

WATERSOLV™

LMI PD Series Pump Maintenance Kits

Installation & Service Guide

Covers the **Curative Pump** and **BC Pump**
Maintenance kit installation, priming, and troubleshooting
Version **6.2026**



Watch the installation video

Scan the code or visit:
youtu.be/vOFudi0LX38

Written guides, calculators, and use logs are available on the **HCT Resources** web page.

Before You Begin

Read this guide completely before performing any maintenance

This guide explains how to install the LMI PD Series pump maintenance kits and how to prime, service, and troubleshoot the WaterSOLV™ **Curative** and **BC** metering pumps. The Curative and BC pumps share a similar design but differ in their chemistry, lubrication requirements, and line configuration. Follow the section that matches your pump.

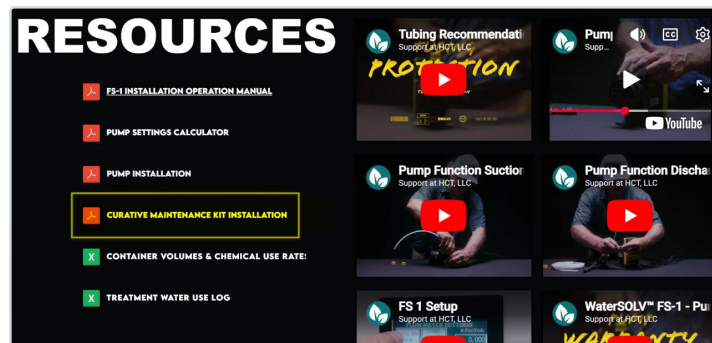
DANGER — CORROSIVE CHEMISTRY & FIRE HAZARD

Curative chemistry produces **corrosive fumes**, and the BC product can ignite organic materials. Never discharge Curative into an open container, and never allow either product to contact wood or fibers. Always wear protective gloves and eye protection, and keep clean water on hand to rinse and neutralize spills. Detailed warnings appear throughout this guide.

Online Resources

A complete library of videos and written guides is available to support installation and service:

- **Installation video:** youtu.be/vOFudi0LX38 (scan the QR code on the cover)
- **Resources web page** — includes the FS-1 Installation & Operation Manual, Pump Settings Calculator, Pump Installation guide, Curative Maintenance Kit Installation guide, Container Volumes & Chemical Use Rate worksheet, and the Treatment Water Use Log.



The HCT Resources web page provides downloadable guides, calculators, and instructional videos.

Maintenance Kit Contents

Identify all parts before starting

Curative Pump Kit

Part	Description	Part No.
Chemical suction & discharge tubing	Extended-life LMI tubing, 1/4" OD, rated 250 psi — 40 ft	—
Plunger (diaphragm)	For 250 psi pumps	#48187
Plunger (diaphragm)	For 150 psi pumps	#48188
Pump head bolts & washers	Set of four (4)	—
Tube connector	Snap-lock, 3/8" vinyl to 1/4" poly	—
Bleed valve O-rings	Two separate O-rings (one small, one large)	—
Teflon plugs	Set of two (2) — seal the breather holes in the head	—
Moisture-resistant lubricant	Silicone grease	—

BC Pump Kit

Part	Description	Part No.
Plunger (diaphragm) only	For 250 psi pumps	#48187
Plunger (diaphragm) only	For 150 psi pumps	#48188

NOTE

The BC pump uses the plunger only and **no lubricant of any kind**. See the BC Pump Service section for details.

Reference Images



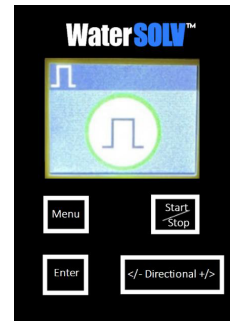
Moisture-resistant silicone lubricant



Extended-life chemical tubing



Replacement head screws & lock washers (4)

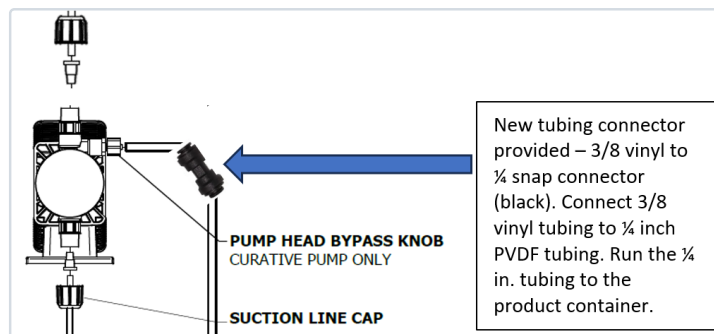


Pump control panel (smart pumps)

Curative Pump — Service Procedures

Annual maintenance follows four steps in order: **Step 1** replace the bleed valve O-rings, **Step 2** replace the plunger, **Step 3** replace any worn tubing, and **Step 4** prime the pump. Work through them in sequence.

