Blue-White®

C-1500N Operating Manual

C-1500N CHEM-FEED®

Diaphragm Metering Pump

READ THE ENTIRE OPERATING MANUAL PRIOR TO INSTALLATION AND USE.

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SAFETY INFORMATION

Please read this manual completely before unpacking, installing, and operating this equipment. In particular, pay attention to all dangers, warnings, and precautions, otherwise, it may cause serious injury to the operator or damage to the equipment.

Symbol	Description
	Warning (Risk of electric shock)
	Caution (Refer to the user's guide)
	Ground, Protective Conductor Terminal

Note: When in doubt regarding your electrical installation, contact a licensed electrician.

1.0 Introduction

Congratulations on purchasing the C-1500N Diaphragm Metering Pump!

The C-1500N pump is designed to inject chemicals into piping and process systems. The C-1500N is capable of pumping a variety of chemicals and solutions.

The C-150N pump is unique in that it features mechanical drive diaphragm technology and with adjustable stroke dial creating a smooth flow without harsh pulsation. The pump is available in a variety of motor speeds and stroke is adjustable from 5% through 100% (20:1).

The C-1500N has been tested for NSF 50 listing with 12.5% sodium hypochlorite.

Note: Your new pump has been pressure tested at the factory with clean water before shipping. You may notice trace amounts of clean water in the pump head.

1.1 Features

- Excels with off-gassing chemicals such as Peracetic Acid (PAA), Hydrogen Peroxide, Aqueous Ammonia, and Sodium Hypochlorite.
- Double Ball Checks for improved pumping reliability
- PVDF Valve assemblies for best corrosion resistance.
- High pressure capability up to 125 PSI.
- Motor driven stroke featuring ball bearing supported motor shaft and permanently lubricated ball bearing motor.
- Acceptable for outdoor use with NEMA 3R (IP23).
- Easy to service.

1.2 What's in the Box?

Your pump package will contain the following:

- C-1500N pump
- Power cord (Power Cord models)
- Mounting Bracket
- Foot Valve
- Ceramic tubing weight
- Injection fitting with internal back-flow check valve
- Suction Tubing with sight glass (5 ft)
- Discharge Tubing (5ft)
- Mounting hardware kit
- Instruction Manual or Quick Start Guide

1.3 Storage and Handling

The C-1500N Diaphragm Pump is shipped to withstand standard shipping methods. If your pump has arrived with damaged packing, note damage and check contents immediately.

Contact factory if pump or components have sustained damage. Shipping damage is not covered under warranty and will be addressed according to Blue-White freight terms and policy.

If the pump will not be installed at time of arrival, store the pump in original packaging indoors in an air conditioned environment. Do not store pump in excessive heat or freezing temperatures, or in environments with high humidity. Do not stack other boxes or equipment on top of the pump/packaging/box.

When preparing to install pump, keep it away from excess dust or unusual chemical/moisture exposure. Do not drop the pump or handle in such a way as to cause high impact. Always handle pump with care.

If there is any question about how to store or handle the pump and accessories, please contact the factory or authorized service center for assistance customerservice@blue-white.com (714) 893-8529.

1.4 Application Guides

For assistance with correct use of pump for your application, please contact our factory for assistance. Additionally, resources are available on our website to assist with application review.

Chemical Resistance Guides - Charts include most common chemicals compatibility diaphragms. https://www.blue-white.com/resources/diaphragms-and-chemical-compatibility/

Viscosity Effects - Learn how viscosity can affect pump performance. www.blue-white.com/article/achieving-successful-dosing-of-viscous-or-abrasive-chemicals/

Suction Lift - Learn how suction lift can affect pump performance. www.blue-white.com/bw-videos/bwa-suction-lift-explained-the-key-to-pump-performance/

Other concerns - Visit our Help Center where you can review specific information about the C-1500N pump and ask Oswald AI Chat questions. www.blue-white.com/resources/help-center/

1.5 Product Matrix

C15N	CHEM-FEED® Diaphragm Metering Pump

Maximum Motor Speed

1	30 RPM	**3**	60 RPM
2	45 RPM	**4**	125 RPM

Power Supply | Motor Protection

0	115 V / 60 Hz | Impedance Protection	**5**	220 V / 50 Hz | Thermal Protection
1	220 V / 50 Hz | Impedance Protection | 20% Reduced Output	**6**	230 V / 60 Hz | Thermal Protection
2	230 V / 60 Hz | Impedance Protection	**7**	24 V / 50 Hz | Intermittent duty only
3	24 V / 60 Hz | Impedance Protection	**8**	240 V / 50 Hz | Thermal Protection
4	115 V / 60 Hz | Thermal Protection		

Cam Stroke Length

1	0.125”
2	0.055”
3	0.187”

Electrical Options

X	Power Cord | 6 ft	**A**	Junction Box | Replaces Power Cord

Pump Head Material

0	Injection-Molded PVDF

Pump Head Configuration

0	Large Diaphragm	**4**	Large Diaphragm | Carwash
2	Small Diaphragm	**6**	Small Diaphragm | Carwash

Diaphragm Type

0	Large PTFE/EP Diaphragm	**6**	Small PTFE/EP Diaphragm

Elastomer Material

V	FKM	**E**	EPDM

Injection Fitting

X	None
0	A-014N | Polypropylene | 1/2 lb Spring
1	C-395N | Polypropylene | 6 lb Spring
7	A-014PN | Polypropylene | 1/2 lb Spring | Short Depth
8	C-395PN | Polypropylene | 6 lb Spring

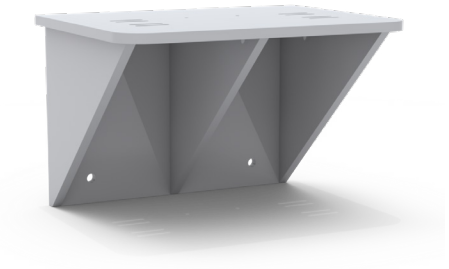
Foot Valve

0	C-340A | PVDF | Polypropylene
1	C-345A | PVDF | Polypropylene | Bulkhead Mount

C15N	**1**	**0**	**1**	**X**	**0**	**0**	**0**	**V**	**X**	**0**	**Sample Model Number**

1.6 Accessories and Options

WALL MOUNT SHELF



The Wall Mount Shelf is a simple way to mount your pump without using valuable floor space. The bracket is sturdy and versatile and allows the pump to be mounted at a convenient height for operation and service. Includes (4) 3/8” x 2-3/4” long anchor bolts.

KIT-PSM HDPE Bracket, 14.75” wide
KIT-PSS HDPE Bracket, 11” wide

SUCTION AND DISCHARGE TUBING

C-334-6 Tubing, Suction, clear PVC 3/8” O.D. x 5’ length
C-334-6-10 Tubing, Suction, clear PVC 3/8” O.D. x 10’ length
C-334-6-100 Tubing, Suction, clear PVC 3/8” O.D. x 100’ length
C-335-6 Tubing, Discharge, opaque PE 3/8” O.D. x 5’ length
C-335-6-10 Tubing, Discharge, opaque PE 3/8” O.D. x 10’ length
C-335-6-100 Tubing, Discharge, opaque PE 3/8” O.D. x 100’ length

TANKS

High strength polyethylene tanks are available to store chemicals. STAR tanks at capacities of 7 gal, 15 gal, or 30, gal. Cylindrical tanks at capacities of 15 gal, 30 gal, or 50 gal.

INJECTION FITTINGS

Injection fittings ensure that chemical feed injects into the process stream while preventing the process fluid from returning to the chemical line. The built-in check valve contains a ceramic ball that prevents siphoning. Refer to section 7.3 Accessories for a complete list of Injection Fittings.

