



## **XPV Peristaltic Pump Installation, Operation and Maintenance Manual**



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## 1. Introduction

Thank you for your purchase of the Chem-Tech Series XP peristaltic pump from Pulsafeeder. We appreciate your decision to purchase a Pulsafeeder product. Please take this time to become familiar with your pump and the number of accessories that shipped with your product.

The shipping box contains the following items:

- 1) Peristaltic pump comprising of: a) pump head and tube assembly, b) Clear polycarbonate splash guard with locking thumb screw, and c) Snap-on rear splash guard (this can be found in the sealed bag that shipped with the product).
- 2) Instruction Manual.
- 3) Factory Replacement tube
- 4) Suction and Discharge tubing set (15-feet of ¼-inch OD Polyethylene Tubing).
- 5) Injector Valve
- 6) Strainer w/ Ceramic Weight.

## 2. Safety Instructions

**READ AND UNDERSTAND ALL INSTRUCTIONS PRIOR TO USE.** Failure to follow or understand instructions can/may lead to serious injury or death.

**LISEZ ET COMPRENEZ TOUTES LES INSTRUCTIONS AVANT L'UTILISATION.**

L'échec de suivre ou comprendre les instructions causer la blessure sérieuse ou la mort.

- **WARNING:** Secure chemicals & metering pumps, making them inaccessible to children & pets.
- **AVERTISSEMENT:** les produits chimiques sûrs et les pompes mesurantes, en les faisant inaccessible aux enfants et aux animaux de compagnie.
- **WARNING:** DO NOT PUMP FLAMMABLE LIQUIDS.
- **AVERTISSEMENT:** NE POMPEZ PAS DE LIQUIDES INFLAMMABLES.
- **WARNING:** To reduce the risk of electrical shock-before maintenance, repair, or moving always disconnect the power to the pump by unplugging from wall outlet.
- **AVERTISSEMENT:** Pour réduire le risque de choc électrique - avant la maintenance, la réparation, ou déplaçant débranche toujours le pouvoir de la pompe en se non connectant de l'issue murale.
- **WARNING:** Do not tamper with, cut the plug or ground lug off the electrical cord. Consult a licensed electrician for proper installation.
- **AVERTISSEMENT:** ne tripotez pas, coupez la prise de courant ou la terre traînent de la corde électrique. Consultez un électricien agréé pour l'installation nécessaire.
- **WARNING:** Always wear protective clothing, including gloves and safety eye protection, when working on or near chemical metering pumps, consult chemical manufacture for protective equipment recommendations.
- **AVERTISSEMENT:** portez Toujours des vêtements protecteurs, en incluant des gants et une protection d'oeil de sécurité, en travaillant ou près des pompes mesurantes chimiques, consultez la fabrication chimique pour les recommandations d'équipement protectrices.
- **WARNING:** Always make sure the voltage on the pump data plate matches the installation voltage before plugging the pump into a wall outlet or hooking up to an electrical supply. If you are unsure have a licensed electrician inspect and install your pump.
- **AVERTISSEMENT:** assurez-vous Toujours que le voltage sur la plaque de données de pompe correspond au voltage d'installation avant le fait de brancher la pompe dans une issue murale ou le fait d'agrafer aux réserves électriques. Si vous êtes peu sûrs font inspecter un électricien agréé et installent votre pompe.
- **WARNING:** Always depressurize system and drain the chemical prior to installation or maintenance.
- **AVERTISSEMENT:** dépressurisez Toujours le système et égouttez le produit chimique avant l'installation ou de la maintenance.
- **WARNING:** Read and fully understand the section on tube replacement. Failure to do so may lead to serious injury.
- **AVERTISSEMENT:** Lisez et comprenez complètement la section sur le remplacement de tube. L'échec de faire ainsi peut causer la blessure sérieuse.
- **WARNING:** DO NOT MODIFY PUMP, as this poses a potentially dangerous situation and voids the warranty.
- **AVERTISSEMENT:** NE MODIFIEZ PAS DE POMPE, comme cela pose une situation potentiellement dangereuse et des vides la garantie.
- **WARNING:** If the injection point is lower than the chemical tank and pump, install an anti-siphon valve.
- **AVERTISSEMENT:** si le point d'injection est plus bas que le réservoir chimique et la pompe, installez une valve d'antisiphon.

