

# Geotech PVC Bladder Pumps

Installation and Operation Manual





## Table of Contents

<b>Section 1: System Description</b> .....	<b>3</b>
Function and Theory .....	3
Selecting an Air Source .....	3
<b>Section 2: System Maintenance</b> .....	<b>4</b>
Disassembly and Bladder Replacement .....	4
<b>Section 3: System Troubleshooting</b> .....	<b>5</b>
<b>Section 4: System Specifications</b> .....	<b>6</b>
<b>Section 5: System Schematics</b> .....	<b>7</b>
<b>Section 6: Parts and Accessories</b> .....	<b>8</b>

## DOCUMENTATION CONVENTIONS

This 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.

# Section 1: System Description

## Function and Theory

Geotech's pneumatic Bladder Pumps operate with a unique action, ideal for both, gentle low-flow sampling and high 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 exhaust 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 (automatically by submergence). The bladder then fills with fluid. Compressed air enters the space between the bladder and the interior of the pump wall housing. The intake check valve closes and the discharge check valve opens. The compressed air squeezes the bladder, pushing the fluid to the surface. The discharge check valve prevents back flow from the discharge tubing. Driven by the BP Controller (300PSI or 500PSI) 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 sample.

## Selecting an Air Source

To determine the required capacity of the air source used, use the following chart as reference.

AIR CONSUMPTION PER CYCLE			
	NO PUMP	GEO1.66SS18	GEO1.66SS36
NO TUBING		39in <sup>2</sup>	78in <sup>2</sup>
.17"ID x.25"OD (100' L)	27in <sup>2</sup>	66.25in <sup>2</sup>	105in <sup>2</sup>
.25"ID x .38"OD (100' L)	59in <sup>2</sup>	95in <sup>2</sup>	137in <sup>2</sup>
AIR CONSUMPTION PER HOUR (6 CYCLES/MIN)			
	GEO1.66SS18	GEO1.66SS36	
.17"ID x.25"OD	25,000 in <sup>3</sup> /hr	45,000 in <sup>3</sup> /hr	
.25"ID x .38"OD	35,000 in <sup>3</sup> /hr	50,000 in <sup>3</sup> /hr	

## **Section 2: System Maintenance**

As with any pump, scheduled or periodic maintenance should be performed, according to your sampling program and specific site conditions. Generally, the more turbid or sandy your water, the more often you should maintain and clean your pumps. Disassemble the bladder pump per instructions, decontaminate or replace as needed, then reassemble. Inspect all check balls for wear and replace as necessary. Inspect all O-rings for splits or cracks and replace as necessary.

### **Disassembly and Bladder Replacement**

Pull pump from the well, it is not necessary to remove the air and sample lines from the pump. Unscrew the lower cap from the housing, followed by removing the housing from the upper cap. Wrench flat features are present on both upper and lower caps. Unscrew the compression rings from the upper cap and lower head. Spanner wrench holes are located on the lower head to avoid spiral damage to the internal tube. Pull the bladder assembly out from the upper cap. The internal bladder cartridge can now be removed for maintenance or replacement. Please refer to the Components and Assembly diagram located on the inside of this manual for reassembly.

## **Section 3: System Troubleshooting**

### **Cycling air with no sample**

- Adjust the controller charge/exhaust times properly.
- Excessive drawdown may be preventing pump submergence.
- Screen intake needs to be submerged at least 5' (1.5 m) deep.
- Test cords and battery to ensure you have a sufficient power source.
- Clean any debris that may be clogging the intake screen.

### **Air bubbles present in sample**

- Replace any O-Rings and bladder if showing tearing or damage.
- Repair or replace air and discharge lines if damaged or split.

### **Discharge line draining back into pump**

- Remove the discharge hose barb, check ball, and clean any debris in the check ball area.

## Section 4: System Specifications

### GEO1.66PVC18

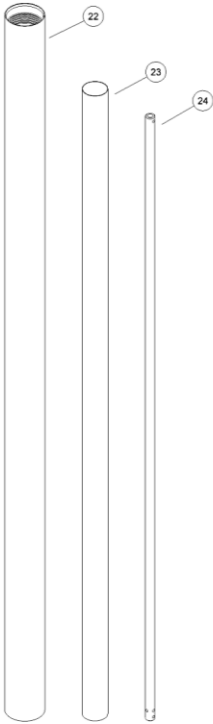
### GEO1.66PVC36

<b>Pump Components</b>	<b>PVC</b>	<b>PVC</b>
<b>Bladder Material</b>	Virgin PTFE	Virgin PTFE
<b>O.D.:</b>	1.66" (4.2cm)	1.66" (4.2cm)
<b>Weight</b>	1.1lb (0.5kg)	1.8lb (0.82kg)
<b>Volume/Cycle</b>	3.5oz. (105ml)	7oz. (207ml)
<b>Min. Well I.D.</b>	2" (50mm)	2" (50mm)
<b>Operating Press.</b>	10-125psi (0.7 - 8.6 bar)	10-125psi (0.7 - 8.6 bar)
<b>Min. Operating Range</b>	5psi (0.34 bar)	5psi (0.34 bar)
<b>Maximum Depth</b>	250' (76.2m)	250' (76.2m)
<b>Maximum Operating Temperature</b>	176°F (80°C)	176°F (80°C)

