

# FBBR Mini

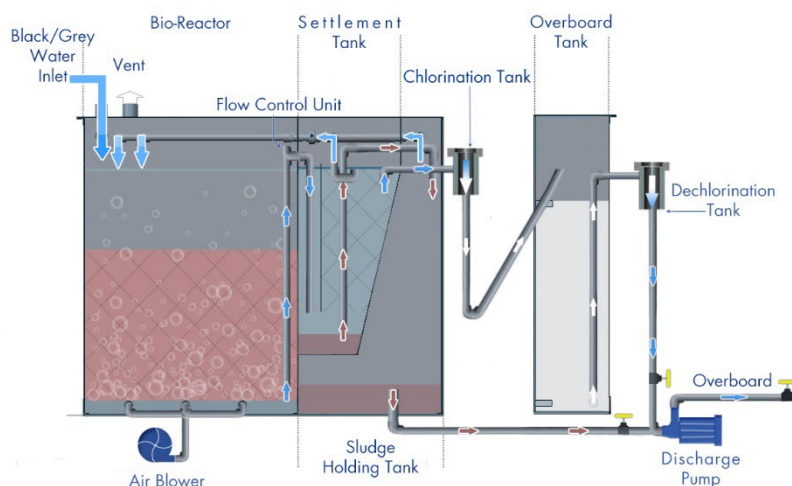
Sewage Treatment Plant  
1.8m<sup>3</sup>/day Hydraulic load



## Victor Marine

### Description

Victor Marine's FBBR Series (Fixed Bed Bio Film Reactor) Biological Sewage Treatment Plant has been developed using the extremely well proven and compact fixed biofilm technology. Fully automatic operation is both effective and reliable, whilst making it easy to use and maintain.



### Key Features

- No high-speed moving parts, which results in less maintenance and lower lifetime costs;
- No delicate expensive membranes;
- No cleaning cycles or backwashing;
- Fully automated PLC-controlled system;
- Ability to process from a gravity or vacuum feed;
- Can be supplied as turnkey package or in modular form for ease of installation;
- Low power consumption;
- Fully Type Approved to IMO and Bureau Veritas standards.

### Technical Information

|                                         |                                                                                                                                                                                                                               |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Biological Load<br>(kg BOD/day)         | 0.63                                                                                                                                                                                                                          |
| Hydraulic Load<br>(m <sup>3</sup> /day) | 1.8                                                                                                                                                                                                                           |
| Max Length* (Inc. Maint)                | 1161mm (1480)                                                                                                                                                                                                                 |
| Max Width * (Inc. Maint)                | 1502mm (1800)                                                                                                                                                                                                                 |
| Max Height* (Inc. Maint)                | 1413mm (1800)                                                                                                                                                                                                                 |
| Weight                                  | Dry - 490kg<br>Wet - 1500kg                                                                                                                                                                                                   |
| Electrical Supply                       | 380 – 460 V / 3ph / 50-60hz                                                                                                                                                                                                   |
| Connections (mm/inch)                   | Wastewater Inlet (Black) - 2"<br>BS4504 PN6<br>Wastewater Inlet (Grey) - 2"<br>BS4504 PN6<br>Clean Water Discharge - 1" BSP<br>Sludge Transfer Discharge - 1" BSP<br>Vent Connection - 2" BS4504 PN6<br>Drain Valves - 1" BSP |

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## **Scope of Supply**

Design approved and type tested by Bureau Veritas to satisfy the latest IMO resolution MEPC 227(64) (excluding section 4.2) and MEPC 159(55) meeting the effluent discharge. The FBBR system is internally piped and pre-wired with the following items, supplied as a standard unit:-

- 1<sup>st</sup> Stage Fixed Bed Bio Reactor System with Air Diffusion Tubes;
- 2<sup>nd</sup> Stage Settlement Tank;
- 3<sup>rd</sup> Stage Chlorination Device, Tablet Dispenser;
- 4<sup>th</sup> Stage Chlorine Contact Tank, Discharge Tank;
- 5<sup>th</sup> Stage Dechlorination System, Tablet Dispenser;
- Integral Air Blower;
- PLC – HMI Control System;
- Integrated Sludge Consolidation Tank and Sludge Transfer System;
- Discharge Pump.

## **System Control Panel**

HMI – PLC Control panel installed in a weatherproof steel enclosure, protected to IP55, incorporating:

- 1 No Main interlock isolator switch;
- 1 No PLC/HMI;
- 3 No Motor contactors c/w magnetic- thermal overload;
- 1 No Low voltage control power supply;
- 1 No Power On push button illuminated when on;
- 1 No Emergency stop push button;
- 1 No Sludge transfer push button illuminated when on;
- Set of volt free digital output terminals for IMPS. Comprising of:-
- 1 No Power On status N/C when on;
- 1 No Feed pump status, N/C when running;
- 1 No Air Blower status, N/C when running;
- 1 No Discharge pump status N/C when running;
- 1 No High Level alarm N/C in alarm;
- 1 No Set of terminals for remote Emergency stop control (hard wired);
- 1 No Alarm output (for audio visual alarm c/w mute facility).

This Control system includes all necessary power supplies for the STP unit. The only shipboard supply required is the incoming power to the interlock isolator.

All internal controls are 24V DC.