

C3ND Environmental Consulting and Pulsed Hydraulics, Inc. (PHi) are pleased to introduce the PHi-CA (Constant Air) System, specifically designed to keep solids in suspension, reduce grease build up and reduce odors in small pump station applications.



### ***PHi-CA System Components:***

- ***8" Stainless Steel Bubble Forming Plate (BFP)***
- ***Stainless Steel Couplings***
- ***Stainless Steel Clamps***
- ***50' of Air Hose***
- ***Alita AL-400 Blower***

### ***Keepings Solids in Suspension***

With the PHi-CA Systems bubble forming plate, wastewater organics, solids and rags are set into motion, separating them so that they can be pumped out at a controlled rate, without clogging the pumps.

### ***How does this air bubble remove grease and reduce odors in a Lift Station/Wet Well?***

The rising bubble lifts the water below it and brings it to the surface. With each sequenced bubble more water is lifted to the top of the well. If there is a grease blanket on the surface, the rising water will break the blanket apart. The water on the surface, which keeps increasing, will run into the side walls and start moving back down to the bottom of the wet well. This is the key to the grease removal. When the water travels to the bottom, it takes the grease with it. When the grease reaches the pumps, it is removed from the lift station. Running the system will keep the grease from forming a blanket, reducing or even eliminating the need for the utility to vacuum the grease from the lift station. If the lift station is the cause of odors because of the top grease layer, the mixer will have moved this material to the pumps, and the odors would be removed as well. If the odor is being generated from an up-stream source, the mixing would have no effect in removing odors. If an additive is being applied, it will be more effective as it will be mixed well into the sewage.



Figure 1. Excessive grease and rag buildup in wet well



Figure 2. The lift station has remained clean since the installation of the PHI mixer in November of 2016.

## ***Specifications***

### **Bubble Forming Plate:**

Plates shall be constructed of 316 stainless steel. The plates shall consist of two disks separated approximately ½” apart by internal spacers. Air is injected through a 1” NPT threaded nipple in the top disk to the space between the disks, where it is forced laterally to form the mixing bubble.

### **Couplings:**

Precision made, high quality 316 Stainless Steel Couplings, which are chemically resistant to protect against corrosion and ensure durability. Smooth operations make connection quick and easy. Couplings have a maximum 150 psi rating at ambient temperatures.



### **Stainless Steel Hose Clamps:**

T-Bolt style stainless steel clamp. Hose OD from 1.250” – 1.406”.

## Air Hose:

### VALUFLEX®/GS – BLACK

Valuflex/GS is one of the finest multipurpose air and water hose available, anywhere. Black Valuflex provides job/color coding possibilities for safety and other considerations. Valuflex is a very economical general service air and water hose. It can be used in numerous industrial, agricultural and construction applications where oil is **not** a factor. Valuflex is easy to handle and very flexible due to its multi-spiral layers of durable reinforcing polyester yarn. Available in a wide variety of sizes, Valuflex provides constant working pressures of 150, 200, 250 or 300 psi. It has an EPDM tube and cover that resists abrasion, heat and ozone. This hose is **not** for use as a steam hose.

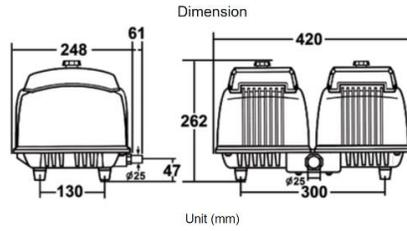


<b>Cover Color:</b>	Black
<b>Oil Resistance:</b>	Limited
<b>Construction:</b>	
<b>Tube:</b>	EPDM
<b>Cover:</b>	EPDM
<b>Reinforcement:</b>	Spiral polyester yarn
<b>Temperature Range:</b>	-40°F to +200°F -40°C to +93°C
<b>Packaging:</b>	Reels or ±50 ft. length – 1 per carton

