

TOTAL WATER SOLUTIONS CC

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ROTOCLEAR WASTEWATER TREATMENT PACKAGE PLANT

The Rotoclear system is a combination of technologies which give an environmentally friendly, low impact, reliable and stable process with low running costs.



PROCESS DESCRIPTION

Wastewater enters a septic tank system where gross solids are arrested and anaerobically treated. The waste stream is then passed to the RBC rotor/s where the attached growth on the rotor further removes waste and provides nitrification. Treated water then passes to the lamella clarifier where humus from the rotor is removed and returned to the septic tank as humus sludge. Various disinfection methods are available. The treated water stream is now ready for discharge at the SA general standard for discharge.

BENEFITS OF THE SYSTEM

The benefits of the system over other processes can be summarised as follows:

- **LOW ENVIRONMENTAL IMPACT, SMALL FOOTPRINT**
- **LOW NOISE, NO ODOUR**
- **STABLE PROCESS WITH MINIMAL OPERATOR INTERFACE, CONSISTANTLY HIGH SPEC TREATED WATER QUALITY**
- **LOW POWER CONSUMPTION AND OVERALL RUNNING COSTS (LOW WHOLE LIFE COSTS)**
- **LOW RESIDUALS**
- **LOW MAINTENANCE**

TECHNICAL DESCRIPTION

Our range of units starts at 5 persons and culminates at 500. As the system is modular a number of 500 person units can be arranged in parallel to cater for larger populations. A range of different tankage is available depending on each client's requirements. The tankage options are; polyethylene surface mounted or buried tanks, standard shipping container and in-situ concrete units. Kindly contact your local representative with your population, discharge and tankage requirements for more detail.

The media used in T&B rotors is a matrix of UV blocked high density polyethylene sheets which are arranged to give a high specific area per unit volume whilst offering large void spaces (27mm dry) necessary for ample contact of the biomass with the waste stream which is necessary for the biomass to be adequately massaged during rotation and to ensure a healthy biomass is maintained throughout the media.



The media is supported by a mild steel cage, and fixings which are hot dipped galvanised. Alternative materials of construction such as 3CR12 and stainless steel are available should they be required. The cage is arranged in a series of radial segments, any one of which can easily be removed and replaced if necessary without the need to replace all the media.

A high quality seamless steel tubular shaft is used between generously sized twin row spherical roller bearings. The bearing support pillow blocks are fitted with V ring seals, which ensure a good seal for any angular misalignment of the housing, and axial expansion and contraction of the shaft. The pillow blocks are supported on thick HDG base plates fitted with welded studs for the pillow blocks, and stainless steel holding down bolts.



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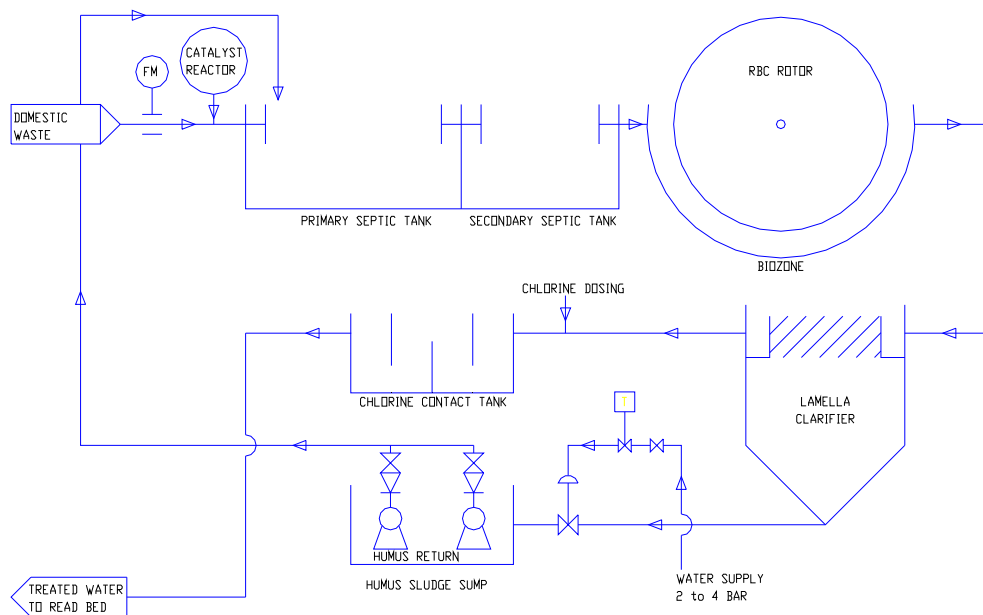
The drive shaft is coated with an approved epoxy tar paint system. Removable stub shafts are incorporated on rotors 3m diameter and above.

