

Air Pump & Retention Tank Kit

Filtration Add-On Accessory

AP1 (115V) and AP2 (230V) Models

Operating and Maintenance Manual

Note: This component package is intended to be a supplementary device to be used with automatic oxidization filtration systems.

**PLEASE BE ADVISED A VERSION OF THIS MANUAL IS ALSO INCLUDED WITH THE AIR PUMP.
THE AIR PUMP MANUAL INCLUDES ADDITIONAL INFORMATION FOR OTHER CONFIGURATIONS.**

Performance and Specifications

Item Number	Model Number	Electrical	Retention Tank Size	Maximum Pressure	Maximum Temperature
978003	AP1	115V / 1 ph / 60 Hz	9" x 48" (229mm x 1219mm)	75 psi (518 kPa)	100°F (38°C)
978004	AP2	230V / 1 ph / 60 Hz	9" x 48" (229mm x 1219mm)	75 psi (518 kPa)	100°F (38°C)
978010	Vent Tank Only	N/A	9" x 48" (229mm x 1219mm)	75 psi (518 kPa)	100°F (38°C)

OPERATING CONDITIONS: The Air Pump is water resistant, NOT water proof. The pump can operate with some room moisture, but should not be exposed to rain or very wet conditions. The Air Pump should not be used outdoors. The pump can withstand temperatures from 40° to 100° F as long as there is not a great amount of moisture. Humid locations should use air dryers to prevent moisture accumulation in pump.

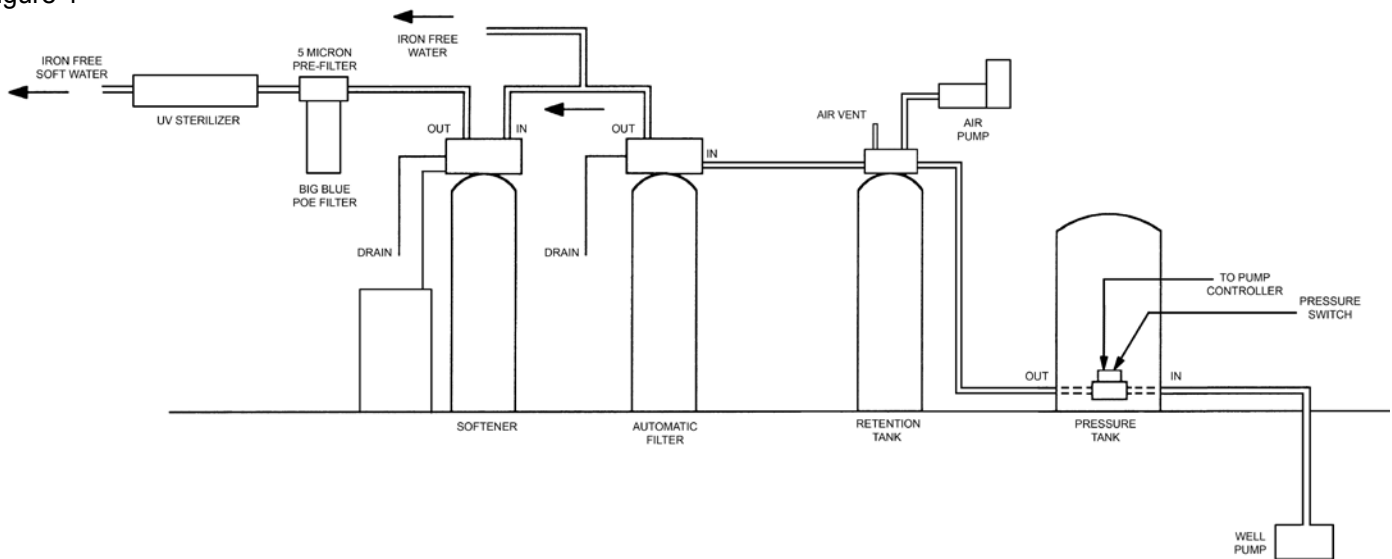
Air Pump Models AP1 & AP2

IMPORTANT: PLEASE READ ALL INSTRUCTIONS BEFORE ASSEMBLING AND INSTALLING THE AIR PUMP.
Consult local plumbing and electrical codes.

The Air Pump can introduce air at any point in your filtering sequence.

TYPICAL INSTALLATION

Figure 1



Installation Instructions

Identify all parts before assembling.

