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# Geotech Portable Bladder Pumps

## Installation and Operation Manual


Rev 03/02/2015 Part # 11150323

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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 1 week, care should be taken to clean and dry all pump components. This will help with long term reliability. An inert lubricant can be used on the o-ring seals to promote longevity and elasticity.

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

Operation of system utilizing non-Geotech OEM parts could result in equipment failure or malfunction. This includes air and fluid tubing.

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

Always wear 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.

# Chapter 1: System Description

## Function and Theory

Geotech's pneumatic Portable 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 then 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. The pump MUST be submerged to operate. 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 closes and the discharge check valve (top) opens. Compressed air squeezes the bladder, pushing the fluid to the surface (see figure 1). The discharge check valve prevents back flow from the discharge tubing. Driven by the BP Controller or Geocontrol PRO, this cycle automatically repeats.

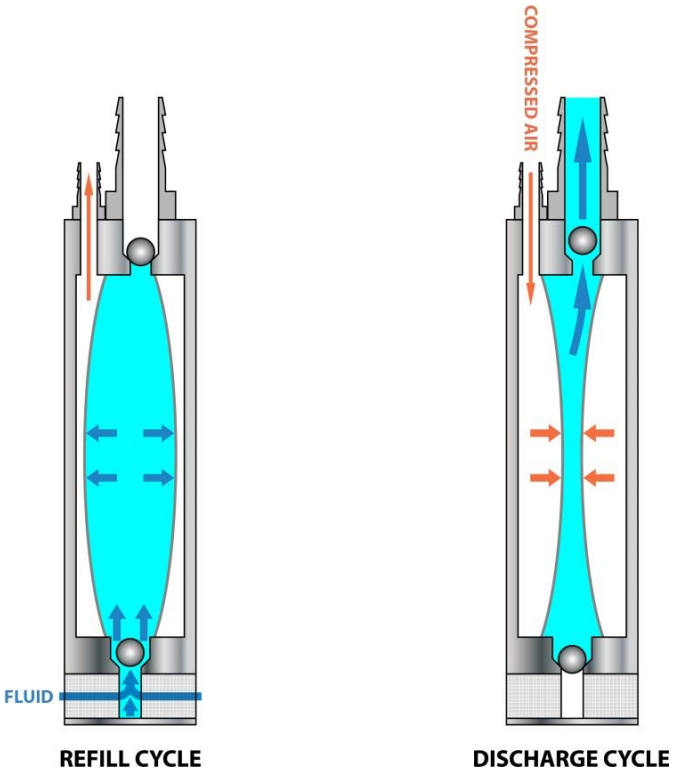



**Figure 1 –Bladder Pump Operation**

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

Be sure to read and understand your 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, 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 as follows (see figure 2):
- Bladder Assembly
- Pump Housing
- Internal Tube Assembly
- Intake Screen Assembly

* *Optional: Drop Tube Intake Assembly*

**Bladder Assembly**

The bladders are extruded PTFE to provide a long life and to ensure undisturbed samples. The internal bladders are easily replaceable, see Chapter 4: System Maintenance.

**Pump Housing**

The bladder pump housing is constructed of electro polished 316 Stainless Steel. The housing components consist of threaded top and bottom caps, and the housing tube. Viton 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 is intended to protect and extend 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 still be submerged below the water level. This means the depth to water cannot exceed the maximum pumping depth of the pump.