Step 1 — Priming Valve & O-Ring Configuration



Curative pump showing the pump head bypass knob (priming assembly) and suction line cap. A new 3/8"-vinyl-to-1/4" snap connector is provided — connect 3/8" vinyl tubing to the 1/4" PVDF tubing and run the 1/4" tubing back to the product container.

The **priming assembly** (bleed valve) is open while priming and closed once the pump is primed. It threads into the side of the pump head and is secured by the main hex nut. It is opened and closed using the ridged knob — **not** the hex nut against the head.

This step has two parts: first replace the two O-rings on the bleed valve, then reconnect the return line that carries chemistry back to the container.

Part A — Replace the Two O-Rings

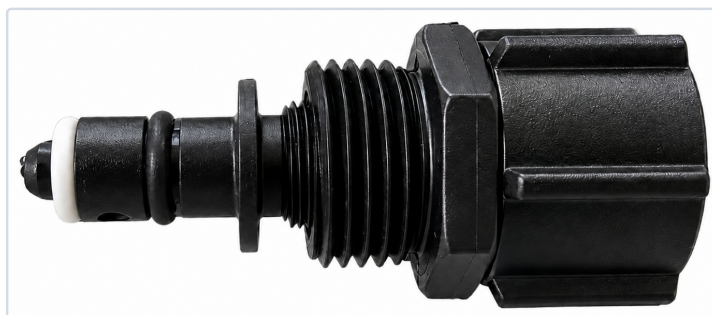
1. Open the fitting (turn the ridged knob open) before removing it.
2. Remove the white PVDF (Teflon) O-ring — it pops off.
3. Remove the black Viton O-ring. Slip a tool such as an ice pick under the O-ring and ease it off with a rotating motion.
4. Check that no old O-ring is left behind inside the pump head casing. If one remains, remove it.
5. Fit **both** new O-rings from the kit onto the valve.
6. Lubricate both O-rings.
7. Thread the fitting back into the head and tighten it with the hex nut.

Part B — Reconnect the Return Line

1. Attach a new length of 3/8" poly tubing to the center of the fitting.
2. Push the tubing connector onto the poly tubing.
3. Attach a length of 1/4" tubing to the other side of the connector.
4. Run the 1/4" tubing from the connector back into the chemical drum. Use a tight-fitting hole at the drum so the tubing seals snugly and no fumes can escape.
5. Leave the ridged knob **open** to prime.
6. Once chemistry flows out of the fitting, through the tubing, and back into the container, **close** the ridged knob.

DANGER — CORROSIVE FUMES

Do **not** discharge any Curative chemistry into an open container. The fumes of this product are corrosive and must never be allowed to escape from the container. To capture fumes, use HCT's Fume Scrubber (sold separately — not included with the kit).



Priming valve fitting. **Left:** white PVDF (Teflon) O-ring. **Right:** black Viton O-ring. Both must be replaced together.

Step 2 — Removing & Replacing the Plunger



Curative plunger (diaphragm)

WARNING — DO NOT PRY

Do **not** pry the plunger off. It is **threaded** onto and off of the pump motor shaft.

Preparation

1. Wear safety gloves and protective safety glasses.
2. Keep a 1-gallon bottle of tap water on hand to wash away any chemical leakage.
 - a. Consider adding baking soda to the tap water.
 - b. This mixture helps reduce fumes and neutralize the chemical.



Teflon plug — closes the breather holes in the spacer plate (used in step 7 below)

Procedure

1. Remove the four (4) pump head screws and washers (4 mm hex).
2. Pull the pump head off the spacer plate and motor assembly.
 - a. The spacer plate is held in place by the plunger.
3. Unscrew the plunger.
 - a. If the plunger is stuck inside the head, remove it.
 - b. If the metal plunger rod is stuck on the threaded pump shaft, unscrew it (left = loosen / right = tighten).
4. Remove the spacer plate.
5. Confirm that the rubber seal behind the plate is in place.
6. Lubricate the rubber disk, the motor shaft, and the back side of the plunger (where it attaches to the metal connection), and lubricate the metal connection itself.
7. Insert the two Teflon plugs (shown above): one into the bottom of the spacer plate, and one into the top of the spacer, between the pump motor and the pump head.
8. Place the spacer plate in position without disturbing the rubber seal behind it, aligning the holes with the Teflon plugs vertical.
9. Lubricate all four head screws completely.
10. Thread the plunger onto the pump motor shaft. Hand-tighten as firmly as possible — **use no tools**.
11. Re-attach the head.
 - a. Tighten the head screws evenly in a crisscross pattern — firmly.

