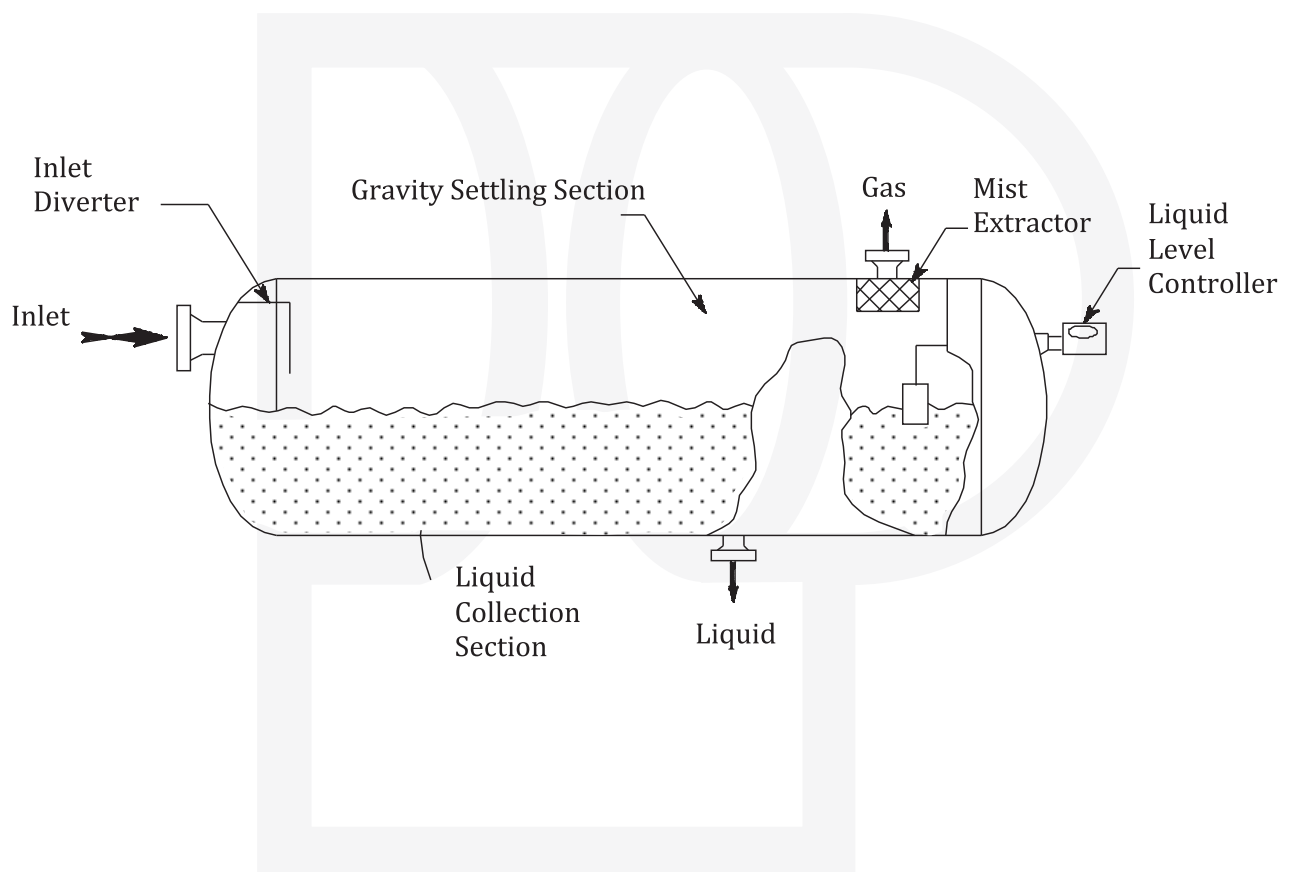


Horizontal Two-Phase Separators

Following figure shows a horizontal two-phase separator. The fluid enters the separator and hits an inlet diverter. The initial gross separation of liquid and vapor occurs at this stage. The force of gravity causes the liquid droplets to fall out of the gas stream to the bottom of the vessel, where it is collected.

The liquid collection section provides the retention time required to let entrained gas evolve out of the oil and rise to the vapor space. The liquid leaves the vessel through the liquid dump valve, which is regulated by a level controller. Gas and oil mist flow over the inlet diverter to the gravity settling section above the liquid. When gas is leaving the vessel, small droplets of liquid pass through a vane pack or demister pad, and are removed in a final separation.



Horizontal Three-Phase Separators

Three-phase separators differ from two-phase separators in that the liquid collection section of the three-phase separator handles two immiscible liquids (oil and water) rather than one. By controlling the level of each liquid, the two liquids are separated and drained out of the vessel. Two common types of horizontal three-phase separators are shown in the following figures.

The produced fluid stream enters the separator and hits the inlet diverter, where the initial bulk separation of the gas and liquid occurs.

The gas flows horizontally through the gravity settling section where the entrained liquid droplets are separated by gravity. The gas then flows through the mist extractor, where smaller entrained liquid droplets are removed.

The liquid collection section should have sufficient volume to allow enough time for the separation of the oil and emulsion from the water. The oil and emulsion flow over a weir and collect in a separate compartment, where its level is controlled by a level controller that operates the oil outlet valve. Similarly, the water level is controlled by a level controller that actuates the water outlet valve.

Figure 1

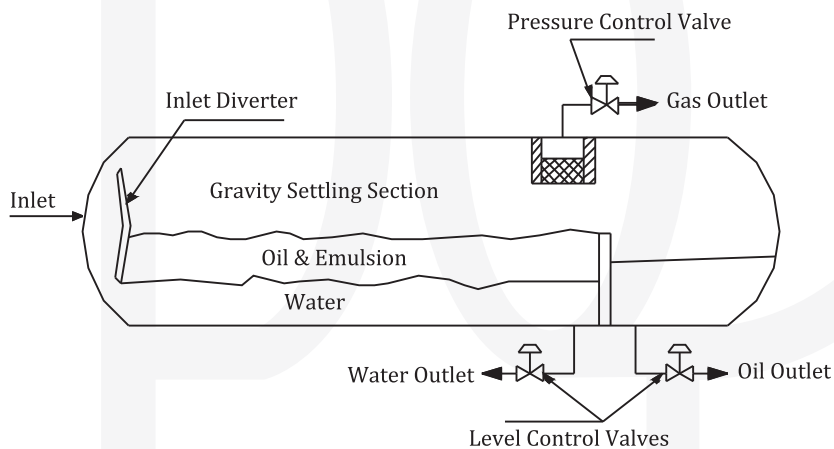


Figure 2

