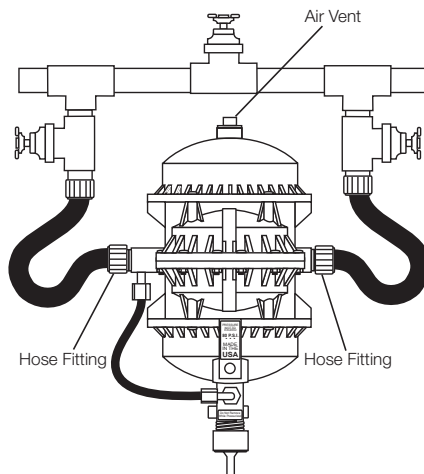
FG8010 Remote Injection Kit.

Turn off water to injector before turning off this valve.

## Removal

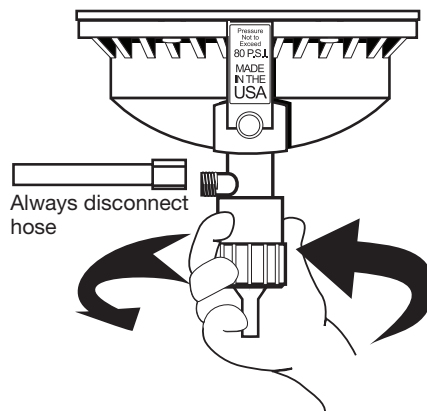
1. Make sure the water is turned off, and water pressure in the water motor is released - this is done by loosening the **Air Vent** (pressure relief valve) on the top of the water motor and turning off the water at both gate valves.

