
USER MANUAL

MODEL NUMBER:

FI-DOF

FI-DOFK

FI-DOFV

AND RELATED UNITS

Drive Over Foam Unit

English (Original Instructions)

READ ALL INSTRUCTIONS BEFORE OPERATING EQUIPMENT

WARNING



Read this manual completely and understand the machine before operating or servicing it.

- Read all instructions before installing or operating unit.
- Always wear appropriate personal protective equipment (PPE) when operating or servicing unit.
- Always follow all chemical safety precautions and handling instructions provided by the chemical manufacturer and Safety Data Sheet (SDS).
- Always disconnect or shut off any compressed air, water, or electricity being supplied to the unit before servicing the unit.
- Never use unit if it is damaged or leaking.
- If this unit is modified or serviced with parts not listed in this manual, the unit may not operate correctly.
- Do not exceed an incoming air pressure of 100 psi (6.9 bar).
- Do not exceed a fluid temperature of 100°F (37.8°C).
- Never use unit with hydrocarbons or flammable products.
- Only use clean and dry air. Air must be filtered and free of moisture or pump life will be diminished.
- Do not use an air lubricator before the unit.
- Protect unit from freezing.
- Use equipment only when air is calm to prevent blowing or drifting chemical.
- Use equipment only for its intended purpose.
- Sensor detects moving iron-based metal within a 12 ft. (3.6 m) radius, and may be activated by an individual carrying or wearing iron-based metal or by traffic passing within the sensor's radius.
- Turn unit off before making any adjustments to ramp or nozzles.
- Do not allow foot traffic to pass within sensor range when system is active.

PROTECT THE ENVIRONMENT

Please dispose of packaging materials, old machine components, and hazardous fluids in an environmentally safe way according to local waste disposal regulations.



Always remember to recycle.

*Specifications and parts are subject to change without notice.

OPTIONS	
	Pump Seal Material
FI-DOF	Santoprene (standard)
	Viton (V)
	Kalrez (K)
Add bold option codes to item number as shown. For standard options, no option code is needed.	
Examples:	
<ul style="list-style-type: none"> • FI-DOF (standard unit with Santoprene pump seals) • FI-DOFV (unit with Viton pump seals) 	

READ ALL INSTRUCTIONS BEFORE OPERATING EQUIPMENT

REQUIREMENTS	
Compressed air requirements	50 psi (3.4 bar) with 20 cfm (566.3 l/min)
Water requirements	25-100 psi (1.7-6.9 bar) Backflow prevention is required – consult local plumbing ordinances for more information.
Liquid temperature range	40-100°F (4.4-37.8°C)
Electrical requirements	120 VAC at 60 Hz, 2 amps (GFCI protected outlet)
Operating voltage	120 VAC
Chemical compatibility	Chemical products used with this equipment must be formulated for this type of application and compatible with unit materials and pump seals. For more information on chemical compatibility, consult the manufacturer or SDS for your product or contact our customer service department.

SPECIFICATIONS	
Power type	Compressed air and electricity
Chemical pickup type	Draws from concentrated product (includes proportioning tank)
Dilution ratio range (water:chemical)*	4:1 to 530:1
Number of products unit can draw from	One product
Suction line length/diameter	From proportioning tank to chemical source: one suction line, 9 ft. (2.7 m) of clear hose with 1/2 in. (12.7 mm) inside diameter From pump box to proportioning tank: six suction lines, each 10 ft. (3.1 m) of blue hose with 3/8 in. (9.5 mm) inside diameter
Capacity	Proportioning tank: 55 gallons (208.2 liters)
Flow rate**	13 gal/min (49.2 l/min)
Pump seals	Santoprene, Viton, or Kalrez
Number of nozzles	Includes five ramp nozzle assemblies and two side nozzle assemblies
Distance from ramp to control box panel	Minimum: 30 ft. (9.1 m) Maximum: approximately 50 ft. (15.2 m)
Tubing/fitting sizes	Designed for use with 1/2 in. (12.7 mm) inside diameter hose between control panel and nozzles
Vehicle ground clearance	7-49 in. (17.8-124.5 cm)
Coverage area	At 7 in. (17.8 cm) vehicle ground clearance, coverage area will be up to 65 in. (165.1 cm) wide. At 49 in. (124.5 cm) vehicle ground clearance, coverage area will be up to 102 in. (259.1 cm) wide.
Vehicle weight	Up to 40,000 pounds (18.14 metric tons) per axle
Ramp width	12 ft. (3.6 m)
Traffic flow direction	Suitable for traffic moving in one or both directions
Sensor type	Detects moving iron-based metal within a 12 ft. (3.6 m) radius

*Approximate dilutions at 40 psi (2.6 bar) water pressure for water-thin products at 1.0 cP.