PARTS LIST:

- | | |
|--|------------------------------|
| a. Air Pump w/ Air Filter | h. 9 x 48 Retention Tank |
| b. Pressure Gauge | i. 1" FM x 1" FM Check Valve |
| c. 1/4" Check Valve (2) | j. 1" M x 2" sch 80, Nipple |
| d. Air Regulator Valve (ARV) | k. 1" x 48" Distributor Tube |
| e. Poly Tubing (Blue) | l. Vent Head / Diffuser |
| f. Tubing Connectors (2) | m. Air Vent |
| g. Shelf (1) with Vibration Mounts (3) | |

SECTION 1: ASSEMBLING AIR PUMP

1. Use teflon tape on male thread connections. Do not over-tighten fittings. Over-tightening can cause pump head to crack.
2. Remove side plug and back plug on outlet side of pump. Use a 1/4" allen wrench or channel locks. See Figure 2.
3. Install pressure gauge in back port (opposite outlet). See Figure 2.
4. Install Air Regulator Valve (ARV) into side port. See Figure 2.
5. Install side 1/4" plug into outlet port (check valve port). See Figure 2.
6. Thread the three rubber feet into base of pump. See Figure 3.

Figure 2 - Top View

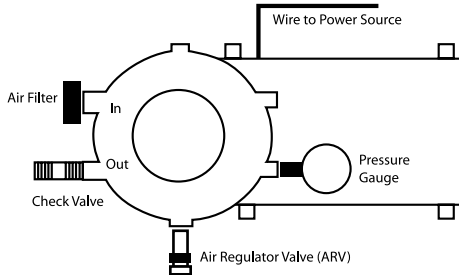


Figure 3



SECTION 2: SETTING AND CHECKING HEAD PRESSURE

(Air pump should be assembled before continuing).

Checking Head Pressure:

1. Loosen lock nut (counter-clockwise) on Air Regulator Valve (ARV).
2. Now turn adjustment nut counter-clockwise. Back out at least half way. This will relieve the tension on the ball and spring allowing air to flow freely out the ARV. This will prevent excess pressure from building up when you close off outlet port. **DO NOT LET PSI EXCEED 75 PSI.**
3. Plug Air Pump into appropriate voltage outlet.
4. Slowly close off outlet port; completed in Section 1, #5.
5. Air should be free flowing from ARV and the pressure gauge reading should be zero. If not, continue to turn adjustment nut counter-clockwise to release pressure.
6. With Air Pump on, outlet port completely closed and pressure gauge reading at 0 psi, air should be flowing from ARV.
7. You are now ready to test the ability of the Air ARV at a desired pressure (explained at the end of this section).
8. To build up head pressure, gradually rotate clockwise the adjustment nut of the ARV. The pressure will begin to rise as you increase the tension on the ball and spring. Do not exceed 75 psi.
9. When the desired pressure is reached and air is releasing out the ARV, the Air Pump is set at the proper head pressure to introduce air into the water line pressure.
10. Do not set ARV above 75 psi because this could cause the standard water pressure relief valve (usually located on pressure tank) to possibly discharge water in the event of excess pressure build up.

To set and secure ARV setting:

1. Use adjustment nut to select desired pressure, then thread lock nut clockwise and secure it against the ARV body. Snug lock nut with wrench. This will lock adjustment at the desired pressure setting.
2. If pressure does not build while turning in adjustment nut, check the 3 ports on the outlet side of the Air Pump for leaks (Pressure Gauge, ARV, and Outlet Port). If there are no leaks, the Air Pump may be damaged or seals worn to the point where no head psi can be created (Repair Kits are available - Item #K767). The Air Pump may run but no head pressure will be created.
3. When pressure build up to the desired pressure and ARV is secure, the Air Pump is now ready to install.
4. See Section 8 for fine adjustments of the ARV.

SECTION 3: ASSEMBLY OF CHECK VALVE IN AIR PUMP

1. Remove side 1/4" plug from outlet port (check valve port).
2. Install check valve into outlet port. Arrow and flow should point away from Air Pump toward injection point. See Figure 4.

Figure 4



SECTION 4: ASSEMBLING RETENTION TANK

1. Use teflon tape on male thread connections.
2. Install sch 80 nipple into inlet side of vent head / diffuser. See Figure 5.
3. Install check valve onto sch 80 nipple. See Figure 5.
4. Install check valve into vent head / diffuser. Arrow and flow should point into retention tank. See Figure 6.
5. Install air vent / shut off into vent head / diffuser. See Figure 6.