**Note:** Do Not Remove Air Vent



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

**Note:** Always disconnect hose from pump before removing.



# Installation & Removal

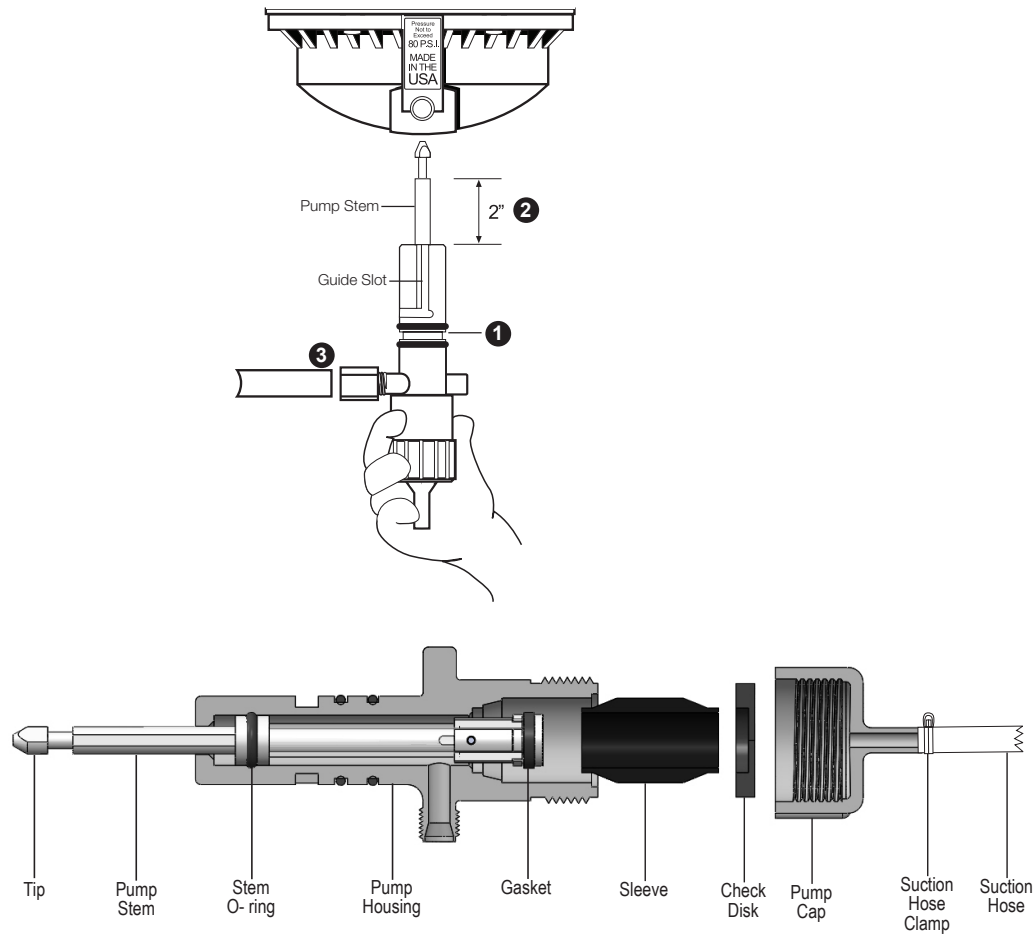
## Installation

**Note:** Lubricate “O” rings on pump housing with any biodegradable lubricant when pump is removed from motor.

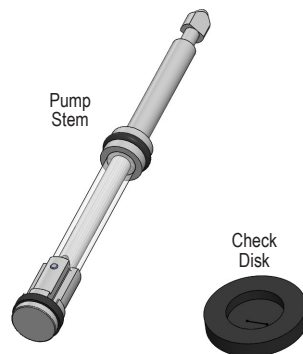
1. Make sure the pump stem is pulled all the way out (about 2”). Push the pump up into the water motor, and turn 1/4 turn clockwise, port to front.

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

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



**Cutaway view of fixed pump**



**Pump Rebuild Kit**

# Installation & Removal

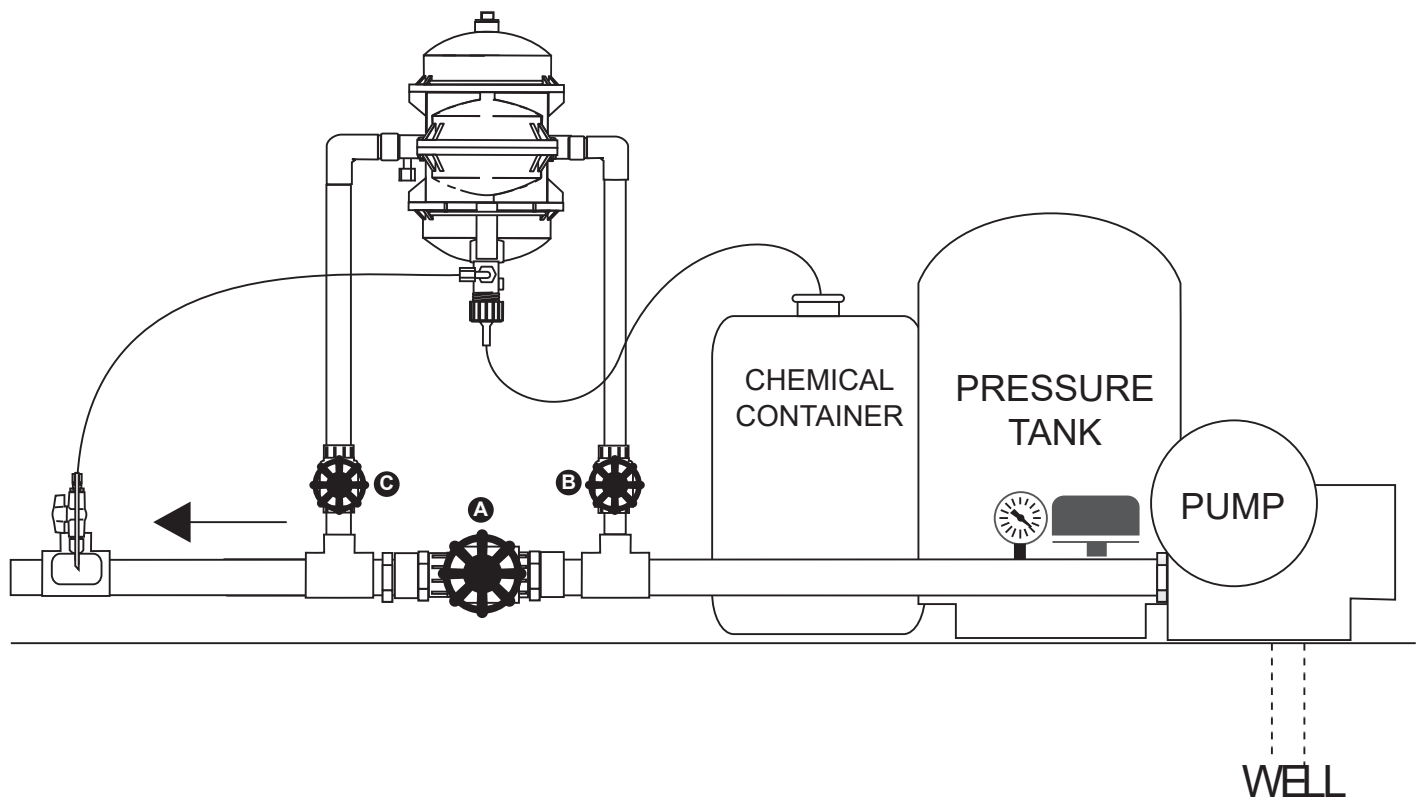
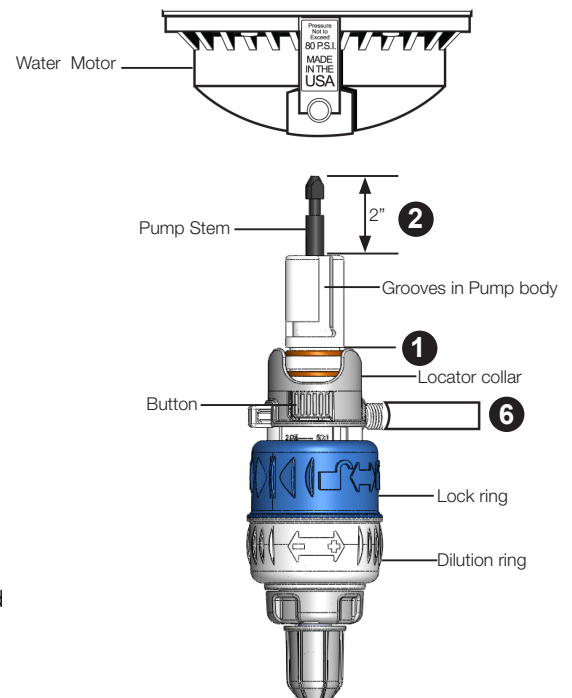
## Adjustable Pump

