DS 21
A CECO ENVIRONMENTAL BRAND

WASTEWATER

SPECIALIZING IN SYSTEMS TO TREAT WASTEWATER

The wastewater treatment process involves transforming wastewater into effluent with minimal environmental impact, allowing it to be safely released back into the environment.

Additionally, this process can be essential for industrial plants, enabling their facilities to directly reuse the treated water. DS21 holds many patents and places emphasis on the research and development process to pioneer advanced, environmental conscious physical separation and biological wastewater treatment technologies.

TREATMENT METHODS — BIOLOGICAL

BIOLOGICAL

The biological treatment process is designed to remove COD, BOD, total nitrogen and pollutants at lower concentrations, such as phenol, benzene, sulphide and oil. It can withstand large hydraulic and solid loads, as well as pH changes.

ACTIVATED SLUDGE (AS) PROCESS

In the Activated Sludge (AS) process, biomass is freely suspended. This process involves extended aeration of activated sludge. In the aerobic zones, the activated sludge biomass converts contaminants in the feed water to mainly CO2, H2O and nitrates. In the anoxic zones, nitrates are reduced to nitrogen gas.

RECYCLED ACTIVATED SLUDGE (RAS)

Effluent from the cooler flows to the AS tank, where it is combined with biological sludge from the clarifier by means of Recycled Activated Sludge (RAS) pumps. This sludge recirculation process adjusts the biomass concentration in the activated sludge tank, maintaining the biological treatment operating parameters and achieving the outlet requirements.

JET AERATION SYSTEM

Biomass and effluent are continuously homogenized in the activated sludge tank by a jet aeration system. An oxygen measurement in the tank controls the VSD on AS blowers, ensuring the required airflow rate. Air is sent through AS diffusers to provide sufficient dissolved oxygen for the biomass to consume the contaminants.

GRAVITY CLARIFIERS

As the contaminants are consumed, biomass is produced. The bio-treated water and suspended biomass are sent to a set of suction-type gravity clarifiers, where biosolids are separated and reused (RAS). To control sludge retention time and biomass concentration in the biological treatment, excess sludge (WAS) is regularly removed from the downstream clarifier.

TEL: 82-32-585-7000

TECHNOLOGIES OVERVIEW

AMERICAN PETROLEUM INSTITUTE (API) SEPARATOR

API separator separates substantial amounts of oil and suspended solids from wastewater effluents. The API Separator effectively removes free oil particles larger than 150 μm as a pre-treatment step.

CORRUGATED PLATE INTERCEPTOR

CPI is the most widely used oil-water separator, utilizing the specific gravity difference method to separate oil and sludge from oily wastewater. It employs multiple slate or corrugated plates, or enhanced oil separation plates, which are installed either slanted at 45~60° angle. This design directs the flow from the upper portion to the lower portion, increasing the effective horizontal surface area of the separator without enlarging the separator basin.

LAMELLA CLARIFIER

The Lamella Plate Clarifier, a primary clarification device that treats sewage and industrial waste streams while occupying up to 90% less area compared to traditional settling tanks.

CONVENTIONAL CLARIFIER

A clarifier is used to remove solid particulates or suspended solids from liquid for clarification and/or thickening. Inside the clarifier, solid contaminants will settle down to the bottom of the tank where it is collected by a scraper mechanism.

DISSOLVED AIR/GAS FLOTATION

Dissolved Air/Gas Flotation (DAF/DGF) is a water treatment technique used to clarify wastewater by removing suspended matter such as oil or solids. This process involves saturating treated water with air or gas in a pressurized vessel and then releasing it at atmospheric pressure in a flotation tank or basin. The released air or gas forms tiny bubbles that attach to the suspended matter, causing it to float to the surface, where it can be removed by a skimming device.

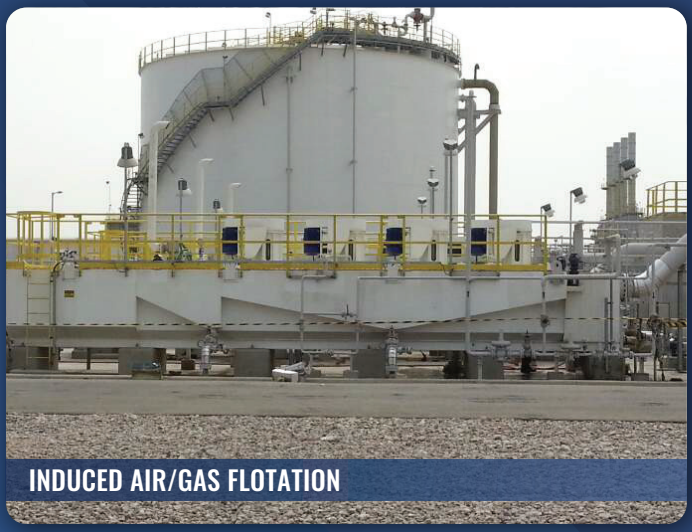
CHEMICAL INJECTION SYSTEM

Chemical injection systems are widely used in production facilities within the oil and gas industry to prevent or mitigate various issues that could negatively impact production flow or process completion. DS21 designs, manufactures and supplies custom-built injection systems for a wide range of applications.

INDUCED AIR/GAS FLOTATION

A water treatment process that clarifies wastewater (or other waters) by removing suspended matter such as oil or solids. This removal is accomplished by injecting air or gas bubbles into the water or wastewater in a flotation tank or basin or a mechanical type that employs a motor-driven rotor (impeller) to draw air or gas from the vapor phase at the top of the vessel directly into the water phase.

LAMELLA CLARIFIER



INDUCED AIR/GAS FLOTATION

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