



# Containerised Membrane Bioreactor System

Ramco are pleased to offer a large quantity of unused Eimco Containerised Membrane Bioreactor (MBR) Systems directly from the UK Ministry of Defence. The equipment is unused having been kept in reserve pending operational requirement.

Each containerised MBR unit comes complete with an array of equipment including a complete Flygt pump set with Rotork automatic actuating valves; trace heated and lagged inlet/outlet pipe work; a chemical delivery tank and system control panel. The equipment is lying at our UK site and can be inspected upon request.

The equipment is ideally suited for applications where the immediate or temporary installation of water treatment plant is required. If necessary any number of containers can be simultaneously operated to provide large scale water treatment facilities.

**£10,000** PER UNIT  
32 UNITS AVAILABLE FOR SALE

**Ramco**

# The Process

---

The small footprint of Eimco Water Technologies' Membrane Bioreactor (MBR) provides major logistical benefits and savings over traditional packaged deployable systems, but still provides an extremely high standard of wastewater treatment; creating a better and safer camp environment, through reducing the potential of waterborne disease and foul sewage odours.

Requiring a much-reduced number of containers during transportation and installation, this proven MBR Technology™ is typically 50% less tank volume than conventional constructions.

Modular and easily expandable for future flow increases, the Eimco Water Technologies' MBR Technology process utilises simple flat-sheet membrane panels housed in stainless steel cases, aerated by a coarse bubble diffuser system.

The MBR's membrane panels are manufactured with an average pore size of 0.4 microns to give a high quality, fully disinfected effluent typically >6 log removal of coli forms and >4 log removal of virus. In operation, the ultra filtration range provides an effective pore size of less than 0.01 microns. Long lasting (expected membrane life beyond five years of continuous operation), Eimco Water Technologies' MBR requires no primary or secondary settlement stages and no additional tertiary treatment or UV stages to achieve a quality:

- Typically better than 5:5:5mg/L BOD:suspended solids: ammonia
- Free of pathogens, viruses and bacteria
- Complies with the World Health Organisation standards for unlimited irrigation
- Complies with the International Maritime Organisation bacteriological limits
- Complies with the EU Bathing Water Directive
- Compliance with the State of California Water Recycling Criteria (Title 22)



*Built In Chemical Cleaning Plant Tank*



*Fine Bubble Diffused Air (FBDA) and Membrane Blowers*

# Technical Data

## Design Influent Characteristics for a single MBR Unit

Type of Waste	Domestic
Camp Size	250 Person
Flow per Person	70 l/h/d
DWF (Average Daily Flow)	17.5 m <sup>3</sup> /d
Peak Flow (3DWF)	2.1 m <sup>3</sup> /hr
BOD Loading	15 kg/d
SS Loading	17.5 kg/d
Ammoniacal Nitrogen Loading	2 kg/d

## Discharge Consent

The Final Effluent Consent is set out below (all 95% ile)

Biochemical Oxygen Demand	20 mg/l
Suspended Solids	30 mg/l

As a consequence of the membrane filtration process, bacteria and viruses are filtered out of the treated effluent. Typically reductions in the bacterial levels exceed 6 log and viruses 4 log.

## Power Required

MBR System	
Blowers (2 off 4 Kw)	8kW 400v TP&N
Trace Heating	2.2kW 230v
Lights	0.3kW 230v
Instrumentation	0.6kW 230v

**Max Load approximately** 12kW

**Environment Control Unit (supplied by others)** 7kW 400v



Twin Set of Rotork Automatic Actuating Control Valves



External Control Panel and Permeate Tank





*Built In Chemical Cleaning Plant Tank*



*Fine Bubble Diffused Air (FBDA) and Membrane Blowers*



*Lagged and Heated Inlet & Outlet Pipework*



*Main Control Panel with FBDA and Membrane Blower Controls*



*Electrical Control Room*



*Lagged Pipework*



*Electrical Power Cables*

For further information and to arrange a viewing contact Elliott Griffen direct on 01754 882225 • Mobile 07760750436

Head Office: Church Road South, Skegness, Lincolnshire, PE25 3RS

01754 880800  
[www.ramco.co.uk](http://www.ramco.co.uk)

