



Oily Water / Produced Water Treatment

## Combined CPI + DGF Unit (CompacSep)



### Definition

Advanced Oil-Water Separator "CompacSep" is a next generation Oily Water Separation product which offers technological advantage of Corrugated Plate Interceptor and Flotation technology combined in single vessel or tank. This is used to remove oil and solids from produced water to ensure that it is safe for disposal and re-use.

### Product Applications:

- Onshore - Oil and Gas Processing Facilities
- Onshore - Early Production Facilities (EPF)
- Refineries & Petrochemicals

### Process Description

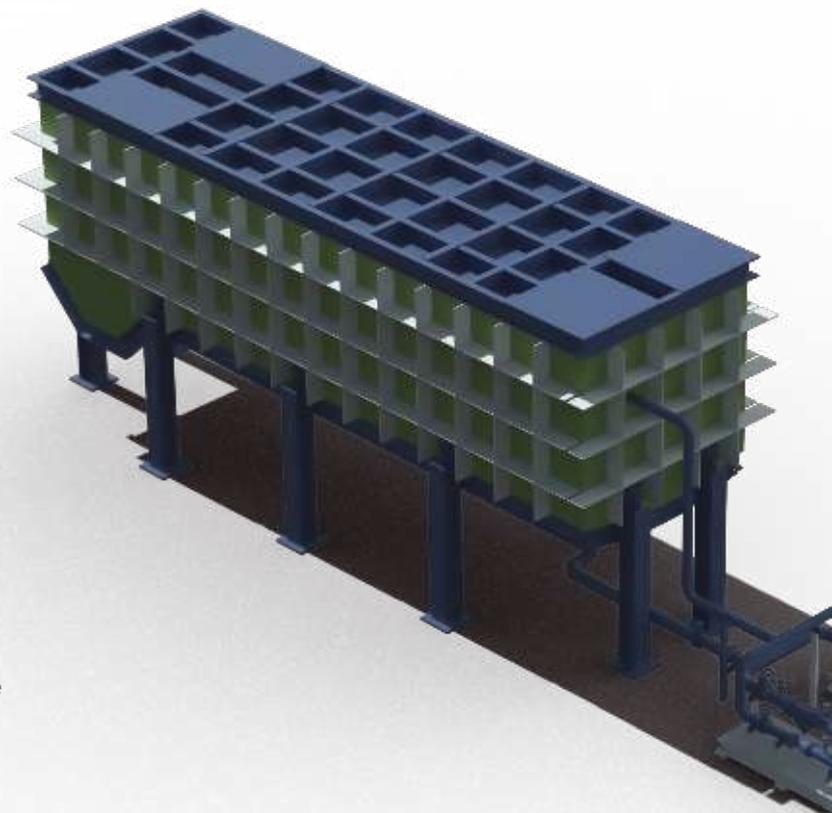
#### 1. Corrugated Plate Interceptor Section

Oily water enters the unit from the top of the vessel through an inlet device. The coalescence section is provided with plate packs which ensure effective separation of all three phases from each other. The plate pack offered by Peerless is the counter-current plate pack technology which removes bulk oil from water in a much smaller footprint compared to other technologies.

An additional feature is that the plate packs will suppress any re-circulation and the motion of waves. In the counter-current design, the small oil droplets rise by virtue of the fact that their density is lower than that of the carrier medium and attach themselves to the underside of the upper plate. The oil film that is thus constantly being formed at the underside of each plate creeps slowly upwards along the plates. The oil film is assisted in its upward movement by the concurrent laminar flow.

At the top of the plates, the oil film is coalesced into a thick stream of oil that quickly rises to the upper part of the tank. The oil then forms a layer, which can be removed by the oil skimmer to an integral oil holding sump.

The water flows through an underflow weir to the treated water section and flows down to the flotation section. The light oil floats to top of the liquid layer and flows to bucket type skimmer provided on underflow weir. The recovered oil will flow to recovered oil chamber of IGF Section.





## 2. Dissolved Gas Flotation Section

Water enters the unit through flotation section and flows down the length of the vessel through four flotation cells. Each flotation cell is separated from the next by an underflow baffle which is designed to maintain uniform flow through the flotation cell. The recycle stream is taken from treated water section of the flotation unit using microbubble-generating pumps and pumped back to through the whitewater (gas-containing water) distributors. Each flotation cell contains a set of manifold responsible to uniformly distribute the microbubbles.

The entrained gas bubbles have the effect of sticking to the oil droplets and bringing them to the liquid surface where they form an unstable foam/scum layer. The foam and oily water scum are removed using an overflow weir into an oily water collection compartment.

Water leaving the final flotation cell passes around the underflow/overflow weir to the Treated Water Section.

Because the flotation gas is recycled, no additional gas is required. A small gas bleed is often included to refresh the gas in the flotation unit during times of low flow.

### Technology Advantage

- Removal of free oil-in-water to less than 10ppm
- Removal of fine solids
- Unlimited turndown
- Micro Gas Bubble Flotation

### Capability:

- 40+ years field performance
- Compact Footprint
- Simple and Robust design
- Meets Stringent Performance Guarantee
- Ideal for Early Production and Central Production Facilities.
- Modular Solution for Offshore and FPSO applications
- Rich industry expertise for fast track delivery of units

### Our Services

- Supply of internals and Process Design as well as Complete packaged assembly
- FEED Study Services
- Custom Built or Standard design
- Fast Track Delivery
- Rental Services
- Troubleshooting & Optimization of units