12. Check all tubing connections and caps to be sure they are tight.

CAUTION — HAND-TIGHTEN ONLY

Thread the plunger on by hand only. Using tools can damage the plunger, shaft, or threads.

Step 3 — Tubing

If you have had any leaks at the tubing, replace it. Follow these rules when routing new tubing:

1. Protect tubing from abrasion — cover it with vinyl electrical conduit.
2. Minimize the tubing's exposure to sunlight.
3. Use **no overhead tubing**.
4. Route tubing so that any break does not affect ancillary equipment.

Step 4 — Priming the Pump

1. Open the bleed valve.
2. Hold the Start/Stop button down for 3 seconds to begin a 60-second manual pumping cycle.
 - a. Repeat as needed until liquid flows from the priming valve.
 - b. Close the priming valve.
 - c. Observe the discharge line pulsating.
3. Check the liquid level of the container each day afterward to confirm chemical is being distributed.
4. Schedule a plunger replacement for the beginning of next season, or for this time next year.

BC Pump — Service Procedures

WARNING — NO LUBRICANT

Use **no lubricant whatsoever** on the BC pump.

Procedure

1. Remove the four (4) pump head screws and washers (4 mm hex).
2. Pull the pump head off the spacer plate and motor assembly.
3. Unscrew the plunger.
 - a. If the plunger is stuck inside the head, remove it.
 - b. If the metal plunger rod is stuck on the threaded pump shaft, unscrew it (left = loosen / right = tighten).
4. Confirm that the rubber seal behind the plate is in place.
5. Thread the plunger onto the pump motor shaft. Hand-tighten as firmly as possible — **use no tools**.
6. Re-attach the head.
 - a. Tighten the head screws evenly in a crisscross pattern — firmly.
7. Check all tubing connections and caps to be sure they are tight.

How the Pumps Work

Priming overview for the Curative & BC pumps

1. These pumps push fluid well but pull (draw suction) poorly, so the suction side of every installation needs extra care.
2. The suction line and strainer act as a check valve and **must be upright**.
 - a. If the suction line is too far away or too high, problems are likely. Refer to the installation guidelines.
3. The pumps have three basic functions:
 - a. A plunger disc creates a pull (suction) and a push (discharge).
 - b. Suction is the bottom port of the pump head.
 - c. Discharge differs between the two pumps:
 - i. **Curative:** discharge is the top port.
 - ii. **BC:** discharge is the port on the back end of the pump head.
4. Both pumps use a pressure-relief system to operate:
 - a. **Curative** has a priming valve on the side of the pump head. Turning the ribbed knob (not the hex nut against the head) opens the valve and relieves discharge pressure for easier priming. Once fluid comes out of this line, close the priming valve (screw it back in); you should then see the discharge line pulsating.
 - i. Hold the Start/Stop button (top right) for 3 seconds to run the pump. It stops after 60 seconds. Repeat until you see fluid from the bleed line and — once closed — the discharge line pulsating.
 - b. **BC** has a degassing line coming out the top of the pump head. When the pump face screen shows bubbles, the degassing function is on. Based on the degassing setting, the pump runs at a set frequency and duration. The degassing cartridge in the top of the head stays open as gases pass and closes when liquid reaches it. This removes gases the chemistry creates and ensures more precise fluid delivery.

Quick recap — line types by pump

Curative: Suction, Discharge, Bleed/Prime lines.

BC: Suction, Discharge, Degassing lines.

Troubleshooting

DANGER — HANDLING PRECAUTIONS

When handling **BC**, wear protective rubber gloves and eye protection. When handling **Curative**, reduce the aggressive fumes as you work by rinsing the area with water.

WARNING — REMOVE THREE-WAY VALVES

If you have a three-way valve in the discharge line, **remove it**. Do not use it.

Curative

1. If the pump is less than 1 year old, the plunger is likely still in good shape. If it is over one year old, consider replacing the plunger and the bleeder valve O-rings (annually).
2. Curative line configuration:
 - a. **Top port** line feeds chemistry into the discharge side of the water line.
 - b. **Bottom port** line draws chemistry into the pump head (suction).
 - c. **Side bleed/priming port** line, from the pump head, runs back into the container.