**Flow rate based on chemical with viscosity of water and factory air settings.

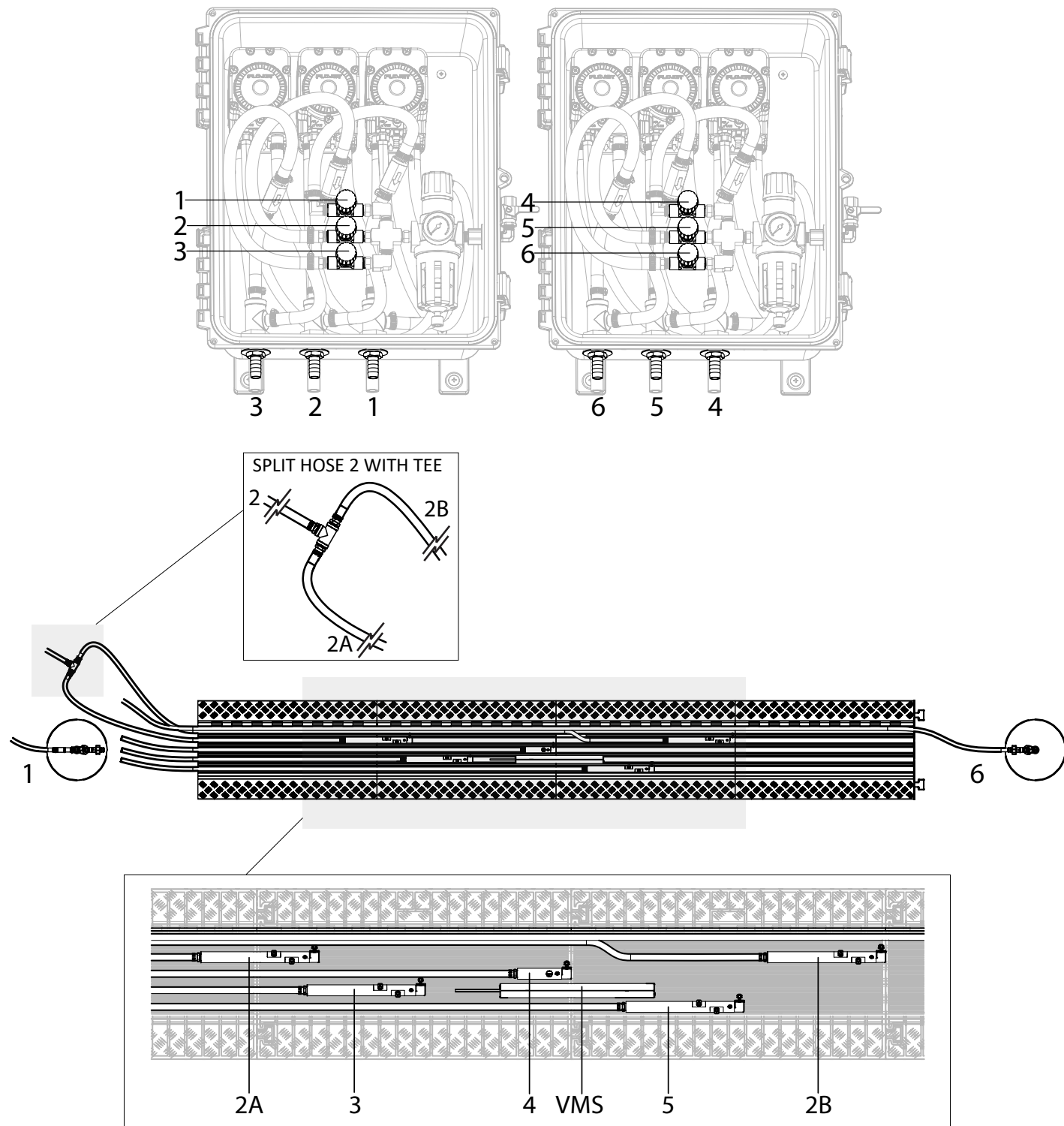
READ ALL INSTRUCTIONS BEFORE OPERATING EQUIPMENT

Installation Instructions:

