Lafferty Equipment Manufacturing, LLC
Installation & Operation Instructions

Model # 916115SS · HVHCSS Foamer

REQUIREMENTS

Chemical Concentrate

Water

Temperature	up to 180°F
Pressure	35 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 or 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

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



Lafferty EQUIPMENT MANUFACTURING LLC

CFS TECHNOLOGIES

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WARNING! READ ALL INSTRUCTIONS BEFORE USING EQUIPMENT!

OVERVIEW

The HVHCSS Foamer is a high volume, "high concentrate" foam applicator that will produce strong dilution ratios for the toughest cleaning jobs. Weaker dilution ratios are achieved with metering tips. This stainless steel venturi injection system uses standard city water pressure (35 - 125 PSI) to draw and blend a high concentration of chemical concentrate into the water stream to create a very strong chemical 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 and zero degree nozzle at distances up to 25 feet (15 feet with fan nozzle). Gauges display incoming water and air pressure.

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 installing the inline tip holder and a metering tip into chemical pick up tube. See chemical label for dilution ratio recommendation or consult your chemical supplier.

- For the strongest possible chemical dilution ratio, do not install a metering tip.
- The dilution ratios in the metering tip chart are based on chemical with a viscosity of 1CPS.
- For water pressure other than the example, use the Metering Tip Selection Formula.
- Due to varying chemical viscosity and applications, you may need to increase/decrease the tip size to get the best result.
- Install a colored metering tip in the inline tip holder. **DO NOT OVER-TIGHTEN**
- Splice tip holder into the chemical pick up tube as shown in the drawing. Use the hose clamp as shown in the diagram (certain units only).
- Once metering tip is installed immerse the chemical strainer into your 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. With wand in hand open the water ball valve, and the air ball valve.
3. Open the discharge ball valve.
    - Wait a few seconds and observe foam consistency.
    - 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! 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 on the air regulator. You are ready to start application.
4. When foaming is completed, close the discharge ball valve, return to the unit and close the water and air ball valves. Briefly re-open the discharge ball valve to relieve pressure in the hose.
5. Rinse before the foam dries (if necessary).

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.

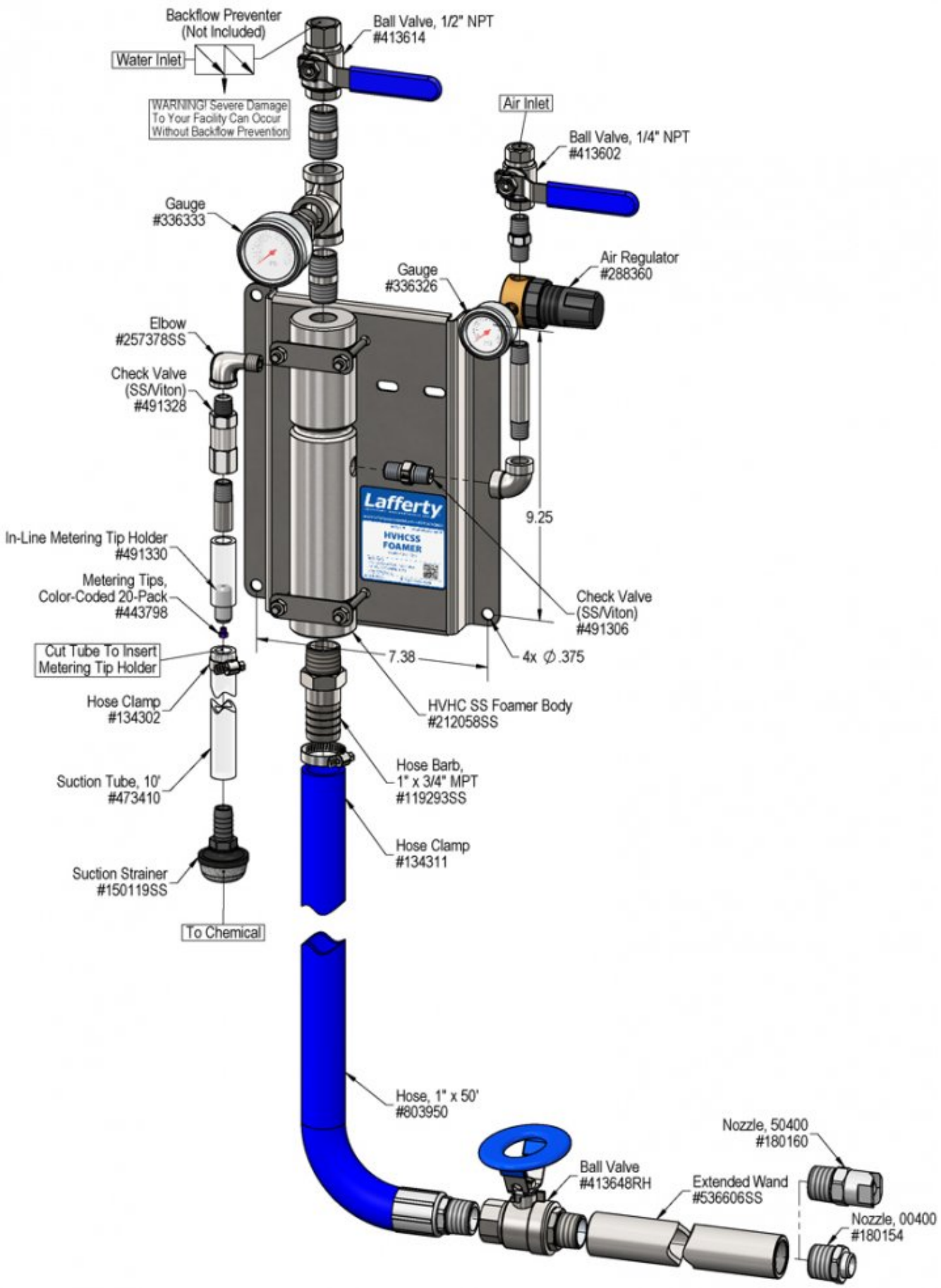
FORMULA

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
35	2.95
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


Backflow Preventer
(Not Included)
Water Inlet
WARNING! Severe Damage
To Your Facility Can Occur
Without Backflow Prevention
Ball Valve, 1/2" NPT
#413614
Air Inlet
Ball Valve, 1/4" NPT
#413602
Gauge
#336333
Gauge
#336326
Air Regulator
#288360
Elbow
#257378SS
Check Valve
(SS/Viton)
#491328
In-Line Metering Tip Holder
#491330
Metering Tips,
Color-Coded 20-Pack
#443798
Cut Tube To Insert
Metering Tip Holder
Hose Clamp
#134302
Suction Tube, 10'
#473410
Suction Strainer
#150119SS
To Chemical
Lafferty
HVHCSS
FOAMER
9.25
Check Valve
(SS/Viton)
#491306
7.38
4x ∅.375
HVHC SS Foamer Body
#212058SS
Hose Barb,
1" x 3/4" MPT
#119293SS
Hose Clamp
#134311
Hose, 1" x 50'
#803950
Nozzle, 50400
#180160
Ball Valve
#413648RH
Extended Wand
#536606SS
Nozzle, 00400
#180154

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.