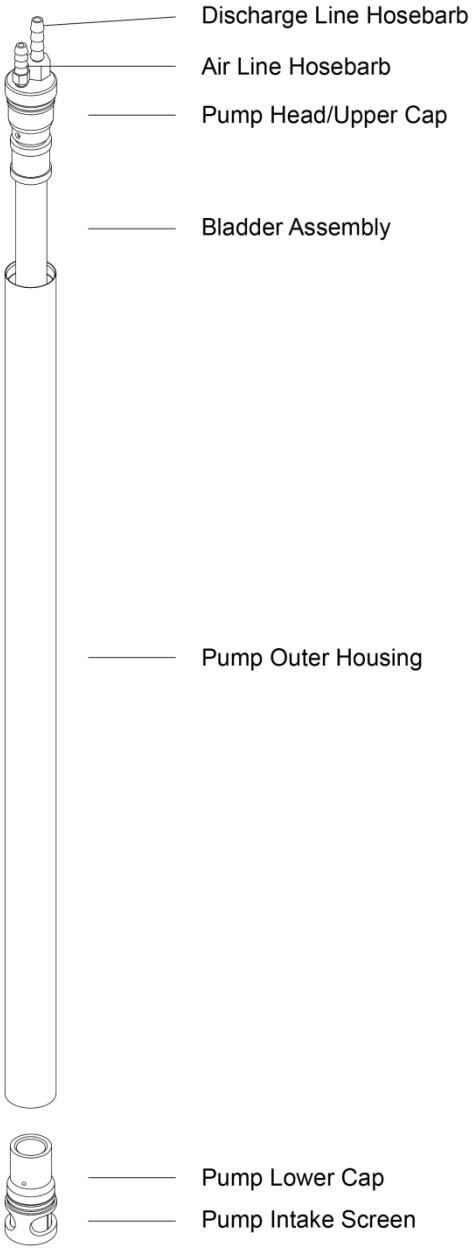



**Figure 2 – Basic* Portable Bladder Pump Assembly**

**Example above is based on .850"/2.2cm configuration*

## Chapter 2: System Installation

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

READ BEFORE PROCEEDING ANY FURTHER

**Safety Cable**

Before deploying any sampling pump, secure a safety cable from an anchoring point at or near the well head to the top of the pump.

**Pump Controller**

Geotech Portable Bladder Pumps can be operated using a variety of controllers. 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. Therefore, operation of the pump is not recommended with equipment other than that provided by Geotech.

**Pump Tubing Lines**

The Geotech 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 the system specifications section of this manual for tubing sizes. When using the 1.66" (4 cm) diameter pump, the larger diameter tube is for fluid and the smaller one for air.

On the .675" (1.7 cm) and .85" (2 cm) diameter pumps, both air and fluid lines are the same size. The letter “A” is stamped near the hose barb on the top of the pump. This indicates the air supply and exhaust line barb. The remaining barb is for the discharge fluid line.

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 4). 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 hang-ups or difficulty in lowering the pump into the well, especially when the well is not vertical, or has come out of alignment for any reason.

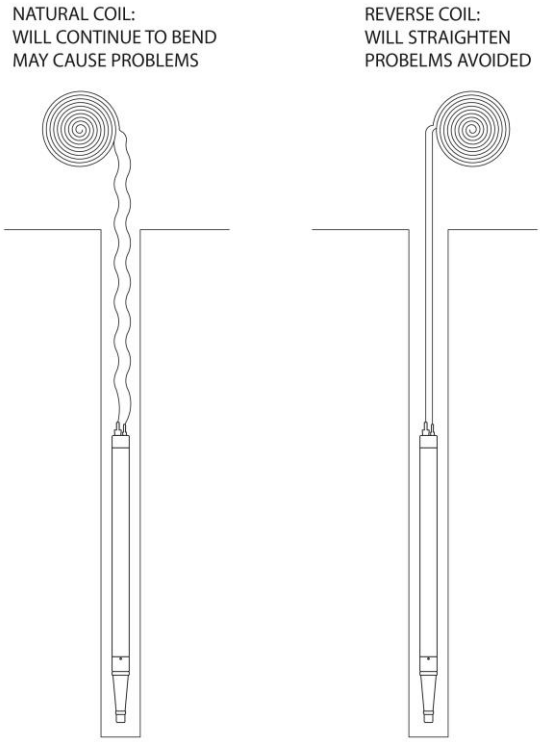



**Figure 4 – Reverse Coil Method**

**Optional Drop Tube 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.

For deployment of optional Drop Tube Assembly attach desired length of drop tube to the intake hose barb and hose barb on 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.

## Chapter 3: System Operation

Once tubing and safety cable are in place, slowly deploy the pump, screen first, 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 feet of water column. Less submergence could result in reduced pump performance depending on type of fluid* being pumped and physical condition of the bladder. Older, worn bladders can develop a shape memory and may not be able to fill completely without sufficient submergence. In any case, pumping will still be achieved and the sampling event can be completed.

** designed for pumping groundwater only, other fluids at user's risk*

A thin, less rugged bladder could fill more easily in lower submergence applications. Geotech has chosen to implement the use of more reliable heavy walled Poly or robust PTFE material to accommodate longer life of the bladder and overall reliability of the pump.

Once the pump is at the desired level within the well bore, set the controller timers to Discharge and Fill. These settings should be such that the bladder is never over compressed. A good rule of thumb is to set the pressure cycle so that the fluid stream exiting the fluid line just 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 'stall out' during pumping and start to 'climb' after all of the water has been evacuated from the pump. If you notice the pressure climbing after a pump cycle, reduce the pressurization time.

Using the volume per cycle specifications guide in this manual, set the Fill time to optimize the amount of fluid discharged during the pressure cycle.

