

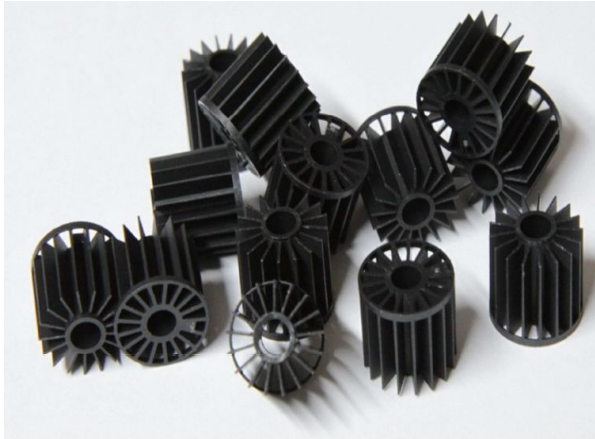
***Package and Containerized Sewage Treatment Plant  
based on MBBR and Ultra Filtration Technology,  
316 m<sup>3</sup>/day for Duqm Beach Hotel, Duqm, Oman***



**Aeration Side Channel Blower**



**Aeration Tank with Bio Media**



**State of the art GEA – BIO MEDIA, MOC PP**



**Ultra-filtration Membranes**



**MBBR Aeration Tank**



**Filtration System of MBBR STP**

## Project Name

The Package and Containerized Sewage Treatment Plant (STP) of 316 m<sup>3</sup>/Day based on MBBR and UF Technology is located at the Duqm Beach Hotel Site and caters to the wastewater treatment requirements of the Hotel.

## Client

Al Hajri, Muscat Oman

## Project Joint Venture

Celar Water Equipment Co., LLC, Sharjah, UAE  
EarthCAD Environment FZ-LLC, RAK, UAE

## Scope of Services

### Scope of Work under this project includes:

- Design, Engineering, Supply of Package Sewage Treatment Plant of 300 m<sup>3</sup>/day capacity based on MBBR Technology including all Electrical & Mechanical Works
- Design, Engineering, Supply of Containerized Ultra Filtration of 100 m<sup>3</sup>/day capacity including all Electrical & Mechanical Works

## Treatment Technology

The Moving Bed Bio Reactor (MBBR) system provides a continuously operating bio-film reactor, which is non-cloggable, does not require backwashing and has a very low pressure drop.

This is achieved by growing the bio-film on smaller carrier elements that move along with the waste water in the reactor. The air stream constantly keeps the bio-media in suspension and at the same time provides the required oxygen to the biomass.

## Design Basis

The Package MBBR STP has been designed taking into consideration the wastewater flow (316 m<sup>3</sup>/day) and characteristics as given below.

### Inlet Wastewater Characteristics

Parameters	Designed (Maximum)
BOD	250 mg/L
COD (Total)	500 mg/L
TSS	250 mg/L

Temperature	20 °C- 35 °C
pH	7-8

## Design and Process Flow Scheme

The Design and Process Flow Scheme of the 300 m<sup>3</sup> per day MBBR STP is as follows:

- Balancing/Equalization Tank (GRP)
- Air Blower for Equalization/Sludge Tanks
- Coarse Bubble Air Diffusers in Equalization Tank
- Raw Sewage Pump
- MBBR Tank with with Bio-Media along with Settling Tank Compartment with Tube Settler Media
- Sludge Recirculation/Waste Pumps
- Sludge Motorized Valve
- Hypochlorite based Chlorination System
- Dual Media Filters
- Filter Feed Pumps
- Backwash Pump
- Interconnecting Piping, Valves, Fittings
- Electrical Control Panel and Cables
- Ultra-filtration System in 40 Feet Container

## STP Performance and Treatment Efficiencies

The Plant was commissioned in November 2012 and the performance data is given below;

### Results of Lab Analysis (16<sup>th</sup> December 2012)

Parameters	Outlet of STP
Total Suspended Solids (TSS)	<5
Biochemical Oxygen Demand	7
Chemical Oxygen Demand	15
Ammonical Nitrogen	0.3