Lafferty Equipment Manufacturing, LLC
Installation & Operation Instructions

Model # 980415 · 414HC Acid Mixing Station

REQUIREMENTS

Chemical Concentrate

Water

Temperature	up to 160°F
Pressure	40 to 80 PSI
Flow	4 GPM @ 40 PSI
Supply Line	3/4"

Hose	3/4" ID x 10'

OPTIONS

Stainless Steel Hose Racks

Small Stainless Steel Hose Rack	# 224145

Drum & Tote Stick Lengths & Seal Materials

Drum Stick, 33" (Viton or EPDM)	# 491643 / 491643-E
Drum Stick, 48" (Viton or EPDM)	# 491648 / 491648-E
Drum Stick, 54" (Viton or EPDM)	# 491645 / 491645-E
Tote Stick, 33" (Viton or EPDM)	# 491653 / 491653-E
Tote Stick, 48" (Viton or EPDM)	# 491654 / 491654-E
Tote Stick, 54" (Viton or EPDM)	# 491656 / 491656-E

WEIGHT & DIMENSIONS

Single Package

Shipping Weight	9 lbs.
Shipping Dimensions	20" x 13" x 5"



Lafferty EQUIPMENT MANUFACTURING LLC

CFS TECHNOLOGIES

www.laffertyequipment.com
501-851-2820

WARNING! READ ALL INSTRUCTIONS BEFORE USING EQUIPMENT!

OVERVIEW

The 414HC Acid Mixing Station has a water flow rate of 4 GPM @ 40 PSI and is a "high concentrate" chemical proportioner for diluting highly corrosive chemicals, such as those used to remove concrete and for aluminum brightening. This acid-resistant venturi injection system uses city water pressure (40 - 80 PSI) to draw and blend a high concentration of acid into the water stream to create up to a 1:1 ratio for dispensing into large containers.

SAFETY & OPERATIONAL PRECAUTIONS

- **When connecting to a potable water supply follow all local codes for backflow prevention.**
- For proper performance do NOT modify, substitute nozzle, hose diameter or length.
- Manufacturer assumes no liability for the use or misuse of this unit.
- Wear protective clothing, gloves and eye wear when working with chemicals.
- Always direct the discharge away from people and electrical devices.
- Follow the chemical manufacturer's safe handling instructions.
- NEVER mix chemicals without first consulting chemical manufacturer.

UNIT FLOW RATES	
PSI	GPM
40	4.00
50	4.47
60	4.90
70	5.29
80	5.66

TO INSTALL (REFER TO DIAGRAM ON NEXT PAGE)

If you are connecting to a potable water supply follow all local codes for backflow prevention.

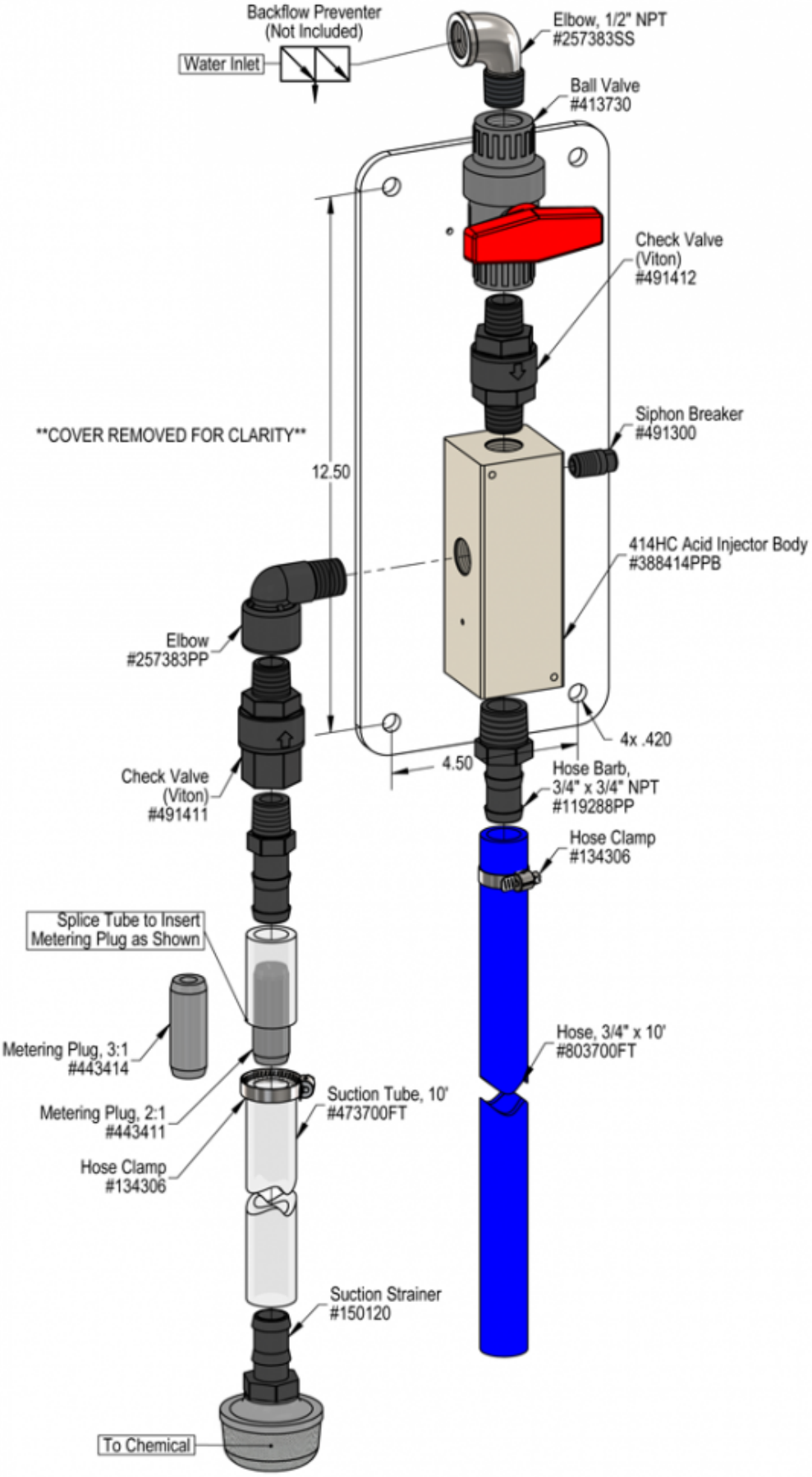
1. Mount the unit to a suitable surface above the chemical supply to prevent siphoning.
2. Connect hose(s) as shown in the diagram.
3. Flush any new plumbing of debris before connecting water.
4. Connect water supply. Install a water filter if water piping is older or has known contaminants.

