Blue-White®

CHEM-FEED®

DIAPHRAGM INJECTOR

MODEL C-600P & C-600HV

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1.0 Introduction

Congratulations on purchasing the C-600 positive displacement metering pump. The C-600 is designed to inject chemicals into piping systems. The pump has been tested by NSF International for use with 12 ½% Sodium Hypochlorite. All models are equipped with a top mounted mechanical flow rate adjustment knob. Optional on/off cycling timers are available.

2.0 Specifications

Maximum Working Pressure.....125 psig / 8.6 bar* (C-600P)
20 psig / 1.37 bar* (C-600HV)
Maximum 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
Enclosure.....Zinc - Metal
Duty Cycle.....Continuous
Maximum Viscosity.....1,000 Centipoise
Maximum Suction Lift.....up to 10 ft. water
Power Requirements.....115V60Hz 45 Watts (0.74A max.)
220V50Hz 45 Watts (0.31A max.)
230V60Hz 45 Watts (0.36A max.)
24V60Hz 45 Watts (3.4A max.)
12VDC (3A max.)
24VDC (1.5A max.)
Dimensions.....6-1/2" H x 6-1/2" W x 5-3/4" D (C-600P)
7"H x 6-3/4" W x 6-1/8" D (C-600HV)
Weight.....8 lb.

*Depending on Model number. Refer to pump curves for exact flow/pressure.

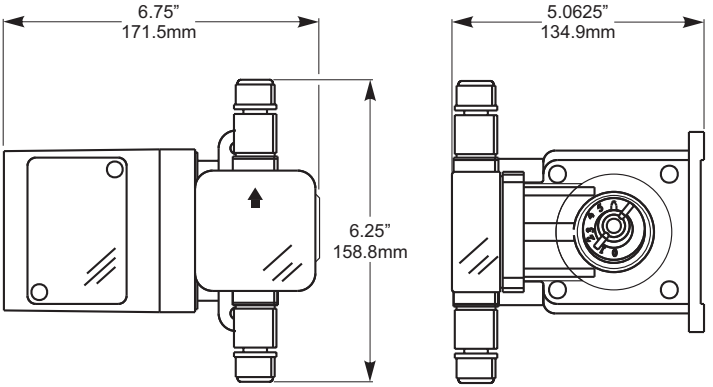
3.0 Features

- Double-ball ceramic check valves.
- PVDF (Kynar) valve assemblies.
- Aflas o-rings.
- High outlet pressure capability of 125 PSIG.*
- Easy access, side mounted mechanical feed rate adjustment.
- Ball bearing supported motor drive shaft.
- Permanently lubricated ball bearing motor.
- 27:1 adjustment turn down ratio.
- Easy servicing.
- Includes suction tube foot valve & strainer, suction tube weight, suction tubing, discharge tubing and injection fitting with internal back-flow check valve and mounting hardware.

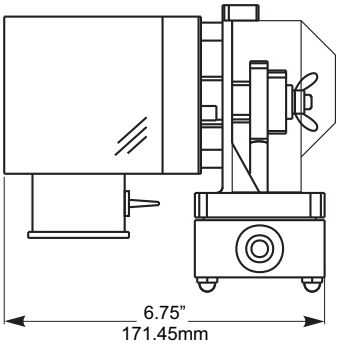
* most C-600P Models. C-600HV has max pressure rating of 20 PSIG

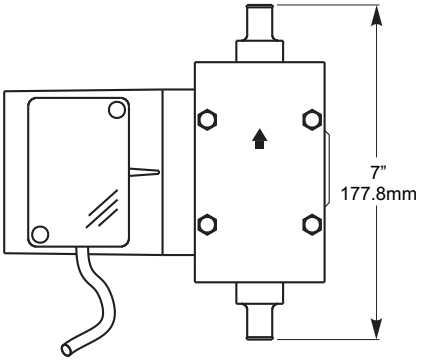
3.1 Pump Dimensions

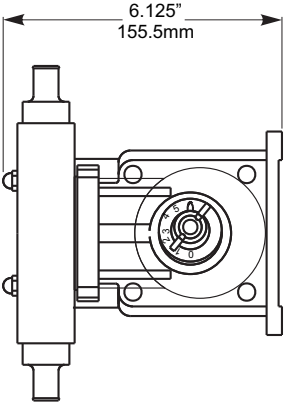
C-600P



C-600HV







4.0 How To Install the Metering Pump

CAUTION: PROPER EYE AND SKIN PROTECTION MUST BE WORN WHEN INSTALLING AND SERVICING THE PUMP.

