Lafferty Equipment Manufacturing, LLC
Installation & Operation Instructions

Model # 941353PRV · Liberty PRV 3-Way LC Foamer

REQUIREMENTS

Chemical Concentrate	
Water	
Temperature	up to 160°F
Pressure	20 to 80 PSI
Flow	1.64 GPM @ 60 PSI
Supply Line	1/2"
Compressed Air	up to 6 CFM
Hose	3/4" ID x 50'
Nozzle	50250

OPTIONS

Stainless Steel Hose Racks	
Large Stainless Steel Hose Rack	# 224150
Stainless Steel Jug Racks	
1 Gallon Round/Square	# 224200
1 Gallon Round/Square Locking	# 224200-L
Safe Flow Lid™ for 1 Gallon Jugs	
Lid, Suction Tube, and Strainer	# 709101
Drum & Tote Sticks Available	
Stainless Steel Foam Wand (Upgrade)	
Convert PP Wand to SS (New Units)	# 536603-X
Alternate Check Valves - EPDM Standard	
Check Valve, Chemical, SS, Viton, 1/4"	# 491324-V
Check Valve, Air, SS, 1/4" MM (Viton / Hast)	# 491306

Lafferty EQUIPMENT MANUFACTURING LLC

CFS TECHNOLOGIES

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WARNING! READ ALL INSTRUCTIONS BEFORE USING EQUIPMENT!

OVERVIEW

The Liberty PRV 3-Way LC Foamer is a medium volume venturi foamer for three foaming chemicals or three dilutions of the same chemical. It is designed for facilities with low or fluctuating water pressure. Liberty PRV models connect to standard water pressure from 20 to 80 PSI. A Pressure Reducing Valve lowers the incoming water pressure before an air pump boosts the water pressure and maintains consistent 60 PSI output. The lockable, stainless steel cabinet protects components, including the venturi foamer body, which draws and blends chemical concentrate into the water stream to create an accurately diluted solution. Compressed air is injected into the solution to greatly increase its volume and coverage ability as rich, clinging foam that is projected through the hose, wand and nozzle at distances up to 12 feet.

SAFETY & OPERATIONAL PRECAUTIONS

- 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.
- DO NOT use d-Limonene or other chemicals that are not compatible with the Santoprene diaphragms.
- Viton upgrade is available.

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.

OPERATION INSTRUCTIONS

Always make sure the discharge ball valve is closed or pointed in a safe direction before turning the air on. Ball valve 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 ball valve.

The unit has been tested and is ready to operate. The pump air pressure regulator is preset and locked at 65 PSI. This is the optimum pump pressure for this unit. Test "as is" before making any foam consistency adjustments.

1. Final dilution ratios and air adjustments will now have to be made.
2. The foam consistency knob is pre-set. IF adjustments are needed turn the foam consistency needle valve counterclockwise for drier foam and clockwise for wetter foam. Make only small turns and wait several seconds after each adjustment to see the results.
    - Too much foam consistency air can cause: the pump to stall; the hose to buck and jump; poor foam; the venturi to fail.
    - Medium-wet foam will give the best results! Dry foam will NOT clean as well!
3. With wand in hand direct the discharge in a safe direction, open the discharge ball valve, and open one chemical ball valve (2 or 3-Way units only).
4. Open the air ball valve.
5. Wait several seconds for pump to prime and the foamer to draw the chemical.
6. You may have to try different sized metering tips and air settings until foam consistency and cleaning results are acceptable. Once this is set you are ready to start application.
7. When foaming is complete, close the discharge ball valve. Return to the unit and close the water and air inlet ball valves. Briefly re-open the discharge ball valve to relieve pressure in the hose.
8. Rinse the work surface before the foam dries.