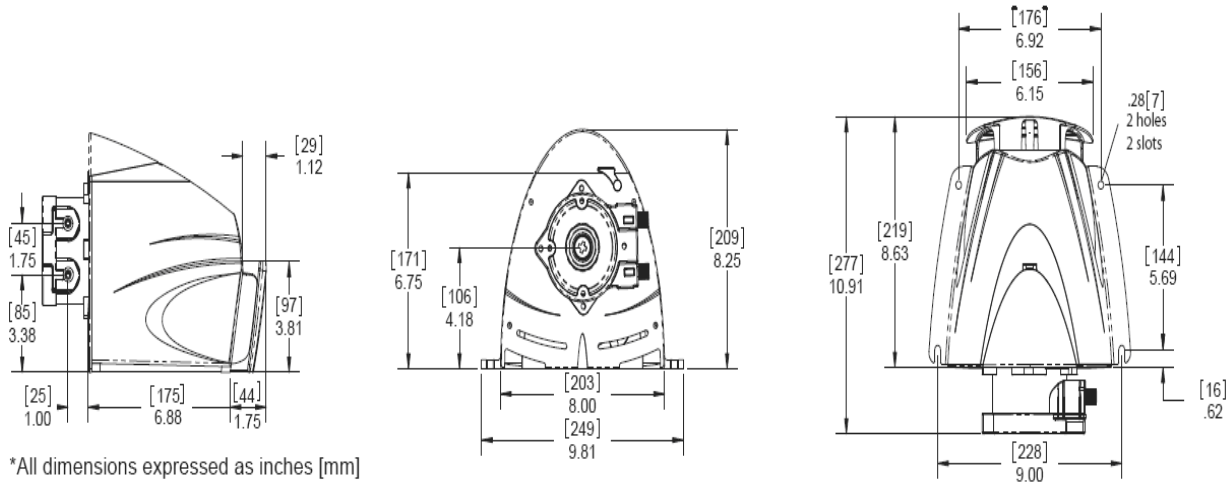
- **WARNING:** All pumps are factory tested with water. Remove tubing and thoroughly dry if the chemical being pumped will react with water (for example: sulfuric acid).
- **AVERTISSEMENT:** Toutes les pompes sont l'usine évaluée avec l'eau. Enlevez la tuyauterie et tout à fait sec si le produit chimique étant pompé réagira avec l'eau (par exemple : acide sulfurique).
- **WARNING:** Only finger tighten plastic connections (Do not use a wrench).
- **AVERTISSEMENT:** Seulement le doigt se serre les connexions de plastique (n'utilisez pas de tourne-à-gauche).
- **WARNING:** Consult licensed plumber and electrician before installation to be sure to conform to local codes.
- **AVERTISSEMENT:** Consultez le plombier autorisé et l'électricien avant l'installation pour être sûr de vous conformer aux codes locaux.
- **WARNING:** Risk of electric shock – This pump is supplied with a grounding conductor and grounding-type attachment plug. To reduce the risk of electric shock, be certain that it is connected only to a properly grounded, grounding-type receptacle.
- **AVERTISSEMENT:** le Risque de décharge électrique – Cette pompe est fourni un conducteur de bases et une prise de courant d'attachement de type de bases. Pour réduire le risque de décharge électrique, soyez certains qu'il est raccordé seulement à correctement fondé, le réceptacle de type de bases.
- **CAUTION:** Inspect tubing regularly for cracking or deterioration and replace as necessary. (Always wear protective clothing and safety eye protection when inspecting tubing.)
- **PRUDENCE:** Inspectez la tuyauterie régulièrement pour le fait de faire craquer ou la détérioration et remplacez comme nécessaire. (Portez toujours des vêtements protecteurs et une protection d'oeil de sécurité en inspectant la tuyauterie.)
- **CAUTION:** KEEP FINGERS AWAY FROM ROTATING PARTS.
- **PRUDENCE:** TENEZ DES DOIGTS À DISTANCE DE FAIRE TOURNER DES PARTIES.
- **CAUTION:** If the pump is exposed to direct sunlight, use a U.V. resistant tubing.
- **PRUDENCE:** si la pompe est exposée pour diriger la lumière du soleil, utilisez une tuyauterie résistante U.V..
- **CAUTION:** Follow directions and warnings provided with the chemical from the chemical manufacturer. The user is responsible for determining the chemical compatibility with the chemical feed pump.
- **PRUDENCE:** Suivez des directions et des avertissements fournis avec le produit chimique du fabricant chimique. L'utilisateur est responsable de déterminer la compatibilité chimique avec la pompe de nourriture chimique.
- **CAUTION:** Consult with local health officials and qualified water conditioning specialists when treating potable water
- **PRUDENCE:** Entretenez-vous avec les fonctionnaires de santé locaux et l'eau autorisée conditionnant des spécialistes en traitant de l'eau potable
- **CAUTION:** For accurate volume output, the pump must be calibrated under all operating conditions.
- **PRUDENCE:** Pour la production de volume exacte, la pompe doit être calibrée sous toutes les conditions d'utilisation.

### 3. Technical Specifications

Refer to the data plate located on the back of the peristaltic pump. Note that the data plate will be located behind the back splash cover if installed. Please make note of the Electrical Rating, Feed Rate and Maximum Pressure of the pump.

**Table 1: Technical Specifications (XPV)**

|                                    |  |            |            |            |             |
|------------------------------------|--|------------|------------|------------|-------------|
| <b>Electrical Rating</b>           | <b>115V/230V 1.8/0.9A 50/60Hz</b>            |            |            |            |             |
| <b>Feed Rate (GPD)</b>             | <b>08</b>                                    | <b>17</b>  | <b>33</b>  | <b>55</b>  | <b>100</b>  |
| <b>Feed Rate (LPH)</b>             | <b>1.3</b>                                   | <b>2.7</b> | <b>5.2</b> | <b>8.7</b> | <b>15.8</b> |
| <b>Maximum Pressure (PSI)</b>      | <b>100</b>                                   |            |            | <b>80</b>  | <b>25</b>   |
| <b>Maximum Pressure (Bar)</b>      | <b>6.8</b>                                   |            |            | <b>5.4</b> | <b>1.7</b>  |
| <b>Maximum Ambient Temperature</b> | <b>104°F (40°C)</b>                          |            |            |            |             |
| <b>Pump Safety Rating</b>          | <b>ETL, cETL, ETL<sub>SAN</sub>, NSF 50*</b> |            |            |            |             |
| <b>Enclosure Rating</b>            | <b>NEMA 3R (IP32)</b>                        |            |            |            |             |
| <b>Pump Head</b>                   | <b>PVC</b>                                   |            |            |            |             |
| <b>Pump Head Tubing</b>            | <b>Norprene</b>                              |            |            |            |             |
| <b>Injection Fitting</b>           | <b>PVC</b>                                   |            |            |            |             |
| <b>Strainer</b>                    | <b>Polypropylene</b>                         |            |            |            |             |
| <b>Suction/Discharge Tubing</b>    | <b>Polyethylene</b>                          |            |            |            |             |
| <b>Pump Housing</b>                | <b>ABS or Polycarbonate/PBT/15%GF</b>        |            |            |            |             |



