



Introduction document of KHN package water treatment plant (flocculation sedimentation and filtration)

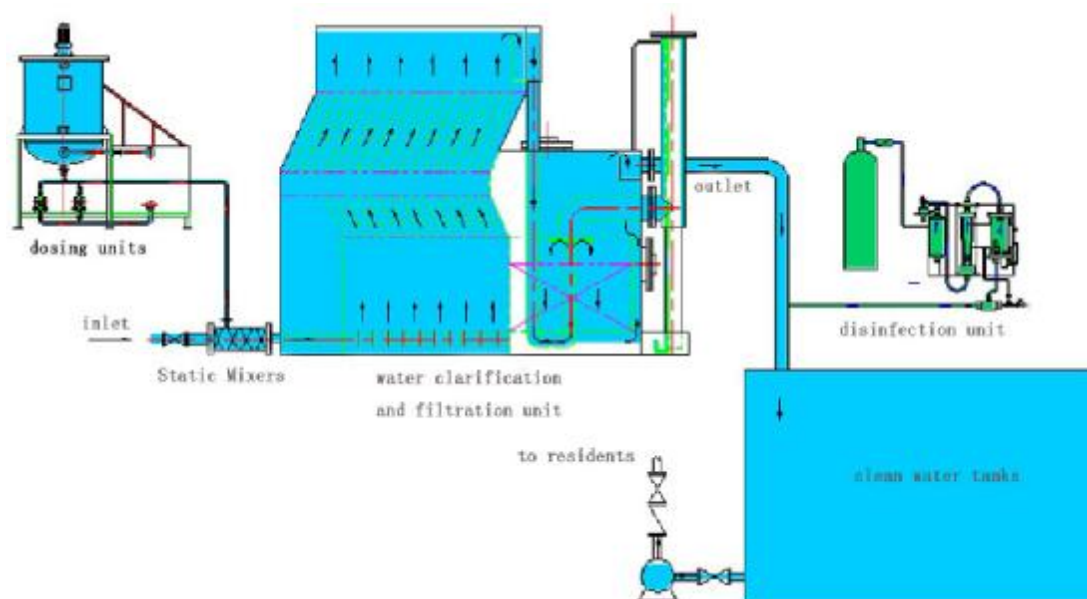


The package water treatment plant (flocculation sedimentation and filtration) is a water treatment equipment integrated with multi-functional units, including flocculation, sedimentation, filtration, sewage discharge and backwashing. The biggest feature is that the automatic backwash can be achieved without manual operation through siphon. It is an important unit to realize automatic production

of waterworks. With automatic dosing device and disinfection equipment, it can become a waterworks with complete functions.

The settlement of the equipment is divided into two parts. After adding flocculant, according to the theory of shallow sedimentation, inclined pipe is set up to accelerate sedimentation, while the lower part is a fast sedimentation area. Through the mutual collision and backlog of flocs, contact opportunities are increased, and large-sized flocs are formed, resulting in rapid settling.

The filtering part realizes automatic backwashing by using the siphon principle and realizes automatic operation.



I . The working principle.

The package water treatment plant (flocculation sedimentation and filtration) is the same as the purification process of the urban waterworks. It has: coagulation tank, sedimentation tank, filter tank, water quality stabilization device, backwashing device, water pump and electrical control cabinet. The following are the following:

1. Flocculation and water distribution devices:

During the operation of the package water treatment plant, the raw water first enters the static pipe mixer, mixes with the flocculant initially, and then enters the water distribution area. The water distribution device has the function of uniform water distribution and diversion. The raw water passes through the water distributor and rises smoothly to flocculation.

2. High concentration reaction zone

In the area of high concentration flocculation reaction, the concentration of flocculant is very high, the liquid phase and mass direction are chaotic, and the flow passage is constantly changing, which makes the solid and liquid phase not only have the main flow, but also have the fluctuating circulation of upper, lower, left and right. When passing through the high concentration reaction zone, the fine flocculants in raw water are fully contacted with the sludge, and the flocculation reaction occurs, which makes the small flocculants in the water

grow gradually and form large-sized flocculants. The settlement is increased.

3. Efficient precipitation chamber:

Water containing floc is precipitated in the settling area. The sedimentation tank adopts the inclined tube precipitation method and completes the solid-liquid separation through the trapezoidal skew plate settling chamber. The PE inclined tube packing is adopted in the precipitating area, the installation angle is 60 degrees, the double-layer inclined pipe is staggered and arranged in layers. The sludge precipitated is discharged into the mud bucket.

