

Enhanced DC™ Coalescer (EDC)

Features

- Highest separation efficiency
- Low pressure drop
- Widest range of materials of construction
- Fits all process equipment
- Easy to install

What is an Enhanced DC Coalescer?

The Enhanced DC coalescer is an innovative dual component (DC) surface active device consisting of various size metal wires and/or plastic filaments specially knitted to a precise geometric pattern. They are installed in vertical or horizontal separation vessels. They have immense surface area to attract, coalesce and release fine primary and secondary dispersed droplets in a continuous phase through *Direct Interception* as liquid travels in laminar flow. These elements are much more effective in capturing smaller droplets than those that depend only on *Stokes Settling* and are used in clean or filtered streams to improve separators over other coalescer elements that may not meet



stringent separation requirements or to boost capacity in liquid/liquid extraction columns.

How do Enhanced DC Coalescers work?

In either a horizontal or a vertical laminar liquid flow, a continuous liquid phase with dispersion enters the upstream face of the Enhanced DC coalescer. Here the feed enters a high surface area element ranging from 300mm (12") to 1 meter thick depth of multi-stage metal wire knitted in parallel with one or more plastic filaments. Direct Interception occurs where the size of the target will be close to the average size droplet in the dispersion. Finer coalescing media, or multifilaments, allow for the separation of finer or more stable emulsions resulting in highest separation efficiency.

As fine dispersed droplets are drawn to either the metal wires (hydrophilic dispersion) or plastic filaments (oleophilic dispersion) they begin "preferential wetting" along with an "interstitial effect", thus coalescing larger droplets at the junction of two dissimilar materials (see Figure 1). The rate of coalescence is significantly increased in this process where the droplets continue to grow and grow making their way through the media to the drainage section of elements. There they exit the downstream face of the coalescer where dispersed droplets are hundreds of times larger than their original size. Gravity and/or buoyancy forces now take effect to either settle to bottom of vessel or rise to the interface section.

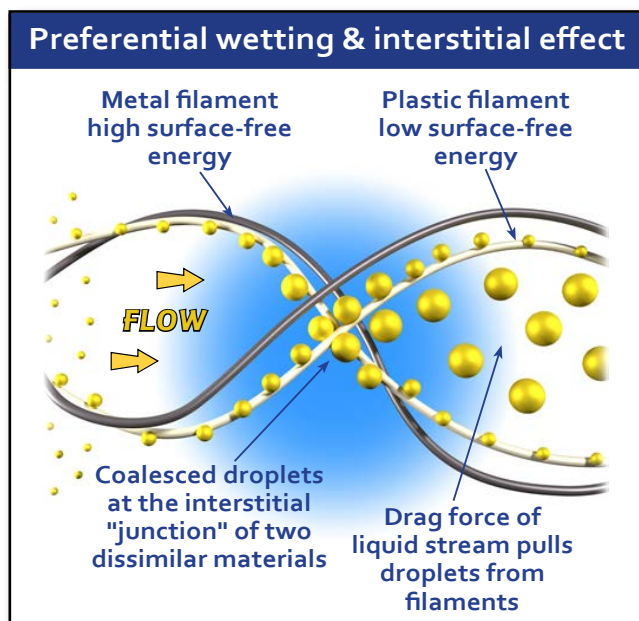


Figure 1
A combination of both high and low surface-free energies provide effective separation irrespective of which phase is dispersed.

Where are Enhanced DC™ Coalescers used?

EDC Coalescers are predominantly used in two, three, and four phase separators (high or low pressure) and in liquid/liquid extraction towers. They also have been installed to promote liquid/dissolved gas separation for degassing applications. They are found in:

- Pharmaceuticals
- Specialty chemicals
- HPI Industries
- CPI industries
- Flavors and fragrances
- Food and beverage

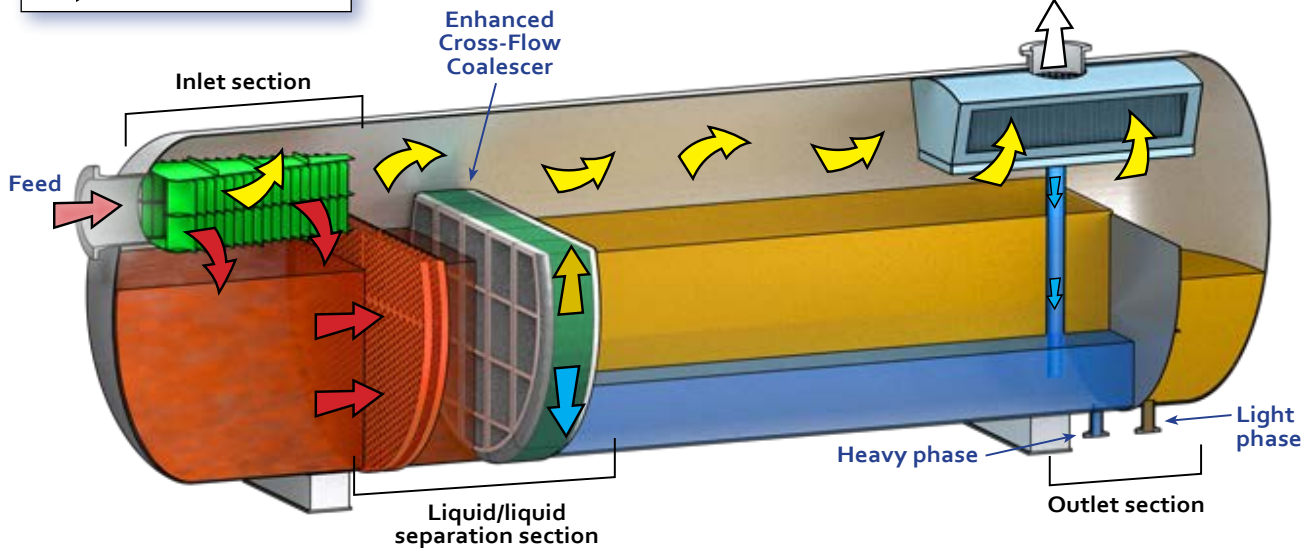
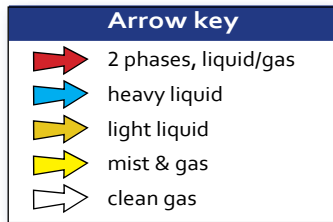


Figure 2
Successful operation of all coalescer elements depend primarily on vessel geometry such as, properly designed inlet, liquid/liquid separation and outlet sections. Various schemes are used with horizontal vessels depending on whether there is a significant amount of gas present as with Three-Phase Separators.

Specifications			
Style No.	Droplet size cutoff	Pressure drop	Hydrophilic/Oleophilic
HBF-Pack Style 1188	4.5	100-300 mbar	Hydrophilic
HBF-Pack Style 1078	11.0	50-200 mbar	Oleophilic
HBM-Pack Style 2622	30.0	50-100 mbar	Hydrophilic
HBM-Pack Style 837	79.0	10-20 mbar	Hydrophilic
HBD-Pack Style 1236	90.0	5-10 mbar	Hydro & Oleophilic
HBM-Pack Style 1236	99.0	5-10 mbar	Hydrophilic
HBM-Pack Style 542	109.0	1-5 mbar	Hydrophilic

Note: Typical values for 300mm (12") thick element in aqueous and organic continuous applications.

Experienced EIT process engineers can provide complete process modeling and design, whether existing or new vessel, to ensure expected efficiencies and flow rate capacities along with trouble-free installation and startup.