**Figure 1: Pump Dimensions**

## 4. Installation

NOTE: For pumps operating in swimming pool installations the pump is to be supplied by an isolating transformer or through a residual current device (RCD).

1) The pump can be installed either vertically or horizontally (See Figure 2). Make sure to secure the pump on a flat level surface that will support 50-lbs (22kg) and secure with four .25-in (6mm) screws in the holes provided. The guard snaps into the back of the pump via three tangs -- see Figure 1. The pump should be mounted with no less than 1.75-in (44mm) of clearance around the venting on both the front and the rear of the pump. Locate the pump so there is direct access to the power cord plug.

The pump is rated for indoor use only. For applications that are subject to splashing make sure the pump is mounted horizontally level with splash guard in place. Vertical mountings require the purchase of optional hood (J63004).

2) Verify the electrical requirements for the pump as listed on the name plate and connect to an appropriate electrical source in compliance with local codes for the specific application.

3) Relieve the system pressure and drain the piping run where the injection fitting is to be installed. See Figure 2 for reference. **The injection fitting must not be installed in a dead end pipe or a deeply recessed tee. It should be installed so as to place the tip at the center of the fluid stream as indicated in Figure 2.** The injection fitting is supplied with .25-in NPT threads. If necessary drill a .44-in (11mm) diameter hole and using care not to tap too deeply, tap for .25-in NPT.

4) Apply Pipe tape to the injection fitting threads and install into piping system. **Do not remove the plastic sleeve on the tip of the fitting; it is a functional part** – see Figure 4.

**CAUTION:** Inspect the piping system and eliminate piping cross-connections to prevent feeding chemical to areas not needing treatment.

**PRUDENCE:** Inspectez le système piping et éliminez des trans-connexions piping pour prévenir le produit chimique mangeant aux régions pas ayant besoin du traitement.

To install tubing remove the compression fitting's coupling nut and sleeve and slide onto tubing with the sleeve located .38-in (9,5mm) from the tubing end – see Figure 4. Place tubing into fitting and hand tighten the coupling nut. NOTE: Immerse tubing in hot water to soften prior to pushing on to fitting. **Hand-tighten only, do not use wrenches. For in line check valve location, do not insert the tube more than .38in into the valve body.**

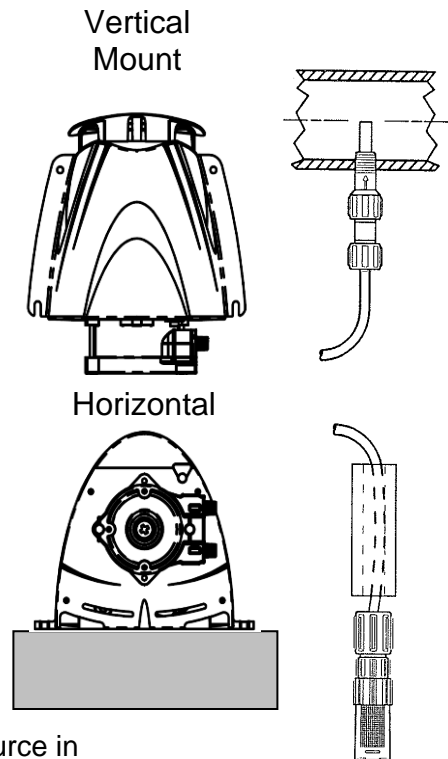


Figure 2: Injector Placement

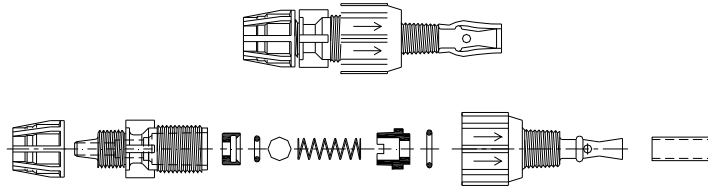


Figure 4: Injector valve

5) Referring to Figure 5 slide ceramic strainer weight on suction tubing first then remove the coupling nut from the strainer and slide onto tubing next. Push the end of the tubing onto the strainer and hand tighten the coupling nut. Hand-tighten only, do not use wrenches. Note: Immerse tubing in hot water to soften prior to pushing on fitting.

6) Install the strainer so it is off the bottom of the chemical container (1 to 2-inches (25-50mm)) and measure suction tubing length required. Cut tubing ends square and install on suction fitting of the pump. Hand-tighten only, do not use wrenches.

