Pump Protection Separators

Installation Guide

PPS

LAKOS Pump Protection Separators come in a variety of sizes. They can be used with either turbine pumps or large submersible pumps. They may be shipped in a variety of ways. Most often, each unit is strapped onto a wooden skid. Before installation, remove all labels, decals and shipping instructions from each unit to avoid plugging the inlet slots. LAKOS Pump Protection Separators are designed to continuously flush separated particles back into the source water.

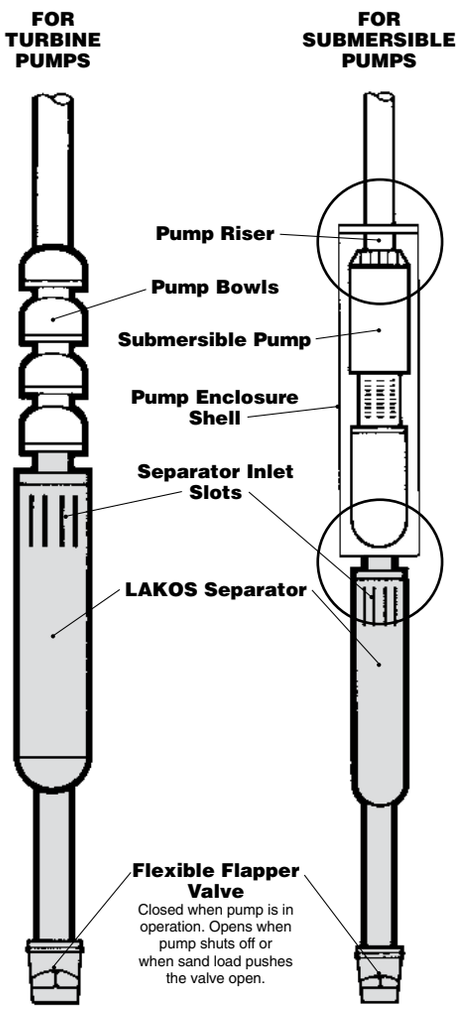
For Turbine pumps:

LAKOS Turbine Separators are manufactured with a standard M.N.P.T. riser (note General Specifications chart on next page). Should this riser not match the connection to your pump's bowl assembly, you'll need to arrange for the proper connection (i.e. reducer, etc.). Lifting lugs are provided on the riser of all models size "E" through "K" for ease of installation. Connect the separator to the bowl assembly, then install the flapper valve as shown on page 3. *At this point, you may proceed with your customary routine for installing the pump.*

For Submersible pumps:

To allow LAKOS Pump Protection Separators to remove sand prior to the pump intake, the water must first be directed to first pass through the separator. To achieve this with a submersible pump, LAKOS provides a pump enclosure shell or shell kit (see page 4). The submersible pump is positioned within this shell and then attached directly to the separator outlet. With the pump properly secured in the shell, the riser is now attached directly to the column pipe. *Installation may now proceed as normal for submersible pumps.*

Once installed, LAKOS Pump Protection Separators require no routine maintenance. Should you ever need to pull your pump, always take the opportunity to inspect the separator and purge assembly.