4. Filter:

After precipitation, water passes through the water distribution device and enters the filter material layer passing through the filter chamber from top to bottom. After filtering, clear the water into the bottom and then flow into the top clear box. The flocs in the water are filtered through the filter layer to form the sludge layer. The resistance of water increases gradually, and the water level of the filter chamber rises gradually. When the water level rises to the set backwashing water level, the siphon phenomenon begins to appear. Filter structure: the bottom is a water pipe, the middle part is quartz sand, and the upper part is backwash tank. The filtration speed is 8-10m/h, and finally the clear water flows into the clear water pool to disinfect and drink. The recoil cycle of the filter tank is about 12 hours, and the recoil time is 5-10 minutes.

5. Backwash device:

The suspended matter in the water is stopped by the filter layer, resulting in the increase of hydraulic resistance and the increase of water head. When the water head rises to the set backwash level, the siphon backwash begins to form. At this time, the water tank is turned into a backwash tank, providing water for the backwash of the filtration layer. The function of automatic backwash can be realized by siphon backwashing.



II. Characteristics of the package water treatment plant

In addition to the management of the raw water pump house and the dosing system, the main equipment itself can be automated in a series of processes, such as flocculation, sedimentation, filtration and sludge discharge, without special management.

1. The equipment is highly automated, which greatly reduces the workload of

management staff.

2. SS removal rate is high, and has the function of algae removal.
3. The siphon backwash effect is good, the washing intensity is large, and the filter material is rinsed clean.
4. Water consumption is low, < 3%.
5. Small footprint, compared with the split type flocculation filter, it can save more than 50% of the total area.
6. The equipment is easy to assemble and disassemble, and is convenient for expansion, transformation, reuse and relocation.
7. The operating cost is low: the cost of handling one ton of water is very low, about 0.13 yuan per ton.

III. Scope of application:

The package water treatment plant is suitable for surface water purification of rivers, lakes, etc. It can supply industrial water or domestic water with turbidity less than 3000 ml/l. It can also purify and reuse industrial wastewater such as circulating water, cooling water and mine water to improve the reuse rate of water.

It is suitable for industrial water use and domestic water use of small water plants in iron and steel plants, power plants, textile printing and dyeing plants, chemical factories, chemical fiber factories, rubber factories, coal mines and other industries.

1. Waterworks suitable for rural, urban, industrial and mining enterprises whose turbidity of water is less than 3000mg/L, such as rivers, rivers, lakes and reservoirs, are the main water treatment devices.
2. For low temperature, low turbidity, seasonal algae of lake water source, has its special adaptability.
3. Pretreatment equipment for high purity water, beverage industrial water, boiler water and so on.
4. For all kinds of industrial circulating water system, the quality of circulating water can be effectively and substantially improved.
5. For the central waterway system, sewage treatment plant as the source of water, for the treatment of water reuse equipment.

IV Design parameters

1. Inlet pressure: 0.06-0.2Mpa
2. Working temperature: 5-50 C
3. Treatment of water quality: inlet turbidity ≤ 3000 NTU, effluent turbidity ≤ 0.5 NTU
4. Design filter speed: 8-10m/s
5. Backwash strength: 15L/m² · s.

V. Specification parameter

No	Model	Size (mm)	Volume (m ³ /h)	Power (W)	Operation weight (ton)	Filter height (mm)
1	KPT-1	1000×800×4500	1	40	5	800

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2	KPT-3	1000×1000×4500	3	40	6	800
3	KPT-5	1500×1500×4500	5	40	12	800
4	KPT-10	2400×1500×4500	10	40	18	800
5	KPT-15	2400×2000×4500	15	40	25	800
6	KPT-20	3000×2500×4500	20	90	35	800
7	KPT-25	3200×3000×4500	25	90	45	800
8	KPT-30	3800×3000×4500	30	90	52	800
9	KPT-40	5000×3000×4500	40	240	68	800
10	KPT-50	6000×3000×4500	50	240	81	800
11	KPT-60	7000×3000×4500	60	300	92	800
12	KPT-70	8000×3000×4500	70	300	110	800
13	KPT-80	9000×3000×4500	80	300	120	800
14	KPT-90	9600×3300×4500	90	300	140	800
15	KPT-100	10000×3500×4500	100	300	160	800
16	KPT-150	12000×4000×4500	150	450	210	800
17	KPT-200	14000×5000×4500	200	450	250	800
18	KPT-250	16000×5000×4500	250	500	330	800
19	KPT-300	16000×7000×4500	300	500	385	800

VI、 The project site



Vietnam dyeing and printing plant



Rural water stations in Fujian, China



Jianguyin Waterworks in China



China Gansu Waterworks



Electroplating plant in Sichuan, China



Water treatment in Congo textile mill



Rural water stations in Zhejiang, China



China Jiangxi paper mill



Workshop production-FJ model



Special-shaped equipment (over sea)



Kyrgyzstan Waterworks



Taiwan mountain water station



Traditional Automatic Valveless Gravity Filters

Thanks

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