1. Remove all components from packaging.
2. Select a location for the ramp.
3. Assemble the ramp by matching up the letters on the ramp sections (AA, BB, CC). The AA ramps should be positioned closest to the control panel.
4. Place one side nozzle assembly at each end of the ramp. The connection barbs at the base of the nozzles should point towards the control panel.
5. Select a location for the control panel and proportioning tank (see mounting options listed below).
Note: Distance from control panel to ramp must be no less than 30 ft. (9.1 m) and no more than 50 ft. (15.2 m). Proportioning tank must be protected from weather and direct sun (suction holes are not watertight).
6. Select a method for mounting the control panel (see Control Panel Installation Options diagram).
If mounting control panel to proportioning tank:
 - a. Refer to steps 7-11 to fill the tank with solution.
 - b. Once the tank is full, center the control panel against the tank and connect the bungee cord to the eye hooks, securing the panel in place.
Note: The proportioning tank must be filled with solution prior to mounting the control panel. The weight of the panel may tip over an empty tank.
If standing control panel against a wall:
 - a. Position control panel against wall. Connect the standoff bracket to the top of the panel, and secure it to the wall.
If hanging control panel on a wall:
 - a. Remove legs from control panel.
 - b. Mount one leg to the wall and one leg to the top of the control panel to form a Z bar bracket. Hang the panel on the wall using this bracket.
 - c. Connect the standoff bracket to the bottom of the panel, and secure it to the wall.
7. Install float inside proportioning tank.
8. Run the six suction hoses from pump boxes to proportioning tank, and feed three hoses through each suction hole.
9. Remove proportioning tank cap. Pull the ends of the suction hoses out through the opening. Install a weight and strainer on the end of each hose, and drop hoses back into tank. Replace cap on tank.
10. Select metering tip for proportioning tank (see Metering Tip Color Chart). Install tip in proportioner, connect chemical pickup tube, and place foot valve into chemical container.
Note: The chemical pickup tube must reach the bottom of the chemical container. A foot valve or strainer must always be used on the chemical pickup line.
11. Connect a water line to the proportioning tank. The unit has a garden hose thread water inlet fitting. Turn water on to begin filling the tank with product.
Note: A back-flow preventer must be installed in the water line – check local plumbing codes to ensure proper installation.
12. Place the five ramp nozzle assemblies into the brackets mounted inside the ramp channels. See Installation Diagram for correct nozzle placement.
13. Run discharge hoses from pump boxes to nozzles. See Installation Diagram for connection guide.
 - a. Secure hose to pump box discharge barb #1 with a screw band clamp. Run hose to side nozzle #1. Cut hose to length and secure to nozzle inlet barb with a screw band clamp.
 - b. Secure hose to pump box discharge barb #2. Run the hose toward the ramp and cut when it reaches side nozzle #1. Install a tee fitting at the end of the hose and secure with a screw band clamp.
Note: Connect the hose to the stem of the tee fitting to ensure even discharge from each side of the tee.
 - c. Secure hose to one side of the tee fitting and run to ramp nozzle #2A. Cut hose to length and secure with screw band clamps. Repeat on the other side of the tee for ramp nozzle #2B.
 - d. Secure hose to pump box discharge barb #3. Run hose to ramp nozzle #3. Cut hose to length and secure to nozzle inlet barb. Repeat for discharge barbs/ramp nozzles #4 and #5.
 - e. Secure hose to pump box discharge barb #6. Run hose to side nozzle #6. Cut hose to length and secure to nozzle inlet barb.
14. Place the sensor into the ramp channel near the center of the ramp (see Installation Diagram). Close the ramp covers.
15. Supply compressed air to the unit.
16. With the power switch in the OFF position, plug the unit into a GFCI protected 120 VAC power outlet.

READ ALL INSTRUCTIONS BEFORE OPERATING EQUIPMENT

INSTALLATION DIAGRAM



READ ALL INSTRUCTIONS BEFORE OPERATING EQUIPMENT

METERING TIP COLOR CHART

Metering tip color	Ounces of chemical per gallon of water*	Dilution ratio (water:chemical)*
No Tip	32	4:1
Gray	21.3	6:1
Black	12.8	10:1
Beige	6.4	20:1
Red	3.7	35:1
White	2.5	52:1
Blue	2.3	55:1
Tan	1.8	70:1
Green	1.3	100:1
Orange	0.9	140:1
Brown	0.8	160:1
Yellow	0.7	190:1
Purple	0.5	250:1
Pink	0.2	530:1

*Approximate dilutions at 40 psi (2.6 bar) water pressure for water-thin products at 1.0 cP. Injection rates will vary based on chemical viscosity, water pressure, and many other factors. We recommend testing unit output to verify injection rate prior to use.

Operation Instructions:

1. Verify that the unit is connected to compressed air, water, power, and chemical and the proportioning tank has solution available.
2. Open the two compressed air inlet valves.
3. Turn the power switch ON and wait 60 seconds for sensor to calibrate.
Note: Do not allow moving metal objects (including vehicles) to come within range of the sensor while it is calibrating.
4. Slowly drive a vehicle over the ramp to activate unit. While the unit is running and discharging product, adjust the needle valves as needed to regulate the wetness or dryness of the foam following the steps below:
 - a. Close needle valve completely in clockwise direction.
 - b. Open needle valve in counter-clockwise direction 2 complete turns.
 - c. Continue opening needle valve in 1/4 turn increments, allowing 30 seconds between adjustments, until desired consistency of foam is achieved.**Note:** Needle valves are located inside the pump boxes. See Installation Diagram to determine which needle valve controls which nozzle(s).
5. The side nozzle assemblies are adjustable ball-type nozzles. If needed, these nozzles may be adjusted to improve coverage.
Note: Turn unit off before making any adjustments to ramp or nozzles.
6. To deactivate the unit, turn the power switch OFF.

