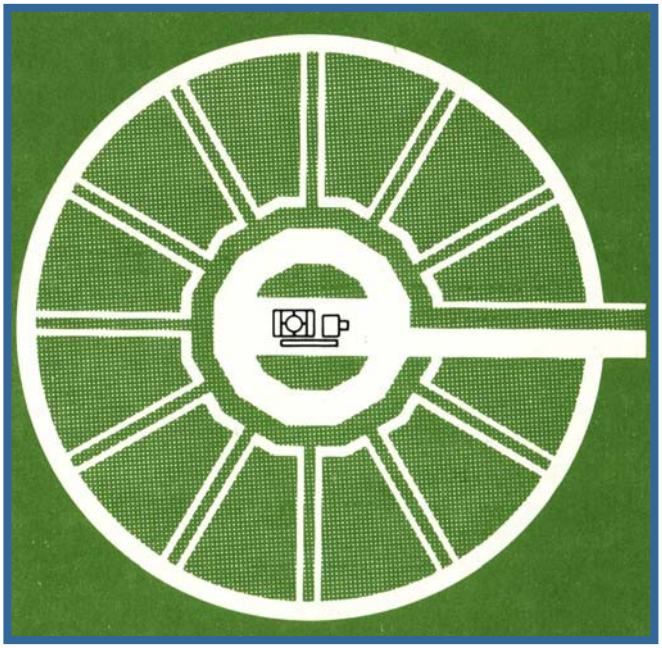
Accentrifloc Clarifiers

Clarification, in the context of water treatment, means the reduction of suspended solids usually as a preliminary to filtration. It implies the partial removal of suspended solids down to a turbidity figure of 1 – 4 FTU to that the subsequent filtration stage may be carried out economically.



Clarification involves coagulation and flocculation as an essential step before the gravity separation of the suspended solids. The process includes the efficient mixing of the coagulating chemicals and the flocculation of the resulting precipitate in order to produce large and rapid settling particles.

The growth of the particles in a flocculating process varies exponentially with time, hydraulic shear and floc concentration. The ultimate size of the particle is limited by the internal strength of the particle and the shear to which it is subjected. For any one water and chemical treatment there is a shear value, which should not be exceeded if the optimum size of particle is to be obtained.

The time taken to reach this optimum size can be reduced by increasing the solids concentration present during flocculation. This is achieved in the Accentrifloc clarifier by recirculation of preformed floc.

Illustrated below: This is a 'Solids Contact' clarifier in which the separated solids are recirculated and mixed with the incoming water and added to the coagulating chemicals

Typical installation of PCI Accentrifloc Clarifiers

Accentrifloc Clarifiers - Description

The clarifier is circular in plan, built in sizes up to 30 metres diameter. It has a centrally located flocculation and mixing compartment incorporating a motor driven impeller which draws in partially settled floc through a bottom annular slot, mixes the floc with incoming coagulated raw water and discharges the mixture back to an outer settling zone.

In the outer settling zone, clarified water separates from the floc and is decanted into radial launders.

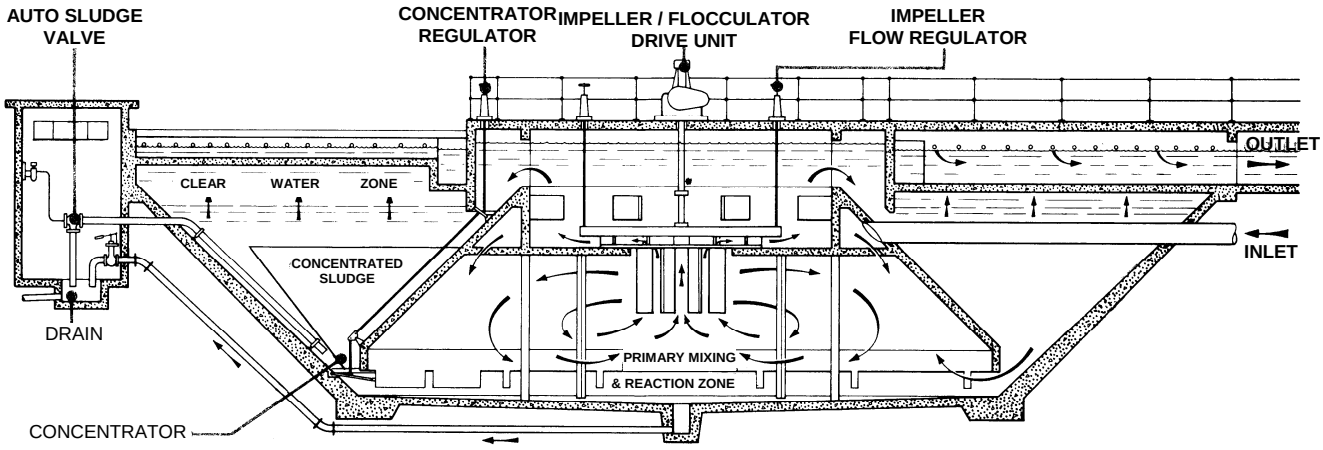
Most of the floc returns again to the central compartment, to assist flocculation. Excess floc however is collected in sludge concentrating hoppers, which form a sector of the outer settling zone.

These concentrators are drained by automatic valves and timers to maintain the correct concentration of floc within the clarifier, it is possible also to control the discharge of the concentrators using a weight-operated, pilot, suspended concentrator.

ADVANTAGES

- *The accentrifloc clarifier can be designed for high ratings – up to 5 metres per hour – so saving in space and civil costs.*
- *Where the tanks are used for precipitation (lime soda) softening the 'Solids Contact' effect ensures a final water very nearly in equilibrium so that further precipitation and scaling is reduced to a minimum.*
- *Since very efficient use is made of the coagulating chemicals the minimum quantity is required which may mean a significant saving in running costs.*
- *The speed of the impeller and the rate of recirculation is variable so that each installation can be adjusted to provide optimum conditions for shear and solids concentration.*
- *Due to the relatively short retention times and high rates of recirculation, the tanks are insensitive to temperature changes in the incoming water.*

Progressive changes in design & specification may be made without prior announcement



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