

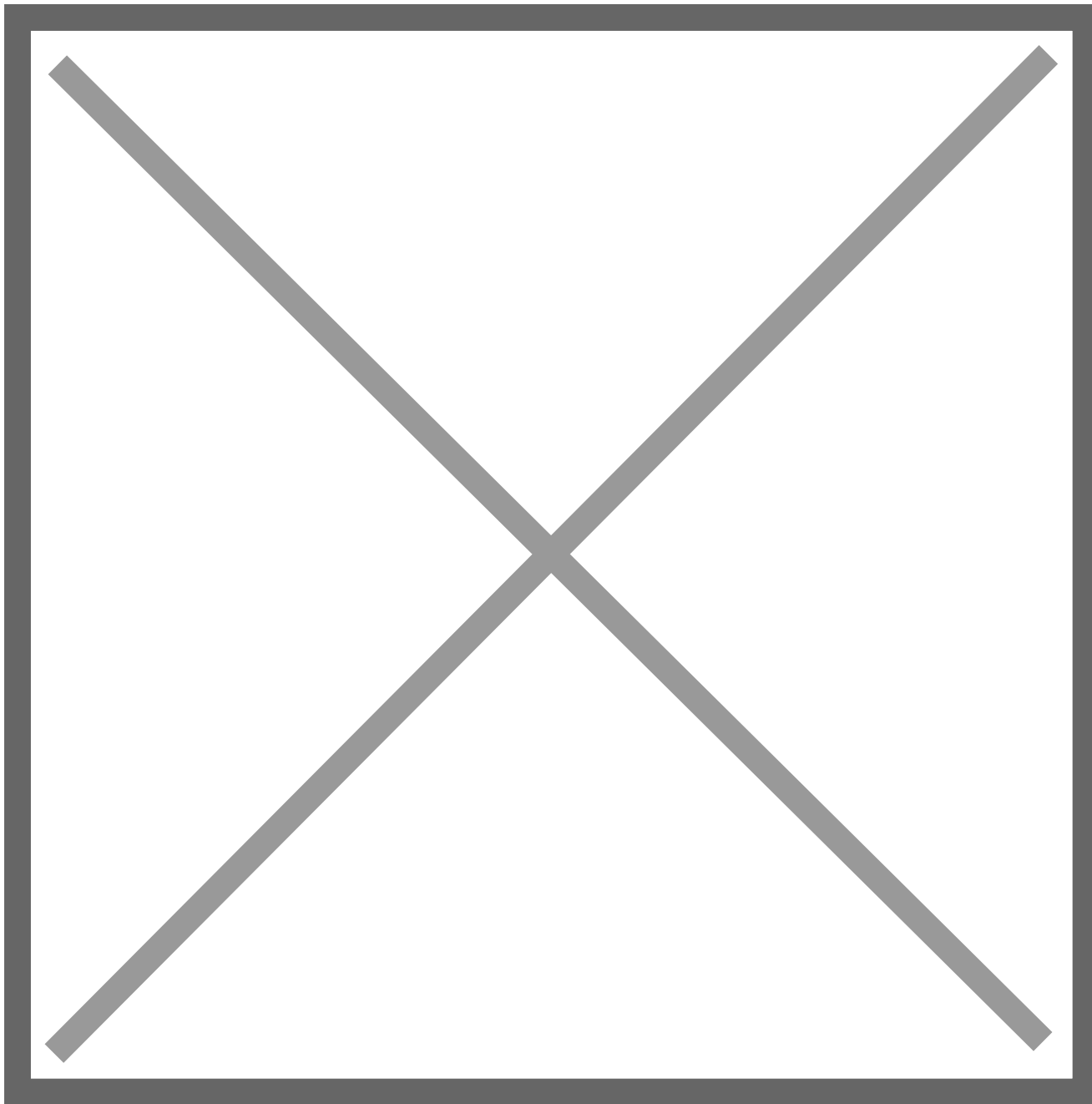


HOT ALKALI WASHER ONLINE WATER RECYCLING TREATMENT AND REUSE SYSTEM (20T/H) TT-WTS20



Hot Alkali Washer Online Water Recycling Treatment And Reuse System (20T/H) TT-WTS20 - The process of washing PET bottles generates a significant amount of wastewater, with suspended matter being the primary pollutants.

To manage this, a water treatment system is being designed based on the volume of wastewater and pollutant levels. The proposed system will utilize a combination of filtration, sedimentation, and air flotation processes. Once the wastewater undergoes treatment, a portion will be reused while the rest will be discharged in compliance with standards.



APPLICATIONS

- **Plastic Recycling Plants:** Treat wastewater generated from PET bottle washing lines and other plastic recycling operations.
- **PET Bottle Recycling Facilities:** Remove suspended solids, oils, and contaminants from high-volume PET washing wastewater.
- **Industrial Wastewater Treatment:** Applicable to industries producing alkaline and particulate-laden wastewater requiring filtration, sedimentation, and flotation.
- **Water Reuse Systems:** Provide treated water for reuse within washing lines, reducing overall water consumption.
- **Environmental Compliance:** Ensure effluent discharge meets regulatory standards before release.
- **Sustainable Operations:** Help recycling plants lower operating costs by reducing fresh water usage and minimizing waste.

FEATURES

Design Principles

- Choose a suitable process route based on sewage quality and treatment criteria, using advanced treatment technology to ensure compliance with discharge standards.
- Prioritize existing facilities to minimize investment while considering aesthetics in the plant design.
- Ensure ease of operation and management with simple procedures. Equip the system with high-quality, high-performance, and reliable machinery.