METERING TIP SELECTION

METERING TIP COLOR	OZ/MIN	DILUTION RATIO @ 60 PSI
		FOAM
Brown	0.56	375:1
Clear	0.88	239:1
Bright Purple	1.38	152:1
White	2.15	98:1
Pink	2.93	72:1
Corn Yellow	3.84	55:1
Dark Green	4.88	43:1
Orange	5.77	36:1
Gray	6.01	35:1
Light Green	7.01	30:1
Med. Green	8.06	26:1
Clear Pink	9.43	22:1
Yellow Green	11.50	18:1
Burgundy	11.93	18:1
Pale Pink	13.87	15:1
Light Blue	15.14	14:1
Dark Purple	17.88	12:1
Navy Blue	25.36	8:1
Clear Aqua	28.60	7:1
Black	50.00	--
No Tip Ratio Up To:		6:1

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

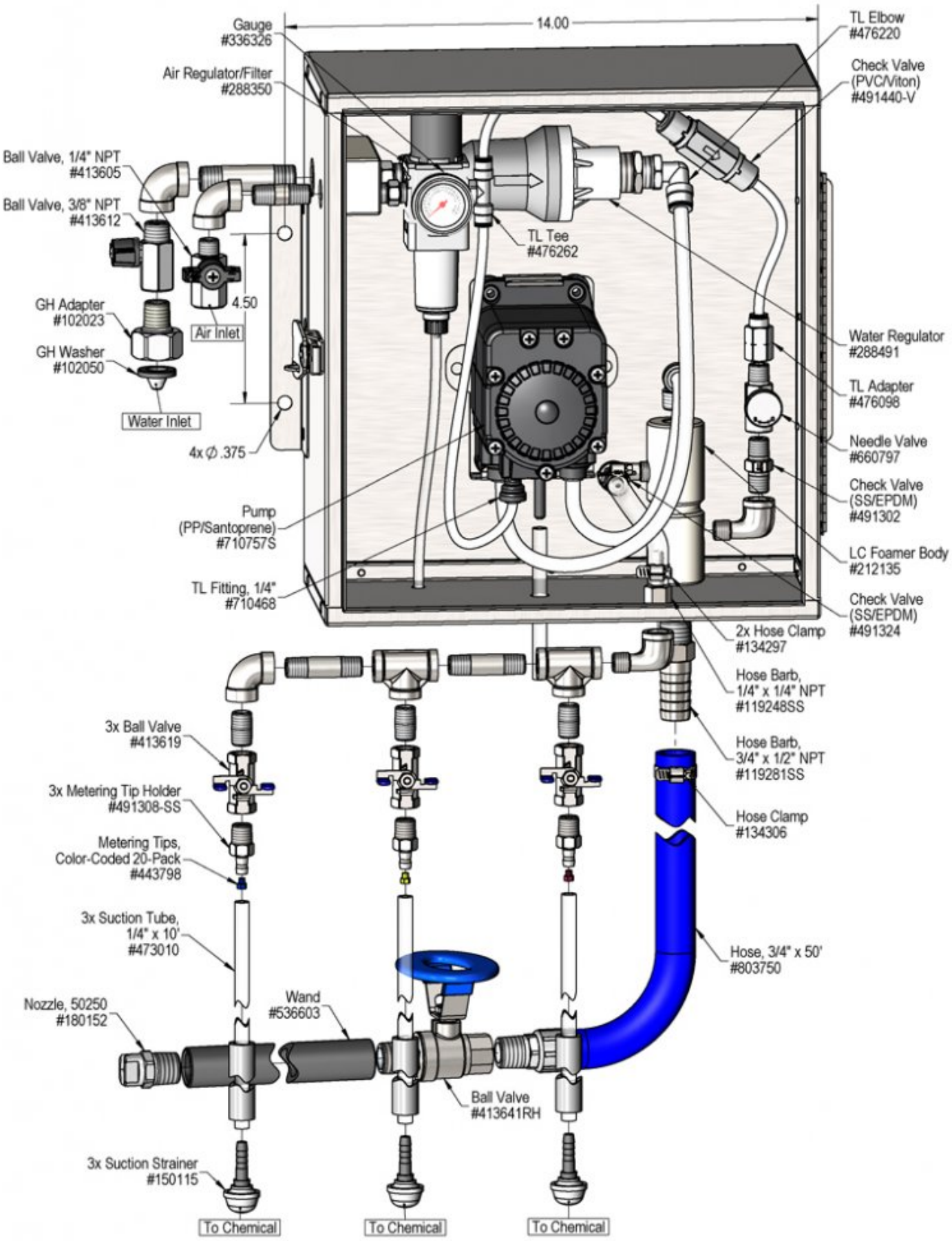
FORMULA

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 RATE @ 60 PSI

Function	Water Flow Rate
	GPM
FOAM	1.64


14.00
Gauge
#336326
Air Regulator/Filter
#288350
Ball Valve, 1/4" NPT
#413605
Ball Valve, 3/8" NPT
#413612
GH Adapter
#102023
GH Washer
#102050
Water Inlet
4.50
Air Inlet
4x ∅ .375
Pump
(PP/Santoprene)
#710757S
TL Fitting, 1/4"
#710468
TL Tee
#476262
TL Elbow
#476220
Check Valve
(PVC/Viton)
#491440-V
Water Regulator
#288491
TL Adapter
#476098
Needle Valve
#660797
Check Valve
(SS/EPDM)
#491302
LC Foamer Body
#212135
Check Valve
(SS/EPDM)
#491324
2x Hose Clamp
#134297
Hose Barb,
1/4" x 1/4" NPT
#119248SS
Hose Barb,
3/4" x 1/2" NPT
#119281SS
Hose Clamp
#134306
Hose, 3/4" x 50'
#803750
3x Ball Valve
#413619
3x Metering Tip Holder
#491308-SS
Metering Tips,
Color-Coded 20-Pack
#443798
3x Suction Tube,
1/4" x 10'
#473010
Nozzle, 50250
#180152
Wand
#536603
Ball Valve
#413641RH
3x Suction Strainer
#150115
To Chemical
To Chemical
To Chemical

Troubleshooting Guide

Problem	Possible Cause / Solution	
	Startup	Maintenance
A) Air pump will not prime or runs with no output.	1, 2, 3, 4	8, 9, 11, 12, 13
