

AR4

4" Auto-Reclaimer

Installation and Operation Manual



Table of Contents

Section 1: System Description	3
Function and Theory	3
System Components	4
Section 2: System Installation	5
System Schematic	6
Pump Activation Levels	8
Air Consumption	9
Airline Supply Pressure Drops	10
Deploying Multiple Pumps	11
Section 3: System Operation	13
Section 4: System Specifications	14
Performance Curves: AR4 Short Series	15
Performance Curves: AR4 Long Series	17
Performance Curves: AR4 EXT Series	19
Section 5: Replacement Parts	22
AR4 Replacement Parts List	22
Replacement Parts Diagram	23
Section 6: System Maintenance	25
Maintenance Schedule	25
Maintenance Operations	25
Required Tools	25
Supplies*	25
Disassembly Instructions	26
Housing and Bottom Cap	26
Retainer and Float	27
Control Rod/ Valve Assy.	28
Section 7: System Troubleshooting	29
Appendix A –System Specifications - Metric	31
Performance Curves: AR4 Short Series - Metric	31
Performance Curves: AR4 Long Series - Metric	33
Performance Curves AR4 EXT Series- Metric	35
Air Consumption- Metric	37
Air Supply Pressure Drops – Metric	38
Discharge Trunkline Sizing – Metric	40
The Warranty	42
Equipment Return Policy	42
Equipment Decontamination	42

Section 1: System Description

Function and Theory

The Geotech 4" Auto-Reclaimer (AR4) is an automatic and controller-less, positive air-displacement pump that works without the use of any external controls, relays, bleeder tubes or bubblers. The AR4 requires only a regulated standard industrial compressed air source to operate.

The AR4 is a fixed intake, Automatic total fluids recovery pump which can recover fluids from depths of up to 250' (76.2 m). Based on specific site requirements, the AR4 is offered in three lengths: short, long, and extended (Ext) each of which can be ordered to accommodate fluid intake with a top screen inlet, a 4" (10 cm) bottom screen, a flat bottom screen, or any combination of top and bottom. Intake screens allow for pumping fluid with up to 1/8" diameter suspended particles.

The AR4 can also operate under both positive and *negative (vacuum) pressure environments. The pump is designed to self-adjust the discharge flow rate automatically to match individual well recharge rates (up to the pumps maximum flow rate based on individual site conditions).

*Vacuum conditions may require a Vacuum Equalizer if venting out of the recovery well. Contact your Geotech Technical Sales representative for more information.

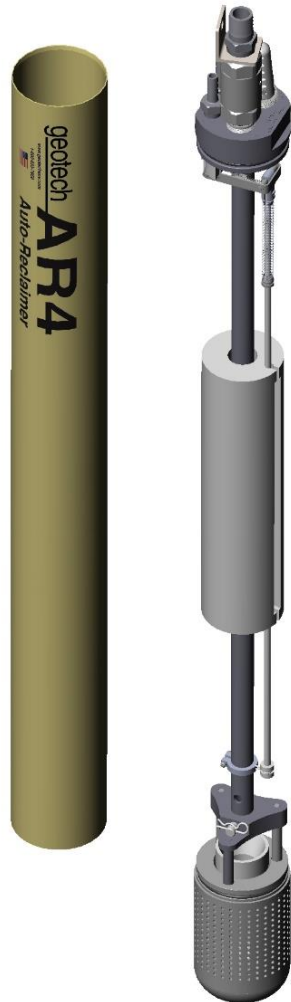
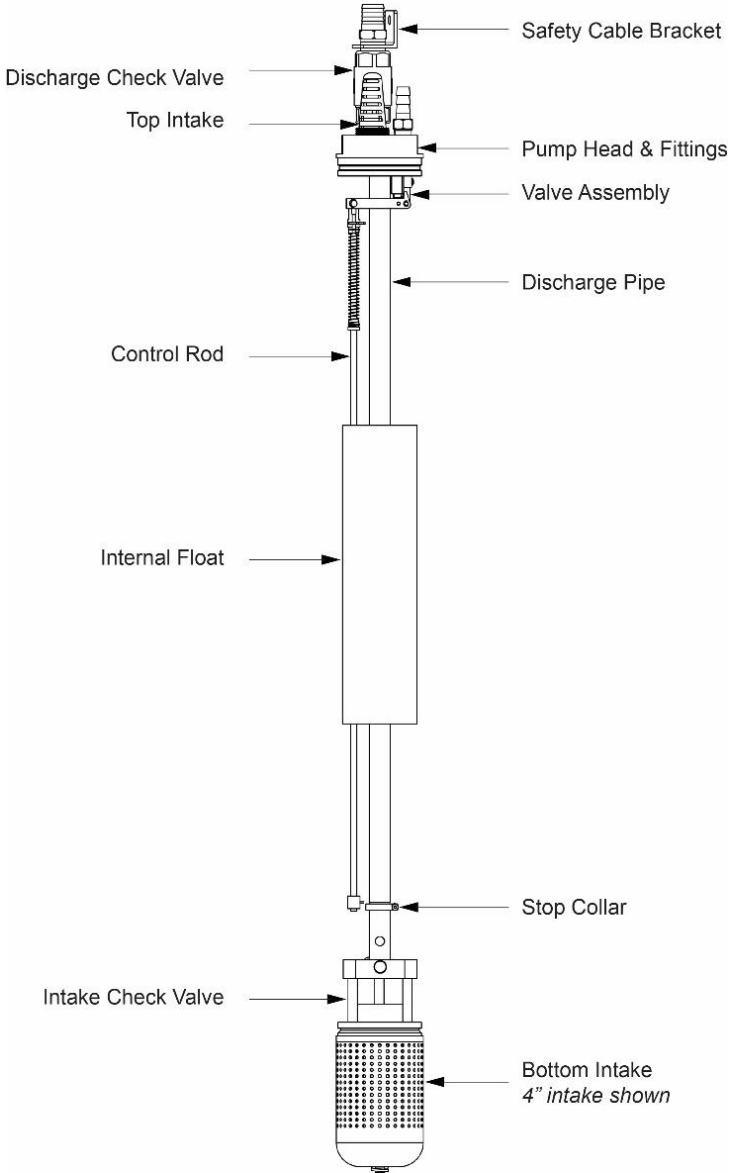


Figure 1-1: Auto Reclaimer 4

System Components

The AR4 pump series models all share the same internal mechanics and pump options. Figure 1-2 below shows the major components to an AR4.



**Housing not shown*

Figure 1-2: AR4 model: 86600149 – AR4, SHORT, T&4" B

Section 2: System Installation

Attach the Air (A), Vent (V), and Discharge (D) hoses/tubing to their appropriate labeled fittings (see Figure 2-1). Ensure all hoses are installed securely and completely. Top filling AR4 pump models have a screened inlet in the Fill (F) port; bottom fill only pumps will have this port plugged.

Attach the pump suspension cable to the safety cable harness and lower pump into well. Suspension cable should be centered with the pump head and not wrapped around any of the fittings or tubing.

Lower the pump into the well so that the appropriate intake(s) becomes submerged below static groundwater conditions.