Both Fill times and Discharge times will 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**

Flowrates depend on pump size and pump depth. For example, a large pump at shallow depths will produce the most flow, and a small pump at maximum depths will product the least amount of flow. Speak with a Geotech representative to determine the best configuration to meet sampling needs.

If using a nitrogen tank as an air source, see figure 5, Nitrogen Tank Volume vs. Bladder Pump consumption.

**Selecting an Air Source**

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 $cm^3$ |

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 $cm^3$ |
| 0.85 in/ 4 cm | 18 in/ 46 cm | 10 $in^3$/ 164 $cm^3$ |
| 0.675 in/ 4 cm | 18 in/ 46 cm | 6 $in^3$/ 100 $cm^3$ |

*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 insure proper air supply to the pump. If using a Nitrogen Tank, see figure 5 for Nitrogen Tank Volume vs. Bladder Pump 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 ft./15 meters or less, there is no need for the additional pressure.

To determine minimum operating pressures for the specific Bladder Pump model you are using, consult the pump's specifications. Typically, the minimum operating pressure will be 5 PSI/ 0.4 bar above static head.

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

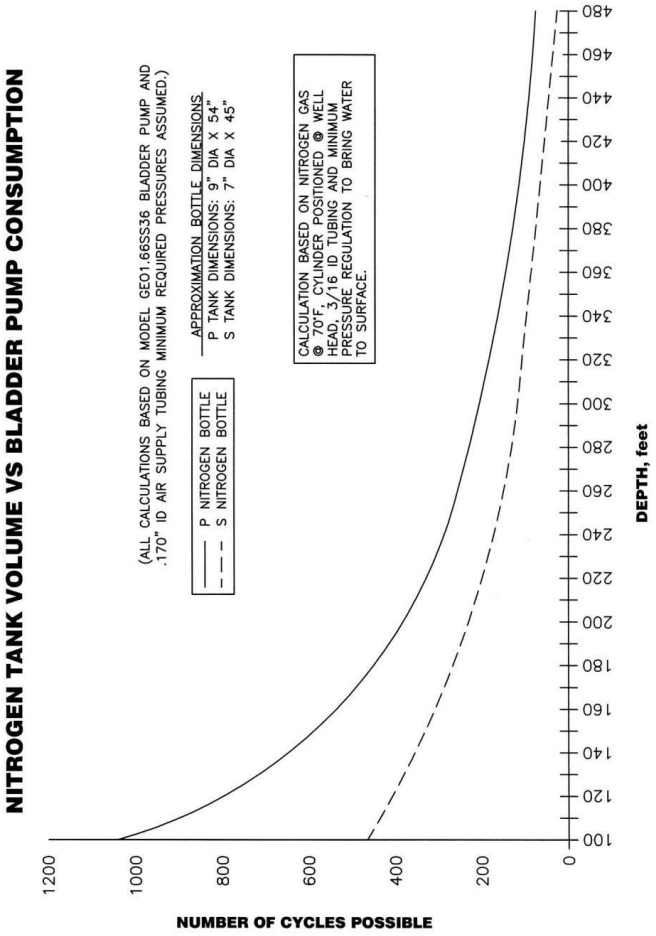



**Figure 5 – Tank Volume vs. BP Consumption**

## Chapter 4: System Maintenance

Pull pump from the well, it is not necessary to remove the air and sample lines from the pump. Take care, as the pump may be filled with fluid.

Remove the lower screen and housing by turning the housing in a counter clockwise direction. Use your hand or a strap wrench.

**Bladder Removal Steps:**
Remove the lower PTFE compression ring (#21150042) by pulling off end of the internal center tube assembly (#21150091).

Pull the lower end of the bladder towards the middle of the internal center tube assembly and remove O-ring (#11150319) from the lower end of the tube.

Remove the upper PTFE compression ring (#21150042) and slide the ring off of the end of the internal center tube assembly (#21150091).

Slide the bladder (#21150054) off of the internal center tube weldment assembly (#21150091).

Part numbers listed in the assembly procedure described above pertain only to the 1.66 Portable Bladder Pump. The .675 and .850 Portable Bladder Pumps assemble similarly, however, with different part numbers that can be found in the following sections.

SS Check Ball must be inside Intake Assembly.
The configuration shown may damage pump.

**Reassembly Steps:**
Install O-ring (#11150319) to upper end of the center tube weldment assembly (#21150091).

Slide bladder (#21150054) onto the center tube assembly and over the O-ring (#11150319) on the upper end of the center tube assembly.
*Be careful not to roll the O-ring when sliding the bladder over this end.*

Slide a PTFE compression ring (#11150042) over the bladder and push down over bladder and upper end of the center tube.

