VEIRSEP™ Horizontal Flotation System

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Our patented VEIRSEP™ horizontal flotation system incorporates several unique technologies to separate oil and various other contaminates from produced water and contaminated wastewater streams. Featuring a compact footprint, the unit is fully automated and can be designed to operate in an atmospheric or pressurized condition.

The system is comprised of the SPIRALSEP™ unit, influent free oil knock-out compartment and efluent quiescent compartment, four flotation chambers, an oil collection weir system, DGF Brise™ pumps for recycling fluid and generating varying micron size air or gas bubbles, as well as all required control and operational accessories.

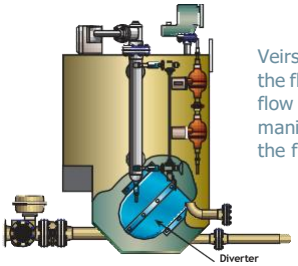
Applications:

- Offshore Produced Water
- Refinery Wastewater Treatment
- Pulp and Paper
- Volatile Organic and H2S Stripping/Removal Industrial Oily Water Treatment

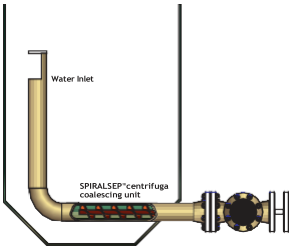
The VEIRSEP™ system offers the greatest contaminate removal efficiency of any other flotation device configura-tion due to multiple compartments and increased flotation surface area. The increased efficiency of the VEIRSEP™ system results in reduced chemical usage and ensured environmental discharge compliance.

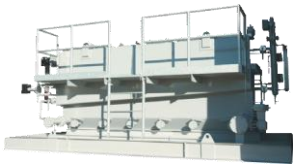
Flotation Process

The VEIRSEP™ system incorporates an inlet contaminated water compartment equipped with a SPIRALSEP™ unit that is primarily used as a coalescing device.



Veirsep™ system with cutaway showing the flow diverter used to concentrate the flow in the path of bubbles as well as the manipulation of surface tension to force the float towards the adjustable weir.





VEIRSEP™ System

Model NO	Vessel Flow Rate GPM	Vessel Flow Rate BPD	Vessel Weight Dry lbs/KG	Vessel Weight Operating lbs/KG	Water Inlet In/cm	Water Outlet In/cm	Outlet In/cm	Veirsep Height Ft.-In/ cm	Veirsep Width Ft.-In/ cm	Veirsep Length Ft.-In/ cm
1MV	30	1M	9260/ 4200	11380/ 5162	4/ 122	4/ 122	2/61	5'6"/ 168	5'0"/ 152	14'0"/ 427
3MV	90	3M	10340/ 4690	20300/ 9208	4/ 122	4/ 122	2/61	6'6"/ 198	7'0"/ 213	14'0"/ 427
5MV	150	5M	11000/ 4990	24625/ 11170	6/ 183	6/ 183	3/91	7'6"/ 229	7'6"/ 290	16'0"/ 488
7.5MV	220	7.5M	22325/ 10127	38986/ 17684	6/ 183	6/ 183	4/ 122	8'11"/ 272	9'6"/ 305	20'6"/ 625
10MV	300	10M	22500/ 10206	42350/ 19210	8/ 244	8/ 244	4/ 122	9'6"/ 290	10'0"/ 305	23'1"/ 704
15MV	440	15M	23600/ 10705	65450/ 29688	8/ 244	8/ 244	4/ 122	11'0"/ 335	10'0"/ 305	24'0"/ 732
20MV	580	20M	25250/ 11453	73150/ 33181	8/ 244	8/ 244	4/ 122	12'0"/ 366	10'6"/ 320	26'0"/ 792
25MV	750	25M	30480/ 13826	79380/ 36007	8/ 244	8/ 244	4/ 122	12'6"/ 381	10'6"/ 320	27'0"/ 823
30MV	880	30M	34820/ 15794	100340/ 45514	10/ 305	10/ 305	6/ 183	13'0"/ 396	10'6"/ 320	33'0"/ 1006
40MV	1200	40M	45515/ 20645	140550/ 63753	10/ 305	10/ 305	6/ 183	14'0"/ 427	13'1"/ 399	36'4"/ 1107
50MV	1500	50M	47800/ 21682	149400/ 67767	10/ 305	10/ 305	6/ 183	14'6"/ 442	14'0"/ 427	38'0"/ 1158
75MV	2200	75M	59500/ 26989	165950/ 75274	10/ 305	10/ 305	6/ 183	14'6"/ 442	14'0"/ 427	46'0"/ 1402
100MV	2900	100M	70400/ 31933	210266/ 95376	12/ 366	12/ 366	8/ 244	14'1"/ 429	15'0"/ 457	48'0"/ 1463
150MV	4400	150M	100540/ 45605	264520/ 119986	12/ 366	12/ 366	8/ 244	16'6"/ 503	16'0"/ 488	54'0"/ 1646