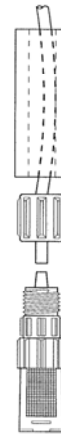


Figure 5: Ceramic-Weighted Strainer

## 5. Operation

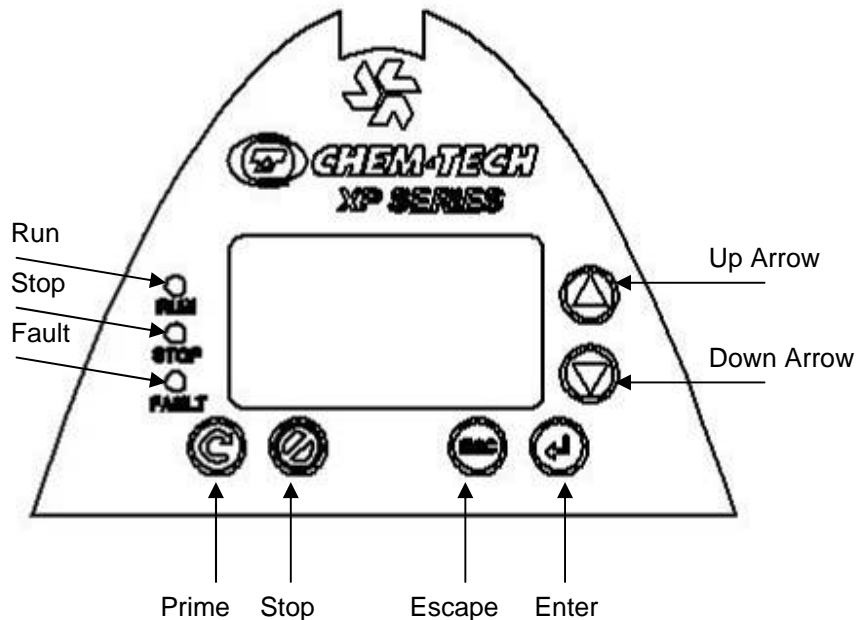
**WARNING:** Always make sure the voltage on the pump data plate matches the installation voltage before plugging the pump into a wall outlet or hooking up to an electrical supply. If you are unsure, have a licensed electrician inspect and install your pump.

**AVERTISSEMENT:** assurez-vous Toujours que le voltage sur la plaque de données de pompe correspond au voltage d'installation avant le fait de brancher la pompe dans une issue murale ou le fait d'agrafer aux réserves électriques. Si vous êtes peu sûrs, faites inspecter un électricien agréé et installez votre pompe.

If your application requires a Cycle Timer or Daily Timer pump operation you must set the time and day of week in the Configuration->Settings->Set Time menu. Because this pump uses a small battery to keep the time and day information it is recommended that the pump stay powered up initially for at least 24 hours to charge the battery once installed.

The front panel includes an LCD display, six menu driven pushbuttons and three indicator lights. Below are the menu options that are available to the user to set the different pumping modes as well as system settings.

Use the UP, DOWN, ENTER, and ESCAPE buttons to navigate the different menu options.



#### Indicator Lights:

**Run:** Illuminated when the pump is running or idle

**Stop:** Illuminated when the pump is stopped by the external stop signal

**Fault:** Illuminated when a fault condition occurs

#### Button functions:

**Escape:** Use this button to go back to the previous screen

**Up/Down Arrow:** Use these buttons to scroll through the menus

**Prime:** Push and hold this button to prime at fixed speed (default 100%)

**Enter:** Use this button to choose/accept menu lines

**Stop:** Use this button to stop the pump from running

#### Pump Modes:

**Fixed Speed:** Pump operates at a constant speed based on percentage of full speed

**Cycle Timer:** Pump operates at set intervals and fixed speed based on percentage of full speed

**Daily Timer:** Pump operates at set intervals, on set days at set times of the day and fixed speed based on percentage of full speed

**Pulse:** Pump operates based on closed contact input pulse from the external connector pins

**4-20mA:** Pump operates based on 4-20mA input signal from the external connector pins

#### Configuration:

##### Pump Settings:

**Prime Speed:** Sets the priming speed of the pump based on percentage of full speed



**Auto Resume:** Commands the pump to resume pumping when power is restored if power was lost while the pump was operating

**Set Time:** Set the system day and time

**Contrast:** Adjusts the display contrast

**Factory Reset:** Resets the pump to the default settings

**Software Ver:** Indicates software version

**Troubleshoot:** Shows various system inputs to aid startup issues

**W-Meter Input:**

**W-Meter:** Selects the type of water meter being used (dry contact or Hall Effect)

**Volume/Kfact:** Sets the water meter volume per pulse or K-factor

**Flow Units:** Sets the units for flow display (gallons or liters)

**Relay Output:**

**Stop Input:** Relay activates when the stop input is active

**Low 4-20 Alarm:** Relay activates when 4-20mA input drops below the low 4-20mA alarm point

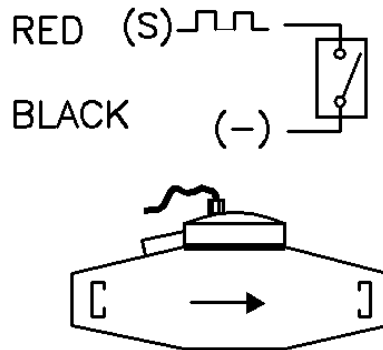
**Hi 4-20 Alarm:** Relay activates when 4-20mA input is above the high 4-20mA alarm point