Design Parameters

- Wastewater source: Plastic recycling plants
- Designed treatment capacity: 12 m³/h
- Effluent quality: Meets regulatory discharge standards

Treatment Technology

The water treatment system is designed to remove suspended matter from wastewater. The process includes filtration, sedimentation, and air flotation.

Process Flowchart

Water treatment system process flowchart

Layout Chart

Layout chart of wastewater treatment facility

Process Description

1. Wastewater from the washing line is directed to a collection pool for temporary storage.
2. The pump sends wastewater to a vibrating screen for solid-liquid separation. Larger particles are collected; remaining water enters the sedimentation tank.
3. In the sedimentation tank, an online pH meter adjusts pH to neutral. Flocculants and coagulants are added, forming flocs that settle, while clear water flows to the air flotation tank.
4. The air flotation tank uses compressed air bubbles to float residual fine particles to the surface, removed by a scraper. Treated water is stored temporarily.

5. Clean water is filtered and pumped back to the washing line. Sludge is dewatered and transported for further treatment.

Main Process Units

a. Wastewater Collection Tank

Collects cleaning wastewater from the line and serves as the reservoir for the lift pump. Functions include buffering flow, regulating volume, and stabilizing water quality.

- Retention time: < 2 hours
- Type: Integrated wastewater collection pool
- Volume: 40 m³
- Material: Concrete
- Location: Underground

b. Lift Pump

Elevates sewage to the sedimentation tank. Uses non-clogging submersible pumps with automatic start/stop controlled by level gauges.

- Quantity: 2 sets (1 primary, 1 backup)
- Power: 5.5 kW

c. Vibrating Screen

Separates larger particles at the start of the treatment process, reducing blockages and equipment wear.

- Model: YZS1500 (1 set)

- Main Material: SUS304
- Collection box: 1 unit

Circular vibrating screen for wastewater treatment

d. Integrated Sedimentation Tank

Adjusts pH, adds flocculants/coagulants, and settles suspended solids. Equipped with automatic mud discharge.

- Capacity: 20 m³/h
- Dimensions: L11000 × W2000 × H3500 mm
- Material: Anti-corrosion carbon steel

e. Air Flotation Tank

Uses dissolved air to remove floating substances after sedimentation. Fine particles attach to bubbles and are skimmed off.

- Capacity: 20 m³/h
- Dimensions: L5000 × W1500 × H2100 mm
- Material: Anti-corrosion carbon steel
- Pumps: Pneumatic diaphragm pump × 2 (S1FM)

Air flotation tank in wastewater treatment system

f. Clean Water Tank

Stores treated water for reuse in the washing line.

- Retention time: 2 hours

- Volume: 40 m³
- Material: Anti-corrosion carbon steel
- Dimensions: L4000 × W2000 × H1500 mm (2 sets)

g. Clean Water Pump

Pumps treated water back into the line. Vertical centrifugal pumps with alarms for water levels.

- Quantity: 2 sets (1 primary, 1 backup)
- Power: 5.5 kW

h. Filter

Quartz sand filter removes fine particles and turbidity.

- Model: DMF3224-1A
- Quantity: 1 set
- Material: Anti-corrosion carbon steel

Quartz sand filtration system

i. Dosing System

Includes metering pumps, reagent barrels, and agitators for precise dosing of PAC, PAM, and acid. Automates pH adjustment.

- PAM dosing device: 2 sets (304 material, 1000 L each)
- PAC dosing device: 1 set (PE material, 2000 L)
- Acid dosing device: 1 set (PE material, 500 L)

Automatic dosing system for wastewater treatment

j. Sludge Treatment System

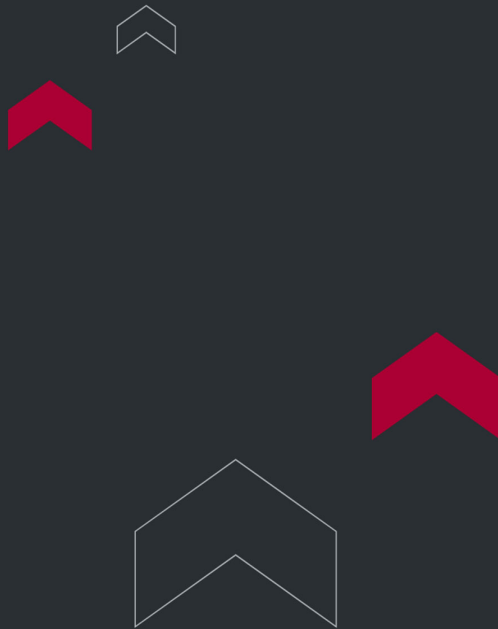
Handles sludge from sedimentation and flotation tanks, using thickening, pumping, and filter press dewatering.

- Sludge Pool: 10 m³ (customer provided)
- Sludge Pump: Pneumatic diaphragm pump, 2 sets (S1FM)
- Screw Press: Model 301, capacity 20–70 kg dry solids/hour
- Material: 304 stainless steel
- Size: L3340 × W970 × H1825 mm
- Power: 0.95 kW

Sludge treatment system with screw press

TECHNICAL SPECIFICATIONS

Item	SS(Suspended Substance)	PH
Inflow quality	□ 1000	7-14
Efluent quality	□ 100	6-9



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