CONTRAFLO® Solids Contact Clarifier

Product and Application Summary

Overview: The CONTRAFLO is a true solids contact clarifier that combines mixing, flocculation, and sedimentation in a single basin. High rate internal recirculation by a marine propeller thoroughly mixes new chemicals and previously formed precipitates with raw water to maximize chemical efficiency and create large heavy sludge particles that settle rapidly.

Applications:
- Water Supplies: wells (ground waters), lakes and reservoirs, industrial process streams, wastewater treatment processes, rivers, wells under influence of surface water.
- Lime softening, surface water clarification, silica reduction, phosphorus removal, heavy metals precipitation, iron removal.
- Utilized on coagulation and precipitation applications.
- Surface water clarification, lime/soda ash softening, iron & manganese removal, turbidity removal, wastewater treatment, phosphate reduction, heavy metal removal.

Application Range:
- Any flow rate.
- Range from 6 foot diameter to 150 foot diameter size.

Misapplications: More difficult to maintain stable operation in processes where there are large fluctuations in flow rate, or frequent stop/starts.
- Takes longer to start up if very low inlet TSS.

Advantages:
- Combines mixing, flocculation, and sedimentation in one basin
- Ducted marine propeller provides effective mixing and internal recirculation with low floc shear and minimum use of power
- Draft tube/center column extends to the floor to assure recirculation of previously formed solids
- Efficient parallel helical gearing for mixer and scraper drives
- Roller tooth scraper drive gear is a custom fabricated, grease-lubricated gear designed to meet specific project requirements.
- All parts are readily available and easily accessible
- Radial launder system available in painted steel or from thin gauge stainless steel
- Low profile scraper arms are fabricated from steel pipe or tube that are lighter weight and easier to clean, paint, and maintain than box truss arms
- Special scraper and mixer drives can be furnished to meet specific requirements. A pilot plant is available to test all applications.
Installations: More than 1000 General Filter CONTRAFLO clarifiers. Install list goes back to 1950.

Selling Strategy: Combine with aerator and/or filtration equipment for a package that other manufacturers can’t offer.

Competitors:  
- Ovivo “EWT Reactor Clarifier”  
- IDI “Accelator”  
- Tonka “RotaClear”  
- Graver “Reactivator”  
- Walker Process “MC Clariflow”  
- Kusters Zima Hi-Tech “Clear-Flow”  
- Envirodyne “Solids Contact / Reactor”

FAQ’s:  
What is the difference between the traditional WesTech Solids CONTACT CLARIFIER™ and the CONTRAFLO solids contact?  
The applications and process are identical, The differences are mechanical.

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<tr>
<th></th>
<th>Solids CONTACT CLARIFIER</th>
<th>CONTRAFLO</th>
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<tbody>
<tr>
<td><strong>Drive</strong></td>
<td>Enclosed dual drive housing with cycloidal / helical reduction for both scraper and mixer.</td>
<td>Helical gearmotor with roller chain for the scrapers. Helical gearmotor directly coupled for the mixer.</td>
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<tr>
<td><strong>Bearing</strong></td>
<td>Precision bearing with locked raceway, integral to the main gear set</td>
<td>Precision bearing with locked raceway attached to a turntable</td>
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<tr>
<td><strong>Rotating Part</strong></td>
<td>Shaft or cage</td>
<td>Cone, cage, or draft tube/center column</td>
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<tr>
<td><strong>Scrapers</strong></td>
<td>Usually box truss, unless small diameter / low torque</td>
<td>Usually low profile structure, unless very large diameter</td>
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<tr>
<td><strong>Sludge Sump</strong></td>
<td>Usually concentric</td>
<td>Usually offset from the center</td>
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<tr>
<td><strong>Industrial Features</strong></td>
<td>Rake drive lift mechanism option available</td>
<td>None</td>
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Which design is less expensive, the solids Contact Clarifier, or the CONTRAFLO?

It varies, depending on three factors: size, inlet location, and whether or not the unit is bridge supported or column supported.

- For small diameters, the column supported Contraflo has a lower cost—unless it is side feed.
- For large diameters, the column supported Solids Contact has a lower cost.

Configurations:

Type “C” CONTRAFLO | Model SCX63 or SCC63

- Bottom Center Feed
- Column Supported
- Rotating Cone or Cage

The vast majority of CONTRAFLO clarifiers are Type “C”. Especially compatible for medium-to-large basins, the units utilize a center support pier and bottom inlet feed. A structural drive cage is used to rotate the scraper arms on large units while the cone drives the scraper on small units.

Type “CCS” CONTRAFLO | Model SCC73

- Side Inlet
- Column supported
- Rotating Cage

This design is intended for medium-to-large basins. Raw water is introduced through the side of the basin and ducted into the draft tube via a double muffle ring that provides a transition between rotating and stationary components. A rotating drive cage turns the scraper arms on the pier-supported unit.
Type “CS” or “CSS” CONTRAFLO | Model SCD63 or SCD73

This design is bridge supported at the basin walls, and designed for small to medium sized basins. The rotating center column / draft tube drives the scraper arms. Raw water inlet is bottom center for the Type “CS.” For the type “CSS” the inlet enters through the side and connects to the draft tube through a muffle ring.

Type “CT” CONTRAFLO | Model SCN63 or SCN73

This design is for smaller basins where sludge scrapers are not required. The mechanism is bridge supported on the basin walls, and the raw water is introduced through either the side or bottom of the basin. Sludge is collected in hoppers positioned around the bottom of the basin.