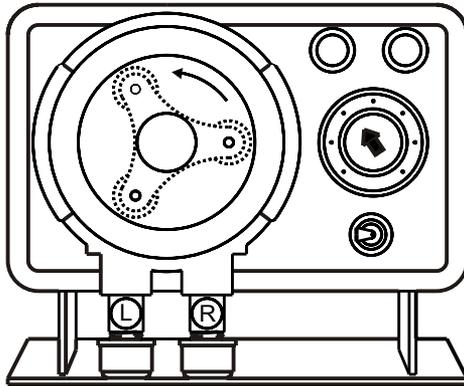


Blue-White[®]

Industries, Ltd.

FLEXFLO[®]



MODEL A-100

**Peristaltic Injection Pump
Operating Manual**

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PREFACE

You have just received a peristaltic metering pump. This is sometimes called a roll pump. Different models measure the amount of fluid delivered in several ways, the most common is based on R.P.M. (Revolutions Per Minute) of the pump motor output shaft plus a percentage of running time. This is controlled by a percentage timer that may be set to be on or off for any given segment of time. Another method of controlling the delivered amount of fluid is a variable speed direct current (D.C) Motor. This is a more complicated and expensive method since your 115v AC must be converted to D.C. By the use of a built in transformer, also the D.C. Motor itself is more costly, but this is probably the most accurate method. When using fixed rates, the shaded pole motor is generally best. For instance, when the unit is used for injecting deodorized chemicals into a ducting system, it would be wired to the mail blowers where they would operate together. In this case the R.P.M. And tube size determine the amount of delivered chemicals. OEM's will find these models used in conjunction with their won switching devices, dependable and durable.

Please care for your new peristaltic metering pump and it will give you years of dependable service.

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1. UNPACKING INFORMATION

Verify that you have received all of the following equipment:

- One A-100 series pump
- 10 ft. 3/8" O.D. Clear vinyl tubing with flow indicator
- One threadless injector (T.I.) Fitting
- One suction tube strainer
- One ceramic weight
- Two pump head tube assemblies (with fittings)
- Two mounting screws

FEATURES:

- A-100 series pump are listed by authorities as suitable for interior installation. See location - weather instructions.
- Lubricated and sealed ball bearings on motor and gearbox output shaft. No further lifetime lubrication is needed.
- Excellent self primer.
- All electrical components recognized by a NATIONAL RECOGNIZED TESTING LAB (NRTL), such as UL or equivalent.
- All controls are located at the front of the pump. This allows the pump to be wall or shelf mounted with easy access to the controls.
- NSF International has tested the A-100 injector using 12.5% sodium hypochlorite and has found that the A-100 conforms to the requirements of NSF standard 50.

2. LOCATION

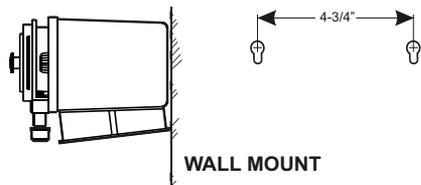
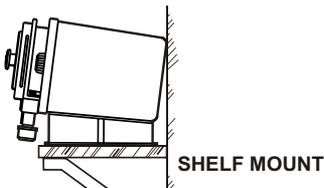
WEATHER AND VENTILATION:

A good solid floor; such as, concrete or brick is desirable. This unit is designed for indoor installations. If used outdoors, it must be placed in a sheltered and ventilated area.

The unit must be protected from ice, rain, and ultraviolet (UV) rays. Before you choose the exact spot be sure that chemical container is located near the installation. You should keep the suction line as short as possible. The unit should be offset to one side of any removable tank lid. Keep the pump low for best control, lower than the chemical container is ideal (flooded suction).