CAUTION - TO PREVENT CHEMICAL OVERDOSING WHEN USED AS A POOL OR SPA CHLORINATOR, POWER MUST BE REMOVED FROM THIS PUMP DURING THE BACKWASH CYCLE AND DURING PERIODS OF NO FLOW IN THE RECIRCULATION SYSTEM.

Note: *All diagrams are strictly for guideline purposes only. Always consult an expert before installing the metering pump into specialized systems.*
The metering pump should be ***serviced by qualified persons only.***

4.1 Mounting Location

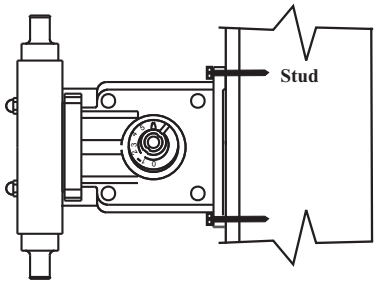
- Choose an area located near the chemical supply tank, chemical injection point and electrical supply. Install the pump where it can be easily serviced.
- Mount the pump to a secure surface or wall using the enclosed hardware. Wall mount to a solid surface only. Mounting to drywall with anchors is not recommended.
- Keep the outlet (discharge) tubing as short as possible. Longer tubing increases the back pressure at the pump head.
- Do not mount the pump directly over your chemical container. 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 can reduce the time required to prime the pump. Install a shut-off valve, pinch clamp or other means to halt the gravity feed to the pump during servicing.

CAUTION - TO ENSURE CHEMICAL DOES NOT SYPHON THROUGH THE PUMP, INSTALL THE INCLUDED SPRING-LOADED INJECTION CHECK-VALVE OR A SUITABLE ANTI-SYPHON VALVE.

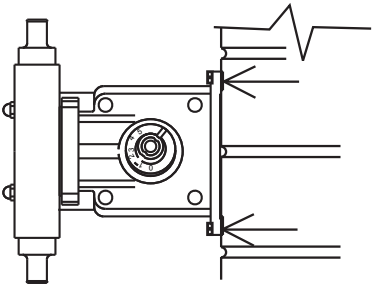
- Your solution tank should be sturdy. Keep the tank covered to reduce fumes.
- Be sure your installation does not constitute a cross connection with the drinking water supply. Check your local plumbing codes.