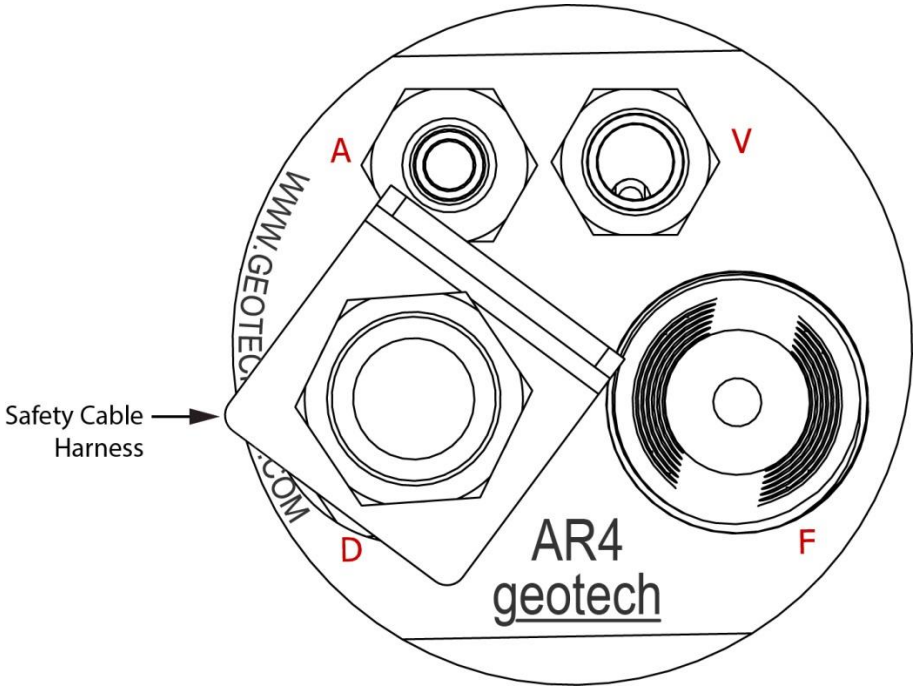


Figure 2-1: Pump Head

System Schematic

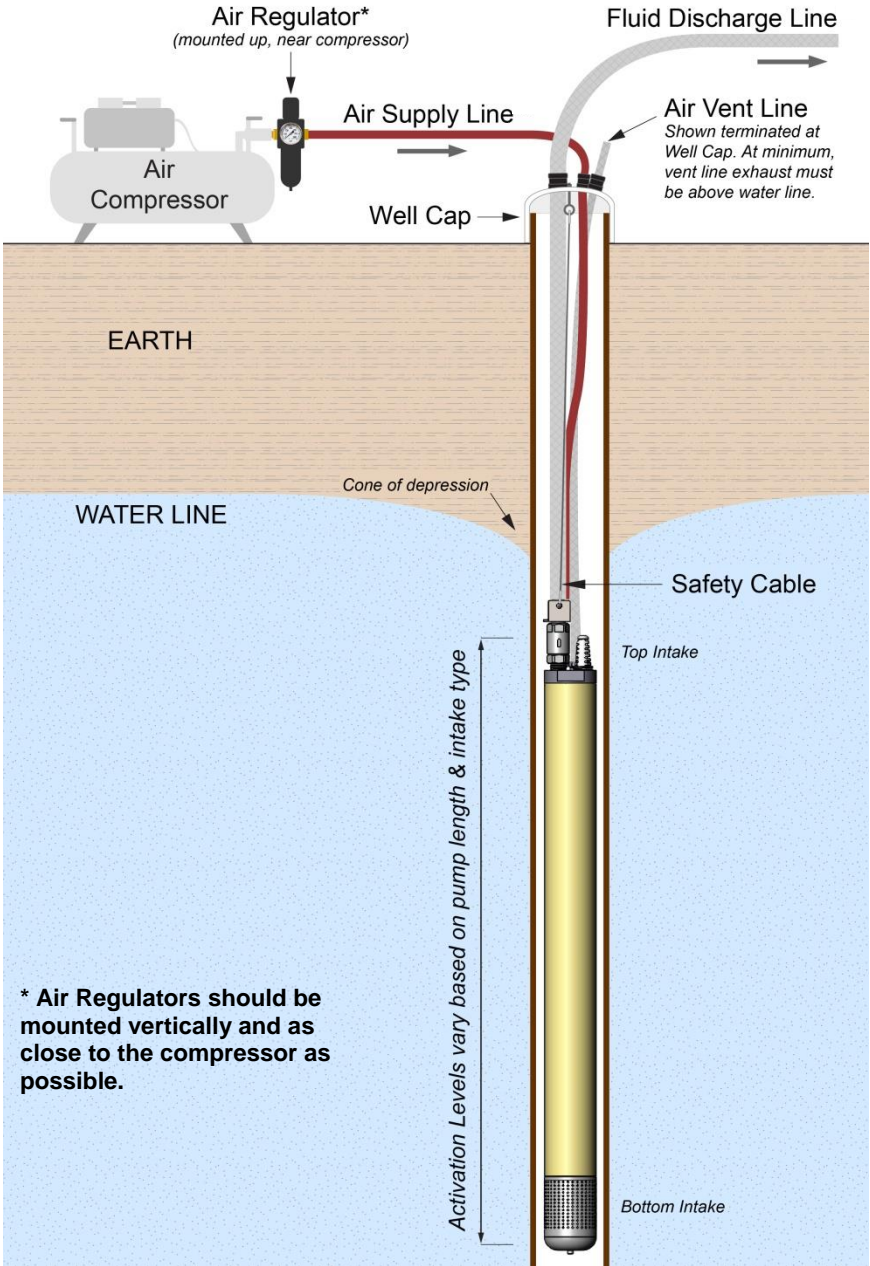


Figure 2-2: Single Pump System Schematic

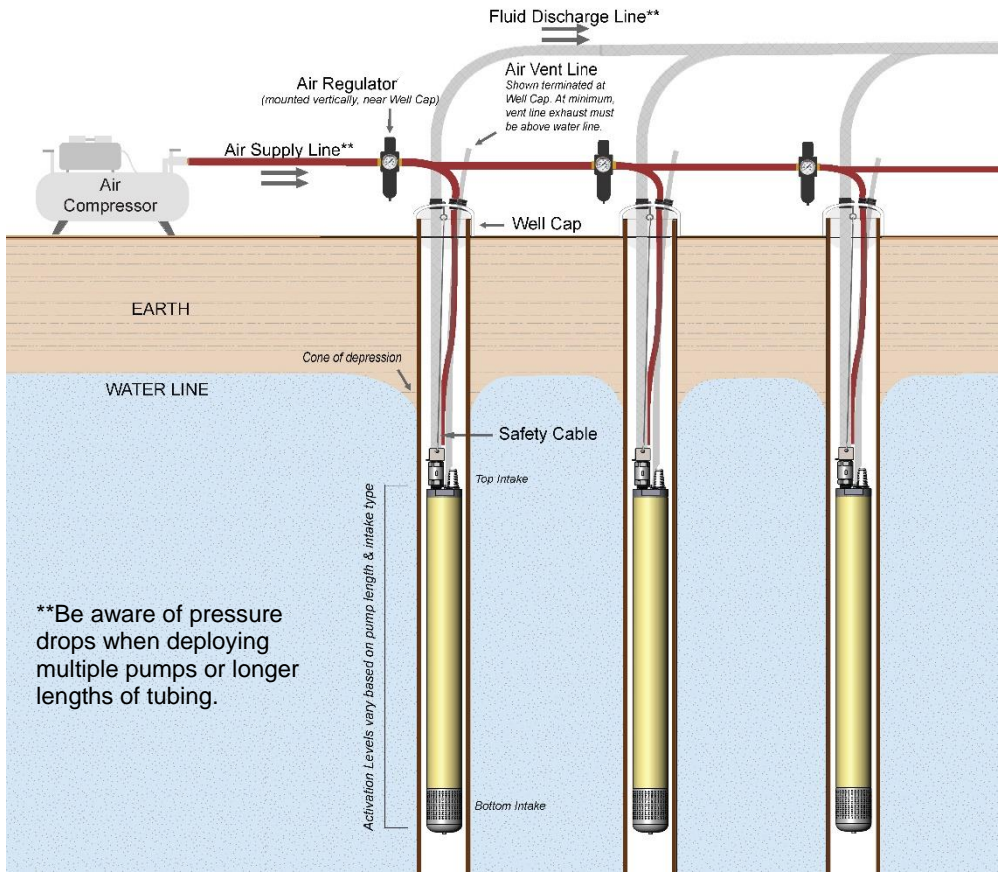
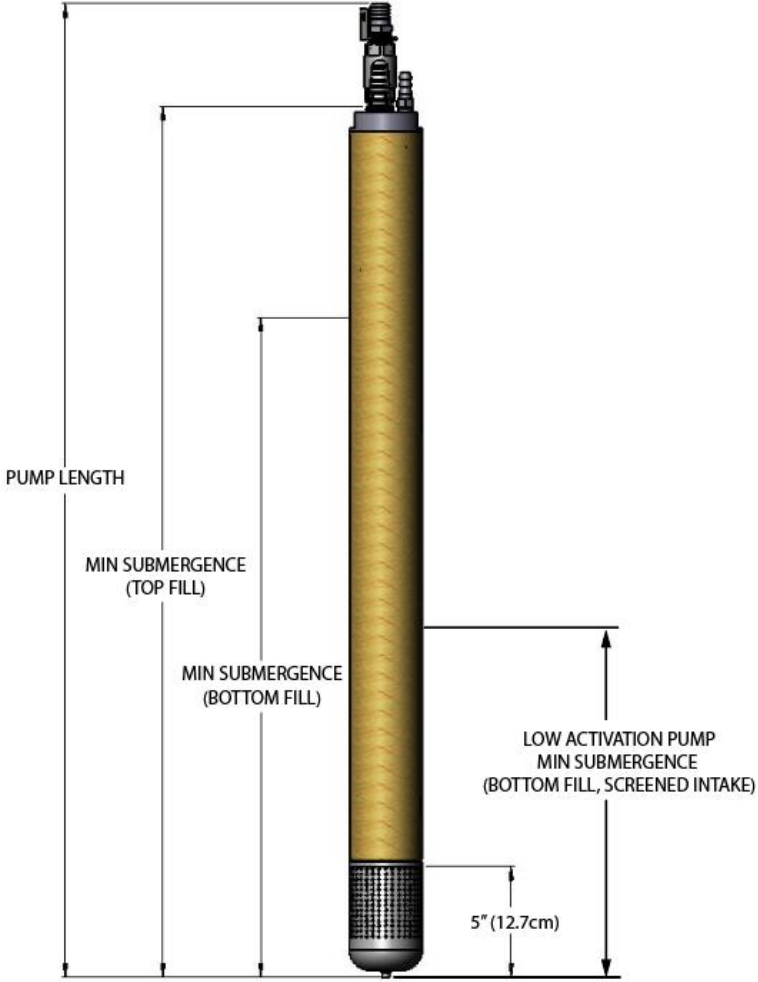


Figure 2-3: System Schematic with Multiple Pumps

Pump Activation Levels

The AR4 is offered in three pump lengths. Activation levels vary depending on inlet options and pump length. Fluid submergence levels will trip valve mechanics when pumping fluid reaches approximately three quarters the length of the float. Measurements below are shown with a bottom screen. Adjust measurements by reducing 5" (13 cm) if using a flat bottom intake or top fill only AR4. See table and Figure 2-3 below.



PUMP DIMENSIONS	SHORT/LOW ACTIVATION	LONG	EXT
MIN ACTIVATION LEVEL (BOTTOM FILL)	35" (89 cm) / 17" (43 cm)	47" (119 cm)	59" (150 cm)
MIN ACTIVATION LEVEL (TOP FILL)	42.5" (108 cm)	54.5" (138.43 cm)	66.5" (169 cm)
PUMP LENGTH	48" (122 cm)	60" (153 cm)	72" (183 cm)

Figure 2-3: Submergence Levels for Pump Activation

Air Consumption

(See Appendix A for metric conversions)

Depending on site conditions, Figure 2-4 below estimates pump air consumption.

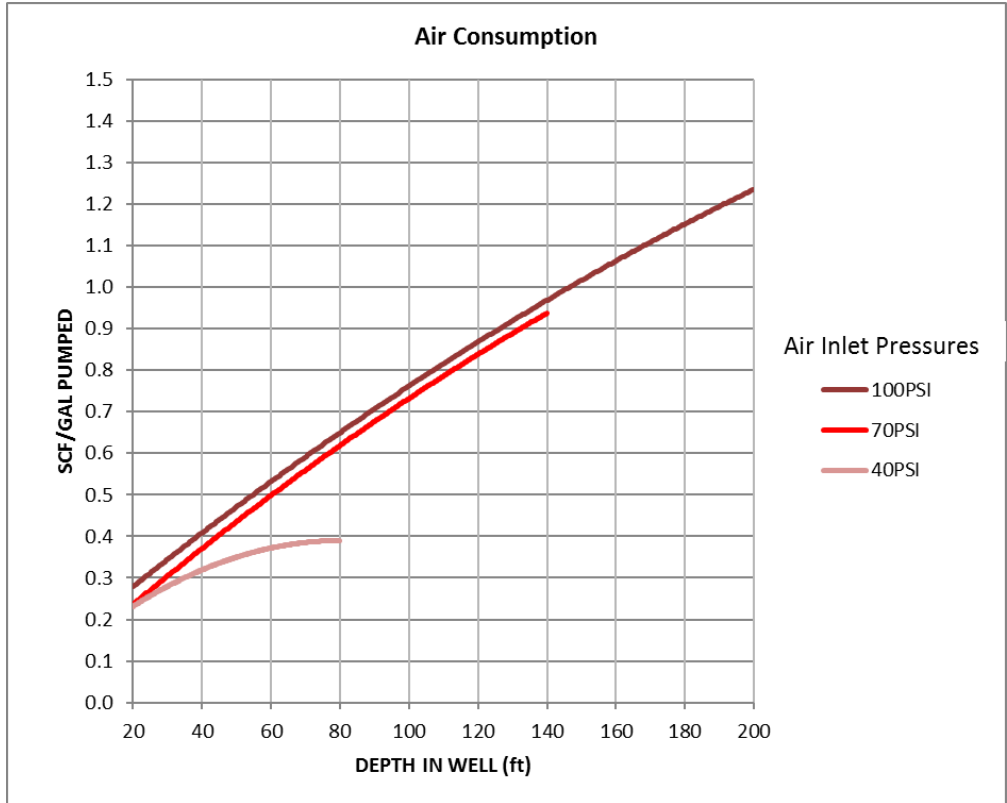


Figure 2-4: Air Consumption

Airline Supply Pressure Drops

(see Appendix A for metric conversions)
Airline Supply Pressure Drops (continued)

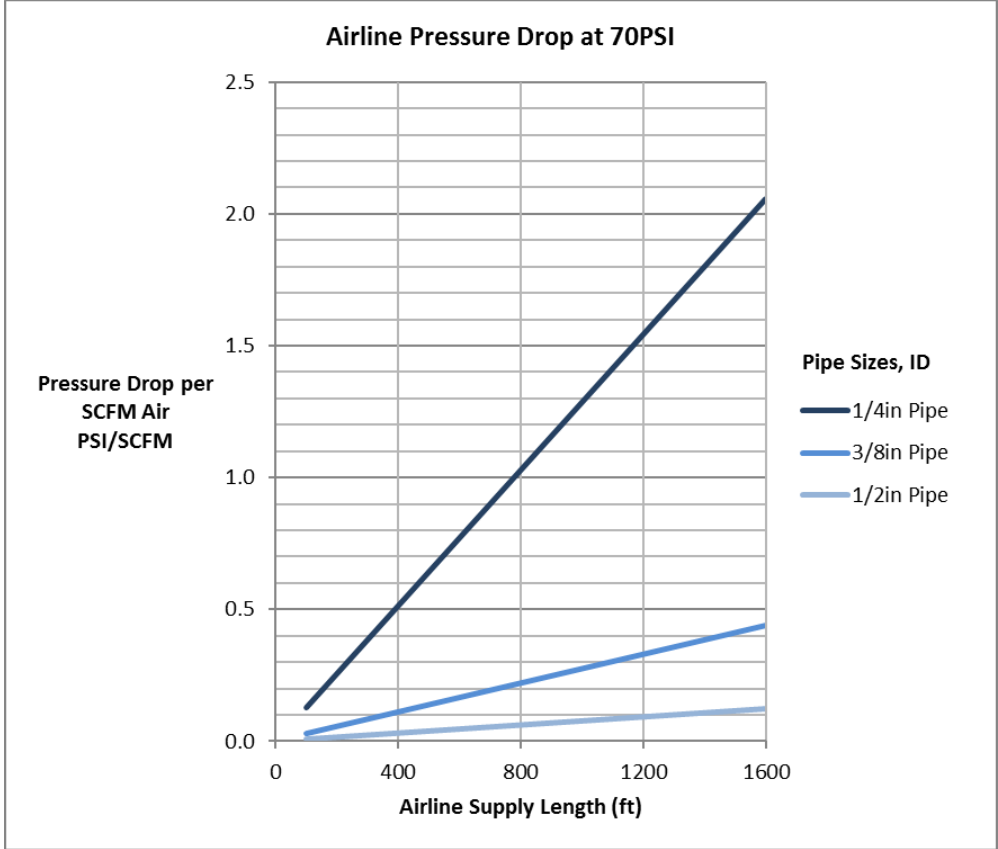


Figure 2-6: Airline Pressure Drop at 70PSI

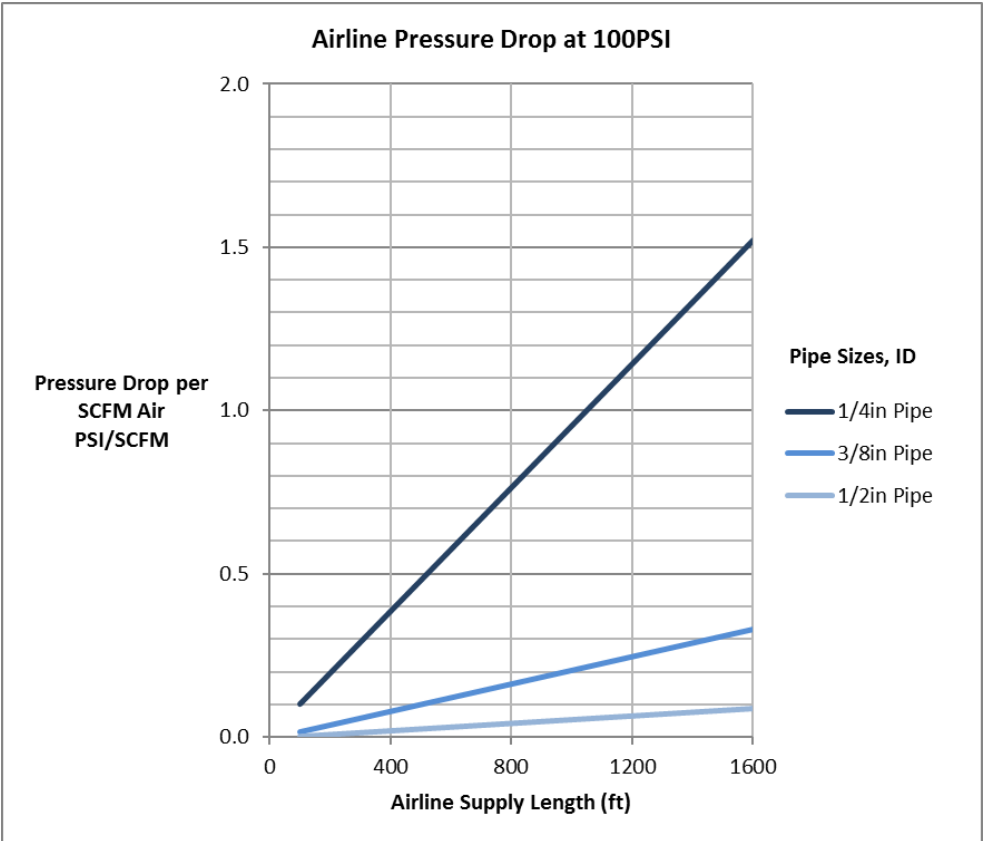


Figure 2-7: Airline Pressure Drop at 100PSI

Deploying Multiple Pumps

(see Appendix A for metric conversions)