READ ALL INSTRUCTIONS BEFORE OPERATING EQUIPMENT

Maintenance Instructions:

To keep the unit operating properly, periodically perform the following maintenance procedures:

Note: Always disconnect or shut off any compressed air, water, or electricity being supplied to the unit before performing maintenance.

- Inspect the pumps for wear and leaks.
- Inspect all hoses for leaks or excessive wear. Make sure all hose clamps are in good condition and properly secured.
- Check the chemical metering tip, suction lines, and strainers for debris and clean as needed.
- Drain your air compressor tank on a regular basis to help extend pump life. An air source with a high moisture content will accelerate pump wear.
- Inspect ramps for damage and verify that ramp sections are properly connected to each other.
- Inspect spray tips for debris or blockages. Remove and clean as needed.

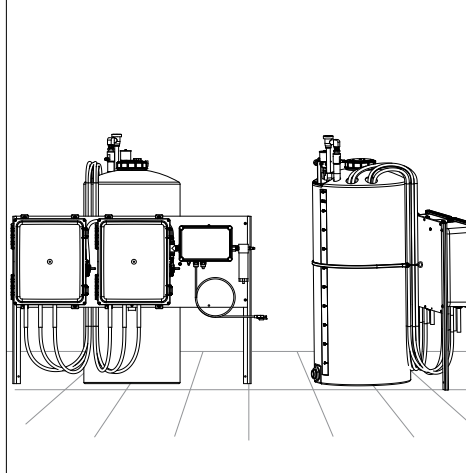
Troubleshooting Instructions:

- Check that all hose is uncoiled properly and there are no kinks that could obstruct fluid flow.
- Check the air regulator bowl and air filter for debris such as water, oil, or rust particles. Clean by unthreading the air regulator bowl from the air regulator.
- If the needle valves are open too far, the pumps may cycle improperly due to lack of air pressure. If this occurs, close and readjust the needle valves as described in the Operation Instructions.
- Make sure proper foaming chemical and concentration are being used.
- If air passes through a pump without cycling, the pump needs to be replaced.
- If solution backs up into the air regulator bowl, one or more check valves need to be replaced.
- If foam comes out wet from a nozzle, no matter where the associated needle valve is positioned, the associated check valve may need to be replaced.
- Check for proper air pressure on the air gauges. The air requirements are 50 psi (3.4 bar) with 20 CFM (566.3 l/min).
- If the unit operates at a reduced air pressure:
 - o Check the air compressor supplying the unit. If the pressure is less than 50 psi (3.4 bar), turn the unit off until the compressor can catch up.
 - o If the air supply is 50 psi (3.4 bar), check the air gauges, which should read near 50 psi (3.4 bar). If an air gauge reads more or less than 50 psi (3.4 bar), adjust the pressure by turning the knob on the top of the air regulator.
- Check the chemical metering tip, suction lines, and strainers for debris or damage. Clean or replace as needed. To prevent damage to the unit, a strainer must always be used on each suction line.
- If sensor is not working properly, turn system power off. Then turn system on and allow sensor to recalibrate as described in the Operation Instructions.
Note: Sensor must be stationary to function properly.

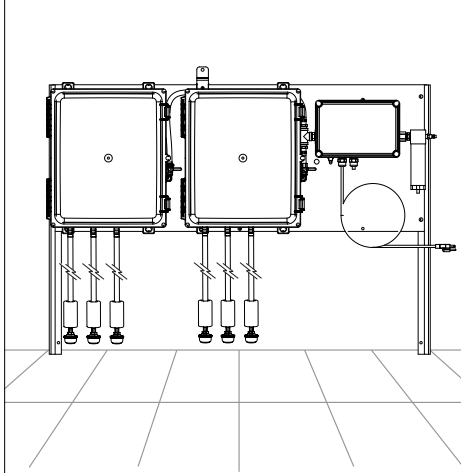
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CONTROL PANEL INSTALLATION OPTIONS

