USER MANUAL

MODEL NUMBER:

FI-DOF

FI-DOFK

FI-DOFV

AND RELATED UNITS

Drive Over Foam Unit

English (Original Instructions)











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 (7 bar).
- Do not exceed a fluid temperature of 100°F (37°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
	Santoprene (standard)
FI-DOF	Viton (V)
	Kalrez (K)

Add bold option codes to item number as shown. For standard options, no option code is needed.

Examples:

- FI-DOF (standard unit with Santoprene pump seals)
- FI-DOFV (unit with Viton pump seals)

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°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.

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

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.
- 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
- Select a method for mounting the control panel (see Control Panel Installation Options diagram).

direct sun (suction holes are not watertight).

If mounting control panel to proportioning tank:

- a. Refer to steps 7-11 to fill the tank with solution.
- 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.

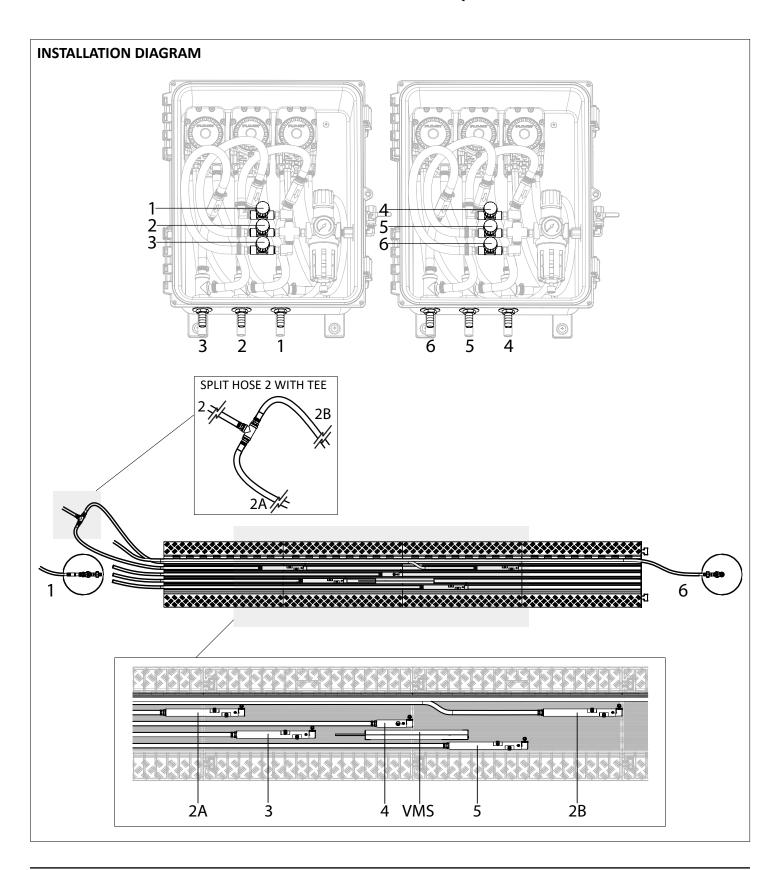
If standing control panel against a wall:

 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.
- Connect the standoff bracket to the bottom of the panel, and secure it to the wall.
- 7. Install float inside proportioning tank.
- Run the six suction hoses from pump boxes to proportioning tank, and feed three hoses through each suction hole.
- 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.
 - 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.



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:

- 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.

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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.

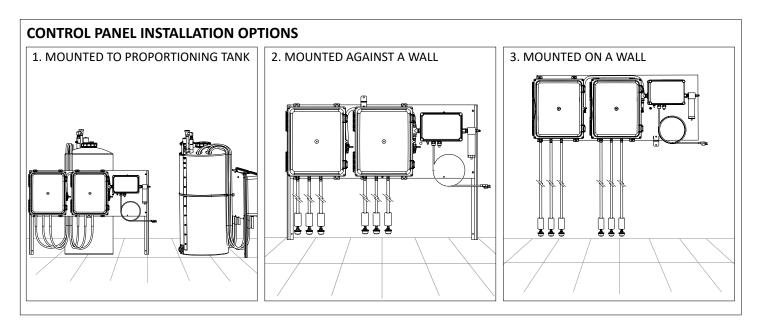
Troubleshooting Instructions:

