PFC Free Portable Bladder Pump

Installation and Operation Manual

Rev 2/6/2017 Part # 11150324

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DOCUMENTATION CONVENTIONS

This document uses the following conventions to present information:

WARNING

An exclamation point icon indicates a **WARNING** of a situation or condition that could lead to personal injury or death. You should not proceed until you read and thoroughly understand the **WARNING** message.

CAUTION

A raised hand icon indicates **CAUTION** information that relates to a situation or condition that could lead to equipment malfunction or damage. You should not proceed until you read and thoroughly understand the **CAUTION** message.

NOTE

A note icon indicates **NOTE** information. Notes provide additional or supplementary information about an activity or concept.

In order to ensure that your pump has a long service life and operates properly, adhere to the cautions below and read this manual before use.

For long-term storage greater than one week, care should be taken to clean and dry all pump components. This will help with long-term reliability. Deionized water or a silicone-based lubricant can be used on the O-ring seals to promote longevity and elasticity.

Pump operation and decontamination should be performed to standard operating procedures.

Operation of system utilizing non-Geotech manufactured equipment could result in equipment failure or malfunction and may void the warranty. This includes air and fluid tubing.

Avoid operating the system without securely anchoring safety cable attached to down well components.

Always wear nitrile powderless gloves and be mindful of contaminated fluids contacting your person and entering the environment when operating any ground water sampling device.

WARNING

Do not operate this equipment if it has visible signs of significant physical damage other than normal wear and tear.

Notice for consumers in Europe:

This symbol indicates that this product is to be collected separately.

The following applies only to users in European countries:

- This product is designated for separate collection at an appropriate collection point. Do not dispose of as household waste.
- For more information, contact the seller or the local authorities in charge of waste management.

Section 1: System Description

Function and Theory

The PFC Free Portable Bladder Pump is designed specifically for sampling perfluroinated chemicals (PFC's) such as perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS) in groundwater. PFC's are synthetic chemicals used in firefighting foams, stain resistant carpets, and other repellant/non-stick applications. A chemically stable substance with low volatility, PFC's are not absorbed well in soil and can migrate to water sources. The PFC Free Portable Bladder pump is made with PFC free materials such as 316 Stainless Steel, high-density polyethylene (HDPE), and Buna-Nitrile to provide representative water samples for testing.

The pump is ideal for both gentle low-flow sampling and higher flow rate purging. Timed ON/OFF cycles of compressed air alternately squeeze the flexible bladder to displace water out of the pump to the surface and then exhaust the air allowing the pump to refill.

Fluid enters the pump through the fluid inlet check valve at the bottom of the pump body via hydrostatic pressure. The bladder then fills with fluid. Compressed air enters the space between the bladder and the interior of the pump housing. The intake check valve (bottom) closes and the discharge check valve (top) opens. Compressed air squeezes the bladder, pushing the fluid to the surface (see Figure 1-1). The discharge check valve prevents back flow from the discharge tubing. Operated by the Bladder Pump Controller (BP Controller) or Geocontrol PRO, this cycle automatically repeats.

Compressed air does not contact the sample. The bladder prevents contact between the pump drive air and the fluid sample.

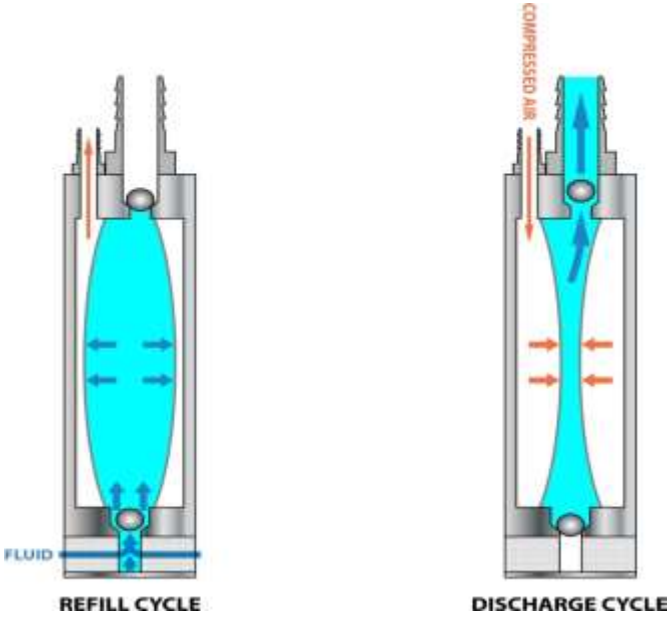


Figure 1-1: Bladder Pump Operation

Read and understand the portable generator and/or portable air compressor user manual for proper installation and operation, and Earth grounding instructions. If using portable compressed gas tanks, exercise proper caution, use safety protection devices as outlined by the supplier, and observe any additional safety requirements mandated by local jurisdiction.