4.2 Typical Installation

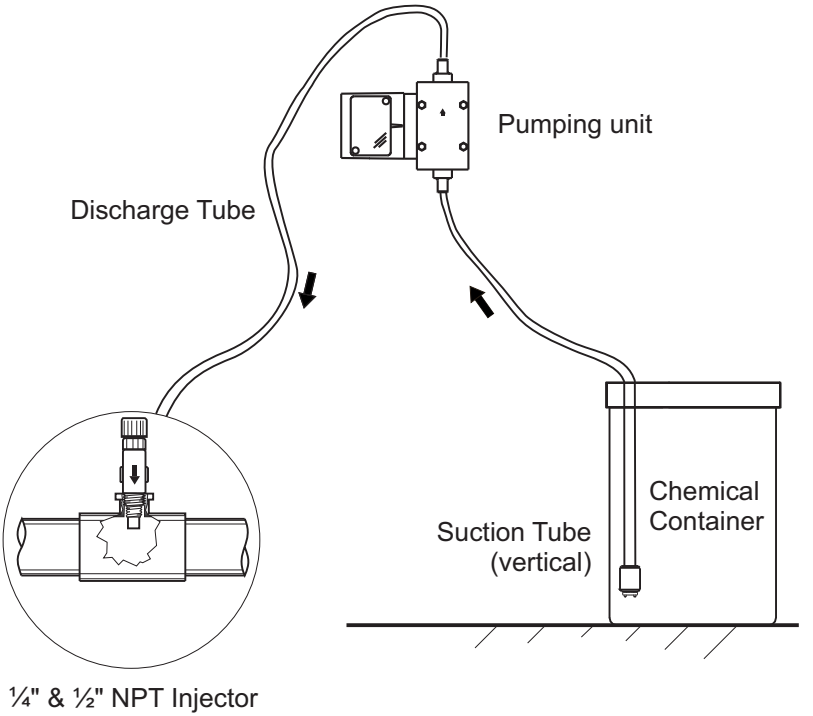
WALL MOUNTING



Stud Mount



Masonry



¼" & ½" NPT Injector

4.3 Electrical Connections

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.

POWER: 115V60Hz (0.74A max.), 220V50Hz (0.31A max.), 230V60Hz (0.36A max.), 24VAC/60Hz (3.4A max.), 12VDC (3A max.), 24VDC (1.5A max.)

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

The metering pump is supplied with a junction box for field wiring, except 220V models.

220V MODELS - Supplied with power cord wired to pump. No junction box.

JUNCTION BOX MODELS -To reduce the risk of electric shock, be certain that a grounding conductor is connected to the green grounding screw located in the junction box.

WARNING -RISK OF ELECTRICAL SHOCK

CAUTION - TO PREVENT CHEMICAL OVERDOSING WHEN USED AS A POOL OR SPA CHLORINATOR, CONNECT THE PUMP'S AC MAIN POWER TO THE SAME CIRCUIT AS THE CIRCULATION PUMP.

MOTOR LEADWIRES

INPUT VOLTAGE	HOT LEADWIRE	NEUTRAL LEADWIRE	GROUND LEADWIRE
115V 60Hz	BLACK or YELLOW*	BLUE	GREEN
220V 50Hz	BLUE or YELLOW*	BROWN	GREEN
230V 60Hz	BLACK or YELLOW*	RED	GREEN
24V 60Hz	BLUE*	WHITE	GREEN

* Yellow leadwire : thermally protected motor
Black or Blue leadwire: standard impedance protected motor