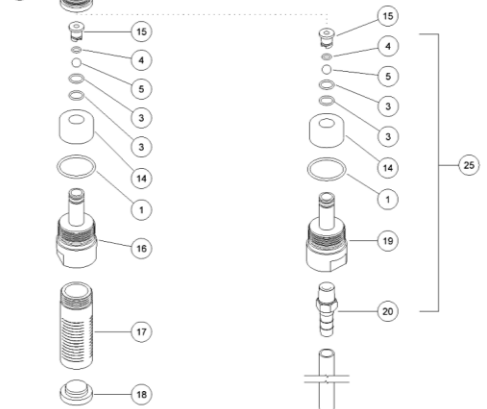
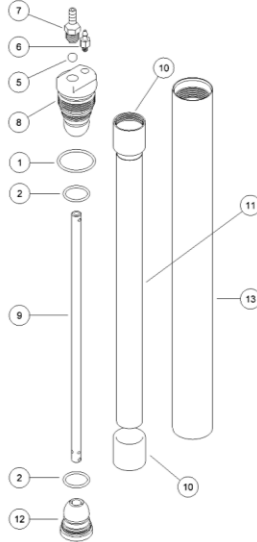


# Section 5: System Schematics

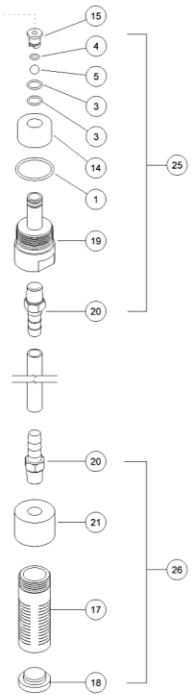
## 1.66 PVC BLADDER PUMP COMPONENTS AND ASSEMBLY



36" Pump Option



Pump  
Assembly



Optional Drop  
Tube Assembly

## Section 6: Parts and Accessories

Item	Qty	Description	Part No.
1	2	O-RING,VITON,#125,BROWN	17500120
2	2	O-RING,VITON,2.5MM X 23MM	11150319
3	2	O-RING,VITON,#014,BROWN	17500119
4	1	O-RING,VITON,2mm x 7.5mm,BROWN	16600108
5	2	BALL,VITON ,3/8, PVC BLADDER PUMP 1.66, TOP	17500115
6	1	HOSEBARB,CLEAR PVDF,1/8 NPT TO 5/32 BARB	11150187
7	1	HOSEBARB,POLY,MODIFIED,..25, PVC BLADDER PUMP 1.66	11150134
8	1	UPPER CAP,1.66,PVC,BP,CE	21150122
9	1	TUBE INTRNLSMPL,PVC,1.66BP,18"	11150124
10	2	RING,COMPRESSION,PVC,1.66,BP	21150115
11	1	BLADDER,PTFE,1.66"X18",PVC,CE	21150119
12	1	LOWER,HEAD,PVC,1.66,BP,CE	21150117
13	1	HOUSING,PVC,1.66X18",BP,CE	21150120
14	1	WEIGHT,SS6,INTERNAL,BP,PVC	11150132
15	1	PLUG,BALL RETAINER,1.66 PVC BP, CE	21150116
16	1	CAP,LOWER,PVC,1.66,BP,CE	21150114
17	1	SCREEN,INTAKE,1.66,PVC,BP,CE	21150118
18	1	CAP,SCREEN,INTAKE,1.3,PVC	11150131
19	1	CAP,LOWER,DROP TUBE,1.66,PVC, BP, CE	21150125
20	2	HOSEBARB,PP,1/2X3/8MPT	11150189
21	1	BODY,INTAKE,DROP TUBE,1.66,PVC, BP,CE	21150126
22	1	HOUSING,PVC,36",BP,CE	21150123
23	1	BLADDER,PTFE,1.66"X36",PVC,CE	21150124
24	1	TUBE,INTERNALSAMPLE,BP,36,PVC, 1.66X36	11150125
25	§	ASSY,LOWER CAP,1.66 PVC,DROPTUBE,CE,WITH 1/2" HOSEBARB	51150072
26	§	ASSY,INTAKE,1.66 PVC,DROP TUBE, CE,WITH 1/2" HOSEBARB	51150073
	§	KIT, 1.66, PVC, O-RING SET, CE [ITEMS: #1(2), #2(2),#3(2), #4(1)]	91150018
	1	MANUAL	
*	2	CROSS PIN,PVC,BLADDER PUMP,12 PACK**	21150152

§ SOLD SEPERATLY

\* Not shown

\*\* Sold only as a 12 pack

### Revision History

<b>Project #</b>	<b>Description</b>	<b>Date</b>
2281	Removed Spanish and MI addresses in footer. Updated CE Document – AH. Added Rev History table – GR.	6/16/2023

## NOTES

## NOTES

# EC Declaration of Conformity

Manufacturer:

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

Declares that the following products,

Product Name: Geotech PVC Bladder Pumps

Model(s):

81150038 – BLADDER PUMP, 166PVC18  
81150047 – BLADDER PUMP, 166PVC18  
81150039 – BLADDER PUMP, 166PVC36  
81150048 – BLADDER PUMP, 166PVC36

Year of manufacture: 2023

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

809+A1/AC:2010  
61010-1 Ed. 9.0 en:2018

Year of affixation of the CE Marking: 2023

Production control follows the ISO 9001:2015 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 \_\_\_\_\_



## 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](mailto:sales@geotechenv.com) website: [www.geotechenv.com](http://www.geotechenv.com)