FBBR Series
Biological Sewage Treatment Plant

victor marine

Victor Marine's FBBR Series (Fixed Bed Biofilm Reactor) Biological Sewage Treatment Plant has been developed using the extremely well proven and compact fixed biofilm technology. The system has been approved to the latest **IMO standard MEPC 159(55)**.

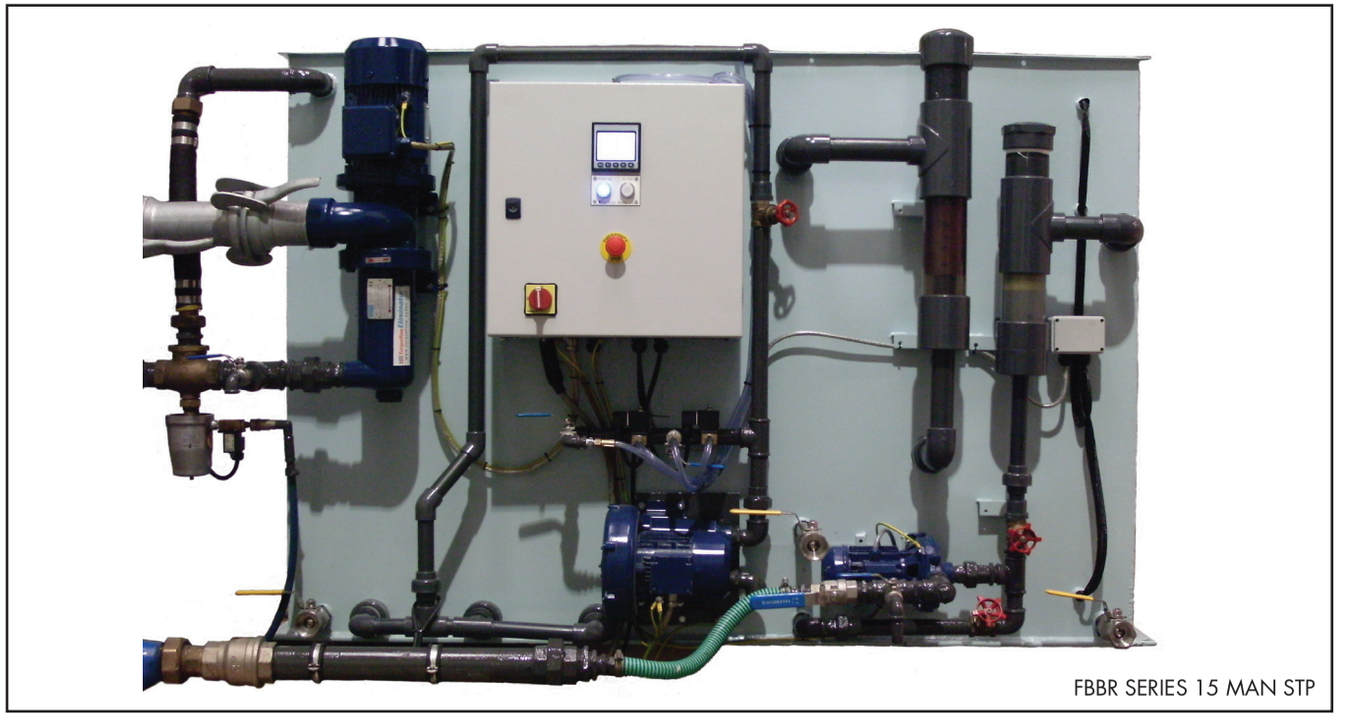
The FBBR Series is a three-stage sewage treatment system which can process from a gravity or vacuum feed.

In the first stage, macerated sewage is fed to the **Bioreactor**, an aerobic biological system, using a fixed structured inorganic media bed with very high specific surface area to allow biofilm growth. This 'fixed bed' system maximises the biomass volume, increasing the efficiency of the bioreactor. It is also designed to direct the inflow sewage through an extended retention pattern to ensure maximum treatment and no bypass. A low pressure aeration system provides the bioreactor with a constant and uniform supply of oxygen to the biomass whilst preventing odours and hazardous gases from forming.

The scoured biomass passes into the second stage via a flow control unit (FCU) into the **Settlement Tank**. The FCU controls and stabilises the system during peak and low flows. The advanced settlement tank employs tube settlers and skimmers which magnify the settlement effect and also prevents disturbances due to the motion of the ship. Due to the increased efficiency, the settlement tank is smaller than conventional settlers whilst producing a clearer effluent and better results than the required IMO standard.

Prior to overboard discharge, the processed water is treated in the third and final stage, the **Chlorination unit**. This is a tablet dispensing unit which is both simple and easy to use, saving engineer's time when operating. Finally, during discharge overboard, the effluent is pumped through a **Dechlorination unit** which removes any excess chlorine, as per IMO requirements.

Supplied with the latest touch-screen **HMI display and PLC**, the FBBR Series STP can be easily monitored and controlled making the system very operator friendly.



FBBR SERIES 15 MAN STP

Key Features:

- Fixed Bed Biofilm Reactor (FBBR) technology giving low footprint, reliability and excellent performance;
- Unique Flow Balancing System with a Flow Control Unit (FCU) improves process stablility during peak flows;
- Suitable for treating Black or Black/Grey water systems;
- Can be supplied as a Gravity system or Vacuum System;
- Fully automated system with PLC controller requiring minimal operator input;
- Type Approved according to latest IMO regulation MEPC 159(55) by Bureau Veritas.

IMO MEPC 155(59) Discharge Limits:

Thermotolerant Coliform	> 100/100 ml
Total Suspended Solids (TSS)	> 35 mg/l
Biological Oxygen Demand (BOD_5)	> 25 mg/l
Chemical Oxygen Demand (COD)	> 125 mg/l
pH	between 6 and 8.5
Chlorine	> 0.5 mg/l

FBBR System Specifications:

	Hydraulic Load m^3/day	Dimensions (W x L x D) m	Weight (Wet) Kg
FBBR 15	3.0	1.6 x 2.0 x 1.3	3000
FBBR 30	6.0	1.9 x 2.3 x 1.6	4500
FBBR 50	10.0	2.0 x 2.7 x 1.9	7000