Ion Exchange LLC offers you the INDION Solids Contact Clarifier. This high performance clarifier incorporates the design of internal solid recirculation thereby optimising the chemical consumption and making it more economical than conventional clarifiers.

The Solids Contact Clarifier is widely used for treating raw water and waste water; producing clarified water of highest quality.

Applications

- Clarification of surface water
- Lime soda softening
- Removal of colloidal silica
- Colour removal
- White water recycling
- Primary (physico-chemical) treatment of waste water
- Removal of heavy metals in the chemical and automobile industries

Features	Advantages
Flash mixer, flocculation and thickener mechanisms are inbuilt.	Space saving, compact design and easy operation.
Intimate and prolonged contact with large quantities of previously formed floc which act as seed or nuclei.	Reduction in chemical requirement.
Positive, uniform recirculation upto 15 times of inlet flow.	Consistent treated water quality even with fluctuations in influent water quality.
Inbuilt thickening pickets concentrate the settled sludge.	Minimises dewatering cost of downstream equipment.

Cover: Solids Contact Clarifiers at pulp & paper mill PT Riou Andalan Pulp & Paper Mills, Indonesia. The largest clarifiers of this design, each is of 185 ft. dia and capacity 19813 gpm.

Process Parameters

- Handles high inlet suspended solids load upto 3000 ppm while giving consistent treated water quality of less than 20 ppm.
- Wide flow rate and size range – flow rates as high as 22014 gpm and diameters as large as 197 ft.
- Rise rates are higher than conventional clarifiers and, depending on the type of application, can be as high as 0.19 ft/min.
- Sludge concentrations upto 3 – 8% are achieved depending on the application.

Principle of Operation

The Solids Contact Clarifier works on two basic principles of Coagulation/ Flocculation and Hydraulic Separation.

Coagulation and flocculation occur in the flocculation zone when the feed stream comes into intimate contact with chemical mixtures and suspended sludge particles from previously treated water. This contact also promotes floc growth as smaller particles agglomerate into larger heavier particles.

The hydraulic separation principle uses an upflow design to move water into the settling zone for clarification.

