

AquaPure Future Series

Prefabricated integrated water treatment system tailored for textile printing and dyeing industrial end-users



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Concept overview

Due to the raising awareness of the sustainability of global water resources and the high complexity of wastewater characteristics and high demand for water in the textile printing and dyeing industry, it is Huadian's mission to solve the wastewater treatment problem in this industry stably and efficiently. The customized project was delivered and put into production in a short time, and continuously creating positive economic, accurate total cost investment, environmental and social benefits for the society.

Huadian is constantly contributing to the protection and recycling of water resources in the world.

Excellent performance High standards **Fully customized**

III. Prefabricated modular water treatment system

Efficiently utilize every inch of space, every kind of resources and every second of time



Huadian uses the world's leading prefabricated technology to customize combined assembly modules according to needs, breaking through the challenges of the company's strict requirements on physical and chronological scales. Through factory prefabrication and pre-assembly of water tank modules, efficient transportation can be achieved, greatly reducing transportation costs; there is no need to cast concrete on site to build the tank body and equipment concrete house, which greatly reduces the construction period, is convenient for disassembly and assembly, and can be flexibly expanded to meet the company's future expansion needs.

Outstanding processing technology



Reduce costs and increase efficiency, making the enterprise worry-free about water discharge and reuse

Huadian adopts personalized and modular treatment solutions to provide enterprises with advanced process modules such as pretreatment, physicochemical treatment, biochemical treatment, deep treatment and sludge dewatering treatment. According to the personalized needs of customers, we provide wastewater discharge and reuse solutions to create a tailor-made water treatment system with low energy consumption, low maintenance cost and high treatment

Characteristics of printing and dyeing textile wastewater

High organic load

Textile printing and dyeing wastewater usually contains high concentrations of organic matter, such as dyes, cellulose and starch, which makes its COD, BOD and other indicators significantly higher than other types of industrial wastewater.





Due to the extensive use of alkaline solutions in the dyeing process, wastewater exhibits a high pH value. The soluble matter content and salinity during wastewater treatment will exceed the standard, which is often the main challenge.





The various dyes used in the manufacturing process of textile printing and dyeing products will significantly increase the chromaticity of the wastewater





The textile printing and dyeing industry has a wide variety of manufacturing processes (such as printing, washing, bleaching, etc.) and processed fiber types (such as cotton, polyester, etc.), different types of wastewaters will be generated,



Fluctuations in water volume

The production cycle and output of textile printing and dyeing enterprises are usually not fixed, which leads to large fluctuations in the treatment capacity of the water treatment system, and will also bring considerable challenges to the system





In addition to organic matter, wastewater also contains inorganic salts, heavy metals and other pollutants, resulting in complex composition. Therefore, enterprises usually need to be equipped with a complete and efficient system.



System Advantages

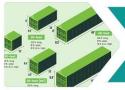
The assembled modular water treatment system will become a revolutionary product, replacing the traditional civil construction water treatment system and becoming the mainstream trend of the future water treatment industry. While the treatment performance is equal to or even better than the traditional civil construction model, this product model will greatly simplify the process of water treatment system commissioning, while achieving efficient use of various resources and reducing the total economic and time investment costs of enterprises.





Service life over 50 years

The tank body is made of carbon steel-stainless steel, and sprayed with anti-corrosion materials. The module connection seal is made of silicone waterproof seal. It eliminates corrosion, prevents aging, leakage and other fundamental risks, and prolongs the service life of the system.



Save more than 60% of area

The equipment will be highly integrated and placed in the assembled water tank, the size and position of the tank can be arranged and stacked according to the special requirements of the enterprise. Abandoning the strict requirements of the concrete tank for the site standards, and perfectly adapted to every site conditions.



Energy saving more than 70%

By prefabricating standard modules, civil construction is reduced, carbon emissions generated during the construction process are reduced. By building a smart management platform, system operation status are monitored in real time, process parameters are intelligently adjusted, avoiding resource waste and unnecessary energy consumption.



Construction period reduced by more than 80%

Since the production of the tank modules and the integration of equipment will be completed in advance, the workload of on-site construction will be greatly reduced.



Secondary pollution during construction reduced by more than 90% No need for large-scale civil construction on site, and the installation materials will be standardized and transported uniformly. The secondary pollution generated during the entire construction process, such as waste gas, wastewater and solid waste, will be basically eliminated, which will provide a demonstration effect for sustainable engineering.



The recycling rate of the tank reaches 100%

The modules are fixed by bolts, so the disassembly process is extremely simple and enterprises can flexibly increase capacity according to their future plans.