When installing multiple pump lines over extended distances, proper pipe sizing on the discharge side needs to be considered to ensure pressure drop along trunkline does not exceed the pressure available from pump source. Please use Figure 2-7 below as a reference only. Numbers provided were calculated for water flowing through plastic piping.

Trunkline Sizing (15 psi pressure drop)

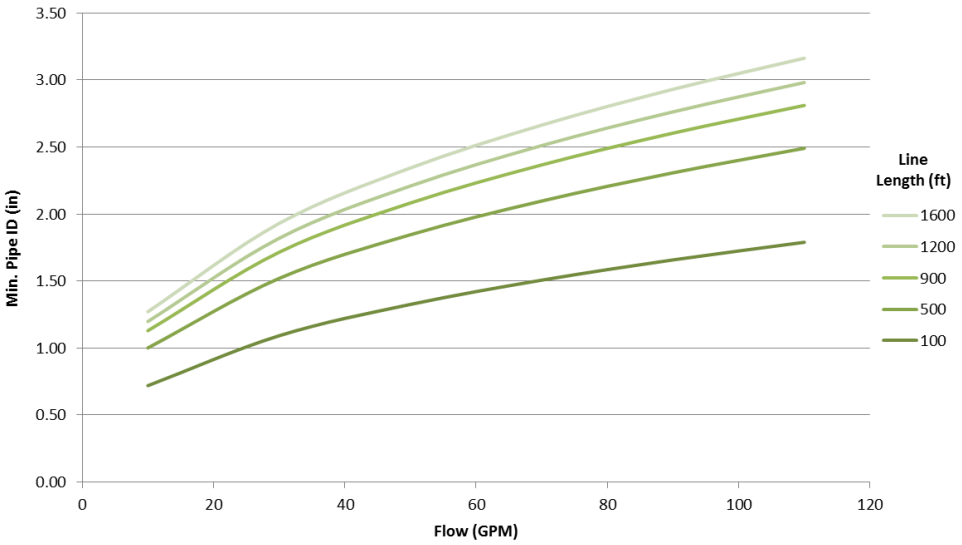


Figure 2-8: Trunkline Sizing 15PSI Pressure Drop

Section 3: System Operation

The AR4 pump is lowered in a recovery well so that the fluid intake (top, bottom or dual fill) are sufficiently submerged below the static groundwater level. Provided with a regulated air supply, the pump cyclically fills and empties. As the pump fills, the internal float assembly rises until engaging the control lever that operates the valve mechanism. When the control lever shifts up, the air valve opens and the pump begins to pressurize, closing any inlet check valves and displacing fluid out the discharge pipe. As the water is discharged from the pump, the float assembly lowers, shifting the control lever down and closing the air supply valve and opening the vent valve. The pressurized air exits through the air exhaust tube, allowing the pump to refill and begin a new cycle. This cyclic operation continues automatically as fluid is drawn into the well. Regulated compressed air is utilized in this system as an on demand supply.

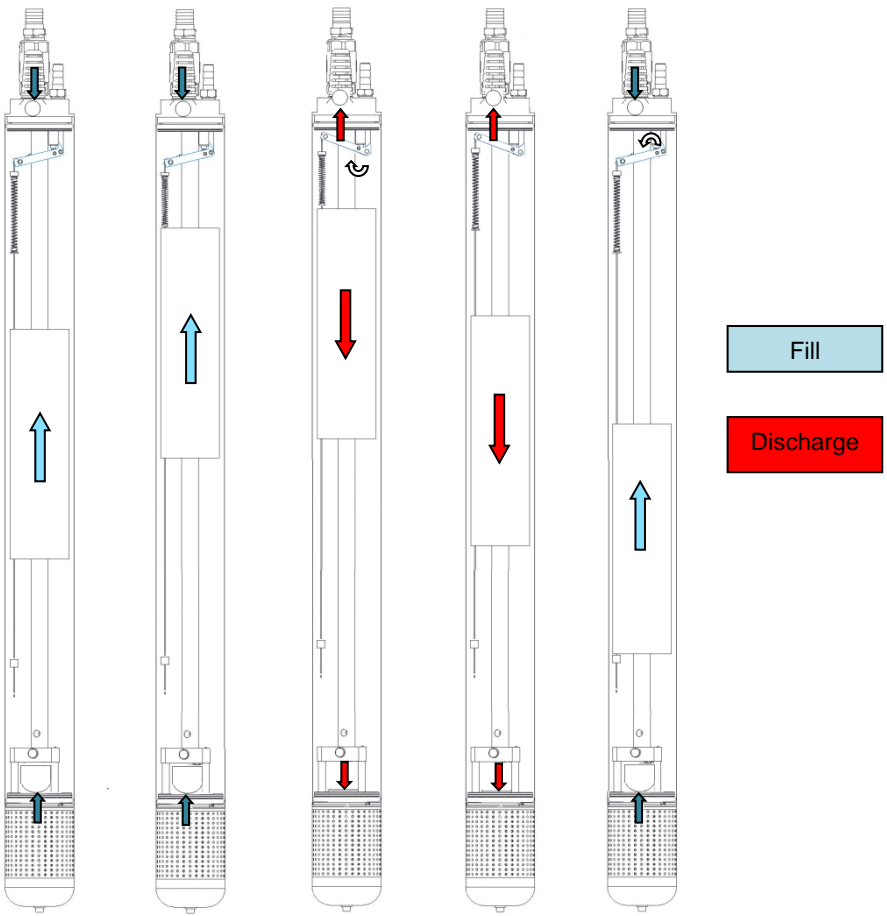


Figure 3-1: Pump cycle

Section 4: System Specifications

Table 4-1: Physical Specifications

	Short/Low Activation Pump		Long Pump		Extended Pump	
Fluid Inlet	Top	Bottom	Top	Bottom	Top	Bottom
Diameter	3.5" (8.9 cm)					
Length	44" (112 cm)	48" (122 cm)	56" (142 cm)	60" (152 cm)	68" (173 cm)	72" (183 cm)
Weight	13.5 lbs (6 kg)		15.6 lbs (7 kg)		17.7 lbs (8 kg)	
Maximum Depth	250' (76.2 m)					
Actuation Level**	42.5" (108 cm)	35" (89 cm) / 17" (43 cm)	54.5" (138.43 cm)	47" (120 cm)	66.5" (169 cm)	59" (150 cm)
Air Pressure	10 - 120 PSI Max (0.7 – 8.5 Kg/cm ²)					
Air Consumption	0.25 - 1.25 SCF/GAL (1.5-9.5 STD L/Liter)					
Fluids	Landfill leachate,diesel, gasoline, JP1, JP6,#2 heating oils, BTEX, MTBE*					
pH Range	4-9					
Max. Temperature	220°F (104°C)*					
Min. Density	0.7 SpG					

*HDPE parts may require increased maintenance at higher concentrations and /or temperatures

** Activation levels shown above reflect activation levels for pumps with a bottom inlet/screen. To determine the activation level for a flat bottom intake, subtract 5" (12.7 cm) from the activation level measurement above.

Table 4-2: Fitting Sizes and Materials

Tube & Hose Fittings		Pump Materials	
Fitting sizes on pump head		Pump housing/body	FRP
Air - NPT/Hose Barb	3/8" / 3/8"	Pump ends	SS316
Vent - NPT/Hose Barb	3/8" / 1/2"	Internal Component	SS316, PVDF, FPM, HDPE
Discharge - NPT/Hose Barb	3/4" / 3/4"	Bottom Intake	HDPE
Top Fill - NPT	1"	Top intake check ball	PTFE
Tube Fitting Type	Hose bars or optional Quick Connectors (QCon)	Bottom intake check ball	HDPE
Tube or Hose Fittings	Brass / Stainless Steel	Discharge check ball	PTFE
Liquid discharge tubing ID	3/4"	O-ring seals	FPM
Air supply tubing ID	3/8"	Air inlet check ball	FPM
Vent / Air exhaust tubing ID	1/2"	Vent Seat	FPM
Tubing and Hosing Material	Multiple available - Contact your Geotech Sales Representative	Float	HDPE
		Top Intake Material	PVDF
		Control Rod	PVDF
		Valve Manifold	PVDF

Performance Curves: AR4 Short Series

(see Appendix A for metric conversions)

Information below is for estimation purposes only. Performance will vary with site specifics. Flow is measured in Gallons Per Minute (GPM).

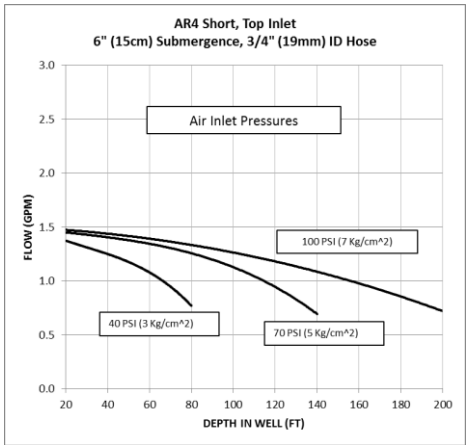
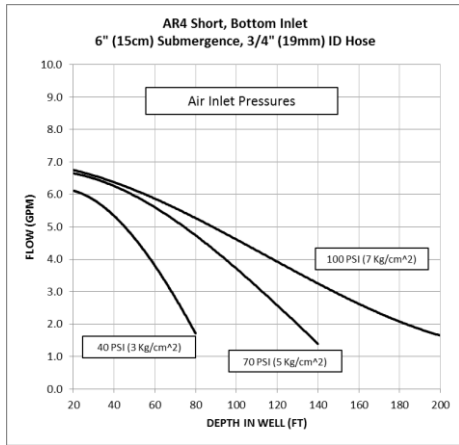


Figure 4-1: AR4 Short Bottom/Top Inlet, 6" (15 cm) Submergence, 3/4" (19 mm) ID Hose in GPM

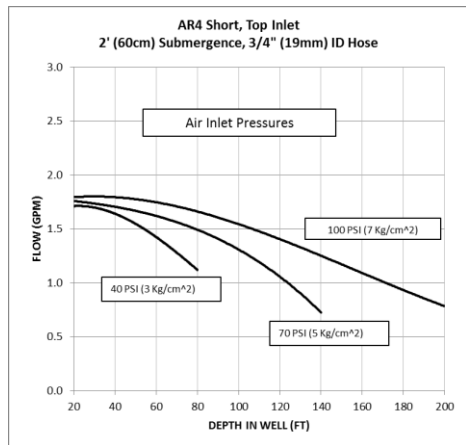
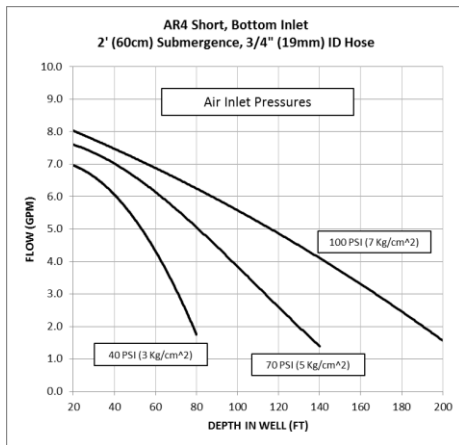