2.0 Engineering Specifications

Max. working pressure:	125 psig (8.6 bar) (refer to pump curves for exact specifications)
Max. fluid temperature:	130° F (54° C)
Output Accuracy	+/- 10% of maximum (water @ 70° F, 0 psig, and 5' suction lift)
Ambient temperature range:	14 to 110° F/ -10 to 43° C
Maximum viscosity:	1,000 Centipoise
Maximum suction lift:	10 ft. Water at sea level (0 psi)
Operating Voltage:	115VAC/60Hz, 1ph (.74 Amp Maximum)
	230VAC/60Hz, 1ph (.36 Amp Maximum)
	220VAC/50Hz, 1ph (.31 Amp Maximum)
	240VAC/50Hz, 1ph (.29 Amp Maximum)
	24VAC/60Hz, 1ph (3.4 Amp Maximum)
Power Cord Options:	115V60Hz = NEMA 5/15 (USA)
	230V60Hz = NEMA 6/15 (USA)
	220V50Hz = CEE 7/VII (EU)
	240V50Hz = AS 3112 (AU)
Motor:	AC shaded pole
Duty cycle:	Continuous
Stroke adjustment range	5% – 100% (20:1)
Enclosure:	NEMA 3R (IP23) Valox
Maximum Overall Dimensions:	4.5" X 9.062" X 5.750" (11.4 W x 23 H x 14.6 D cm)
Product weight:	7lb. (3.18 Kg)
Approximate shipping wt:	13 lb. (5.9 Kg)
Pollution degree	2
Installation Category	II
Altitude	6562 ft /2000 m
Humidity	80% to temperatures up to 87.8°F / 31°C (decreasing linearly to 50% rH at 104°F / 40°C; max 80% rH, non condensing.
RoHS Compliant:	Yes
Standards:	NSF 50, cETLus, CE, ETL, CSA

2.1 Output Specifications

Model Number	Max Strokes Per Minute	Diaphragm	Stroke length	Maximum Output at 0 PSI				Max PSI
			Inch	GPD	GPH	LPH	OZ/MIN	
C15N102X026V00	30	small	.055	8.3	0.3	1.3	0.7	125
C15N302X026V00	60	small	.055	16.3	0.6	2.5	1.4	125
C15N202X000V00	45	large	.055	26.6	1.1	4.2	2.4	125
C15N402X026V00	125	small	.055	34.2	1.4	5.4	3.0	25
C15N201X000V00	45	large	.125	60.7	2.5	9.6	5.4	125
C15N301X000V00	60	large	.125	72.0	3.0	11.3	6.4	60
C15N402X000V00	125	large	.055	68.4	2.8	10.8	5.9	125
C15N303X000V00	60	large	.187	112.8	4.7	17.9	10.1	60
C15N401X000V00	125	large	.125	155.9	6.4	24.6	13.8	20
C15N403X000V00	125	large	.187	228.1	9.5	36.0	20.2	10

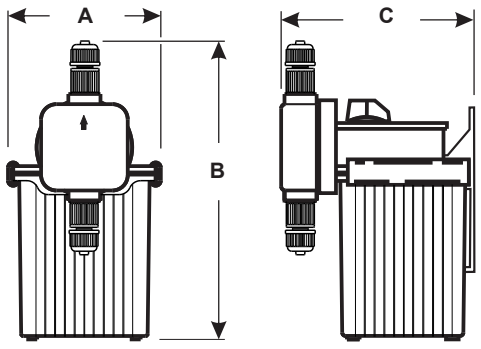
NOTE: For optimum diaphragm life, specify the pump to operate at the lowest possible RPM and pressure.

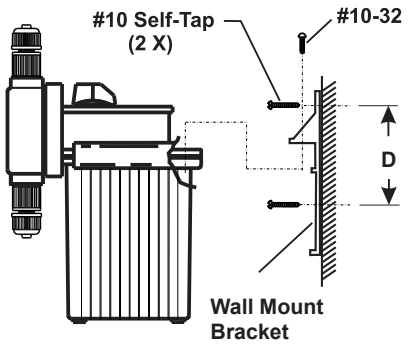
2.2 Materials of Construction

Wetted Components:			
Pump Head:	PVDF	**Suction Foot Valve/ Strainer**	Body & Tubing Adapter : PVDF (optional PTFE)
Pump Head Inlet / Outlet Valves:	Cartridge Valve Body : PVDF		Strainer: Polypropylene
	Tube Adapters : PVDF		Check Balls : Ceramic
	Check Balls : Ceramic		Ball Seat O-Ring : TFE/P (optional EP)
	Ball Seat O-Ring : TFE/P (optional EP)		Static Seal O-Ring : FKM (optional EP)
	Static Seal O-Ring : FKM (optional EP)	**Injection / Check Valve:**	Body & Insert : Polypropylene (optional PVDF, PTFE)
Suction Tubing:	Clear PVC		Check Ball : Ceramic (optional PTFE poppet)
Flow Indicator:	Clear PVC Body, Glass Ball (Carwash models use 316 SS ball)		Spring : Hastelloy C-276
Discharge Tubing:	Natural (opaque) Polyethylene		Ball Seat O-Ring : TFE/P (optional EP)
			Static Seal O-Ring : FKM (optional EP)

2.3 Dimensions

Dim	Inch	cm
A	4.50”	11.43
B	9.06”	23.01
C	5.75”	14.61
D	2.30”	5.84





3.0 Installation

3.1 Safety

CAUTION

- Follow these instructions before installing your pump to avoid failure.
- The pump is designed to be installed and operated by qualified personnel only. Please note that warranty coverage does not include damage due to misuse or improper installation.
- Ensure pump is installed according to instructions and site guidelines.
- Always wear eye protection when installing or removing chemical feed pumps.
- Wear suitable PPE (Personal Protective Equipment) such as gloves, goggles, masks, protective gear, chemical resistant clothing, and proper footwear to avoid injury due to splashes, spills, and fumes.
- Confirm chemicals being used with the pump are compatible with wetted components of the pump. Review all SDS sheets prior to use or service. User is responsible for determining chemical compatibility with pump.
- Inspect equipment regularly for wear, leaks, or abnormal operation.
- Only use the pump for the purpose which it is intended.
- This pump should not be used by children and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge.
- Pump is not a toy. Do not allow children to play with the pump.

PRESSURE

- Maximum Total Pump Head is 125 PSI (8.6 bar) Do not exceed maximum pressure. See specific model pressure limits in section 2.1. High pressure and temperature will damage the diaphragm and pump.

WARNING

- Risk of electric shock – cords are supplied with a grounding conductor and grounding-type attachment plug. To reduce risk of electric shock, be certain that it is connected only to a properly grounded, grounding-type receptacle.
- Power cord connection is located on side of the pump.
- Be certain to connect the pump to the proper supply voltage. Using the incorrect voltage will damage the pump and may result in injury. The voltage requirement is printed on the pump serial label.
- Electrical connections and grounding must conform to local electrical codes.
- Use the voltage for which the cord is rated.
- To prevent electronic noise interference, electronic signal wires and AC power wires must be kept separate. Do not bundle these cables together or run within the same conduit.
- When there is a power interruption, the pump will restart (resume) in the same state as prior to power interruption.
- POWER: 115V60Hz (0.74A max.), 220V50Hz (0.31A max.), 230V60Hz (0.36A max.), 240V50Hz (0.29A max.)
- Install pump so label is visible after installation.