### Installation

1. Lubricate "O" rings on pump housing with any biodegradable lubricant before pump is installed into motor.
2. Make sure the pump stem is pulled all the way out (about 2"). Remove the white shipping clip prior to installation.
3. Push the pump up into the water motor, pins inside the water motor will engage with the grooves in the "Pump Body". Turn pump 1/4 turn clockwise. The slot in the "Locator Collar" will mate with the "Square Projection" on the "Water Motor".

**Note:** Depressing the "Buttons" on each side of the "Locator Lock" will allow the "Locator Collar" to rotate 180 degrees to allow installation with chemical injection on the right side. If the slot in the "Locator Collar" does not mate with the "Water Motor", depress the "Buttons" and rotate the "Locator Collar" until the "Groove" mates with the "Water Motor".

4. Rotating the "Dilution Ring" changes the dilution ratio. Rotate the "Dilution Ring" either direction until the correct dilution is set.
5. Rotate the "Lock Ring" clockwise to lock the dilution setting. Rotating the "Lock Ring" counter-clockwise allows the dilution to be changed.
6. After installing pump into bottom of water motor - loosen Jaco nut on pump and insert hose into fitting. Re-tighten Jaco nut.



# Troubleshooting

## Chemical pump

Problem		Cause	Solution
Fixed Pump	Motor clicks, but chemical is not drawn up into the suction hose.	Large gasket 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 Systems 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 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.
Adjustable Pump	Motor clicks, but chemical is not drawn up into the suction hose.	Large "O" ring on lower seal is worn or damaged.	Replace pump stem.
		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 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.  Check suction hose to insure a tight fit with tube nut in place.  Prime pump by hand and verify that chemical solution stays up in the suction hose.