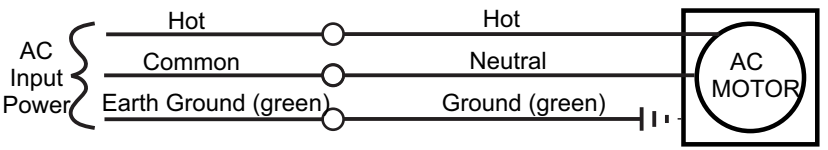


FIG. 4.5 WIRING DIAGRAM - STANDARD MODELS

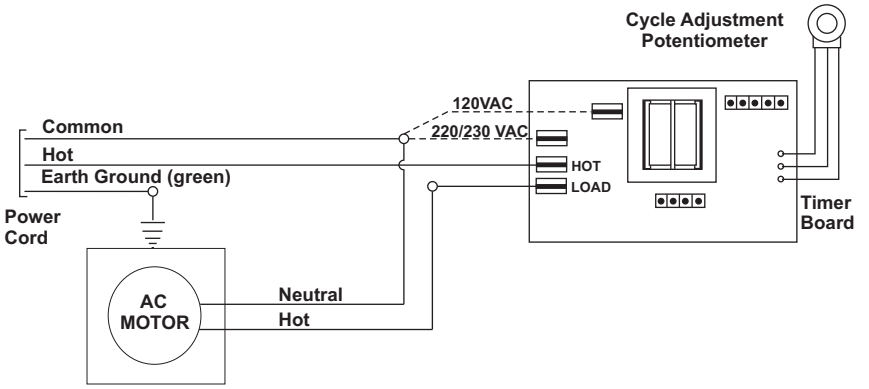


FIG. 4.6 WIRING DIAGRAM - FIXED TIMERS

4.4 How To Install the Tubing and Fittings

CAUTION: PROPER EYE AND SKIN PROTECTION MUST BE WORN WHEN INSTALLING AND SERVICING THE PUMP

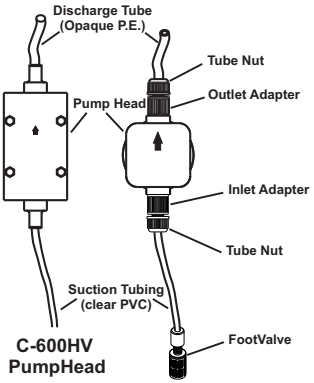
Inlet Tubing - Locate the inlet fitting of the pump head. Remove the tube nut. Push the clear PVC suction tubing onto the compression barb of the fitting. Use the tube nut to secure the tube. Hand tighten only.

Footvalve/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 footvalve 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 footvalve/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, Remove the tube nut. Push the rigid 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 . 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.



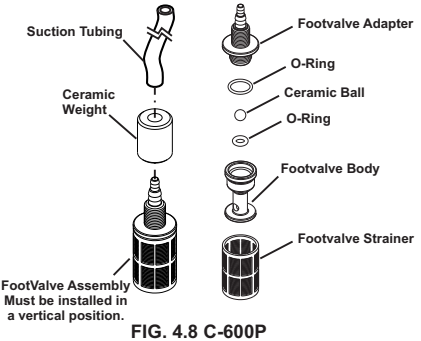
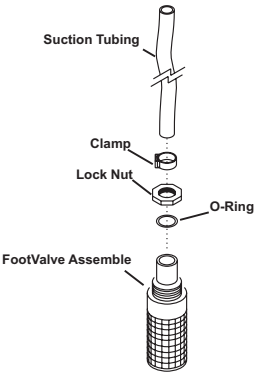


FIG. 4.8 C-600P
FootValve Assy.

4.5 Injection/Check Valve Fitting Installation - The Injection/Check valve fitting is designed to install directly into either 1/4" or ½" female pipe threads. This 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.

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.



C-600HV
FootValve Assy.

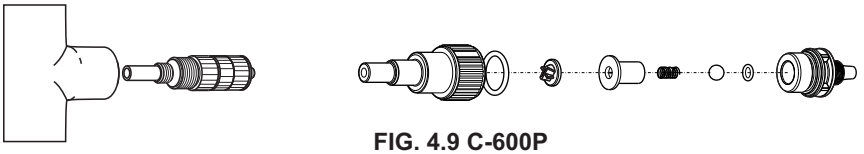


FIG. 4.9 C-600P
INJECTION/CHECK VALVE
TEE INSTALLATION AND EXPLODED VIEW

CAUTION - TO ENSURE CHEMICAL DOES NOT SYPHON THROUGH THE PUMP, INSTALL THE INCLUDED SPRING-LOADED INJECTION CHECK-VALVE OR A SUITABLE ANTI-SYPHON VALVE.

5.0 How To Operate The Pump

5.1 Adjusting the Pump Output

The flow rate can be adjusted within a range of approximately 10%-100% of maximum output (27:1 turndown ratio) by means of a mechanical, cam type mechanism. The mechanism adjusts the pump's stroke length to 1 of 27 settings within the flow range. The pump's output is affected by the pressure of the system , the amount of suction lift, and the viscosity of the fluid being injected into 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.

5.2 To adjust the pump output:

1. Make sure the pump is off before adjusting.
2. Loosen the wing nut.
3. Turn adjusting knob so the pointer is on the desired setting. *Note:* pump less chemical at first, then re-adjust.
4. While holding the knob, tighten the wing nut to keep the knob at the desired setting. *Note:* wing nut must be tight.

