



GenesisTM
Enviroman



**WE SPECIALIZE IN WATER &
WASTEWATER TREATMENT AND
DESIGN CONSULTANCY**

Waste water today, Live in desert tomorrow

ABOUT US

WHO WE ARE

- ▶ We are team of committed engineers and professionals to provide you the complete peace of mind when it comes to issue of treating wastewater and water management.
- ▶ We have capabilities to undertake turnkey project from concept to commissioning of any challenging projects related to water and wastewater treatment.

OUR VISION

To treat water and wastewater differently with phenomenal efficiency to give you complete peace of mind

OUR MISSION

To be the preferred provider of efficient and cost effective solutions to the water and wastewater treatment.

OUR VALUES

Growth with Integrity

WHY WE ARE DIFFERENT

- ▶ Our own workshop gives us competitive and comparative advantage to produce quality inputs and output in time
- ▶ Committed with integrity to build long term relationship with our clients through quality output
- ▶ Customised research oriented technical focus on each plant
- ▶ We talk of technology, long terms benefits, quality and prompt after-sales services more than the price

SAVE WATER
SAVE FUTURE

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SEWAGE TREATMENT PLANT (STP)

MBBR



SEWAGE TREATMENT PLANT

We design, fabricate, erect and commission packaged prefabricated Sewage Treatment Plant (STP) with various technologies for treating sewage generated by residential set up within industries, large colonies, Hotels, Hospitals, IT Parks and commercial buildings. Our MBBR plants use specifically cultured bacteria on high surface through floating media and reduces the organic load by more than 90%.

The treated water can be used for gardening, floor washing, toilet flushing or disposal. It is available in sizes 5 KLD to 250 KLD.

Bigger sized STP are designed in civil works with customized approach.

MODEL NUMBER	CAPACITY (m ³ /Day)	CAPACITY (GPM)	FOOT PRINT (L x W mtrs)
GENESIS STP MBBR 30	30	0.8-5.2	5 x 3
GENESIS STP MBBR 50	50	9.15	6 x 4
GENESIS STP MBBR 75	75	13.73	8 x 5
GENESIS STP MBBR 100	100	18.31	10 x 4
GENESIS STP MBBR 150	150	27.51	11 x 5
GENESIS STP MBBR 200	200	36.67	12 x 6
GENESIS STP MBBR 250	250	45.83	14 x 6
GENESIS STP MBBR 300	300	55.03	15 x 7
GENESIS STP MBBR 400	400	73.38	16 x 8
GENESIS STP MBBR 800	800	146.76	20 x 12
GENESIS STP MBBR 1200	1200	220.14	30 x 12

Above dimensions are subject to modification at the detailed design phase.

ADVANTAGES

- GENESIS MBBR significantly reduces the footprint as compared to the conventional Aerobic system
- High oxygen transfer capacity acquired by Bio-Films saves energy and reduces power consumption.
- The rotating media in systems is constantly in contact with abundant supply of oxygen and waste water. This facilitates efficient Oxygen transfer to the aeration area and ensures efficiency in the biological process.
- Specific settler is provided for larger settlement surface area reducing the settling time & increasing efficiency



Excellent treated water quality



Reduces civil cost



Odor free



Corrosion resistant



Least Noise



Automatic Function



Low energy and O&M cost

SEWAGE TREATMENT PLANT (STP)

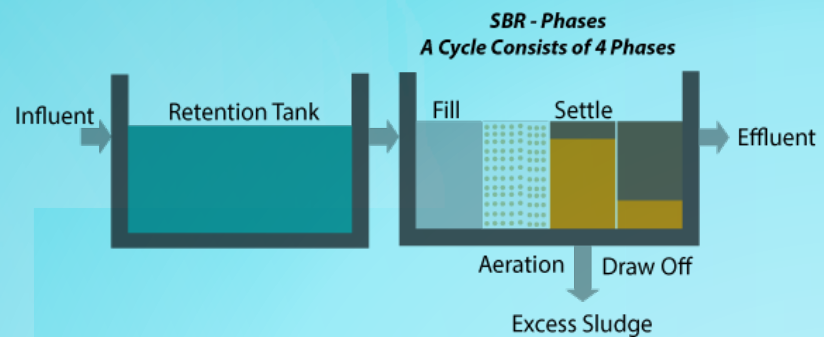
SBR

SBR BASED STP

We undertake turnkey project for wastewater treatment plant based on SBR technology ranging from sizes 25 KLD onwards.

A sequencing batch reactor is a fill-and-draw activated sludge system with five basic steps: 'Idle, Fill, React, Settle, and Draw' thereby producing a high-quality effluent with a low turbidity and nitrogen levels.

SEQUENCING BATCH REACTOR



ADVANTAGES

- Equalization, biological treatment and clarification all achieved in a single reactor in a timed sequence
- Better aeration control, denitrification, and lower power consumption
- Less and simpler equipment, thus reduces maintenance
- Biological N and P removal without need for chemicals
- Automatic control system
- Design flexibility
- Simplicity of operation put operators at ease.
- Minimal footprints

This technology requires higher level of sophistication of timing units and controls through automation

GEN-SBR ADVANTAGES

- Designed with proven SBR principle with clog-free and maintenance-free
- Suppressed filamentous bacteria thus lower potential for sludge bulking
- Superior sludge settling due to bio-selector and cyclic sequences
- 30% less sludge production than competitor systems
- Easy expansion with single rectangular tank design
- Enhanced nutrient removal without chemicals
- Very low running and maintenance cost
- Odour free and quiet operation
- Lowest energy consumption
- Excellent effluent quality