Process Flow Overview



Mechanical grille



Water collection



Equalization tank

Pre-treatment

Prevent large pieces of solids from entering the subsequent treatment process, reduce the risk of subsequent equipment damage and blockage, reduce wear on pumps and machines, reduce sedimentation loads, and avoid particulate matter affecting the growth environment of

Effectively intercept suspended matter that may exist in printing and dyeing and textile wastewater, such as fibers, cloth scraps, dye particles, etc. Prevent them from entering the subsequent treatment unit and causing blockare.

With the help of water level control, the fluctuation of the post-filtration flow rate is balanced to avoid empty suction or water hammer caused by a sudden drop in water volume in the downstream water pump, thereby extending the life of the equipment and ensuring safe operation.

The temperature can reach the appropriate range required by the subsequent process. Generally, the microorganisms in biological treatment can play the best treatment effect between 20-35°C, and the cooling tower can provide the appropriate inlet water temperature for the biological treatment unit.

It can fully mix various substances in the wastewater to keep the wastewater quality stable. It can also store water to ensure that the subsequent treatment facilities operate at a relatively stable flow rate. This will completely avoid the failure of subsequent treatment processes due to sudden changes in water quality and quantity.



MBR water production tank



Aerobic tank

Anoxic tank

Diffused Air Diffused All Flotation machine



Simple reuse



Discharge up to standard

Collect MBR produced water and achieve steady flow and buffering, while taking into account the water for membrane module backwashing and chemical cleaning, as well as the function of effluent storage. Reserve a water pump position for the stored clean water, which is convenient for vater, which is convenient for imple reuse or standard

Activated sludge are used to degrade organic pollutants; at the same time, the membrane components retain micro organisms and suspended solids through physical interception, allowing only treated water to be discharged through the membrane pores, achieving efficient solid-liquid separation and effectively reducing ammonia nitrogen, total phosphorus, and organic matter.

Aerobic microorganisms deeply oxidize and decompose the treated small molecular organic matter under aerobic matter under aerobic conditions, completely oxidizing it into CO2 and H2O, thereby greatly reducing the COD of the wastewater and effectively

Provides more easily degradable substrates for subsequent aerobic treatment and improves the

Tiny bubbles are generated, so that the suspended matter after chemical coagulation adheres to the bubbles, and then floats to the surface to be scraped off. In addition, grease will also be adsorbed on the surface of the bubbles and float with the bubbles. This can effectively remove grease and colloids in printing and dyeing wastewater and reduce the total suspended matter content.

biochemical treatment Physicochemical and

UF system



production tank

RO system

The reverse osmosis system can effectively remove salt from wastewater. The pore size of the reverse osmosis membrane is very small, generally between 0.1-1 nm, which can intercept most salt ions. For some reuse scenarios with strict salinity requirements deep salinity requirements, deep desalination is crucial.

RO water production tank

It is mainly used to store the produced water from the membrane components, provide constant pressure and stable water source, buffer the instantaneous flow fluctuation of the system, and provide guarantee for membrane cleaning menitoring and cleaning, monitoring and production process water supply.



Deep treatmen

ultrafiltration membrane of the ultrafiltration system is between 0,001 and 0.1 µm. Tiny pores can effectively intercept suspended solids and colloids, which helps to reduce the turbidity and suspended solids content of the wastewater.

Sludge

concentration

It is mainly used to collect and store the water produced by the ultrafiltration membrane, provide a stable water source for system backwashing, chemical cleaning, chemical doaning, chemical downstream processes, and also play a role in flow peak and valley buffering and water pump protection.

→ Stacked screw

Dosing system



Water content in the sludge Water content in the sludge is reduced by gravity settling. After effective concentration, the liquid content of the sludge can be reduced from 99% to about 95%. The lower water content makes the sludge more reactive to chemicals in subsequent treatment processes.

The rotation of the spiral The rotation of the spiral shaft gradually squeezes the sludge, allowing the water in the sludge to be discharged from the filter gap. After being processed by the filter press, the moisture content can be reduced to about Solf, greatly reducing the volume of the sludge. The dehydrated sludge is easier to dispose, thereby reducing the cost of sludge

filter press

Automatically and accurately add various chemicals to the water treatment process, usually including chemical storage tanks, metering pumps, mixers and control units. It aims to adjust water quality parameters prompted. units. It aims to adjust water quality parameters, promote pollutant removal, protect equipment and meet effluent standards through the action of chemical agents.

survival and metapoism of microorganisms in biological treatment units, but also plays a key role in the mixing of aeration tanks, backwashing of filter tanks, and air flotation processes.