Figure 4-2: AR4 Short Bottom/Top Inlet, 2' (60 cm) Submergence, 3/4" (19 mm) ID Hose in GPM

Performance Curves: AR4 Short Series (continued)

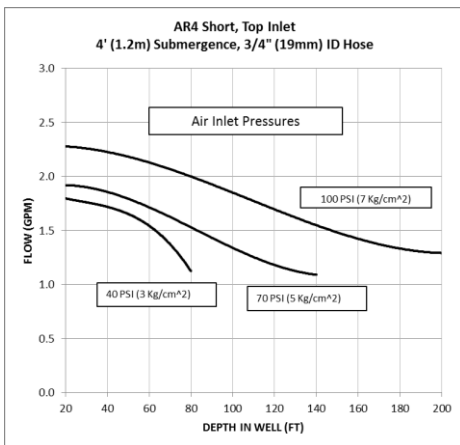
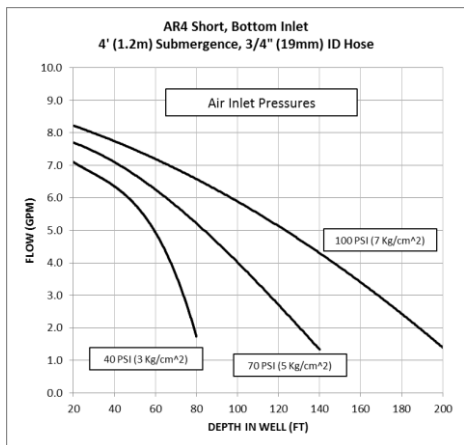


Figure 4-3: AR4 Short Bottom/Top Inlet 4' (1.2 m) Submergence, 3/4" (19 mm) ID Hose in GPM

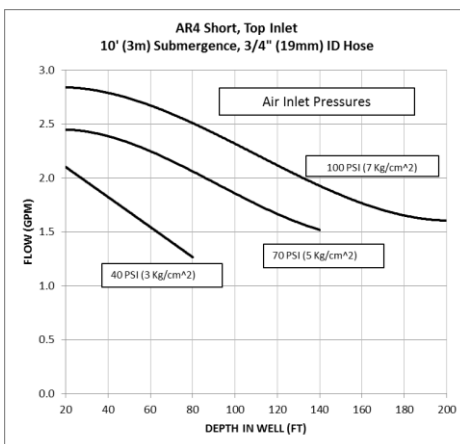
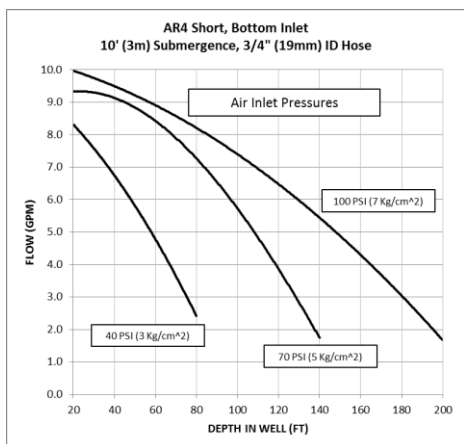


Figure 4-4: AR4 Short Bottom/Top Inlet 10' (3 m) Submergence, 3/4" (19 mm) ID Hose in GPM

Performance Curves: AR4 Long Series

(see Appendix A for metric conversions)

Information below is for estimation purposes only. Performance will vary with site specifics. Flow is measured in Gallons Per Minute (GPM).

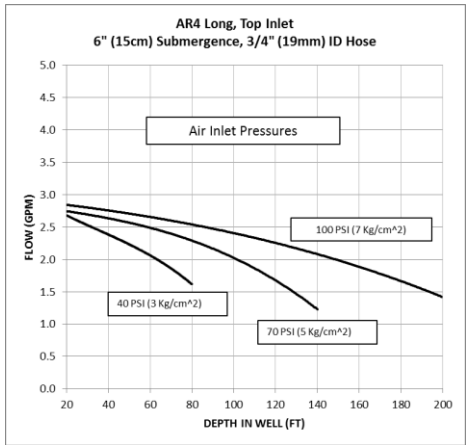
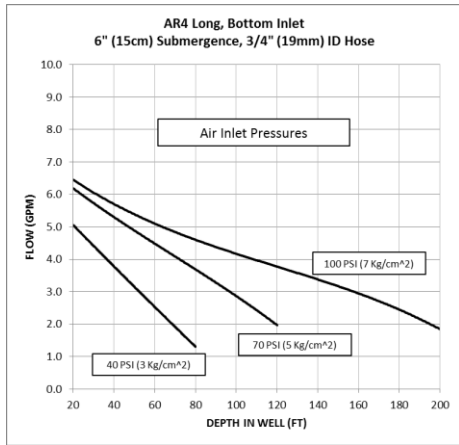


Figure 4-5: AR4 Long Bottom/Top Inlet 6" (15 cm) Submergence, 3/4" (19 mm) ID Hose in GPM

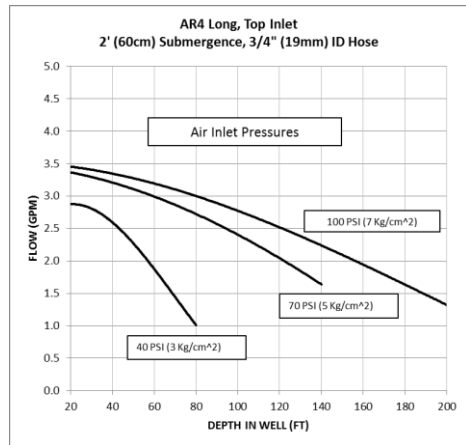
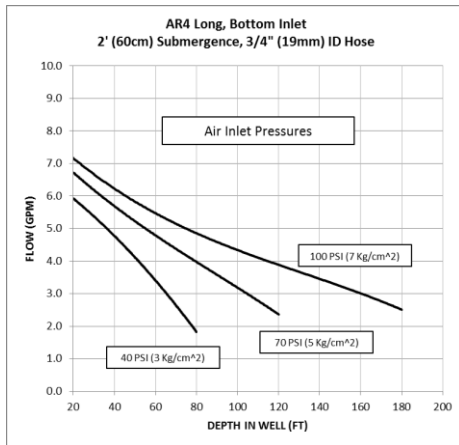


Figure 4-6: AR4 Long Bottom/Top Inlet 2' (60 cm) Submergence, 3/4" (19 mm) ID Hose in GPM

Performance Curves: AR4 Long Series (continued)

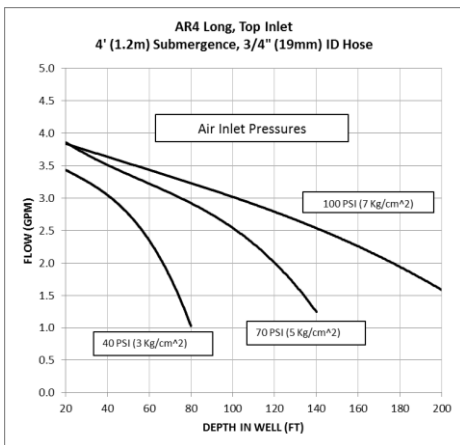
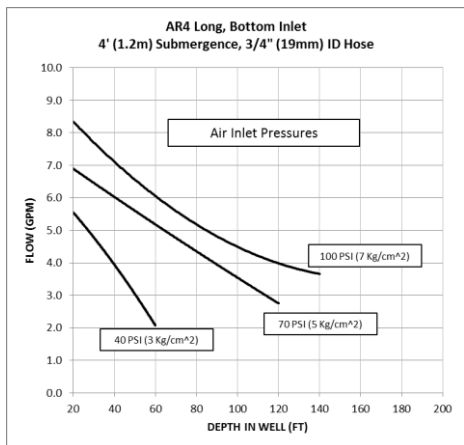


Figure 4-7: AR4 Long Bottom/Top Inlet 4' (1.2 m) Submergence, 3/4" (19 mm) ID Hose in GPM

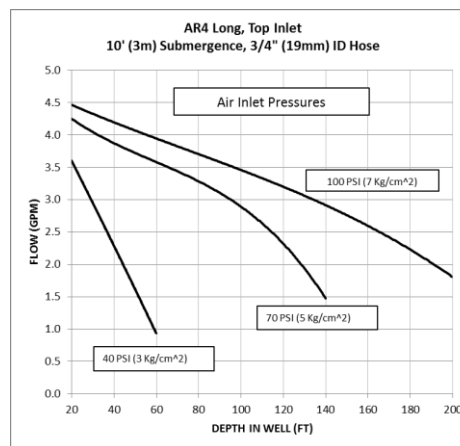
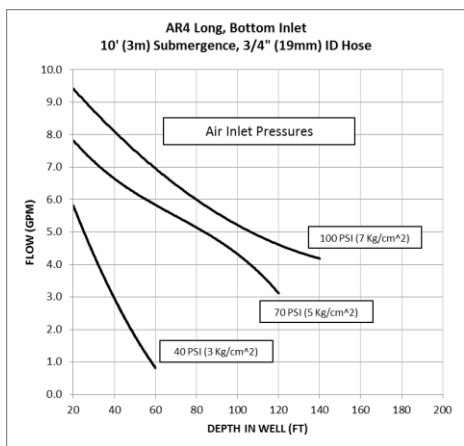


Figure 4-8: AR4 Long Bottom/Top Inlet 10' (3 m) Submergence, 3/4" (19 mm) ID Hose in GPM

Performance Curves: AR4 EXT Series

(see Appendix A for metric conversions)

The EXT pump requires less maintenance compared to other models, cycles more fluid volume per duty cycle, and has a longer service life.

Information below is for estimation purposes only. Performance will vary with site specifics. Flow is measured in Gallons Per Minute (GPM).

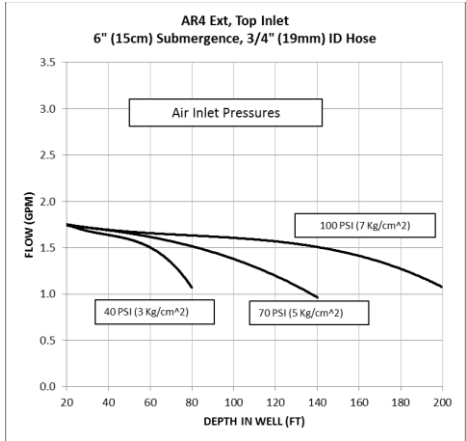
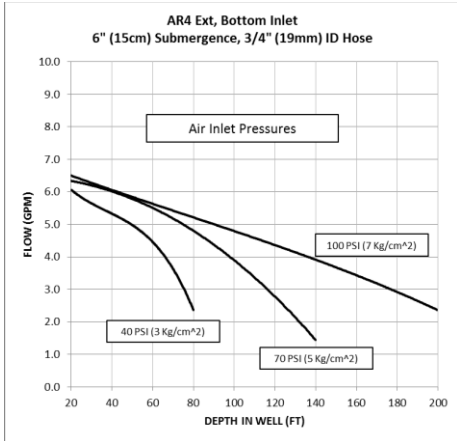


Figure 4-9: AR4 EXT. Bottom/Top Inlet 6" (15 cm) Submergence, 3/4" (19 mm) ID Hose in GPM

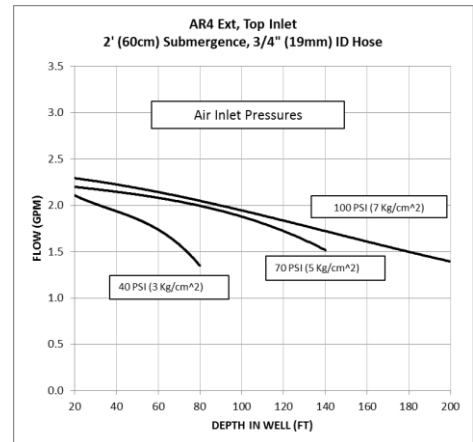
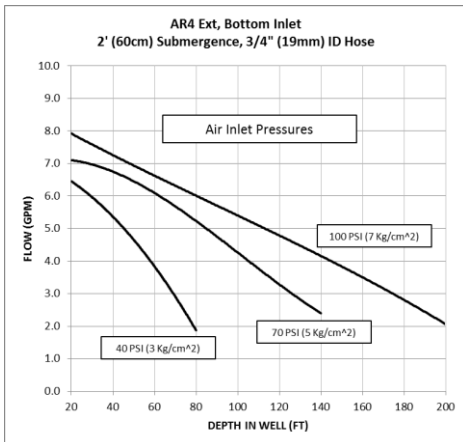


Figure 4-10: AR4 EXT. Bottom/Top Inlet 2' (60 cm) Submergence, 3/4" (19 mm) ID Hose in GPM

Performance Curves: AR4 EXT Series (continued)