MEMBRANE BIOREACTOR

MBR

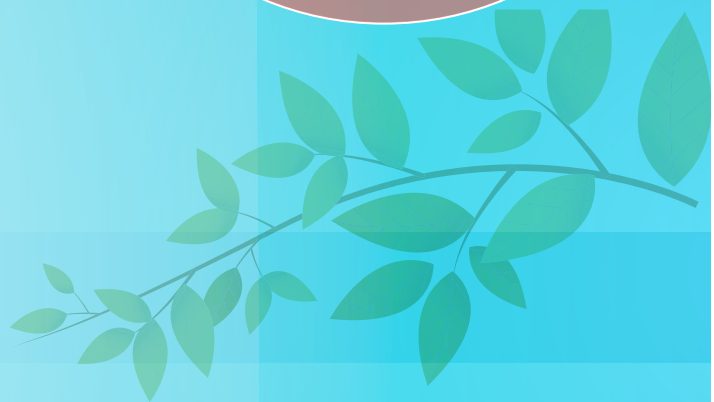


MEMBRANE BIOREACTOR (MBR)

Membrane Bioreactor (MBR) process is an advanced wastewater treatment technology which instead of using secondary clarifiers, utilizes low pressure membranes for solid/liquid separation. Hence, MBRs can operate with much higher MLSS concentrations, constituting an intensified biological process with advanced efficiency.

GEN-MBR ADVANTAGES

- Much lower foot prints i.e lowest land and space requirements
- Very high treated water quality for reuse applications
- Much more compact and a higher rate of degradation
- Design to treat all kinds of urban wastewater and industrial effluents as long as it does not include toxic compounds
- Low sludge production
- Product options in GFRP or in Civil works
- Easy replacement and replication



Key design criteria:

- Inflow Ratio: BOD/COD > 0.4 (mg/L)
- Capacity (as a range): 05- 500 m3/D

Allows to provide:

- Secondary treatment
- Tertiary treatment

Pollutant removal (%)

- TSS: 99%
- BOD: 99%
- Ammonia: 90%
- Pathogens: 99.9%

Output suitable for:

- Reuse: Gardening, Agriculture. Process water into non potable uses
- River and soil discharge

Implementation considerations:

- Land requirement: Low
- Capital cost: Higher
- Maintenance: Medium

Needs to be combined with:

- Pre-treatment: screen chamber, oil & grease trap
- Sludge treatment: digestion, drying beds, dewatering, etc.

APPLICATIONS

- Petrochemicals
- Food
- Pharmacy
- Electronics
- Laundaries
- Paper industry
- Textiles
- Hospitals
- Car repair and wash
- Paint industry
- Ink industry
- Metal processing
- Refineries etc.....



JAPANESE (JOHKASOU) STP



Johkasou Technology, developed in Japan, is a revolutionary concept in Decentralized Treatment approach and effectively used for wastewater treatment through the light and durable FRP Johkasou products for domestic wastewater treatment systems or Sewage Treatment Plants.

We are authorized Channel Sales partner of Japanese Packaged STP (Johkasou) which is made in 100% FRP material, is a combination of aerobic & anaerobic treatment housed in a single FRP capsule. Johkasou's treatment technology is equipped with high concentration activated sludge system which enables easy removal of organic pollutants.

RECOGNITIONS

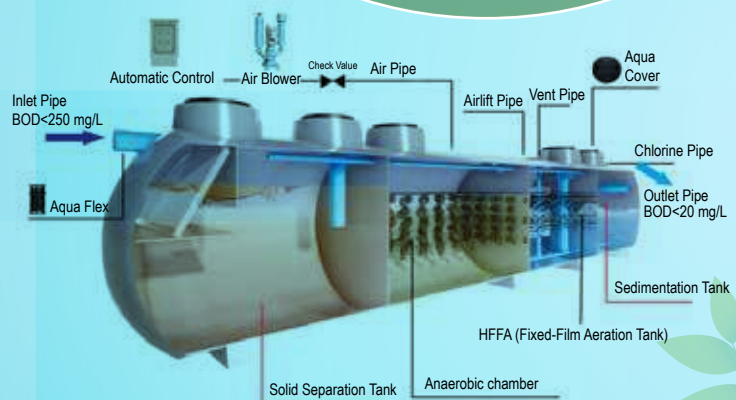
- Empanelled by the Ministry of Jal Shakti, Government of India for JalJeevan and Swachh Bharat Mission,
- Awarded CII Green Pro certificate
- Recognised by FICCI as the most innovative water technology

FEATURES

- No operator required.
- Easy to maintain
- Performance life of 20 years
- No need for extensive civil works
- Least electricity consumption
- Odorless Noiseless Green system
- Developed and approved by Govt of Japan
- Appreciated and recognized by Govt of India

APPLICATIONS

- Hospitals, Nursing homes, Schools & Colleges, Hostels, Resorts
- Farm Houses, Small communities,
- Hotels, Guest houses, Marriage Halls
- Offices and Factories, Shopping Malls
- Parks, Gardens and places not covered by Public sewer systems.
- Temporary camps, constructions sites, religious events exhibition grounds etc



Inflow Capacity	Weight [kg]	Electric Consumption [kWh/day]	Chlorine Consumption [kg/day]
1 m ³ /day	340	1.40	0.01
2 m ³ /day	340	1.40	0.01
3 m ³ /day	490	2.80	0.01
5 m ³ /day	490	2.80	0.02
8 m ³ /day	860	4.80	0.03
10 m ³ /day	860	4.80	0.04
15 m ³ /day	1360	5.61	0.05
20 m ³ /day	1670	9.60	0.07
25 m ³ /day	1670	9.60	0.09
30 m ³ /day	1360	14.40	0.10
35 m ³ /day	1360	14.40	0.12
40 m ³ /day	1670	19.20	0.14
45 m ³ /day	1670	19.20	0.15
50 m ³ /day	1670	19.20	0.17

GREEN STP-1 TOWERPRO



TOWERPRO

Innovative, cost-effective and highly efficient JAPANESE technology for wastewater treatment with nearly zero operating cost.