Figure 5



Figure 6



SECTION 5: INSTALLATION OF AIR PUMP

1. Installer may choose to:
 - a) Secure air pump with tank feet
 - b) Mount on shelf
 - c) Suspend with straps
 - d) Mount on back plate of the Fleck 2510 control valve
2. **Pump must be installed above the injection point (see Figure 7).** Compressed air will create condensate. Mounting above the injection point allows condensate to flow down toward injection point. This will help reduce moisture build-up from back flowing into air pump.

Figure 7

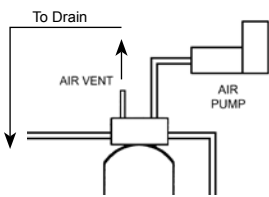
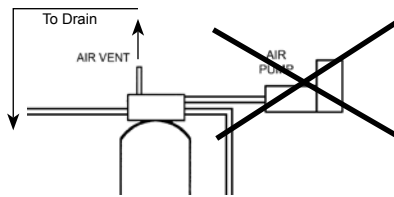


Figure 8

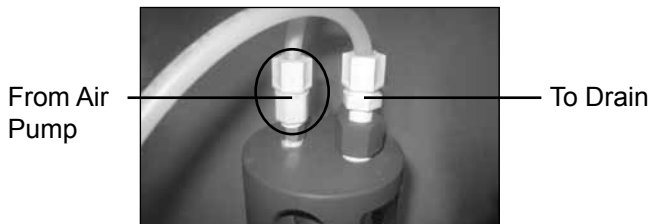


3. Install a tubing connector on each check valve (at injection point and air pump). See Figures 9 and 10 below.

Figure 9



Figure 10



4. Connect tubing from air pump to injection point.
5. Ensure an Air Gap (not included) is installed at the lower end of the drain tubing. This will prevent back flow.
6. Tighten all fittings making sure not to over-tighten.
7. Turn water on. Check for leaks.

SECTION 6: INSTALLATION OF THE AIR PUMP WITH WELL PUMP PRESSURE SWITCH AS THE POWER SOURCE

1. Position close to electric source.
2. Electrical connection: Install appropriate 115 volt or 230 volt receptacle and connect wire from receptacle to pump (load) side of pressure switch. This will allow the Air Pump to turn on with the well pump.
3. Plug Air Pump into receptacle. Run well pump through a few cycles. Fine tune or adjust Air Pump as needed.
4. All government codes and regulations governing the installation of these devices must be observed. Check your local electrical codes or contact a qualified electrician.

SECTION 7: INSTALLATION OF THE AIR PUMP WITH FLOW CONTROL SWITCH (MASCONTROL) AS POWER SOURCE

1. Used when pressure switch and air pump are in alternate locations. Also used on constant pressure or variable speed pump systems.
2. Mascontrol acts as a flow control detecting flow.
3. Connect the air pump to the Mascontrol receptacle. See Mascontrol manual for wiring diagram.
4. All government codes and regulations governing the installation of these devices must be observed. Check your local electrical codes or contact a qualified electrician.

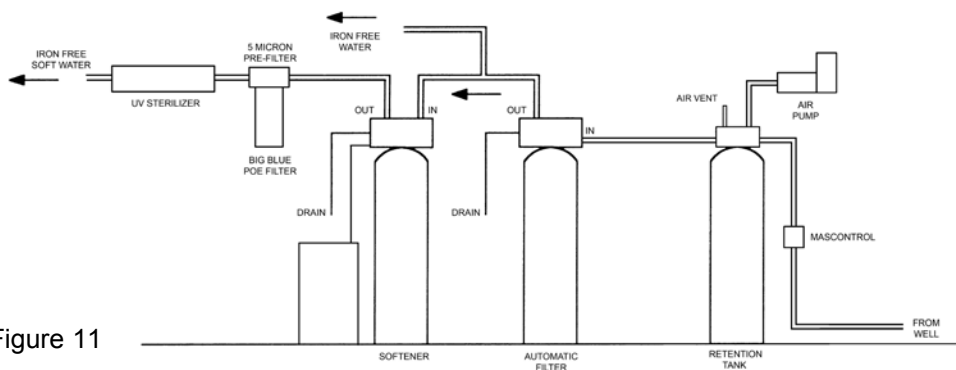


Figure 11

SECTION 8: REGULATING AIR FLOW

To adjust the Air Regulator Valve, loosen lock nut (thin nut in middle of fitting). Now the outer adjustment nut can be turned clockwise to increase pressure and air flow during well pump cycle. If threaded out too far, air will flow freely out of regulator valve instead of pumping air into water line. Furthermore, if adjustment nut is removed, the check-ball and spring will fall out. If this happens, simply insert ball and spring and thread nut back in.