3.2 Mounting Location and Installation Requirements

Choose an area located near the chemical supply tank, chemical injection point and electrical supply. Although the pump is designed to withstand outdoor conditions, a cool, dry, well ventilated location is recommended. Install the pump where it can be easily serviced. **Do not place pump on floor or in a location with excessive chemical spills or vapors.**

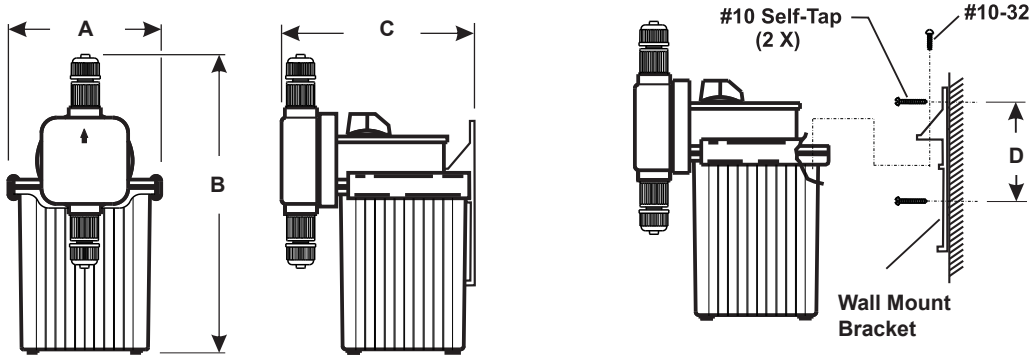
- Suction fitting is on bottom, discharge fitting is on top.
- Mount the pump to a secure surface or wall using the enclosed hardware.
- Wall mount to a solid surface only. Mounting to drywall with anchors is not recommended.
- Mount the pump close to the injection point. Keep the outlet (discharge) tubing as short as possible. Longer tubing increases the back pressure at the pump.
- Your solution tank should be sturdy. Keep the tank covered to reduce fumes. Do not mount the pump directly over your tank. Chemical fumes may damage the unit. Mount the pump off to the side or at a lower level than the chemical container.
- Mounting the pump lower than the chemical container will gravity feed the chemical into the pump. This “flooded suction” installation will reduce output error due to increased suction lift. You must install a shut-off valve, pinch clamp or other means to halt the gravity feed to the pump during servicing.
- Be sure to install a back-flow prevention check valve to prevent fluid from flowing back through pump during service.
- A pressure relief valve is recommended on the discharge side of the pump to prevent over-pressurization of the pump.
- A back-pressure valve may be required to provide consistent back-pressure on the pump. This will prevent siphoning and provide consistent flow rate.
- Be sure your installation does not constitute a cross connection with the drinking water supply. Check your local plumbing codes.

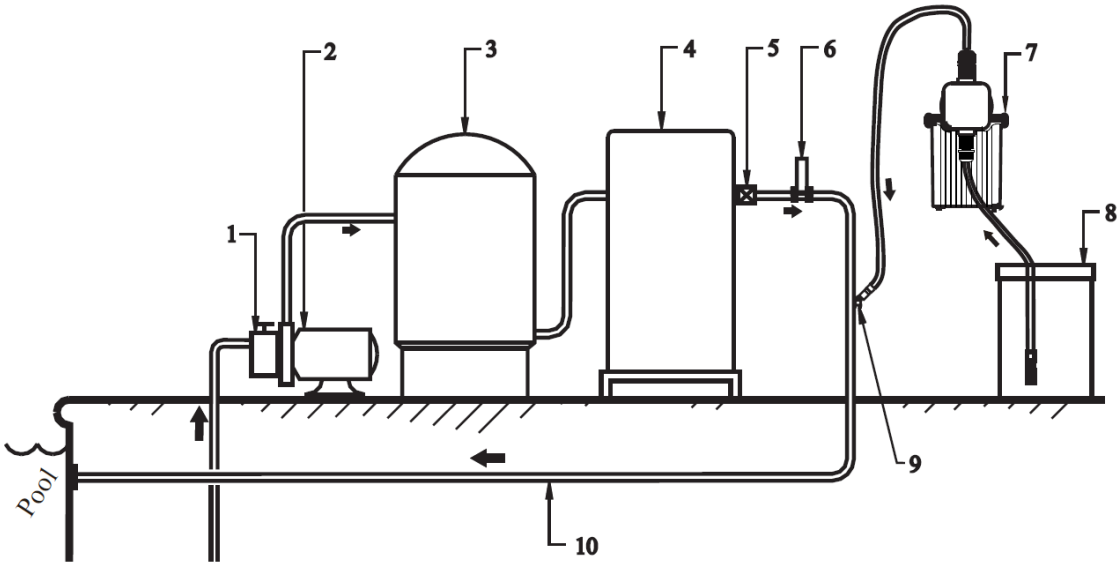
Caution: When power is applied to the pump, the pump will automatically begin to pump.

3.3 Wall Mounting

Using the provided #10 self-tapping screws, mount the bracket to a secure wall that is located where it can be easily serviced.

Dim	Inch	cm
A	4.50”	11.43
B	9.06”	23.01
C	5.75”	14.61
D	2.30”	5.84





1. Strainer
2. Circulation Pump
3. Filter
4. Heater
5. Check Valve
6. Flow meter
7. Injector Pump
8. Solution Tank
9. Injection Fitting
10. Return Line

TYPICAL POOL INSTALLATION

To prevent chemical overdosing, a flow switch is recommended on the circulation system to automatically stop chemical feed when there is no return flow to the swimming pool or spa.

Risk of chemical overdose. Be certain the pump does not overdose chemical during backwash and periods of no flow in the circulation system.

3.4 Input Power Connection

WARNING! Risk of Electrical Shock

- Power cord connection is located on side of the pump.
- Be certain to connect the pump to the proper supply voltage. Using the incorrect voltage will damage the pump and may result in injury. The voltage requirement is printed on the pump serial label.
- The pump is supplied with a ground wire conductor and a grounding type attachment plug (power cord). To reduce the risk of electric shock, be certain that the power cord is connected only to a properly grounded, grounding type receptacle.
- Electrical connections and grounding must conform to local electrical codes.
- Use the voltage for which the cord is rated.
- To prevent electronic noise interference, electronic signal wires and AC power wires must be kept separate. Do not bundle these cables together or run within the same conduit.
- When there is a power interruption, the pump will restart (resume) in the same state as prior to power interruption.
- POWER: 115V60Hz (0.74A max.), 220V50Hz (0.31A max.), 230V60Hz (0.36A max.), 240V50Hz (0.29A max.)

Note: When in doubt regarding your electrical installation, contact a licensed electrician.

Motor Lead Wires

Input Voltage	Hot Leadwire	Neutral Leadwire	Ground Leadwire	Size	Temp
115V 60 Hz	Black or Yellow*	Blue	Green	18AWG	105 degrees
220V 50Hz	Blue or Yellow*	Brown	Green	18AWG	105 degrees
230V 60 Hz	Black or Yellow*	Red	Green	18AWG	105 degrees
240V 50 Hz	Orange or Yellow*	White	Green	18AWG	105 degrees
24V 60 Hz	Blue	White	Green	18AWG	105 degrees
24V 50 Hz	White	White	Green	18AWG	105 degrees
* Yellow lead wire: thermally protected motor. Blue/Black leadwire: standard impedance protected motor					

CAUTION: Avoid overdosing. Ensure power to C-1500N is disconnected (off) when power to water pump is off.