**Circuit Failure:** Relay activates when a circuit failure is detected

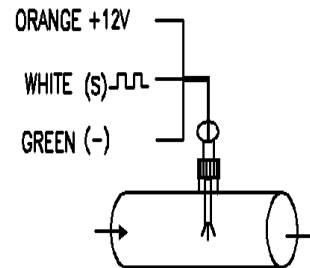
**Pump Running:** Relay activates when the motor is running

## Wiring connections for the External I/O

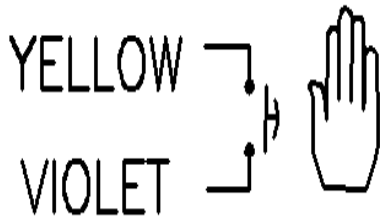
| WIRE   | FUNCTION               |
|--------|------------------------|
| RED    | 4-20mA(+) / W-METER(+) |
| BLACK  | 4-20mA(-) / W-METER(-) |
| YELLOW | STOP                   |
| VIOLET | STOP                   |
| BROWN  | RELAY OUT(-)           |
| BLUE   | RELAY OUT(+)           |
| ORANGE | +12VDC                 |
| WHITE  | HALL/Flow(SIG)         |
| GREEN  | GND.                   |



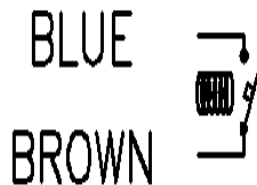
Dry contact water meter



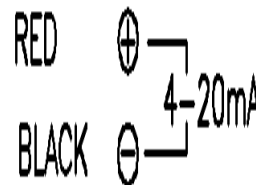
Hall-Effect water meter



Stop Input Connection



Relay Connection



4-20mA Connection

## 5.1. General

**DANGER:** DO NOT ATTEMPT TO FEED CHEMICALS WITHOUT FIRST CONSULTING YOUR CHEMICAL FEEDER DEALER OR CHEMICAL SUPPLIER. To avoid running out of chemical, follow a regular schedule of monitoring chemical supply.

**AVERTISSEMENT:** N'ESSAYEZ PAS DE NOURRIR DES PRODUITS CHIMIQUES SANS PREMIÈRE CONSULTATION DE VOTRE COMMERÇANT DE MANGEUR CHIMIQUE OU FOURNISSEUR CHIMIQUE. Pour éviter de manquer du produit chimique, suivez un programme régulier de contrôler des réserves chimiques.

**CAUTION:** Inspect peristaltic tubing frequently and replace when deterioration becomes apparent. Peristaltic tubing will eventually wear and break if neglected. This occurrence will cause chemical spillage and a potential for personal injury or damage to equipment. Always refer to chemical manufacturers recommendations with regards to safety and handling of hazardous or corrosive chemicals. Always wear protective clothing and safety glasses when working near chemical feed systems.

**PRUDENCE:** Inspectez la tuyauterie peristaltic souvent et remplacez quand la détérioration devient évidente. La tuyauterie de Peristaltic s'usera finalement et se cassera si négligé. Cette occurrence provoquera le renversement chimique et un potentiel pour la blessure personnelle ou nuira à l'équipement. Faites toujours allusion aux recommandations de fabricants chimiques en ce qui concerne la sécurité et la manipulation de produits chimiques les hasardeux ou corrosifs. Portez toujours des vêtements protecteurs et des verres de sécurité en travaillant près des systèmes de nourriture chimiques.

**WARNING:** Do not expose the pump or tubing to pressure exceeding the pressure rating on the pump nameplate.

**AVERTISSEMENT:** n'exposez pas la pompe ou la tuyauterie à la pression excédant l'estimation de pression sur la plaque de pompe.

## 6. Maintenance

NOTE : To get actual feed rates for specific settings, the output must be verified by measuring the volume output. To get the actual feed rate for specific settings, each pump must be calibrated for its flow. As with any peristaltic pump output varies with pressure and tubing condition. It is recommended that feed rates be verified at every tubing change and after every 250-hour. More critical applications require more frequent verification.

NOTE: NO USER SERVICEABLE COMPONENTS ARE INSIDE THE ENCLOSURE. IF THE POWER SUPPLY CORD BECOMES DAMAGED, IT MUST BE REPLACED BY PULSAFEEDER, ITS REPRESENTATIVE, OR A SIMILARLY QUALIFIED TECHNICIAN IN ORDER TO AVOID A HAZARD.

### 6.1. Tubing Removal

Always wear protective clothing and safety glasses when working on the chemical pump and refer to the chemical manufacturers' safety precautions.

- 1) Remove the power to the pump.
- 2) Relieve the system pressure and the drain discharge and suction tubing.
- 3) Loosen coupling nuts and remove the tubing from suction and discharge ports. See figure 7a.