With the upper end of the bladder secured by the PTFE compression ring, slide the second compression ring over the bladder about midway down the assembly.

Slide the bladder up, beyond the bottom of the center tube assembly, exposing the lower end of the center tube and install the O-ring (#11150319) into the groove on the lower end.

Slide the bladder back down over the O-ring *being careful not to roll the O-ring*.

Now slide the PTFE compression ring over the bladder until it seats flush with the bottom of the center tube assembly.

Replace the outer housing (#21150041). Be sure the outer housing is sealed against the upper cap.


Replace the bottom intake assembly (#51150067) by screwing it into the bottom of the pump. There shouldn't be any gaps between the outer housing and top or bottom caps.

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

## Chapter 5: System Troubleshooting

Be sure to read and understand your 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 THIS 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 PTFE 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 SOP 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 air line tubing for kinks, cracks or breaks. Make sure you are not getting 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.

## Chapter 6: System Specifications

| | 1.66 | 0.850 | 0.675 |
|---|---|---|---|
| Pump Housing | 316 SS | 316 SS | 316 SS |
| Pump Ends | 316 SS | 316 SS | 316 SS |
| Bladder Material | PTFE | PTFE | PTFE |
| Bladder Collar Material | PTFE | PTFE | PTFE |
| Outer Diameter | 1.66”<br>40 mm | .850"<br>21.6 mm | .675"<br>17 mm |
| Length w/ screen | 19”<br>48.2 cm | 18 5⁄8"<br>47.3 cm | 18 3⁄4"<br>47.6 cm |
| Weight | 3.0 lbs.<br>1.36 Kg | 1.1 lbs.<br>500 g | 0.83 lbs.<br>376 g |
| Volume/Cycle | 5 oz.<br>150 mL | 1 oz.<br>29 mL | 0.5 oz.<br>15 mL |
| Min. Well I.D. | 2”<br>50 mm | 1"<br>25 mm | .75"<br>19 mm |
| Min. Operating Pressure | 5 psi (ash)*<br>(.3 bar) | 5 psi (ash)*<br>(.3 bar) | 5 psi (ash)*<br>(.3 bar) |
| Operating Pressure | 100psi<br>7 bar | 100 psi<br>7 bar | 100 psi<br>7 bar |
| Proof Pressure | 200psi<br>14 bar | 200psi<br>14 bar | 200psi<br>14 bar |
| Burst Pressure | 300 psi<br>21 bar | 300 psi<br>21 bar | 300 psi<br>21 bar |
| Max. Sampling Depth | 200’<br>61 m | 200'<br>61 m | 200'<br>61 m |
| Operating Temperature | 32°F (0°C) to 212°F (100°C)<br>ambient air or fluid temperature | | |
| Tubing Size | | | |
| Air Line | .17" ID x .25" OD<br>(4 mm ID x 6 mm OD) | .17" ID x .25" OD<br>(4 mm ID x 6 mm OD) | .17" ID x .25" OD<br>(4 mm ID x 6 mm OD) |
| Discharge Line | 0.25" ID x .375" OD<br>(6 mm ID x 10MM OD) | .17" ID x .25" OD<br>(4 mm ID x 6 mm OD) | .17" ID x .25" OD<br>(4 mm ID x 6 mm OD) |