BC

1. **End-of-head port** line discharges chemistry into the suction side of the water line, water well, or wet well.
2. **Bottom port** line draws chemistry into the pump head (suction).
3. **Top line** from the pump head runs back into the container (degassing return).

All Pumps

1. Confirm the suction fitting at the pump head is tight.
2. The suction line in the container must be upright, at no more than a 45° angle. It contains a ball-and-check valve that must stay upright so the line holds chemistry as suction draws it in — like stepping up a ladder, each stroke lifts the fluid higher.
3. Keep the suction line as short as possible while still allowing easy chemical replenishment.
4. Confirm the discharge line fittings are tight.

CAUTION — DO NOT OVER-TIGHTEN FITTINGS

Be careful when tightening line caps so you do not break the housings they screw onto. Fittings into the pump head may be lightly wrenched. **Line caps should be only as tight as you can make them by hand.** Always secure the fitting you are tightening onto so it does not break.

Curative — Priming & Diagnosis

1. Open the bleed (ribbed) knob.
2. Press the Start/Stop button for 3 seconds and wait for chemistry to come out of the bleed line.
3. Close the bleed line — confirm chemical does not continue to come out once closed.
4. The discharge line should pulse.
 - a. When closed, the bleed line should not leak any liquid while the pump is running. If it does, both O-rings on the part may need replacing. Be sure to remove **both** O-rings and replace them together, and confirm that one O-ring (the white Teflon O-ring) is not stuck in the pump head.
 - b. Periodically tighten the pump head screws (4 mm Allen wrench).
5. If chemical is not exiting the discharge line, the plunger itself is likely worn or damaged; you should be able to see where the rod attaches to the plunger.

BC — Priming & Diagnosis

Wear gloves and protective eyewear.

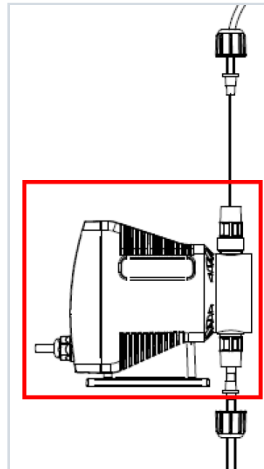
1. The BC plunger is very durable and should be replaced every 2–3 years.
2. Confirm the suction line is upright.
3. Confirm the caps are tight where they connect to the pump at the bottom of the head.
4. **Do not expect fluid to come out of the degassing tube (top of pump).** That line releases gas, not fluid. As soon as fluid reaches the cartridge, it closes.
5. If it still will not prime:
 - a. Remove the degassing cap and line.
 - b. Pour water into the fitting that is still attached to the head.
 - c. Re-attach the line, start the pump, and watch for the line to pulse.
6. If the pump does not operate, contact HCT.
7. Be sure to place BC away from sunlight and high temperatures.
 - a. This is a chemical reaction (bubbling, gaseous, and a safety concern) — not a product-degradation problem.

DANGER — FIRE HAZARD

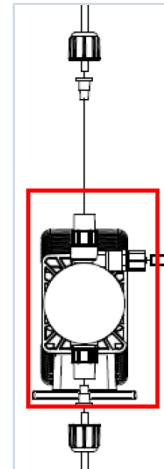
Do not allow the BC liquid to contact wood or fibers; it can cause a fire within roughly 15–60 minutes. Flood any accidental contact areas with copious water and move affected items to a safe place to prevent the potential of fire.