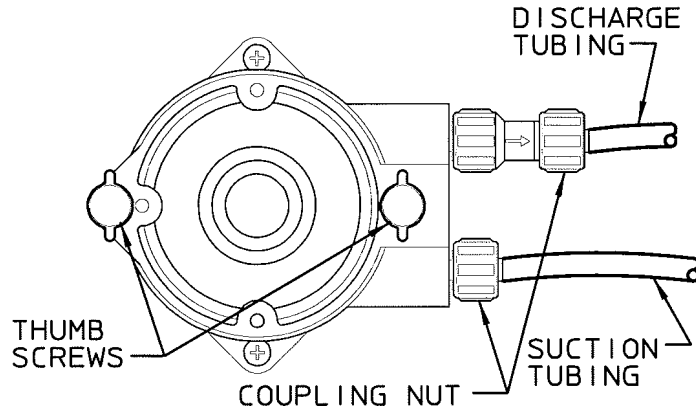


Figure 7a: Pump Head Assembly with Front Cover Attached

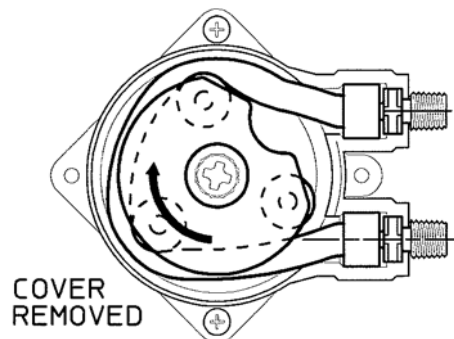


Figure 7b: Pump Head Assembly with Front Cover Removed

- 4) Remove the two thumb screws holding on the pump head cover and remove - See figure 7b above.
- 5) Remove pump head tube assembly by removing both connector fittings and pulling tubing straight out of the pump head. Tubing may retain a small amount of chemical.
- 6) Remove rotor assembly by pulling straight out of pump head.

## 6.2. *Tubing Assembly Installation and Lubrication*

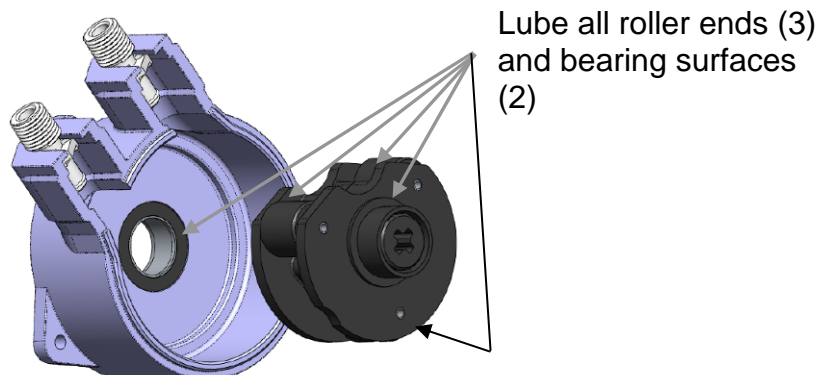


Figure 8: Pump Head w/ Rotor Assembly Removed

NOTE: Lubrication of rotor assembly should be performed at least once a year (residential service). Clean front and rear rotor bearings and surfaces with a clean shop cloth (item. No. 8, in assembly drawing on pg. 17). Lubricate with a PTFE thickened, medium viscosity, synthetic grease intended for plastic parts. Ref. Grease Kit (P/N J30257) – see Figure 8.

- 1) Reinstall the rotor assembly by aligning the cross in the rotor to the drive shaft cross and fully insert into pump head.
- 2) Use the Prime button and align the rotor assembly as shown in Figure 9a.

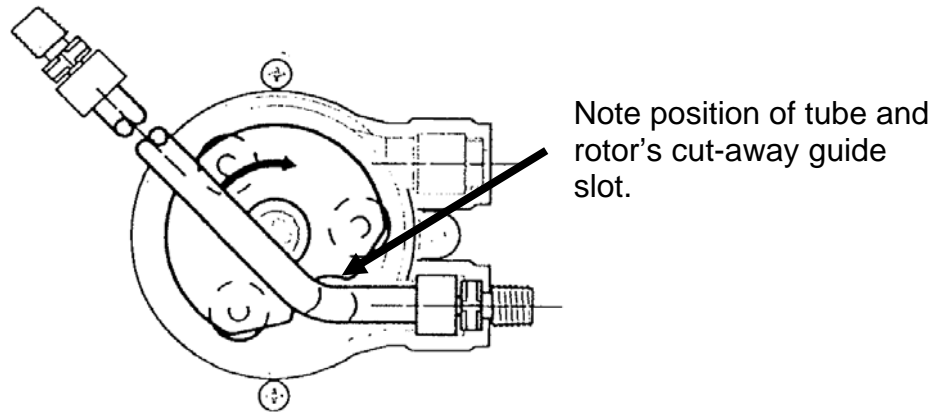
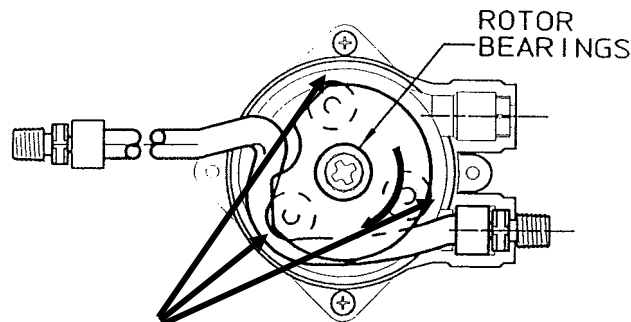


Figure 9a: Rotor Alignment at Start of Tube Installation

- 3) Insert one connector end of the tubing assembly into the bottom retaining slot in the pump head. Insert the tube through the guide slot in the rotor. Using caution, intermittently depress the Prime button and feed the tube around the pump head as the guide slot rotates. **Be very careful not to get any objects (fingers, ties, hair, etc.) close to the rotors and pump head as severe pinch points exist, see Figure 9b. Keep hands and fingers away from the rotor assembly while feeding the new tube.**



**WARNING:** Note severe pinch points between rollers and pump housing  
**AVERTISSEMENT:** Notez des points de pincement sévères entre l'habitation de pompe et les rouleaux

Figure 9b: Feeding the new tube

When the rotor is positioned as in Figure 9c, release the Prime button. Insert the other connector into its retaining slot.

