Lafferty Equipment Manufacturing, LLC
Installation & Operation Instructions

Model # 972327 · 2-Way Acid HV Foamer

REQUIREMENTS

Chemical Concentrate

Water

Temperature	up to 160°F
Pressure	40 to 125 PSI
Flow	3.5 GPM @ 50 PSI
Supply Line	1/2"
Compressed Air	up to 5 CFM
Hose	1" ID x 50'
Nozzle	00400 & 50400

OPTIONS

Stainless Steel Hose Racks

Large Stainless Steel Hose Rack	# 224150

Stainless Steel Jug Racks

2 ½ Gal. (8 ½" x 10 ½")	# 224210
5 Gallon (12" x 12") Round/Square	# 224215

Safe Flow Lid™ for 1 Gallon Jugs

Lid, Suction Tube, and Strainer	# 709101

WEIGHT & DIMENSIONS

Single Package

Shipping Weight	32 lbs.
Shipping Dimensions	28" x 28" x 8"



Lafferty® EQUIPMENT MANUFACTURING LLC

CFS TECHNOLOGIES

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WARNING! READ ALL INSTRUCTIONS BEFORE USING EQUIPMENT!

OVERVIEW

The 2-Way Acid HV Foamer is a high volume foam applicator for applying 2 highly corrosive chemicals such as those used to remove concrete and for aluminum brightening. This acid-resistant venturi injection system uses standard city water pressure (40 - 125 PSI) to draw and blend concentrated acid into the water stream to create a highly concentrated and accurately diluted solution. A high volume of rich, clinging foam is created by injecting compressed air into the solution to greatly increase volume and coverage ability. The foam is then projected through the discharge hose, extended wand and fan nozzle at distances up to 15 feet (25 feet with zero degree nozzle). Use the chemical ball valves to inject the 2 chemicals separately or simultaneously.

SAFETY & OPERATIONAL PRECAUTIONS

- **When connecting to a potable water supply follow all local codes for backflow prevention.**
- **WARNING: Severe damage to your facility, or contamination of your potable water supply, can occur without proper 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 safety goggles when working with chemicals.
- Always direct the discharge away from people and electrical devices.
- For pressures over 100 PSI, remove the discharge valve or lower pressure.
- Never leave inlet ball valves on when unit is not in use.
- Follow the chemical manufacturer's safe handling instructions.
- NEVER mix chemicals without first consulting chemical manufacturer.

TO INSTALL (REFER TO DIAGRAM ON NEXT PAGE)

1. Mount the unit to a suitable surface above the chemical supply to prevent siphoning.
2. Connect the discharge hose.
3. When connecting to a potable water supply follow all local codes for backflow prevention.
4. Connect water supply. To prevent blocking the small water jets in the foamer body, flush any new plumbing of debris before connecting. If water piping is older and has known contaminants, install a filter.
5. Connect air supply. If air line is older and has known contaminants install a filter.

Set the chemical dilution ratio by threading one of the color coded metering tips into each chemical check valve. See chemical labels for dilution ratio recommendation or consult your chemical supplier.

- For the strongest dilution ratio do NOT install a colored metering tip.
- 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.
- Application results will ultimately determine final tip color.
- Select the tip color that is closest to your desired chemical strength and thread it into the tip holder. **DO NOT OVER-TIGHTEN.**
- Push the chemical tube over the check valve barb and place the suction tube in the chemical concentrate.
- If necessary, cut suction tube(s) to length before attaching suction strainer.

TO OPERATE

Always make sure the discharge is closed or pointed in a safe direction before turning water on. Discharge can be shut off at any time during operation but should not be left unattended for long periods of time. Expect a strong blast when re-opening the discharge ball valve or trigger gun.

1. Make final metering tip adjustments based on application results.
2. For the **strongest chemical concentration** do NOT install a metering tip and keep the air pressure as low as possible!
3. With wand in hand open the water and air ball valve, (and one chemical ball valve, 2 & 3 Way)
4. Open the discharge ball valve.
    - Wait a few seconds and observe foam consistency.
5. The air regulator has been factory set and is underneath the cover to prevent unauthorized adjustments. To access the regulator remove the screws in the cover and pry off the ball valve handle.
    - Use the least amount of air needed to achieve good foam quality to prevent water pressure fluctuations from affecting performance. Air pressure must be kept lower than water pressure.
    - To adjust the foam consistency pull out on the air regulator knob, turn slightly clockwise for dryer foam and counterclockwise for wetter foam. Wait a few seconds to see each adjustment.
    - Medium wet foam will give the best cleaning results and yield the strongest chemical concentration ! Dry foam will NOT clean as well!
    - You may also have to try different sized metering tips and air settings until foam consistency and cleaning results are acceptable. Once this is set and desired foam consistency is achieved push lock the knob. Replace the cover and the ball valve handle you are ready to start application.
6. When foaming is completed, close the discharge ball valve, return to the unit and close the water and air ball valves and chemical ball valve (2 & 3 Way). Briefly re-open the discharge ball valve to relieve pressure in the hose.
7. Rinse before the foam dries.