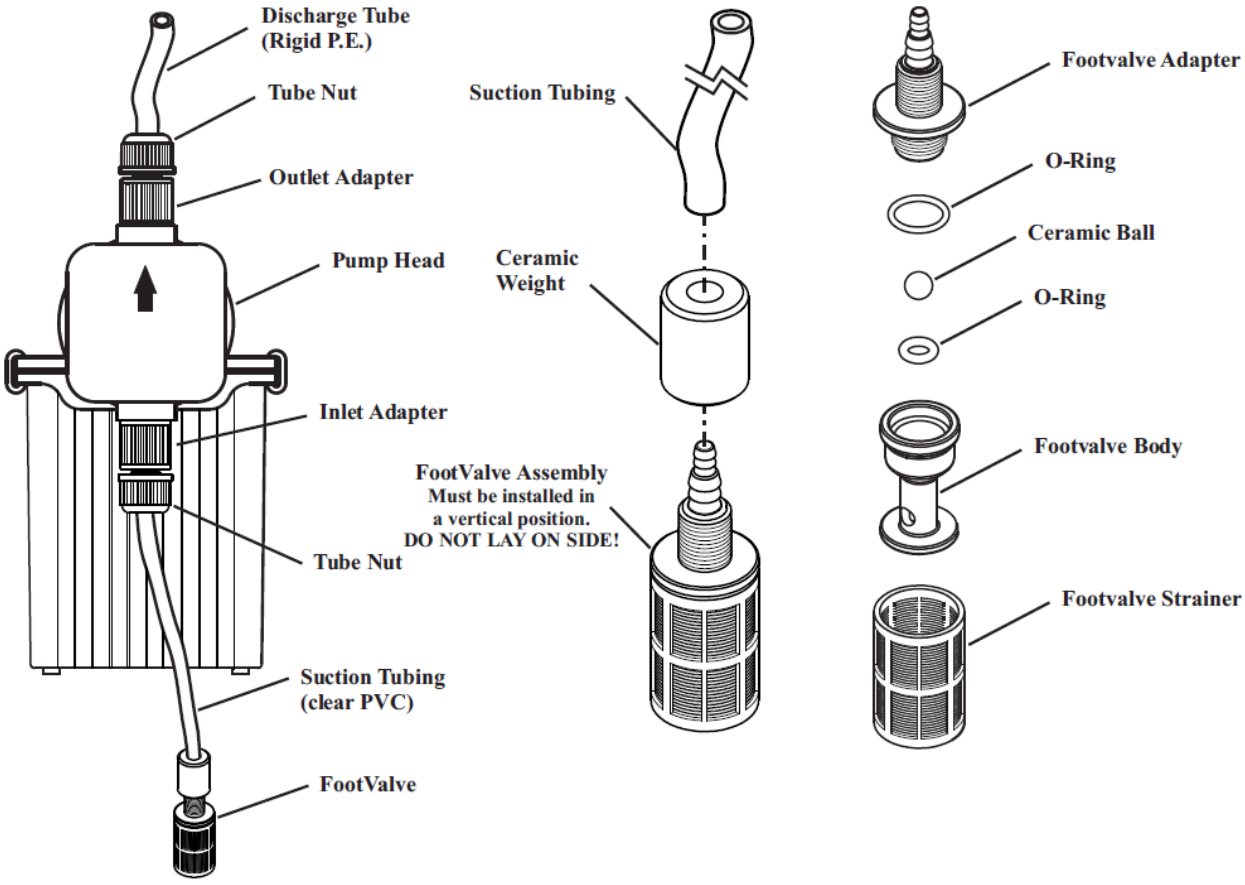
3.5 Installing Tubing and Fittings

Caution: Proper eye and skin protection must be worn when installing and servicing the pump.

Inlet Tubing - Locate the inlet fitting of the pump head, see figure below. Remove the tube nut. Push the clear PVC suction tubing onto the compression barb of the fitting. Use the tube nut to secure the tube. Hand tighten only.

Foot valve/Strainer -Trim the inlet end of the suction tubing so that the strainer will rest in a vertical position, approximately one inch from the bottom of the solution tank. This will prevent sediment from clogging the strainer. Loss of prime may occur if the foot valve is permitted to lay on the bottom of the solution tank in a horizontal position. Slip the ceramic weight over the end of the suction tube. Press the foot valve/strainer into the end of the tube. Secure the ceramic weight to the strainer. Drop the strainer into the solution tank.

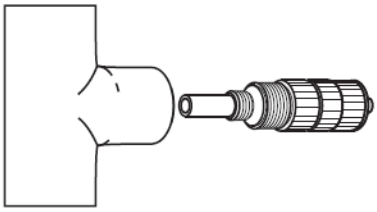
Outlet Tubing - Locate the outlet fitting of the pump head, see figure below. Remove the tube nut. Push the opaque outlet (discharge) tubing onto the compression barb of the fitting. Use the tube nut to secure the tube. Hand tighten only. Trim the other end of the outlet tube leaving only enough slack to connect it to the Injection/Check valve Fitting (see below). Increasing the length of the outlet tube increases the back pressure at the pump head, particularly when pumping viscous fluids.
Keep the inlet and outlet tubes as short as possible.

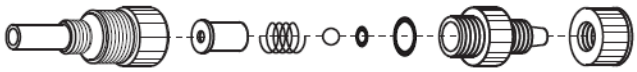


Injection/Check Valve Fitting Installation - The Injection/Check valve fitting is designed to install directly into either 1/4” or 1/2” female pipe threads.

Install the Injection/Check valve directly into the tee fitting. Do not install the fitting into a pipe stud and then into the tee. The solution must inject directly into the flow stream.
Use PTFE thread sealing tape on the pipe threads. Push the opaque outlet (discharge) tubing onto the compression barb of the Injection/Check valve fitting. Use the tube nut to secure the tube. Hand tighten only.

Injection/Check valve fitting will require periodic cleaning, especially when injecting fluids that calcify such as sodium hypochlorite. These lime deposits and other build ups can clog the fitting increasing the back pressure and interfering with the check valve operation. See section 6.0.





4.0 Controls and Set-up

Pump speed flow output adjustment via stroke. When choosing a particular C-1500N model, it is important to understand the function and technology to achieve the best results.

The C-1500N is available with different motor speeds. There is no speed adjustment on the pump motor. Pump speed is directly proportional to pump strokes per minute. The faster the pump speed, the more closely each pump stroke is to the next, minimizing the gaps in flow. Note that there may be some limitations to having a pump with a higher motor speed such as performance issues with higher viscosity solutions or increased wear on parts.

Pump output can be adjusted using the stroke length dial on the pump. The pump has a 20:1 turn-down using this feature. Note that it may be more difficult to prime the pump with shorter stroke length, and the pump may be subject vapor lock more with a shorter stroke length.

Older Deluxe models (discontinued) may include a Cycle timer which allows the adjustment of pump on/off time via timer adjustment knob. If you have one of these models, refer to the instruction below.

4.1 Adjusting the Pump Output - Standard Model

The C-1500N flow rate can be adjusted within a range of 5% -100% of maximum output (20:1 turn-down ratio) by means of a mechanical, cam type mechanism. The mechanism adjusts the pump's stroke length to an infinite number of settings within the flow range. Because the pump's output is reduced by increasing the pressure of the system being injected into, the amount of suction lift, and the viscosity of the fluid being injected, the pump must be over-sized to allow for these factors. Sizing the pump to allow adjustment within the midrange is preferred to maintain accuracy. Consult the factory for individual pump model output curve data.