*ash = above static head

**System Specifications, continued:**

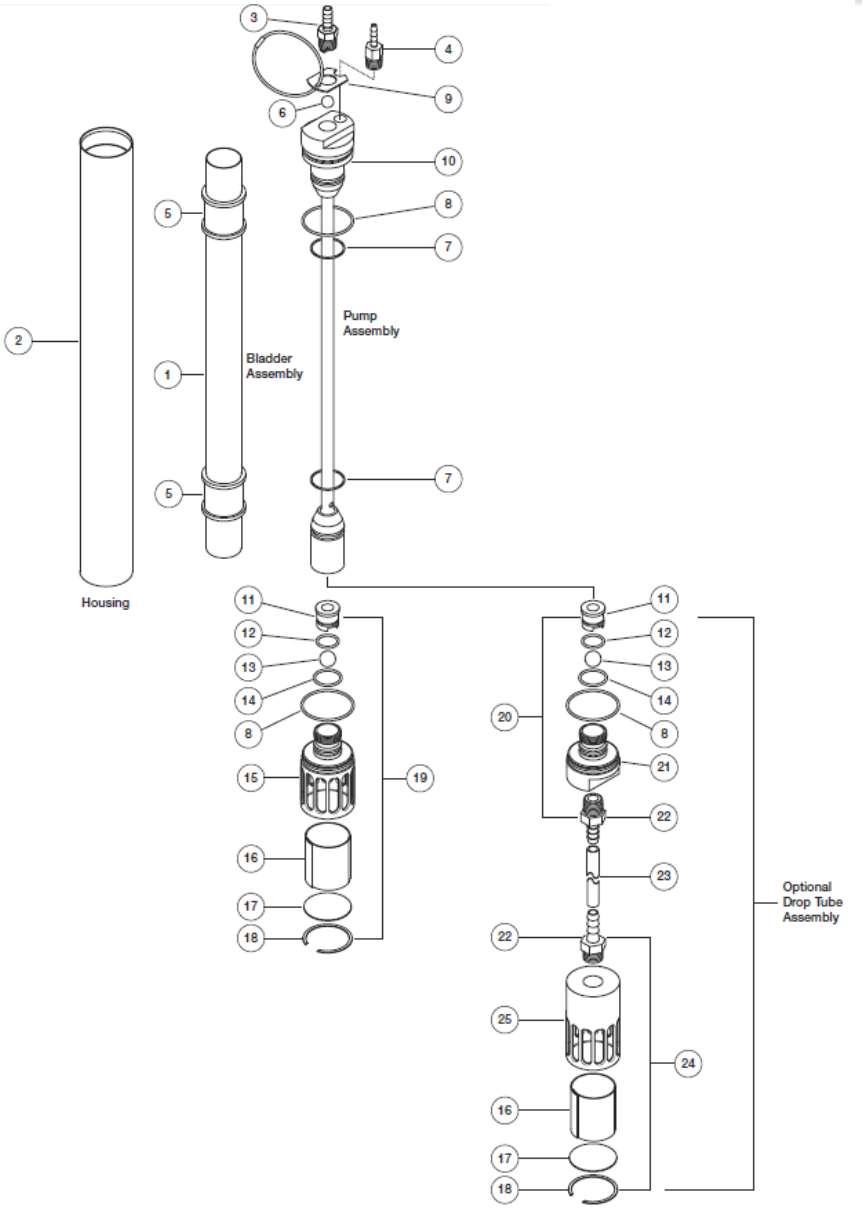
IP rating: (NA) Submersible to 500 feet (152 m) of water column.

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 feet (2.75 km) above mean sea level (AMSL).