System Components

A Geotech Portable Bladder Pump consists of four components:
- Bladder Assembly
- Pump Housing
- Internal Tube Assembly
- Intake Screen Assembly

* *Optional: Drop Tube Intake Assembly. See* Section 7: Replacement Parts List.

Bladder Assembly

The bladders are made from extruded Polyethylene (PE) to provide a long life and to ensure undisturbed samples in PFC sampling applications. The internal bladders are easily replaceable, see *Section 4: System Maintenance*.

Pump Housing

The bladder pump housing is constructed of electro polished 316 Stainless Steel. The black Buna Nitrile O-rings provide the high-pressure seals between the end caps and the housing tube.

Intake screen

The intake filter screen is constructed of 316 Stainless Steel and is easily removable for field maintenance. The intake filter screen protects and extends the life of the bladder material (see *Warranty*).

Optional Drop Tube Intake Assembly

An optional drop tube can be used to sample from depths below the specified maximum sampling depth. The Drop Tube Assembly connects a remote intake to the pump through a tube connected to the pump inlet. The intake depth can be any custom length of tubing. The pump assembly itself must be submerged below the water level. This means the depth to water cannot exceed the maximum pumping depth of the pump.

If using a drop tube assembly not provided by Geotech, ensure all materials are PFC testing approved. Use of unapproved materials may contaminate samples.

Section 2: System Installation

The user must determine site-specific parameters such as water level, recharge rate, and adherence to low flow purging guidelines.

Read the following before installation to prevent damage to the bladder pump.

Safety Cable

Before deploying any sampling pump, secure a safety cable from an anchoring point at or near the wellhead to the top of the pump. When testing in PFC contaminated environments, ensure the safety cable does not have any nonstick or repellant coating as these coatings may be made with PFC's and will contaminate testing samples. Ensure all safety cables are PFC testing approved before use.

Pump Controller

Geotech PFC Free Portable Bladder Pumps can be operated with Geotech's Geocontrol PRO, BP Controller 300 PSI, or BP Controller 500PSI. Be sure to consult the user guide of the controller you are using.

Use of an air source and controller *not* supplied by Geotech could result in pressure buildup and unexpected pressure storage in the pump and airline. Operation of the pump is not recommended with equipment other than that provided by Geotech.

The Geocontrol PRO is an easy-to-use portable compressor and logic unit specifically designed to operate Geotech's PFC Free Portable Bladder Pumps.

In the case that a PFC Free Portable Bladder Pump is deployed deeper than 155' (47 m) with a Geocontrol PRO, the pump's overall flow rate will decrease. To obtain full bladder volumes in this scenario, use the Bladder Pump Controller 300PSI.

Pump Tubing Lines

The Geotech PFC Free Portable Bladder Pump requires two tubing lines. One of the lines is used for the air supply and exhaust. The second line is used for discharge fluid. See *Section 6: System Specifications* for tubing sizes.

Failure to attach air and fluid lines to the appropriate ports could result in damage to the bladder.

Reverse Coil Method

When lowering the pump into the well, it is important to reverse the natural bend of the coiled tubing so that the tubing will straighten out as it is lowered (see figure 2-1). As the pump and tubing are lowered into the well, the direction of the bend should be reversed from the direction in which it is coiled. If the tubing is allowed to uncoil naturally and the natural bend not interrupted, the tubing will continue its coil into the well. Using the reverse coil method will avoid difficulty in lowering the pump into the well, especially when the well is not vertical, or has come out of alignment for any reason.

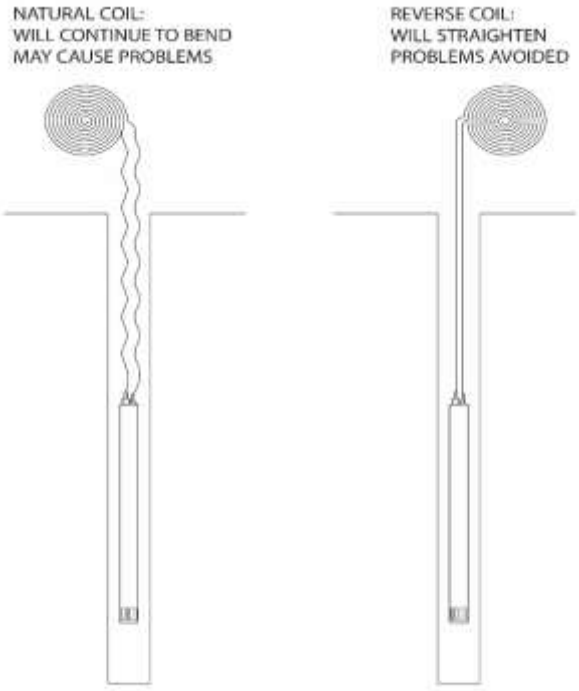


Figure 2-1: Reverse Coil Method

Optional Drop Tube Intake Assembly

If a Drop Tube Intake Assembly is employed, a third tubing line is necessary to connect from the bottom of the bladder pump to the top of the drop tube intake.