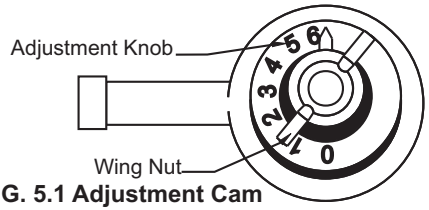


FIG. 5.1 Adjustment Cam

5.3 Priming The Pump

Each pump is factory tested with water. The test water is sealed in the pump head keeping the valves dry to aid in priming. If the valves have dried or priming is difficult due to back pressure, do the following:

1. Remove the opaque discharge tubing from the top valve fitting in the pumphead.
2. Remove the top and bottom valve fittings and immerse in water to wet the valves. Reinstall the fittings.
3. With the discharge tubing removed, start the pump. Stop the pump when the fluid enters the pumphead.
4. Attach the discharge tubing to the top valve fitting.
5. Be sure the footvalve/strainer is attached to the suction tubing and is installed in a vertical position.

If your installation is at high altitude, priming may be more difficult since the atmospheric pressure is decreased. When the suction line is dry, the diaphragm may not create enough pull. If this is the case, do the following:

1. Remove the clear suction tube from the bottom valve fitting and fill completely with water.
2. While the pump is running, attach the tube (filled with water) to the bottom valve fitting.
3. When the fluid enters the pumphead, place the foot valve in the solution tank.
4. Be sure the footvalve/strainer is attached to the suction tubing and is installed in a vertical position.

5.4 Measuring the Pump's Output - Volumetric Test.

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

1. Be sure the Injection Fitting and Footvalve/Strainer is clean and working properly.

2. With the injector installed under normal operating conditions, place the Footvalve/Strainer in a large graduated cylinder.

3. Fill the graduated cylinder with the solution to be injected and run the injector until all air is removed from the suction line and the solution enters the discharge tubing.

4. Refill the graduated cylinder, if necessary, and with the Footvalve completely submerged in the solution, note the amount of solution in the graduated cylinder.

5. Run the injector for a measured amount of time and note the amount of fluid injected. A longer testing time will produce more accurate results.

6.0 How to Maintain the Pump

CAUTION: PROPER EYE AND SKIN PROTECTION MUST BE WORN WHEN INSTALLING AND SERVICING THE METERING PUMP

6.1 Routine Inspection and Maintenance

The Pump requires very little maintenance. However, the pump and all accessories should be checked regularly. 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.

