



12V/24V Diaphragm Pumps

USER MANUAL



It is the installer's responsibility to read, understand, and comply with these instructions.

A Guide to Your Diaphragm Pump

The high pressure 12V-DC (p/n 36667) or 24V-DC (p/n 36674) diaphragm pump is ideal for many different applications. Its solid construction and thick casings result in extraordinarily quiet and reliable operation. The pump is controlled automatically by a built-in pressure switch.

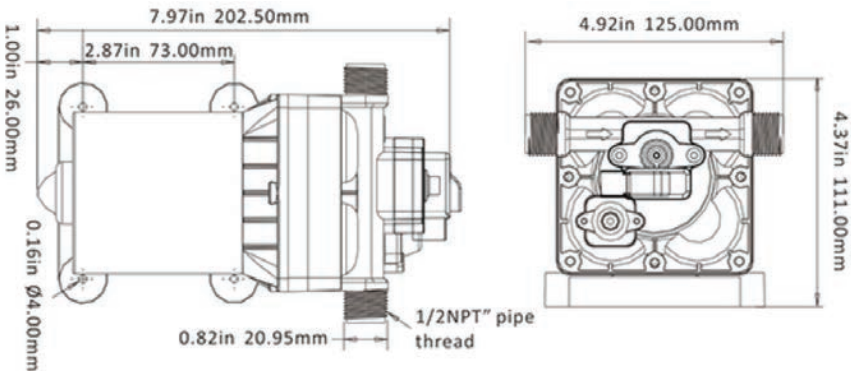
1. FEATURES

- 4 chamber diaphragm pump
- Continuous duty
- Bypass: reduces cycling
- Self priming
- Quiet operation
- Ignition protected
- Run dry capable for normal workloads
- Automatic: controlled by pressure switch
- Industry standard mounting pattern

2. APPLICATIONS

- Solar rainwater harvesting system
- Water purification systems
- Yacht/RV/caravan pressurized water system
- Sprayer fixtures (vehicle-mounted sprayers, electric sprayers)
- Food beverage filling and liquid transfer
- Any other pressurization systems

3. DIMENSIONS



4. INSTALLATION

Materials

- 1 diaphragm pump with related accessories
- 2 (at least) pieces of flexible, reinforced hose piping, with collapsing strength of twice the inlet collapsing pressure, hose must be minimum $\frac{1}{2}$ " ID
- 4 stainless steel hose clamps and screws
- 4 screws to fasten the pump to the mounting surface
- 1 electrical cutoff switch
- 1 fuse
- 1 screwdriver
- 1 strong, cutting implement for tubing
- Teflon tape or sealant (if desired)

Setup

1. The pump may be mounted in any position. If mounted vertically, the pump head should be in the down position to avoid leakage into the motor casing in the event of a malfunction.
2. Secure the feet, but do not compress them. Over-tightening the securing screws may reduce their ability to dissipate noise and vibration.
3. Intake hose must be minimum $\frac{1}{2}$ " (13 mm) ID reinforced hose. Main distribution line from pump outlet should also be $\frac{1}{2}$ " (13 mm) ID with branch and individual supply lines to outlets no smaller than $\frac{3}{8}$ " (10 mm).
4. Plumb the system using high pressure (2 x pump rating) braided, flexible tubing to minimize vibration/noise.
5. Do not apply inlet pressure in excess of 30 PSI. In general, try to avoid any inlet pressure completely.
6. Avoid any kinks or fittings which could cause excessive restrictions.
7. Strainer should be attached to the inlet side.
8. The fittings must be secured to avoid leakage.
9. Use clamps at both ends of hose to prevent air leaks into the water line.
10. If a check valve is installed in the plumbing, it must have a cracking pressure of no more than 2 PSI.
11. If applying a sealer or plumbing tape, be careful to not over-tighten, as they may be sucked into pump.
12. This pump should be wired on its own dedicated circuit. Connect the positive lead (red) to the positive terminal of the battery and the negative wire (black) to negative terminal of the battery.
13. In an easily accessible location, install a switch to control electricity to the pump. Turn the pump off when not used for extended periods or when the tank is empty.
14. The electrical circuit should be protected with an over-current protec-

tion device (fuse) in the positive lead. This pump requires a 10 amp fuse (12V) or a 5 amp fuse (24V).