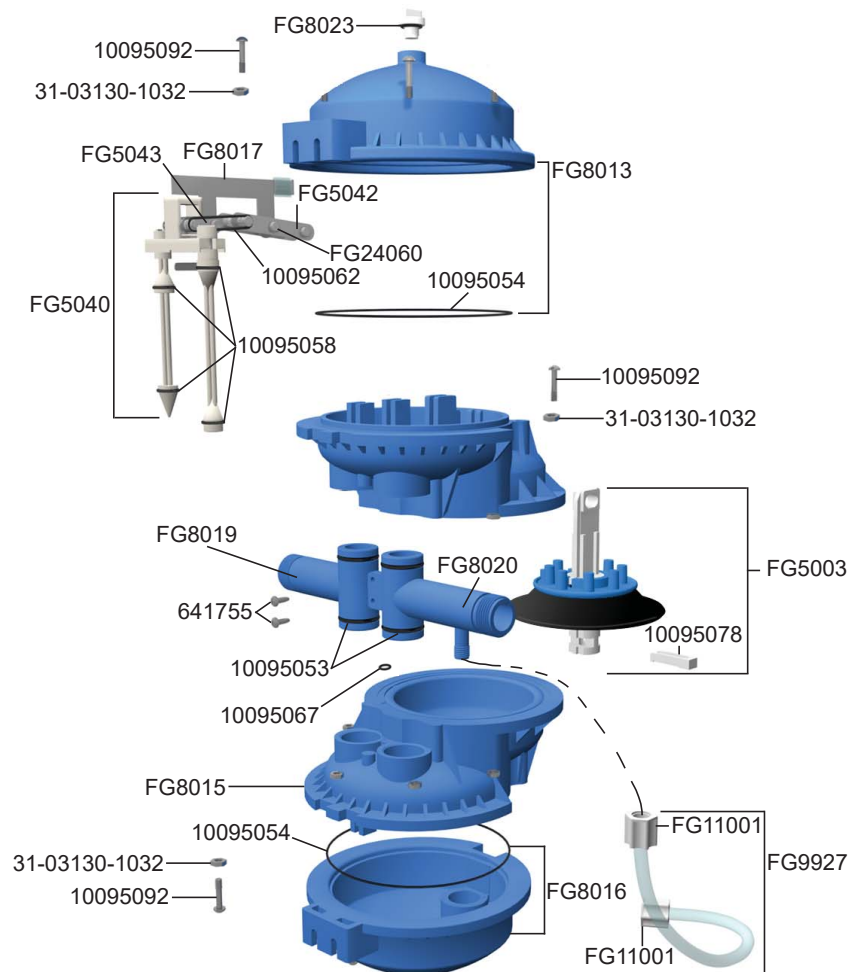
# Troubleshooting

## Water motor

Problem		Cause	Solution
Chemilizer Injector	Water motor does not click. Water does not flow past unit.	No water flow to motor.	Check that gate valves “B” & “C” are open.
		Incoming water is incorrectly connected to outlet side of water motor.	Verify that incoming water is connected to the inlet (right side) of the water motor.
	Water motor does not click. Water does flow past unit.	Water-motor is in “bypass” due to damaged parts on the inside of water motor or excessive wear of moving parts.	Send unit to a service center or to Hydro Systems for repair.*
		Gate valve “A” is not fully closed or may be leaking due to wear from sand or debris.	Check that gate valve “A” is fully closed and not leaking by closing valve “B” and removing hose from “C”, open valve “C”, water should not come out of valve “C” if valve “A” is working properly.
	Motor clicks a few times, then stops.	Unit is in bypass condition.	Shut off water flow. Relieve pressure by loosening air vent. Restart water flow.
		Motor may be in bypass due to worn or broken parts.	Send unit to a service center or to Hydro Systems for repair.*
		Gasket or “O” ring on pump stem may have excessive wear, allowing water to seep past at low flows stopping motor.	Change out pump with a known good pump. If unit continues to work, rebuild old pump with pump rebuild kit.
		Clogged chemical feed tube.	Inspect chemical feed tube for blockage and clean or replace tube.
	Motor works on high flow (over 5 GPM) but stops on low flows (under 2 GPM).	Gate valve “A” may be leaking.	See above.
		Gasket or “O” ring on pump stem may have excessive wear.	See above.
* RGA number must be obtained before unit is returned. Call for further information.			



# Parts Diagram



Part number	Description
FG8023	Twist air vent assembly
10095092	Screw, 10-32, 7/8" long, SS
31-03130-1032	Nut, #10-32, SST
FG5043	Actuator arm assembly
FG8017	Top by-pass assembly
FG5042	Pivot arm assembly
FG8013	Top cap ASM
FG24060	Retainer clip, CHEM, (Set 10)
10095062	Tension band, O-ring 116 EP
10095054	O-ring, 159 Buna
10095058	O-ring, 109E-P
FG5040	Inlet/Outlet valve assembly
10095092	Screw, 10-32, 7/8" Long, SS
31-03130-1032	Nut, #10-32, SST
FG8019	Inlet TEE assembly