METERING TIP SELECTION

METERING TIP COLOR	OZ/MIN	DILUTION RATIO @ 40 PSI
Brown	0.56	720:1
Clear	0.88	458:1
Bright Purple	1.38	292:1
White	2.15	188:1
Pink	2.93	138:1
Corn Yellow	3.84	105:1
Dark Green	4.88	83:1
Orange	5.77	70:1
Gray	6.01	67:1
Light Green	7.01	58:1
Med. Green	8.06	50:1
Clear Pink	9.43	43:1
Yellow Green	11.50	35:1
Burgundy	11.93	34:1
Pale Pink	13.87	29:1
Light Blue	15.14	27:1
Dark Purple	17.88	23:1
Navy Blue	25.36	16:1
Clear Aqua	28.60	14:1
Black	50.00	8:1
No Tip Ratio Up To:		2.8:1

The dilution ratios above are approximate values. Due to chemical viscosity, actual dilution ratios may vary.

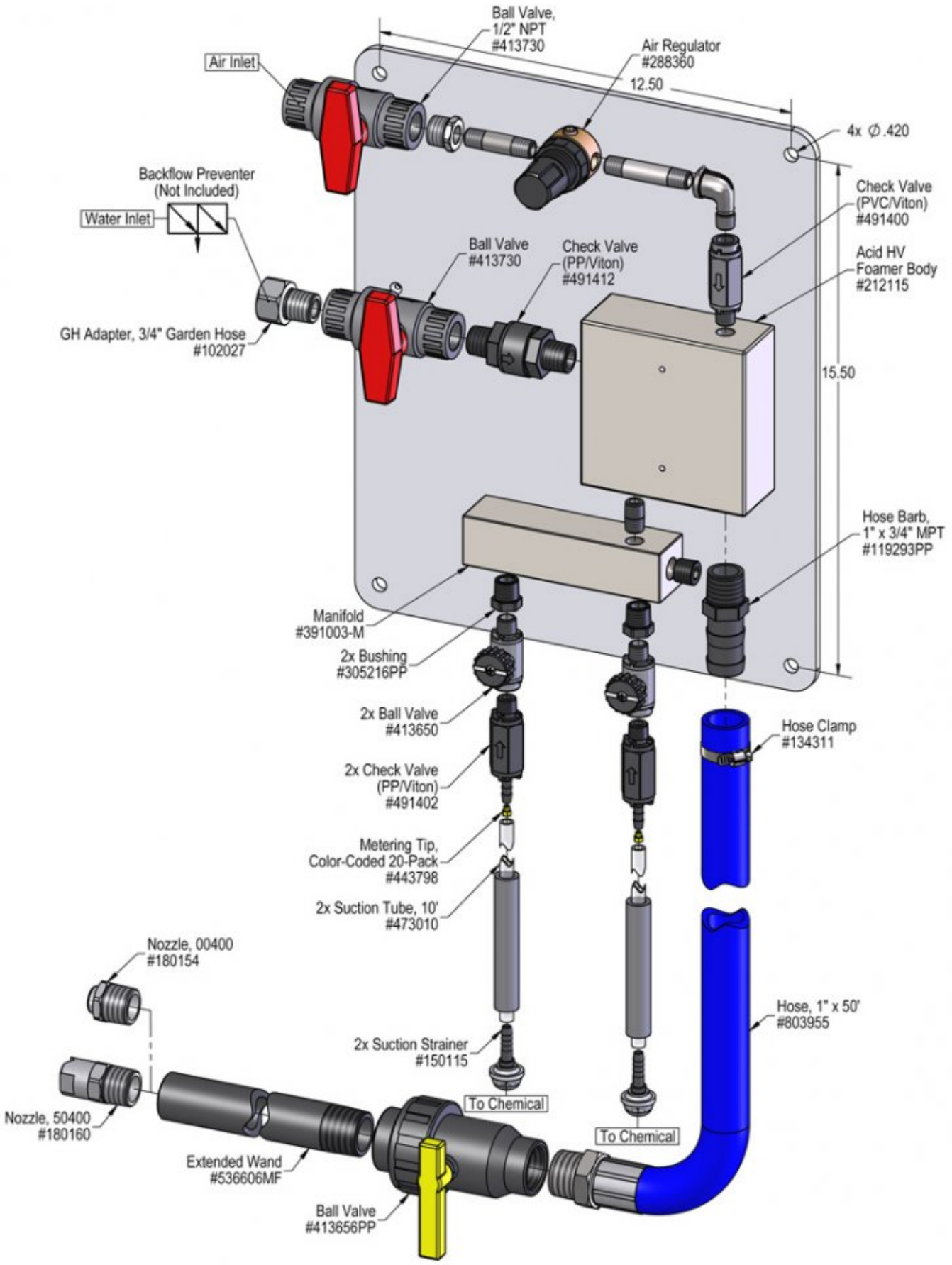
FORMULA

GPM × 128 ÷ Desired Dilution Ratio = oz/min

- *See Unit Flow Rates chart for GPM*
- *Use 20 for 20:1 dilution ratio, 30 for 30:1, etc.*
- *Match calculated ounces per minute (oz/min) to nearest oz/min in Metering Tip Selection chart.*