It uses the combination of high rate specialized anaerobic blanket with sponge media exhibiting super/highly active oxidation chamber.

There is no mechanical air provided which it draws in from the atmosphere thereby removing the cost of mechanised aeration.

High rate reactors are used to retain active biomass in the reactor independently of the incoming wastewater. The system has void space of more than 97% and creates a much larger surface area along with very high and varied porosity of media that provides an excellent site for microorganisms growth as compared to the traditional biomedias.

Slow growing microbes are maintained in the reactors at high concentrations, enabling high reaction rate per unit reactor volume and high resistance of organic or hydraulic shock loads. It provides for enough self-degradation of any attached biomass reducing the production of excess sludge.

This technology exhibits longer hydraulic retention time and hence can be built in smaller area. It can be used to treat wastewater from various sources and strengths like waste water from domestic sources, hospitals and even some industries like distilleries or food-processing.

ADVANTAGES:

- Trouble free operation and sustenance for 10 or more years
- Very compact design with much lesser land area
- Durable and mechanically stable media
- High SRT and low HRT
- Very limited sludge production
- Higher removal efficiency for organic nutrients and pathogens
- Simple process controls
- No need of forced aeration
- No replacement of media upto 10 years
- No operator required to run the plant
- Negligible electricity and O & M cost
- No sound, no vibration, no smell
- Plug, play and forget system.

GREEN STP-2

PLANT BASED DECENTRALISED STP



THIS SYSTEM INCLUDES:

- Primary pretreatment,
- Secondary anaerobic baffled reactors along with settlers and filters
- Tertiary root zone/aerobic treatment in planted gravel filters or reed bed
- Polishing Ponds

ADVANTAGES:

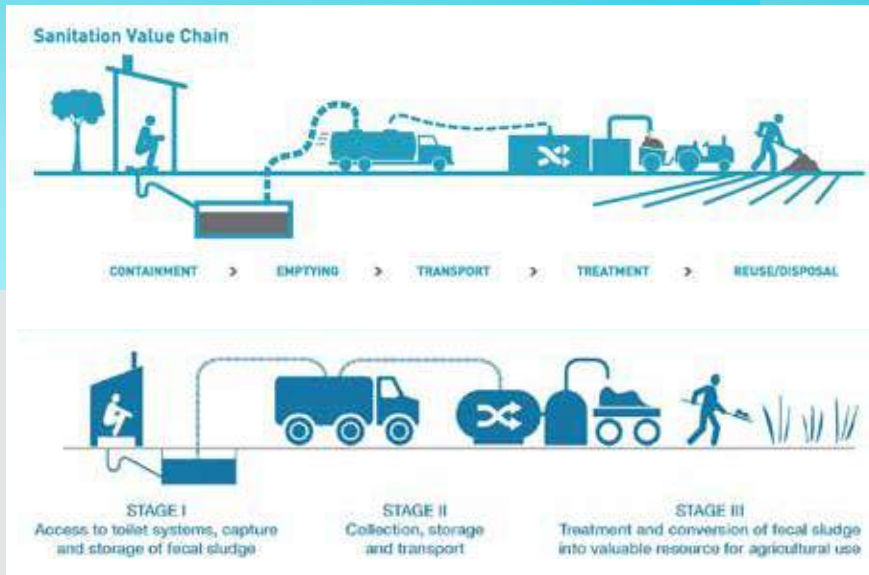
- Treats Sewage in a 100% ECO friendly manner.
- 100% maintenance free, continuous biological process.
- Complete elimination of pathogens.
- No use of energy sources.
- Conserves water, energy and environment
- Economically viable.

PLANT BASED DECENTRALISED STP

This is natural biological approach to domestic wastewater treatment and is highly effective and simple to operate systems to treat water to a quality suitable for safe environmental disposal or reuse and is carbon neutral.

It is based on different natural, no electricity, no regular chemical based treatment techniques, put together in different combinations customized to the requirement and objectives to be achieved.

FAECAL SLUDGE AND SEPTAGE MANAGEMENT (FSSM)



THE OBJECTIVES OF FSSM ARE TO:

- Reduce the water content of sludge, thus making it easier to work with and transport.
- Reduce the oxygen demand and suspended solids content of the liquid fraction that is discharged to the environment.
- Reduce pathogens from the liquid effluent, to allow its safe disposal or end use.
- Reduce pathogen concentrations in sludge sufficiently to allow its safe end use (waste-to-energy and waste-to-compost) or disposal as part of the solid waste stream.

We at Genesis are equipped with technical expertise to adopt a set of safe practices, appropriate technology options and institutional arrangements for FSSM through a number of treatment options namely: gravity based biological treatment, mechanical centrifugal, sludge screwing, chemical treatment, filtration systems, electrical heat drying, incinerators and ultraviolet among others.

FSSM refers to the management of all stages of the sanitation value chain includes collection, emptying, transport, treatment, disposal and reuse of Faecal Sludge from pits, tanks or other onsite sanitation systems and involves creation of smooth and sustainable environment

Urban and rural India by majority is characterized by low levels of traditional sewerage systems which are expensive to build & operate considering their need for continuous power, skilled operators and extensive electromechanical maintenance wherein only about 30% of the sewage generated is actually treated. As a result "Decentralized Faecal Septage Treatment Plants (FSTPs) are recent solutions to the challenge of addressing safe treatment and disposal of septage.

The National Policy on FSSM, 2017 suggests a holistic, integrated, people centered approach towards planning and implementing measures on such decentralized approach of septage treatment and management.

EFFLUENT TREATMENT PLANT (ETP)



EFFLUENT TREATMENT PLANT

As your partner to corporate commitment to protect environment, we offer technically and economically efficient solutions to treat the industrial waste water of any types and level of impurities

We offer packaged ETP with nitrification & de-nitrification.