Part number	Description
641755	Screw, #8X1/2" type AB PHPAN-HDSS
FG8020	Outlet TEE assembly
10095053	O-ring, 119 BUNA
10095067	O-ring, 009, BUNA, Chemilizer
10095078	Piston clip, Chemilizer
FG5003	Diaphragm assembly
FG8015	ASM, Main bottom body
10095054	O-ring, 159 BUNA
10095092	Screw, 10-32, 7/8" long, SS
FG8016	Bottle cap assembly
FG11001	Jaco nut, 1.4 in. (SET 1)
FG9927	Chemical hose assembly (HN55)

# Maintenance Kits

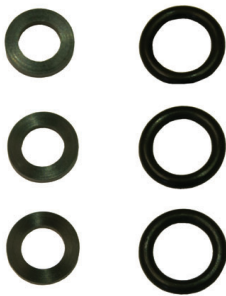
## Fixed Pump

### Water-Driven, Diaphragm Pump

Model	Part number
1-128	CH9000-209
1-100	CH9000-210
1-128	SPV0174
1-100	SPV0175
2-100	CH9000-211



### Kit A: Dosage Seal Kits



Model	Gasket	O-ring
1-128	FG9910	OR9910
1-1100	FG9910	OR9910
2-128		OR9912

### Kit B: Dosage Sleeves



Model	Ceramic	Kynar
1-128	10095071	10097374
1-1100	10095071	10097374
2-128	10095072	

### Kit C: Pump Rebuild Kit



Model	Ceramic	Kynar
1-128	OR9409-V	FG9409-V
1-1100	OR9410-V	FG9410-V
2-128	FG9011	

### Kit D: Chemical Pumps



Model	Ceramic	Kynar
1-128	SPV0176	FG9209-V
1-1100	SPV0177	FG9219-V
2-128	FG9211	

### Kit E: Pump Stems



Model	Ceramic	Kynar
1-128	OR9009	FG9009
1-1100	OR9010	FG9010
2-128	FG9011	

### Kit F: Check disks



Model	Part number	Percent
1-128 / 1-100	FG15404	1%
2-128	FG15404	2%

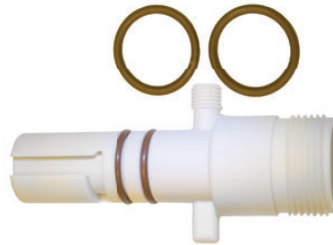
# Maintenance Kits

**Kit G: Cap**



Model	Part number
1%	FG9936-V
2%	FG9937-V

**Kit H: Pump Housing & O-rings**



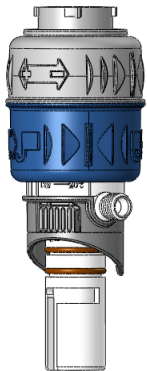
Model	Part number
1% or 2%	10095065

**Kit H: Pick-up tube assembly**



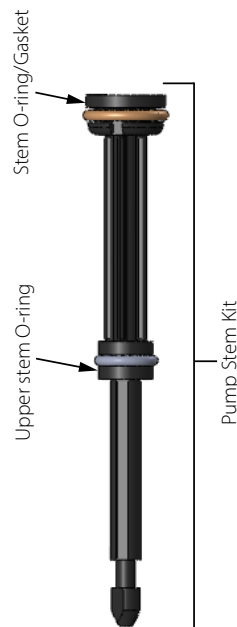
Model	Part number
1% or 2%	90092113

## Adjustable Pump



**Pump Rebuild Kit**

Part number	Description
10096920	Viton 20-64
10096938	Viton 50-164
10096916	Viton 150-500



**Pump Stem Kit**

Part number	Description
10096922	Viton 20-64
10096903	Viton 50-164
10096918	Viton 150-500

**Stem O-ring/Gasket**

Part number	Description
10095934	Viton 20-64(O-ring)
10098633	Viton 50-164(Gasket)
10095063	Viton 150-500(O-ring)

**Upper Stem O-ring**

Part number	Description
10095063	Viton 20-64
10096903	Viton 50-164
10090138	Viton 150-500

**Check Valve Kit**

Part number	Description
10096924	Viton 20-64
10096905	Viton 50-164
10096905	Viton 150-500



# Warranty

**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.

**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 product offered by Hydro Systems. 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 an Returned Goods Authorization (RGA) Number. In the event 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.

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



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