Your HCT WaterSOLV™ Chemigation Checklist

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Well-Klean® Solutions
Water Well Rehabilitation

WaterSOLV™
Making Water a Better Solution

Select Solutions Registered with:

Certified to NSF/ANSI 60

ANSI Accredited Program PRODUCT CERTIFICATION

Standards Council of Canada
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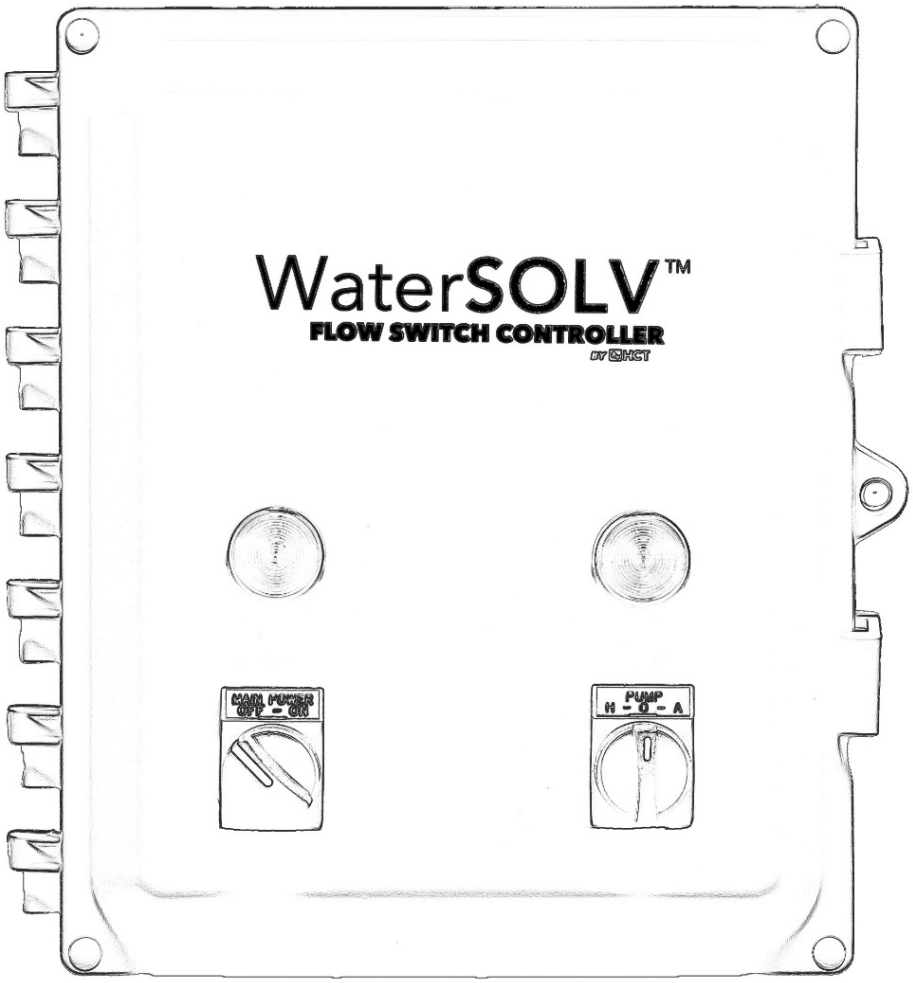


HCT's Flow Switch Controller front panel view.

WaterSOLV™ Chemigation Instructions

Go online to www.hctllc.com > Resources > Chemigation

Use the stickers below to place on your pump covers

"SUCTION TUBE MUST BE ½ INCH ABOVE BOTTOM OF CONTAINER"

Curative on discharge side of pump station w/ extended quill

BC on suction side of pump station

Each port on the pump has to be connected to a hose. The red caps over the fitting will NOT hold pressure.

Lines that MUST be run, suction, discharge and bleed-off.
See details beginning page 3

Please - Keep Door Closed Tight
Do not turn knob with pump running

Please - Keep Door Closed Tight
Do not turn knob with pump running

HCT's Chemical Injection Controller

Why and How

There are hundreds of options for injecting chemicals to water for water treatment. We commit to a manufacturer on many factors including reliability and timely response and service. HCT takes it a bit further, with immediate shipment of replacement products in case of a product failure. That's our commitment to you, a valued customer.

Why HCT's Flow Switch Controller (FS1) – because there is an industry need for reliable, inexpensive, dependable, durable, long-lasting chemigation equipment that is not dependent on someone or something to keep you injecting the things you need to inject.

The FS1 is the logic for you to synchronize flow, with activating pumps. By alleviating timers and integrating with the pump stations technology with the flow switch or flow meter, we can make sure injection is made when there is flow, avoiding mishaps, oversights, errors and omissions.