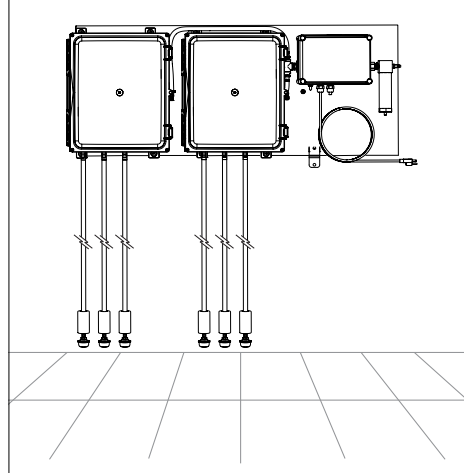
1. MOUNTED TO PROPORTIONING TANK



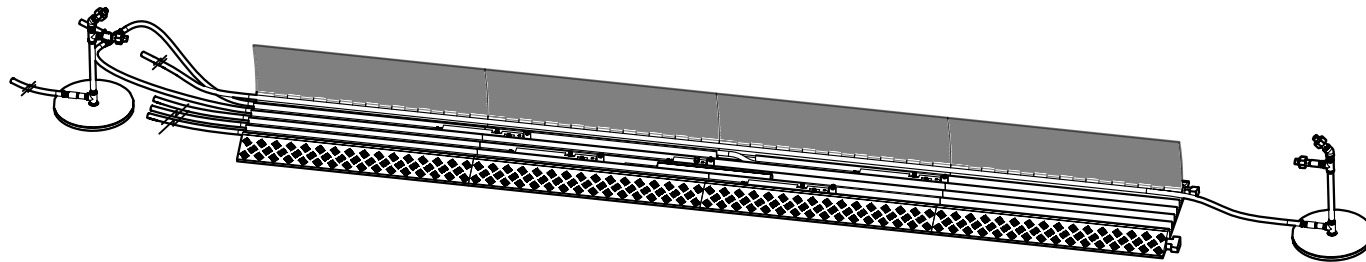
2. MOUNTED AGAINST A WALL



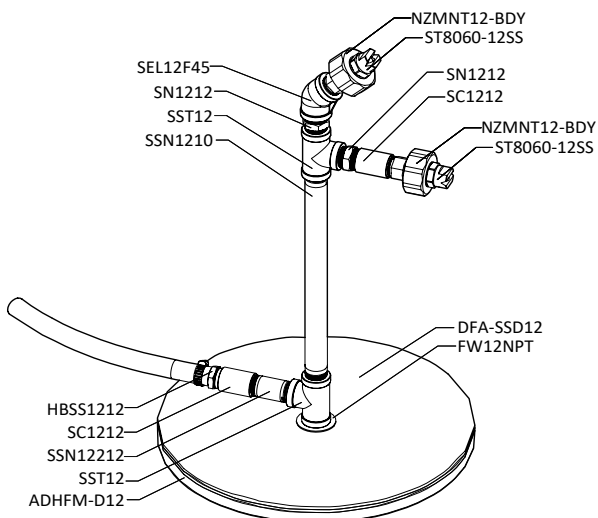
3. MOUNTED ON A WALL



RAMP AND NOZZLE ASSEMBLIES

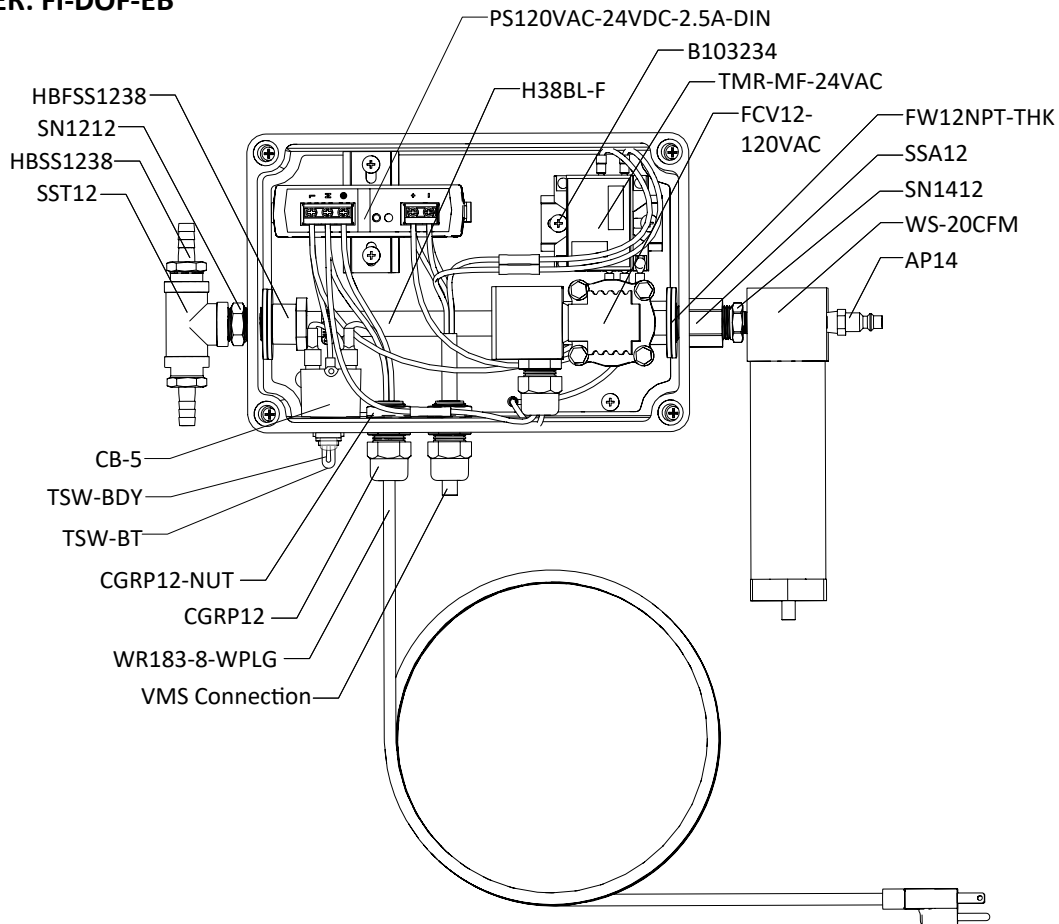


SIDE NOZZLE ASSEMBLY

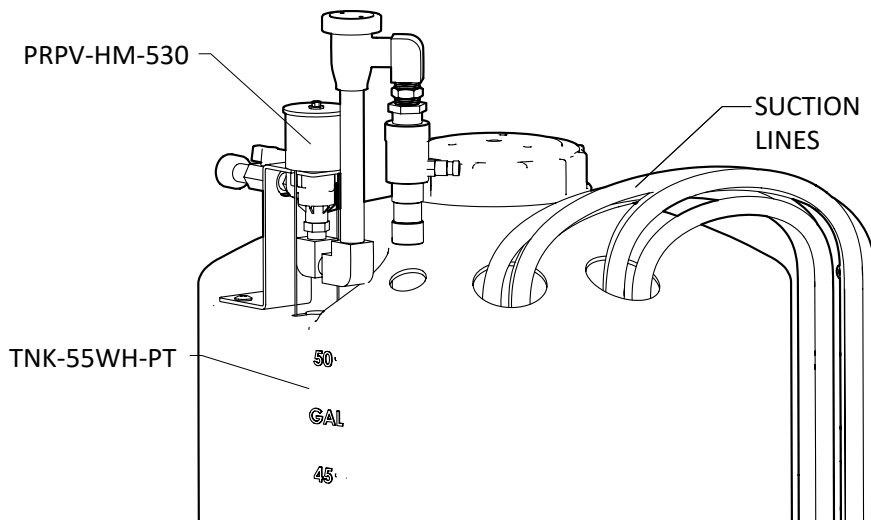


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**ELECTRICAL BOX ASSEMBLY
ITEM NUMBER: FI-DOF-EB**

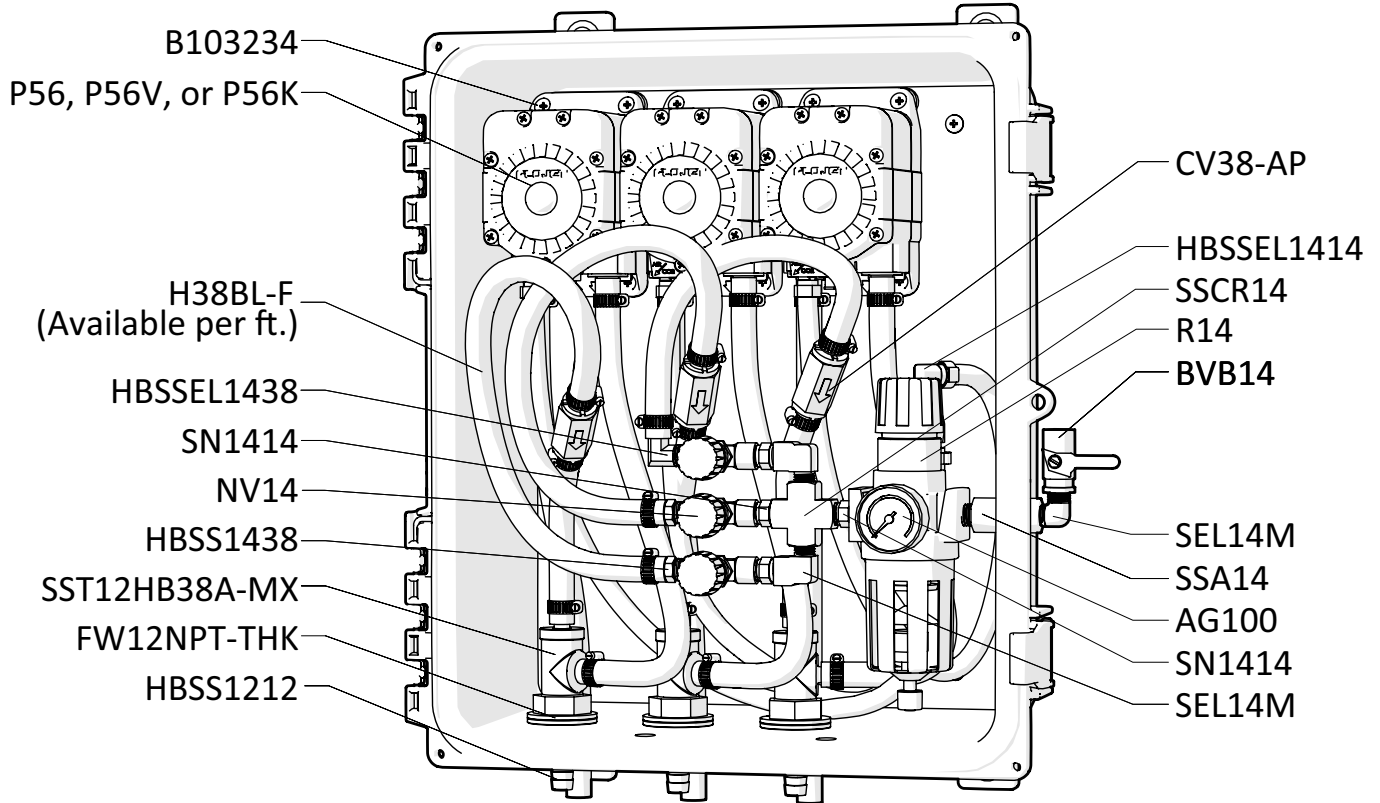


**PROPORTIONING TANK
ITEM NUMBER: PT55**

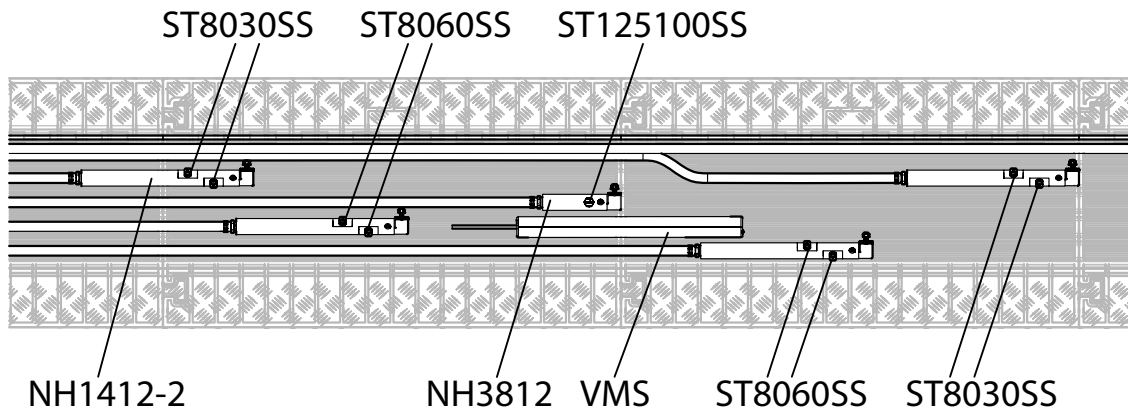


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PUMP BOX ASSEMBLY



RAMP NOZZLE COMPONENTS



READ ALL INSTRUCTIONS BEFORE OPERATING EQUIPMENT

PARTS LIST

PB-FT	POLY BOX FOOT - GRAY POLYPROPYLENE - FOR PBA-12117 AND PBA-16138