To adjust the pump output:

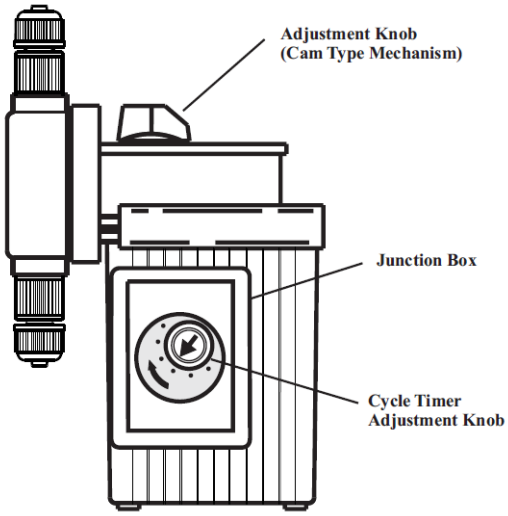
1. With the pump running, loosen the set screw.
2. Turn the adjustment knob to desired setting.
3. Re-tighten set screw.

4.2 Adjusting the Pump Output - Deluxe Model (discontinued)

Note: Deluxe models are no longer manufactured. In addition to the cam type mechanism adjustment (section 4.1), the pump output of the C-1500N deluxe unit equipped with an optional electronic cycle timer board can also be fine tuned by adjusting the timer adjustment knob. The total-time cycle is factory preset and is not user adjustable. The on-time cycle is adjustable from 5% to 100% of the total cycle time. Example: If the total-time cycle is 5 seconds and the on-time cycle is adjusted for 20 percent, the pump will run for 1 second and turn off for 4 seconds (5 second total cycle). This cycle is repeated until either the cycle time is changed or the input power is disconnected from the pump.

To adjust the On-Time:

1. Turn the timer adjustment knob located on the junction box.
2. Clockwise increases the time on.



5.0 Operation

Once the pump has been installed and wired properly, it can be put into operation. Be sure you are familiar with all control features before using the pump. Ensure the pump is connected to proper power source. As soon as pump is powered on, it is ready to be run. There is no power on/off switch.

Caution: If the last time the pump was run and power was disconnected, the next time the pump is powered on it will resume operating in same state when powered off.

5.1 Priming the Pump

Before calibrating the pump or putting the pump into operation, the pump will need to be primed. Priming the pump consists of initial pumping of solution into the pump and to the desired injection point. Ensure suction line is properly installed with foot valve (as needed), and ensure suction connection to pump is proper and air tight. Pump will not prime if there is a leak in the suction line.

Set stroke length to maximum setting. If possible, allow discharge to feed into zero pressure by feeding into bucket or back into feed tank - this will allow for the quickest priming. Use 3-way or multi-function valve, if installed.

Turn on pump and observe solution flow into pump filling the discharge. Now adjust valve, or reconnect the discharge line to the injection point. Pump is now ready for service.

5.2 Calibration / Volumetric Test

To ensure the most accurate pumping, a pump calibration is recommended prior to operating the pump, or whenever parts are replaced or system conditions change. The actual pump flow rate will vary depending on the suction/discharge line conditions and solution variables. Calibrate the pump with actual discharge line pressure and conditions.

To calibrate the pump:

1. Obtain a calibration column or similarly precise solution container.
2. Place suction line/ foot valve in calibration column, or connect suction tubing to draw from the calibration column and connect discharge tubing to discharge into actual piping, or use back-pressure valve and pressure gauge to simulate actual pumping conditions.
3. Start the pump and continue pumping to the point where solution is discharging beyond pressure point.
4. Fill calibration column and measure/note amount of solution in the column.
5. Run the pump and allow the pump to flow for the 1 minute period. (Alternately, the pump can be calibrated at any speed or time duration, as long as speed and time are recorded properly.)
6. Record the flow difference in the calibration cylinder.
7. Calculate the flow rate by dividing the flow by the time. For example, if the pump runs for 1 minute, and the flow difference is 30 ml, then divide 30ml by 1 minute. The flow rate is 30 ml/min at the calibrated pump speed.
8. For best accuracy, run more than one calibration to check results, or run another calibration at a different pump speed.

Calibration results should be similar to the flow rating for the pump, but can vary depending on chemical composition, discharge pressure, viscosity, temperature, elevation, and other conditions.

6.0 Maintenance

Prior to service, pump clean water (or other appropriate neutral solution) through the pump to remove chemical.

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 solution being pumped. Refer to SDS warnings from chemical manufacturer.

6.1 Routine Inspection and Maintenance

The pump requires very little maintenance. However, the pump and all accessories should be checked weekly. This is especially important when pumping chemicals. Inspect all components for signs of leaking, swelling, cracking, discoloration or corrosion. Replace worn or damaged components immediately.

Cracking, crazing, discoloration and the like during the first week of operation are signs of severe chemical attack. If this occurs, immediately remove the chemical from the pump. Determine which parts are being attacked and replace them with parts that have been manufactured using more suitable materials. The manufacturer does not assume responsibility for damage to the pump that has been caused by chemical attack.

6.2 How to Clean the Pump

The pump will require occasional cleaning. Primarily areas of concern are the ball checks, strainers, and injection fittings. The frequency will depend on the severity of service.

- Inspect and replace pump head ball check valves as required.
- Periodically clean the injection/check valve assembly, especially when injecting fluids that calcify/precipitate such as sodium hypochlorite. These deposits and other build ups can clog the fitting, increase the back pressure and interfere with the check valve operation.
  Instructional video here www.youtube.com/watch?v=CZsbeRuwwpU
- Periodically clean the suction strainer.
- Periodically inspect all pump connections and fittings for leaks. No leaks should be present. A leak indicates that a component is faulty and needs to be replaced or cleaned. Do not ignore leaks.
- Replace old O-rings and tighten all fittings and pump head according to maintenance instructions. Clean if necessary.
- Periodically inspect the air vents located under the motor compartment and under the pump head. Clean if necessary.

6.3 How to Replace the Pump Ball Checks and Diaphragms

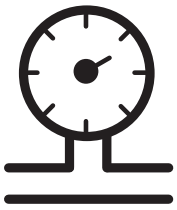
Diaphragm replacement may be necessary after a period of use. Pump diaphragms are designed to last the life of the pump when operated properly, however certain operating conditions and chemicals may necessitate eventual replacement. Note all maintenance events by date, and contact the factory if any questions arise regarding application conditions and typical life span of parts.

Remove the existing diaphragm

Warning - remove all system pressure before servicing the pump!

Required Tools: Safety glasses, gloves, torque screwdriver, cleaning solution, clean rag, small bucket or catch pan, and Q-tips.

Tip! When replacing diaphragms, we strongly recommend replacing ball checks and all O-rings. All parts are available in the spare parts pages.



0 PSI

1. Remove all pressure from the system before servicing pump. If possible, flush and drain pump. Note there will always be trace amounts of fluid in the pump head and manifolds when servicing. Wear gloves and proper safety gear at all times.
2. Disconnect tubing from the discharge and suction.
3. If desired, remove the ball check cartridges. Be careful to keep all pieces together, and note position of arrows on cartridges. Inspect and clean thoroughly or replace as necessary. Place cartridges to the side.
4. Remove pump head cover. Remove pump head by unscrewing the pump head screws. Pull out the pump head. Keep all parts together.
5. When removing the diaphragm, run the pump so the diaphragm is extended to furthest outward point. This will make removal easiest. Unscrew the diaphragm counterclockwise. **Use caution when servicing with power connected.**
6. Clean the pump head. Also clean pump head mount and housing. Ensure no chemical has entered pump head mount screw holes.
7. Install new diaphragm by screwing on slowly. When re-installing pump head, run the pump slowly so the diaphragm is fully pulled to back into the pump. This will allow for easier installation and prevent leaks.
8. Install the pump head screws. Install and tighten screws using a star pattern for uniform tightening. Over-tightening on one side of the diaphragm may cause leaks. Final tightening each screw to 15 in-lbs using a torque screwdriver. (it is recommended to check screws and torque after 1-2 hours of operation, as materials may soften or shift during break-in period.)
9. Re-install ball check cartridges **(Replace any O-rings if they show signs of degradation.)**
10. Re-connect piping/tubing to pump. Double check tightness of all fittings and screws before operation.