WALL MOUNTING:

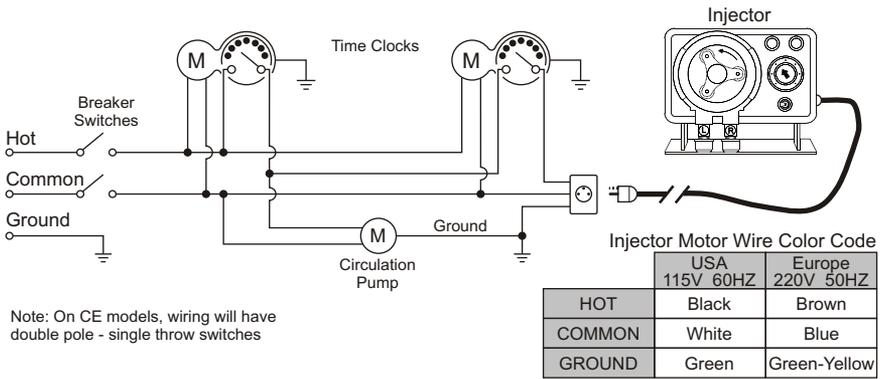
It is imperative the unit is firmly attached to it's support. Wall board or plaster alone will not carry the weight and vibration. Your anchor shields shall penetrate the wall one inch. Leave the heads projecting from the wall a full 1/4". This allows the key slot holes to fit over the screw heads. Then place the unit over the screw heads and slide down.



Note: For wall-mounting, recommend drill & thread into solid wood only.

ELECTRICAL REQUIREMENTS

- Be certain you connect the unit to the proper power supply.
 - Using incorrect voltage will cause server damage to the motor.
 - The voltage requirement is printed on the serial number label.
 - All pump models are supplied with a junction box and cover.
 - To reduce the risk of electric shock, be certain that a grounding conductor is connected to the green grounding located inside the junction box.
- The electrical hook up is very important to operation. The injector must never operate when treated line is shut down. The diagram above shows th injector wired within a cycle of a circulation pump or any system where chemical is used within a cycle but does or does not run al full system. If your system is complicated, be sure your electrician knows what is required. Remember chemicals fed to a stopped system can ruin it.



SUPPLY TANK FOR CHEMICALS

Plastic containers must be designed and manufactured for this purpose. Your container must be designed for whatever chemical you are using. Do not place the container in direct sunlight. Ultraviolet (UV) rays attack many materials which can cause them to become brittle.

OPERATION - MAINTENANCE

Once every week inspect tubing, and accessory valves and fittings. Inspect all parts for signs of leaks, swelling, cracking, corrosion or discoloration. Also, inspect the tubing for elasticity. Cracking, crazing, discoloration, etc., during the first week of operation are signs of severe chemical attack. If this occurs, immediately remove the fluid from the injector. Determine which parts are being attacked and replace with parts that have been manufactured using more suitable material.

NOTE: Sketches and Diagrams for information only. Qualified personnel, must be used when altering the electrical cord in any way. Qualified personnel, must also be used for installation of mechanical connections.

The pump is designed to perform in a wide variety of installations. However, the service life of the pump will vary, depending on many factors such as; fluid , temperature, pressure, etc. Because of the wide variety of installations, the pump has been factory tested for pressure and performance using water only. Do not use chemicals if you are not satisfied they are compatible with the pumps construction.

The pump tube assemblies are designed for maximum service life. However, the service life can be adversely affected by the chemicals used, the amount of back pressure, the motor R.P.M., and temperature.

The pump tube assemble should be inspected frequently. Replace the tube if any cracking, leaking or loss of feed rate occurs.

THREADLESS AND THREADED INJECTORS

The most common problem is calcium and/or lime build up inside the injector, foot valve and tubing. This is basic material and can easily be removed by running a weak solution of muriatic acid through it. After flushing the pump with clear water, place the injector filling and foot valve with the tubing attached in a container of weak (1-5) solution of commercial grade muriatic, then pump it around and around. After flushing out the wetted parts with clear water again, return pump to service. CAUTION do not allow acid and chlorine products to come together. This is VERY DANGEROUS to your health!