Features

Separate the electronics from the chemicals	FS1 remains separate from the pumps
Pumps are to be located over the chemicals	Pump suction design proficiency
Any pumps may be used (110 v)	Use your preferred pump or our recommendations
Up to three pumps may be used	HCT's Curative & BC and an extra for fertilizers
Everything is plug and play	FS1, Pumps, even chemical containers.
	No bulk tanks
Service and Product Replacement	Unparalleled Service and Uptime.
Curative is safe and 1/10th the volume of sulfurous acids.	BC is continuous chemical aerifications as well.
All WaterSOLV™ products are environmentally attractive and sustainable. Your Vegetation is what it drinks – Keep it hydrated with vitamins on demand. Mitigate the toxins of chloride salts and anaerobic biological conditions.	

INSTALLATION INSTRUCTIONS

I M P O R T A N T

Before getting started please read the entire instructions.
System items must be prepared for and in place before getting started.
Including but not limited to system depressurization,
power connections and perhaps pipe ports and pipe fittings.

PLEASE CHECK OFF EACH ITEM AS READ, THEN AS COMPLETED.

Discharge lines for the BC or he pHix, over the length of the tubing provided, and or connected to the pressure side of the pump station, may require a degassing pump head, versus the normal pump head supplied.

Pre-installation Necessities

Location – Location – Location

1. Placement
    a. Never allow WaterSOLV™ Curative and WaterSOLV™ BC to spill into the same space. They must drain apart in case of spill.
    b. Curative must be well vented and placed outdoors – the fumes are corrosive.
    c. BC must be kept out of the direct sunlight, ventilated and cool.
2. Mixing
    a. They can be mixed but only into a minimum of 60% water.
3. Leaks or accidental spills
    a. Drain to ponds separately though they can go into the body of water if sufficiently greater than pond volume than the spill.
    b. Double containment
    c. City Sewer
        i. Neutralize
            1. Curative, 1 lb. sodium bicarbonate per gallon of product (275 gl tote = 275 lbs of sodium bicarbonate)
                a. Dike spill, neutralize, wash to drain, or pond.
        ii. BC – 9 gallons of water per gallon of product (53 gl. = 477 gallons of water)
            1. Must dilute immediately with adequate water and water volume – 9:1 water to spill rate.
4. Ventilation
    a. Keep containers sealed.
    b. Make hose and tube fittings tight.
    c. Curative fumes are corrosive. Store in well vented area outdoors.
    d. Keep BC cool and out of direct sunlight.

The Flow Switch Controller (FS1)

1. The FS1 is connected to power.
2. The flow switch or meter of the Pump Station connects to the FS1.
3. When the FS1 senses flow, it activates power through the FS1 to the pumps.
4. If using a flow switch, it is just on/off and the pump activates to its setting.

5. If using a flow meter, an additional wire from the FS1 is used to communicate the flow meter pulses to the pump. The pump then tabulates the pulses to the pumps it outputs.

The Pumps

DO NOT TURN THE PUMP KNOB WITHOUT THE PUMP RUNNING. IT IS POSSIBLE TO DISLODGE THE KNOB SO IT'S SETTING IS NOT ACCURATE

1. KEEP THE DISPLAY PANEL CLOSED – SEALED TIGHT.
2. Pump must be placed over the intake of container(s).
    a. Note, pumps suck chemistry okay, they pump chemistry well.
3. There are three ports on the pump head - Suction, Discharge and Bleed off.
    a. Suction tube must upright, 1 to ½ inch from the bottom of the container
        i. All fittings tight.
        ii. Foot valve must be in place. It has a check valve in it that needs to operate. The foot valve must be upright for the ball to hold the chemical in the suction line when the pump is off.
    b. The suction tube should fit snug through the cap of the container.
        i. Drill to fit snug if necessary.
    c. The bleed off line should fit snug into the 2nd cap of the drum, or a second hole in the tote cap.
        i. The bleed off line is used to prime the pump when needed or when changing out containers.
    d. These lines should fit snug, and caps should remain on the containers - snug.
        i. To assist you in changing containers, plan ion using the same container lids. The bleed off line will be taken out the cap when replacing a container. The same lid will be use for removal of the pump and suction line. Upon placement of the container, the suction line, container cap and bleed line will be all put back into place.
    e. NEVER place pump lines overhead.
        i. Cover lines with vinyl electrical conduit to protect from UV, damage, and wear.
4. Priming the Pump
    a. DO NOT TURN THE PUMP KNOB WITHOUT THE PUMP RUNNING. IT IS POSSIBLE TO DISLODGE THE KNOB SO IT'S SETTING IS NOT ACCURATE
    b. **Write down** the pump setting, % and stroke.
    c. Be sure the bleed valve discharge line is secure to the container.
    d. Turn the pump on.
    e. Open the bleed valve dial.
    f. Carefully turn both pump dials to 100% until fluid reaches the pump head.
    g. Restore pump dials to original settings.
    h. CLOSE THE DISPLAY PANEL – SEALED TIGHT.

i. Inspect the site for any leaks or abnormal conditions and report them if present.