Working

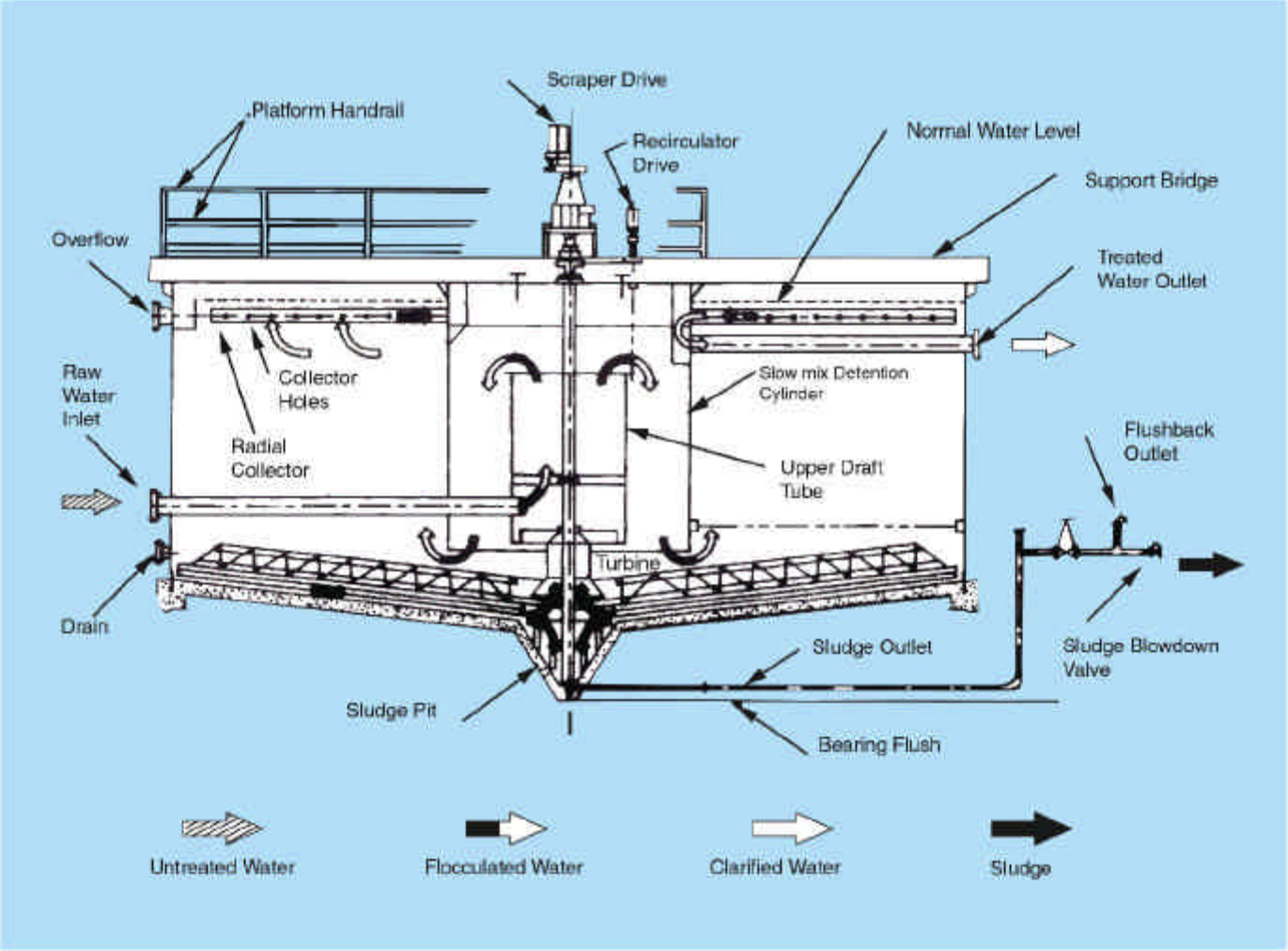
Raw water enters the central draft tube above the recirculator impeller where it is mixed with treatment chemicals and recirculated precipitates. Precipitate recirculation is accomplished by a variable speed impeller which acts as an air lift pump. The mixture of raw water and sludge rises though the central draft tube and is discharged into the flocculation compartment.

This mixture undergoes gentle hydraulic turbulence as it passes through this zone.

Part of the water (equivalent to the instantaneous influent flow rate) enters the clarified water zone and rises toward the effluent collector.

Settled precipitates (sludge) are moved continuously along the floor toward the center of the unit by means of

Sectional View



a slowly rotating scraper which covers the entire floor area. The accumulated sludge is transferred to the sludge pit of the center of the unit, where sludge thickening pickets concentrate the sludge, reducing the total amount of blowdown.

Excess sludge is removed by a blowdown system. Backflushing with water under pressure clears the blow-off line. Opening of the blow-off valve permits the sludge to flow to waste. These operations are either manual or automatic. Most of the water and suspended precipitates enter the lower end of the draft tube to be recirculated, providing positive solid contact regardless of sludge inventory level.

Clear water rises and is uniformly collected.

Suggested Specifications

The equipment is complete with all required components including accessories and conforms to the following specifications:

- The system is designed for operating at atmospheric pressure.
- Side walls of the clarifier are of RCC or mild steel construction depending upon flow rates and applications.
- Components like scrapers, piping for inlet/outlet, platforms, handrail and ladders are in mild steel construction.
- Rotating parts like gear boxes, drive shafts, electrical motors.

Other INDION Products for Clarification & Filtration

- Chemical Dosing Systems for dosing coagulants & flocculants
- Inclined Plate Clarifiers
- Ultra High Rate Clarifiers
- Pressure & Gravity Filters
  - Multi Grade Filters
  - Single & Dual Media Filters
  - Activated Carbon Filters
- Continuous Sand Filers
- Monovalve/Monoscour Filters
- Auto Valveless Gravity Filters
- Ultrafiltration Systems
- Sludge Thickeners
- Oil Removal Systems
- Micron Filters

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