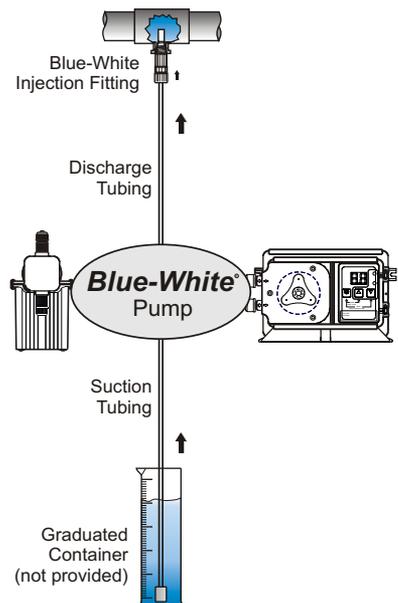
OUTPUT ADJUSTMENTS

The pause control knob adjusts the cycle timer's time on. The model A-100 standard cycle timer is set at one minute. Other cycle lengths are available. To adjust the amount of time on, turn the pause control knob to the correct setting. 1/2 equals approximately 30 seconds on. 3/4 equals approximately 45 seconds on, etc.

MEASURING THE OUTPUT

This volumetric test will take into account installation factors such as line pressure, fluid velocity, specific gravity, etc. This test is the most accurate for measuring the injector's output in an individual installation.

1. With the injector installed under normal operating conditions, place the foot valve/strainer in a large graduated container.
2. Fill the container with the chemical to be injected and run the unit until all air is removed from the suction line.
3. Refill the container, if necessary, and with the foot valve in the solution, not the amount of chemical in the container.
4. Run the injector for a measured amount of time and note the amount of chemical injected.

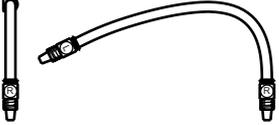
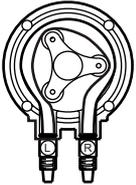


TUBE THREADING INSTRUCTIONS

CAUTION: Keep fingers out of pump head!



Video Instructions: <http://www.blue-white.com/Video.htm>
We offer free training on this over the web.

<p>1.</p>  <p>Hold the tube in your right hand with the fitting marked "R" facing you. Note that the fitting marked "L" is facing downward and away from you to the left. The tube is purposely twisted to allow for the difference between the inside length and the outside length of the tube when installed in the pump head. Hold the tube with your thumbs over the</p>	<p>2.</p>  <p>"R" and the "L." The tube will naturally curve toward the rear of the pump head. The curve in the tubing is a patented feature which prevents the pump tube from running outward and against the cover. Attach the plastic tube fitting (marked</p>
<p>3.</p>  <p>"R") into the right side of the pump head. Push the groove of the fitting straight into the slot. With the pump running, hold the fitting marked "L" with your left hand (your thumb should be covering the "L"). At the same time, use your right thumb</p>	<p>4.</p>  <p>to guide the tube into the pump head. With the tubing riding well between the rollers, push the fitting marked "L" into the chamber lock. Be sure both fittings are pushed all the way in place.</p>

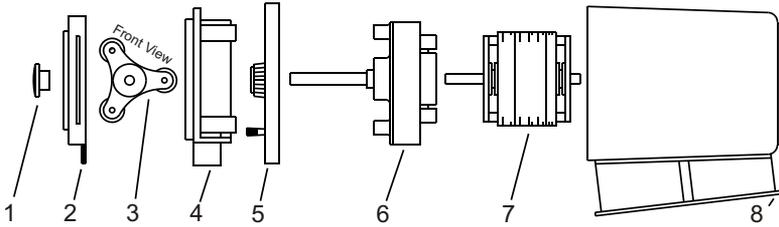
TUBE CONNECTIONS INSTRUCTIONS

1. Connect the flow indicator end of the suction tube to pump fitting marked "R." Indicator to be vertical.
2. Trim the other end so strainer assembly will hang about one or two inches above bottom of solution tank (sediment space).
3. Slide the ceramic weight over the end and attach the foot strainer assembly.
4. Connect the discharge tube to the "L" fitting then to the injector fitting.

