

DEEP BED SAND FILTERS

Colloide's deep bed filter systems are a high performing and reliable solution for wastewater treatment. Each of our tertiary filters are engineered to meet the specific performance requirements of individual wastewater treatment plants.



These filters are designed with a filter bed depth of between 1000—2000 mm using a media with range of approx. 2—3mm.

The media is carefully selected with the correct size, uniformity coefficient, roundness and material qualities.

This media is supported on a bed of gravel to provide the necessary support during filtration and distribution of water and air during the filter backwashing process.



Colloide Engineering Systems Ltd

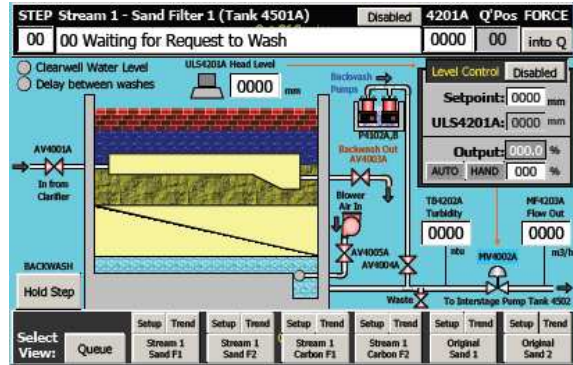
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Some features of these filters include:

- High filtration velocities are achievable, typically in the range of 10– 15 m³/m²/h.
- The deep bed effectively guarantees a high solids capture thus ensuring high performance
- This coarse media encourages solids to penetrate the bed, allowing the bed to store a large quantity of solids. This in turn results in longer run times and less backwashing.
- The filter can handle high solids loading.
- Our filter under-drain system is specifically designed to reduce the overall height of the filter while maximizing the efficiency of the backwashing process. Furthermore, it has a very long life and does not block.
- A central launder runs along the length of the filter and is used to evenly distribute the incoming flow along the filter. This launder is then used to collect the dirty washwater.



Controls

The filters are generally PLC controlled with an operator interface panel or PC used to allow the operator to view the plant operation and change parameters.

Colloide are flexible in our approach to the controls. As a minimum, we would provide a control philosophy which would allow our customers to build the system. Alternatively, we can provide various elements of the controls and electrical works right up to the complete controls package if required.



Options

The main function of any tertiary filter will be the removal of solids and associated BOD/COD.

These deep bed filters may also be used for nitrate ($\text{NO}_3\text{-N}$) removal and/or phosphate removal. With these additional processes, the filter achieves SS removal, BOD removal, phosphate and/or Nitrate removal in a single step.

Filter cleaning

As the filter removes the solids from the water, it will get dirty and must be cleaned. Cleaning of the filtration sand is achieved using a combination of air and water. The most effective wash is a concurrent air/water backwash.

The air scour is delivered using air blowers mounted adjacent to the filters.

The backwash water is delivered using submersible pump(s) which return filtered water from the outlet clear well to each of the filters.