Pump & Head Return Items

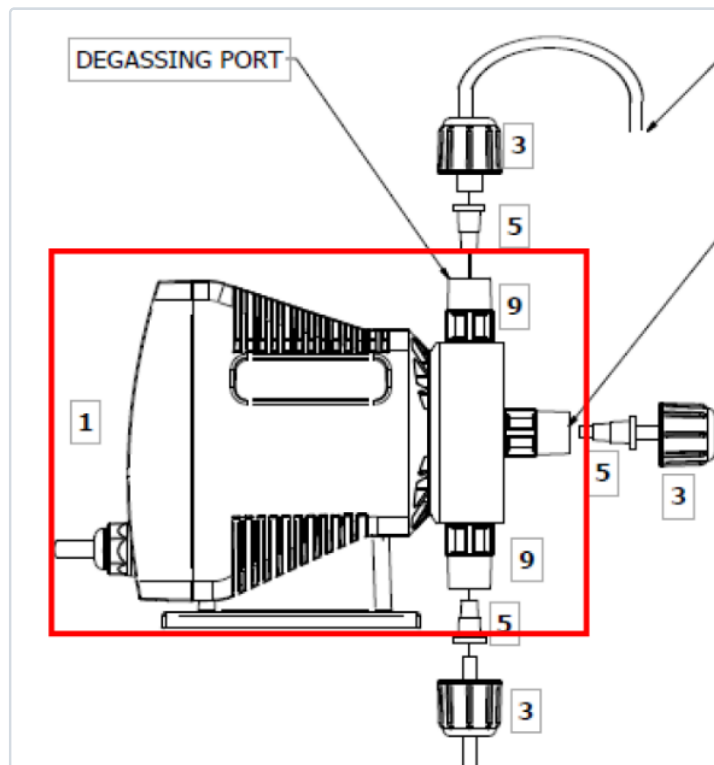
Return the pump motor, head, and associated fittings only — do not include lines



Curative — Side View



Curative — End View



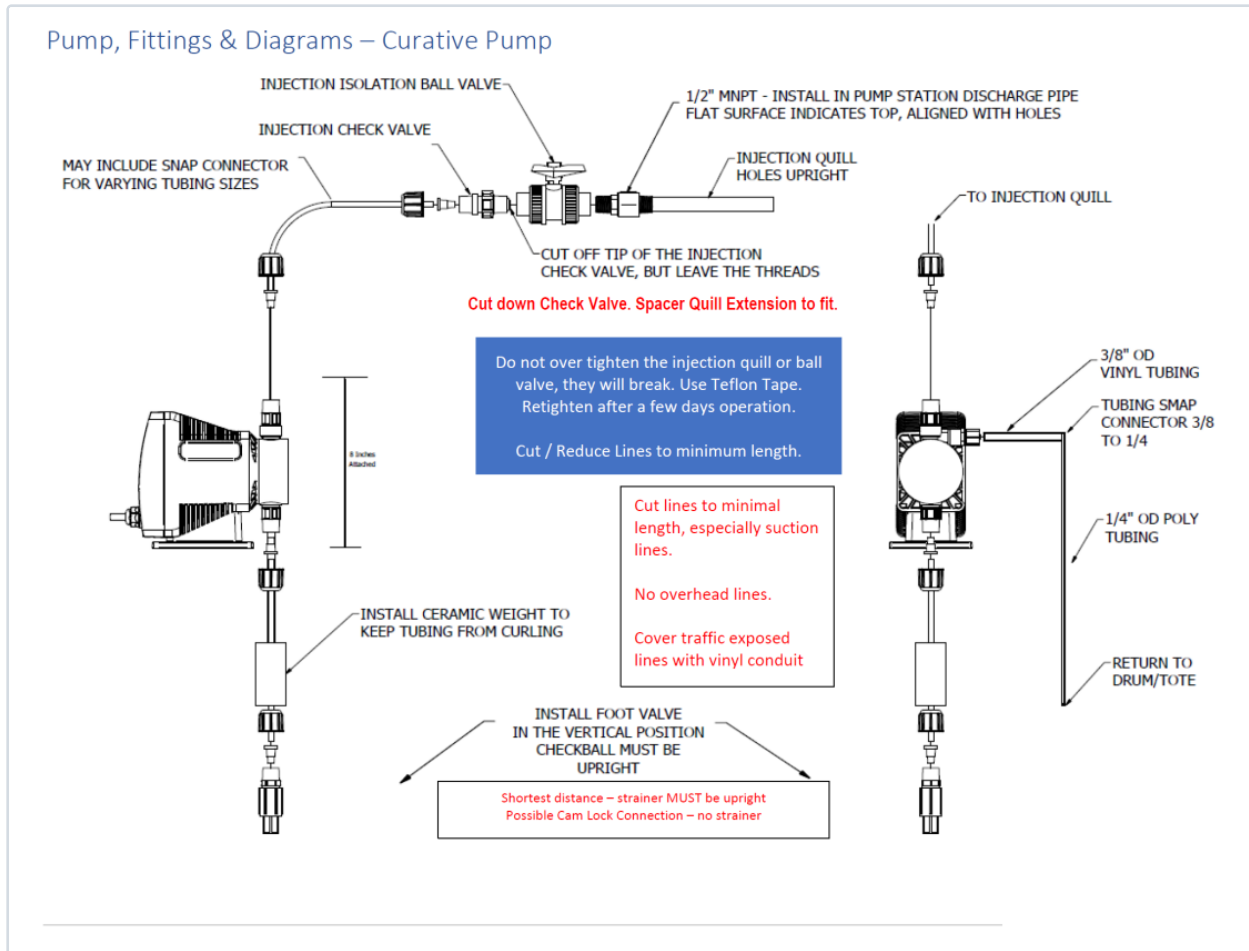
BC — Side View (degassing port indicated)

