



ClariCone®

SOLIDS CONTACT CLARIFIER

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**CB&I
STORAGE
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ClariCone® Solids Contact Clarifier

CB&I Storage Solutions is the original provider of the CB&I ClariCone solids contact clarifier for potable water and wastewater treatment. Our experience and know-how is unparalleled, with nearly 400 ClariCone clarifier installations on a variety of applications, treating in excess of 800 million gallons per day. As the only supplier that provides complete engineering, fabrication, construction and commissioning on a self-performed basis, we have the resources to deliver each project to the highest quality standard.

Our comprehensive services include:

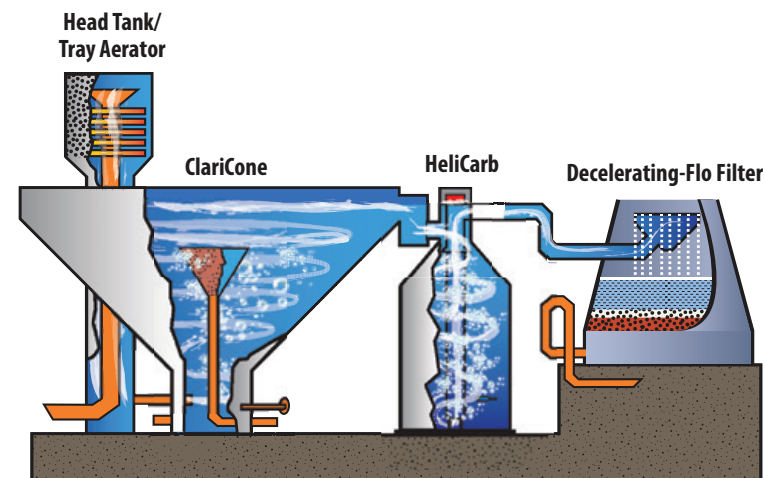
- Water quality reviews
- Preliminary engineering
- Detail engineering
- Fabrication
- Process design
- Construction
- Commissioning

How it works

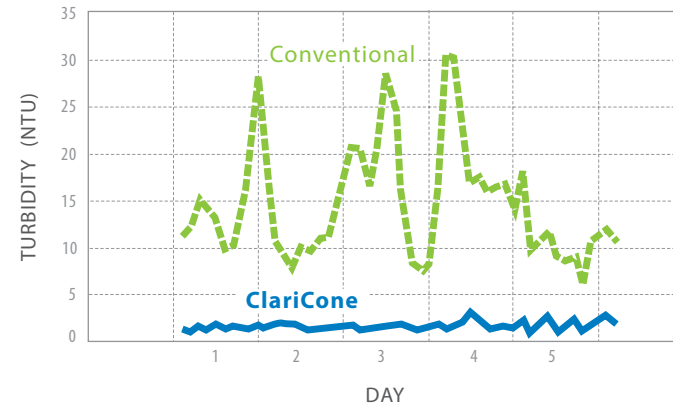
The helical, upflow, "slurry blanket" design requires no internal moving parts and provides thorough mixing, tapered flocculation and sedimentation in a completely hydraulically-driven system.

The heart of the ClariCone clarifier is its dense, suspended, rotating slurry blanket that delivers wide flexibility, rapid startup and superior performance. Mixing, precipitation, coagulation and flocculation all occur within the blanket.

Excess solids are removed through an in-vessel slurry concentrator that is vertically adjusted to control the



ClariCone Clarifier versus Conventional Clarifier



The ClariCone system's superior performance compared with conventional solids contact clarifiers is illustrated by operating data from side-by-side clarifiers.

blanket depth and solids contact time. The waste slurry concentration is maximized by adjusting the frequency and duration of the slurry discharge.

Clarification occurs above the slurry blanket. The conical shape causes the water to slow as it flows upward through the vessel. A simple, adjustable radial weir system located at the water surface varies the weir rate to maximize clarification efficiency.

