

Customers have a wide choice when it comes to oily water separators. Some common options include gravity separators, coalescing plate packs and Ultraspin hydrocyclone based systems. The single most important performance indicator of an oil water separator is its ability to deal with smaller oil droplets. Simple separators can deal with very large oil droplets (>150 micron) but more powerful separators are needed for the more typical real world situations where oil droplets are 15 to 50 micron in size.

How do customers get reliable data on oil droplet separation ability without the marketing and sales ‘spin’ that many vendors supply?

Here is some independent data that you may find useful:

Reference 1: Source: *The treatment of produced water in offshore rig; Comparison between traditional installations and innovative systems; F.E. Ciarapica.*

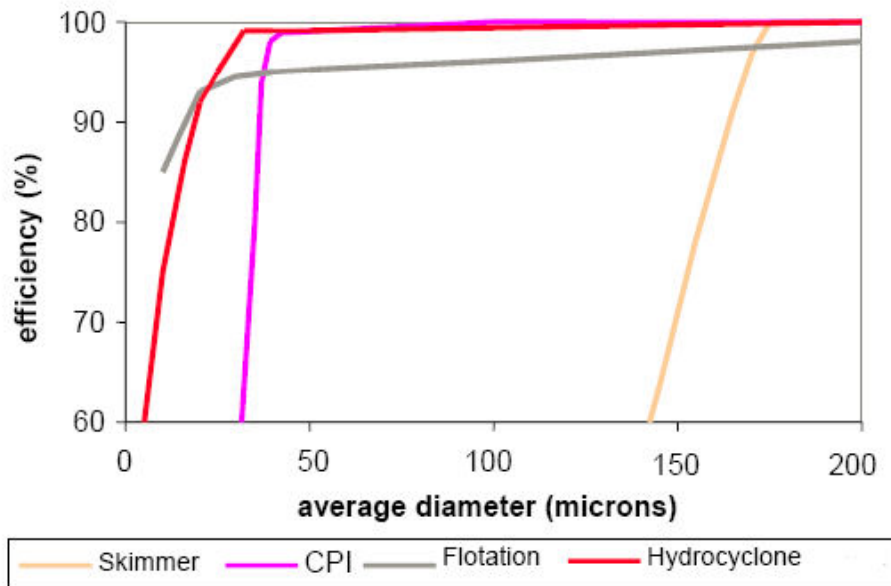


Fig. 1. Separation efficiency of traditional installations

Reference 2: Source: www.ptac.org. Corrugated Plate Interceptor (CPI)

- Limited to removal of 50 microns droplets and larger
- Higher removal efficiency require abundant chemical usage.
- Copes poorly with surges in flow or heavy oil

Reference 3: Source: Frankiewicz, T., 2001, "Understanding the Fundamentals of Water Treatment, the Dirty Dozen - 12 Common Causes of Poor Water Quality," presented at the 11th Produced Water Seminar, Houston, TX, Jan. 17-19.

Technology	Removal Capacity by Particle Size (Units in Microns)
API gravity separator	150
Corrugated plate separator	40
Induced gas flotation without chemical addition	25
Induced gas flotation with chemical addition	3-5
Hydrocyclone	10-15
Mesh coalescer	5
Media filter	5
Centrifuge	2
Membrane filter	0.01

Reference 4: Source: Ken Arnold, Design of Oil Handling Systems and Facilities, second edition volume 1.

**Table 7-1
Produced-Water Treating Equipment**

Method	Equipment Type	Approximate Minimum Drop Size Removal Capabilities (Microns)
Gravity Separation	Skimmer Tanks and Vessels	100-150
	API Separators	
	Disposal Piles	
	Skim Piles	
Plate Coalescence	Parallel Plate Interceptors	30-50
	Corrugated Plate Interceptors	
	Cross-Flow Separators	
	Mixed-Flow Separators	
Enhanced Coalescence	Precipitators	10-15
	Filter/Coalescers	
	Free-Flow Turbulent Coalescers	
Gas Flotation	Dissolved Gas	15-20
	Hydraulic Dispersed Gas	
	Mechanical Dispersed Gas	
Enhanced Gravity Separation	Hydrocyclones	5-15
	Centrifuges	
Filtration	Multi-Media	1+
	Membrane	

Reference 5: Source: Plate Pack Vendors. www.mascoeng.com.au.

