

BMS Blivet Benefits and Advantages

The Aerotor is constructed predominantly in GRP - Glass Reinforced Polyester (fibre glass) with hinges etc. in stainless steel. The discreet unit is designed to free stand above ground or be buried to the deck level without the need for concrete encasement. Due to efficiency of the system, units are generally over one third smaller than say an RBC equivalent. For example, the rotor surface area at 250 square metres per 1 m in of 1.6m (standard) rotor diameter compares very favourably with an RBC disc system which typically achieves 180square metres per 1 m for the same diameter.

- This compactness lends itself to virtual portability and several units are currently in use on a trailer mounted basis.
- The minimal “footprint” or plan area allows installation on sites with scarce space or accessibility problems. Can be located in utility easement.

Shaft / Mechanical Features

Each rotor is securely bonded onto a central hub which is keyed to the shaft. The shaft size in all units is only 60mm and is made from EN8 steel.

- As the Aerotor media is largely (96%) enclosed this provides a semi buoyant effect in combination with air entrapment. Consequently, the BMS Aerotor has a smaller shaft than comparable systems with none of the shaft failures for which RBC's are notorious.
- As the media is separately bonded to the hub, the outer drum and consecutive sandwich, this provides a solid rigid surface for biomass adhesion. Some RBC disc systems use a flexible polypropylene material which can be subject to deformation in use and is susceptible to damage.

Rotation / Process/ Features

The Aerotor rotates at approx 6 rev / min which is faster than as RBC. The following features derive from this design factor :

- The largest unit can treat three times DWF (Dry Weather Flow) while the smaller units can treat much larger variations (eg the B500 can treat up to 18 times DWF). This is important in that diurnal or flow variations are often more marked in smaller installation.
- At times of excessive / storm flow the Aerotor motion tends to have a balancing effect ie. As the flow exceeds the forward pumping rate of the Aerotor, the level will tend to rise in the first compartment. As the level tends to rise the forward pump rate increases due to a longer contact with the rotor inlet ports. Eventually, of course, if the flow continues to exceed design levels, the Aerotor will be bypassed at a 375 mm “back up” level.
- The design of the Biozone Tank is such that the Aerotor is self cleaning, ie. there is no deposition of sludge or ‘dead’ corners. RBC units require a collection tank and often an additional pumped return of deposited sludge the Aerotor doesn't.
- The internal vanes of the media are constantly being scoured by speed of rotation and trapped air bubbles. This self cleaning velocity maintains a thin homogeneous biomass growth preventing excess growth (which is septic) and bridging of interstices, thereby contributing to overall process efficiency.
- Due to the Aerotor arrangements in separate compartments, the flow pattern induces all the effluent to make contact with all the media before passing to the next stage. This eliminates by-passing which is prevalent in RBC's which are at best hit and miss. The arrangement is actually the epitome of ‘plug flow’ which is conducive to graduated proliferation of contrasting biomass cultures in separate compartments.

MAINTENANCE / POWER USAGE

The simplest configuration of the direct drive motor to reduction gearbox and then a duplex chain coupling to each Aerotor section guarantees easy uncomplicated operation, ie. no chain drives or pulley belts.

- Monthly greasing usually is the only main maintenance required.
- Despite all the features including nett lift, active aeration and a speed of rotation the motor drive unit is at least as equally rated as an RBC. For example, the largest Aerotor, the B4000 only requires a .75kw motor if 3 phase is available.

As with the Aerotor, larger sites may be catered for by duplicate units provided the units are equal in size and flow is divided equally.

Blivet - Features

The Blivet is a stand alone, complete sewage treatment plant. It is designed to accept raw (unsettled) sewage and produce a high quality final effluent without the need for auxiliary tankage or equipment.

1. Compactness

The most outstanding features of the Blivet unit is its size. To date we have not encountered any plant worldwide that, PE for PE, can compare. This provides the following advantages:

- a) Minimal site works are required. The civil works normally entail excavation, flat concrete support base and backfilling.
- b) Transportation is simplified with the standard unit width of 2.3m.
- c) The relatively small footprint makes it eminently suitable for confined sites or high amenity areas.

2. Efficiency

Mirroring the simplicity of the Aerotor (which it incorporates), the Blivet is an extremely efficient unit.

- a) No auxiliary tankage or equipment required.
- b) With just two electrical components (the Aerotor motor and the Humus pump) long life is assured.
- c) Total simplicity of the system means the system can be operated by semi-skilled personnel.
- d) Power usage. Single or 3 phase is virtually no higher than the Aerotor unit only.
- e) The unique internal arrangement allows 25% higher Population Equivalent (PE) can be treated over the traditional Aerotor layout.

3. Construction / Materials

The system is manufactured almost entirely from GRP with a totally coated steel frame for strength and longevity.

- a) The Blivet does not require a concrete surround when buried, thus saving considerable installation costs and permitting removal and re-location.
- b) The Blivet is designed to free stand above ground or be buried to deck level allowing for temporary installation or permanent installation.
- c) The system is virtually impervious to decomposition even in the most demanding environments.
- d) The units are both secure and safe being totally enclosed with locked security covers.

4. Adaptability

The size and operation of the Blivet gives unrivalled options for usage.

- a) Multiple units can have advantages for larger population equivalents, permitting staged development of an area (ie. Blivets can be added in stages) and duality of systems offering back-up during maintenance, or possible breakdown.
- b) Due to its virtual portability, the Blivet can be used on site for seasonal loads at an existing works that is both hydraulically and organically overloaded.
- c) Units can be placed in basements or stacked for developed sites requiring treatment.