The choice of treatment stage comprises of physio chemical treatment, anoxic bio-reactor, fluidized bed aerobic bio-reactor (FAB) and other advanced wastewater treatment strategies for recovery, reuse and recycling

OUR ETP COMBINES

- Gravity Separator to remove suspended oil & grease floating matters
- Primary Sedimentation to remove the heavy grit particles, suspended solids.
- Chemical Treatment to remove higher Organic load, metals etc.
- Biological Treatment to remove organic matter
- Advance Sludge Separation to achieve solid Liquid separation
- Advance Filtration system to remove the suspended Solids, organic matter.
- Ozonization to remove organic matter (If required)
- UF+RO to achieve zero discharge norms (If required)

APPLICATIONS:

- Automobile Industry
- Chemical Industry
- Metal Pretreatment
- Electroplating
- Pharmaceutical
- Textile
- Paper Mills
- Dairy Plants
- Sugar Mills
- Leather Industries
- Petrochemical and many more

SALIENT FEATURES

- Types: Batch and Continuous.
- Compact and proven design
- Corrosion free piping & FRP Lined MS tanks
- Recycling of treated water is possible with advanced treatment methodology like UF and RO
- Very easy in operation. Any person can operate it after proper training
- Flexible design: upto 500 m³/day capacities in compact system.
- Economical plant with minimum operating cost.
- Quality Components
- Low foot print



Excellent treated water quality



Different Sizes Available



High loading rates



Small foot print



Least Noise



Semi Automatic



Low energy and O&M cost



ELECTROCOAGULATION

The success and efficiency of this technology depends broadly upon:

- Electrode surface area
- Power supply vs. passivation
- Current density and ion dissociation
- Concentration and type of anions
- Material of electrodes

SPECIFIC APPLICATIONS

- Tannery
- Textile with all types of dyes
- Food industry with biodegradable impurities
- Paper industry having lignin
- Refinery industry with aromatic and aliphatic hydrocarbons
- Emulsified oil & grease
- Slaughter houses
- General industrial
- Heavy Metals
- Pesticides
- Pharmaceuticals
- Radioactive isotopes

TECHNOLOGY ADVANTAGES

- Since no chemicals are needed, there is no chance of secondary pollution due to high concentration of chemicals
- Gas bubbles produced from EC facilitates the removal of pollutants by floating them on top of the solution so they can be easily collected.
- No anions are left behind to increase osmotic loading on downstream processes. Even the smallest colloidal particles are removed by EC since the applied electric current makes collision faster and facilitates coagulation
- Floccs formed by EC are much larger and more stable; hence they are easily separated during filtration.
- EC produces much lesser volume and more stable and non-toxic sludge
- Breaks oil emulsions, removes complex organics
- Removes suspended and colloidal solids
- Easily operated due to its simplicity
- BOD and COD removal: > 70%
- Treated water is clear, colorless and odorless.



ELECTROCOAGULATION

It is the process of electro dissolution of sacrificial anodes (Al, Fe) which produces hydrolysis products thereby destabilizing the pollutants and reducing their relative specific weight in the wastewater i.e. it is process of dissolution of metal cations at the anode and formation of hydroxyl ions and hydrogen gas at the cathode and enhance the separation process by flotation.



This technology has been successfully introduced in removing suspended solids, dyes, non-biodegradable impurities, heavy metals, phosphate, fluoride, pathogens, pesticides and also natural organic matter from the wastewater.

GENESIS-EC ADVANTAGES

- Fully assembled skid mounted unit with inlet/outlet & backwash connections
- Minimal waste Disposal since no additional chemicals are added
- Our design cannot be damaged by operator error or process upset.
- Minimal operator requirements
- Minimal maintenance
- Low operating cost
- Treats wide range of contaminants

INDUSTRIAL REVERSE OSMOSIS PLANT

RO Plant



INDUSTRIAL RO SYSTEMS: 05 KLD TO 1000 KLD

Reverse osmosis is a process/technology in which dissolved inorganic solids such as salts, impurities such as lead, pesticides, chlorine, sugars, nitrates, sulfates and bacterial contaminants are removed effectively.

The GERO series is a complete multi filtration water treatment system mounted on one skid. Manufactured by the highest quality components, all systems are designed to provide reliable, trouble free and sustained performance.



STANDARD FEATURES

- TFC spiral bound membranes
- FRP membrane housing
- Thin film composite membranes
- Powder coated steel frame
- Heavy duty PVC pipings
- Automatic flush
- 5 micron cartridge prefilter
- Product water flow meter
- Level control on/off

MODEL	PERMEATE	MEMBRANE QUANTITY	DIMENSIONS L" X B" X H"	MOTOR
GERO-15	1500 GPD (5.7M ³ /D)	4040 X 01	65 X 24 X 65	1.0 HP
GERO-30	3000 GPD (11.3M ³ /D)	4040 X 02	61 X 31 X 71	1.0 HP
GERO-45	4500 GPD (17M ³ /D)	4040 X 03	71 X 31 X 71	2.0 HP
GERO-60	6000 GPD (22.7M ³ /D)	4040 X 04	71 X 31 X 71	2.0 HP
GERO-90	9000 GPD (34M ³ /D)	4040 X 06	79 X 39 X 69	3.0 HP
GERO-120	12000 GPD (45.4M ³ /D)	4040 X 08	87 X 43 X 69	3.0 HP
GERO-1000	100000 GPD (378M ³ /D)	8040 X 16	197 X 73 X 80	18 HP
GERO-1250	125000 GPD (476M ³ /D)	8040 X 20	197 X 73 X 90	22 HP
GERO-1580	158000 GPD (598M ³ /D)	8040 X 25	236 X 73 X 90	30 HP
GERO-1900	190000 GPD (720M ³ /D)	8040 X 30	236 X 73 X 90	30 HP
GERO-2500	250000 GPD (946M ³ /D)	8040 X 40	236 X 73 X 90	45 HP
GERO-3100	310000 GPD (1173M ³ /D)	8040 X 50	236 X 73 X 90	75 HP

Other sizes between GERO-120 and GERO-1000 also available

WATER SOFTENING PLANTS



WATER SOFTENING PLANTS - WSP

The presence of hardness salts (calcium and magnesium ions) in the make-up water gets supplied to boilers, cooling and process waters that can have a serious impact on their performance. Loss of heat transfer in boilers and poor cooling in re-circulating cooling systems results in an increase in both energy and water consumption, and hence an increase in operating costs.