5. Quills
    a. Each pump comes with an injection quill that must be used. The quill has a ball check valve that prevents unwanted siphoning of chemical from the container.
    b. Most products should be injected after the pump station and after flow switches and sensors.
    c. WaterSOLV™ BC is designed to be injected into the suction side of the pump station ideally into the wet well.
    d. WaterSOLV™ Curative and fertilizers should be injected into the downstream pressure side of the of the pump station.

Monitoring

Application Feed Rates are verified by knowing the amount of water distributed and chemical used over a given period of time. The container volumes per inch can be obtained from this link at www.hcyllc.com.

The frequency of monitoring should be put on a regular schedule, as deemed appropriate by management.

Pump Setting & Calculator

Online is the pump setting calculator – at www.hctllc.com. You'll need to know;

Pumps maximum output capacity, gph _____

System flow rate, gpm _____

Product Application Rate (ppm – gallons per million gallons of water) _____

From these the calculator will determine the pump setting Stroke Rate base on 100% Stroke Length.

Initial Treatments and Spotting

Once you have the water treatment prescription and the soil remediation rates, the goal is usually getting enough product out, within budget, to observe infiltration. Aerification prior to application is a great compliment, allowing the product to work both topically but from within as well. This is very effective. Once infiltration is realized, turn the product down to the water treatment rate.

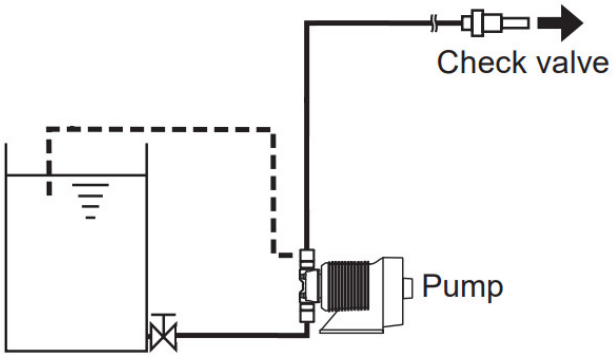
For spotting, consider looking into WaterSOLV™ pHix, a diluted, user friendly combination of WaterSOLV™ Curative and BC.

Overview:

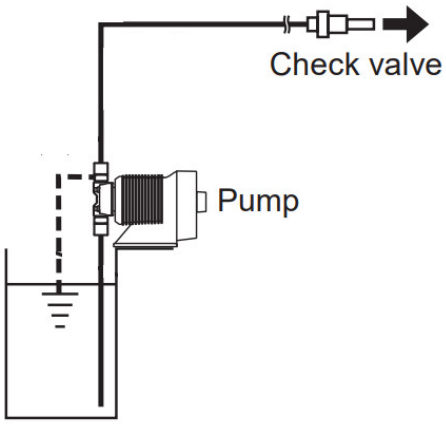
Every pump station is unique. This is a general guide/checklist. Contact HCT directly if you have any questions.