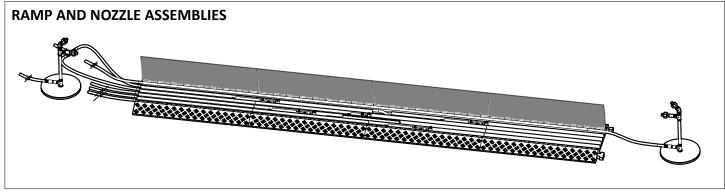
- Check that all hose is uncoiled properly and there are no kinks that could obstruct fluid flow.
- Check the air regulator bowl and air filter for debris such as water, oil, or rust particles. Clean by unthreading the air regulator bowl from the air regulator.
- If the needle valves are open too far, 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 (566.31 I/min).
- If the unit operates at a reduced air pressure:
 - 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.

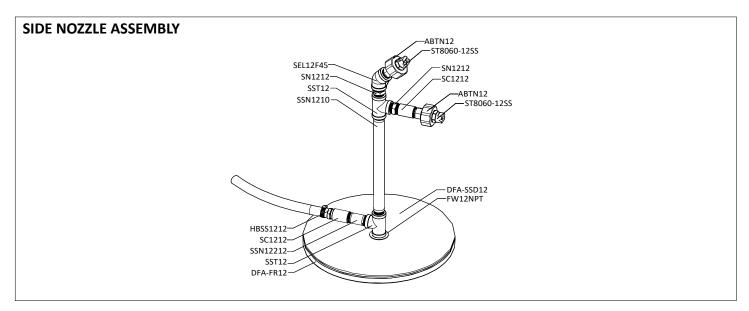
Note: Sensor must be stationary to function properly.

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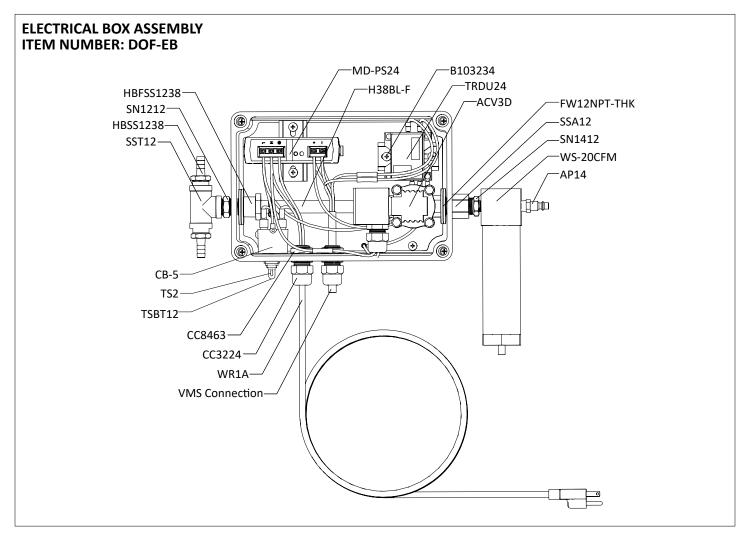
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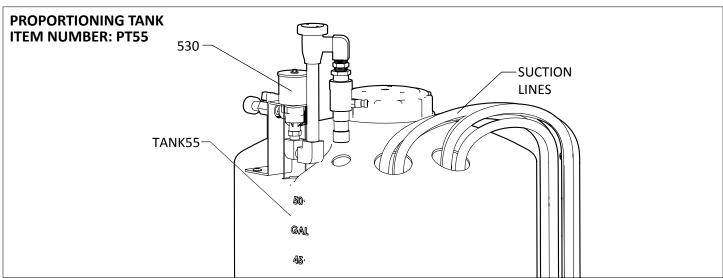