Our standard, extensive and comprehensive range of water softening plants effectively removes these hardness salts and provides a valuable return on your investment.

Our water softeners are designed for counter current regeneration with up flow rate and co-current regeneration with down flow rate. The resultant water to service is typically less than 4 ppm total hardness.

WATER DEMINERALIZATION (DM) PLANTS



Demineralised Water is Water completely or nearly free of dissolved minerals ions such as cations of Calcium (Ca^{2+}), Magnesium (Mg^{2+}), Sodium (Na^+) Potassium (K^+), Iron (Fe^+), Copper (Cu^+) etc and anions such as chloride (Cl^-), sulphate (SO_4^-), nitrate (NO_3^-), etc thereby producing a high purity water similar to distilled Water

PRINCIPLE

Raw Water is passed via resin beds wherein the cations (positively charged ions) get exchanged with hydrogen ions, the anions (negatively charged ions) are exchanged with hydroxyl ions.

TECHNOLOGIES:

Two-bed deionization

The two-bed deionizer consists of two vessels - one containing a cation-exchange resin wherein the cation based minerals are exchanged by its hydrogen (H^+) ions and the other vessel contains an anion resin wherein the anion based minerals are exchanged with hydroxyl (OH^-) form whose number will depend on the valency.

Electro Deionization (EDI)

Electrodeionization Systems remove ions from aqueous streams, typically in conjunction with reverse osmosis (RO) and other purification devices. Our high-quality deionization modules continually produce ultrapure water. EDI may be run continuously or intermittently

APPLICATIONS:

Boilers feed Water, Textiles, Pharmaceuticals, Chemicals, Breweries, Swimming pools, Hospitals, Automobile, Fertilizers. Power Plant, and Chemical Industries

MIST EVAPORATOR

GEN-MIST EVAPORATOR is a customised mechanical enhanced evaporation system which is the most cost effective solution for evaporating the water including RO reject. It is specifically designed and engineered for continuous use, and will reduce the tailing pond water level naturally and economically. The working principle of this system is based on a jet of finely atomized water carried by a stream of air generated therein.

Our MIST EVAPORATOR is made with the quality components and materials with specialised nozzle configuration and resilient coating which can tolerate high TDS water and high industrial conditions. Any desired volume can be managed by using multiple numbers of units. The existing site conditions and the pan evaporation rates are used to calculate the efficiency of each unit required to reach the Zero Liquid Discharge (ZLD)

FEATURES

- Alternative to expensive wastewater evaporators.
- Mechanically enhanced evaporation solutions
- Much lower in capex and opex as compared to steam evaporators
- Requires short lead time for start up
- Acceptable environmental impact
- Increased reliability and runtime
- Requires minimal maintenance
- Lesser footprints
- Easy installation
- Customised design



ZERO LIQUID DISCHARGE



ZLD
Zero Liquid Discharge

Zero liquid discharge (ZLD) is an engineering approach to wastewater treatment where all treated clean water is made available for reuse in ongoing industrial operations by removing the impurities & dissolved solids while the contaminants therein are reduced to solid waste. In the case where RO membrane filtration is to be applied, a smaller volume (the reject) will require evaporation i.e. steam evaporator in general and Multieffect evaporator (MEE) in particular is one of main partner and popular method in completing the loop of wastewater treatment to achieve the ZLD.

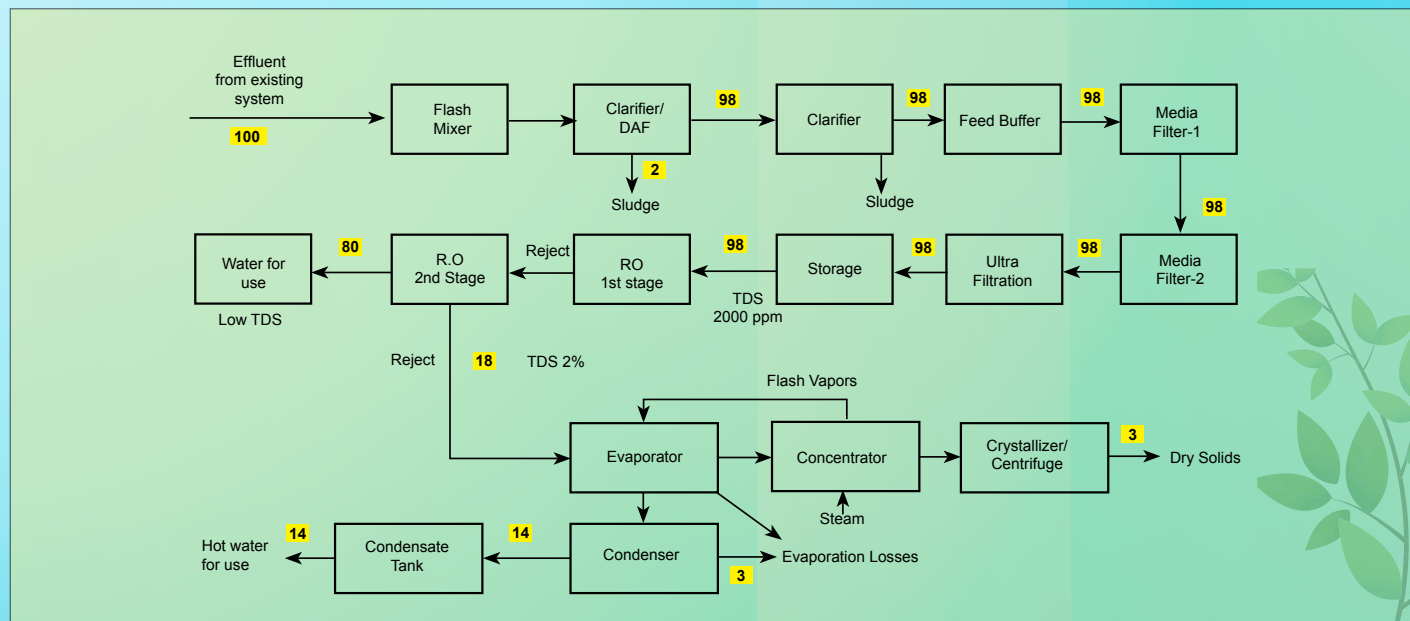
At GEPL, we adopt a project based approach with superior and cost effective engineering design capabilities and manufacturing excellence to deliver a total solution towards achieving ZLD.