15. The pump circuit should not include any other electrical loads.
16. As the water supply pump is non-essential, reference the wire chart under the electrical information. Be sure to have the correct wire sizing for the length of wire you are using.
17. After installation, check the voltage at the pump motor. Voltage should be checked when pump is operating. Full voltage must be available at the pump motor at all times.

Notes:

1. Flexible potable water hose or PEX tubing is recommended instead of rigid piping at pump. If using rigid piping, provide a short length of hose between pipe and the pump to avoid noise and vibration.
2. Metal fittings are not recommended. When possible, use the provided plastic fittings.
3. Do not adjust the bypass without the help of a technician.
4. Lack of sanitizing and maintenance is one of the main reasons of under performance of the pump. Please perform maintenance and winterize the pump at appropriate times, especially before and after a period of storage.

About the Bypass

Please consult a professional technician in the case that the bypass needs adjustment. Improper adjustment of the bypass may damage the pump.

The bypass comes preset for optimal operation of the pump. If your application calls for a different setting for the bypass, you may change it yourself. Carefully tighten the screw to increase or loosen the screw to decrease the minimum operational pressure of the bypass.



CAUTION

Please follow the instruction manual to install the product. Any action outside what is recommended in this manual may bring damage to the pump. Any inappropriate installation or operation that causes the pump damage is not covered by warranty.

5. SPECIFICATIONS

Pump	
Type	4 chamber positive displacement diaphragm pump, self priming, capable of being run dry
Control Type	Pressure switch and bypass control
Max Recommended Temperature	140°F (60°C)
Priming Capabilities	6 ft. (1.8m) suction lift
Re-start Pressure	Shut-off pressure 55 PSI : 41 PSI ± 5 PSI (±0.3 bar)
Inlet/Outlet Ports	½"-14 MNPT
Weight	4.0 lbs. (1.9 kg)

Motor	
Leads	16 AWG, 9.4 in. (24 cm) long with 2-pin connector/leads
Duty Cycle	Intermittent
Max. Amp Draw	7.00A(12V)/3.37A(24V)
Fuse	10A(12V)/5A(24V)

Standard Pump Configuration

Part Numbers	Voltage	Open Flow	Control Type	Max Draw
36667/ 36674	12V/24V	3.0 GPM (11.3 LPM)	Switch and bypass	7.00A/3.37A
Shut-off Pressure	Valves	Diaphragm	Ports	Wire Connections
55 PSI (3.8 bar)	EPDM	Santoprene	½"-14 MNPT	2-pin/leads

Performance

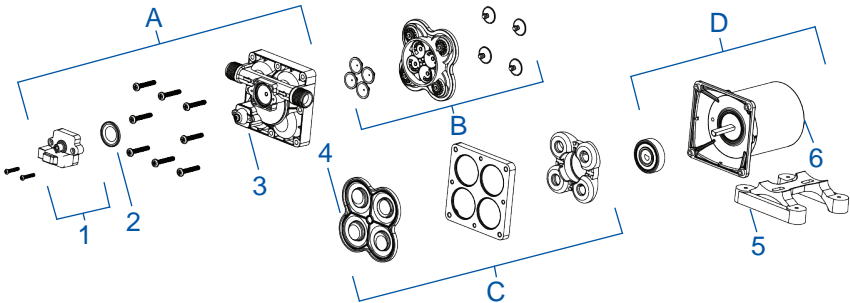
Pressure		Flow		Current (Amps)	
PSI	Bar	GPM	LPM	12V	24V
0	0.00	2.85	10.80	3.9	1.15
10	0.69	2.27	8.60	4.5	1.84
20	1.38	1.96	7.40	5.1	2.24
30	2.07	1.59	6.00	5.8	2.64