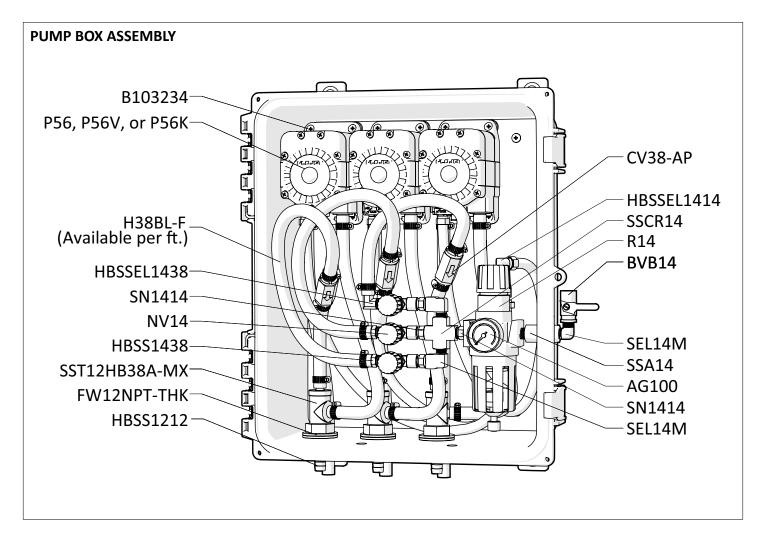


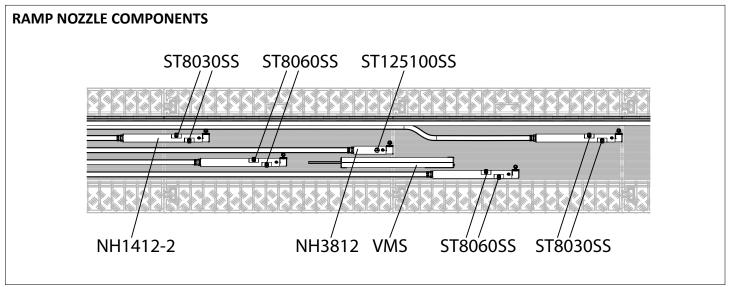
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PARTS LIST

ITEM NUMBER	DESCRIPTION	
530	MED-VOL (9GPM) HYDRO MINDER W/SB	
ABTN12	1/2 MPT x 1/2 FPT ADJUSTABLE BALL SOCKET - PP	
ABTNTB12	1/2 MPT THREADED BALL FOR ABTN12 - PP	
ACV3D	1/2 NPT AIR SOLENOID - 120V - 31GPM - BRASS	
AG100	AIR GAUGE-1/8IN NPT-100 PSI DRY MODEL	
AP14	AIR FITTING 1/4 MPT X PLUG-NICKEL-PLATED BRASS	
B1032114	10-32 X 1 1/4IN BOLT - STAINLESS - TRUSS HEAD PHILLIPS	
B103214	10-32 X 1/4IN BOLT - STAINLESS - TRUSS HEAD PHILLIPS	
B103234	10-32 X 3/4IN BOLT - STAINLESS - TRUSS HEAD PHILLIPS	
B14201	1/4-20 X 1IN BOLT - STAINLESS - TRUSS HEAD PHILLIPS	
B142034	1/4-20 X 3/4IN BOLT - STAINLESS - TRUSS HEAD PHILLIPS	
B142034-HH	1/4-20 X 3/4IN BOLT - STAINLESS - HEX HEAD	
BVB14	AIR INLET VALVE-1/4IN FPT X 1/4IN FPT	
CB-5	5 AMP CIRCUIT BREAKER-UL1077	
СВ-В	CLEAR BOOT FOR CIRCUIT BREAKER	
CC3224	1/2 NPT STRAIN RELIEF GRIP FITTING - BLACK	
CC8463	1/2 NPT LOCKNUT - BLACK	
CV38-AP	CHECK VALVE-3/8IN BARBS-PVC BODY-HASTELLOY SPRING-TEFLON BALL-WHITE	
DFA-FR12	12IN FOAM RING	
DFA-SSD12	12IN SS DISC	
EB14201-ZN	1/4-20 X 1IN EYE BOLT - ZINC PLATED - INCLUDES NUT	
EC14	OETIKER EAR CLAMP FOR 1/4IN HOSE - STAINLESS	
FB1187	FIBOX 11X7.5X7.1	
FW12NPT	FLAT WASHER FOR 1/2IN NPT - STAINLESS - 0.88IN ID X 1.5IN OD X 0.05IN THK	
FW12NPT-THK	FLAT WASHER FOR 1/2IN NPT - THICK - STAINLESS - 0.88IN ID X 1.5IN OD X 0.12IN THK	
FW1420	FLAT WASHER FOR 1/4-20 BOLT - STAINLESS - 0.28IN ID X 0.63IN OD X 0.05IN THK	
FW14NPT	FLAT WASHER FOR 1/4IN NPT - STAINLESS - 0.57IN ID X 1.28IN OD X 0.08IN THK	
FWNV14	FLAT WASHER FOR NV14 - STAINLESS - 0.52IN ID X 0.88IN OD X 0.03IN THK	
H12BL-F	1/2IN ID BLUE HOSE - HYBRID TPE - AVAILABLE PER FT	
H14BL-F	1/4IN ID BLUE HOSE - HYBRID TPE - AVAILABLE PER FT	
H38BL-F	3/8IN ID BLUE HOSE - HYBRID TPE - AVAILABLE PER FT	
HB1438	1/4in MPT X 3/8in HOSE BARB (PLASTIC)	
HBFSS1238	STAINLESS STEEL HOSE BARB 1/2 FPT X 3/8 BARB	
HBSS1212	STAINLESS HOSE BARB 1/2 MPT X 1/2 BARB	
HBSS1238	STAINLESS HOSE BARB 1/2 MPT X 3/8 BARB	
HBSS1414	STAINLESS HOSE BARB 1/4 MPT X 1/4 BARB	

