

Product datasheet

KREBS® Cyclones for coke removal from cutting water DCU

Trust our KREBS® Cyclone Close Packed (CP) Vessels to remove coke from cutting water in delayed coker units (DCU) for your oil refinery. We have engineered our CP vessel to deliver the consistent, high capacity and fine separation that you need in a small footprint. With no moving parts, our system is not affected by debris build-up, requires little to no field adjustments and is lower maintenance than other separation options. With our CP vessel on your side, removing solids from liquids can be a simple process.

Key Benefits

- Reliable operation
- Low maintenance
- Simple installation
- Easy operation
- Small footprint

Applications

Our CP vessels are extremely efficient and have a wide range of applications for oil refinery and petrochemical processes.

The applications can be categorised into three separation types.

- Removal of solids from water
- Removal of solids from hydrocarbon streams
- Removal of oil and hydrocarbons from water

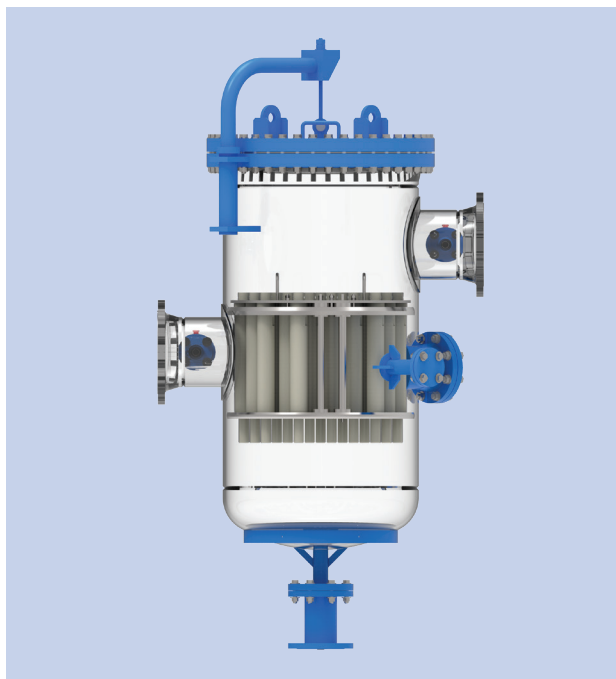
CP Vessel system – an elegant solution

How centrifugal technology works

Our vessel system uses a large number of cyclones inside a vessel or manifold to take advantage of centrifugal force for separation without any electrical or other power requirements. The centrifugal force generated inside the vortex of a single hydrocyclone can reach 1,000 times the force of gravity. With such force, our system can treat water liquids with solids and water with oil droplets down to about 10 microns.

A tangential feed of dirty liquid enters each cyclone in the vessel through a unique involute inlet, where the solution begins to spin. As the mixture flows through the cyclone in the conical section, it accelerates, increasing the centrifugal force. The lighter material flows to the hydrocyclone's centre and out the overflow (top) and the heavier solids move to the outer wall and out the underflow (bottom).

Depending on the application, the overflow or underflow may contain your cleaned product. When removing solids from water or a hydrocarbon stream, the cleaned liquid will exit through the overflow. For oil removing applications, the cleaned water will exit through the underflow.



CP vessel shown with a clear exterior for illustrative purposes only

Applications to fit your many needs

Removal of solids from waters

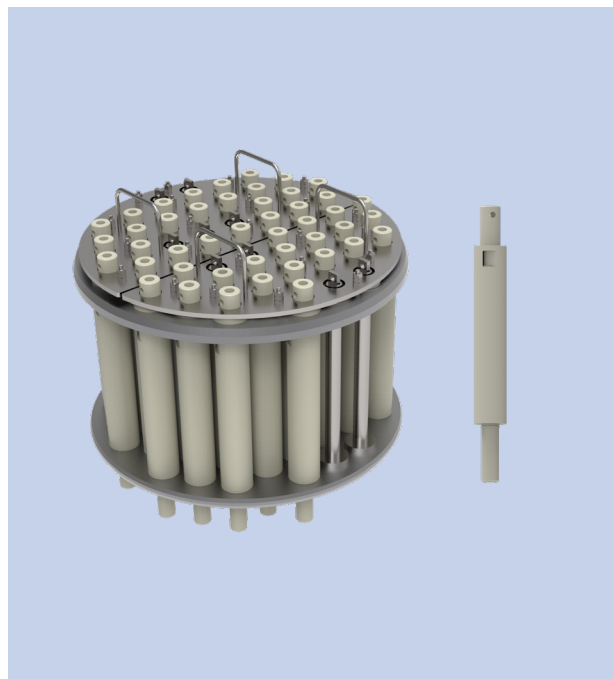
- Waste water grit removal and clean-up
- Coke fines removal from cutting water and calciners
- Intake water and fire suppression water systems
- Solids and oil removal from desalter system

Removal of solids from a hydrocarbon stream

- Catalyst removal
- Wash solids from tank residues
- Refinery amine system to separate solids, metals and coke fines
- Hydrocracker and fluid unit feed to separate coke fines from HGO/LGO product streams
- Removing organic from electrolyte and raffinate in SX applications