For deployment of optional Drop Tube Intake Assembly, attach desired length of drop tube between the intake's hose barb and hose barb on bottom of pump. For added security, a safety cable may be installed to support the drop tube intake to the bottom of pump.

Send the drop tube intake down the well followed by the drop tube tubing, then the pump, and finally the air and fluid discharge lines.

Section 3: System Operation

Once tubing and safety cable are connected, slowly deploy the pump into the well. If depth to water is known, a mark can be placed on the tubing to indicate when the pump has reached the desired level.

The pump must be fully submerged. Optimal pump performance is achieved with submergence of greater than 10' (3m) of water column. Less submergence could result in reduced pump performance and physical damage to the bladder. Worn bladders can develop a shape memory and may not be able to fill completely without sufficient submergence. Pumping will still be achieved and the sampling event can be completed.

Once the pump is at the desired level within the well, set the controller DISCHARGE and FILL timers. These settings should be such that the bladder is never over compressed. Set the pressure cycle so the fluid stream exiting the fluid line starts to fall off when the DISCHARGE timer expires. If the controller being used has a pressure gauge, you will notice the pressure level will climb and then stabilize during pumping and start to increase after all of the water has been evacuated from the pump. If you notice the pressure increasing after a pump cycle, reduce the pressurization/discharge time.

Using the *Example Flow Rates*, set the FILL TIME to optimize the amount of fluid discharged during the pressure cycle.

Both FILL TIME and DISCHARGE TIME vary depending on submergence, depth to water, tubing size, and overall tubing length.

More information can be found in the user manual specific to the controller you are using.

Flowrates

Bladder Pump flow rates are influenced by pump size (diameter and length), pump depth and submergance, as well as controller selection (i.e. compressor performance, valve flow coefficient). A large pump at shallow depths will produce the most flow, and a small pump at maximum depths will produce the least amount of flow.

Factors that increase flow:

- increased submergance (depth of pump below water line).
- a strong compressor, like the Geocontrol PRO, will enable fast pressure build up in the airline tubing and pump cavity.
- a clean intake screen will maximize the amount of water entering into the pump.

Example Flow Rates

Table 3-1: Flow Rates with 25’ (7.6m) Airline

@ 25 ft. (7.6 m) airline* (3 ft. (0.9 m) submergence)				
Pump Size:	Discharge Tube Size:	Flow:	*Approx. Geocontrol PRO Settings*	
			Fill Time:	*Discharge Time:*
1.66 x 36" (4 x 91 cm)	1/4" ID x 3/8" OD (64 x 127 mm)	43 oz/min (1.3 L/min)	*10 sec.*	*7 sec.*
1.66 x 18" (4 x 46 cm)		33 oz/min (1 L/min)	*5 sec.*	*5 sec.*

Table 3-2: Flow Rates with 150’ (46m) Airline

@ 150 ft. (46 m) airline* (3 ft. (0.9 m) submergence)				
Pump Size:	Discharge Tube Size:	Flow:	*Approx. Geocontrol PRO Settings*	
			Fill Time:	*Discharge Time:*
1.66 x 36" (4 x 91 cm)	1/4" ID x 3/8" OD (64 x 127 mm)	9 oz/min (260 mL/min)	*20 sec.*	*55 sec.*
1.66 x 18" (4 x 46 cm)		6 oz/min (175 mL/min)	*15 sec.*	*40 sec.*

* Airline tubing size: .17”ID x ¼” OD (4 x 6 mm)

Flow rates are based on 3’ (0.9 m) of pump submergence. Field environments typically provide over 10’ (3 m) of submergence, which increases flow.

Speak with a Geotech representative to determine the best configuration to fulfill your sampling needs.

Selecting an Air Source

The Geocontrol PRO is an easy-to-use portable compressor and logic unit specifically designed to operate Portable Bladder Pumps deployed down to 180’ (55 m) or less.

Air consumption depends on the volume of tubing and the size of deployed Bladder Pump. Follow the general guidelines and examples below to calculate the air consumption for specific sampling configurations.