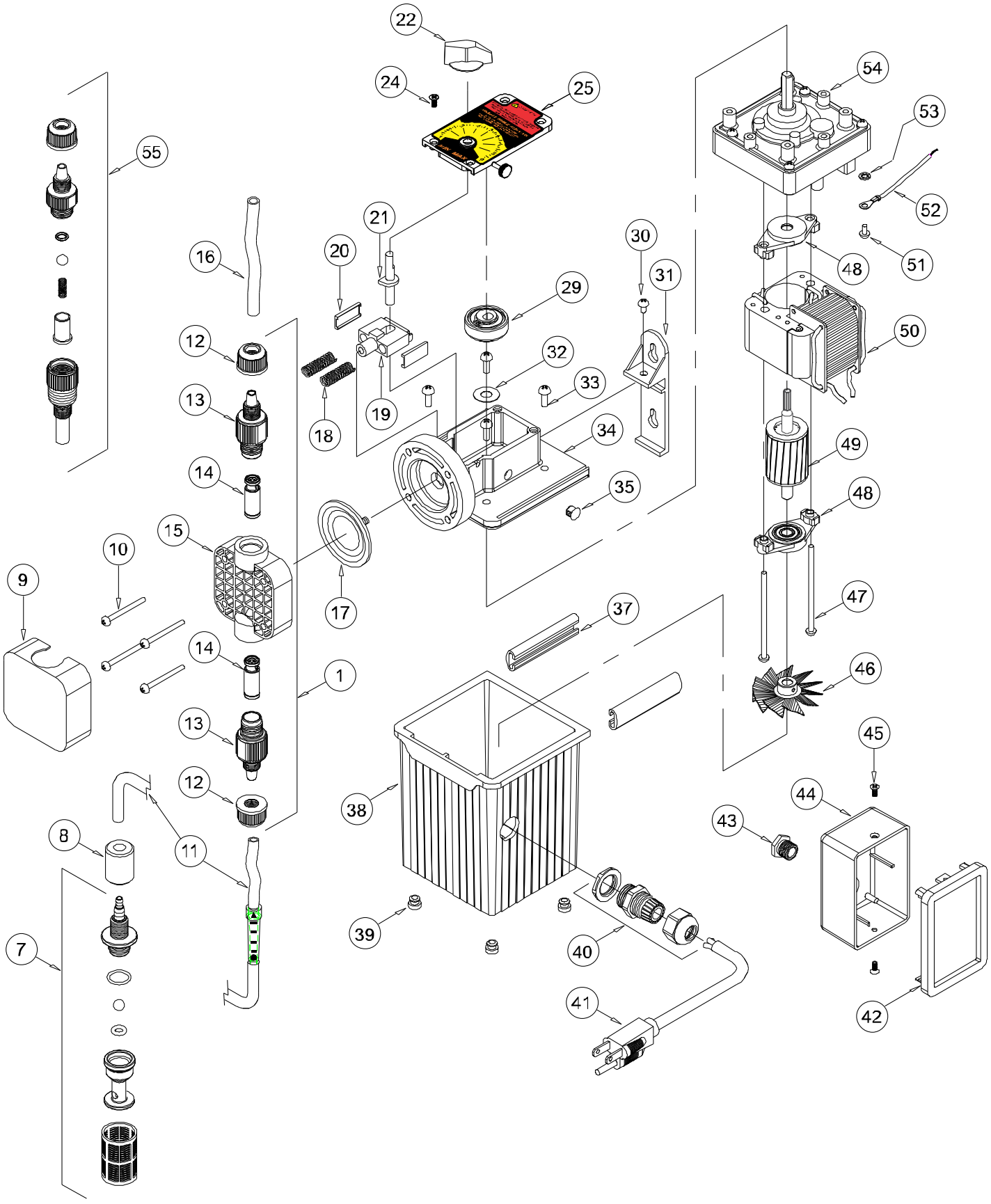
7.0 Parts and Accessories

7.1 Replacement Parts List

Item	Model No.	Product Name	Qty.
1*	C-535A6-6	Pumphead Kit, Lg HDN FKM	1
	C-535A6-6E	Pumphead Kit, Lg HDN EP	1
	S-535A6-6	Pumphead Kit, Sm HDN FKM	1
	S-535A6-6E	Pumphead Kit, Sm HDN EP	1
	*** Pumphead Kits include pumphead, cover, screws, cartridge bullets, adapters, and tubes nuts.**		
7	C-340A	Foot Valve S/A, Aflas	1
	C-340E	Foot Valve S/A, EP	1
	C-345A	Foot Valve, Bulkhead Mount, FKM	1
	C-345E	Foot Valve, Bulkhead Mount, EP	1
8	C-346	Ceramic weight	1
9	C-535FC	Cover P/Head, HD CHEM-FEED logo	1
	C-535F	Cover P/Head, HD Noir logo	1
	S-535F	Cover P/Head, HD Micro logo	1
10	C-504HD	Screw 10-32 x 1.25	4
11	70000-638	Tube Indicator Glass 3/8 x 5 FT	1
	C-334-4	Tube Suction 1/4 x 5 FT	1
12	C-330-4	Tube Nut, .25T, PVDF	2
	C-330-6	Tube Nut, .37T, PVDF	2
13	C-560-4E	Adapter S/A Bullet .25T EP	2
	C-560-4V	Adapter S/A Bullet .25T FKM	2
	C-560-6A	Adapter S/A Bullet .37T AFLAS	2
	C-560-6E	Adapter S/A Bullet .37T EP	2
	C-560-6V	Adapter S/A Bullet .37T FKM	2
14	71000-392	Cart Bullet Double AFLAS PVDF	2
15	C-535V	Pumphead, Lg, PVDF	1
	S-535V	Pumphead, Sm, PVDF	1
16	C-335-6	Tubing D/Charge, 3/8 x 5 FT	1
	C-335-4	Tubing D/Charge, 1/4 x 5 FT	1
17	C-406VT-15N	Diaphragm S/A 2.0 15N, FKM/TFE	1
	C-406T-15N	Diaphragm S/A 2.0 15N, EP/TFE	1
	R-106VT-15N	Diaphragm S/A 1.6 15N, FKM/TFE	1
	R-106T-15N	Diaphragm S/A 1.6 15N, EP/TFE	1
18	C-1514N	Return Spring	2
19	C-1513N	Stirrup w/Slide Bearing	1
20	C-1504	Slide Bearing	2
21	C-1505N	Offset Cam #1 .125”	1
	R-1505N	Offset Cam #2 .055”	1
	C-1505N-3	Offset Cam #3 .187”	1
22	C-1502	Dial Knob	1
24	90011-168	Screw #6 x .62 PH oval ‘A’	4
25	C-1503N-3	Top Cover Assembly with bearing	1
29	C-1507A	Drive Cam S/A #1 .125”	1
	R-1507A	Drive Cam S/A #2 .055”	1
	C-1507-3A	Drive Cam S/A #3 .187”	1