While the well pump and Air Pump are running you can set the Air Regulator Valve (ARV) to desired pressure. Start with ARV half way open. As you turn adjustment nut clockwise, pressure will build in pump head. When pressure at head meets line pressure, air will be pushed into water line. To decrease or limit the introduction of air, set the ARV 5-10 pounds above the start up pressure of well pump. When the well pump starts up, the air pump also turns on, adding air during the beginning of pump cycle. Once the line pressure exceeds the setting on Air Pump ARV, no more air will be introduced into water line. The Air Pump will continue to run during the rest of the pump cycle but the excess air will be released out of the ARV (you should be able to hear or feel the air escaping). If more air is desired, gradually set ARV to a higher pressure.

Pressure Switch Settings

Well Pump Setting	ARV Setting
20 - 40 psi	30 psi
30 - 50 psi	40 psi
40 - 60 psi	50 psi

Constant Pressure Settings

Constant Pressure Setting	ARV Setting
40 psi	50 psi
50 psi	60 psi
60 psi	70 psi

Variable Speed Pump Settings

Variable Speed Pump Setting	ARV Setting
40 psi	50 psi
50 psi	60 psi
60 psi	70 psi

After setting ARV adjustment nut, secure lock nut to regulator body by rotating clockwise. This will lock the setting of the ARV. To re-adjust, loosen lock nut, reset adjustment nut and secure lock nut. Follow up visits may be required to fine tune ARV.