NOTE — CARTRIDGE DIRECTION

Note the arrows on the cartridges. They are all directed in the direction of flow — suction up to the pump, then discharge. Be sure the suction strainer is upright so the suction check ball works properly.

Pump Line Configurations

Curative Pump — Fittings & Diagram



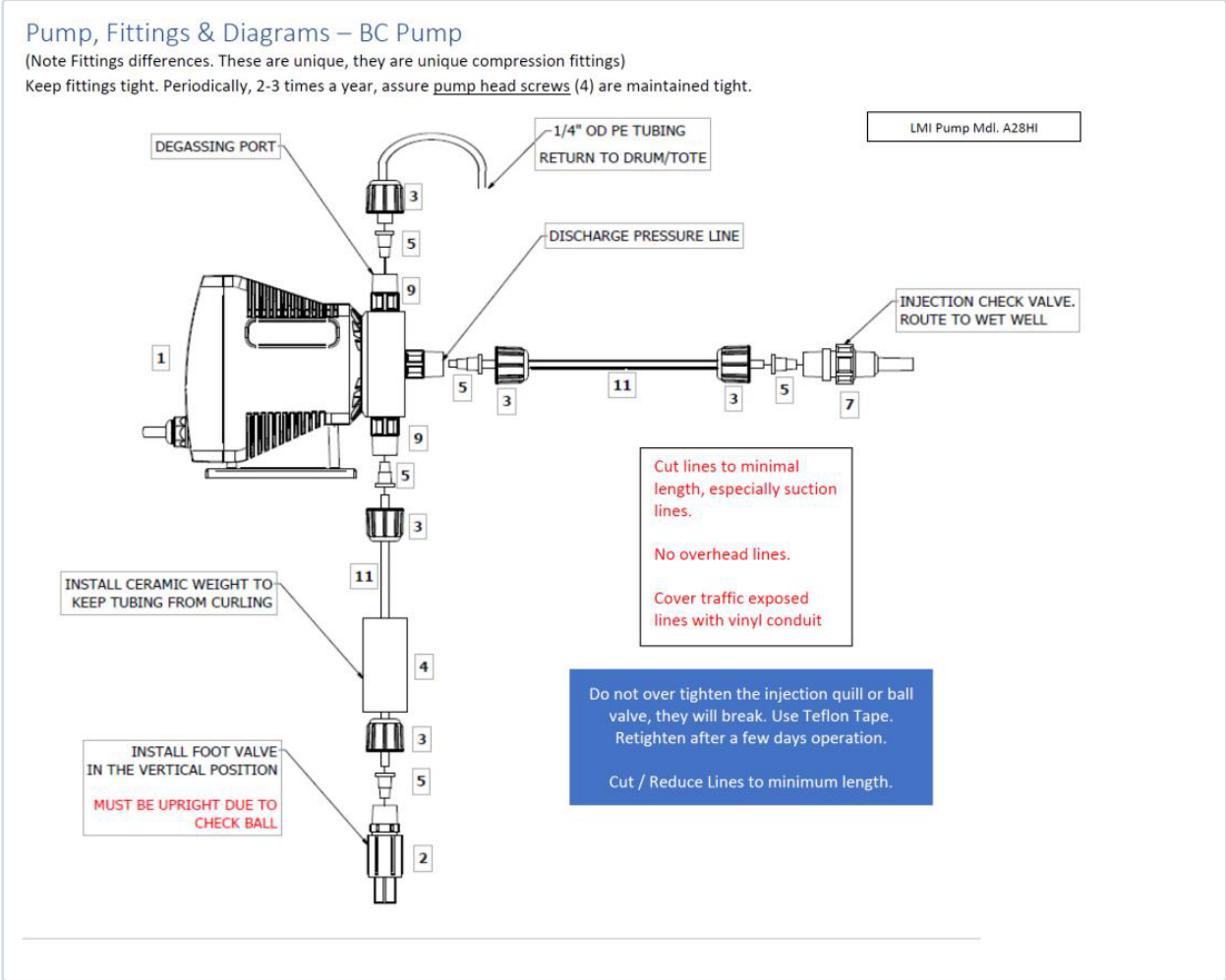
Curative pump line configuration, fittings, and injection assembly.