Tubing layout

Flooded suction application

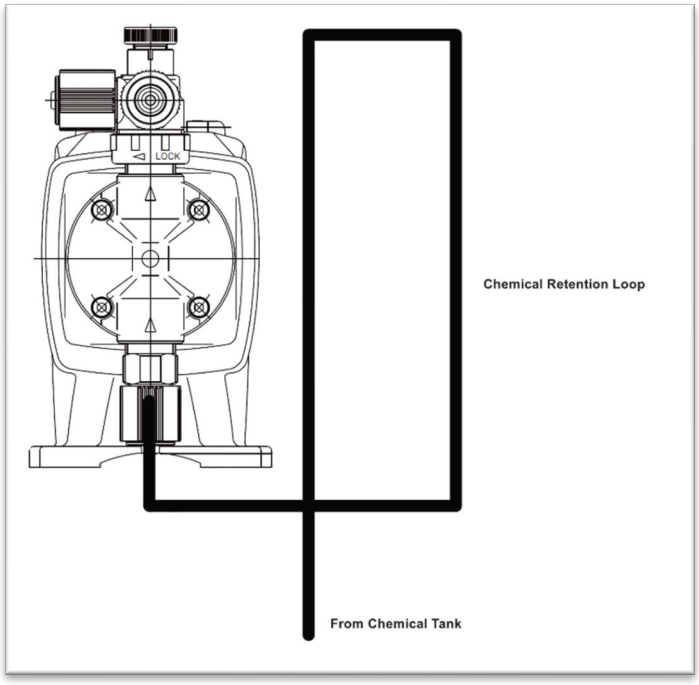


Suction lift application

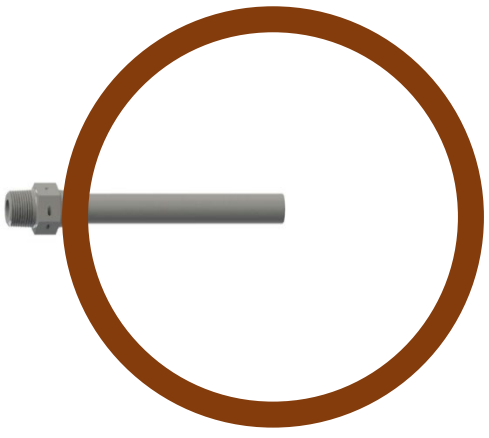


Tubing Layout for tote (left) and tote or drum (right). Tote requires additional connections (can locks and fittings).
Note: Suction tube MUST be upright for check valve to maintain chemical in the suction line when the pump turns off.

Drawing 1 – WaterSOLV™ BC Suction line, optional configuration

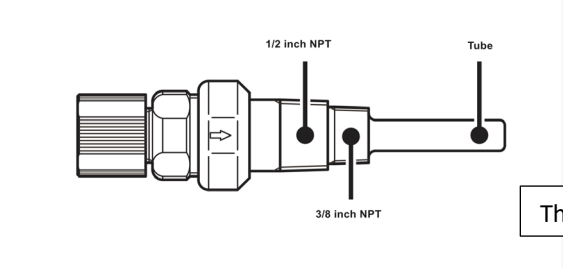


Quill Insertion – Cut to center into pipe.



Injection Quill, Connector and Lance
For the Curative. Not required for the BC.

1. IWAKI Quill – side view – Comes with pump – check ball inside.
2. MUST BE USED TO PREVENT SIPHONING AND BACK PRESSURE.



This quill only, with BC, to wet well

3. Quill Connector- provided by HCT

Acid and peroxide proof Alloys

4. Lance – provided by HCT
   PVDF – 6-inch length, standard end (not beveled)
   Cut to size length to middle of pipe

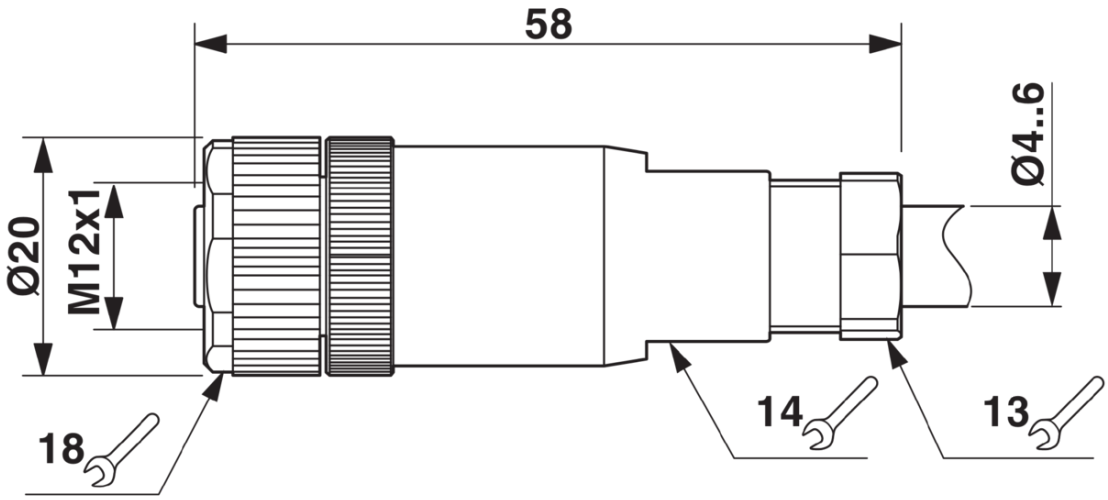
All three of these with the Curative, into the pressure side of the system – Cut each quill to fit – the short quill to fit in the valve, the long quill to be in the center of the piping.

