

PETRECO BILECTRIC

AC desalter

APPLICATIONS

- Refinery desalting

BENEFITS

- Feedtype flexibility
- High-quality crude outlet and water output
- Reduced operation and maintenance costs
- Reduced dependency on chemicals
- Excellent flow distribution
- Rapid coalescence with minimal electrical power consumption

FEATURES

- Unique flow distribution
- Individual power units
- Midlevel interphase

Schlumberger desalters are electrostatic precipitators used to remove salt and other contaminants from crude oil. The PETRECO BILECTRIC* AC desalter uses a unique three-grid electrode system and horizontal emulsion distribution for superior oil-water separation performance.

The BILECTRIC desalter has been recognized by the refining industry as a leading technology for crude oil desalting. In two-stage installations, salt removal efficiencies up to 99% are routinely achievable.



PETRECO BILECTRIC AC desalter.

Operating principle and key features

In electrostatic desalting, crude oil is heated to decrease its viscosity. The crude oil is mixed with fresh water, which is dispersed in the crude oil as small droplets. The water-in-oil dispersion is then introduced into the pressurized desalter vessel, where a high-voltage electrical field accelerates separation of the water laden with salt and other contaminants combined in the oil. Distributors feed the crude and emulsified water in two parallel horizontal radial streams between the three electrodes. The oil emulsion streams flowing outward from the distributor encounter optimal conditions for rapid coalescence. As coalescence proceeds, water droplets grow large enough to overcome the viscosity of the crude and settle by gravity. Electrodes are engineered to maximize the performance of the dual horizontal distribution system.

The distribution system also allows for aggressive mixing, with a specialty valve, of the wash water and crude oil so that when coalescence occurs, more impurities are removed with the water and cleaner treated product is realized. The strong electric field is also less dependent on chemicals for water droplet coalescence, so lower chemical consumption is typical.

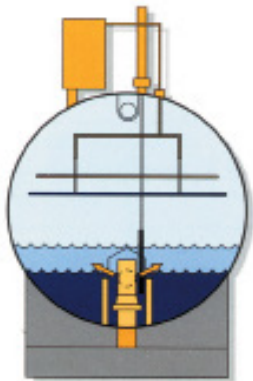
Clean oil, freed of contaminants, continuously rises to the top of the vessel and flows out, while the accumulated water and sediment mixture is removed from the bottom of the desalter for disposal. The dual horizontal distribution system gives the BILECTRIC desalter significantly better treating capacity compared with a conventional desalter and enhances the control of interface emulsion.

Product range

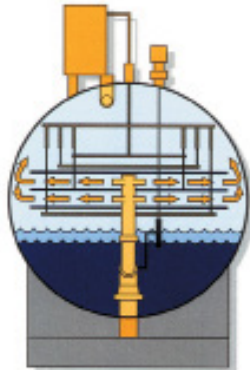
Schlumberger designs equipment to meet the specific needs of our clients. Our vast experience includes some of the following:

- crude oil in Venezuela and Canada of 16 API
- Saudi Arabia crudes up to 34 API
- single-unit flow rates from 160 m³/h to 2,000 m³/h [24,000 to 300,000 bbl/d] with the ability to combine multiple units
- basic sediment and water (BS&W) down to 0.2%.

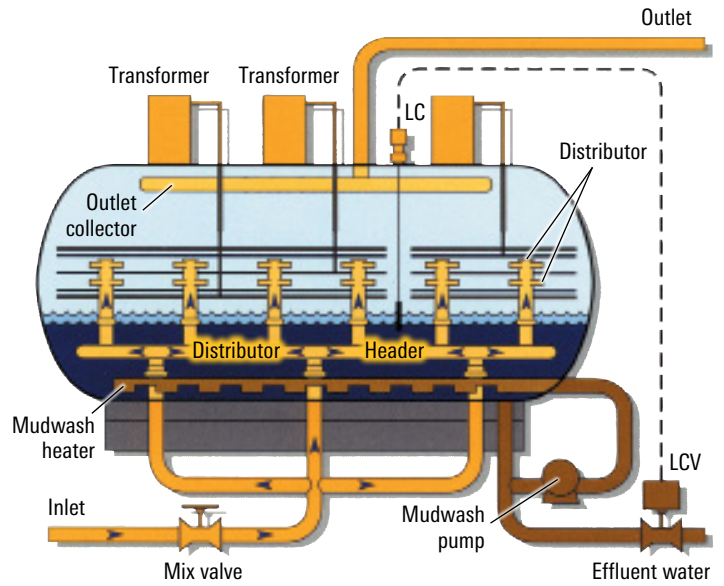
PETRECO BILECTRIC



Conventional desalter.

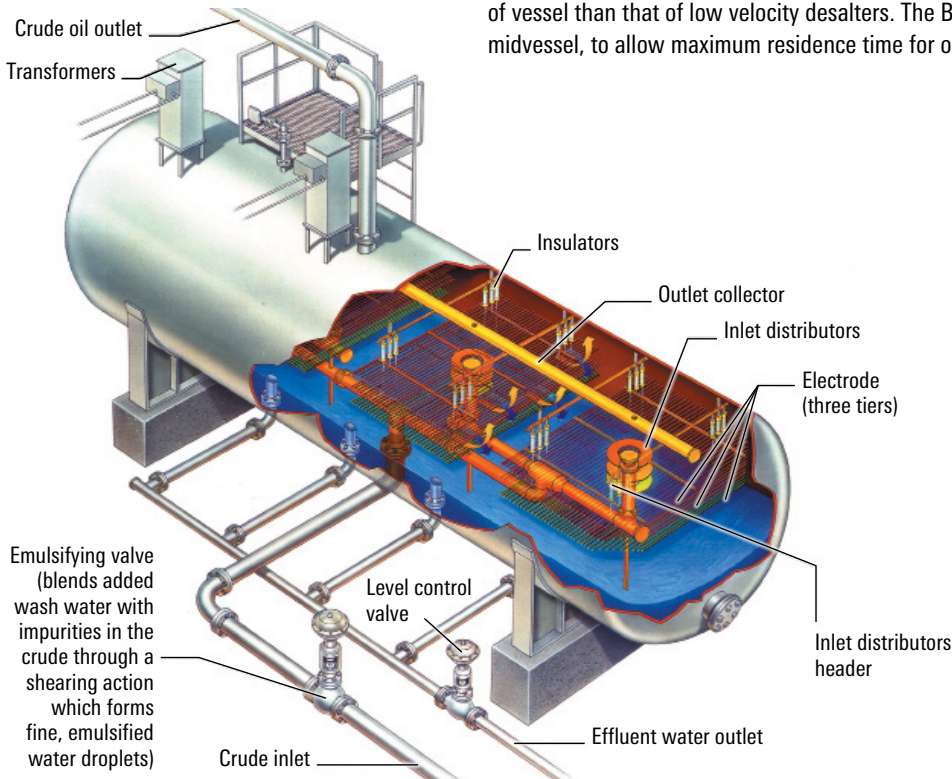


BILECTRIC desalter.



BILECTRIC desalter design.

The BILECTRIC desalter permits the maximum throughput, flexibility, and reliability for any given vessel size, handles a wide range of crude oil gravities and viscosities and works with minimum operator supervision. The dual flow configuration provides up to twice the capacity per unit volume of vessel than that of low velocity desalters. The BILECTRIC design holds water level high, near midvessel, to allow maximum residence time for oil to separate from effluent water.



slb.com/oil-treatment

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