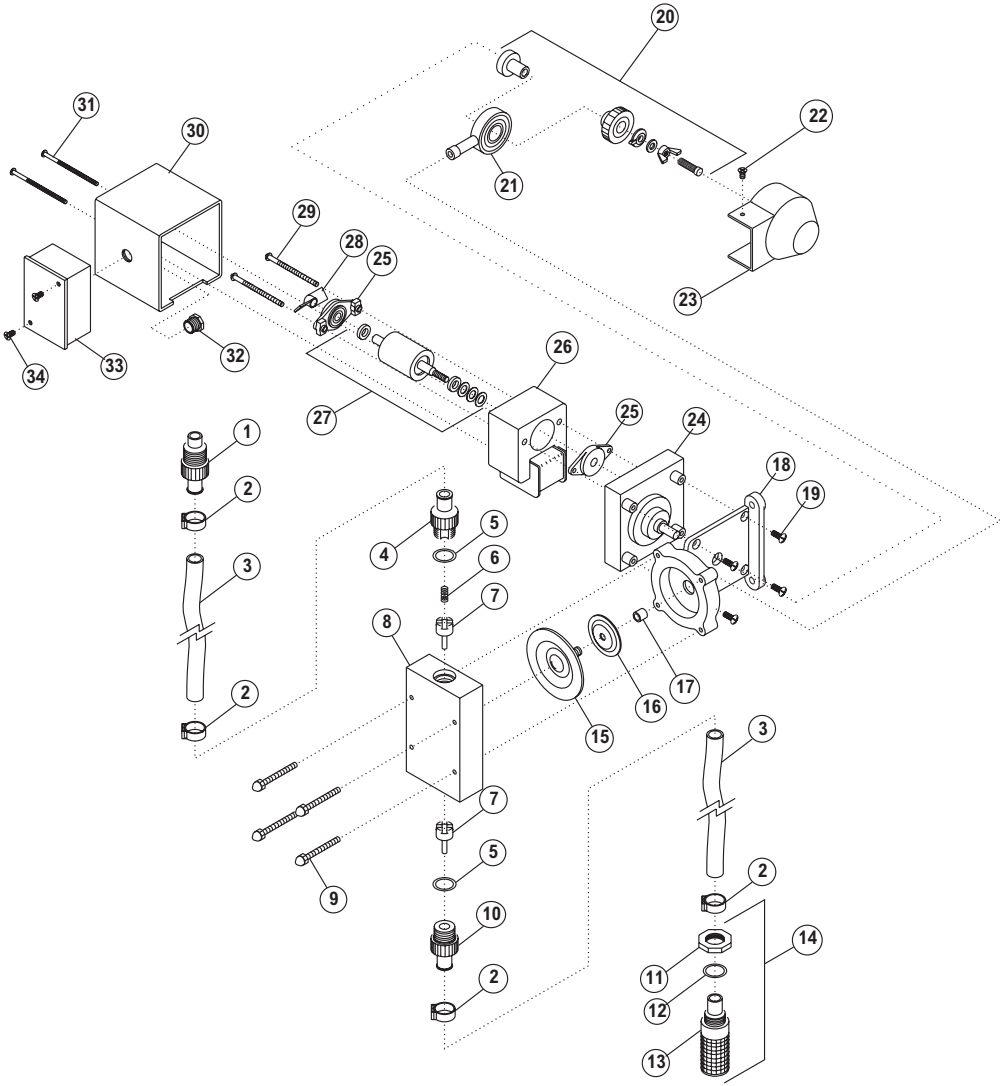
6.2 How to Clean the Pump

The Pump will require occasional cleaning, especially the Injection fitting, the Footvalve/Strainer, and the pump head valves. The frequency will depend on the type and severity of service. When changing the diaphragm, the pump head chamber and pump head cover should be wiped free of any dirt and debris. Periodically clean the injection/check valve assembly, especially when injecting fluids that calcify such as sodium hypochlorite. These lime deposits and other build ups can clog the fitting, increase the back pressure and interfere with the check valve operation. Periodically clean the suction strainer. Periodically inspect the air vents located on the back of the motor compartment and under the pump head. Clean if necessary.

8.0 C-600HV Parts List

	Catalog No.	Description	Amount Reqd.
1.	C-3391-10	Injection Fitting	1
2.	90008-042	Clamp	4
3.	C-334-10	Tubing 5/8" O.D. , 10 FT	1
4.	C-428-10	Top Adaptor, 5/8" Tube	1
5.	90003-607	O-ring (EP)	1
6.	90006-005	Spring	1
7.	C-926E	Check Valve (EP)	1
	C-926V	Check Valve (Aflas)	1
8.	C-3203N-1	Headblock (Clear)	1
9.	70000-434	Screw Assy, HV Phead (Screw 10-32X2 & Nut)	4
10.	C427-10	Bottom Adaptor, 5/8" Tube	1
11.	C-3345B	Lock Nut	1
12.	90003-607	O-ring	1
13.	C-3373-10	Foot Strainer	1
14.	C-3393-10	Combination Foot Strainer Bulkhead	1
15.	C-3106NE	Diaphragm (EP)	1
	C-3106NV	Diaphragm (Aflas)	1
16.	90006-526	Aluminum Backup Washer	1
17.	76000-514	H.V. Aluminum Spacer	1
18.	C-3301	Motor Mount	2
19.	C-624	Screw 10-32X1/2	4
20.	C-3325	Cam Set	1
21.	C-3304	Yoke and Bearing	1
22.	90011-155	Screw 6-32X3/8"	1
23.	90002-201	Cam Cover	1
24.	C-618P-60	Gearbox Assembly(60 RPM)	1
	C-618P-125	Gearbox Assembly(125 RPM)	1
	C-618P-250	Gearbox Assembly(250 RPM)	1
25.	C-612PB	Armature Bearing	2
26.	C-615P1	Motor Stator Assy (115V-60hz)	1
	C-615P2	Motor Stator Assy (230V-60hz)	1
	C-615P3	Motor Stator Assy (220V-50hz)	1
27.	70000-027	Rotor w/ Spacers	1
28.	C-612F	Armature Fan	1
29.	C-625	Motor Screw 8-32X2 3/4	2
30.	C-608P	Motor Cover (Zinc)	1
31.	C-628	Cover Screw 6-32 X 2 3/4	2
32.	90007-515	1/2" Aluminum Chase Nipple	1
33.	C-308J	Junction Box	1
34.	90011-052	Junction Box screw 8-32 X 5/16	2
N/S.	90010-110	Power Cord, US 115V plug	1
N/S.	90010-196	Power Cord, Euro 220V plug	1
N/S.	C-833	Connector, cord	1