PB-LTCH	POLY BOX LATCH - GRAY POLYPROPYLENE - TWO PIECES ASSEMBLED - FOR PBA-12117 AND PBA-16138
PB-PIN	STAINLESS STEEL HINGE PIN FOR PB16138 AND PB12117
PL-1187-B	PLATE FOR FB1187 (BLANK) - PL-4X8
PL-16138-3P	PLATE FOR PB16138 (MOUNTING HOLES FOR 3 PUMPS) - PL-4X8
PL-DOF-CB	PLATE FOR DOF CONTROL AND PUMP BOXES - PL-4X8-1/2-WHITE
PRPV-HM-530	PROPORTIONING FLOAT VALVE - HYDROMINDER - 530 - 9GPM - 4:1 TO 530:1 DILUTION - HYDRO SYSTEMS
PRCH-RMP-5CH	5 CHANNEL DRIVE OVER RAMP-3 FT.
PS120VAC-24VDC-2.5A-DIN	POWER SUPPLY - 120VAC INPUT - 24VDC 2.5A OUTPUT - DIN RAIL MOUNT
R14	REGULATOR - AIR - 4X 1/4IN FPT PORTS - NO GAUGE
RTDS35	RUBBER TIEDOWN STRAP - 35IN LONG - EPDM - ZINC PLATED S-HOOKS
S1034-FH-HL	SCREW - #10 X 3/4IN - STAINLESS STEEL - FLAT HEAD PHILLIPS - HILO THREAD
SC1212	S.S. COUPLER 1/2in BY 1/2in