UNIT FLOW RATES

PSI	GPM
40	3.15
50	3.52
60	3.86
70	4.17
80	4.45
90	4.73
100	4.98
110	5.22
120	5.46
125	5.57


Ball Valve,
1/2" NPT
#413730
Air Regulator
#288360
Air Inlet
12.50
4x ∅.420
Backflow Preventer
(Not Included)
Water Inlet
Check Valve
(PVC/Viton)
#491400
Ball Valve
#413730
Check Valve
(PP/Viton)
#491412
Acid HV
Foamer Body
#212115
GH Adapter, 3/4" Garden Hose
#102027
15.50
Hose Barb,
1" x 3/4" MPT
#119293PP
Manifold
#391003-M
2x Bushing
#305216PP
2x Ball Valve
#413650
Hose Clamp
#134311
2x Check Valve
(PP/Viton)
#491402
Metering Tip,
Color-Coded 20-Pack
#443798
2x Suction Tube, 10'
#473010
Nozzle, 00400
#180154
Hose, 1" x 50'
#803955
2x Suction Strainer
#150115
To Chemical
To Chemical
Nozzle, 50400
#180160
Extended Wand
#536606MF
Ball Valve
#413656PP

Troubleshooting Guide

Problem	Possible Cause / Solution	
	Startup	Maintenance
A) Foam surges and/or hose "bucks".	1, 2, 3, 4, 6, 7, 8, 9, 10	12, 13, 14, 15, 16, 18, 19
B) Foamer will not draw chemical.	1, 3, 4, 7, 8, 9	12, 13, 14, 15, 16, 18, 19
C) Foam too wet.	2, 3, 4, 6, 7, 8, 9, 10	13, 14, 15, 16, 18, 19
D) Foam does not clean properly (too dry).	1, 4, 6, 11	
E) Using too much chemical.	5	
F) Water/chemical backing up into air line.		17
G) Water backing up into chemical container.		18
H) Air/chemical solution backing up into water line.		20

Possible Cause / Solution

Startup

1. **Air pressure too high**
   - Adjust the air regulator slowly counterclockwise until output stabilizes.
2. **Water pressure or water volume too low/inlet piping too small causing poor chemical pick up**
   - Increase water pressure or water volume (SEE REQUIREMENTS).
3. **Inlet, discharge ball valve not completely open, or chemical ball valve not open (2 & 3-Way)**
   - Completely open the inlet, discharge, and chemical ball valves.
4. **Not enough chemical - metering tip too small**
   - Install larger metering tip.
5. **No metering tip installed or metering tip too large**
   - Install smaller metering tip.
6. **Improper chemical**
   - Ensure product is recommended for foaming and the application.
7. **Chemical tube not immersed in chemical or depleted**
   - Immerse tube or replenish.
8. **Discharge hose too long or wrong size or kinked**
   - Straighten the hose or replace hose with correct size and length.
   - If the hose must be longer than the listed Requirement, water pressure must be 65 PSI or more for up to a 75' hose.
9. **Nozzle size too small**
   - Replace nozzle with correct size.
10. **Use of an oiler in the airline will cause poor foam quality**
    - Use only clean, dry air.
11. **Soil has hardened on surface, rinse foam before it dries**
    - Reapplication may be necessary.

Maintenance

12. **Foamer inlet orifice clogged**
    - Check/clean inlet orifice for obstructions. DO NOT DRILL OUT. Install a water filter.
13. **Chemical strainer or metering tip partially blocked**
    - Clean or replace chemical strainer and/or metering tip.
14. **Chemical tube stretched out or pin hole/cut in chemical tube sucking air.**
    - Cut off end of tube or replace tube.
15. **Vacuum leak in chemical pick-up connections**
    - Tighten the connection.
16. **Air regulator failed allowing too much air or not enough air**
    - Clean or replace.
17. **Air check valve failed - Discharge ball valve left closed with inlet ball valves open**
    - Clean or replace.
18. **Chemical check valve stuck or failed**
    - Clean or replace.
19. **Hard water scale or chemical build-up may have formed in the foamer body causing poor or no chemical pick-up**
    - Follow Preventive Maintenance instructions below, using hot water or descaling acid. When there is no draw at all, carefully remove fittings and soak entire body in descaling acid.
20. **No backflow preventer installed and/or inlet ball valve left on when not in use**
    - Install appropriate backflow preventer into water line.

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.