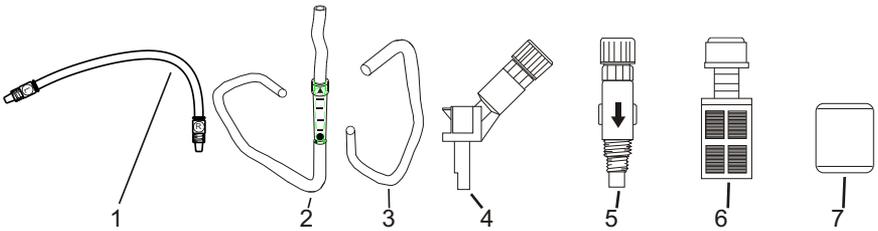
NOTE: An injector to fit 1/4" and/or 1/2" threaded hole is available. Call your supplier.

Pump Tube Lubricant: Place 1 or 2 drops of silicone oil on each roller to lubricate new pump tubes or when required.

4. REPLACEMENT PARTS

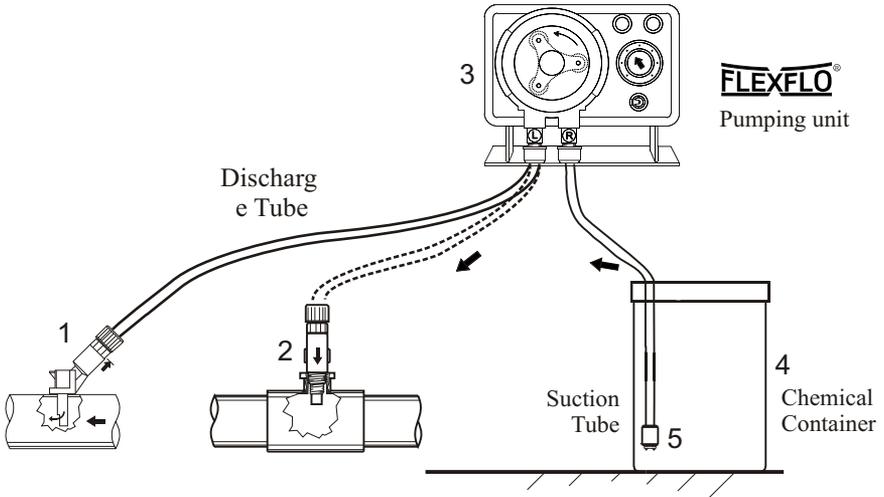


1. Retainer knob	A-011	7. Motor:	
2. Cover, pump head	A-001	24V AC / 60HZ 14 RPM	A-149-1
3. Roller assembly	A-003	24V AC / 60HZ 30 & 45 RPM	A-309-1
4. Pump head	A-005	115V AC / 60HZ 14 RPM	A-149-2
5. Panel board	A-007-B	115V AC / 60HZ 30 & 45 RPM	A-309-2
6. Gearbox		220V AC / 50HZ 14 RPM	A-149-4
14 rpm	A-008-1	220V AC / 50HZ 30 & 45 RPM	A-309-4
30 rpm	A-008-2	230V AC / 60HZ 14 RPM	A-149-3
45 rpm	A-008-3	230V AC / 60HZ 30 & 45 RPM	A-309-3
		8. Pump housing 115V, 24V	A-010
		Pump housing 220V, 230V	A-010J



1. Tube 3/16" O.D. NORprene	A-002-3N	3. PVC clear tubing	C-334-6-10
Tube 1/4" O.D. Tygon	A-002-4	4. T.I. A/S valve fitting	TI40-6V
Tube 1/4" O.D. NORprene	A-002-4N	5. 1/4 & 1/2 N.P.T. A/S valve	A-014HD-6V
Tube 3/8" O.D. Tygon	A-002-6	6. Foot valve/screen 3/8" O.D.	C-340N-6V
Tube 3/8" O.D. NORprene	A-002-6N	Foot valve/screen 1/4" O.D.	C-340N-4V
Tube 7/16" O.D. Tygon	A-002-7	7. Ceramic weight	C-346
Tube 7/16" O.D. NORprene	A-002-7N		
2. Poly tubing 5'	C-335-6-5		