B) Will not draw chemical.	1, 2, 3, 4	8, 11, 12
C) Foam surges and / or hose "bucks".	1, 2, 3, 4, 5, 6	8, 9,10, 11
D) Foam output too wet.	1, 2, 3, 4, 5, 6	8, 11, 12
E) Foam output too dry.	2	
F) Cleaning results not acceptable.	5, 6, 7	

Possible Cause / Solution

Startup

1. **Inlet ball valve partially closed or air pressure too low.**
   - Make sure air pressure is set at 65 PSI and inlet ball valve is completely open.
2. **Foam consistency needle valve open too much**
   - Adjust the needle valve slowly clockwise until foam stabilizes.
   - Turn round handle slightly clockwise for wetter foam; open counterclockwise for dryer foam.
   - Open a maximum of 1/2 turn or the foamer will not draw chemical.
3. **Discharge ball valve not completely open or discharge hose kinked**
   - Completely open the discharge ball valve / straighten hose.
4. **Water or chemical tubes not completely immersed or container(s) empty**
   - Immerse tubes or replenish.
5. **Dilution too weak**
   - Install a larger metering tip (chemicals that are thicker than water will require a larger tip than indicated in the chart).
6. **Improper chemical**
   - Ensure product is recommended for foaming and/or the application.
7. **Soil has hardened on surface**
   - Always rinse foam before it dries

Maintenance

8. **Water or chemical strainers blocked**
   - Clean or replace.
9. **Air regulator failed**
   - Clean or replace.
10. **Discharge hose kinked**
    - Straighten the hose.
11. **Nozzle size too small or missing**
    - Use only nozzles specified. (See Requirements)
12. **Problem with air pump**
    - Refer to air pump instruction manual/CD.

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.