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 packing 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).
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

SPINSEP, SPINSEP-P, SPINSEP-PLUS, VEIRSEP, SPIRALSEP and Brise are trademarks of Siemens, its subsidiaries or affiliates.

The information provided in this literature contains merely general descriptions of characteristics of performance which in actual case of use do not always apply as described or which may change as a result of further development of the products. An obligation to provide the respective characteristics shall only exist if expressly agreed in the terms of the contract.