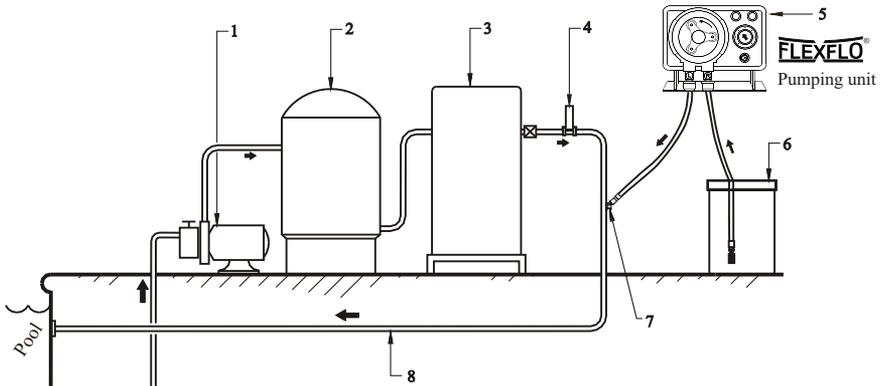
TYPICAL INSTALLATION



1. The threadless injector requires 3/8" DIA. Hole only.
2. The 1/4" & 1/2" Male N.P.T. (fits either) requires a Tee, a Street ELL, of a Saddle Fitting.
3. Injector - The A-100 is wall or shelf mounted.
4. Chemical Tank
5. Stainer
6. Sediment Space

NOTE: Injector Fittings Are for 3/8" O.D. Tubing (1/4" optional)

SWIMMING POOLS



- | | |
|---------------------|---------------------|
| 1. Circulation Pump | 5. Injector Pump |
| 2. Filter | 6. Chemical Tank |
| 3. Heater | 7. Injector Fitting |
| 4. Flowmeter | 8. Return Line |

5. TANK METERING SYSTEM

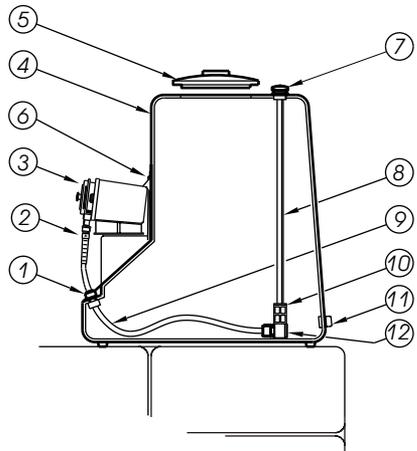
A specially designed chemical tank constructed to support the series A-100 peristaltic pump which is available in three capacities; 7, 15, or 30 gallon, complete with inserts for attaching the pump bracket. The pump is placed low on the tank side to obtain a FLOODED SUCTION.

Even though the tank and pump are UV resistant plastic, they should be placed in a shaded, protected and well ventilated area. A well designed installation will have the tank elevated for proper servicing of the pump. Floor to top of pump 24" is easy to achieve. Concrete blocks, brick, or other safe support is recommended.

The base of a 7 gallon tank is 12" x 16", 15 gallon 15-1/2" x 19-1/2", and a 30 gallon is 20" x 24".

A 30 gallon container filled with water can weigh 335lbs.! Be sure your foundation is concrete or well compacted soil.