Item	Model No.	Product Name	Qty.
30	C-624N	Screw 10-32 x .50 PHL PAN	1
31	90002-106	Bracket Wall Mount	1
32	90011-014	Spacer, Rotor	1
33	C-624N	Screw 10-32 x .50 PHL PAN	4
34	C-1501N	Motor Mount, Large Diaphragm	1
	C-1501N-S	Motor Mount, Small Diaphragm	1
35	90008-138	Plug .312 Hole Black	1
36	90006-597	Gasket, Motor Mount	1
37	C-628NG	Slide Clamp	2
38	90002-212	Motor cover for power cord models	1
	C-1508PN-2	Motor cover for junction box models	1
39	C-1517	Bumper Feet	4
40	A-033N	Connector Liq-Tite w/nut	1
41	C-1523UL	Cord 18/3 SJTW/A 115V, U.S., NEMA 5/15 plug	1
	90010-196	Cord 18/3 SJTW/A 220V, Euro, CEE 7/VII(A)plug	1
	C-823-230	Cord 18/3 SJTW/A 230V, U.S., NEMA 6/15 plug	1
42	C-052	Cover, Junction Box with Gasket and Label	1
43	C-649	Bushing, Junction Box Connector, Alum.	1
44	76000-522	Junction Box, Valox	1
45	F-7013	Screw, Cover, 6-32 X .25 Phil Pan SS Black	2
46	90006-603	Fan, 1.75” Diameter, Alum.	1
47	C-625	Screw, Motor, 8-32 X 2.5” Phillips Steel	2
48	C-612PB	Bearing Bracket With Bearing	2
49	C-616PN	Rotor Assembly With Shaft and Spacers	1
50	C-615P-1	Stator S/A 115v/60hz, Blue-Black (Lead Wires)	1
	C-615P-2	Stator S/A 230v/60hz, Red-Black (Lead Wires)	1
	C-615P-3	Stator S/A 220v/50hz, Brown-Blue (Lead Wires)	1
	C-615P-4	Stator S/A 24v/60hz, Blue-White (Lead Wires)	1
	C-615P-5	Stator S/A 24v/50hz, White-White (Lead Wires)	1
	C-615P-6	Stator S/A 230v/60hz, Red-Yell (Lead Wires) Therm Prot.	1
	C-615P-8	Stator S/A 220v/50hz, Brown-Yell (Lead Wires) Therm Prot	1
	C-615P-9	Stator S/A 115v/60hz, Blue-Yell (Lead Wires) Therm Prot	1
	C-615P-10	Stator S/A 240v/50hz, Orange-Yell (Lead Wires) Therm Prot	1
51	90011-024	Ground Screw 8-32 x .25 Hex SL ST	1
52	90010-127	Lead Wire, ground, Green	1
53	90011-078	Washer, Ground Screw, #8 Intrl/Star	1
54	C-618N-14	Gearbox, 14 RPM	1
	C-618N-30	Gearbox, 30 RPM	1
	C-618N-45	Gearbox, 45 RPM	1
	C-618N-60	Gearbox, 60 RPM	1
	C-618N-125	Gearbox, 125 RPM	1
	C-618N-250	Gearbox, 250 RPM	1
55	C-395N-6A	Injection Valve S/A 37T FKM 6 PSI	1

7.2 Replacement Parts Drawing



7.3 Accessories

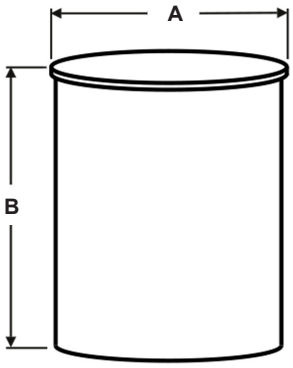
CHEMICAL TANK

Tank System

> Polyethylene single wall tank
> U.V. inhibitors for sunlight protection
> The tank has extra heavy wall thickness for stability
> Includes volume graduation marks

Dimensions

	ST-15	ST-30	ST-50
	15 Gallon Tank	30 Gallon Tank	50 Gallon Tank
A	14.13” (35.8 cm)	18.50” (46.9 cm)	22.50” (57.1 cm)
B	23.63” (60.0 cm)	28.38” (72.0 cm)	33.38” (84.7 cm)
SHIP WT	11 lb. (5.0 kg)	16 lb. (7.30 kg)	23 lb. (10.40 kg)
TANK W/LID	ST-15	ST-30	ST-50



C-1500 STAR TANK

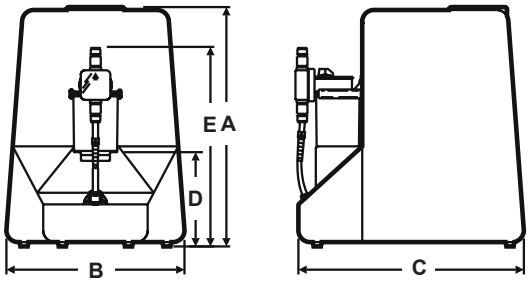
Tank System

Note: C-1500 Pump Sold Separately.

> Includes flow indicator and all necessary accessories
> Polyethylene tank with U.V. inhibitors for sunlight protection
> The tank has extra heavy wall thickness for stability
> Convenient rectangular shape
> Flooded suction assists in priming
> Raised off the floor for easy wash down

Dimensions

	STAR-7 7 Gallon Tank	STAR-15 15 Gallon Tank	STAR-30 30 Gallon Tank
A	17.5” (44.5 cm)	22” (56 cm)	27” (69 cm)
B	12” (30.5 cm)	15.5” (39 cm)	20” (51 cm)
C	16” (41 cm)	19.5” (50 cm)	24” (61 cm)
D	7.8” (19.7 cm)	7.8” (19.7 cm)	7.8” (19.7 cm)
E	17” (43 cm)	17” (43 cm)	17” (43 cm)
KIT SHIP WT	19 lb. (9 kg)	28 lb. (13 kg)	36 lb. (16 kg)
TANK ONLY	11 lb. (5 kg)	20 lb. (9 kg)	28 lb. (13 kg)



TUBING

Cat. No.	Description
TUBING	
C-334-6	Tubing, Suction, clear PVC 3/8” OD x 5 ft length
C-334-6-10	Tubing, Suction, clear PVC 3/8” OD x 10 ft length
C-334-6-25	Tubing, Suction, clear PVC 3/8” OD x 25 ft length
C-334-6-100	Tubing, Suction, clear PVC 3/8” OD x 100 ft length
C-335-6	Tubing, Discharge, polyethylene, 3/8” OD x 5 ft length
C-335-6-10	Tubing, Discharge, polyethylene, 3/8” OD x 10 ft length
C-335-6-25	Tubing, Discharge, polyethylene, 3/8” OD x 25 ft length
C-335-6-100	Tubing, Discharge, polyethylene, 3/8” OD x 100 ft length

INJECTION VALVES

Injection valves are used to ensure consistent injection of chemical into water lines. They contain ball checks to prevent back-flow, and springs to prevent siphoning into non-pressurized systems.

Cat. No./ Part No.	Description
A-014N-6A	Injection Valve, for 3/8” OD Tubing, Aflas/FKM, PP body, 1/2 psi
A-014N-6E	Injection Valve, for 3/8” OD Tubing, EP, PP body. 1/2 psi
A-014PN-6A	Injection Valve, for 3/8” OD Tubing, Aflas/FKM, PP body, 1/2 psi (short depth)
A-014PN-6E	Injection Valve, for 3/8” OD Tubing, EP, PP body. 1/2 psi (short depth)
A-014NK-6A	Injection Valve, for 3/8” OD Tubing, Aflas/FKM, PVDF body, 1/2 psi
A-014NK-6E	Injection Valve, for 3/8” OD Tubing, EP, PVDF body, 1/2 psi
A-014NK-6A-T	Injection Valve, for 3/8” OD Tubing,Aflas/FKM,PVDF body, 1/2 psi (PTFE Ball)
C-395N-6A	Injection Valve, for 3/8” OD Tubing, Aflas/FKM, PP body, 6 psi
C-395N-6E	Injection Valve, for 3/8” OD Tubing, EP, PP body. 6 psi
C-395PN-6A	Injection Valve, for 3/8” OD Tubing, Aflas/FKM, PP body, 6 psi (short depth)
C-395PN-6E	Injection Valve, for 3/8” OD Tubing, EP, PP body. 6 psi (short depth)
C-395NK-6A	Injection Valve, for 3/8” OD Tubing, Aflas/FKM, PVDF body, 6 psi
C-395NK-6E	Injection Valve, for 3/8” OD Tubing, EP, PVDF body, 6 psi
C-395NK-6A-PTFE	Injection Valve, for 3/8” OD Tubing, Aflas/FKM, PVDF body, 6 psi (PTFE Ball)

8.0 Troubleshooting

Common Issues

Air is entering the pump. Check suction lines to make sure all connections are tight. Check the level of the chemical tank. Remove obstructions and clean strainers.