Volume of Tubing

	TUBING LENGTH					
TUBE I.D.	1 ft./ 0.3 m	10 ft./ 3 m	50 ft./ 15 m	100 ft./ 30 m	250 ft./ 76 m	500 ft./ 152 m
0.17 in/ 0.43 cm	0.3 in^3/ 5 cm^3	3 in^3/ 50 cm^3	15 in^3/ 246 cm^3	30 in^3/ 492 cm^3	75 in^3/ 1230 cm^3	150 in^3/ 2460 cm^3
0.25 in/ 0.64 cm	0.6 in^3/ 10 cm^3	6 in^3/ 100 cm^3	30 in^3/ 492 cm^3	60 in^3/ 984 cm^3	150 in^3/ 2460 cm^3	300 in^3/ 4920 cm^3

Air Volume of Bladder Pumps

BP DIAMETER	BP LENGTH	VOLUME (in^3)
1.66 in/ 4 cm	36 in/ 91 cm	78 in^3/ 1278 cm^3
1.66 in/ 4 cm	18 in/ 46 cm	39 in^3/ 640 cm^3

Calculation guideline:
Volume of Tubing (in^3/cm^3)
+ Volume of Bladder Pump (in^3/ cm^3)
= Air Consumption per cycle (in^3/ cm^3)

If planning to use an air compressor, use one with a reserve tank to ensure proper air supply to the pump. If using a Nitrogen Tank, see Figure 3-1 for Nitrogen Tank Volume vs. Bladder Pump consumption. Ensure the air compressor is constructed from suitable materials for sampling PFC's.

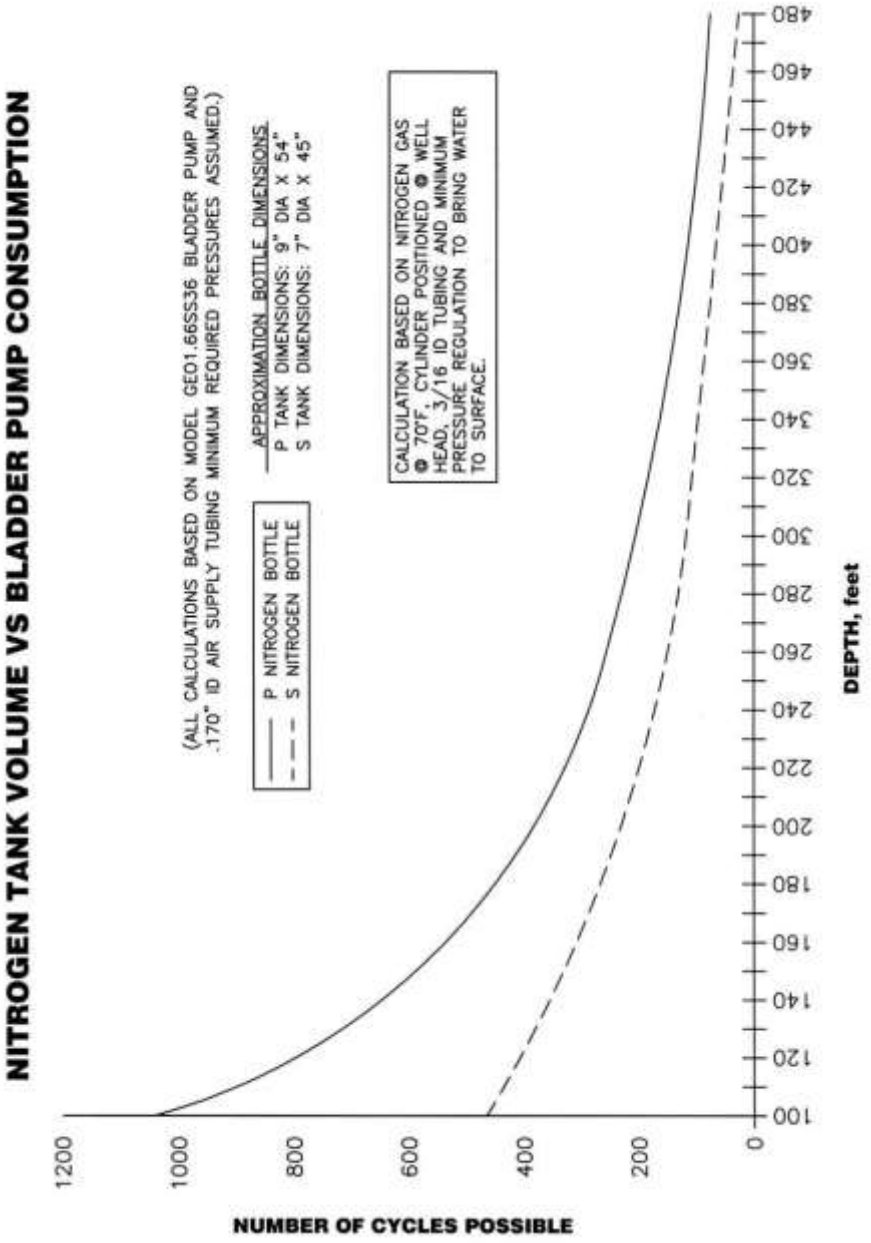


Figure 3-1: Tank Volume vs. BP Consumption

Determining PSI

Determine the air pressure needed to operate the Bladder Pump based on the length of the air supply line to the pump (well depth). Use the simplified formula:

0.5 PSI (per foot) + 10 PSI (to account for tubing friction) = required PSI
0.12 bar (per meter) + 0.7 bar (to account for tubing friction) = required bar

As mentioned above, the additional 10 PSI/ 0.7 bar is to account for the pump itself and friction loss along the airline tubing. When the length of the airline is 50’ (15 m) or less, there is no need for the additional pressure.

The formulas stated above are not absolute, and are meant to provide baseline information.

Section 4: System Maintenance

Geotech uses **black** Buna-N O-rings for the PFC safe portable bladder pumps. If you receive an O-ring from Geotech that is not black, do not use the O-ring on the bladder pump and contact a Geotech representative. Using incorrect materials while testing for PFC's will contaminate testing samples.

Remove the pump from the well. It is not necessary to remove the air and sample lines from the pump. Upon removal, note the pump may be filled with fluid.

Bladder Removal Steps:

1. Remove the bottom intake assembly and outer housing by turning the housing counter-clockwise.
    - Use your hand or a strap wrench
    - If the pump does not easily come off, use the wrench flats on the cap to provide leverage. The housing should twist/slide off.
    - DO NOT grip the hose barbs.

Figure 4-1: Removal of the bottom intake and outer housing

2. Remove the lower HDPE Compression Ring (#21150149) by pulling it off the end of the internal center tube assembly (18" #21150091; 36" #21150136)

Figure 4-2: Removal of bottom HDPE Compression Ring

3. Remove the upper HDPE Compression Ring (#21150149) by sliding it over the bladder and over the end of the internal center tube assembly.

Figure 4-3: Removal of upper HDPE Compression Ring

4. Pulling from the lower end of the bladder (18" #21150055; 36" #21150140), slide the bladder off the internal center tube weldment assembly.

Figure 4-4: Removal of Bladder

5. Remove all O-rings.
   - If needed, use a flat object to help the O-ring out of the groove on the center tube weldment assembly,
   - Do not over-stretch, damage, or puncture the O-rings in any way.

Figure 4-5: Removal of O-rings

6. Clean and prepare replacement parts as needed.

Bottom Intake Assembly

1. Pull the Check Ball Retainer from the Bottom Intake Assembly.

Figure 4-7a: Check Ball Retainer

Figure 4-7b: Removing Check Ball Retainer

Figure 4-7c: Check Ball Retainer Removed

2. Remove the SS Check Ball from the inside of the Bottom Intake Assembly.

3. Remove all O-rings on the assembly.
   - If needed, use a flat object to help the O-rings out of the grooves on the Bottom Intake Assembly
   - Do not over-stretch, damage, or puncture the O-rings in any way.

4. Clean and prepare replacement parts as needed.

Bottom Intake Reassembly

1. Install O-ring (#11154057) in the groove on the Check Ball Retainer.
   - Ensure that O-rings are not twisted.

Figure 4-8: Check Ball Retainer O-ring

2. Install O-rings (#11154058 & #11154056) in the grooves on the Bottom Intake Assembly.
   - Ensure that O-rings are not twisted.

Figure 4-9: O-rings on the Bottom Intake Assembly

3. Insert the SS Check ball into the Bottom Intake Assembly.

SS Check Ball must be inside the Bottom Intake Assembly.

The configuration shown may damage pump.

4. Push the Check Ball Retainer in ensuring the O-ring is no longer visible.

Bladder Reassembly:

1. Install O-ring (#11154056) on the cap of the center tube weldment assembly.

Figure 4-10: Cap O-ring

2. Install O-ring (#11154055) on the upper end of the center tube weldment assembly.

Figure 4-11: Upper end O-ring

3. Install O-ring (#11150455) on the lower end of the center tube weldment assembly.

Figure 4-12: Lower O-ring

4. Slide bladder (18" #21150055; 36" #21150140) onto the internal center tube weldment assembly, over the O-ring (#11150455) on the bottom end of the center tube assembly, and then over the O-ring (#11150455) on the upper end of the center tube weldment assembly.
   - Do not to roll the O-rings.
   - If needed, use Deionized water or a silicone based lubricant on the O-ring seals to help the bladder slide over the O-rings.