- | | |
|------------------------|--------------|
| 1. Bulk Head Fitting | PN 76000-696 |
| 2.. FLOW CLIP | PN 70000-700 |
| 3. Pump Model | PN A-100 |
| 4. Supply Tank 15 gal. | PN 90007-028 |
| 5. Access Cover | PN 90007-038 |
| 6. Bracket | PN C-1521N |
| 7. Wand Cap | |
| 8. Wand and Cap | PN 70000-989 |
| 9. Suction Tube | PN 76000-645 |
| 10. Strainer | PN C-345S |
| 11. Drain Cap | PN 90002-045 |
| 12. Sediment Fitting | PN 76000-863 |



SERVICE SUGGESTIONS

Success of this system will be the result of care. Always wear protective glasses and proper clothing when working around chemicals. Many disinfectant chemicals are not used in an emulsion form so we have a precipitation forming at the tank bottom. When it reaches a depth of about 1" it must be removed by washing the tank out with water. In the meantime, the strainer (10) may become plugged and need cleaning. You can remove the strainer to clean by replacing it with your spare. First remove cover (5) then pull up wand (8) so you can reach the strainer assembly. While holding the strainer and the sediment fitting (12), unscrew the wand by turning counterclockwise. Lay the wand aside, then pull the strainer off the sediment fitting then replace the strainer with your clean one. Reassemble the wand and push the cap (5) back in place. Clean the dirty strainer with clear water and weak solution of muriatic acid (1-5) then rinse and store until next time.

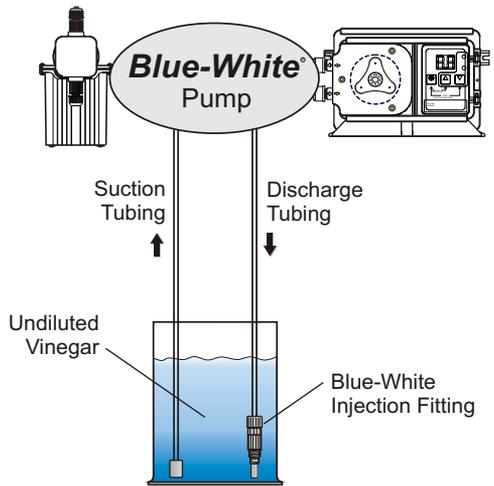
**DO NOT PUT ACID IN CHLORINE TANK.
NEVER STORE CHLORINE AND ACID IN THE SAME AREA.**

How to clean your pump and fittings

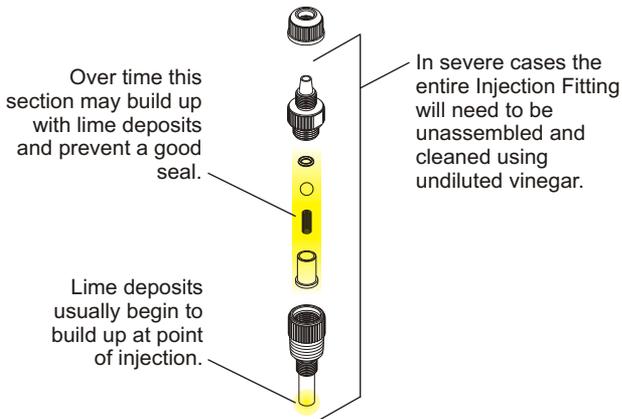
Periodically clean the injection fitting / check valve assembly, especially when injecting fluids that calcify such as sodium hypochlorite. These lime deposits and other build ups can clog the fitting, which will increase the back pressure and interfere with the pump accuracy. Warning: Severe cases can physically damage the injection fitting and the increase back pressure can cause increased wear on the pump components; gears, bearings and pump tubes.

Please follow these steps when cleaning your injection fitting / check valves.

1. Wash the pump, tubing and fittings out with clean water. To do this, place the "suction tubing" and "discharge tubing" (injection fitting too) in a container full of clean water.
2. Let the pump run in the clean water for a couple of minutes to remove all traces of chemical.
3. Remove the lime deposits with undiluted vinegar. To do this, place the "suction tubing" and "discharge tubing" in a container full of undiluted vinegar. See image to the right.



Injection Fitting



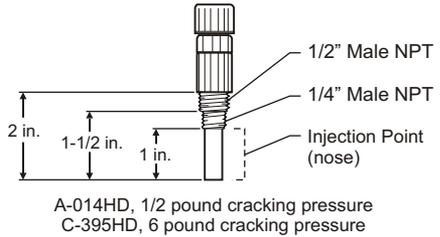
Optional Threaded Injection Fitting (check Valve) installation.