HBSS1438	STAINLESS HOSE BARB 1/4 MPT X 3/8 BARB	
HBSSEL1414	STAINLESS HOSE BARB 1/4 MPT X 1/4 BARB ELBOW	
HBSSEL1438	STAINLESS HOSE BARB 1/4 MPT X 3/8 BARB ELBOW	
HHPB112	HEX HEAD POLY BUSHING 1IN MPT X 1/2 FPT	
HHSB1418	HEX HEAD STAINLESS BUSHING 1/4 MPT X 1/8 FPT	
HM-BRKT	BRACKET FOR MOUNTING HYDROMINDER	
INJM-PL16138- WGSKT	CONTROL BOX LID 16X13X8-POLYPROPYLENE-HINGED LOCKABLE LID-INCLUDES GASKET	
J-BRKT35	J BRACKET - 35 IN LONG	
KI142012	1/4-20 X 1/2IN THREADED KNOCK INSERT - STAINLESS	
LN1032	10-32 LOCKNUT - STAINLESS - NYLON INSERT	
LN1420	1/4-20 LOCKNUT - STAINLESS - NYLON INSERT	
MD-PS24	POWER SUPPLY 24VDC PLASTIC CASE WITH DIN RAIL MOUNTING ADAPTER	
MIX2	TWISTED-IN-WIRE BRUSH625 OD x 2IN	
MIX7	TWISTED-IN-WIRE BRUSH625 OD x 7IN	
N1420	1/4-20 NUT - STAINLESS	
NH1412-2	NOZZLE HOUSING - 1/2 IN NPT INLET - 2 PORTS 1/4 IN NPT - PVC	
NH3812	NOZZLE HOUSING - 1/2 IN NPT INLET - PORT 3/8 IN NPT - PVC	
NV14	NEEDLE VALVE-1/4IN NPT-INCLUDES BLACK KNOB	
NV14-HNDL	BLACK KNOB FOR NEEDLE VALVE	
P12	HEX HEAD PLUG WITH 1/2 M.P.T.	
P12SS	HEX HEAD PLUG - 1/2 IN. MPT - SS304	
P56	PUMP WITH SANTOPRENE SEALS - INCLUDES HOSE BARBS, AIR FITTING, AND EXHAUST BARB	
P56K	PUMP WITH KALREZ SEALS - INCLUDES HOSE BARBS, AIR FITTING, AND EXHAUST BARB	
P56V	PUMP WITH VITON SEALS - INCLUDES HOSE BARBS, AIR FITTING, AND EXHAUST BARB	
PB16138	POLYPROPYLENE CONTROL BOX - WORKING DIMS 16x13x8 - PUMP MOUNT	
PBFT-PP	MOUNTING FEET FOR POLYBOX - PB16138 - POLYPROPYLENE	
PB-LTCH	POLY BOX LATCH FOR PB16138 AND PB12117	
PB-PIN	STAINLESS STEEL HINGE PIN FOR PB16138 AND PB12117	
PL1187B	PLATE FOR FB1187 (BLANK) - PL-4X8	
PL1613B-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	
R14	1/4 NPTF REGULATOR W/ FILTER-NO GAUGE	
RAMP-5CH	5 CHANNEL DRIVE OVER RAMP-3 FT.	
RTDS35	RUBBER TIEDOWN STRAP - 35IN LONG - EPDM - ZINC PLATED S-HOOKS	

