



# SEWAGE TREATMENT

Data Sheet

## The Environmental Solution

EBD Water offers a variety of sewage treatment plants, handling raw sewage from various sources, producing different discharge qualities to meet each of the specific local requirements, all however meeting the international environmental standards.



## Principles of Operation

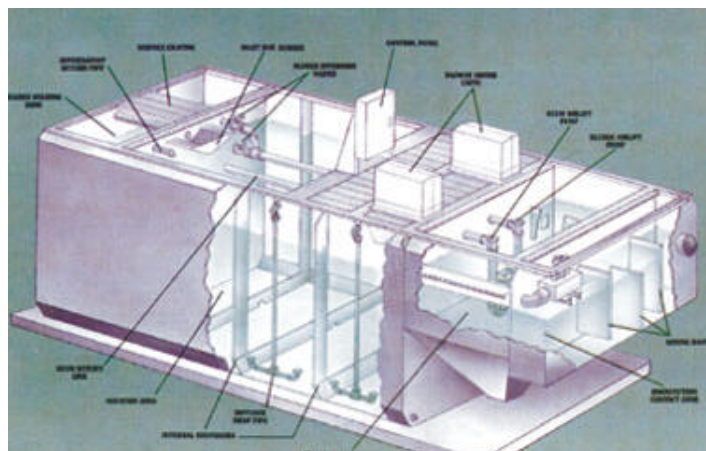
EBD Water sewage treatment plants utilize the extended aeration process for the reduction of the Biological Oxygen Demand (BOD) loading, being the main regulated discharge parameter.

By providing sufficient oxygen levels and mixing, the microorganisms are allowed to breakdown the organic impurities in the raw sewage.

Secondary treatment is achieved using the Pre-Engineered EBD Water package plants. These package plants produce treated effluent levels of 20 mg/l BOD and 30 mg/l suspended solids. This is featured through a five-step treatment process: Comminution and screening, diffused aeration, clarification, sludge recirculation and disinfection.

Tertiary Treatment and Advanced Wastewater Treatment (AWT) are further options to improve the discharge qualities. EBD Water multi-media Filtration Systems are used to achieve the tertiary treatment levels of 10 mg/l BOD and 10 mg/l suspended solids.

Further treatment, using technologies such as Coagulation, Flocculation, Reverse Osmosis and Ion-exchange produces water for reuse and recycle in all applications.





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### Typical Features

Rectangular Design (Circular Design available for special site requirements)

Welded Carbon Steel Construction (1/4 inch structural plate), with interior and exterior lining suitable for above and below ground installation (Tanks also can be constructed in concrete on site).

Membrane check valve fine bubble diffuser preventing the back flow of water when the diffuser is not aerating [up to 12 cfm capacities]. Due to its self sealing configuration using a flexible membrane, this diffuser is less susceptible to clogging by solids or biological fouling.

Aerated sludge holding tank with up to 6 months sludge storage capacities.

Cast Aluminum comminutor up to 850 gpm each, for durability and long life. A built-in torque clutch and auto reverse system protects the gearbox from heavy shock loads (shredder-type submersible pumps are available as alternative).

Blower modules provide a single air source for all mechanical and electrical components within the plant. Entire module system is protected by a fiberglass Nema 4x enclosure.

Hypochlorite Feed by positive displacement pumps to baffled chlorine contact tank (Gas chlorination by vacuum system is an alternative).

Motor Controller housed in a Nema 4x enclosure, incorporating the main circuit breaker, starters, relays, terminal blocks, switches, pilot lights, fuses and all necessary electrical components.

### Selective Data

Model Range	Capacity (m <sup>3</sup> /day)	BOD Loading (Kg/day)	Dimensions (meters) (W x H x L)
EAP - 010	11.4	2.3	2.4 x 2.9 x 2.00
EAP - 020	18.9	3.8	2.4 x 2.9 x 3.30
EAP - 022	22.7	4.5	3.0 x 3.3 x 2.70
EAP - 060	60.6	12.1	3.0 x 3.3 x 7.00
EAP - 065	64.4	12.9	3.7 x 3.3 x 6.10
EAP - 190	189.4	37.9	3.7 x 3.3 x 18.2
EAP - 210	208.0	44.5	7.3 x 3.3 x 9.90
EAP - 340	378.8	75.8	7.3 x 3.3 x 18.3



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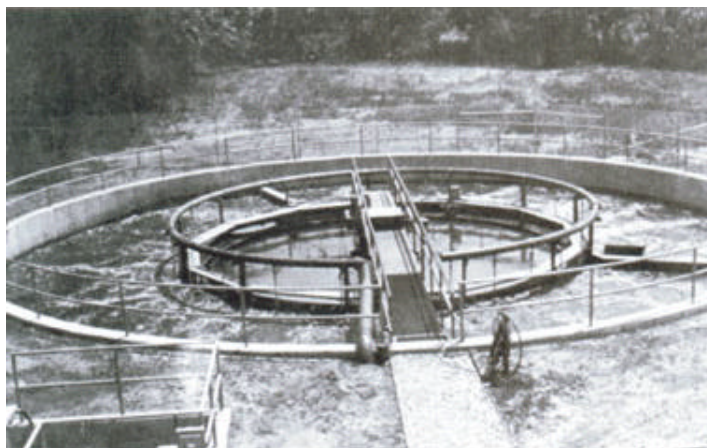
Larger systems are custom designed for villages and small cities' applications reaching the multi-hundred thousands cubic meters per day capacities.

The above specifications are based on the following:

- U.S. Corps of Engineers and the United States EPA Guidelines for Extended Aeration Systems.
- Peak Flow at 3 times the average flow.
- Raw sewage from human waste (For industrial waste streams, please ask about EBD industrial wastewater treatment systems).
- Raw sewage parameters of 240 ppm BOD and 300 ppm S.S. (BOD up to 400 ppm and SS of 500 ppm can be treated with certain system modification).
- Twenty Four (24) hours retention time in the aeration tank [ Design ranges from 18 to 36 hours based on BOD levels].
- Two streams operation to provide flexibility, handling low flows and improving efficiencies.
- Gravity clarifier  
4 hours retention time [Design ranges from 3 to 4.5 hours].
- Aerated Sludge digestion tank for 15 days retention time.
- Chlorine contact tank for 45 minutes retention [design ranges from 30 to 90 minutes].

Electric characteristics: 230/460 V, 3 PH, 60 HZ as standard [380 V, 3 PH, 50 HZ available].

Below ground or above ground installation is possible. Welded steel packages are provided with magnesium anodes for cathodic protection.





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## Auxiliary Equipment

Froth Control System

Chemical Pretreatment

Covers

Grease Trap

Grit Removal Chamber

Oil/Water Separator

Hydropneumatic Systems

Storage Tanks

De -Nitrification Systems

Filtration Systems

Advanced Wastewater Treatment  
(AWT) Systems

Sludge Thickeners and Belt  
Presses

Test Equipment

Spare Parts

DESALINATION PROCESSES  
DEIONIZATION PROCESSES  
MUNICIPAL WATER TREATMENT  
INDUSTRIAL WATER TREATMENT  
MUNICIPAL WASTEWATER TREATMENT  
INDUSTRIAL WASTEWATER TREATMENT  
CHEMICAL SERVICES  
TECHNICAL SERVICES