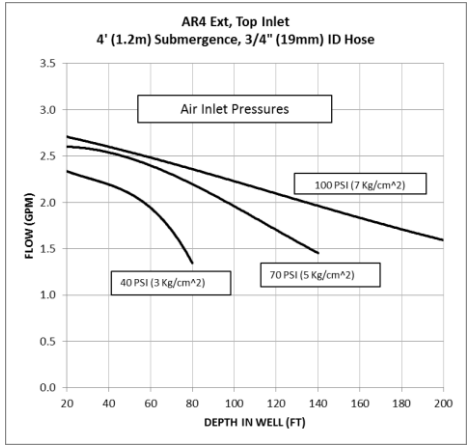
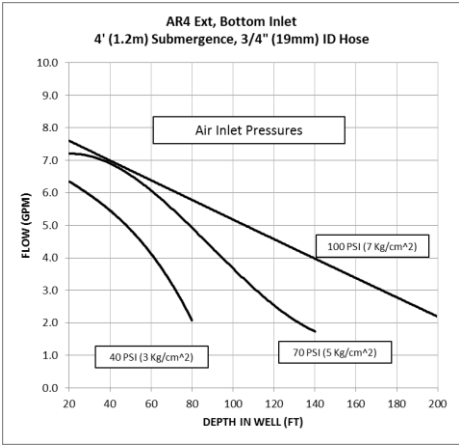


Figure 4-11: AR4 EXT. Bottom/Top Inlet 4' (1.2 m) Submergence, 3/4" (19 mm) ID Hose in GPM

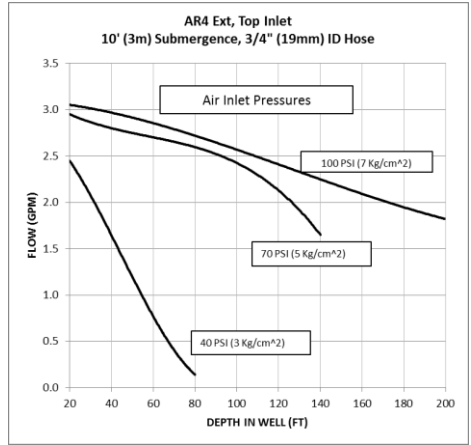
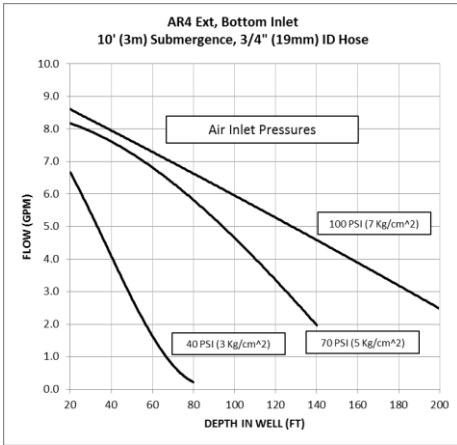


Figure 4-12: AR4 EXT. Bottom/Top Inlet 10' (3 m) Submergence, 3/4" (19 mm) ID Hose in GPM

Section 5: Replacement Parts

AR4 Replacement Parts List

ITEM	DESCRIPTION	PART NO.	ITEM	DESCRIPTION	PART NO.
1	HOSEBARB,SS316,3/4" X 3/4"MPT	16600218	20	FLOAT,HDPE,AR4	26600234
2	CHECK VALVE,SS316,PTFE,3/4"FPT	16600268	21	COLLAR,CONTROL ROD,AR4	26600275
3	NIPPLE,SS316,3/4"MPT X 1-1/2"	16600267	22*	ORING,#007,VITON	16600301
4	HOSEBARB,SS316,1/2" X 3/8"MPT	16600217	23	PIN,CLEVIS,3/8",SS316	16600303
5	HOSEBARB,SS316,3/8" X 3/8"MPT	16600213	24	WELDMENT,RETAINER,LOWER INTAKE,AR4	56600079
6*	SCREEN,INLET,TOP,PVDF,AR4	*26600252	25*	DRAIN,FLAT BOTTOM,SS316,3/8",AR4	26600259
7*	PLUG,SQUARE HEAD,SS316,1"NPT	16600298	26*	PLUG,CHECK,LOWER INTAKE,HDPE,AR4	26600245
8*	BALL,PTFE,7/8"	*16600098	27*	WELDMENT,SUPPORT,SEAT,LOWER INTAKE,AR4	56600080
9*	WELDMENT,HEAD,PIPE,SHORT, AR4	56600078	28	SCREW,VITON,SS316,1/4-20 X 1/2",SELF SEALING,SHCS	16600367
*	WELDMENT,HEAD,PIPE,LONG, AR4	56600081	29*	WELDMENT,SCREEN,DOME,LOWER INTAKE, AR4	16600293
*	WELDMENT,HEAD,PIPE,EXT, AR4	56600082	30*	WASHER,LOCK,SS316,3/8"	16600300
10	HARNES, SAFETY,AR4	56600084	31*	SCREW,SS6,1/4-20 X 3/8",SHCS	16600297
11	ORING,#234, VITON, AR4	16600361	32*	HOUSING,AR4,FRP.SHORT	56600086
12	ASSEMBLY,VALVE,AR4	56600083	*	HOUSING,AR4,FRP.LONG	56600087
13*	ROD,CONTROL,PVDF,SHORT,AR4	26600272	*	HOUSING,AR4,FRP.EXTENDED	56600088
*	ROD,CONTROL,PVDF,LONG,AR4	26600279	*	HOUSING,SS6,SHORT,AUTO-REC,AR4	26600261
*	ROD,CONTROL,PVDF,EXTENDED,AR4	26600280	*	HOUSING,SS6,LONG,AUTO-REC,AR4	26600262
*	ROD,CONTROL,PVDF,SHORT,LOW ACTIVATION, AR4	26600285	*	HOUSING,SS6,EXT,AUTO-REC,AR4	26600263
14	PIN,HITCH,MOD.,SS316,AR4	26600276	33*	CAP,LOWER,SS316,BLANK,AR4	26600248
15	LINK,CONTROL ROD,AR4	26600274	34*	CAP,INTAKE,LOWER,SS6,FLAT BOTTOM,AR4	26600253
16	PIN,SS316,COTTER,FITS 1/4" TO 3/8"	16600364	35*	WASHER,LOCK,SS316,1/4"	16600295
17	SCREW,SS316,8-32 X 1",SHCS	16600274	36	COLLAR,STOP,DELRIN,FLOAT,AR4	26600283
18	SPRING,CONTROL ROD, SS6, AR4	16600321			
19	STOP,SPRING,SS316,AR4	26600232	**	Optional Quick Connectors (QCon) Contact your Geotech Sales representative	

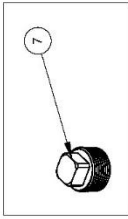
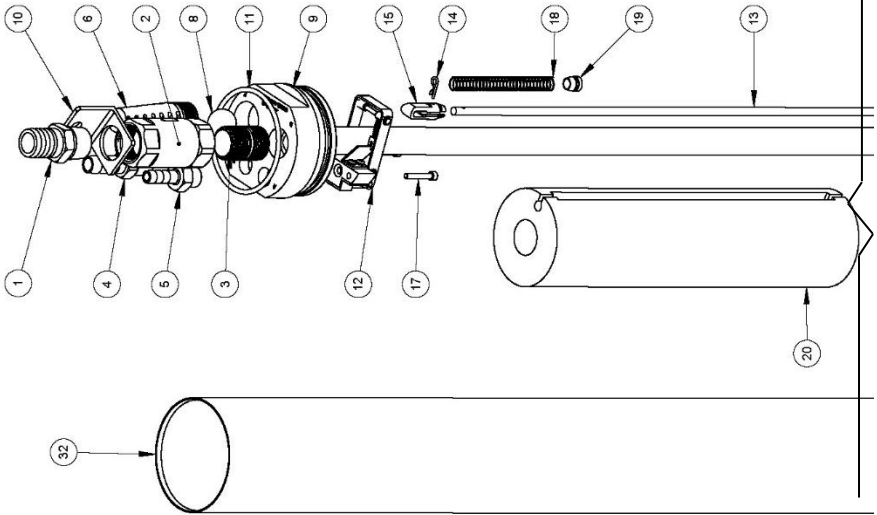
* Parts not included with all pump models

AR4 Pump Model List

DESCRIPTION	PART NO.	DESCRIPTION	PART NO.
AUTO RECLAIMER, 4", SHORT, T&4"B	86600149	AUTO RECLAIMER, 4", LONG, 4"B	86600158
AUTO RECLAIMER, 4", SHORT, T&B	86600152	AUTO RECLAIMER, 4", LONG, B	86600159
AUTO RECLAIMER, 4", SHORT, T	86600153	AUTO RECLAIMER, 4", EXT, T&4"B	86600160
AUTO RECLAIMER, 4", SHORT, 4"B	86600154	AUTO RECLAIMER, 4", EXT, T&B	86600161
AUTO RECLAIMER, 4", SHORT, B	86600151	AUTO RECLAIMER, 4", EXT, T	86600162
AUTO RECLAIMER, 4", LONG, T&4"B	86600155	AUTO RECLAIMER, 4", EXT, 4"B	86600163
AUTO RECLAIMER, 4", LONG, T&B	86600156	AUTO RECLAIMER, 4", EXT, B	86600164
AUTO RECLAIMER, 4", LONG, T	86600157		

* Contact your Geotech Sales representative for custom AR4 pump lengths and options

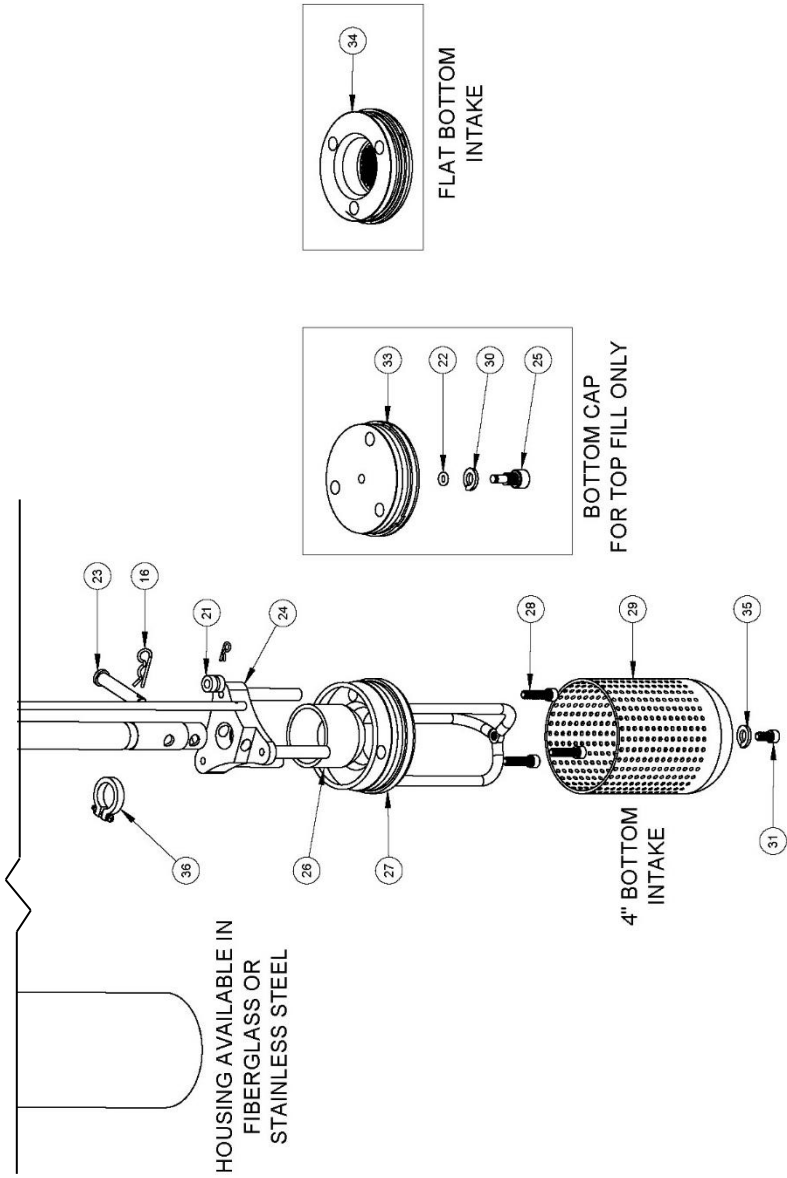
Replacement Parts Diagram



PLUG FOR
BOTTOM INTAKE ONLY



**OPTIONAL QUICK
CONNECTS (QCON)



Section 6: System Maintenance

Maintenance Schedule

It is recommended that the AR4 is pulled from the well annually for inspection and cleaning to maximize efficiency and pump performance. Depending on the site conditions routine maintenance may be needed on a more frequent basis.

Disassemble pump by removing the bottom cap and housing. Internal components can be removed from center pipe with standard hex keys. Further disassembly instruction can be found in the next section.