We provide turnkey solution for ZLD with primary treatment, secondary treatment, tertiary treatment, evaporation system and ATFD based on the type and characteristics of the effluent.

We design and manufacture the single and multiple effect evaporators with falling film evaporation and forced circulation crystallizer keeping in mind both sustainability and economy in operation

FEATURES

- Process design and development
- Zero Liquid Discharge System which includes Stripper Column, Multi Effect Evaporator and Agitated Thin Film Dryer
- Distillation Column for solvent recovery
- Agitated Thin Film Dryer (ATFD) for drying of product
- Evaporator for concentration of product



MULTIEFFECT EVAPORATOR (MEE)



APPLICATIONS:

- Concentration of RO rejects
- Concentration of Industrial Effluent
- Concentration of Pharmaceutical Products
- Concentration of food, beverages and dairy products

OUR DESIGN HAS SPECIFIC THRUST ON HEAT TRANSFER, VAPOR LIQUID SEPARATION & EFFICIENT UTILIZATION OF ENERGY ALONG WITH THE FOLLOWING FEATURES:

- Pure Condensate recoveries.
- Higher thermal efficiencies by employing minimum scope of steam
- Minimum Operating cost by using Mechanical Vapour Recompression (MVR) & Thermal Vapour Recompression (TVR)
- Optimum Thermal design.

WE DESIGN A RANGE OF EVAPORATOR SUCH AS SINGLE EFFECT AND MULTIPLE EFFECTS AS PER THE NEEDS OF VARIOUS PROCESS INDUSTRIES:

- Vertical Tube Evaporator
 - Falling Film
 - Rising Film
- Forced Circulation Evaporator
- Horizontal Tube Evaporator
- Plate Type Evaporator



PRINCIPLE OF MEE

When the heated steam passes into an evaporator, the solution is heated while the secondary steam pressure and temperature are lower than the original heating steam, the secondary steam can still be used as the heating steam (As long as the evaporation chamber pressure and the boiling point of the solution are lower than those of the original evaporator) and introduced into next evaporator. Similarly, the new secondary steam produced by the second evaporator can also be used as the heating steam of the third evaporator. In this way, each evaporator is called a single effect, and a plurality of evaporators are connected together to form a multi effect evaporation system.

The first heat exchanger with the primary steam is called the first effect, and the second heating exchanger with the secondary steam generated from first effect is called the second effect... and so on.

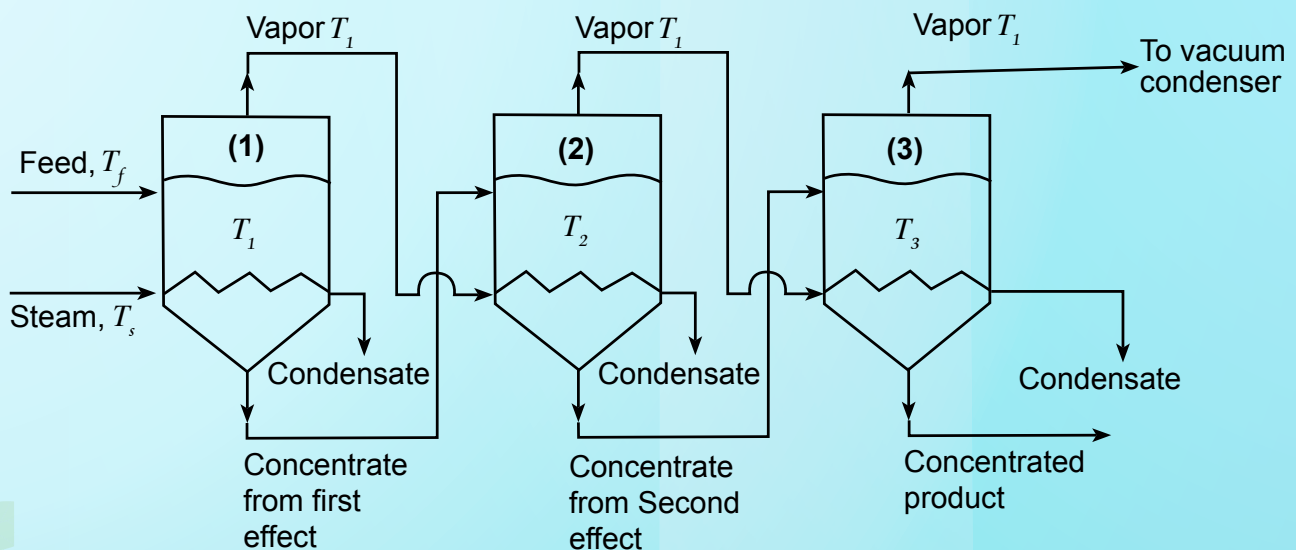
The utility model has the advantages of cyclic utilization, repeated utilization of heat energy, and remarkable reduction of heat energy consumption, thus greatly reducing the cost and increasing the efficiency.