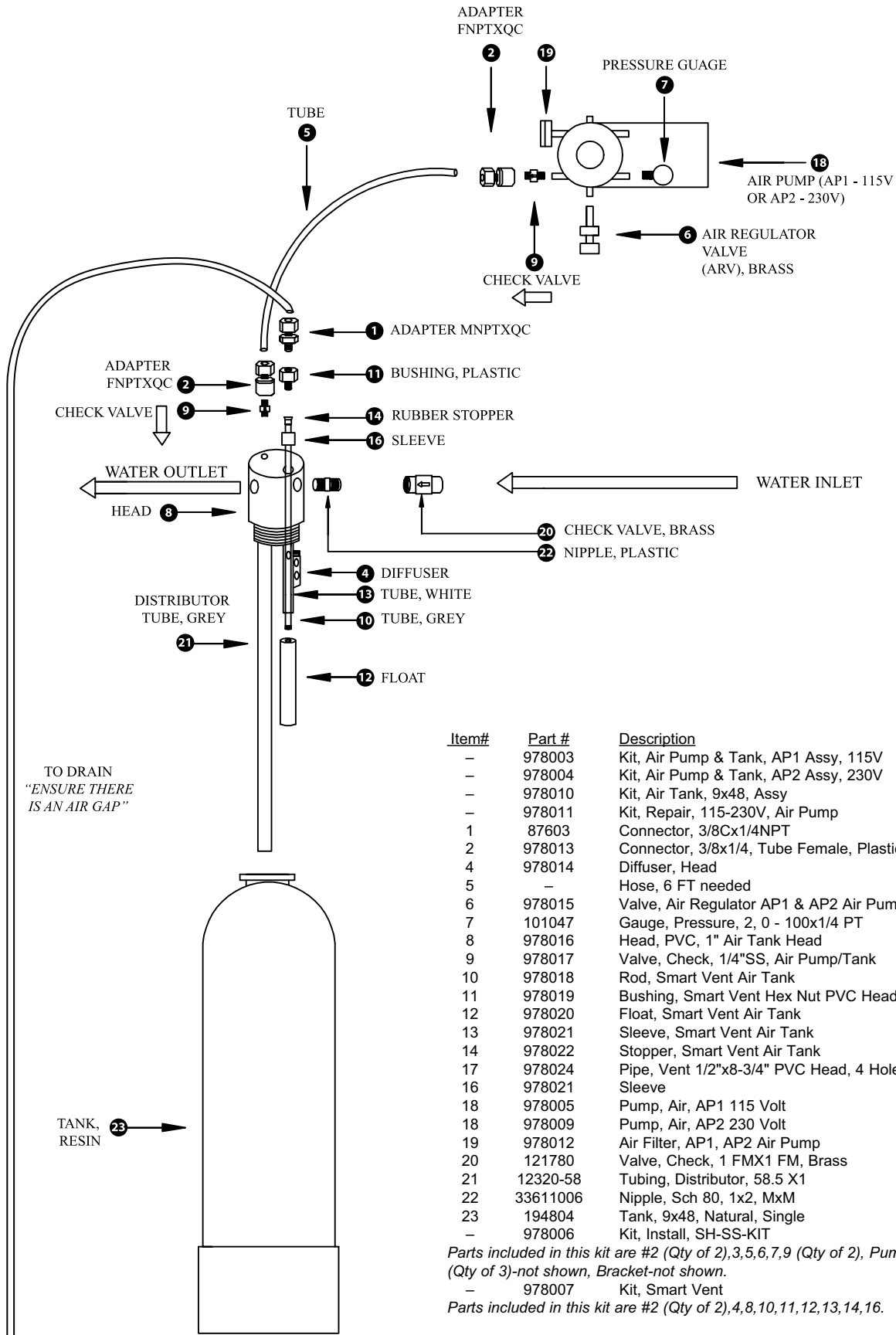
SECTION 9: AIR PUMP SUMMARY

1. Do not set ARV too high. The ARV is used to control the volume of air needed.
2. The Air Pump will keep the vent tank topped off with air.
3. The Air Pump will build air pressure equal to line pressure. It will gradually increase as line pressure increases up to ARV set point.
4. If Air Pump is set at 60 lbs. and well is 30-50 lbs., Air Pump psi will start at 30 lbs. and gradually build with line pressure up to 50 lbs. Air Pump pressure gauge will not register 60 lbs because line pressure does not get that high. The ARV in this case will act as a pressure relief valve. If psi reaches 60 lbs. the ARV will expel excess air.

SECTION 10: OZONE APPLICATIONS

1. Consult Ozone manufacturer when using Air Pump for Ozone application.
2. Ozone voids the Air Pump warranty.

SECTION 11: PARTS BREAKDOWN



Item#	Part #	Description
-	978003	Kit, Air Pump & Tank, AP1 Assy, 115V
-	978004	Kit, Air Pump & Tank, AP2 Assy, 230V
-	978010	Kit, Air Tank, 9x48, Assy
-	978011	Kit, Repair, 115-230V, Air Pump
1	87603	Connector, 3/8Cx1/4NPT
2	978013	Connector, 3/8x1/4, Tube Female, Plastic
4	978014	Diffuser, Head
5	-	Hose, 6 FT needed
6	978015	Valve, Air Regulator AP1 & AP2 Air Pump
7	101047	Gauge, Pressure, 2, 0 - 100x1/4 PT
8	978016	Head, PVC, 1" Air Tank Head
9	978017	Valve, Check, 1/4"SS, Air Pump/Tank
10	978018	Rod, Smart Vent Air Tank
11	978019	Bushing, Smart Vent Hex Nut PVC Head, Air Tank
12	978020	Float, Smart Vent Air Tank
13	978021	Sleeve, Smart Vent Air Tank
14	978022	Stopper, Smart Vent Air Tank
17	978024	Pipe, Vent 1/2"x8-3/4" PVC Head, 4 Hole, Short
16	978021	Sleeve
18	978005	Pump, Air, AP1 115 Volt
18	978009	Pump, Air, AP2 230 Volt
19	978012	Air Filter, AP1, AP2 Air Pump
20	121780	Valve, Check, 1 FMX1 FM, Brass
21	12320-58	Tubing, Distributor, 58.5 X1
22	33611006	Nipple, Sch 80, 1x2, MxM
23	194804	Tank, 9x48, Natural, Single
-	978006	Kit, Install, SH-SS-KIT

Parts included in this kit are #2 (Qty of 2), 3, 5, 6, 7, 9 (Qty of 2), Pump Feet (Qty of 3)-not shown, Bracket-not shown.

- 978007 Kit, Smart Vent

Parts included in this kit are #2 (Qty of 2), 4, 8, 10, 11, 12, 13, 14, 16.

Guarantee

One Year Complete Parts Guarantee:

WaterGroup Companies Inc. will replace any part which fails within 12 months from date of manufacture, as indicated by the serial number provided the failure is due to a defect in material or workmanship. The only exception shall be when proof of purchase or installation is provided and then the warranty period shall be from the date thereof.

Ten Year Guarantee on Retention Tank:

WaterGroup Companies Inc. will provide a replacement mineral tank or brine tank to any original equipment purchaser in possession of a tank that fails within ten years, provided that the retention tank is at all times operated in accordance with specifications and not subject to freezing.

General Provisions:

WaterGroup Companies Inc. assumes no responsibility for consequential damage, labor or expense incurred as a result of a defect or for failure to meet the terms of these guarantees because of circumstances beyond its control.

WaterGroup