The drive is a generously sized epicyclical geared motor fitted with a shrink disc for ease of removal. The service factor on the geared unit is no less than 1.75 on installed power. Motors are TEFC units protected to IP55. A generously sized torque arm and support is provided. The peripheral speed is maintained at $\leq 7\text{m/min}$ to ensure biomass is not prematurely lost due to centrifugal forces and to increase bearing life.

QUALITY OF FINAL EFFLUENT

The standard plant will treat to the SA general standard for discharge limits. The NR option will reduce suspended solids and nutrients, and produce treated water without chloro-organic byproducts.

FLOW SHEET



ROTORCLEAR SYSTEM

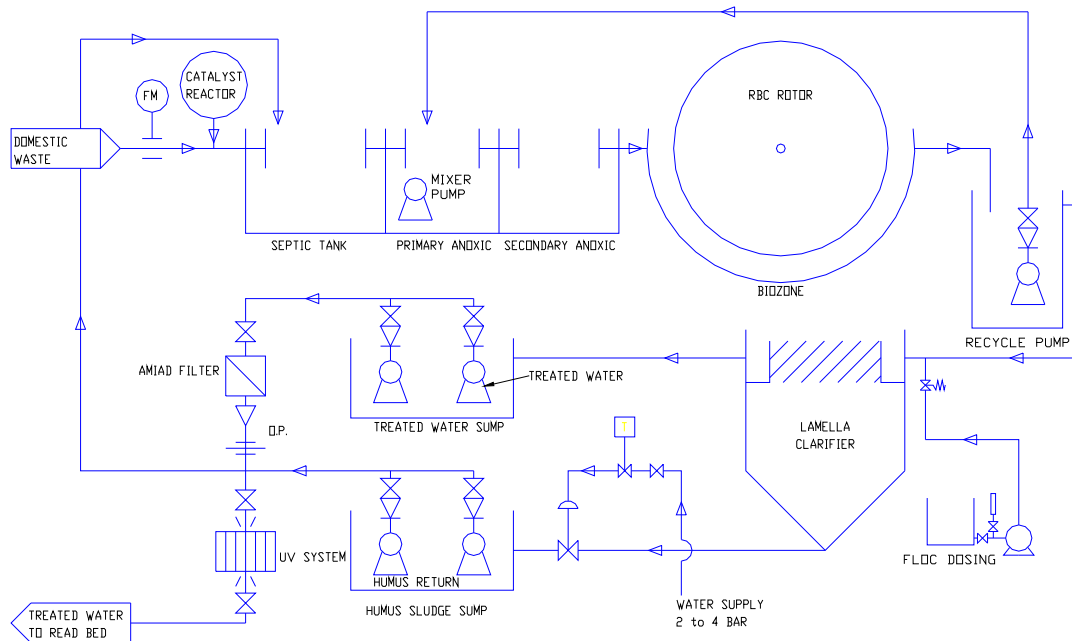


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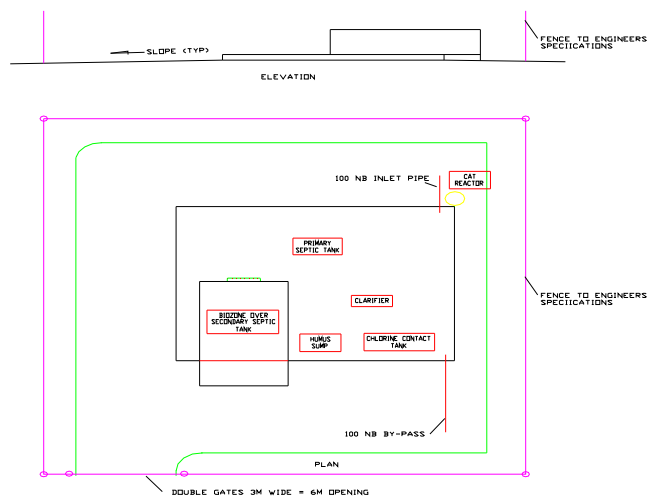


ROTORCLEAR NR SYSTEM

OPERATIONAL DESCRIPTION

The plants are designed to work without operators and require a monthly inspection and maintenance visit. Solids retained in the system are removed to a regional wastewater treatment plant for further treatment and disposal at appropriate intervals.

TYPICAL SITE PLAN



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The in-situ concrete plant is a multi-compartmented unit with covered tanks. This makes the plant low profile with low environmental impact.

MAINTENANCE REQUIRED

The maintenance required is limited to monthly replacement of chemicals, quarterly changes of gearbox oil and greasing of rotor bearings, yearly changes of submersible pump lubricant for the standard version plus yearly changes of UV lamps for the NR version.

WASTE TO BE DISCHARGED

The residuals that need to be removed from the plant consist of sludge from the septic tank/s. This is removed periodically by a registered contractor and is taken to a local wastewater treatment plant for further treatment and disposal. In this way the site is kept unencumbered by sludge with its associated problems like odours and flies.



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