- 4) Align the pump head cover bearing bore with the rotor shaft and press into place.
- 5) Loosely reinstall the two thumb screws.

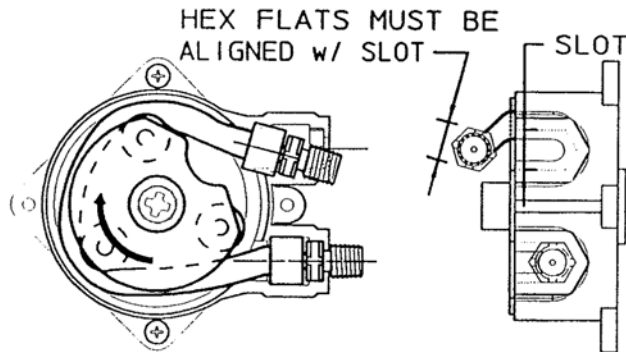


Figure 9c: Finishing the New Tube Installation

- 6) Using the Prime button, run the pump for several revolutions and then fully tighten the thumb screws hand tight.
- 7) Return the pump to service by following the procedures in the installation section.

### **6.3. Pools and Spas**

Pumps carrying the “ETL Sanitation” (tested to NSF Standard-50) marks are listed for swimming pools, spas and hot tubs, and when proper materials are selected, are capable of handling but not limited to the following chemical solutions:

|                            |                          |
|----------------------------|--------------------------|
| 12.0% ALUMINUM SULPHATE,   | 5.0% SODIUM CARBONATE,   |
| 2.0% CALCIUM HYPOCHLORITE, | 10.0% SODIUM HYDROXIDE,  |
| 12.5% SODIUM HYPOCHLORITE, | 10.0% HYDROCHLORIC ACID. |

To meet the requirements of the “ETL Sanitation Mark” qualification, 1) Replace the peristaltic tubing (as described above), 2) Grease the rotor bearing and 3) Oil the three rotor rollers at intervals of 500-hours operation time (actual running time).

## **7. Policies and Procedures**

### **7.1. Manufacturers Product Warranty**

PULSAFEEDER warrants equipment of its manufacture to be free of defects in material or workmanship. Liability under this policy extends for 24-months from the date of shipment. The manufacturer’s liability is limited to repair or replacement of any failed equipment or part which is proven defective in material or workmanship upon manufacturers’ examination. This warranty does not include removal or installation costs

and in no event shall the manufacturers liabilities exceed the selling price of such equipment or part.

The manufacturer disclaims all liability for damage to its products through improper use, installation, maintenance or attempts to operate such products beyond their functional capacity, intentionally or otherwise, or any unauthorized repair. Replaceable elastomeric parts, including peristaltic tubing, are covered for 12 months. The manufacturer is not responsible for consequential or other damages, injuries or expense incurred through the use of its products.

The above warranty is in lieu of any other warranty, either expressed or implied. The manufacturer makes no warranty of fitness or merchantability. No agent of ours is authorized to provide any warranty other than the above.

For warranty and service matters within the European Union, contact the seller or:

**PULSAFEEDER, INC.  
STEIGAR 24  
NL 1351 AB ALMERE  
NETHERLANDS**

## **7.2. Returns**

The Customer Service Department will issue a Return Authorization (RA) number for all returns.

The following information will be required:

1. Billing and a ship-to address.
2. Model and serial number.
3. Contact name and phone number.
4. Reason for return.
5. Purchase order (where applicable).
6. RA number on outside of the carton.
7. Type of chemical that was pumped.

All material must be returned freight prepaid. All merchandise must be properly packaged and free of any corrosive, toxic or otherwise hazardous chemical. All items returned must reference Return Authorization number.

## **7.3. Credits**

No equipment will be accepted beyond six months after date of shipment from the factory. Only unused and undamaged equipment will be accepted for return to stock. All credits are based on acceptance of materials as new and unused by our inspection personnel. A restocking fee will apply. All equipment returned for credit must have a RA number and be returned freight prepaid.

# Appendix

## I. Pump Assembly

| REV. A |  | DESCRIPTION           |  | DATE     |  | APPROVED |  |
|--------|--|-----------------------|--|----------|--|----------|--|
| A      |  | RELEASE (ECO # 00187) |  | 09-29-08 |  | MD       |  |