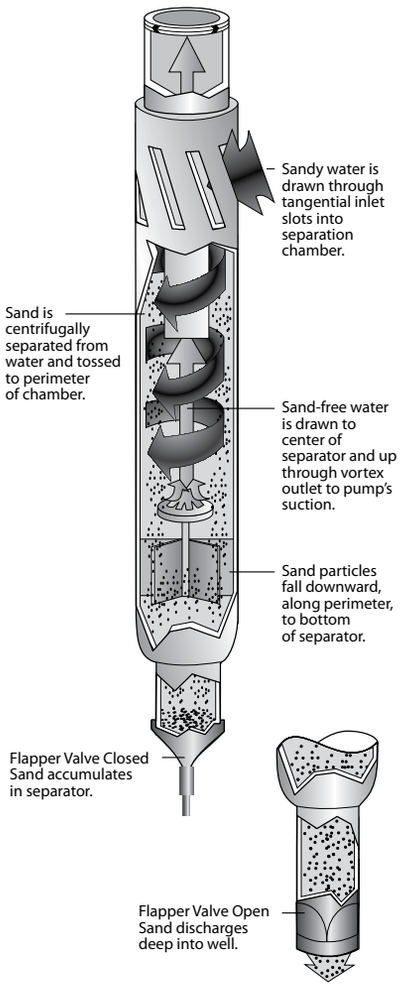
LAKOS FILTRATION SOLUTIONS

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General Specifications

Model	Minimum Well I.D.		Flow Range		Outside Diameter		Length With Riser & Flapper Valve		Riser Size	Weight		Required Minimum Submergence		Length of Optional Tail Pipe		Diameter of Optional Tail Pipe
	in	mm	U.S. gpm	m^3/ hr	in	mm	in	mm	M.N.P.T.	lbs	kg	ft	m	ft	m	in
PPS-100-D	6	152	100-175	23-40	5-5/8	143	88-3/8	2245	2-1/2"	93	42	30	9.2	20	6.1	3/4
PPS-125-E	7	178	125-250	29-57	5-9/16	141	106	2692	3"	142	64	30	9.2	20	6.1	1
PPS-150-F	8	203	150-325	34-74	6-5/8	168	120-1/4	3054	4"	220	100	30	9.2	20	6.1	1
PPS-325-GSA	9-3/4	248	325-520	74-118	8-5/8	219	124	3150	6"	191	87	60	18.4	40	12.2	1-1/4
PPS-520-GGA	9-3/4	248	520-710	118-161	8-5/8	219	130	3302	6"	187	85	60	18.4	40	12.2	1-1/4
PPS-325-G	10-3/4	273	325-650	74-148	8-5/8	219	132-1/2	3366	6"	267	121	30	9.2	20	6.1	1-1/4
PPS-600-HSA	12	305	600-910	136-207	10-5/8	270	141-1/2	3594	8"	281	128	60	18.4	60	18.3	1-1/2
PPS-880-HHA	12	305	880-1375	200-312	10-5/8	270	145-3/4	3702	8"	315	143	60	18.4	60	18.3	1-1/2
PPS-550-H	13-1/4	337	550-1110	125-252	10-3/4	273	147	3734	8"	390	177	30	9.2	20	6.1	1-1/2
PPS-1290-ISA	13-1/4	337	1290-1700	293-386	10-3/4	273	150-1/2	3823	8"	393	178	60	18.4	60	18.3	1-1/2
PPS-825-I	15-1/4	387	825-1450	187-329	12-3/4	324	154	3912	8"	454	206	30	9.2	20	6.1	1-1/2
PPS-1460-JSA	15-1/4	387	1460-2040	332-463	12-3/4	324	158	4013	10"	492	223	60	18.4	60	18.3	2
PPS-1010-J	17-1/4	438	1010-1800	230-409	14	356	163	4140	10"	526	239	30	9.2	20	6.1	2
PPS-1780-KSA	17-1/4	438	1780-2420	404-550	14	356	170	4318	10"	575	261	60	18.4	60	18.3	2
PPS-1640-K	19-1/4	489	1640-2560	373-582	14	356	185	4699	12"	703	319	30	9.2	20	6.1	2
PPS-2520-KKA	19-1/4	489	2520-3180	573-723	14	356	204	5182	12"	754	342	60	18.4	60	18.3	2

Head Loss: Typically, 9-14 feet (2.74-4.27m), except models with optional tail pipes, which will experience a notably greater head loss. Consult factory for details.

Maximum Particle Size: 1/4 inch (6.3mm)

Maximum Particle Concentration: 1,000 ppm

*Optional Tail pipe in place of the flapper valve. Centering bands are required to stabilize and secure the tail pipe in place.

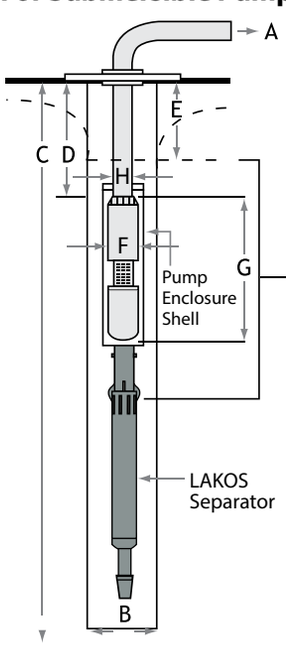
Required Information Prior to Installation

(Actual Field Conditions)

- **A.** Maximum and minimum flow rate of pump
- **B.** Minimum inside diameter (I.D.) of well
- **C.** Depth of well
- **D.** Depth of pump setting
- **E.** Pumping water level
- **F.** Maximum diameter of pump/motor
- **G.** Overall length of pump and motor
- **H.** Pump's riser size

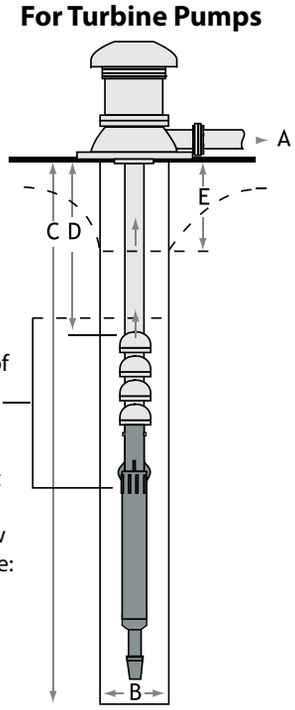
Visit lakosgroundwater.com for quick sizing and model selection.