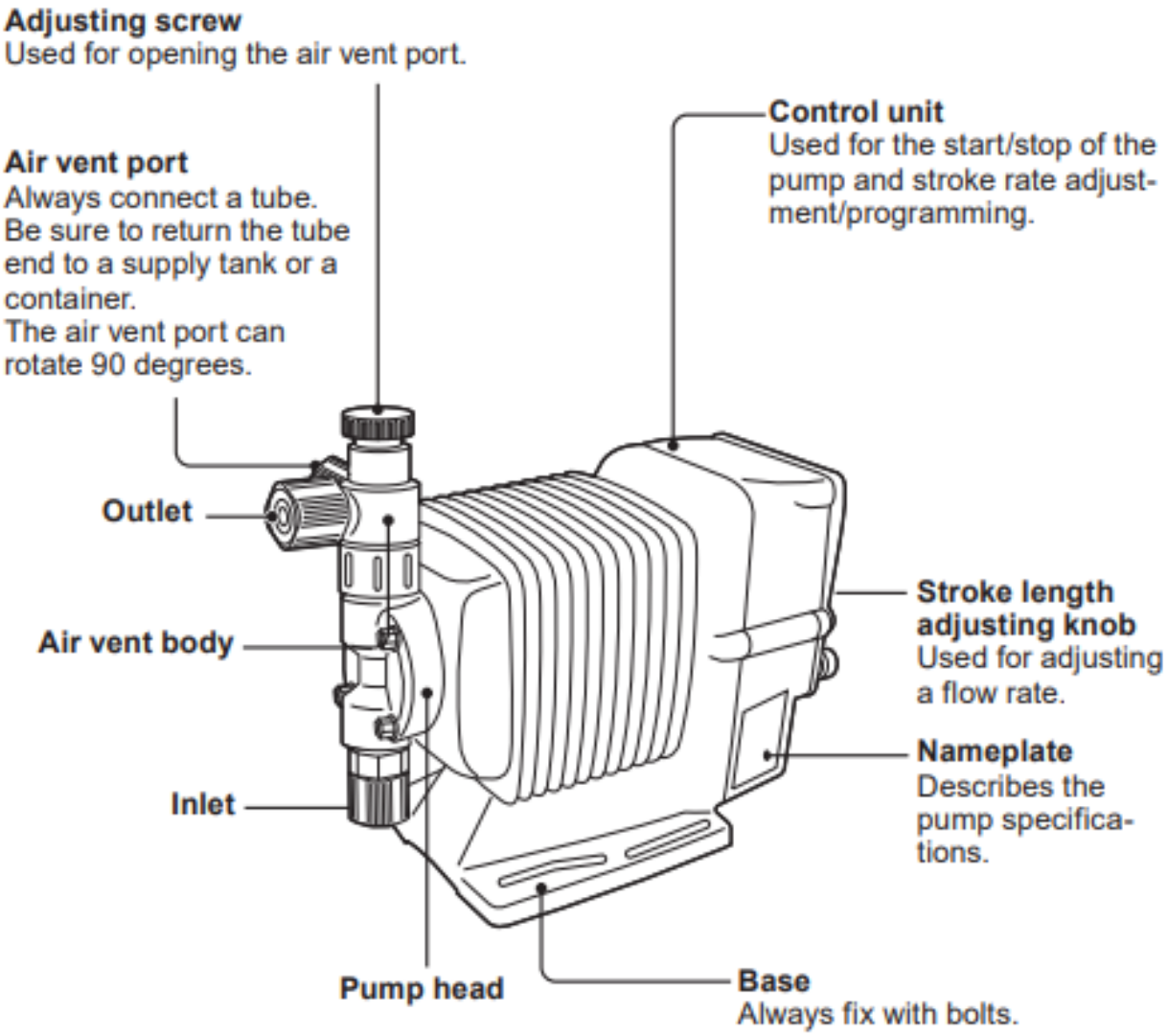
SPECIFICATIONS
SAFETY RATING 150 psi - PVC, CPVC, PVDF 1500 psi - Alloy
CHECK VALVE NO
SAF-T-SEAL TIP OPTIONAL
QUICK DISCONNECT NO
VALVE/PROCESS CONNECTION SIZE 1/2" MNPT
INLET CONNECTION SIZE 1/2" MNPT
SOLUTION TUBE SIZE 3/8"
SOLUTION TUBE ID (PVC, CPVC, & SAF-T-SEAL ALLOY) 0.423"
SOLUTION TUBE ID (NON-SAF-T-SEAL ALLOY) 0.493"
SOLUTION TUBE OD (ALL) 0.675"
(A) OPERATING LENGTH 2.25"

We love tools: See our tools for calculating feed rates, gallons per inch on a chemical container, just about anything needed for our program at www.hctllc.com > Resources > Tools. Also at www.hctllc.com > Resources > Chemigation.