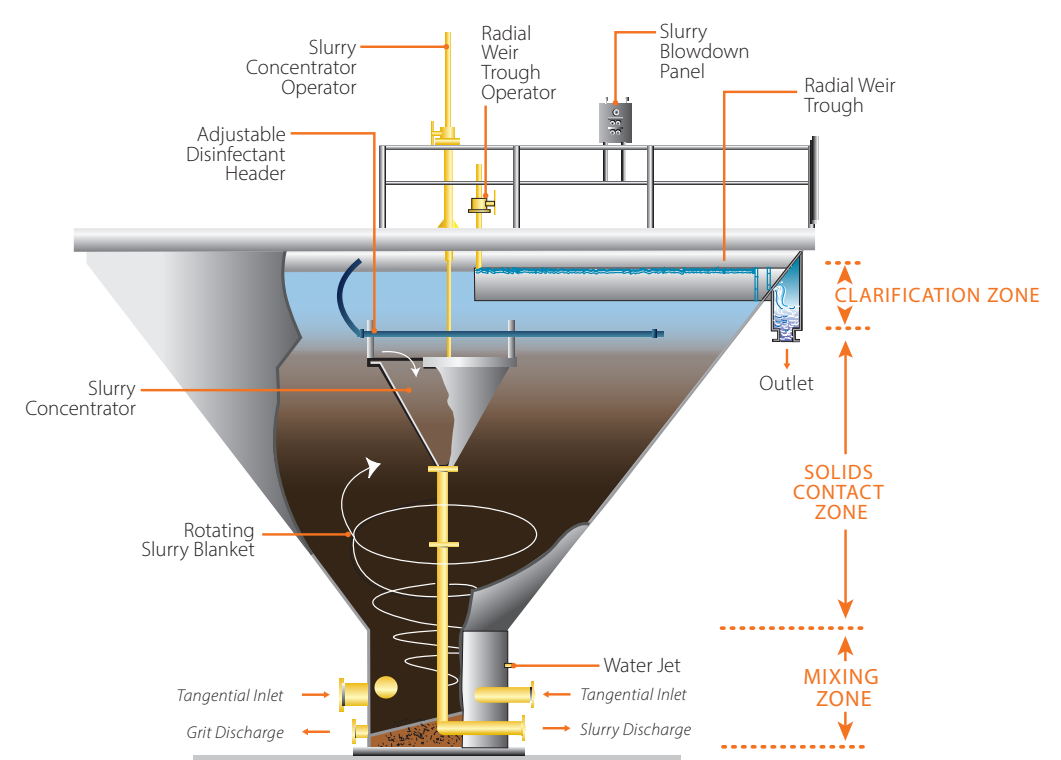
Low operating and maintenance costs

- Minimizes operating parameters via simple operation using only three controls (inlet velocity, slurry concentrator height and radial effluent trough slope)
- Eliminates internal moving parts (recirculation pumps, flocculators, mixers, sludge scrapers) to lower power consumption and maintenance costs
- Reduces chemical consumption and buffers variations in raw water quality using a deep slurry blanket and efficient solids contact
- Minimizes wasted water through automated slurry blanket inventory control
- Reduces solids carry over and applied filter loading due to excellent solids capture

Complete Treatment System

In addition to ClariCone clarifier, we offer a complete water treatment system including Decelerating Flo Filters, the HeliCarb™ CO2 recarbonation vessel and a head tank/tray aerator to provide one of the most effective water treatment systems available.

Component View of Claricone System



High reliability and performance

- The deep slurry blanket and helical upflow design provide uniform flow distribution; maximize solids contact effectiveness, floc particle formation and capture; and minimize short-circuiting and upsets
- Low effluent turbidities permit long filter runs and minimize the amount of water lost during filter backwashing
- The adjustable in-vessel slurry concentrator reduces blowdown volumes and water losses while providing a simple means to control the slurry blanket inventory
- The adjustable, easy-to-clean radial weir trough minimizes hydraulic short-circuiting
- The adjustable disinfectant header maximizes CT and minimizes THM formation
- Rapid startup (in minutes versus hours for conventional clarifiers) makes it well suited to small or intermittently-operated treatment plants or processes



Applications

Potable Water

- Arsenic removal
- Radium removal
- Softening
- Turbidity removal
- Iron removal
- Color removal

Wastewater

- Suspended solids removal
- Metals precipitation
- Landfill leachate
- Boiler blowdown
- Cooling tower makeup water
- Coal pile runoff
- Phosphorous removal
- Filter backwash water



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McDermott's storage business, CB&I Storage Solutions, is the world's leading designer and builder of storage facilities, tanks and terminals. With more than 59,000 structures completed throughout our 130-year history, CB&I Storage Solutions has the global expertise and strategically located operations to provide our customers world-class storage solutions for even the most complex energy infrastructure projects.

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