40	2.72	1.32	5.00	6.3	2.97
50	3.45	1.11	4.20	6.7	3.28
55	3.80	0	0	7	3.37

6. ELECTRICAL INFORMATION

Ft.	AWG
0-20	16 AWG
20-30	14 AWG
30-50	12 AWG
50-65	10 AWG

7. REPAIR KITS



Key	Description	Quantity
A	Pump Head Assembly	1
B	Valve Assembly	1
C	Diaphragm Assembly	1
D	Motor Assembly	1
1	Pressure Switch	1
2	Diaphragm of Pressure Switch	1
3	Pump Head	1
4	Diaphragm	1
5	Rubber Feet	1
6	Motor	1

8. TROUBLESHOOTING

Pulsating Flow - Pump Cycles On and Off

- Check line for kinks.
- Plumbing lines or fittings may be too small.
- Clean faucets and filters.
- Check all fittings for air leaks and tighten as needed.

Noisy

- Check if the mounting feet are compressed too tightly.
- If the mounting surface is flexible, it may be adding noise.
- Check for loose head/screws.
- If the pump is plumbed with rigid pipe, then it may transmit noise more easily.

Failure to Prime but Motor Operates - No Pump Discharge

- Restricted intake or discharge line.
- Air leak in the intake line.
- Punctured pump diaphragm.
- Initial amp supply is not enough to sufficiently start the motor.
- Debris clogged in the valves.
- Crack in pump housing.

Motor Fails to Turn On

- Loose or improper wiring.
- Pump circuit has no power.
- Blown fuse or thermal protection tripped.
- Failed pressure switch.
- Defective motor.

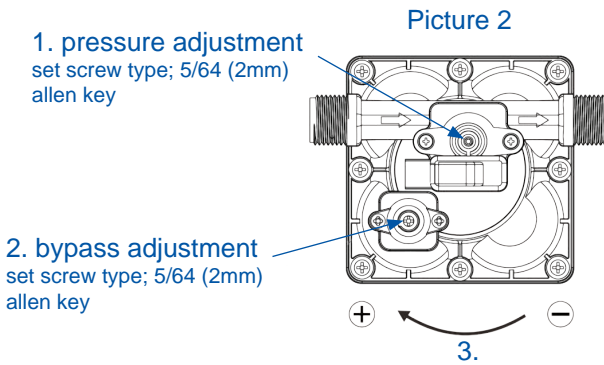
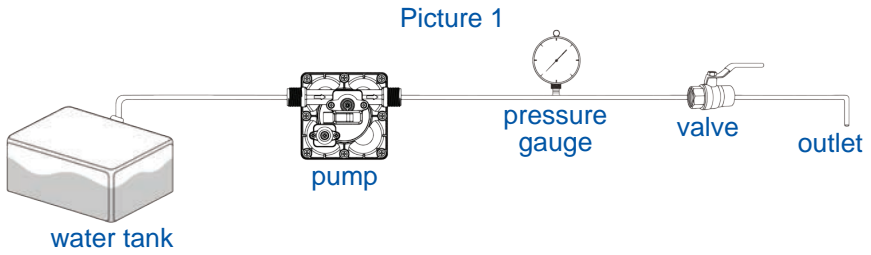
Pump Fails to Turn Off After All Fixtures are Closed

- Punctured diaphragm.
- Discharge line leak.
- Defective pressure switch.
- Insufficient voltage.
- Clogged valves in pump head.

Low Flow and Pressure

- Air leak at pump intake.
- Accumulation of debris inside pump or plumbing.
- Worn pump bearing (possibly accompanied by loud noise).
- Punctured diaphragm.
- Defective motor.

Use the following process to adjust shut-off and bypass pressures



*Remove the pressure adjustment screw completely, mark the screw in relation to the switch housing for reference as to number of “turns”, start screwing the set screw clockwise “9 to 9½ turns”, as the 3 in picture 2 indicates. This will increase the pressure to shut-off at approximately 60 PSI.

*Remove the bypass adjustment screw completely, mark the screw in relation to the bypass housing for reference as to number of “turns”, start screwing the set screw clockwise “10½ to 11 turns” (See Picture 2, Note 3.). This will increase the maximum bypass pressure to approximately 67 PSI.

*How to verify the shut-off and bypass pressures

After adjusting the screw, slowly close the valve until shutoff. The pressure gauge pointer will indicate shut-off/bypass pressure.