For Submersible Pumps



IMPORTANT:
Separator models with single-letter designations (i.e. D, E, F, etc.) require a minimum submergence of 30 ft (9.2m) below the drawdown water level. Models with three-letter designations require 60 ft (18.3m) submergence. Minimum clearance below separator's purge discharge: 30 ft (9.2m)

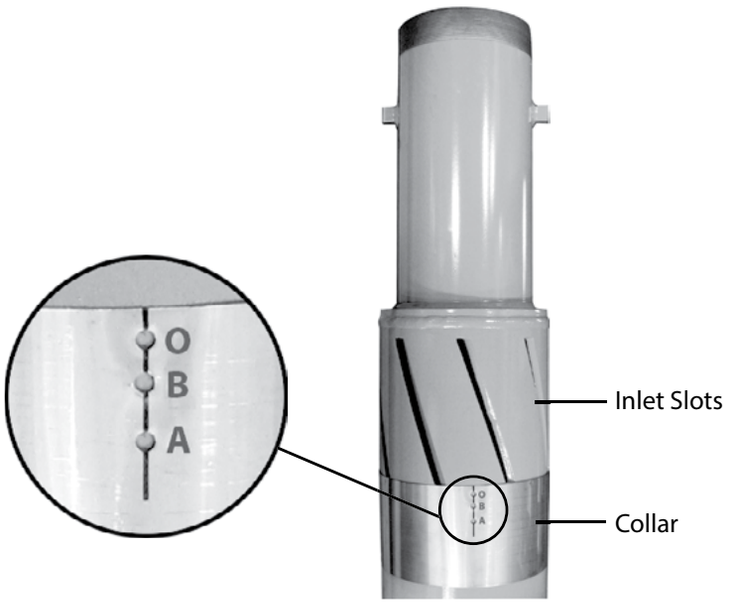
For Turbine Pumps



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Flow Adjustment Collar

Standard on selected models, the flow adjustment collar allows for fine-tuning of LAKOS Pump Protection Separators. The collar is easily adjusted using the set screw to place the collar in the position for the system flow rate. The collar can be set at any of the three positions: O, allowing full flow through the separator inlet slots; and A or B, which allows partial restriction of the slots to allow the most efficient operation of the separator for the system flow. See the table below to determine the best collar position for proper water velocities and the most efficient operation of the separator.



Collar Position Settings

Model	Flow Range U.S. gpm	Flow Range m^3/hr.	Position of Collar
PPS-125-E	125-200	27-45	Collar On
	200-250	45-57	Collar Off
PPS-150F	150-210	34-48	A
	210-275	48-62	B
	275-325	62-74	Collar Off
PPS-325-G	325-425	74-97	A
	425-525	97-119	B
	525-650	119-148	Collar Off
PPS-550-H	550-675	125-153	A
	676-825	154-187	B
	826-1110	188-252	Collar Off
PPS-825-I	825-1050	187-238	A
	1050-1225	238-278	B
	1225-1450	278-329	Collar Off
PPS-1010-J	1010-1275	230-290	A
	1275-1450	290-329	B
	1450-1800	329-409	Collar Off
PPS-1640-K	1640-1890	373-429	A
	1890-2250	429-511	B
	2250-2560	511-582	Collar Off

Installing the Rubber Flapper



Before Installation: Attach rubber flapper to purge end of LAKOS PPS Separator.

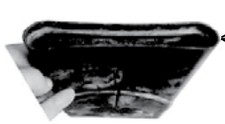


(1) Raised internal lip end



goes over notched groove in Separator

and



(2) With the natural fold on the flapper



perpendicular ("criss-cross") to the retaining bar in the purge outlet of the separator

(3) Use the clamp gear supplied to secure the flapper in place

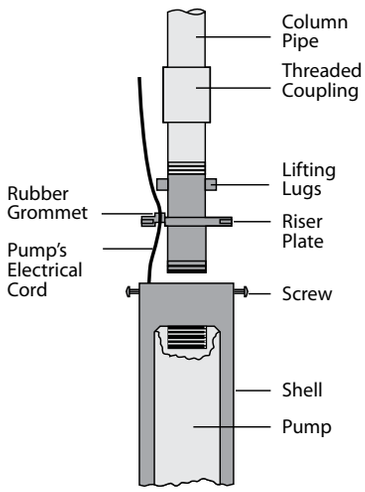
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Limited Warranty

Limited warranty LAKOS products are factory tested to meet the highest quality standards in the filtration industry. Please refer to www.lakos.com/warranty for information about the warranty on this and all other LAKOS products.

Enclosing the Pump in the Shell (submersible pumps only)

The pump enclosure shell is designed to make certain that all water entering the pump is first drawn through the separator. This requires that the pump intake be properly shielded as described below.



1. Remove the riser assembly from the shell by removing the stainless steel set screws.
2. Attach the riser assembly to the pump's discharge.
3. Thread the pump's electrical cord through the opening in the rise plate. A rubber grommet is provided to establish a good seal.
4. Slide the pump into the shell and secure riser with the screws.
5. Gap between riser plate and shell should be sealed with a waterproof plastic sealant, putty or caulking compound to prevent water entry at this point.
6. Attach flapper valve before attaching riser to column pipe.
7. Pump and shell assembly is now ready for installation. A pair of lifting lugs is provided to make hoisting and adding column pipe easy. Shell assembly should be attached directly to the separator unit (see diagram, page 3).



Recommended Tail Pipe Installation

The optional tail pipe allows for continuous purging of separated sand down and out through a specific length and diameter of pipe, which creates enough friction loss to prevent water from being pulled up. Note, that Tail Pipes require centering bands to keep the Tail Pipe from being damaged during installation and operation.

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Reference LS-848
See www.LAKOS.com for more information



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