Maintenance Operations

- Clean any residue or sediment build up on float, housing, and center pipe. Reducing friction or “sticky” spots along the float’s travel can be beneficial to your pumps performance.
- Ensure that the control lever shifts smoothly between up and down positions. Remove O-rings and check balls, and inspect check seat for unwanted buildup or debris.
- Inspect inlet and the discharge check valves for wear spots and/or sediment build up.
- Apply a calcium sulfonate grease or similar to all O-ring bearing surfaces of valve assembly.

Required Tools

- 3/16” Hex Key Driver used at lower cap and 4” screen removal
- 9/64” Hex Key Driver used at Valve
- 1/4” Hex Nut driver used at Hose clamps
- Cleaning scrub brush
- Center pipe ID brush

Supplies*

- Anti-seize used on Lower intake bolt threads
- Loctite 242 used on Valve mounting bolts
- Detergent for general purpose cleaning
- WD40 for lubrication
- Heavy duty detergent for all descaling of internal components
- PTFE Tape for all pipe threads
- Calcium sulfonate grease at O-ring contact points

*Available from your Geotech representative

Disassembly Instructions

Housing and Bottom Cap

Use a 3/16" hex key to remove the bottom cap from the pump by unscrewing three 1/4" socket head cap screws (SHCS) from the lower end of the pump (4" screened bottom intake pumps will need to remove an additional screw (see Figure 7-1 through 7-3). Top fill only pumps have a 3/8" SHCS drain plug that can be removed to empty the pump. It is strongly encouraged to drain the pump prior to removing cap. Bottom fill pumps can be drained by lifting check plug from bottom cap seat. After the pump is emptied and bottom cap unfastened, lightly pull the cap away from the bottom housing. Blank bottoms and flat screen bottom caps have three indents where screwdriver or tool can be used to assist bottom cap free from housing. Once the cap is pulled away, the housing can be taken off by pulling/twisting away from pump head. Bottom cap styles are interchangeable.

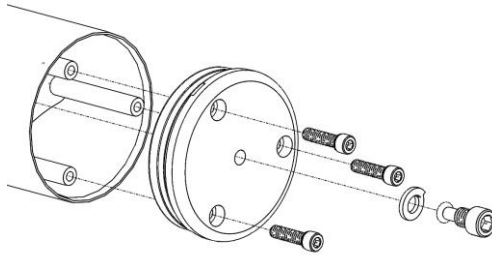


Figure 7-1: Blank Bottom Cap

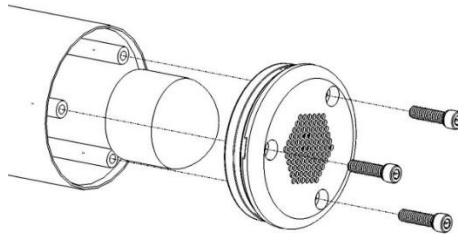


Figure 7-2: Flat Bottom Intake

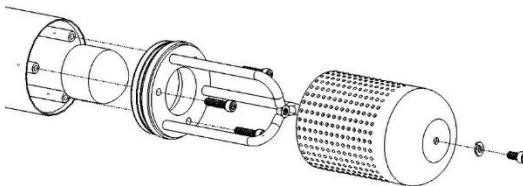


Figure 7-3: 4" Screened Intake

Retainer and Float

Remove the hitch clip from the clevis pin holding the check plug retainer. Use a pair of small pliers to pull the shortened cotter pin securing the lower control rod collar. Remove the stop collar, springs, and floats. When the float has been removed, care must be taken to not bend the control rod or stress the control rod link.

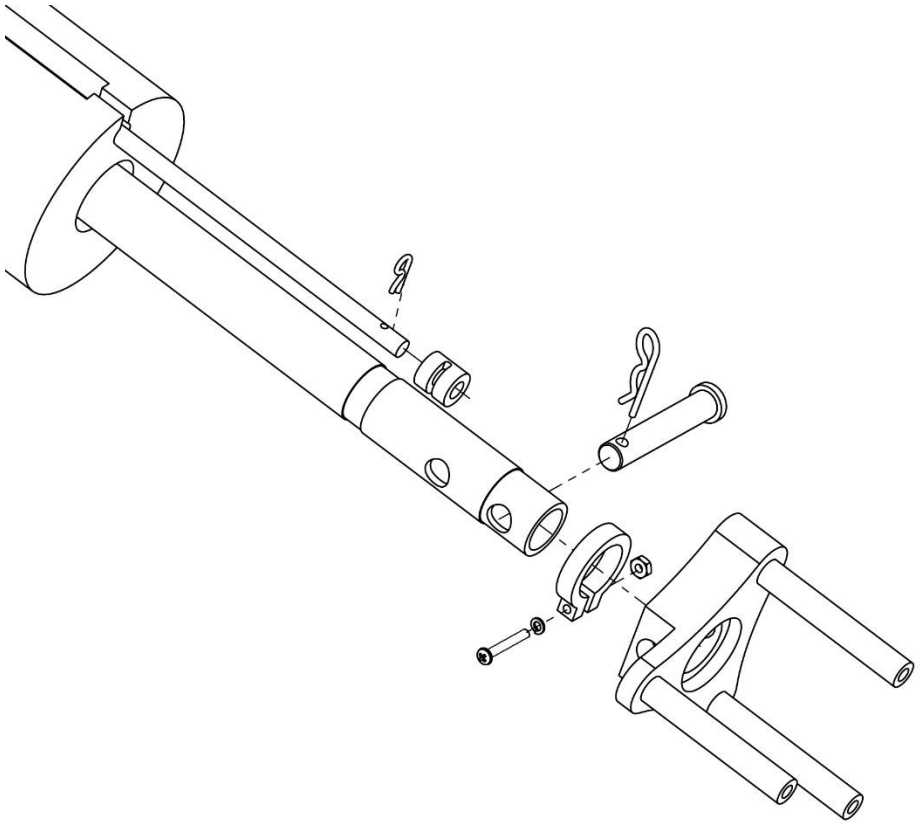


Figure 7-4: Removing Checkball Retainer and Float

Control Rod/ Valve Assy.

The control rod is attached to the valve link using a shortened hitch pin. Use a pair of pliers to remove the cotter pin and remove the control rod from the valve link. The link can be removed from the valve assembly simply pushing it off the spring shaft. The valve detaches from the pump head by removing two bolts using a 9/64" hex key.

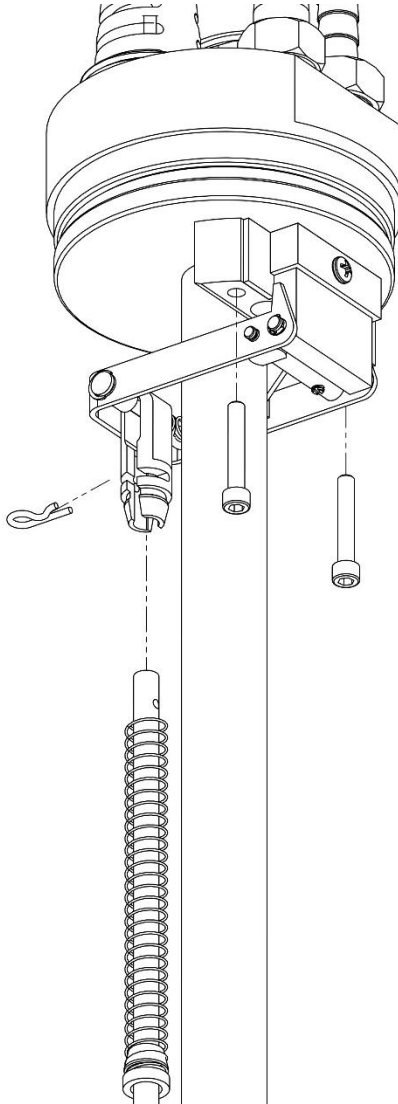


Figure 7-5: Removing Control Rod & Manifold assembly

Section 7: System Troubleshooting

Pump discharges minimal or no fluid to the surface

Problem

Not enough air pressure is being supplied to the pump.

Solution

Ensure the air pressure is adequate for the pump depth. Minimum operating pressure-depth ratio: 0.50 PSI/ft. is a good estimate to start with.

Problem

The bottom and/or upper fluid intake screen is blocked.

Solution

Clear the screen(s) of all debris.

Problem

The air, vent, and/or discharge hoses/tubing are kinked or blocked.

Solution

Clear the vent hose of all obstruction, replace if kinked.

Problem

The center pipe, float and valve have sediment buildup causing “sticky” high friction spots.

Solution

Pull AR4 and perform a general maintenance cleaning.

Problem

The fluid density being pumped is too light.

Solution

Geotech’s AR4 is rated for fluid densities as low as 0.70 SpG. For pumping fluid densities less than 0.70 SpG a custom float is required. Contact a Geotech Technical sales representative for more information.

Problem

There is not enough fluid in well, or pump is not low enough to trigger the minimum activation levels.

Solution

Use a water level meter to determine fluid depths in wells and reference Section 2 AR4 System installation.

Problem

Interference or damage to seat is preventing proper seal at the inlet check valves. Recovery fluid is exiting pump through inlets as opposed to discharge line.

Solution

Inspect all check valves for interference between the check “plug” and seat. Replace or refinish check seats if necessary.

Air in discharge line during cycle

Problem

The pressure-depth ratio is too high.

Solution

Ensure air pressure is adequate for the pump depth (.50 PSI per foot of depth). Having a high pressure-depth ratio will increase recovery time, but decrease air consumption efficiency.

Continuous air coming out of vent

Solution

- Inspect that when valve lever is in the up position there is a gap between the valve and manifold, and ensure the vent valve is seated properly against the O-ring.
- O-rings are damaged in valve assembly. Inspect O-rings and check ball inside manifold to ensure no cracks, tears, or damage. Replace as needed.

Springs in the valve assembly are not properly seated

Solution

Visually inspect the springs. Clean anything that could be caught in the springs and make sure they are properly positioned.

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

Appendix A –System Specifications - Metric

Performance Curves: AR4 Short Series - Metric

Information below is for estimation purposes only. Performance will vary with site specifics. Flow is measured is Liters Per Minute (LPM)

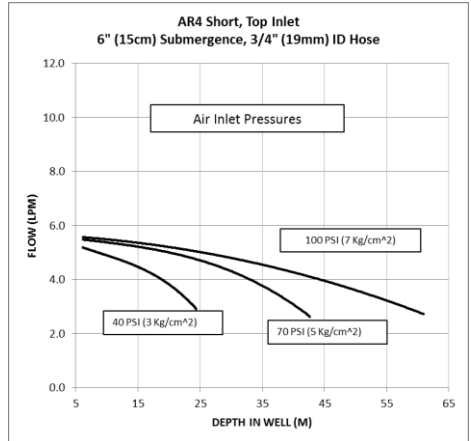
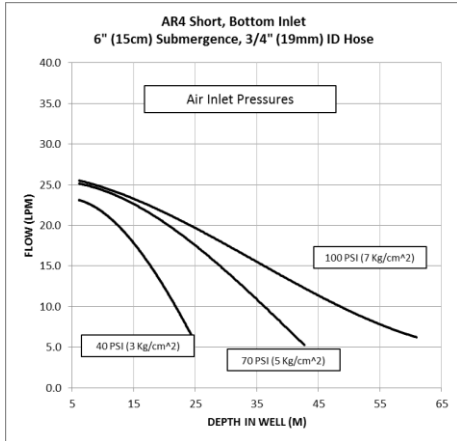


Figure A-1: AR4 Short Bottom/Top Inlet 6" (15 cm) Submergence, 3/4" (19 mm) ID Hose in LPM

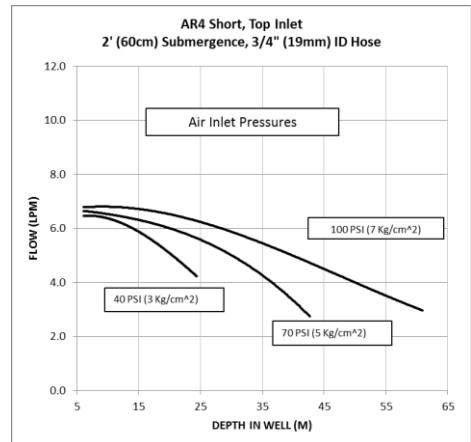
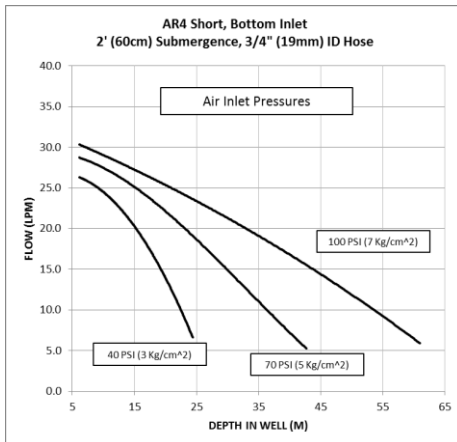