Set the chemical dilution ratio by threading one of the color coded metering tip or plug in the chemical suction line. See chemical labels for dilution ratio recommendation or consult your chemical supplier.

- For the strongest dilution ratio do NOT install a metering plug or colored metering tip.
- An inline metering tip holder is provided, along with two plugs for 2:1 or 3:1 ratios.
- The dilution ratios in the metering tip chart are based on water thin chemicals with a viscosity of 1CPS.
- Thicker chemicals will require a larger tip than the ratios shown in the chart.
- Select the tip color that is closest to your desired chemical strength and thread into the tip holder as a starting place. **DO NOT OVER-TIGHTEN.**
- Splice metering tip holder or plug into suction tube, as shown in the diagram, and secure with clamp (certain models only).
- Application results will ultimately determine final tip color or plug size.
- Push the chemical tubes over the suction hose barb and the tip holder, and place the strainer in the chemical concentrate.
- Push the discharge tubes completely over the discharge barb.
- If necessary, cut suction tube(s) to length before attaching suction strainer.

TO OPERATE

1. Hold the discharge tube inside the container to be filled, do not release it, completely open the inlet ball valve.
2. When container is filled to the desired level, close the ball valve and keep the discharge tube in the container until it completely drains before removing it. Do NOT kink the discharge hose.
3. Make final tip metering tip / plug adjustments based on results.


Backflow Preventer
(Not Included)
Water Inlet
Elbow, 1/2" NPT
#257383SS
Ball Valve
#413730
Check Valve
(Viton)
#491412
COVER REMOVED FOR CLARITY
Siphon Breaker
#491300
12.50
414HC Acid Injector Body
#388414PPB
Elbow
#257383PP
4x .420
4.50
Hose Barb,
3/4" x 3/4" NPT
#119288PP
Check Valve
(Viton)
#491411
Hose Clamp
#134306
Splice Tube to Insert
Metering Plug as Shown
Hose, 3/4" x 10'
#803700FT
Metering Plug, 3:1
#443414
Suction Tube, 10'
#473700FT
Metering Plug, 2:1
#443411
Hose Clamp
#134306
Suction Strainer
#150120
To Chemical

Troubleshooting Guide

Problem	Possible Cause / Solution	
	Startup	Maintenance
A) Unit will not draw chemical.	1, 2, 3, 6	7, 8, 9, 10, 11, 12
B) Dilution too weak.	4	11
C) Dilution too strong	5	
D) Water backing up into chemical container.		8

Possible Cause / Solution

Startup

1. **Water pressure or volume too low**
   - See requirements.
2. **Ball valve not completely open**
   - Completely open the ball valve.
3. **Chemical tube not immersed in chemical or chemical depleted**
   - Immerse tube or replenish.
4. **Metering plug too small**
   - Install larger metering plug.
5. **No metering plug installed or metering plug too large**
   - Install smaller metering plug.
6. **Discharge hose kinked or wrong size**
   - Straighten hose / See requirements

Maintenance

7. **Chemical strainer or metering tip partially blocked**
   - Clean or replace chemical strainer and/or metering tip.
8. **Chemical valve stuck or failed**
   - Clean or replace.
9. **Vacuum leak in chemical pick-up connections**
   - Tighten the connection.
10. **Chemical tube stretched out where tube slides over metering tip holder or pin hole/cut in chemical tube (sucking air in)**
    - Cut off end of tube or replace tube.
11. **Hard water scale or chemical build-up may have formed in the body causing poor or no chemical pick-up**
    - Follow Preventive Maintenance instructions below, using hot water and/or descaling acid. When there is no draw at all carefully remove fittings and soak entire body in descaling acid.
12. **Optional discharge ball valve or trigger gun not completely open**
    - Completely open / depress trigger

PREVENTIVE MAINTENANCE: When the unit will be out of service for extended periods, place chemical tube(s) in water and flush the chemical out of the unit to help prevent chemical from drying out and causing build-up. Periodically check and clean chemical strainer and replace if missing.