PLC cabinet

Auxiliary equipment

Provide efficient and intelligent central network integrated control for the whole system. Through real-time monitoring of water quality, flow and treatment status of each link, accurate control of dosing, aeration, pump lifting and other links can be achieved. Reasonable control of system operation costs,

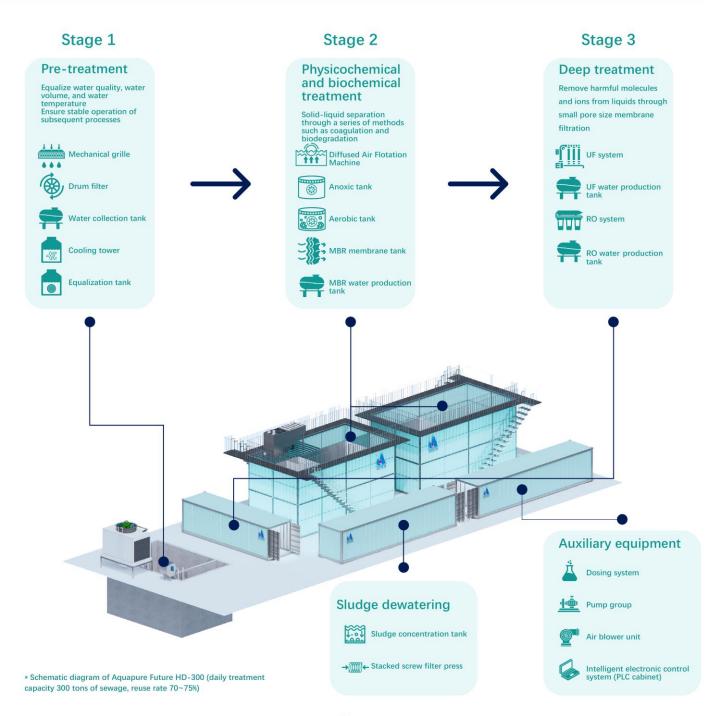
Pump Group

system to ensure the flow and pressure requirements of each process section. They can achieve system flow peak and valley buffering and fault redundancy through frequency conversion speed regulation or parallel/standby configuration. configuration, thereby improving operational stability and energy saving effects.

This is a typical printing and dyeing textile wastewater treatment discharge/reuse process. We can develop different solutions according to the discharge and reuse requirements. When the customer does not have high requirements for the quality of the reused water, we can execute the process flow to the MBR membrane effluent stage, which can meet the requirements of simple reuse with standard discharge. The COD can reach 50 to 100 mgO2/L, which is suitable for occasions with low water quality requirements such as ground cleaning and irrigation. When the customer has high requirements for the quality of the reused water and needs to reuse it in the production line, we can execute the process flow to the reverse osmosis effluent stage. The effluent quality is better than tap water quality, COD can reach between 0-5 mgO2/liter,

System-Introduction

Huadian's modular wastewater treatment solution can respond quickly to typical water quality conditions in the textile printing and dyeing industry, maximizing timeliness, stability and efficiency. If the water quality of an enterprise is special, such as one or more parameters overly exceeding the standard, or the water quality and quantity are extremely unstable, Huadian will continue to follow up and provide the enterprise with efficient and customized module matching to ensure the stable operation of the system. The modular water treatment system meets the needs of every enterprise and perfectly adapts to the conditions of every factory.



Mode of system delivery



Turnkey project



High degree of automation



Remote control

In the early stage, we will confirm the selection of standardized or customized solutions with customers.

We use the complete industrial chain to provide customers with:

water treatment system design, production in Chinese factories, full system assembly in Chinese factories, qualified full water commissioning, packaging and shipment, on-site construction, assembly and commissioning, training of customer-designated personnel on relevant water treatment operation knowledge, maintenance and other comprehensive services ensuring 100% turnkey mode and efficient lifelong service of the system.

We ensure system stability and high efficiency, while ensuring customer loyalty and service stability and continuity.

Connect the self-developed online monitoring and management system and the electronic control unit to each module of the system.

The system will maximize the degree of automation.

Efficiently manage the operation efficiency of the system, reduce the system operation cost, eliminate failures, reduce risks, and adapt to changes in production and water quality.

Each system will be connected to our integrated online management system to monitor operating data in real time, actively intervene from the cloud server, and eliminate every potential risk.

A professional team will remotely protect the company's water treatment. Continuously optimize system efficiency through continuous data

feedback.



Pilot Project



Assembly and construction



Global agents and top-tier suppliers

Customers can choose to install a small-volume water treatment system first.

We evaluate project feasibility and site suitability by delivering a standardized pilot water treatment

We reduce risks and ensure that each system is perfectly adapted to the local environment.

All equipment will be fully preassembled in our Chinese factory and shipped after full water commissioning.

production.

On site, the only need is to bolt the water tank module and connect the water pipes and wires to the system, which greatly reduces the construction

We cooperate with high-quality international suppliers we trust to provide enterprises with the most reliable and high-quality equipment. With a stable global supply chain system, we can respond to customer needs as quickly as possible and provide spare parts, chemicals, membranes and other after-sales services efficiently.

The localized agent network provides a service model tailored to local conditions, 100% adapting to local culture, understanding local regulations, and understanding professional knowledge, providing customers with the most intimate and timely professional services.





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