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PERFORMANCE/PUMP SUPPLY

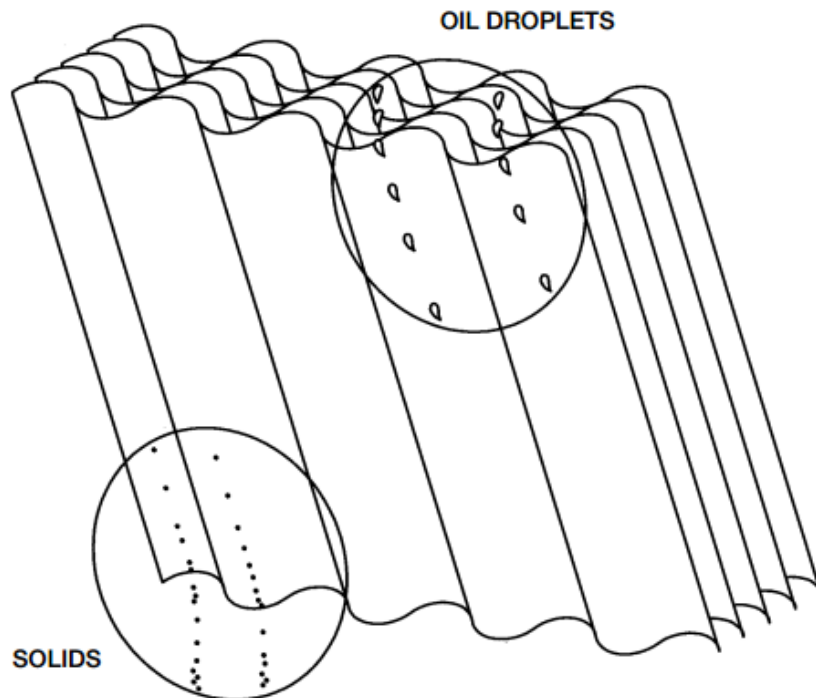
It is important that the oil droplets in the flow be larger than 60 microns, or a proportion of smaller droplets will pass through the unit and effect the effluent quality.

With the correct flow rate, the Mascot Cross Flow Interceptor Unit will deliver an oil content in the effluent of no greater than 10 parts per million, which exceeds the standard for discharge to stormwater and sewer systems.

SOLID SEPARATION

If the solids are not continuously discharged from the plates as they settle, they will accumulate and block the plate pack, consequently, removal of such solids from the plates is of critical importance for the continued efficient operation of the separator.

In all Mascot Cross Flow Interceptor Units, the plates and the walls of the hopper are set at 60 degrees from the horizontal, which is greater than the angle of the repose of the settled solids, this ensures that the plate pack is self cleaning and when the sludge hopper is opened, all sludge will be removed.



Reference 6: Source: Plate Pack Vendor <http://panamenv.com>

“The TPI design has many features such as adjustable water weir, integral inlet diffuser, A-36 carbon steel or stainless steel construction and many options to provide engineers, system integrators and end users with convenience and flexibility in oil separator system configuration choices. Customization & modifications to fit your project needs are offered. Typical performance is 50 mg/L or less, 60 micron free oil droplets. “

Reference 7: Source: Plate Pack Vendor: <http://www.siemens.at>

Features and Benefits

- Better effluent quality – removes free oil droplets 60 microns or larger
- Superior solids handling – tolerates 1000 ppm total suspended solids
- Low maintenance design – no moving parts
- Quality construction – design meets API standards