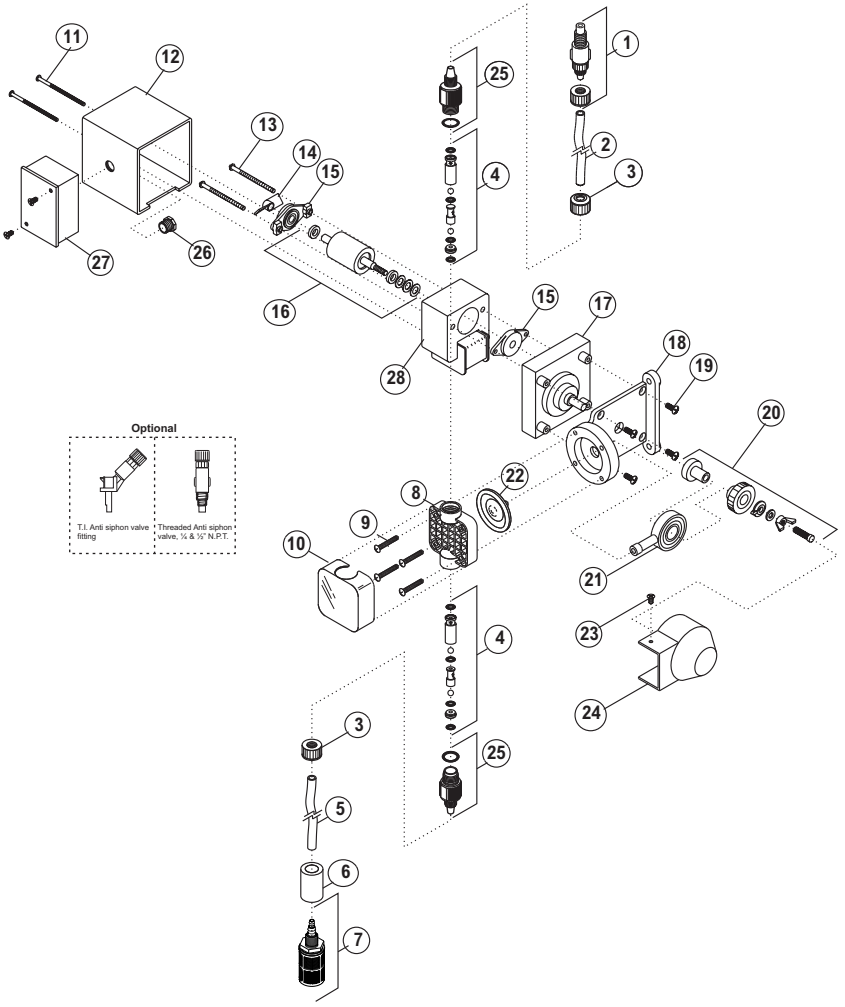
8.1 C-600HV Exploded View



9.0 C-600P Parts List

Catalog No.	Description	Amount Reqd.
1. C-395N-6A	Injection valve 6 PSI, Aflas	1
C-395N-6E	Injection valve 6 PSI, EP (optional)	1
2. C-335-6	Discharge Tubing 3/8 OD, 5ft. Opaque Poly-E	1
3. C-330-6	Tube Nut	2
4. K-568A-4	Bullet valve (double ball), Aflas, 4 pack set	2
K-568A-10	bullet valve (double ball), Aflas, 10 pack set	2
K-568E-4	Bullet valve (double ball), EP, 4 pack set (optional)	2
K-568E-10	Bullet valve (double ball), EP, 10pack set(optional)	2
5. C-334-6	Suction tubing 3/8' OD, 5ft. Clear PVC w/ indicator	1
6. C-346	Ceramic weight	1
7. C-340A	Foot valve / strainer Poly-Pro, Aflas	1
C-340E	Foot valve / strainer Poly-Pro, EP (optional)	1
8. C-535V	PVDF Pump Head, V Stamp	1
C-535E	PVDF Pump Head, EP Stamp	1
9. C-504HD	Screw, HD Pump head 10-32 x 1-1/4'	4
10. C-535FC	Pump head cover, Chem feed logo	1
11. C-628	Cover screw 6-32 x 2-3/4' Steel	2
12. C-608P	Motor Cover	1
13. C-625	Motor screw 8-32 x 2-1/2'	2
14. C-612F	Rotor Fan	1
15. C-612PB	Rotor Bearing	2
16. C-616PN	Rotor w/ Spacer	1
17. C-618P-14	Gearbox Assembly, 14 RPM	1
C-618P-30	Gearbox Assembly, 30 RPM	1
C-618P-45	Gearbox Assembly, 45 RPM	1
C-618P-60	Gearbox Assembly, 60 RPM	1
C-618P-125	Gearbox Assembly, 125 RPM	1
C-618P-250	Gearbox Assembly, 250 RPM	1
18. C-301	Motor Mount	1
19. C-624	Motor Mount Screw 10-32 x ½'	4
20. C-325	Cam S/A C-600	1
21. C-304	Yoke w/Bearings	1
22. C-406T	Diaphragm PTFE coated, EP	1
23. 90011-155	Screw 6-332 x 3/8'	1
24. 90002-201	Cam Cover	1
25. C-560-6E	Bullet Valve Adapter, EP O-ring	2
C-560-6V	Bullet Valve Adapter, FKM	2
26. 90007-515	½" Aluminum Chase Nipple	1
27. C-308J	Junction Box Complete w/Cover and Gasket	1
28. 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)	