The Injection Fitting is designed to install directly into either 1/4" or 1/2" female pipe threads (NPT).

You can trim the injection point (nose) if needed. See image to the right.

The nose section is designed to inject the chemical away from the wall of your pipe.

We do offer another Injector Fitting for smaller pipe sizes (such as 1/2" and 1/4"). This fitting does not have the same length at the injection point (nose). See images to the right.

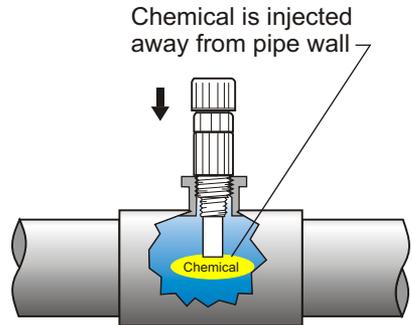


A-014PHD, 1/2 pound cracking pressure
C-395PHD, 6 pound cracking pressure

Install the Injection Fitting directly into a tee fitting. The solution must inject directly into the flow stream.

Use Teflon® thread sealing tape on the pipe threads of the Injection Fitting.

This illustration shows the Injection Fitting installed in a tee fitting using the 1/2" threads.

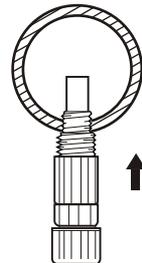


You can install the Injection Fitting directly into your pipe.

Drill the correct size hole and then tap the hole for 1/4" or 1/2" NPT.

Use Teflon® thread sealing tape on the pipe threads of the Injection Fitting.

This illustration shows the Injection Fitting installed directly into pipe using the 1/4" threads.



Note: All diagrams are strictly for guideline purposes only. Always consult an expert before installing the Chem-Feed/FlexFlo pump on specialized systems. The Chem-Feed/FlexFlo should be serviced by qualified persons only.

Caution: Always wear protective clothing, face shield, safety glasses and gloves when working on or near your metering pump. Additional precautions should be taken depending on the solution being pumped. Refer to MSDS precautions from your solution supplier.

LIMITED WARRANTY

Your new pump is a quality product and is warranted to be free of defects as set down in this policy. All parts, including rubberized goods and labor are covered under warranty for 90 days from date of purchase. Used peristaltic tubes are not warranted. Parts (excluding rubberized goods and labor) are covered for a period of 12 months from date of purchase. Warranty coverage does not include damage to the pump that results from misuse, carelessness, abuse, or alteration. Only the repair or replacement of the pump is covered. The manufacturer does not assume responsibility for any other loss of damage. Warranty status is determined by the pump's serial number. The serial number label must be on the pump to obtain warranty coverage. Enclose your invoice or sales receipt, with date of purchase, when you return the pump for warranty repair. Warranty status will be verified by the factory or authorized service center.

Also: Please be advised, injections and metering devices are not intended as a means of treating water to render it suitable for human consumption. When used as hypochlorinators, they are meant to destroy bacteria and algae contamination, before it's removal by filtration. Acid and soda injectors are used for pH control (balance). The injectors are factory tested with water only for pressure and performance. Installers and operators of these devices must be well informed and aware of the precautions to be taken when injecting various chemicals, especially those considered hazardous or dangerous. Should it be necessary to return an injector for repair or service, you must attach information regarding the chemical used as some residue may be present within the unit and could be hazardous to service personnel.

The manufacturer will not be liable for any damage that may result by the use of chemicals and injectors and its components. Thank you.

PROCEDURE FOR IN-WARRANTY REPAIR

Carefully, pack the pump to be repaired, including the foot valve and injection fitting. Enclose a brief description of the problem, as well as original invoice or sales receipt showing date of purchase. The receipt will be returned with the unit. Prepay all shipping costs. COD shipments will not be accepted. Warranty repair service must be performed by the factory, or an authorized service center. Damage caused by improper packaging is the responsibility of the sender.