SPINSEP™ Vertical Flotation System

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Our SPINSEP™ vertical flotation system incorporates several unique methods for removing oil from produced and wastewater streams before they are discharged or injected. Improved technology and a vertical vessel design reduce the footprint required for this innovative flotation system. The SPINSEP™ flotation system can be designed as an ASME code or a non-code vessel.

Applications

- Offshore/onshore produced water containing moderate concentrations of oil and grease
- Refinery wastewater treatment
- Removal of pulp from wastewater in the paper industry
- Treatment of oily wastewater

Flotation Process

As the influent enters, it is flowed through the Spiralsep™ unit installed in the inlet piping to the vessel. This component initiates gravity separation of the incoming liquid and if necessary mixes incoming flotation aids such as chemical water. The circular motion created in the SPINSEP™ system by the 90-degree inlet angle results in greater path distance the liquid must travel, resulting in improved removal efficiency. The SPIRALSEP™ unit also stimulates gas bubbles and oil droplet attachment by enhancing oil droplet sizes.

Oil droplets attach and grow on the surface of the pack medium until oil droplet size overcomes the bond with the packing material, where they are skimmed into the oil bucket.

Water flowing through the gas flotation zone below the packing scrubs it clean of attached oil. These droplets rise to the surface and are skimmed with incoming free oil.

Flotation gas bubbles are generated by a number of different methods including DGF, eductor and sparge tubes.

Our DGF technology uses a patented Brise™ pump system to create micro-fine gas bubbles. This system uses a dual-sided impeller that pulls both water and gas into the pump where it is dissolved into solution and fine bubbles are discharged at an accelerated rate. The DGF technology allows for instantaneous adjustments in bubble size resulting in greater adaptability to changing water chemistry characteristics.

As an added feature, we have designed a SPINSEP™ system specific to applications that experience extreme movement, such as floating platforms (Spar, TLP, FPSO).

Model No.	Vessel Flow Rate		Vessel Weight				Water				Oil		SPINSEP™ System Dimensions					
			Dry		Operating		Inlet		Outlet		Outlet		Height		Width		Length	
	GPM	BPD	lbs	kG	lbs	kG	in	cm	in	cm	in	cm	Ft - in	cm	Ft - in	cm	Ft - in	cm
3MS	120	3M	9200	4173	13500	6124	4	122	4	122	2	61	13'0"	396	6'0"	183	8'0"	244
5MS	150	5M	16950	7688	27965	12685	6	183	6	183	3	91	13'9"	419	10'0"	305	12'0"	366
7.5MS	220	7.5M	17500	7938	31250	14175	6	183	6	183	4	122	14'3"	434	10'0"	305	12'0"	366
10MS	300	10M	18400	8346	34450	15626	8	244	8	244	4	122	15'9"	480	10'6"	320	12'0"	366
15MS	450	15M	25400	11621	53450	24245	8	244	8	244	4	122	17'0"	518	10'6"	320	16'0"	488
20MS	600	20M	37011	16788	65644	29776	8	244	8	244	4	122	17'3"	526	12'0"	366	14'0"	427
25MS	750	25M	47462	21529	75644	34312	8	244	8	244	4	122	20'0"	610	11'0"	335	15'0"	457
30MS	880	30M	49250	22340	78391	35558	10	305	10	305	6	183	20'6"	625	12'0"	366	18'0"	549
40MS	1200	40M	58750	26649	95800	43455	10	305	10	305	6	183	23'6"	716	14'0"	427	18'0"	549
50MS	1500	50M	53886	24443	110500	50122	10	305	10	305	6	183	25'0"	762	15'0"	457	18'0"	549
75MS	2200	75M	68450	31049	135750	61576	10	305	10	305	6	183	28'6"	869	15'0"	457	21'6"	655
100MS	2900	100M	89250	40483	165800	75206	12	366	12	366	8	244	32'6"	991	17'6"	533	24'0"	732

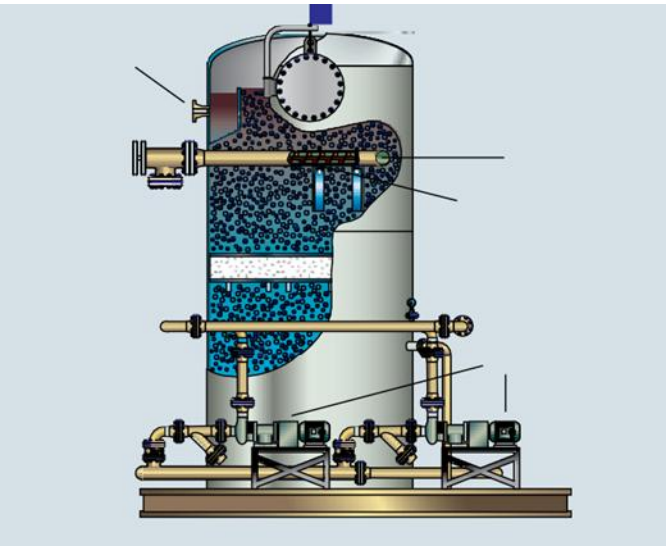
This chart is for reference only and dimensions may change during final design stage.

Extreme movements in these applications result in potential violent environments within the vessel causing high water/oil skim ratios. Our design incorporates a "head-in-head" arrangement that:

1. Reduces turbulence within the vessel by reducing the surface area
2. Reduces the water/oil skim ratio
3. Maximizes oil removal efficiency

Design Options

- Pressurized (SPINSEP-P™) or Atmospheric (SPINSEP™ system)
- ASME Code or Non-Code Vessel Construction
- DGF, Eductor or Sparge Tube Flotation Design
- Coalescing Pack constructed of Polypropylene or Stainless Steel (SPINSEP-PLUS™ system)
- Client can determine controls, valve configuration and safety controls
- Head-in-Head Design for Extreme Movement Applications
- SPINSEP™ system can be packaged on a single skid with the VEIRSEP™ system
- The SPINSEP™ can be designed as a skimmer or pretreater for the VEIRSEP™ system or any other downstream polishing unit



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