

AGF Autonomous valveless gravity sand filters

side-stream filtration of cooling water systems



Chemical industry 2 Bed Filter

The purpose of filtering a side-stream from a cooling tower is to:

- Reduce the cost of chemical treatment.
- Reduce the amount of fouling in heat exchangers and other plant and therefore reduce running costs.
- Increase the cycles of concentration in the circulated water system.
- Decrease the downtime of the units.

Filtration accomplishes this task by removing organic matter; airborne dust, sand, silt, scale deposits and turbidity from the circulating water. The side-stream being filtered is only a small portion (usually about 3-5%) of the circulated water from a cooling tower. An important point is that the goal of side-stream filtration is to improve the circulated water so that satisfactory heat transfer may be achieved over longer run lengths on the process units. No attempt is made to make drinking water or achieve 100% removal of foreign matter from the water. The best proof that can be offered for improvement of heat transfer in circulated water systems is the increase in the amount of time between turnarounds on process units. Without a side-stream filter a unit is sometimes down every 90 days or so in order to clean heat exchangers. However with a side-stream filter the average is better than 3 years between turnarounds.

The AGF Autonomous Valveless Gravity Sand Filter treats the entire cooling water system and can remove up to 98% of suspended solids ingested by the cooling tower and thus solve the major problem encountered in open circuit cooling systems. This fine material accumulates in the system and can only be partially removed by blow-down. Efficient side-stream filtration is the only way to keep the water clean. The filtration rate is set to ensure that solids removal equals solids ingress with resultant water quality normally at around 5mg/l suspended solids.



Oil & gas industry 2 Bed Filter

The AGF Sand Filter is ideal for cooling water side-stream filtration being one of the simplest sand filters on the market. It is ideal for operation in zoned hazardous areas. Once installed the system has virtually no running costs. It is completely automatic and totally self-contained and operates with no instrumentation, backwash pumps or similar. The backwash function of the AGF is self-initiated and only backwashes itself when necessary, using a pre-stored volume of already filtered water; on the loss of head principle and therefore, the backwash occurs precisely when it is needed at any time. These filters are renowned for working for long periods without needing any operation or maintenance whatsoever. Filtration in the AGF filter is also excellent since conservative ratings are used together with a uniform backwash rate and volume ensuring that the sand bed being backwashed is always maintained in optimum condition.

Cooling systems serviced by AGF Sand Filters normally have suspended solids concentrations in the order of 5mg/l. The water is clear and clean. Even systems where an occasional ingress of hydrocarbons has occurred continue to work efficiently due to the unique construction layout of the AGF sand filter. Worldwide many installations already exist of the AGF Sand Filter being successfully used on applications for side-stream filtration of cooling water systems.



Minerals industry



Chemical industry

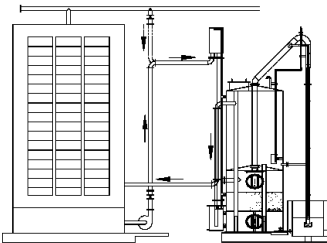


Power generation

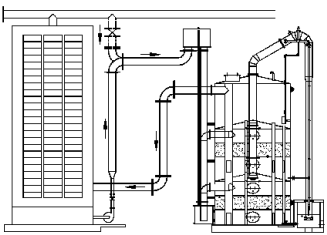
Advantages and thus cost savings relating to clean water systems with side-stream filtration by the AGF Sand Filter are:



Steel industry



AGF S type cooling



AGF D type cooling



Oxygen generation

1. Reduction in the use of biocides since suspended solids provide nutrient and a haven for biological contaminants.
2. Almost complete elimination of solids dispersants since any remaining suspended solids are dilute and fine.
3. With suspended solids removed chemicals dosed as surface coatings are far more effective as the surface area to be coated is much less and thus concentrations can be decreased with greatly reduced chemical consumption.
4. Scale formation is reduced and scale that is formed is easier to remove.
5. Scale and suspended solids accumulation on cooling tower packing is greatly reduced and especially high efficiency narrow passage type packings are able to operate more effectively and danger of collapse is greatly reduced.
6. Accumulation of sludge in the cooling tower basin and other low velocity places in the cooling systems is almost entirely eliminated.
7. The need to open and clean heat exchangers and other plant regularly is eliminated.
8. AGF Sand Filters installed on a side-stream basis in the delivery or return line of a cooling tower system require absolutely no energy for operation using the already existing system energy for feed purposes. The filtrate is then returned by gravity from the outlet of the filter to the cooling tower basin. With no need for pumps, valves, controls or instrumentation here, the AGF is a truly "fit and forget" system with no operator involvement or running costs.

Superior Filtration Limited is also able to offer the **Kleerflo fully automatic self-cleaning screen filter/strainer** for situations where the cooling water system requires coarse filtration where particulate matter can block up passages, nozzles, seals, lantern rings etc. With no rotating or spinning parts and a simple backwards and forwards movement to effect backwash Kleerflo Filters offer low maintenance in more manageable sized units. Picture shows Typical Installation of Kleerflo Fully Automatic Self-Cleaning Screen Filter/Strainers, 3 duty/1 standby arrangement, on once through sea-water cooling system - Oil refinery.



Automatic backwashing / No hassle / Low maintenance - Sound interesting?

If you are looking for filters with a difference that give all of the above and more, together with proven track records, backed up by solid references and many years of product history then...

For all your water filtration and purification needs contact the specialists



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To see an interactive demonstration of how AGF works

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