



# SEWAGE TREATMENT

## CONVENTIONAL AND MEMBRANE BIOREACTOR TREATMENT PROCESSES

Sewage water treatment involves the removal of contaminants from household sewage through physical, chemical, and biological processes.

These processes effectively eliminate contaminants, resulting in environmentally safe treated water. DS21 designs and manufactures sewage and sanitary water treatment systems for municipal and corporate projects.

## CONVENTIONAL TREATMENT PROCESS



### MAINTAIN AEROBIC CONDITIONS

Sanitary sewage from administrative buildings is collected in an equalization tank, which is fitted with an inlet screen. Adequate aeration is provided to maintain aerobic conditions.



### SUSPENDED SOLIDS SEPARATION

Solids-free sewage flows from the screen to an aeration tank, where air from one of two blowers is introduced through appropriately designed diffusers to facilitate biological oxidation of organic compounds. The oxidized sewage sludge then flows to a sedimentation tank for suspended solids separation.



### WATER CLARIFICATION

Part of the settled solids is returned to the fixed film bioreactor by an activated sludge transfer pump, while the remaining sludge is sent to an aerobic digester and treated by a dehydrator. The clarified water overflows from the sedimentation tank to a fixed film bioreactor (first) / fixed film bioreactor (second).



### 6MM PERFORATED SCREEN

The collected sewage is pumped from the equalization tank to the bioreactor (fixed film or MBR) using a submersible pump. A bar screen with a 6mm perforated plate is installed to remove solids from the sewage, and screenings are manually removed to a bin.



### MEET REQUIREMENTS

Air is introduced to raise the dissolved oxygen level to the required value (minimum 4mg/l of dissolved O<sub>2</sub>). The treated water is pumped by filter feed pumps to a pressurized sand/activated carbon filter, then transferred to a UV sterilizer, and finally to the effluent basin, where it is discharged to the outfall channel.

# MEMBRANE BIOREACTOR (MBR)

## COMBINED PROCESS

The MBR process combines an activated sludge process with a membrane separation process.

## CLEAR EFFLUENT RESULTS

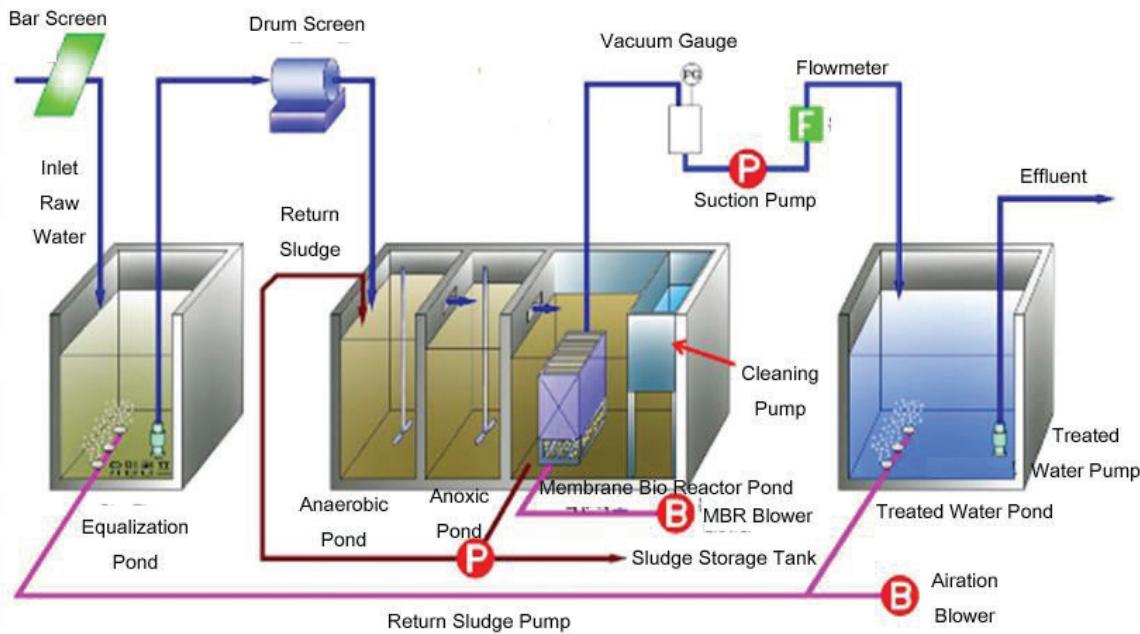
The MBR process primarily treats wastewater by using membranes (flat sheet/submerged or tubular/pressurized) integrated with a biological process. Membranes are utilized for filtration and the removal of solids generated during the biological process, resulting in a clear effluent.

## REDUCE FOULING

Uniform air washing from the bottom of the membrane module prevents excess sludge from adhering to the membrane surface, reducing fouling and ensuring more stable treatment.

## TREAT DIRECTLY

Systems utilize multiple membrane elements in an integrated membrane module within 2 to 3 stages in an aerobic tank. The wastewater is separated using suction filtration, producing treated water directly.



SEWAGE TREATMENT EQUIPMENT



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