VEIRSEP-P™ System

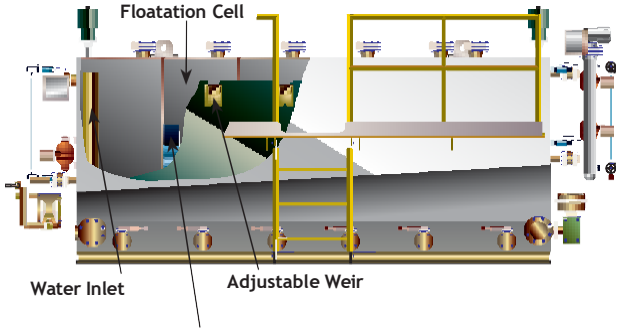
Model	Vessel Flow Rate GPM	Vessel Flow Rate BPD	Vessel Weigh t Dry lbs/KG	Vessel Weigh t Operating lbs/KG	Water Inlet In/cm	Water Outlet In/cm	Oil Outlet In/cm	Veirsep-P Height Ft.-In/cm	Veirsep-P Width Ft.-In/cm	Veirsep-P Length Ft.-In/cm
5MV	150	5M	21220/9625	31520/14297	6/183	6/183	3/91	9'8"/295	9'6"/290	20'7"/627
7.5MV	220	7.5M	23000/10433	46000/20865	6/183	6/183	4/122	10'0"/305	9'6"/290	22'6"/686
10MV	300	10M	25000/11340	57200/25946	8/244	8/244	4/122	10'6"/320	9'6"/290	25'0"/762
15MV	440	15M	26200/11884	66340/30092	8/244	8/244	4/122	12'4"/376	10'0"/305	27'0"/823
20MV	580	20M	31800/14424	76780/34827	8/244	8/244	4/122	13'0"/396	11'6"/351	28'0"/853
25MV	750	25M	37850/17169	83500/37875	8/244	8/244	4/122	13'6"/411	11'6"/351	29'0"/884
30MV	880	30M	43560/19759	89600/40642	10/305	10/305	6/183	13'6"/411	11'0"/335	30'0"/914
40MV	1200	40M	48750/22113	135000/61236	10/305	10/305	6/183	13'8"/417	11'0"/335	37'0"/1128
50MV	1500	50M	53340/24195	195120/88506	10/305	10/305	6/183	16'10"/513	13'0"/396	42'6"/1295
75MV	2200	75M	54250/24608	218750/99224	10/305	10/305	6/183	17'7"/536	13'0"/396	45'0"/1372
100MV	2900	100M	75120/34074	245375/111301	12/366	12/366	8/244	13'9"/419	16'6"/503	49'6"/1509
150MV	4400	150M	110500/50122	275000/124738	12/366	12/366	8/244	15'0"/457	19'0"/579	70'0"/2134

The second cell contains an optional coalescing pack section, where small oil droplets attach themselves (coalesce) with larger particles, greatly reducing the quantity of polyelectro-lyte needed. The four central flotation cells (chambers) receive an injection of fluid laden with micro fine air or gas bubbles, which adhere to the oil particles, allowing the difference in gravity to carry the oil/gas mixture to the surface. The flotation gas bubbles are generated by a number of different methods including DGF, eductor or sparge tubes. Our DGF technology method uses our propri-etary Brise™ pump system to create micro fine 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 into the vessel at an accelerated rate. The DGF technology allows for instantaneous adjustments in bubble size resulting in greater adaptability to changing water chemistry characteristics.

The last cell allows any remaining entrained gas to be released, which results in treated water ready for discharge. Automatic level control systems maintain the correct amount of water in the unit at all times to ensure optimal skimming. Each cell is equipped with an adjustable weir for skimming oil and a bottom drain for removing solids.

Applications:

- Pressurized (VEIRSEP-P™) or Atmospheric (VEIRSEP™)
- ASME Code or Non-Code Construction
- DGF, Eductor or Sparge Tube Flotation Design
- Coalescing Pack constructed of Polypropylene or Stainless Steel (VEIRSEP-PLUS™)
- Client can determine controls, tie in locations and safety controls
- VEIRSEP™ systems can be packaged with our other units for final polishing



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