Pump is not accurate. Check the suction line and clean the strainer. Check for obstructions in suction lines, discharge lines, and injectors. Check the condition of the pump ball checks. Ensure ball checks are clean seating properly. Replace as necessary. (See Spare Parts)

Solution is leaking from the top or bottom fittings/connectors. Check to ensure o-rings are present and seated properly. Replace O-rings, as necessary. Check tubing connections and tighten them as necessary. Check to make sure all checks are installed properly.

Pump does not prime. Check suction lines to make sure all connections are tight. Check the level of the chemical tank. Remove obstructions and clean strainers. Increase stroke length. Relieve discharge pressure before priming.

Motor runs but there is no output. Check suction lines to make sure all connections are tight. Check the level of the chemical tank. Clean ball checks. Clear air from pump. Solution viscosity to high for pump speed.

Motor hums but does not turn. Check incoming voltage against rate pump voltage. Check gearbox connection. Replace motor. Check discharge pressure or blockages in discharge line.

Electrical

The pump will not power up. Check power source or try a different power source. Check to ensure the power cable is properly wired.

9.0 System

About the C-1500N Pump

The C-1500N Pump is designed to be simple and easy to operate. The pump comes pre-tested and is ready to use. Adjustment must be made mechanically to achieve the desired flow rate. Older units may incorporate a timer dial. This system can be removed, if desired.

Alternate cams may be used to change flow rate range on existing pumps. Motors can also be changed to achieve alternate motor speeds. Consult factory for options.

Contact customer service for further details.

10.0 Warranty

LIMITED WARRANTY
Your Blue-White product is a quality product and is warranted for a specific time from date of purchase (proof of purchase is required). The product will be repaired or replaced at our discretion. Failure must have occurred due to defect in material or workmanship and not as a result of operation of the product other than in normal operation as defined in the product manual. Warranty status is determined by the product's serial label and the sales invoice or receipt. The serial label must be on the product and legible. The warranty status of the product will be verified by Blue-White or a factory authorized service center.

CHEM-FEED® C-1500N Pumps are warranted for 1 year from date of purchase (proof of purchase is required). Pumps will be repaired or replaced at our discretion.

WHAT IS NOT COVERED

- Wear parts.
- Pump removal, or re-installation, and any related labor charge.
- Freight to the factory, or service center.
- Products that have been tampered with, or in pieces.
- Damage resulting from misuse, carelessness such as chemical spills on the enclosure, abuse, lack of maintenance, or alteration which is out of our control.
- Damage by faulty wiring, power surges or acts of nature.

BLUE-WHITE does not assume responsibility for any loss, damage, or expense directly or indirectly related to or arising out of the use of its products. Failure must have occurred due to defect in material or workmanship and not as a result of operation of the product other than in normal operation as defined in the pump manual.

PROCEDURE FOR IN WARRANTY REPAIR
Warranty service must be performed by the factory or an authorized service center. Contact the factory or local repair center to obtain a RMA (Return Material Authorization) number. It is recommended to include foot strainer and injection/check valve fitting since these devices may be clogged and part of the problem. Decontaminate, dry, and carefully pack the product to be repaired. Please enclose a brief description of the problem and proof of purchase. Prepay all shipping and insurance cost. COD shipments will not be accepted. Damage caused by improper packaging is the responsibility of the sender. When In-Warranty repair is completed, the factory pays for return shipping to the dealer or customer.

PRODUCT USE WARNING
Blue-White products are manufactured to meet the highest quality standards in the industry. Each product instruction manual includes a description of the associated product warranty and provides the user with important safety information. Purchasers, installers, and operators of Blue-White products should take the time to inform themselves about the safe operation of these products. In addition, Customers are expected to do their own due diligence regarding which products and materials are best suited for their intended applications. BLUE-WHITE is pleased to assist in this effort but does not guarantee the suitability of any particular product for any specific application as Blue-White does not have the same degree of familiarity with the application that the customer/end user has. While BLUE-WHITE will honor all of its product warranties according to their terms and conditions, Blue-White shall only be obligated to repair or replace its defective parts or products in accordance with the associated product warranties.

BLUE-WHITE SHALL NOT BE LIABLE EITHER IN TORT OR IN CONTRACT FOR ANY LOSS OR DAMAGE WHETHER DIRECT, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL, ARISING OUT OF OR RELATED TO THE FAILURE OF ANY OF ITS PARTS OR PRODUCTS OR OF THEIR NON-SUITABILITY FOR A GIVEN PURPOSE OR APPLICATION.

CHEMICAL RESISTANCE WARNING
BLUE-WHITE offers a wide variety of wetted parts. Purchasers, installers, and operators of Blue-White products must be well informed and aware of the precautions to be taken when injecting or measuring various chemicals, especially those considered to be irritants, contaminants or hazardous. Customers are expected to do their own due diligence regarding which products and materials are best suited for their applications, particularly as it may relate to the potential effects of certain chemicals on Blue-White products and the potential for adverse chemical interactions. Blue-White tests its products with water only. The chemical resistance information included in this instruction manual was supplied to BLUE-WHITE by reputable sources, but Blue-White is not able to vouch for the accuracy or completeness thereof. While BLUE-WHITE will honor all of its product warranties according to their terms and conditions, Blue-White shall only be obligated to repair or replace its defective parts or products in accordance with the associated product warranties.

BLUE-WHITE SHALL NOT BE LIABLE EITHER IN TORT OR IN CONTRACT FOR ANY LOSS OR DAMAGE, WHETHER DIRECT, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL, ARISING OUT OF OR RELATED TO THE USE OF CHEMICALS IN CONNECTION WITH ANY BLUE-WHITE PRODUCTS.

Users of electrical and electronic equipment (EEE) with the WEEE marking per Annex IV of the WEEE Directive must not dispose of end of life EEE as unsorted municipal waste, but use the collection framework available to them for the return, recycle, recovery of WEEE and minimize any potential effects of EEE on the environment and human health due to the presence of hazardous substances. The WEEE marking applies only to countries within the European Union (EU) and Norway. Appliances are labeled in accordance with European Directive 2002/96/EC. Contact your local waste recovery agency for a Designated Collection Facility in your area.

AUTHORIZED SERVICE CENTERS

To find an authorized service center near you, please call Blue-White Industries at (714) 893-8529 or e-mail us at customerservice@blue-white.com

NOTES:

Blue-White®

Fluid metering solutions made simple

Regulatory Information

Users of electrical and electronic equipment (EEE) with the WEEE marking per Annex IV of the WEEE Directive must not dispose of end of life EEE as unsorted municipal waste, but use the collection framework available to them for the return, recycle, recovery of WEEE and minimize any potential effects of EEE on the environment and human health due to the presence of hazardous substances.

The WEEE marking applies only to countries within the European Union (EU) and Norway. Appliances are labeled in accordance with European Directive 2002/96/EC.

Contact your local waste recovery agency for Designated Collection Facility in your area.

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