Figure 4-13a: Sliding bladder on

Figure 4-13b: Bladder entirely on

5. Slide an HDPE Compression Ring (#21150149) over the bladder to the upper end of the center tube weldment assembly.

Figure 4-14a: Compression Ring on Bladder

Figure 4-14b: Compression ring secured

6. With the upper end of the bladder secured by the HDPE Compression Ring (#21150149), slide the second compression ring over the end of the bladder until the O-ring is visible in the middle of the HDPE Compression Ring.

Figure 4-15: Bottom Compression ring with visible O-ring

7. Replace the outer housing (18" #21150041; 36" #51150141)
   - Be sure the outer housing is sealed against the upper cap.

Figure 4-16a: Incorrect Installation

Figure 4-16b: Correct Installation

8. Replace the bottom intake assembly by screwing it into the bottom of the pump.
    - Be sure the bottom intake assembly is sealed against the outer housing.

Figure 4-17a: Incorrect Installation

Figure 4-17b Correct Installation

Inspect O-rings and bladder for damage.
Replace if torn, ripped, or excessively worn.

Replacement Parts

Due to the sensitivity of PFC testing, it is important to use only PFC testing approved materials. Use of unapproved materials, such as Viton, will contaminate samples. Additional PFC approved replacement parts can be purchased through Geotech. See *Section 7: Replacement Parts List*.

Section 5: System Troubleshooting

Read and understand the portable generator and/or portable air compressor user manual for proper installation and operation, and Earth grounding instructions. If using portable compressed gas tanks, be sure to exercise proper caution and safety protection devices as outlined by the supplier and any additional safety requirements mandated by local jurisdiction.

Do not operate equipment if it has been damaged, broken, smashed, or excessively worn. Broken components pose a severe threat to the safety of the operator and his or her environment. Contact Geotech for any service or repair needs.

Problem: Air in fluid line or flow cell.

Solutions:

- Ensure timer settings on controller prevent bladder from being over pressurized. Verify HDPE collar is in place at either end of the bladder. Inspect O-rings for damage and replace if needed. Inspect bladder for cuts and holes and replace if needed.
- Occasionally, significant amounts of dissolved gasses can be encountered in ground water, especially in deep well areas with significant hydraulic pressures. When this fluid is exposed to atmosphere, out-gassing may occur. Refer to your Standard Operating Procedures for specifics on dealing with this situation.

Problem: Not pumping any fluid (or no air).

Solutions:

- Verify the pump is below static water level. Inspect airline tubing for kinks, cracks or breaks. Make sure there are no leaks at any fittings. Replace damaged or worn tubing. Cut tubing back and re-terminate at leaking fitting joint.

Problem: Not pumping any fluid (air is coming out fluid discharge line).

Solutions:

- Disassemble pump and inspect the O-rings and bladder. Replace either or both if damaged. Verify the pump is below static water level.

If you are experiencing other problems than mentioned above, please call Geotech Technical Support for immediate assistance, (800) 833-7958.

Section 6: System Specifications

	1.66x36"	1.66x18"
Pump Housing	316 SS	
Pump Ends		
Bladder Material	Polyethylene (PE)	
Bladder Collar Material	High-Density Polyethylene (HDPE)	
O-Ring Material	Buna-Nitrile (black)	
Outer Diameter	1.66” 40 mm	1.66” 40 mm
Length w/ screen	40” 101.6 cm	19” 48.2 cm
Weight	5.0 lbs. 2.27 Kg	3.0 lbs. 1.36 Kg
Volume/Cycle	11 oz. 310 mL	5 oz. 150 mL
Min. Well I.D.	2” 50 mm	2” 50 mm
Min. Operating Pressure	5 psi (ash)* (.3 bar)	
Operating Pressure	100psi 7 bar	
Proof Pressure	200psi 14 bar	
Burst Pressure	300 psi 21 bar	
Max. Sampling Depth	200’ 61 m	
Operating Temperature	32°F (0°C) to 212°F (100°C) ambient air or fluid temperature	
Tubing Size		
Air Line	.17" ID x .25" OD (4 mm ID x 6 mm OD)	
Discharge Line	0.25" ID x .375" OD (6 mm ID x 10MM OD)	

**ash = above static head*

System Specifications, continued:

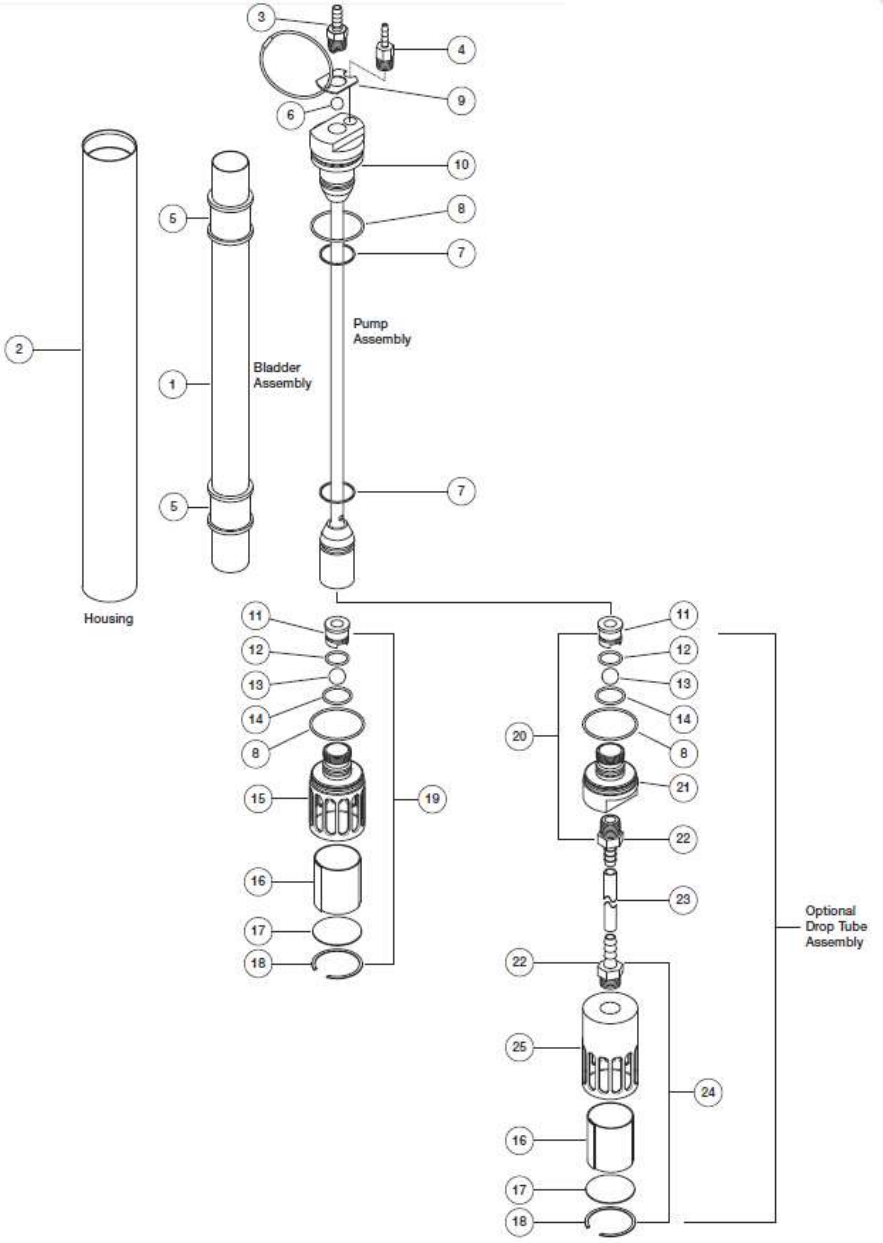
IP rating: (NA) Submersible to 500’ (152 m) of water column.

Special care must be taken to avoid burns and exposure to out-gassing of volatiles when pumping fluids at elevated temperatures.

Special air source considerations need to be taken into account 9000’ (2.75 km) above mean sea level (AMSL).

Section 7: Replacement Parts List

1.66 Bladder Pump Components,
18" model shown



Bladder Pump, 1.66, Portable Stainless Steel, Screened
Length: 18” (81150051) or 36” (81150052)