CAUTION

Do not over-tighten the injection quill or ball valve — they will break. Use Teflon tape and retighten after a few days of operation. Cut and reduce all lines to minimum length, install the foot valve in the vertical position with the check ball upright, and cover traffic-exposed lines with vinyl conduit. No overhead lines.

BC Pump — Fittings & Diagram

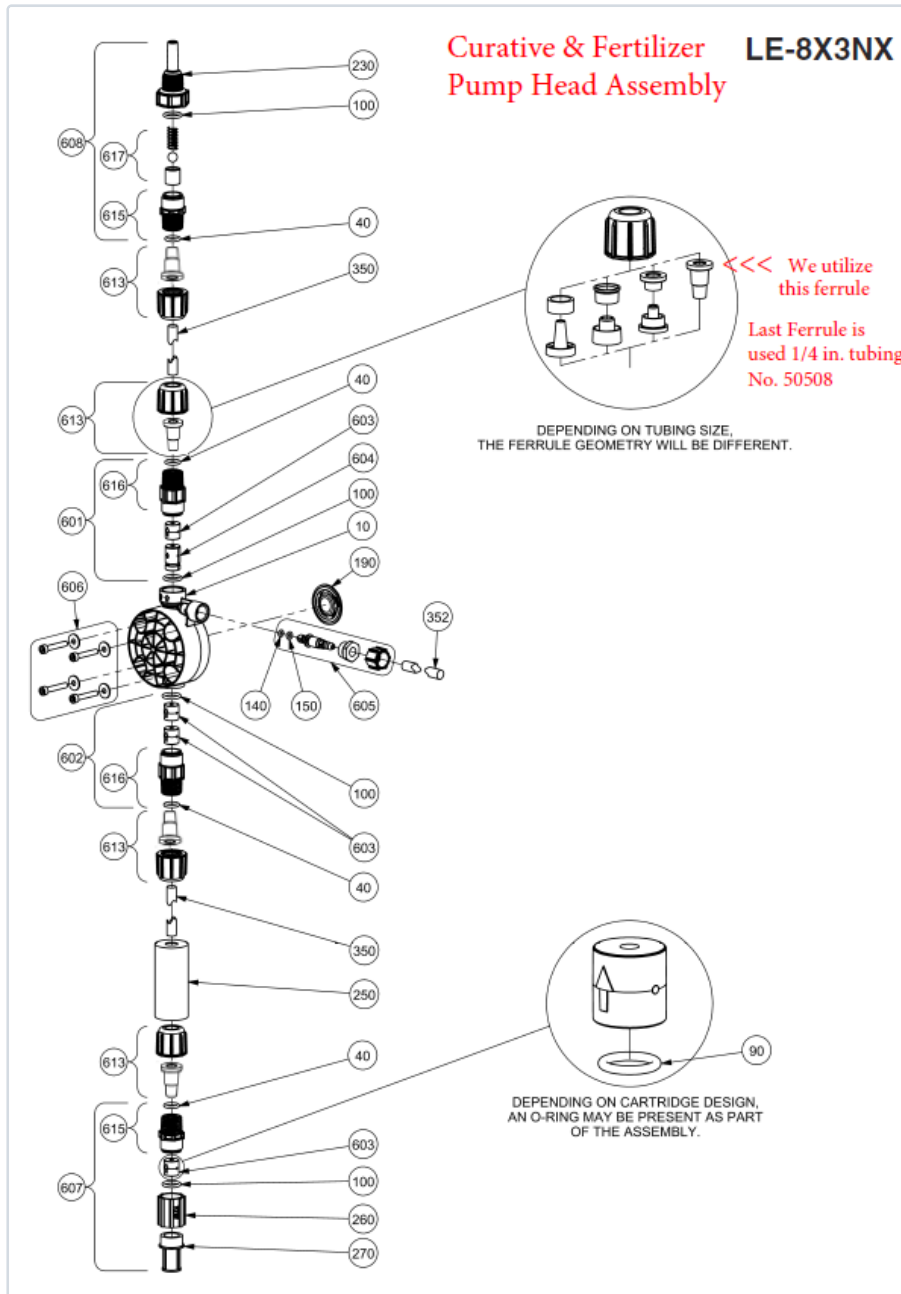
Note: BC fittings are unique compression fittings. Keep fittings tight, and 2–3 times a year confirm the four (4) pump head screws are maintained tight.