# Chapter 7: Replacement Parts List

## 1.66 Bladder Pump Components

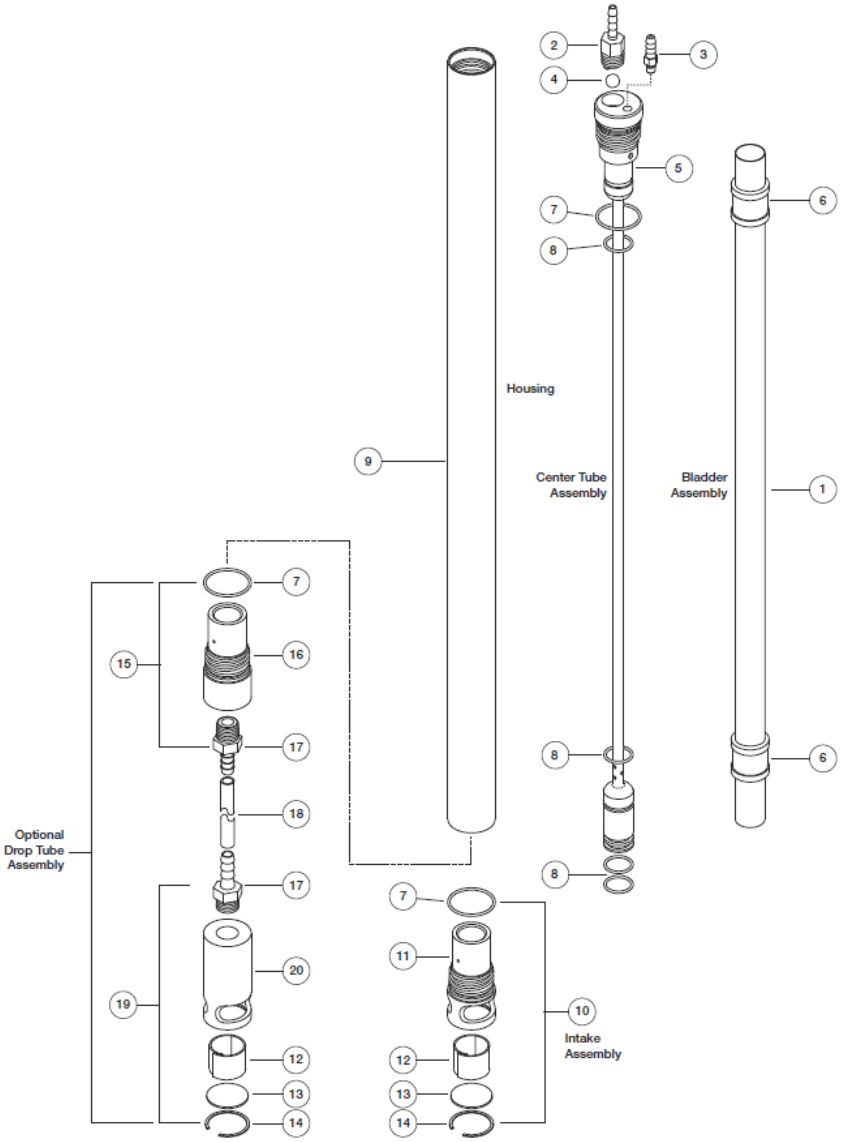


**Bladder Pump, 1.66, Portable Stainless Steel, Screened - 81150034**

| Item | Qty | Description | Part No. |
|---|---|---|---|
| 1 | 1 | BLADDER, PTFE, 1.66 PORTABLE | 21150054 |
| 1 | § | BLADDER, PE, 1.66 PORTABLE, EA | 21150055 |
| 1 | § | BLADDER, PE, 1.66 PORTABLE, 12PK | 21150056 |
| 2 | 1 | HOUSING, SS6, 1.66, PORTABLE BP | 21150041 |
| 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, PTFE 1.66 BP, CE PORTABLE | 21150042 |
| 6 | 1 | BALL, SS6, 3/8" | 17500081 |
| 7 | 2 | O-RING, VITON, 2.5MM X 23MM | 11150319 |
| 8 | 2 | O-RING, VITON, 2.5MM X 36MM | 11150318 |
| 9 | 1 | ASSY, HANGER, 166, PBP, SFTY CB, CE | 51150068 |
| 10 | 1 | CAP UPPER WELDMENT, SS, 1.66, PBP CE | 21150091 |
| 11 | 1 | PLUG, BALL RETAINER, 1.66 PBP CE | 21150096 |
| 12 | 1 | O-RING, VITON, #014 | 17500119 |
| 13 | 1 | BALL, SS6, 1/2" | 17500082 |
| 14 | 1 | ORING, VITON, 2MM X 20MM | 11150332 |
| 15 | 1 | CAP LOWER, SS, 1.66, PRTBL BP, CE | 21150094 |
| 16 | 1 | SCREEN, INTAKE, 1.66, SS6, PBP, CE | 21150095 |
| 17 | 1 | DISC, PTFE, 1.66, PBP PORTABLE | 21150043 |
| 18 | 1 | RING, SNAP, SS6, INTERNAL, 1.66 BP PORTABLE | 11150051 |
| 19 | 1 | ASSY, BOTTOM INTAKE 1.66 PBP, CE | 51150067 |
| 20 | § | ASSY, LOWER CAP, 1.66 PBP, DROP TUBE, CE | 51150128 |
| 21 | § | DROP TUBE, CAP LOWER, 1.66 PBP, CE SS | 21150098 |
| 22 | § | HOSEBARB, SS6, 1/2 X 3/8 MPT | 16600217 |
| 23 | § | TUBING, PE, 3/8 X 1/2, FT POLYETHYLENE | 87050503 |
| 24 | § | ASSY, INTAKE, 1.66 SS, DROP TUBE, WITH ½" HOSEBARB | 51150071 |
| 25 | 1 | INTAKE, DROP TUBE, 1.66" | 21150113 |
| Not Shown: | | | |
| | 1 | MANUAL, PBP, CE | 11150323 |
| | § | SPARE PARTS KIT, 1.66, PBP, CE<br>[Items 5 (2), 6, 7 (2), 8 (2), 12, 13, 14, 16, 17, 18] | 51150066 |
| | § | KIT, 1.66 PBP, O-RING SET, CE O-RING SERVICE KIT<br>[Items 7 (2), 8 (2), 12, 14] | 91150012 |