SEL12F45	1/2 FPT 45 DEGREE ELBOW-STAINLESS
SEL14M	STAINLESS ELBOW 1/4IN MPT X 1/4IN MPT
SHW3	SUCTION HOSE WEIGHT - 15/16IN ID X 1 1/2IN OD X 3 1/4IN LONG - PVC COATED STAINLESS
SN1212	STAINLESS HEX NIPPLE 1/2 MPT X 1/2 MPT
SN1412	1/4IN X 1/2IN MPT STAINLESS NIPPLE
SN1414	STAINLESS HEX NIPPLE 1/4 MPT X 1/4 MPT
SSA12	STAINLESS ADAPTOR 1/2 MPT X 1/2 FPT
SSA14	STAINLESS ADAPTOR 1/4 MPT X 1/4 FPT
SSC12	SCREW BAND CLAMP - STAINLESS STEEL - FOR 1/2IN HOSE
SSC38	SCREW BAND CLAMP - STAINLESS STEEL - FOR 3/8IN HOSE
SSCR14	STAINLESS STEEL CROSS - 304 - 1/4IN FPT
SSE14	STAINLESS STREET ELBOW 1/4 IN
SSLB-NH	SS BRACKET FOR NOZZLE HOUSING
SSN1210	1/2IN NPT SCH40S PIPE NIPPLE - STAINLESS - 10IN LONG
SSN12212	1/2IN NPT SCH40S PIPE NIPPLE - STAINLESS - 2 1/2IN LONG
SST12	STAINLESS TEE 1/2 FPT