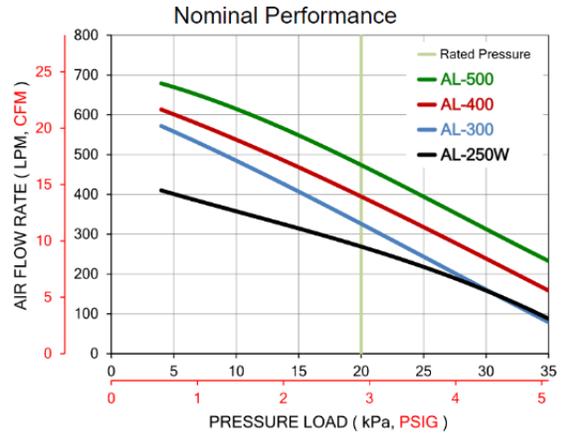
Product Number	Nominal I.D.		Nominal O.D.		Reinforcement Spirals	Working Pressure		Min. Bend Radius		Weight	
	(inches)	(mm)	(inches)	(mm)		(psi)	(Mpa)	(inches)	(mm)	(lb/ft)	(Kg/m)
00114604100▲	1/4	6.35	0.49	12.45	2	150	1.03	1.50	38.10	0.08	0.12
00114604200	1/4	6.35	0.49	12.45	2	200	1.38	1.50	38.10	0.08	0.12
00114604300▲	1/4	6.35	0.56	14.22	4	250	1.72	1.50	38.10	0.12	0.18
00114604400	1/4	6.35	0.62	15.75	4	300	2.07	1.50	38.10	0.15	0.22
00114605200	5/16	7.94	0.58	14.73	2	200	1.38	2.00	50.80	0.11	0.16
00114605400	5/16	7.94	0.62	15.75	4	300	2.07	2.00	50.80	0.13	0.19
00114606100▲	3/8	9.53	0.68	17.27	2	150	1.03	2.25	57.15	0.15	0.22
00114606200	3/8	9.53	0.68	17.27	2	200	1.38	2.25	57.15	0.15	0.22
00114606300▲	3/8	9.53	0.69	17.46	4	250	1.72	2.25	57.15	0.16	0.24
00114606400	3/8	9.53	0.71	18.03	4	300	2.07	2.25	57.15	0.17	0.25
00114608100	1/2	12.70	0.81	20.64	2	150	1.03	3.00	76.20	0.19	0.28
00114608200	1/2	12.70	0.81	20.64	2	200	1.38	3.00	76.20	0.24	0.36
00114608300▲	1/2	12.70	0.84	21.43	4	250	1.72	3.00	76.20	0.24	0.36
00114608400	1/2	12.70	0.84	21.43	4	300	2.07	3.00	76.20	0.24	0.36
00114610100	5/8	15.88	0.93	23.62	2	150	1.03	3.75	95.25	0.23	0.34
00114610200	5/8	15.88	0.93	23.62	4	200	1.38	3.75	95.25	0.29	0.43
00114610400	5/8	15.88	1.00	25.40	4	300	2.07	3.75	95.25	0.29	0.43
00114612100	3/4	19.05	1.12	28.45	2	150	1.03	4.50	114.30	0.33	0.49
00114612151▲	3/4	19.05	1.12	28.45	2	150	1.03	4.50	114.30	0.33	0.49
00114612200	3/4	19.05	1.15	29.21	4	200	1.38	4.50	114.30	0.36	0.54
00114612251▲	3/4	19.05	1.15	29.21	4	200	1.38	4.50	114.30	0.36	0.54
00114612300▲	3/4	19.05	1.15	29.21	4	250	1.72	4.50	114.30	0.36	0.54
00114612400	3/4	19.05	1.15	29.21	4	300	2.07	4.50	114.30	0.40	0.60
00114612454▲	3/4	19.05	1.15	29.21	4	300	2.07	4.50	114.30	0.40	0.60
00114616100	1	25.40	1.37	34.80	4	150	1.03	7.00	177.80	0.41	0.61
00114616200	1	25.40	1.37	34.80	4	200	1.38	7.00	177.80	0.49	0.73
00114616400	1	25.40	1.43	36.32	4	300	2.07	7.00	177.80	0.49	0.73
00114620200	1-1/4	31.75	1.75	44.45	4	200	1.03	8.75	222.25	0.79	1.18
00114624200	1-1/2	38.10	2.00	50.80	4	200	1.03	10.50	266.70	0.90	1.34
00114632200	2	50.80	2.55	64.77	4	200	1.03	14.00	355.60	1.08	1.61

## Alita AL-400 Blower:

Alita Air Pumps have no sliding parts and feature oil-free components, and do not require lubrication to transfer air without contamination. Alita aerator pumps are suitable for outdoor use with some protection from direct exposure to rain. Alita air pumps are also more energy efficient than cheaper pumps and offer comparable output to linear piston pumps, saving you money on operating costs each month. Alita Air Pumps also offer whisper quiet operation.



- High output capacities.
- Solid construction, low noise and long lasting.
- Aluminium alloys housings.
- Oil-less operation.



#### Specification

Model	AL-250W	AL-300	AL-400	AL-500
Voltage & Frequency	120VAC 60Hz, 230VAC 50Hz			
Rated Pressure	20 kPa, 2.9 psig			
Rated Performance ( $\pm 5\%$ ) (lpm, cfm)	250, 8.8	300, 10.6	400, 14.1	500, 17.7
Rated Power (W)	200	300	370	480
Discharge Fittings	3/4" FPT, 26 mm / 1 in O.D.			
Dimension LxWxH	420 mm x 248 mm x 262 mm 16.5 in x 9.8 in x 10.3 in			
Weight (kg, lb)	19, 42	25, 49	25, 49	25, 49