C-615P-6	Stator S/A 230V/60Hz, red-yellow (lead wires)	1
C-615P-8	Stator S/A 220V/50Hz, brown-yellow (lead wires)	1
C-615P-9	Stator S/A 115V/60Hz, blue-yellow (lead wires)	1
C-615P-10	Stator S/A 240V/50Hz, orange-yellow (lead wires)	1
C-615P-11	Stator S/A 240V/50Hz, orange-white (lead wires)	1
N/S. 90010-110	Power Cord, US 115V plug	1
N/S. 90010-196	Power Cord, Euro 220V plug	1
N/S. C-833	Connector, cord	1

9.1 C-600P Exploded View



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-600 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

- **Wearable parts that require periodic replacement.**
- **Pump removal, or re-installation, and any related labor charge.**
- **Freight to the factory, or service center**
- **Pumps that have been tampered with, or in pieces.**
- **Damage to the pump that results from misuse, carelessness (such as chemical spills on the enclosure), abuse, lack of maintenance, or alteration that is out of Blue-White control.**
- **Pumps damaged 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 operation manual.

The warranty status is determined by the pump's serial label and the sales invoice or receipt. The serial label must be on the pump and be legible. The warranty status of the pump will be verified by Blue-White or a factory authorized service center.

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 NONSUITABILITY FOR A GIVEN PURPOSE OR APPLICATION.**

Limited Warranty (cont.)

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.

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

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Blue-White®

Fluid metering solutions made simple

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.

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