SST12HB38A-MX	STAINLESS TEE ASSEMBLY - 1/2 IN. FPT X 3/8 IN. BARB - INCLUDES MIXING MATERIAL AND SCREEN
<i>SST12HB38</i>	STAINLESS STEEL TEE - 1/2IN FPT X 3/8IN BARB - NO MIXING MEDIA
<i>MXA-PF</i>	MIXING ASSEMBLY - PORTABLE FOAM - INCLUDES SS MIXING MEDIA AND SCREEN
ST125100SS	SPRAY TIP-125 DEGREE FAN-10.0 GPM-STAINLESS-3/8 MPT
ST8030SS	SPRAY TIP-80 DEGREE-3.0 GPM- STAINLESS-1/4 MPT
ST8060-12SS	SPRAY TIP-80 DEGREE-6.0 GPM-STAINLESS-1/2 MPT
ST8060SS	SPRAY TIP-80 DEGREE-6.0 GPM- STAINLESS-1/4 MPT
STR14	40 MESH SUCTION LINE STRAINER 1/4 FNPT
TNK-55WH-PT	55 GAL. VERTICAL TANK WHITE HDPE
TMR-MF-24VAC	TIMER - MULTI-FUNCTION RELAY - 0.05SEC TO 10230HR ADJUSTABLE DIGI-SET - 24VAC - 10A MAX - USES 11 PIN SOCKET
TRS11	11 PIN MAGNAL SOCKET
TSW-BDY	TOGGLE SWITCH - BODY - SINGLE POLE SINGLE THROW - NICKEL-PLATED BRASS - 1/4IN SPADE TERMINALS - 1/2IN MOUNTING HOLE - 15/32-32 KEYED THREADED BUSHING
TSW-PLT	TOGGLE SWITCH - ON/OFF PLATE - NICKEL-PLATED STEEL - MOUNTING HOLE FOR 15/32 KEYED BUSHING
TSW-BT	TOGGLE SWITCH - MOUNTING BOOT - BLACK SILICONE RUBBER - 15/32-32 INTEGRATED NUT
VMS	VEHICLE MOTION SENSOR-50FT CABLE
WC1416-BC	WIRE CONNECTOR - FOR 14 TO 16 GAUGE WIRE - BUTT SPLICE - BLUE PVC INSULATED
WC1416-FRK6	WIRE CONNECTOR - FOR 14 TO 16 GAUGE WIRE - #6 NARROW FORK TERMINAL - BLUE PVC INSULATED
WC1416-FSPD14	WIRE CONNECTOR - FOR 14 TO 16 GAUGE WIRE - 1/4IN FEMALE SPADE - BLUE PVC INSULATED
WMS14	#14 X 1 1/4IN WALL MOUNT SCREW - STAINLESS - HEX HEAD SLOTTED
WMS14A	#14 X 1 1/4IN WALL MOUNT SCREW ANCHOR - PLASTIC - 5/16IN DRILL SIZE
WR183-8-WPLG	WIRE CORD WITH US STANDARD UNPOLARIZED GROUNDED PLUG - 18AWG 3 CONDUCTOR - 8FT LONG - BLACK RUBBER JACKET - EPDM INSULATION - TYPE SJOOW - 10A RATING
WS-20CFM	TSUNAMI WATER SEPARATOR/AIR DRYER - 20 CFM - 1/4IN FPT PORTS