Figure A-2: AR4 Short Bottom/Top Inlet 2' (60 cm) Submergence, 3/4" (19 mm) ID Hose in LPM

Performance Curves: AR4 Short Series – Metric (continued)

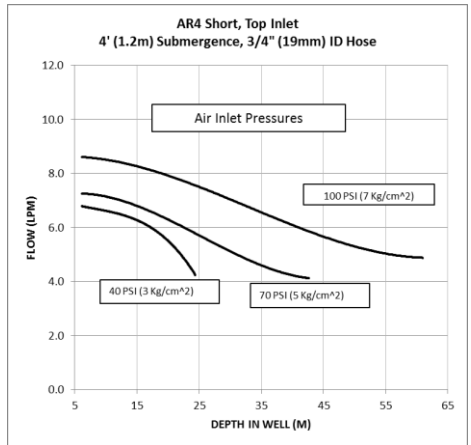
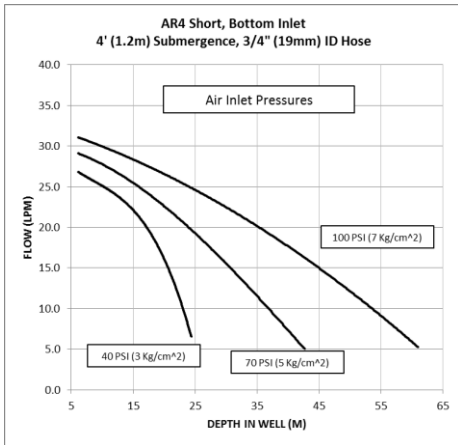


Figure A-3: AR4 Short Bottom/Top Inlet 4' (1.2 m) Submergence, 3/4" (19 mm) ID Hose in LPM

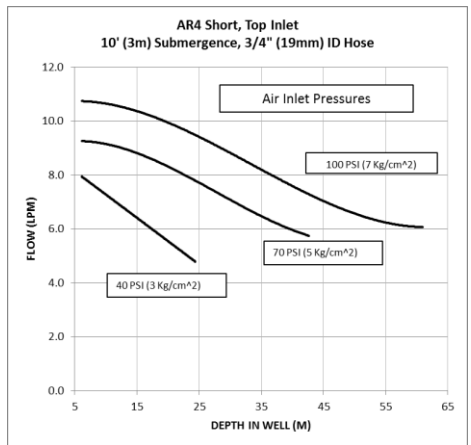
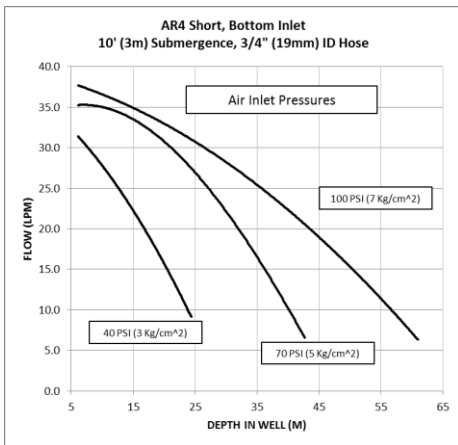


Figure A-4: AR4 Short Bottom/Top Inlet 10' (3 m) Submergence, 3/4" (19 mm) ID Hose in LPM

Performance Curves: AR4 Long Series - Metric

Information below is for estimation purposes only. Performance will vary with site specifics. Flow is shown in Liters Per Minute (LPM).

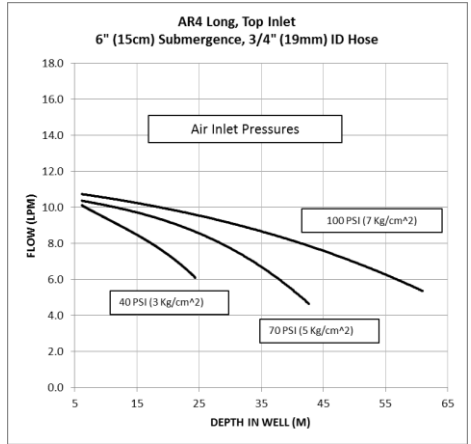
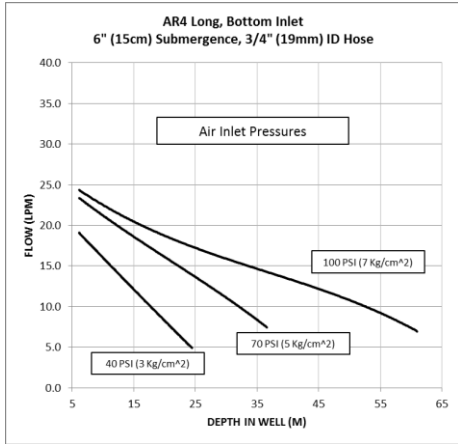


Figure A-5: AR4 Long Bottom/Top Inlet 6" (15 cm) Submergence, 3/4" (19 mm) ID Hose in LPM

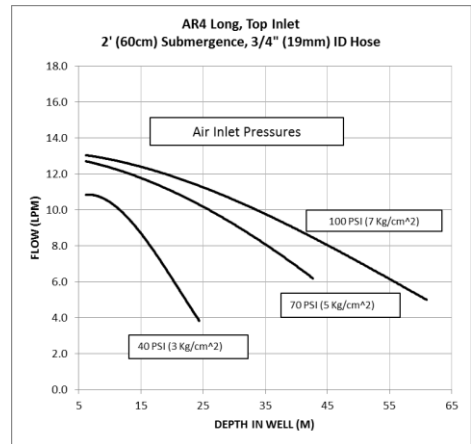
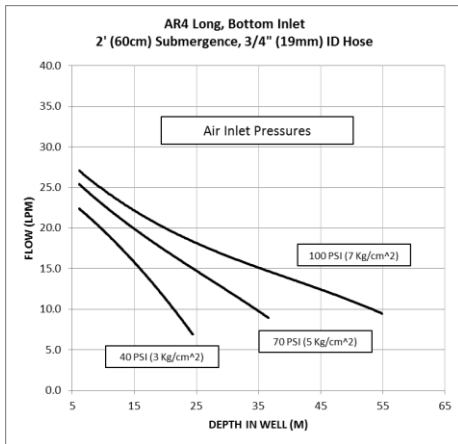


Figure A-6: AR4 Long Bottom/Top Inlet 2' (60 cm) Submergence, 3/4" (19 mm) ID Hose in LPM

Performance Curves: AR4 Long Series – Metric (continued)

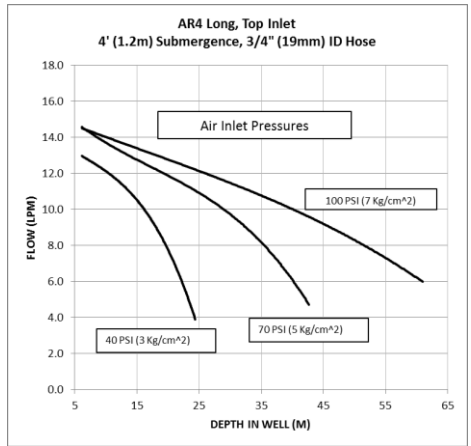
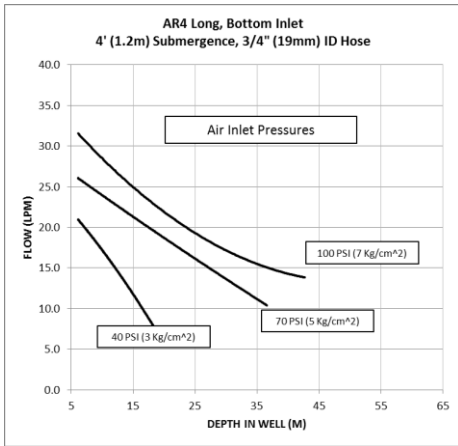


Figure A-7: AR4 Long Bottom/Top Inlet 4' (1.2 m) Submergence, 3/4" (19 mm) ID Hose in LPM

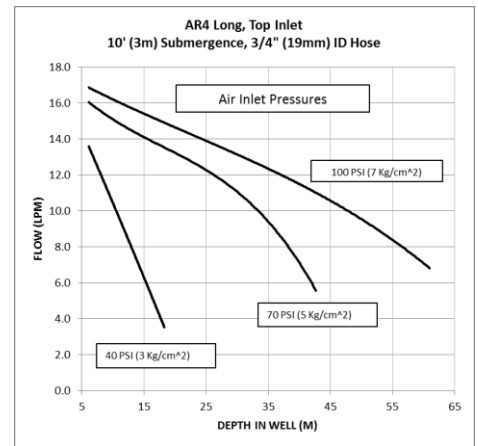
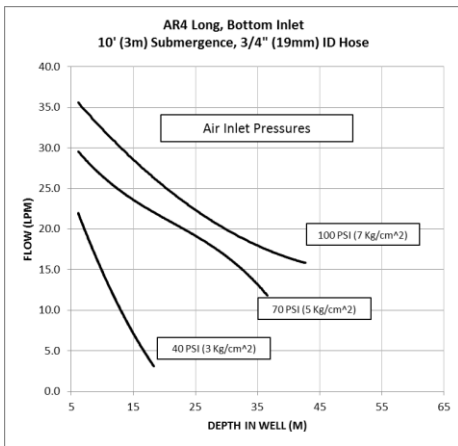


Figure A-8: AR4 Long Bottom/Top Inlet 10' (3 m) Submergence, 3/4" (19 mm) ID Hose in LPM

Performance Curves AR4 EXT Series- Metric

Information below is for estimation purposes only. Performance will vary with site specifics. Flow is measured in Liters Per Minute (LPM)

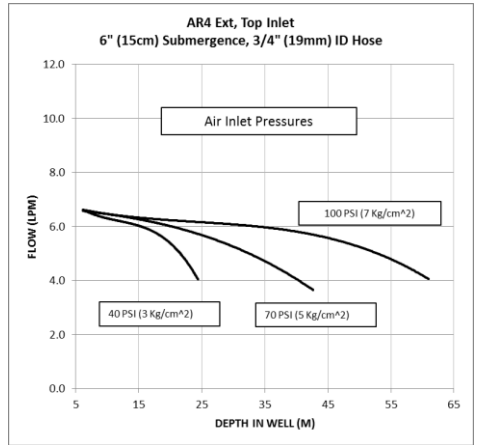
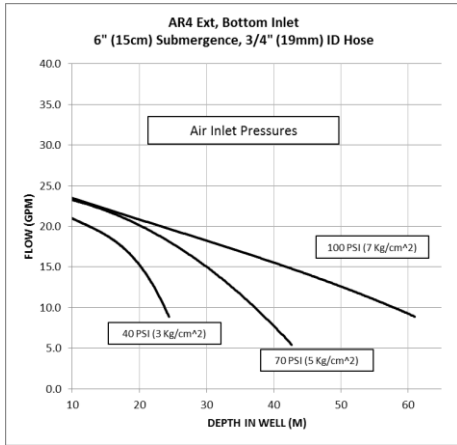


Figure A-9: AR4 EXT Bottom/Top Inlet 6" (15 cm) Submergence, 3/4" (19 mm) ID Hose in LPM

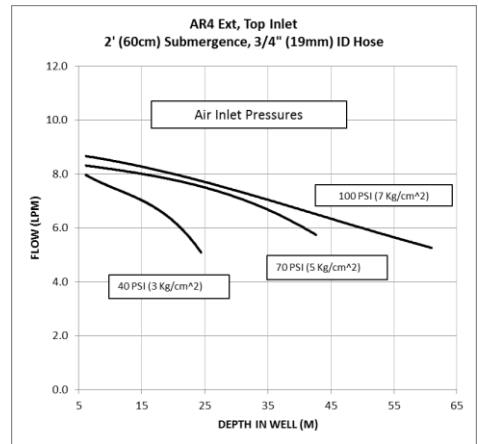
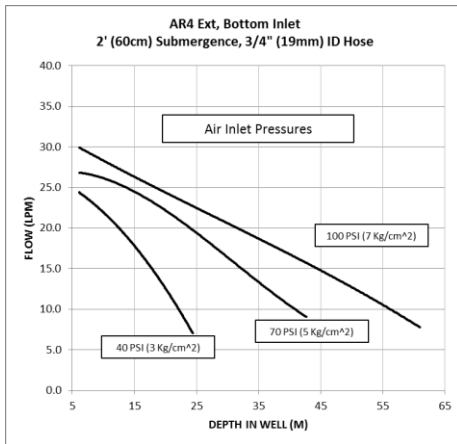


Figure A-10: AR4 EXT Bottom/Top Inlet 2' (60 cm) Submergence, 3/4" (19 mm) ID Hose in LPM

Performance Curves AR4 EXT Series- Metric (continued)