| REVISIONS |  | DATE | APPROVED |
|-----------|--|------|----------|
|           |  |      |          |

| ITEM NO. | PART NUMBER   | DESCRIPTION                                 | Default QTY. |
|----------|---------------|---|--------------|
| 1        | J63000        | HOUSING, BACK                               | 1            |
| 2        | J63002        | CONTROL COVER (CLEAR)                       | 1            |
| 3        | J63068        | ENCLOSURE, FRONT, XPV                       | 1            |
| 4        | J63003        | ENCLOSURE, FRONT, XPV W/O I/O OPTION        | 1            |
| 5        | J63004        | ENCLOSURE, SPLASH HOOD                      | 1            |
| 6        | J63015        | ENCLOSURE, CONTROL PANEL, W/TIMER           | 1            |
| 7        | J63022        | O-RING                                      | 1            |
| 8        | J63054        | POWER SUPPLY, 24VDC, 3.1A, 75W              | 1            |
| 9        | J63055        | FAN, 70 X 70 X 15mm, 12VDC                  | 1            |
| 10       | J63053        | HEAD/ROLLER ASSEMBLY                        | 1            |
| 11       | J63006        | MOTOR, 24V DC 1/3-HP, 60RPM                 | 1            |
| 12       | J63058        | BAFFLE/FAN PLATE                            | 1            |
| 13       | J63072        | I/O CABLE ASSY, INTERNAL                    | 1            |
| 14       | J63050        | OVERLAY, CONTROL PANEL, XPV                 | 1            |
| 15       | J63054        | ISOLATOR, POWERSUPPLY, XP                   | 1            |
| 16       | J63070        | STANDOFF, 3/16" LING, 6-32, M/F             | 4            |
| 17       | J63071        | MOTOR DRIVE PCB ASSY                        | 1            |
| 18       | NC1902000-000 | THUMBSCREW, W/KNOB                          | 2            |
| 19       | L19005000-000 | THUMB SCREW, #6-32 X 3/75                   | 1            |
| 20       | L9606300-188  | #10-32 X .62 PHMS                           | 6            |
| 21       | U0500657      | SCREW, #6 X .38 TYPE-BT                     | 1            |
| 22       | L9606602-188  | SCREWS(T), #8 X 1/2 LING TYPE-BT (TYPE-25)  | 4            |
| 23       | 06-205-07     | #8 X .38 LING PHMS TYPE A                   | 2            |
| 24       | L9600200-188  | SCREW, #8 X .75 TYPE-BT                     | 2            |
| 25       | 06-148-00     | 6-32 NUT                                    | 4            |
| 26       | U0812955      | 6-32 X .25 PHMS                             | 4            |
| 27       | J63053        | ISOLATOR PCB, XP                            | 1            |
| 28       | 06-135-00     | RUBBER GROMMET                              | 1            |
| 29       | L37019        | SCREWS(T), #6 X 5/16 LING TYPE-BT (TYPE-25) | 3            |
| 30       | L9600700-000  | STRAIN RELIEF                               | 1            |
| 31       | J63051        | CABLE, POWER SUPPLY TO MAIN (NOT SHOWN)     | 1            |
| 32       | 13-003-12     | POWER CORD ASSY, 115V (NOT SHOWN)           | 1            |
| 33       | 13-003-13     | POWER CORD ASSY, 230V (NOT SHOWN)           | 1            |
| 34       | J63100        | JUMPER, GROUND                              | 1            |
| 35       | J63107        | OPTICAL SPEED SENSOR ASSEMBLY               | 1            |
| 37       | J63110        | STRAP, SPACER                               | 2            |
| 38       | J63112        | ASSY, DISK, HUB, ENCODER                    | 1            |
| 39       | J63113        | WASHER, ENCODER SPACING                     | 1            |
| 40       | U0020522      | 3M DOUBLE SIDED ADHESIVE TAPE               | .5 IN        |
| 41       | 06-138-03     | NUT, .38 NPT, LIQUID TITE (NOT SHOWN)       | 1            |
| 42       | 27905         | GASKET, .94 X .63 X .06 THK (NOT SHOWN)     | 1            |

| UNLESS OTHERWISE SPECIFIED:  | 08/04/08 | 09/29/08 |
|--|----------|----------|
| DIMENSIONS ARE IN INCHES   | DOWN     |          |
| FRACTIONAL DIMENSIONS SHALL BE IN 16ths UNLESS INDICATED OTHERWISE |          |          |
| UNLESS OTHERWISE SPECIFIED:  |          |          |
| INTEREST GEOMETRIC TOLERANCES SHALL BE AS PER Y14.5M 1994          |          |          |
| MATERIAL:  |          |          |
| FINISH:  |          |          |
| DO NOT SCALE DRAWING   |          |          |

**PULSAFEEDER**

TITLE: PUMP ASSEMBLY, XP VARIABLE, w/ I/O

J63077

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## II. Pump Head and Tube Assemblies

| ITEM NO. | PART NUMBER  | DESCRIPTION                     | QTY. |
|----------|--------------|---------------------------------|------|
| 1        | NC020001-PVC | HEAD(CLR-PVC), FRONT PUMP       | 1    |
| 2        | NC020002-PVC | HEAD(CLR-PVC), CTF REAR PUMP    | 1    |
| 3        | NC400001-000 | ROTOR,FEMALE BLK                | 1    |
| 4        | NC400002-000 | ROTOR,MALE BLK                  | 1    |
| 5        | NC550002-NYL | BRG,FLGD ,8765X1,003X.500       | 2    |
| 6        | NC550001-188 | BRG(SST), 81X.888X.488LG SLEEVE | 2    |
| 7        | NC550003-OLT | BRG(BRZ),.375 X .503 X.750-LG.  | 3    |
| 8        | NC430003-NYL | ROLLER(NYL), .508X.7785X.745LG  | 3    |
| 9        | L8807300-188 | PIN(SST), .156X1.12-LG ROLL     | 3    |

| ITEM NO. | PART NUMBER       | DESCRIPTION  |
|----------|-------------------|--------------|
| 1        | HEAD TUBE FITTING | PVC OR NORYL |
| 2        | HEAD TUBE         | NORPRENE     |
| 3        | CLAMP RING        | NYLON        |