§ = *Sold Separately*

## .850 Bladder Pump Components

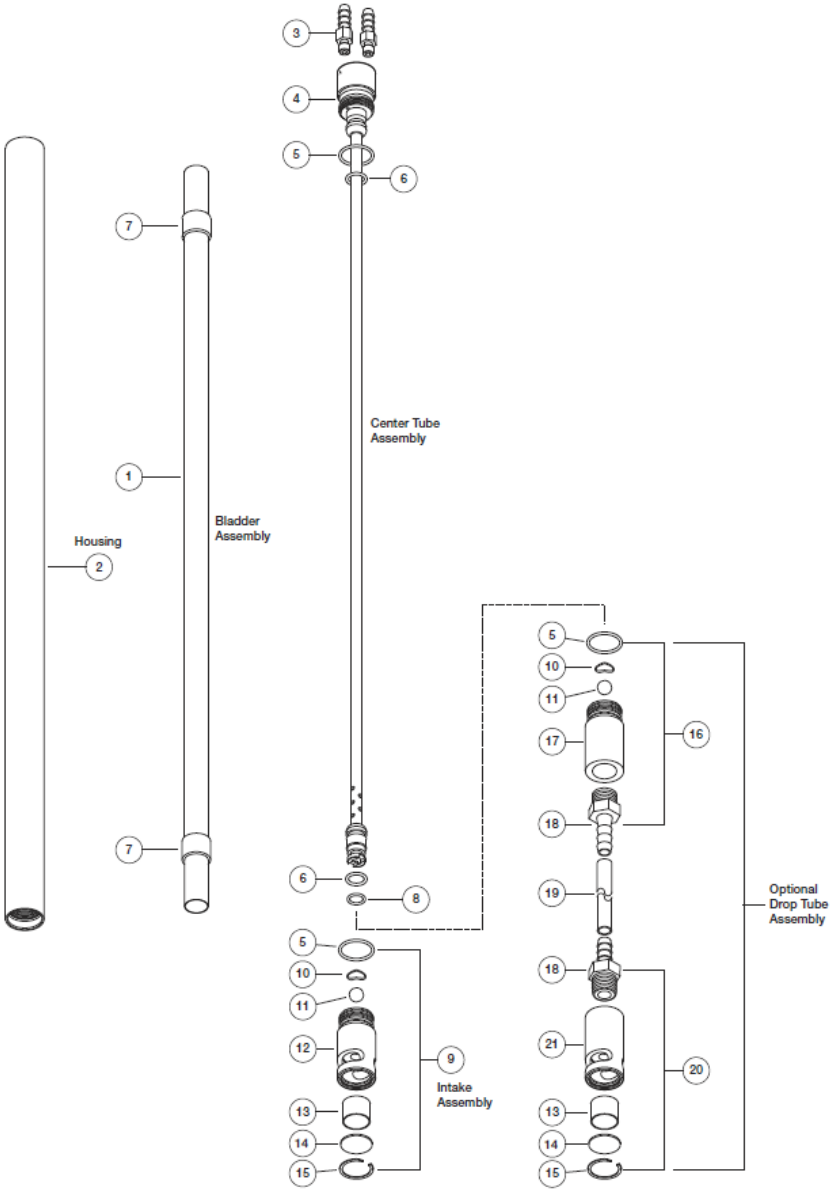


**Bladder Pump, .850, Stainless Steel, Screened - 81150115**

| Item | Qty | Description | Part No. |
|---|---|---|---|
| 1 | 1 | BLADDER ,PTFE, .85 BP | 51150051 |
| 1 | § | BLADDER, PE, .85 BP, EA | 21150100 |
| 1 | § | BLADDER, PE, .85, CE, 12PK | 21150099 |
| 2 | 1 | HOSEBARB, SS6, MOD, .170 X 1/8 NPT DISCHARGE | 11150118 |
| 3 | 1 | HOSEBARB, SS6, .170 X 10/24 AIR | 17200245 |
| 4 | 2 | BALL, SS6, 1/4" | 17500079 |
| 5 | 1 | CAP UPPER WELDMENT, SS6, .85 BP | 21150045 |
| 6 | 2 | RING, COMPRESSION, PTFE, .850, CE, BP | 21150048 |
| 7 | 2 | O-RING, VITON, CS .0629, ID 17.1MM | 17500112 |
| 8 | 4 | O-RING, VITON, #012 | 17500111 |
| 9 | 1 | HOUSING, SS6, .850, BP | 21150047 |
| 10 | 1 | ASSY, BOTTOM INTAKE, .85 BP | 51150118 |
| 11 | 1 | CAP, LOWER, SS6, .850, BP | 21150046 |
| 12 | 1 | SCREEN, INTAKE, SS6, .85 BP | 21150050 |
| 13 | 1 | DISC, PTFE, .85 BP | 21150049 |
| 14 | 1 | RING, SNAP, SS6, INTERNAL, .85 BP | 11150053 |
| 15 | § | ASSY, LOWER CAP, .850 BP, DROP TUBE, CE, W/ 1/4" HOSEBARB | 51150129 |
| 16 | § | DROP TUBE, CAP LOWER, .850 BP, CE SS | 21150109 |
| 17 | § | HOSEBARB, SS6, 1/4 X 1/8 MPT | 17200072 |
| 18 | § | TUBING, PE, 1/4 X 3/8, FT POLYETHYLENE | 87050502 |
| 19 | § | ASSY, INTAKE, .850 BP, DROP TUBE, CE, W/ 1/4" HOSEBARB | 51150069 |
| 20 | § | INTAKE, DROP TUBE, .850 BP, CE, SS | 21150111 |
| Not Shown: | | | |
| | 1 | MANUAL, BLADDER PUMPS | 21150035 |
| | § | SPARE PARTS KIT, .85, BP, CE<br>[Items 4 (2), 6 (2), 7 (2), 8 (4), 12, 13, 14] | 51150123 |
| | § | KIT, .85 BP, O-RING SET, CE, O-RING SERVICE KIT<br>[Items 7 (2), 8 (4)] | 91150013 |