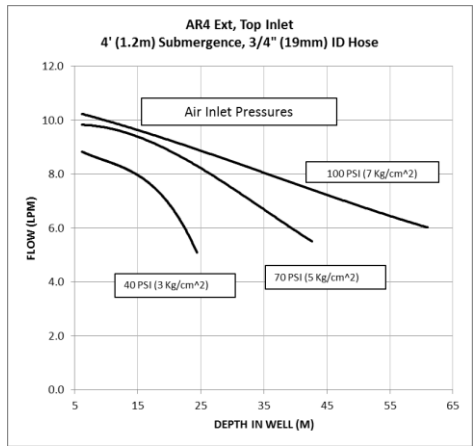
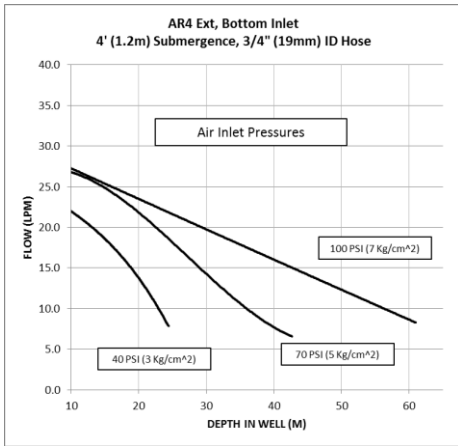


Figure A-11: AR4 EXT Bottom/Top Inlet 4' (1.2 m) Submergence, 3/4" (19 mm) ID Hose in LPM

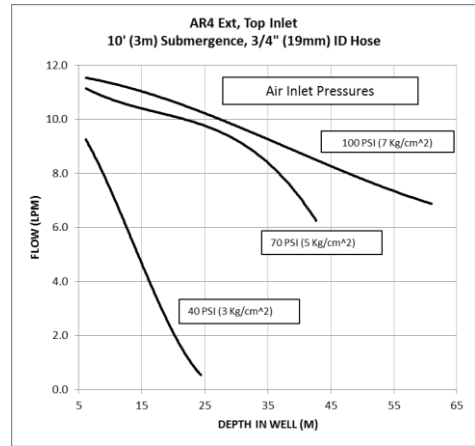
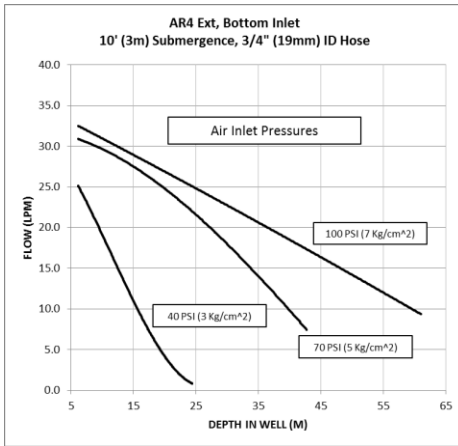


Figure A-12: AR4 EXT Bottom/Top Inlet 10' (3 m) Submergence, 3/4" (19 mm) ID Hose in LPM

Air Consumption- Metric

Depending on site conditions, Figure A-13 below estimates pump air consumption in Standard Liter of air per Liter pumped.

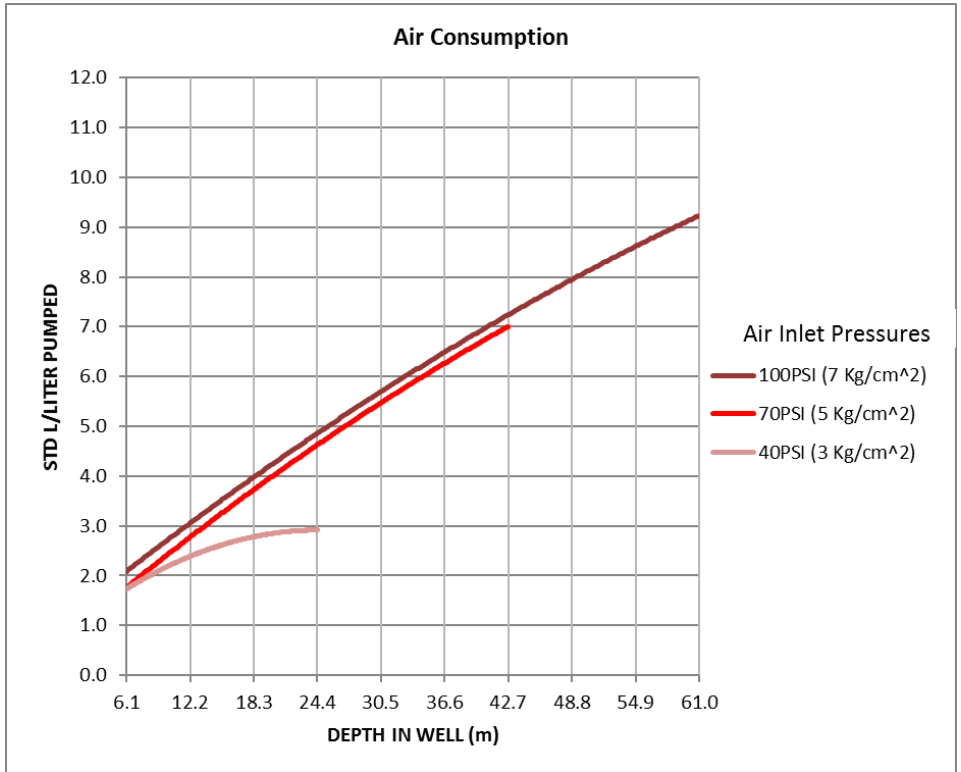


Figure A-13: Air Consumption in STD L/Liter Pumped

Air Supply Pressure Drops – Metric

Considerations for airline pressure drops should be made when multiple pumps are located further from the airline regulator. Numbers were calculated as a total distance of airline away from regulator, for example, along ground plus distance from well cap to pump head, using plastic piping.

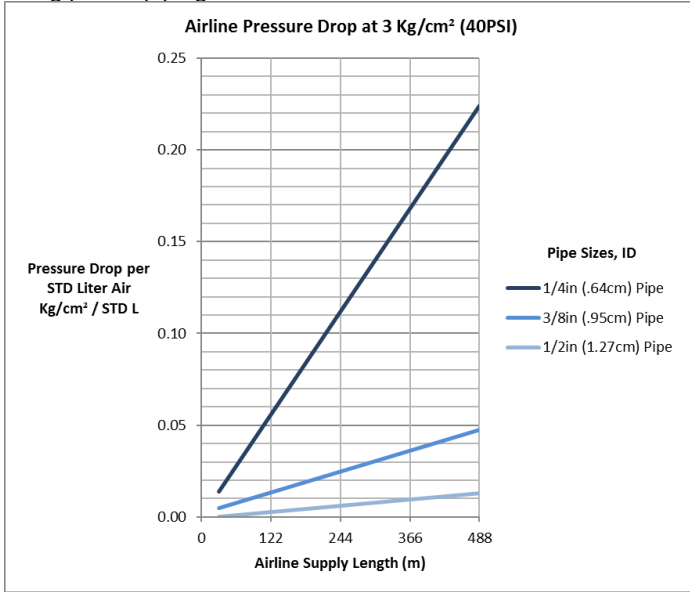


Figure A-14: Air Pressure Drop at 3 Kg/cm²

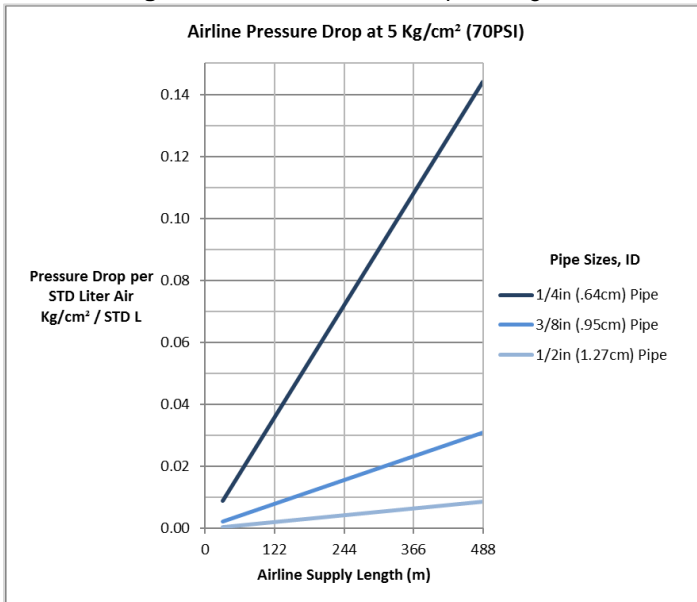


Figure A-15: Air Pressure Drop at 5 Kg/cm²

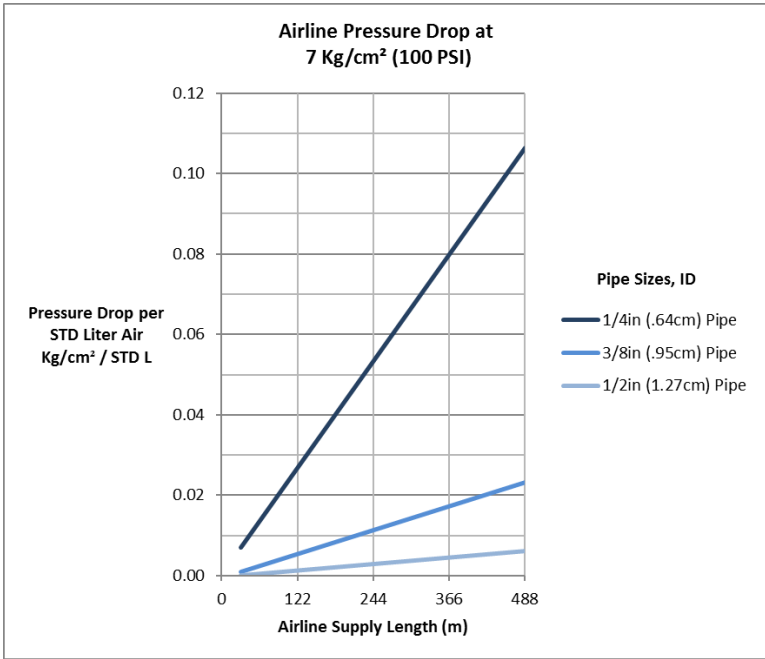


Figure A-16: Air Pressure Drop at 7 Kg/cm²

Discharge Trunkline Sizing – Metric

Information below is for reference only. Numbers provided were calculated for water flowing through plastic piping.

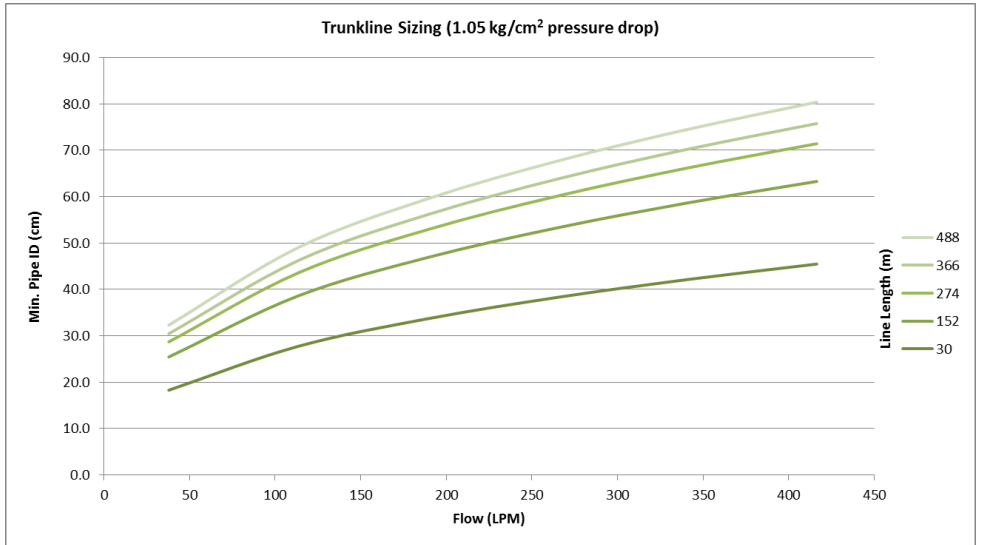


Figure A-17: Trunkline Sizing 1.05Kg/cm² Pressure Drop

DOCUMENT REVISIONS		
EDCF#	DESCRIPTION	REV/DATE
-	Initial Release	11/8/13
-	Added trunk line sizing tables, SP	11/26/13
Project 1382	Added performance spec. curves, DD	05/07/15
Project 1382	Updated manual to reflect pump improvements, DD	08/11/15
Project 1382	Updated pump flow curves, added Appendix A for metric flow curves, updated cover photo, TA/SB/SR	11/28/16
Project 1382	Updated formatting, specs and schematics, TA	2/7/17
Project 1545	Added Quick Connect and minor editds, StellaR/TA	10/9/2017
Project 1758	Removed OBS part numbers and updated with current part numbers, StellaR	5/13/2019
Project 2161	Updated figure 2-3, added low activation specs, StellaR	5/24/2021

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