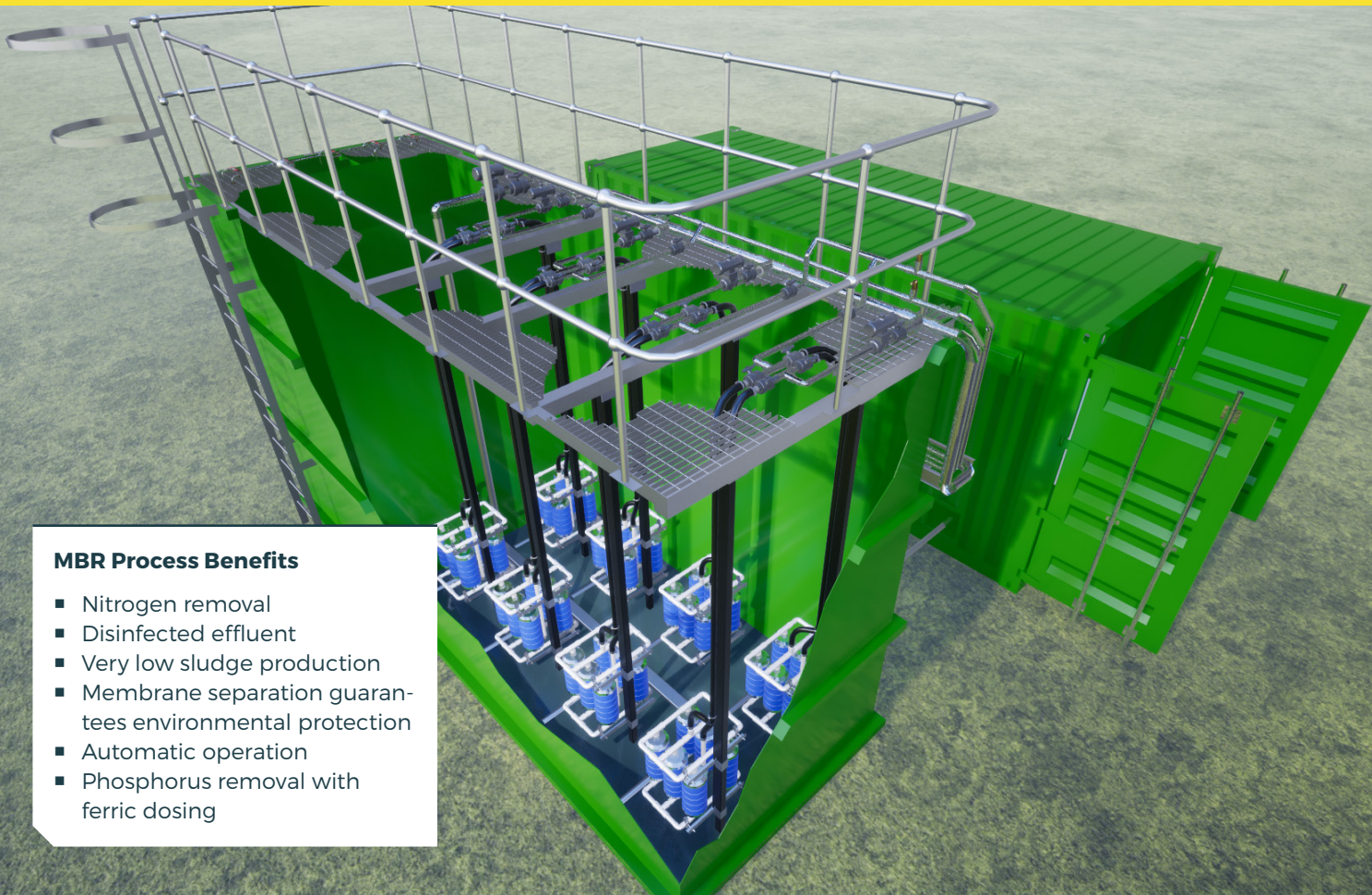




Membrane Bioreactor

TRANT MEMBRANE BIOREACTOR (T-MBR)

Advanced Wastewater Treatment Package Plant



MBR Process Benefits

- Nitrogen removal
- Disinfected effluent
- Very low sludge production
- Membrane separation guarantees environmental protection
- Automatic operation
- Phosphorus removal with ferric dosing

Standard individual units sizes range up to 550PE (Population Equivalent) with greater throughputs using multiple units. The T-MBR is capable of providing a high quality of treated effluent, typically BOD₅ of 5mg/l, TSS of 1mg/l and NH₄-N of 1mg/l.

This unit provides containerised service module housing the automated control system, air blowers, pumps and process equipment with a separate process tank containing the selector, mixed anoxic zone and the main reactor zone containing the C-MEM™ membrane cartridge assemblies.

The Trant Membrane Bioreactor (T-MBR) offers a combination of primary, secondary and tertiary treatment of domestic or industrial wastewater in one package guaranteeing a very high quality effluent whilst reducing sludge disposal and maintenance costs.

MBR Process

The MBR process combines the principles of activated sludge treatment and membrane filtration which uses a physical barrier to separate solids from treated effluent. This results in a high quality disinfected effluent which is available for immediate re-use or discharge to sensitive waters.

Pre-screened wastewater enters the reactor tank via a selector and a mixed anoxic zone. Process air, controlled by a DO probe, is fed via fine bubble air diffusers below the membrane assemblies to supply oxygen for biological growth. Mixed liquor is returned to the selector zone where it is mixed with the raw screened wastewater to promote a healthy mix of biomass species, suppression of bulking sludge and better filterability. The wasting of surplus sludge is controlled automatically. Mixed liquor is also returned to the mixed anoxic zone. During normal operation the membranes are operated via a negative pressure from the permeate pump. The membranes will require chemical cleaning (CIP) periodically depending on the fouling properties of the wastewater. Once initiated by the operator the chemical clean and rinse procedure of the selected module stream will be carried out automatically whilst the remaining module stream(s) continue in normal operation.

Membrane Modules

Each of the C-MEM™ membrane cartridges

comprise several hundred organic hollow parallel fibres combined in bundles that are wound around a carrier cartridge. The cartridge has a connection for filtered water and backwash water (top) and an air connection for scouring (bottom). The fibre bundles are housed within a cartridge outer casing that provides both physical protection and enhances the cleaning procedures. Once the filtration capacity of one group of cartridges (modules) has reached a preset value the backwash procedure, comprising air and backwash water “inside-out” cycles, will automatically be initiated to clean the clogged group or groups of cartridges whilst the other modules remain in normal operation.

MBR Features

- Simple, reliable operation
- Security and flexibility
- Odour free and nuisance free
- Easy installation and small footprint
- Low maintenance and robust equipment
- Minimal operator attendance
- Durable stainless steel or epoxy coated mild steel tanks
- Trant warranty

Control and Telemetry

- The plant is PLC controlled and a telemetry system is available for remote monitoring
- Automatic operation

Typical Applications

- First time treatment - domestic and industrial wastewater
- Side stream or temporary capacity
- Sensitive or restricted environmental locations
- Disinfected MBR effluent ideal for re-use



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