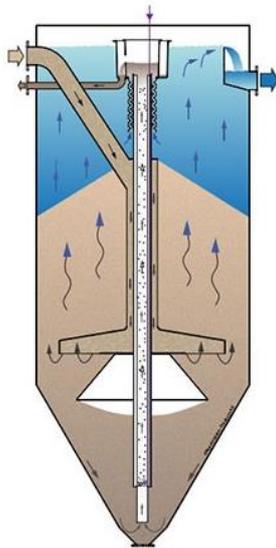


## Continuous Backwash Sand Filters

The continuous flow sand filter is a simple, efficient, and easy-to-manage filter device. Compared with the traditional quartz sand filter, it integrates flocculation, clarification, and filtration.

There are no moving parts underwater in the pool to ensure the stable and normal operation of the system. Widely used in drinking water, industrial water, sewage advanced treatment and reclaimed water treatment and other fields.



Parameter table

Model	Filter area (m <sup>2</sup> )	Filter layer Depth (m)	Volume (m <sup>3</sup> /h)	Diameter (mm)	Wastewater discharge (%)	Equipment height (mm)	Maximum air consumption m <sup>3</sup> /h (0.4MPa)
KCS-05	0.5	1.5-2.0	3~5	800	5-10	3500~4000	2
KCS-10	1	1.5-2.0	5~10	1150	5-10	4300~4800	2.5
KCS-15	1.5	1.5-2.0	10~15	1400	5-10	4600~5100	3
KCS-20	2	1.5-2.0	15~20	1600	5-10	5000~5500	4
KCS-30	3	1.5-2.0	20~30	2000	5-10	5400~5900	6
KCS-40	4	1.5-2.0	30~40	2260	5-10	5800~6300	8
KCS-55	5.5	1.5-2.0	40~55	2650	5-10	6200~6700	10
KCS-60	6	1.5-2.0	55~60	2770	5-10	6500~7000	12

## Equipment characteristics

Continuous flow sand filters are relatively common machinery and equipment in the entire process of sewage treatment. After the machinery and equipment are operated for a period of time, the filter materials will be exchanged for activated carbon filters and multi-media filters. Special tools for removing quartz sand and activated carbon are needed: pipe wrench, sand suction tube, raw tape. Before changing the sand, you must completely cover the electrical components near the sand tank with water-proof items such as plastic to prevent the water from entering the interior and burning. When filling sand, seal the central tube with raw tape to prevent the sand from entering.

The filling volume of the sand should not exceed 70% of the total volume, so that there is a flowing indoor space; when cleaning the sand, turn off the water inlet, and generally do not turn on the pump to clean it.

The medicine coagulant can be added directly at the water inlet line, and the circulation movement of the filter material in the filter device can have a mixing effect. Compared with the international three-stage process, the active sand filter processing technology has caused a sharp decline in the bill of quantities and project investment, and low operation and maintenance costs, avoiding the traditional three-stage treatment process with single technology, complicated processing technology, and project investment. And the primary disadvantage of running costs.

## Working principle of Continuous Backwash Filters

The original water enters the inside of it through the inlet pipe, and then the filter can be flocculated and filtered through the filter layer after the water distributor is evenly distributed, and the treated water is gathered to the overflow in the upper part of the filter. In this process, the raw water is filtered, the content of pollutants in the water is reduced, and the content of the pollutants in the quartz sand is increased, and the content of the pollutants in the lower layer is higher than that of the upper layer filter. The air lift pump in the center of the filter is cleaned in the sand cleaner at the top of the filter under the action of the air compressor, and then returned to the filter bed after cleaning. At the same time, the discharge of the pollutants produced will be cleaned.

Because the sand filter material is in the top-down movement state in the filter, it stirs the raw water, so the agitation flocculation can be completed in it. Because the filter material in the filter is clean and timely, it can bear a higher influent pollutant concentration. The special internal structure and its own characteristics can make coagulation, clarification and filtration all completed in the same pool.

Based on the countercurrent principle, the treated water enters the system through the inlet distribution pipe located at the bottom of the equipment, and flows through the top outlet after being treated by tit. The treated water is washed upward through the filter bed. The active sand containing the treated impurities is transported from the cone bottom of the equipment to the cleaner on the top by the air lift pump. The dirty particles are separated from the active sand through the turbulent flow, and the impurities are

discharged through the cleaning water exit. The net sand is returned to the sand bed by self weight.

The control system includes pneumatic control system and electric control system. The pneumatic control system controls the air flow and air pressure of the air sand pump. The electric control system provides manual and automatic control for the product, provides power supply and displays alarm to ensure the safe operation of the water system, and complete the linkage and full automatic operation of the equipment in the reused water vehicle.

The principle can be applied to concrete tanks, coated carbon steel tanks or stainless steel tanks. The filter internals in all cases are the same, so this type of filtration can be applied even in existing installations.