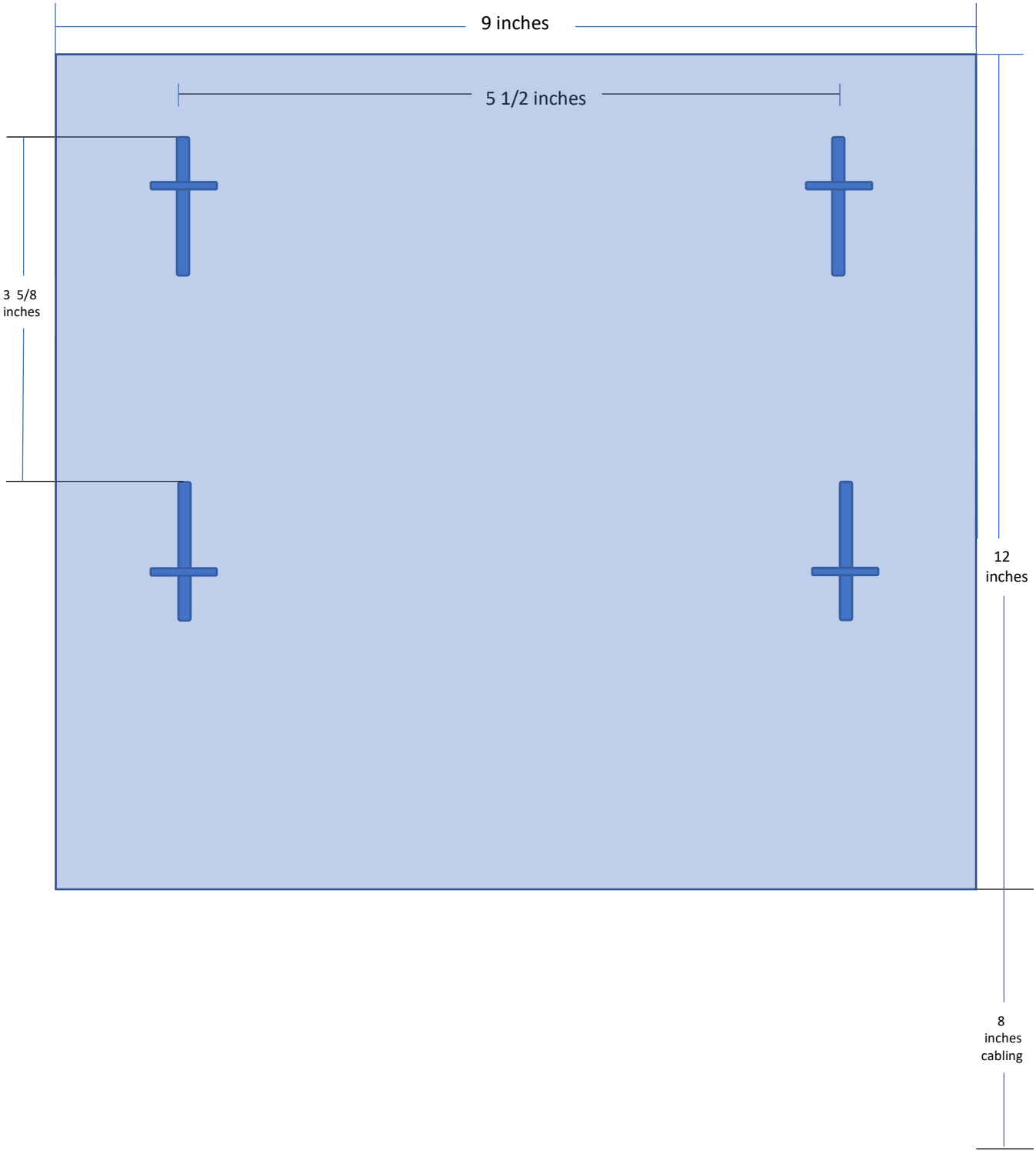

EXT
ON
STOP
DISP
0
20
30
40
50
60
70
80
90
100%
STROKE LENGTH
Keep door closed and sealed
Do NOT turn knob without pump running
< ----------Wire Connection Port

Communication Link Connector between flow meter signal, the FS1 and the pump for pump stations that have variable flow rates. Phoenix Contact No. 1662298.