Evaporation is a process to concentrate a non-volatile solute from a solvent (water) by boiling off the solvent. It is special case of heat transfer to a boiling liquid to result in separation of a liquid mixture into a liquid product (concentrate or thick liquor) and a vapor. The design of an evaporator should be with the objective of economy. The chief factor to obtain the economy/efficiency of an evaporator system is to increase the number of effects such that the vapours obtained from first effect act as a heating medium for another effect.

The operating costs of an evaporation plant is largely determined by the utility/energy (steam and power) required to achieve the desired evaporation/concentration. Apart from the motive to save steam, its operation cost can be reduced further by use of Thermal Vapour Recompressor (TVR), to improve the steam economy which uses the dead vapours and gives the same steam/energy saving as an additional evaporation effect.

Although small, the steam economy can also be improved by feed pre-heating systems using the waste heat from process plants.

General process of Multiple-Effect Evaporator Systems (Forward-feed, triple-effect)



MEMBRANE SEPARATION PLANTS



Membrane separation is a safe, efficient and cost-effective process of water filtration and environment-friendly purification with a minimal use of chemicals. These plants employ various semi-permeable membranes that effectively remove solids, bacteria, and other impurities.

- Micro Filtration Plants (MF)
- Ultra Filtration Plants (UF)
- Nano Filtration Plants (NF)
- Reverse Osmosis Plants (RO)

MICRO FILTRATION

Microfiltration is a type of filtration physical process where a contaminated fluid is passed through a special pore-sized membrane to separate microorganisms and suspended particles from process liquid. It is commonly used in conjunction with various other separation processes such as ultrafiltration and reverse osmosis.

We offer customized micro-filtration units which are constructed using hollow fiber membranes or spiral bound membranes.

ULTRA FILTRATION PLANTS

Ultra-filtration plants are suitable for pressure-specific operations and are used to separate big molecules present in water. They are virtually free of solids and effectively remove bacteria, viruses and parasites without killing them.

UF membranes typically have pore sizes in the range of 0.1-10 μm which contributes to a high removal capability of bacteria, viruses, colloids, macromolecular compounds and silt, thereby producing high-quality water. Ultrafiltration is effective for the removal of particles and macromolecules, with sizes between 1-100 nm thereby meeting increasingly stringent water quality standards around the world providing a stable, reliable and consistent water quality.

We offer ultra-filtration plants that are constructed from hollow-fiber and spiral-bound membranes and work at a pressure of about 1-10 bar.

NANO FILTRATION PLANTS

Nanofiltration(NF) is a membrane liquid-separation technology sharing many characteristics with reverse osmosis (RO). Unlike RO, which has high rejection of virtually all dissolved solutes, NF provides high rejection of multivalent ions, such as calcium, and low rejection of monovalent ions, such as chloride.

Nano filtration plants are generally used to soften the water, to recover salts from dyeing

baths, to remove color and to recover acids and caustic soda.

We provide nano-filtration plants that are constructed from hollow-fiber or spiral-bound membranes suitable for medium to high working pressure (4-30 bar)

BENEFITS

- Modular design
- Membranes providing absolute barriers
- Less space

REMOTE MONITORED RO SYSTEMS

To increase operational efficiency and enable better plant management, we offer remote monitored RO systems, which allow real-time monitoring of parameters from a remote location.

Q. Why Remote Monitoring?

A. Due to following possible lapses:

- Plant operators are not well versed with the technical aspects of the RO plant and cannot interpret instrument values such as flow, pressure, conductivity and pH
- Complaint is raised only when the flow reduces drastically or the plant completely breaks down
- Site operators do not backwash filters or change cartridges on time
- Site operators may throttle the reject control valve too much to get better permeate flow, which may result in decreased efficiency
- Site operators rarely ensure anti-scalant dosing pumps operation
- Log books are rarely maintained on site

REVERSE OSMOSIS PLANT

RO Plants separate dissolved salts from liquid solutions by employing semi-permeable membranes. We offer a whole range of Reverse Osmosis plants exclusively constructed by installing spiral wound membranes. They work at medium to high pressures (6-80 bars) based on the applications.

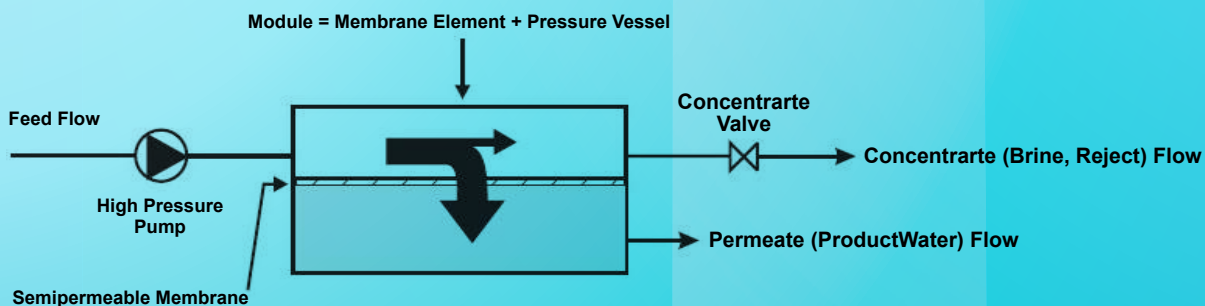


ADVANCED OXIDATION UNITS

Advanced Oxidation Technology purifies water by generating sufficient hydroxyl radicals for effective water purification. The hydroxyl radical (OH) is a very powerful oxidant, which rapidly oxidizes most organic compounds.

