

Separon® ExoDeoiler™

Primary Produced Water Deoiling

The Separon® ExoDeoiler™ represents an innovative approach to the design and manufacture of hydrocyclones. By leveraging 3D printing, optimized geometries can be implemented that would otherwise be constrained by traditional machining methods. The result is a hydrocyclone featuring specialized liner internals with no external pressure vessel required. Eliminating the vessel and other excess materials reduces the total unit weight to less than that of the liners alone in conventional solutions. Installation and maintenance are also simplified, making this an ideal solution for both offshore and onshore produced water applications.

How It Works

As produced water enters the hydrocyclone, the velocity of the flow is converted into centrifugal force, causing the fluid to form a vortex similar to a whirlpool. As the internal geometry of the unit tapers inward, the velocity increases, creating a low-pressure, reverse-flow region at the center that enhances separation. The heavier water is forced to the outer wall of the liner, while the lighter oil concentrates in the inner core. The clean water exits the underflow, while back pressure drives the oil axially through the cyclone and out the overflow.

Key Benefits

Cost Saving

- Cost-effective, efficient way to reduce oil concentration prior to secondary de-oiling
- Eliminates the cost of a vessel and additional material
- Easy to ship, install, and start up, making it ideal for temporary and long-term projects

Better Performance

- Specialized geometry, not confined by traditional manufacturing methods
- Easy to maintain with no moving parts, no failure-prone mechanisms, and no fugitive emissions

Flexibility

- High turndown ratios
- Works flawlessly regardless of orientation or pitch and roll motions offshore
- Adjust flowrates by capping liners instead of replacing with blanks



Standard Features

- Vertical or horizontal orientation
- Easy liner access
- Complete process review

Materials of Construction

- The 3D printed unit can be constructed using 316 SS, Inconel, or titanium

Standard Options

- Pump-driven system
- Piping, instrumentation, and controls
- Upgraded materials for valves, instruments, and piping (Duplex SS, Hasteloy)
- Ancillary equipment such as transfer pumps and chemical injection
- Chemical selection and supply
- Water characterization services
- Other options as required to meet your specifications

Common Applications

- FWKO
- SAGD
- Secondary Recovery
- Disposal Wells
- Subsea Production
- Offshore Production
- Primary and Secondary Produced Water Treatment

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