

Dissolved Air Flotation

Dissolved Air Flotation DAF

- The DAF filter is a physical separation Process which uses air saturated water dispersion to separate flocculant chemical solids from raw water.
- Well suited for the first stage of the treatment of raw waters for drinking water applications.



Key information

- Pre -treatment – Coarse Screening; chemical coagulation followed by flocculation.
- Feed description – Abstracted raw water from rivers, reservoirs and lakes. Well suited to algal and eutrophied waters.
- Loading rate Specific throughput 8 to 12 m³/hr/m² depending on raw water quality
- Flow and load response – Hydraulic response to flow is rapid. Start-up in 1 hour.
- Product quality - Exceeds EU drinking water quality requirement for colour. Metal ions are removed by two stage filters
- By products - Chemical Sludge
- Simple and reliable saturator control.
- Large number of operating plant including one of the largest plants in the world (450 MLD Frankley).
- Control system adjusts for temperature and plant throughput and self correct for minor nozzle blockages

The DAF Process

- The DAF process uses air saturated water in rectangular tanks to effect removal of colour and particulate materials from flocculated raw water.
- Pressurised air is dissolved in recycled clarified water using a saturation vessel.
- The air saturated recycle water is injected by means of a bank of nozzles which allows a controlled release of pressure to form fine bubbles that attach to the floc and carry it to the surface.
- As the water flows across the tank the floc with attached bubbles collects at the surface to form a sludge “float”.
- The floated sludge is removed from the surface by a combination of hydraulic desludging assisted by a sludge scrapper.

Advantages

- Low footprint
- Very effective for algae removal
- Produces concentrated sludge (1-1.5%w/w)
- Suitable for large and small scale applications
- High air saturation using unpacked saturator results in reduced power costs
- Empty bed type saturator (no packing) with external ejector mixer prevents bacterial growth.
- Saturator nozzles are stainless steel and fully adjustable. Wearing and corrosion are minimised. Nozzle cleaning can be easily carried out through fully opened nozzle
- High saturation efficiency of 96% demonstrated on full scale plant.
- Reduced saturator air volume for greater response to changing throughput.



**Aker Kvaerner Engineering
Services Ltd**

Ashmore House
Richardson Road
Stockton-on-Tees
TS18 3RE

Tel: +44 (0)1642 602221

Fax: +44 (0)1642 341022