



## Integrated water purifier

### Summary:

At present, there are many kinds of water purifiers in China's market, and the effect is ideal, but the operation is complex, the management is difficult, and the maintenance is inconvenient, which brings many problems to users' use and maintenance. Therefore, the znj integrated water purification device manufactured by our company with full reference to the full set of data from Japan has the advantages of simple operation and convenient



management and maintenance. It is more in line with China's national conditions and suitable for the management level of operators than other water purifiers. The water purifier device is supplied in a complete set without civil engineering. It can start working as long as the pipeline is connected. The water purifier with similar structure to the water purification device was tested by China urban construction and water supply association in Hangzhou, and it is proved that all indexes reach 100%.

The water purification device combines the flocculation, reaction, clarification, filtration and other processes of water purification into one, with advanced technology, novel design, compact structure, saving area and investment, simple management and convenient operation. The turbidity of treated source water is 500 ~ 1000 ppm (up to 1500 ppm in a short time), and the effluent turbidity is less than 3ppm. After chlorination, it can reach the national drinking water standard.

The water purifier device can also be used in bathhouses, air conditioners, etc., domestic miscellaneous sewage with low organic matter content, and the treated water can meet the reclaimed water reuse standard.

We believe that ZNJ integrated water purification device can turn turbid water into sweet spring and waste water into water for reuse, provide drinking water for the vast areas of the country without tap water, and make a positive contribution to the reuse of reclaimed water in the vast water deficient cities north of the Yangtze River.

### Process principle:

ZNJ integrated water purification device is the same as the purification process of urban water supply plant. It includes: coagulation tank, sedimentation tank, filter, water quality stabilization device, backwashing device, water pump and electrical control cabinet. Here are the following:

- a. Coagulation tank: the raw water added with coagulant enters the coagulation tank from the water inlet pipe and is stirred by a special mixer to make the suspended solids in the water fully contact and react with the coagulant to form alum. General water purification devices use eddy current reaction to mix water and coagulant, but the effect is unstable due to the change of water volume. ZNJ water purification device is mixed with mixer, and the effect is



not affected by the change of water volume. (vortex reactor can also be used for coagulation reaction).

- b. After coagulating with coagulant, the water forms alum and flows to the sedimentation tank of the equipment for sedimentation. The sedimentation tank adopts inclined pipe sedimentation method, and the surface load is 6-7 m<sup>3</sup> /m<sup>2</sup>-h.
- c. Filter: the water after the sedimentation tank flows to the filter for filtration. Filter structure: the bottom is water distribution pipe, the middle is quartz sand and the upper is anthracite. The filtration speed is 10 m/h. finally, the clean water flows into the clean water tank for disinfection and drinking. The backwash period of the filter is about 12 hours and the backwash time is 4-10 minutes.

The company can provide users with coagulant dosing device, inlet water pump, backwash water pump, electric control cabinet and other equipment of ZNJ integrated water purifier.

### Specifications of main design parameters:

Model Items	ZNJ- 5	ZNJ- 10	ZNJ- 20	ZNJ- 30	ZNJ- 40	ZNJ- 50	ZNJ- 60	ZNJ- 70	ZNJ- 80	ZNJ- 90	ZNJ- 100
Processing capacity (T/h)	5	10	20	30	40	50	60	70	80	90	100
Residence time of coagulation tank (min.)	8	7	7	7	7	7	7	6.5	6.5	6.5	6.5
Mixer power (KW)	0.75	0.5	0.75	1.1	1.1	1.5	1.5	1.5	2.2	2.2	2.2
Surface load of sedimentation tank (m <sup>3</sup> /m <sup>2</sup> -h)	6.5	6.5	6.5	6.5	6.5	7	7	7	7	7.5	7.5
Filter velocity (m/h)	8	8	10	10	10	10.5	10.5	10.5	11	11	11
Filter thickness (m)	1	1.1	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.4	1.5
Flushing intensity	12	12	12.5	12.5	13	13	14	14	14	14	14
Flushing duration (min.)	4	4	4	4.5	4.5	5	5	5	6	6	6
Residence time (min.)	40	40	40	40	40	40	40	40	40	40	40
Machine weight (T)	2.2	3.1	4	5.5	7.3	8.5	10.1	11.7	13.5	14.8	16.5



### Operation and precautions:

- a. ZNJ integrated water purification device should be installed indoors in frozen areas and outdoors in non frozen areas, but a top cover must be added to avoid polluting the water quality.
- b. During installation, the ZNJ integrated water purification device shall be placed on a flat site to ensure normal operation and uniform water outlet. Various pipe connecting gate valves shall be free of air and water leakage and shall be eliminated.
- c. Before the operation of the equipment, the sundries in the tank must be eliminated, and the inlet and outlet pipes must be strictly prevented from blocking.
- d. If the water source with serious pollution contains more organic matter or algae, chlorination can be used to reduce the chromaticity, destroy the colloid in the water and remove the odor, so as to prevent the reproduction of algae and moss in the pool.
- e. Before starting the equipment, half open the water valve, and then start the water pump. First, use a small amount of normally open flow rate, and increase the dosage of coagulant (more than 0.5-1 times the normal dosage). After 60 minutes, open the water inlet valve to increase the design water volume and reduce the dosage of coagulant (see the table below for normal dosage).
- f. During the initial recoil of the equipment, the recoil valve shall be adjusted to the given strength (subject to the filter material not being flushed), and the recoil time shall be controlled.
- g. The sewage pipe valve shall be opened regularly to discharge the sludge in the sedimentation tank.
- h. Water quality measurement items: according to local conditions, relevant units shall regularly conduct comprehensive analysis and inspection on raw water and effluent quality. The water plant shall measure the turbidity of raw water, clarifier effluent and filter effluent every day.

### Reference table for dosage of coagulant $Al_2(SO_4)_3$ (based on the effective amount of basic aluminum chloride):

Raw water turbidity (ppm)	Dosage (g/T)
80-550	< 10
550-1200	10-15
1200-2500	15-25
2500-3500	25-40