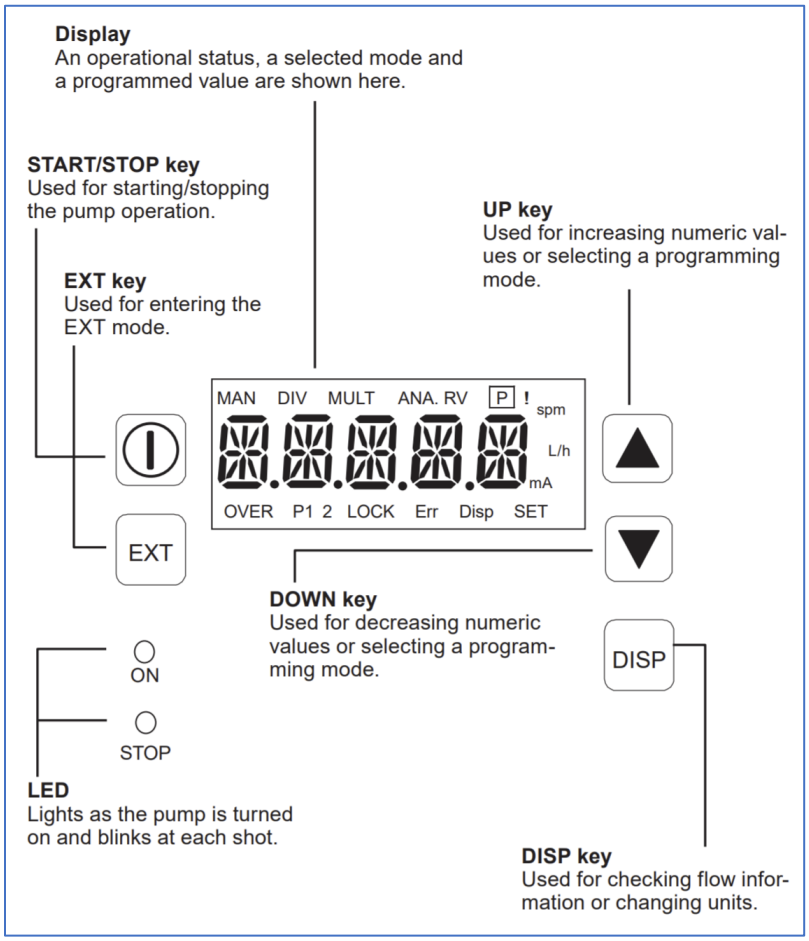


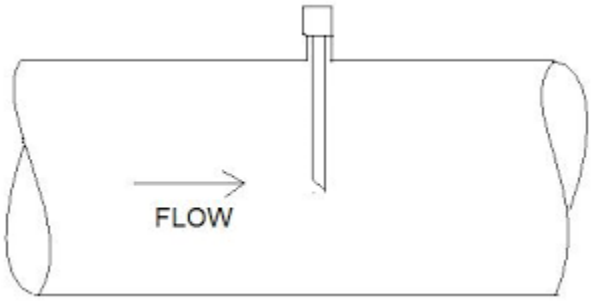

Adjusting screw
Used for opening the air vent port.
Air vent port
Always connect a tube.
Be sure to return the tube end to a supply tank or a container.
The air vent port can rotate 90 degrees.
Control unit
Used for the start/stop of the pump and stroke rate adjustment/programming.
Outlet
Air vent body
Inlet
Pump head
Stroke length adjusting knob
Used for adjusting a flow rate.
Nameplate
Describes the pump specifications.
Base
Always fix with bolts.

Mounting Bolt Holes
Space



Reference Images & Diagrams

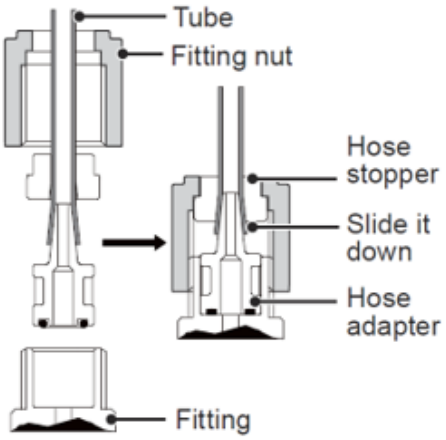




Tubing Connection

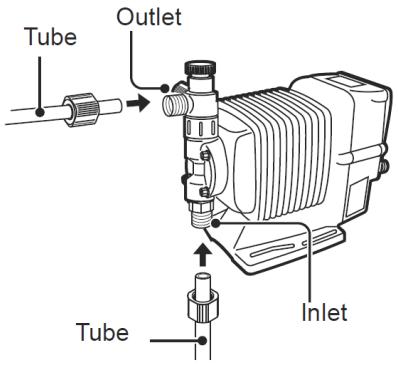
a. Pass a tube into the fitting nut and hose stopper and then slide it down to the hose adapter as far as it will go.
b. Fit the tube end (hose adapter) to the fitting. Then hand tighten the fitting nut.
c. Retighten the fitting nut by turning it 180 degrees with an adjustable wrench or spanner.

*The plastic fitting nut may be broken if it is tightened too much.



Tubing Configuration

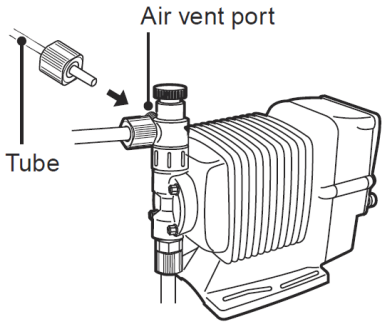
1 **Connect tubes into the inlet and outlet.**



2 **Connect an air bleed tube into the air vent port.**

Route back the other tube end to a supply tank or a container.