Item	Qty	Description	Part No.
1	§	BLADDER, PE, 1.66 x 18,PBP, EA	21150055
1	§	BLADDER, PE, 1.66 x 36,PBP, EA	21150140
1	§	BLADDER, PE, 1.66 x 18,PBP,12PK	21150056
1	§	BLADDER, PE, 1.66 x 36,PBP,12PK	21150139
2	1	HOUSING, SS6, 1.66 x 18,PBP	21150041
2	§	HOUSING, SS6, 1.66 x 36,PBP	51150141
3	1	HOSEBARB, SS6, MOD, 1/4 X 1/4 MPT MODIFIED DISCHARGE	11150106
4	1	HOSEBARB, SS6, .170 X 1/8 MPT AIR LINE	21150019
5	2	RING, COMPRESSION, HDPE 1.66 BP, CE	21150149
6	1	BALL, SS6, 3/8"	17500081
7	2	O-RING, 2MM X 23MM, BUNA-N	11150455
8	2	O-RING, 2.5MM X 36MM, BUNA-N	11154056
9	1	ASSY, HANGER, 166, PBP, SFTY CB, PFC FREE CE	51150144
10	1	CAP UPPER WELDMENT, SS, 1.66, 18”,PBP CE	21150091
10	§	CAP UPPER WELDMENT, SS, 1.66, 36”,PBP CE	21150136
11	1	PLUG, BALL RETAINER, 1.66 PBP CE	21150096
12	1	O-RING, #014, BUNA-N	11154057
13	1	BALL, SS6, 1/2"	17500082
14	1	O-RING, 2MM X 20MM, BUNA-A	11154058
15	1	CAP LOWER, SS, 1.66, PRTBL BP, CE	21150094
16	1	SCREEN, INTAKE, 1.66, SS6, PBP, CE	21150095
17	1	DISC, SS6, 1.66, PBP	21150148
18	1	RING, SNAP, SS6, INTERNAL, 1.66 BP PORTABLE	11150051
19	1	ASSY, BOTTOM INTAKE, 1.66 PPB, PFC FREE, CE	51150145
20	§	ASSY, LOWER CAP, 1.66 BP, PFC FREE DROP TUBE, CE	51150146
21	§	DROP TUBE, CAP LOWER, 1.66 PBP, CE SS	21150098
22	§	HOSEBARB, SS6, 1/2 X 3/8 MPT	16600217
23	§	TUBING, PE, 1/2 X 5/8, FT POLYETHYLENE	87050504
24	§	ASSY, INTAKE, 1.66” SS, DROP TUBE, WITH ½” HOSEBARB,	51150078
25	1	INTAKE, 1.66”, DROP TUBE, PFC FREE	21150113
	1	MANUAL, PBP, PFC FREE CE	11150324
	§	SPARE PARTS KIT, 1.66, PBP, PFC FREE, CE [Items 5 (2), 6, 7 (2), 8 (2), 12, 13, 14, 16, 17, 18]	51150079
	§	KIT, 1.66 PBP, O-RING SET, CE O-RING SERVICE KIT, PFC FREE	91150022

§ = *Sold Separately*

NOTES

NOTES

DOCUMENT REVISIONS		
EDCF#	DESCRIPTION	REV/DATE
Project 1526	Release, StellaR	2/6/2017

EC Declaration of Conformity

Manufacturer:

Geotech Environmental Equipment, Inc.
2650 E 40th Avenue
Denver, CO 80205

Declares that the following products,

Product Name: Geotech Portable Bladder Pump, PFC Free, CE

Model(s): 1.66” Bladder Pump, 18” & 36” lengths

Year of manufacture: 2017

Conform to the protection requirements of 2006/42/EC Machinery Directive by application of the following standards:

EN 809+A1/AC:2010
EN 61010-1: 2010

Year of affixation of the CE Marking: 2017

Production control follows the ISO 9001:2008 regulations and includes required safety routine tests.

This declaration issued under the sole responsibility of Geotech Environmental Equipment, Inc.

Joe Leonard
Product Development

Serial number _____

CE

The Warranty

For a period of one (1) year from date of first sale, product is warranted to be free from defects in materials and workmanship. Geotech agrees to repair or replace, at Geotech's option, the portion proving defective, or at our option to refund the purchase price thereof. Geotech will have no warranty obligation if the product is subjected to abnormal operating conditions, accident, abuse, misuse, unauthorized modification, alteration, repair, or replacement of wear parts. User assumes all other risk, if any, including the risk of injury, loss, or damage, direct or consequential, arising out of the use, misuse, or inability to use this product. User agrees to use, maintain and install product in accordance with recommendations and instructions. User is responsible for transportation charges connected to the repair or replacement of product under this warranty.

Equipment Return Policy

A Return Material Authorization number (RMA #) is required prior to return of any equipment to our facilities, please call our 800 number for appropriate location. An RMA # will be issued upon receipt of your request to return equipment, which should include reasons for the return. Your return shipment to us must have this RMA # clearly marked on the outside of the package. Proof of date of purchase is required for processing of all warranty requests.

This policy applies to both equipment sales and repair orders.

FOR A RETURN MATERIAL AUTHORIZATION, PLEASE CALL OUR SERVICE DEPARTMENT AT 1-800-833-7958

Model Number: _____

Serial Number: _____

Date of Purchase: _____

Equipment Decontamination

Prior to return, all equipment must be thoroughly cleaned and decontaminated. Please make note on RMA form, the use of equipment, contaminants equipment was exposed to, and decontamination solutions/methods used. Geotech reserves the right to refuse any equipment not properly decontaminated. Geotech may also choose to decontaminate the equipment for a fee, which will be applied to the repair order invoice.

Geotech Environmental Equipment, Inc.
2650 East 40th Avenue Denver, Colorado 80205
(303) 320-4764 ● (800) 833-7958 ● FAX (303) 322-7242
email: sales@geotechenv.com
website: www.geotechenv.com
In the EU
Geotech Equipos Ambientales
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