



tilted plate separator

Tilted plate separators are mostly same like API separators but they include tilted parallel plate pack (also mentioned as parallel packs). The underside of every parallel plate provides more surface for suspended oil droplets to coalesce into larger globules. Any solids slides down the topside of every parallel plate. Such separators still depend on the precise gravity between the suspended oil and therefore the water. The parallel plates increase the degree of oil-water separation. At the top a parallel plate separator requires significantly less space than a ordinary API separator to realize an equivalent degree of separation.

All particles or droplets having a settling or flotation velocity $V_s > Q$ (flow)/ A (area) are fully intercepted. An enlarged separating surface are often achieved by placing various smaller planes on top of every other within the tank. If these planes are subsequently inclined during a tilted position, material separated between the plates is removed by the gravity. This is often the principle on which the tilted plate separator corrugated plate pack is predicated. The planes during this plate pack are constructed within the shape of corrugated plates. They promote both the coalescence of the intercepted oil particles and, at an equivalent time, their transfer through the plate pack.

If settle-able material is present within the liquid, such material is collected and concentrated within the troughs of the corrugations in order that it'll slump within the plate pack smoothly and simply. Very small separating diameters are often obtained within the tilted plate separator system, because the disturbing factors, like turbulences and eddies, which adversely affect large conventional separating tanks, are eliminated within the tilted plate separator.

Tilted plate separators are gravity separators which utilize the difference in relative density between two phases of liquid (predominantly for removal of free oil in water) because the principle of separation. The high area for separation is provided by a lamellar arrangement of plates which also reduces the plot space requirement

Typical removal rates of tilted plate separator-

1. Oil globules cut off diameter: 10 – 60 μm and larger
1. TSS removal 80 – >90%
1. Oil removal 50 – >99%
1. Residual 5 – 20 ppm slop oil

Advantages of tilted plate separator-

No moving parts, High separation efficiency, Compact construction gives great economy in space and foot print, Low installation costs on site since units can be prefabricated, Minimum maintenance and operation costs, Uniformity in design guarantees quick delivery of unit and spares, Short hydraulic retention time, Continuous operation, Insensitive to weather conditions and variations in temperature and water quality, Resistant to shock and slug loads.