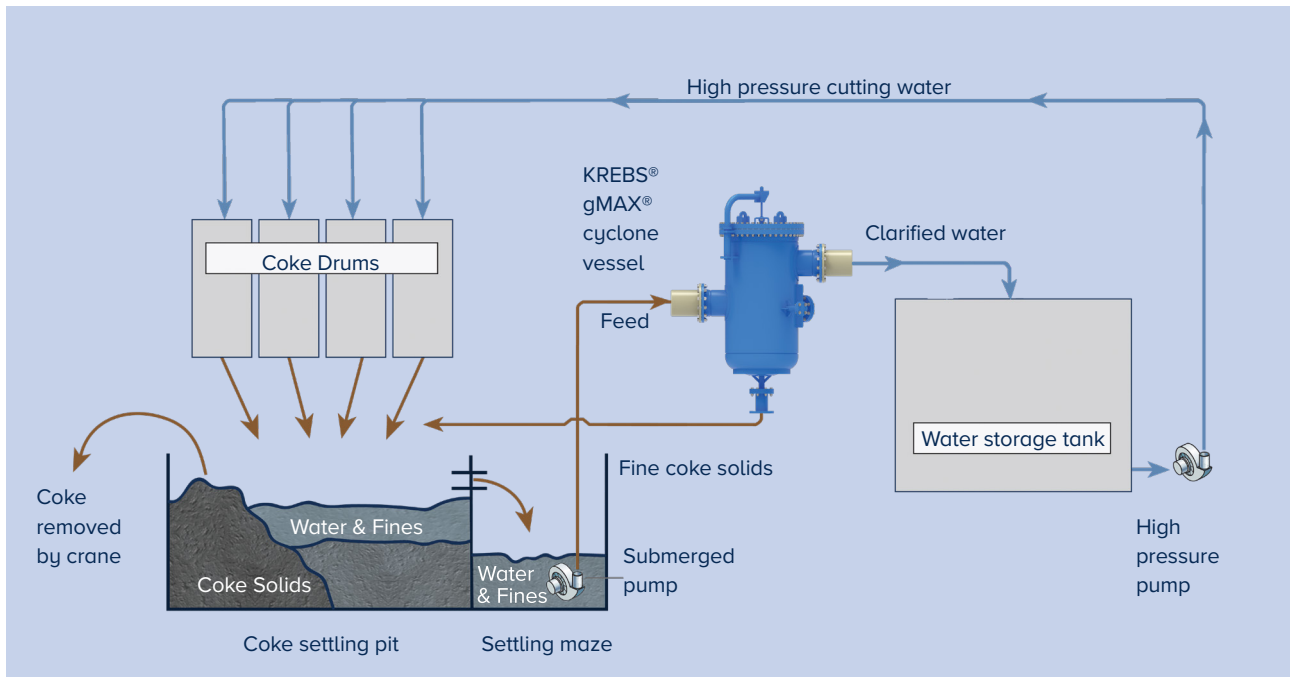
Removal of oil and hydrocarbons from water

- Waste water clean-up
- Hydrocarbon recovery
- Oil removal from desalter brine
- Coke blowdown/sour water treatment
- Treat feed to sour water stripper
- Removing oil from wash-down and runoff water



Arrangement of the ceramic cyclones within a CP vessel, shown with the upper and lower support plates and the hold-down plates

Advanced technology customised for your situation



Our system at work for coke recovery

With the above application, we provide cyclones that separate down to 20 microns to protect the high pressure downstream equipment from wear. This inexpensive addition to the coke recovery process removes coke solids from the cutting water, resulting in less downtime and lower maintenance costs.

- The wear on the jet pumps, high pressure valves and high pressure cutting water spray nozzles is significantly decreased, so the parts need less maintenance.
- Less solids report to the cut water tank so the tank does not need to be cleaned out as often.
- The smaller solids that are left in the tank are light enough that they can typically be removed by flushing them out with a hose instead of digging them out.

The size and number of KREBS® cyclones in the vessel we customise for you depends on what is being processed and the objectives of your separation. Our hydrocyclones come with diameters from 12–2300 mm (0.5–90 in). Generally, a smaller cyclone diameter results in a higher separation force and recovers smaller particle sizes, and a larger diameter results in an increased flow rate.

Our cyclone specialists are available to assist you in selecting the right system for your needs. In addition to determining the ideal number and diameter of your cyclones, we can further customise your system with some additional accessories.

FLSmidth A/S
2500 Valby
Denmark
Tel. +45 3618 1000
info@flsmidth.com

www.flsmidth.com

FLSmidth Inc.
Tucson Operations
Tucson, AZ 85743
USA
Tel + 1 520-744-8200
krebs@flsmidth.com

Copyright © 2023 FLSmidth A/S.
All Rights Reserved. FLSmidth and FLS are (registered) trademarks of FLSmidth A/S. This brochure makes no offers, representations or warranties (express or implied), and information and data contained in this brochure are for general reference only and may change at any time.