§ = *Sold Separately*

## .675 Bladder Pump Components



**Bladder Pump, .675, Stainless Steel, Screened - 81150117**

| Item | Qty | Description | Part No. |
|---|---|---|---|
| 1 | 1 | BLADDER, PTFE, .675, BP, CE | 51150126 |
| 1 | § | BLADDER, PE, .675, EA | 21150102 |
| 1 | § | BLADDER, PE, .675, CE, 12PK | 21150101 |
| 2 | 1 | HOUSING, SS6, .675, BP | 21150032 |
| 3 | 2 | HOSEBARB, SS6, .170 X 10/24 AIR | 17200245 |
| 4 | 1 | WELDMENT, INNER, SS6, .675 BP | 51150125 |
| 5 | 2 | O-RING, VITON, #014 | 17500119 |
| 6 | 2 | O-RING, VITON, #107 | 17500604 |
| 7 | 2 | RING, COMPRESSION, PTFE, .675 BP, CE | 21150106 |
| 8 | 1 | O-RING, VITON, #009 | 17500113 |
| 9 | 1 | ASSY, BOTTOM INTAKE, .675, BP | 51150120 |
| 10 | 1 | RETAINER, BALL, .675 BP, TACO | 21150087 |
| 11 | 1 | BALL, SS6, 1/4" | 17500079 |
| 12 | 1 | CAP, LOWER, SS6, .675 BP | 21150031 |
| 13 | 1 | SCREEN, INTAKE, SS6, .675 BP | 11150317 |
| 14 | 1 | DISC, PTFE, .675 BP | 21150033 |
| 15 | 1 | RING, SNAP, SS, .675 BP | 11150182 |
| 16 | § | ASSY, LOWER CAP, .675 BP, DROP TUBE, CE | 51150130 |
| 17 | § | DROP TUBE, CAP LOWER, .675 BP, CE SS | 21150110 |
| 18 | § | HOSEBARB, SS6, 1/4 X 1/8 MPT | 17200072 |
| 19 | § | TUBING, PE, 1/4 X 3/8, FT POLYETHYLENE | 87050502 |
| 20 | § | ASSY, INTAKE .675 BP, DROP TUBE CE | 51150070 |
| 21 | § | INTAKE, DROP TUBE, .675 BP, CE, SS | 21150112 |
| Not Shown: | | | |
| | 1 | MANUAL, BLADDER PUMPS | 21150035 |
| | § | SPARE PARTS KIT, .675, BP, CE<br>[Items 5(2), 6 (2), 7(2), 8, 10, 11, 13, 14, 15] | 51150124 |
| | § | KIT, .675 BP, O-RING SET, CE O-RING SERVICE KIT<br>[Items 5 (2), 6 (2), 8] | 91150014 |

§ = *Sold Separately*

| DOCUMENT REVISIONS | | |
|---|---|---|
| EDCF# | DESCRIPTION | REV/DATE |
| Project 1375 | Release, SP | 3/11/2014 |
| - | Updated back page information, SP | 3/2/2015 |

## Notes

## 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 Portable Bladder Pump, CE

Model(s): 1.66” Bladder Pump
.850” Bladder Pump
.675” Bladder Pump

Year of manufacture: 2010

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: 2010

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**
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Printed in the United States of America