For the auto degassing type, connect another air bleed tube into the automatic air vent valve body as well.



3 **Decide an air vent port direction.**

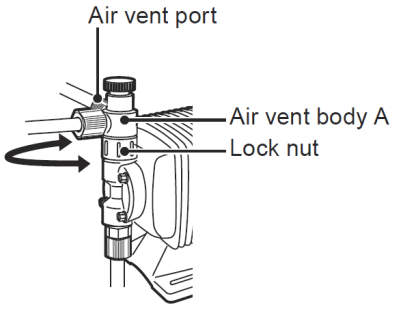
The air vent port can rotate 90 degrees.

a. Turn the lock nut anticlockwise.

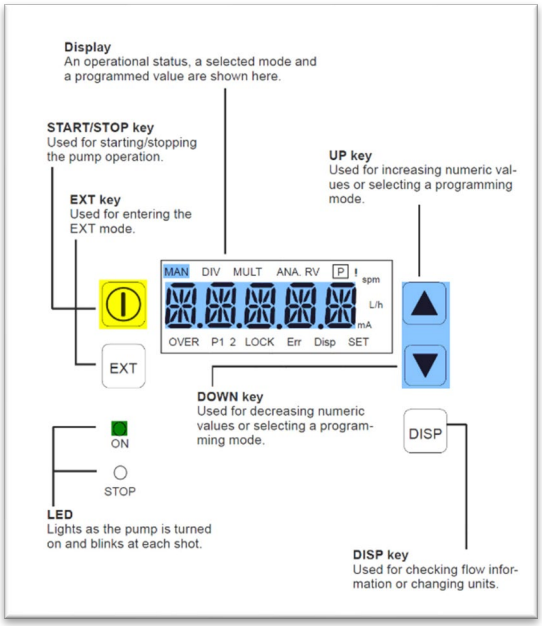
b. Adjust the direction of the air vent port.

c. Hand-tighten the lock nut, holding the air vent body A.

d. Turn the lock nut 90 degrees clockwise further with an adjustable wrench or spanner.



Setting the Pump Rates



1. Plug the pump into power.
2. Push the Start/Stop Key  .
3. The LED will illuminate green  and the pump will begin to pump.

NOTE: Do not rotate the STROKE LENGTH knob unless the pump is running.

4. With the pump running, turn the Stroke Length Dial to 100%

5. Press and hold the Up and Down Key  to where it displays 

6. Hold down the down key to lower the setting to the required % of the treatment amount. Push the buttons up and down to adjust accordingly. Hold down the key to move the % in greater increments.

   Item 5 and 6 may be used prime the pump as well bleed any lines.

Maintenance

Retightening of pump head fixing bolts

Important

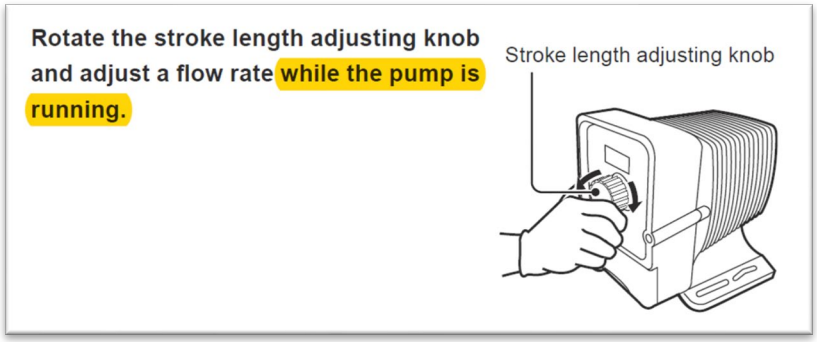
The pump head fixing bolts may loosen when plastic parts creep due to temperature change in storage or in transit, and this can lead to leakage. Be sure to retighten the bolts evenly to the specified tightening torque below in diagonal order before starting operation.

Tightening torque

Model code	Torque	Bolts
EWN-B09•11•16•21	19 lb-in	M4 Hex. socket head bolt
EWN-B31	22.6 lb-in	M4 Hex. socket head bolt
EWN-C16•21	19 lb-in	M4 Hex. socket head bolt
EWN-C31	22.6 lb-in	M4 Hex. socket head bolt
EWN-C36	22.6 lb-in	M5 Hex. socket head bolt

*Tighten fixing bolts once every three months.

Pump Labels



Support

HCT, LLC
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Making Water a Better Solution
Sustainable Chemistry & Biology to Water
Well-Klean©, WaterSOLV™, Water Treatment for Agronomy™, Water pHix & WaterSOLV™ Grow are trade names of HCT, LLC
Select products are accredited by NSF Standard 60, ANSI, Standards Council of Canada, and the California Department of Food & Agriculture
His plan is always perfect and we choose to follow His lead.