BC pump line configuration, fittings, and degassing return.

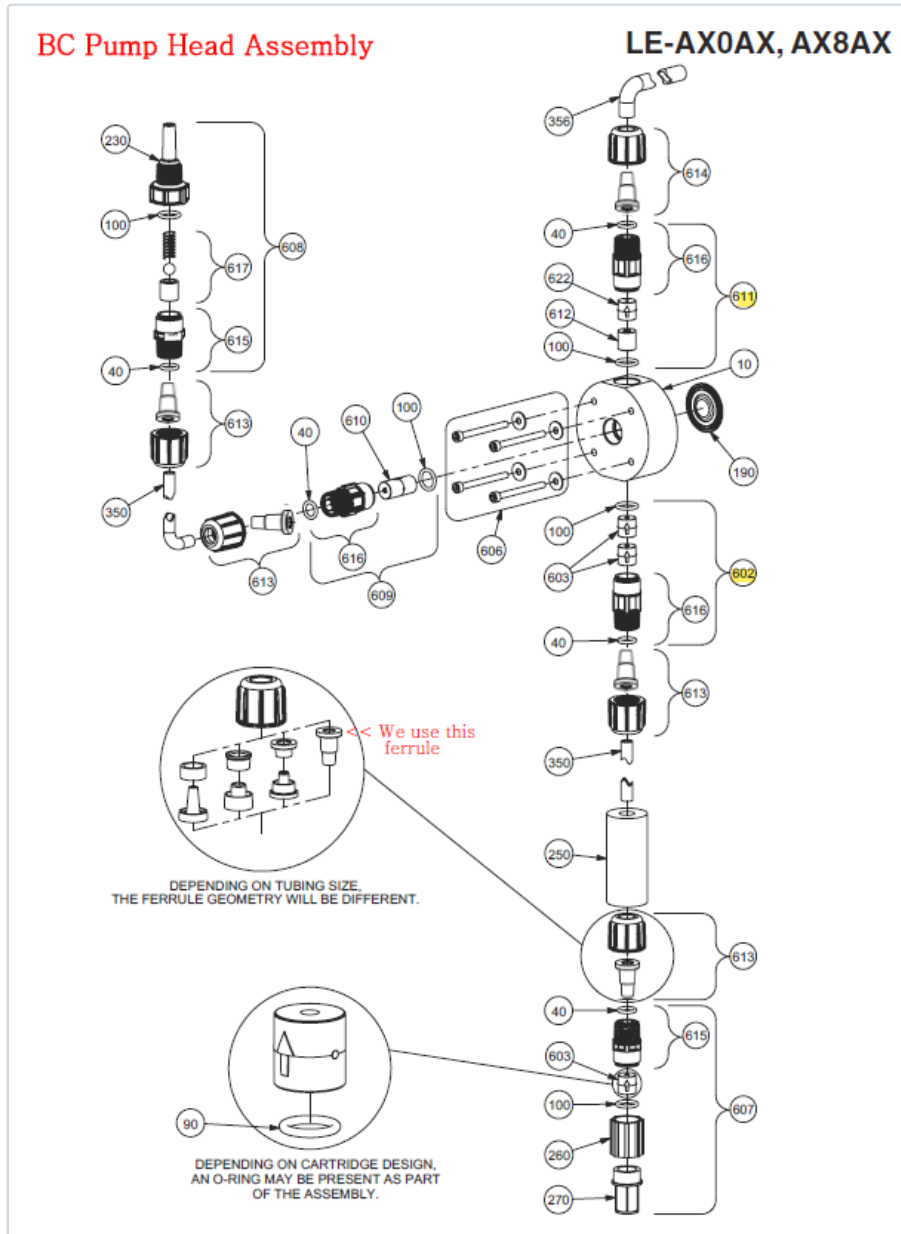
Pump Head Assembly Diagrams

Curative & Fertilizer Pump Head Assembly — LE-8X3NX



Curative & Fertilizer pump head exploded assembly. Ferrule geometry varies by tubing size; the 1/4" tubing uses ferrule No. 50508.

BC Pump Head Assembly — LE-AX0AX, AX8AX



BC pump head exploded assembly. Ferrule geometry varies by tubing size; an O-ring may be present as part of the assembly depending on cartridge design.

NEED HELP?

For additional support, scan the QR code on the cover to watch the installation video, visit the HCT Resources web page for written guides and calculators, or contact HCT, LLC technical support.