

HI HUDSON INDUSTRIES

Industrial Separation & Process Solutions

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Contact us today for replacement media

Coalescing Media Packs utilize inclined channels that allow small oil droplets to collect on the underside of the plates and form larger globules that, according to Stokes Law, rise to the water surface at a faster rate, due to the larger diameter and buoyancy.

Additionally these corrugated plates encourage solids to settle faster and slide to the bottom of the separator, where a hopper can be incorporated for solids collection. The direction of water flow is generally cross flow or down flow through the coalescing packs. According to API 421 the typical range of spacing between the plates is ¾" to 1 ½".

Cross flow corrugated media causes the water to keep changing directions thus allowing the smaller oil drops to impinge on the surface allowing the media to coalesce these small drops into larger ones. Assisting the separation process is the requirement to have laminar flow conditions, usually around a Reynold's number of 500. Turbulent conditions ($Re > 4000$) will induce mixing rather than separation. The angle of the plate packs should be somewhere between 45 and 60 degrees. Plate packs with 60 degree angles should be used where significant solids accumulation is expected.

Sometimes the entire CPI unit can also be placed on a 45 to 60 degree angle in order to retard fouling, but this requires much more support structure and an additional 40 to 100% of coalescer volume, since droplet trajectory is lengthened.

Coalescing media can be made of PVC (polyvinyl chloride), High Temperature PVC, or PP (polypropylene) which is considerably more expensive than PVC, SS (stainless steel) but the cost of SS plate packs is an order of magnitude higher and is less oleophilic (oil attracting). PVC is good for temperatures up to 140 ° F, HTPVC to 150 ° F, PP to 185 ° F, and SS above 185 ° F.

The design of cross flow coalescing media stems from a derivation of Stoke's law that relates oil droplet rise rate to the surface loading rate. Separation is achieved by the oleophilic nature of the coalescing media; the difference in specific gravity (density) between the oil and water, viscosity of the oil/water mix. Solids that are more dense than water will sink. Water with a large volume of oil is viscous and flows more slowly than water alone.



Cross flow media is available in the following spacing and surface configurations:

Plate Spacing	Horizontal Surface Area Provided per ft ³ of Media
.25"	119
.5"	69
.75"	48
1.5"	31