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#10 X 3/4IN SCREW - STAINLESS - FLAT HEAD PHILLIPS - HILO THREAD	
S.S. COUPLER 1/2in BY 1/2in	
1/2 FPT 45 DEGREE ELBOW-STAINLESS	
STAINLESS ELBOW 1/4IN MPT X 1/4IN MPT	
SUCTION HOSE WEIGHT - 15/16IN ID X 1 1/2IN OD X 3 1/4IN LONG - PVC COATED STAINLESS	
STAINLESS HEX NIPPLE 1/2 MPT X 1/2 MPT	
1/4IN X 1/2IN MPT STAINLESS NIPPLE	
STAINLESS HEX NIPPLE 1/4 MPT X 1/4 MPT	
STANDOFF BRACKET - SS	
STAINLESS ADAPTOR 1/2 MPT X 1/2 FPT	
STAINLESS ADAPTOR 1/4 MPT X 1/4 FPT	
SCREW BAND CLAMP FOR 1/2IN HOSE - STAINLESS	
SCREW BAND CLAMP FOR 3/8IN HOSE - STAINLESS	
SS CROSS 1/4 IN FPT	
STAINLESS STREET ELBOW 1/4 IN	
SS BRACKET FOR NOZZLE HOUSING	
1/2IN NPT SCH40S PIPE NIPPLE - STAINLESS - 10IN LONG	
1/2IN NPT SCH40S PIPE NIPPLE - STAINLESS - 2 1/2IN LONG	
STAINLESS TEE 1/2 FPT	
STAINLESS TEE ASSEMBLY - ½ IN. FPT X % IN. BARB - INCLUDES MIXING MATERIAL AND SCREEN	
STAINLESS TEE 1/2 FPT 3/8 BARB - NO MIXING MATERIAL	
MIXING MATERIAL ASSEMBLY - INCLUDES STAINLESS MESH AND SCREEN	
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	
TANK55	55 GAL. VERTICAL TANK WHITE HDPE	
TB-RAIL	35MM DIN RAIL FOR TB-T12 TERMINAL BLOCK-3 INCH SECTION	
TR24MF	24 VAC/VDC MULTI-FUNCTION RELAY TIMER-0.05 SECONDS TO 10,230 HOURS SETTING RANGE	
TRS11	11 PIN MAGNAL SOCKET	
TS2	TOGGLE SWITCH SPST	
TS2PLATE	ON/OFF SWITCH PLATE	
TSBT12	TOGGLE SWITCH BOOT	
VMS	VEHICLE MOTION SENSOR-50FT CABLE	
WC14BC	BUTT CONNECTOR	
WC14FRK	14-16 - INSULATED NARROW FORK TERM. CONNECTOR	
WCB14F	14-16 - 1/4 FEM INSULATED CONNECTOR	
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	
WR1A	18/3 POWER CORD WITH GROUNDED PLUG-9FT LONG- BLACK	
WS-20CFM	TSUNAMI WATER SEPARATOR/AIR DRYER - 20 CFM - 1/4IN FPT PORTS	
WMS14	14 X 1 1/4 HEX W/H SMS SLOTT, S/S	
WMS14A	5/16 X 1 1/2 STRAIGHT PLASTIC ANCHOR	
WR1A	18/3 POWER CORD WITH GROUNDED PLUG-9FT LONG- BLACK	
WS-20CFM	TSUNAMI WATER SEPARATOR/AIR DRYER - 20 CFM - 1/4IN FPT PORTS	

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