We provide effective Advanced Oxidation Units that are made in conformance with various industry standards and offer maximum operational efficiency. Our units provide protection to the extent of 1PPM (99.999%) against harmful microorganism.

Our technology utilizes the ability of light combined with photo-catalytic semiconductor surfaces (Titanium Oxide) to produce free hydroxyl radicals. The hydroxyl radicals have 33% higher Redox potential than Ozone and 50% higher than Hydrogen Peroxides, and therefore are very potent at breaking down harmful microorganisms and other pollutants.



ONLINE REAL TIME EFFLUENT MONITORING SYSTEM



To Monitor Effluent (Air & Water) as per CPCB Guidelines

The comprehensive monitoring solutions that meets all the guidelines laid down by the CPCB/PCB.

Parameters Monitored

In addition the regulated parameters for online monitoring like BOD, COD, TSS, Cr, As, pH & Flow for all the types of Industries, our sensors are also able to measure parameters such as TOC, DOC, Turbidity, DO, NH₄-N, NO₃-N, AOC, Color, SO_x, NO_x, PM

Flexible Installation Mechanism

Our systems are capable of getting installed via a Flow-Through / Sampling mechanism where we draw/pump the sample into the monitoring station or via direct immersion of the sensors into the sampling medium.

Data Transfer to CPCB/SPCB

HIGHLIGHTS AND ADVANTAGES:

- Long term stable and maintenance free in operation
- Automatic cleaning with compressed air
- Extended warranty on the sensors
- Automatic adaption during matrix change and removal of interferences such as Turbidity, TSS, Color etc
- The Analyzer's accuracy does not have interference due to Color, Turbidity/TSS and Chloride, inorganics and changes in waste water sample matrix.
- Low power consumption and ability to run on Solar Power with supply ranging from 10-30 VDC for solar systems
- Multiple calibration options with unlimited calibration points.
- Facility for Remote Online Calibration
- Easy to operate and maintain, and use limited reagents, so that it is cost effective

POLLUTION CONTROL (PCBs) CONSULTANCY SERVICES

SPCB CONSENT TO ESTABLISH (CTE)

All the industries and activities needing consent must obtain Consent to Establish before actual commencement of the works for establishing the industry/activity.

- Preparation of Application.
- Classification of Industry (Red/Orange/Green etc).
- Detailed analysis of the Case.
- Filing of Case with SPCB.
- Obtaining Consent to Establish (CTE)

SPCB CONSENT TO OPERATE (CTO)

This consent is needed before actual commencement of production/activities/processes including trial production.

- Preparation of Application.
- Evaluation of CTE details to file CTO .
- Detailed analysis of the Case.
- Filing of Case with SPCB.
- Obtaining Consent to Operate (CTO)

We at Genesis provide complete pollution control consultancy across the SPCBs for CTEs & CTOs.

Our experts are well aware about to legality and challenges faced during this process and assure you the peace of mind from start to completion of the process



OPERATION & MAINTENANCE (O&M)

We undertake operation & maintenance, annual maintenance contracts for water and wastewater treatment plants i.e. for STP, ETP, WTP, ZLD.

Our maintenance staffs are sincere towards their environmental commitments and are proficient with operation and maintenance procedures.

FEATURES:

- Optimum charges
- Well trained technical staffs
- On time preventive measures to avoid breakdowns.
- Maintenance of records for accurate results



DESIGN ENGINEERING CONSULTANCY SERVICES FOR WATER & WASTEWATER TREATMENT AND MANAGEMENT



Genesis offers professional Design and Engineering Consultancy services in the area of water and wastewater Treatment and management

At Genesis, we provide fully integrated array of key technical consultancy services in Municipal and Industrial segment in the field of Water Management ranging from Rapid assessment, Project concept development, Planning, Design, Engineering, Execution and Service.

OUR SERVICES INCLUDE:

- Site and process analysis related to water and wastewater treatment and management to suggest cost saving and environment friendly technologies for wastewater treatment and water management
- Preparation of Concept note, Techno-economic Feasibility Report, Design & Engineering, cost estimations, Detailed Project Report, RFQ Documents
- Evaluation of the vendor and control, checks & verification of all the inputs being supplied by your chosen vendor
- Recycle & Reuse of treated Sewage Waste water/Industrial Effluent for non-potable as well as for process applications as part of ZLD scheme
- Preparation of Concept note, Techno-economic Feasibility Report, Design and Engineering, cost estimations, Detailed Project Report, RFQ Documents
- Water & Wastewater Treatment Plants: Basic and Detailed Design & Engineering
- Value engineering – providing cost effective and energy optimized designs
- Existing treatment facility up-gradation.
- Environment Management and Compliances

“AS YOUR CONSULTANT, WE ENSURE EFFICIENCY; YOU CHOOSE YOUR OWN VENDOR AND WE AVOID SELLING A PLANT.”

ACCREDITATIONS



Awarded
"Water Company Of The Year"



SOME OF OUR CLIENTS

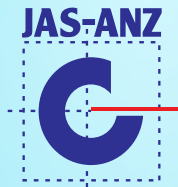


OUR STRENGTH

- 💧 Designing, Making and Execution of all Water & Wastewater projects/plants on turnkey basis
- 💧 In house Design & Engineering capability
- 💧 Capabilities in selecting the most cost effective technology for process needs.
- 💧 Zero liquid discharge (ZLD) plant - Recycle & Reuse
- 💧 Operation & Maintenance services
- 💧 Company with value of integrity and long term relationships
- 💧 In-depth Process engineering/ technology knowledge for treatment of complex nature of wastewater.
- 💧 Project Management Services with experienced team of engineers and designers.
- 💧 Preparation of feasibility report, DPR, Cost estimation, etc.for water and wastewater projects



ISO-9001-2015



ISO-14001-2015



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