

# **BALLAM-WATERSLOT**

(PTY) LIMITED

## **THE “POLY-RIB” SEPTIC TANK**



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## THE “ POLY-RIB” SEPTIC TANK

### 1. OVERVIEW

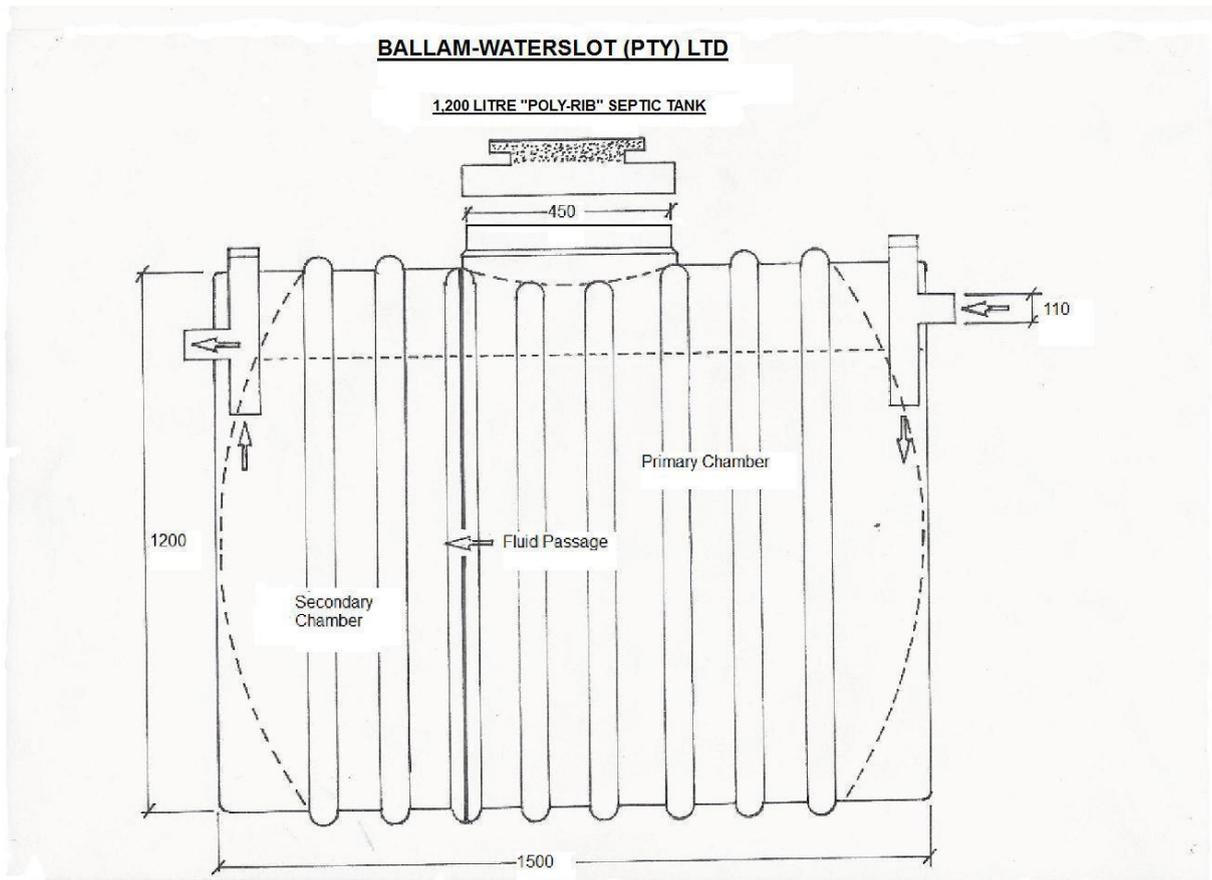
“Poly-Rib” has become a household name in the field of on-site sanitation, and since we launched the product in 1982, the demand has increased almost daily – across a wide spectrum of private and commercial consumers requiring the ultimate in a maintenance-free, on-site sewage disposal system.

A septic tank, by definition, has at least two well-defined chambers, a primary chamber where anaerobic digestion takes place to reduce the solids to a water-like consistency. This fluid then flows through the centre of the baffle, which divides the two chambers. After some months, a khaki-coloured crust will appear on the surface of the contents in the primary chamber, signifying a well-functioning system. The secondary chamber will contain only the “water”, which will be slightly cloudy and a light grey in colour. This will then flow out of the septic tank into a series of trenches called a French drain, where the fluid will then dissipate into the surrounding soil.

The 450mm diameter manhole allows easy access to workers if the system is poisoned and needs to be cleaned.

The product specifications are as follows:-

Height	1,4 metres (base to manhole lid)
Diameter (cylindrical)	1,2 metres
Length	1,5 metres
Construction	Cylindrical ribbed with domed ends and a centre internal stabiliser bar to reinforce the domed ends against possible abnormal pressures
Excavation Size	2,0m long x 1,8m wide x 1,2m deep
Weight	40 Kg - easily transportable
Chambers	Primary and secondary 66% x 33%
Total Capacity	1.200 litres
Fluid Working Capacity	1.000 litres
Wall thickness	5mm
Inlet and Outlet Diameter	110mm, both fitted with inspection eyes
Manhole Diameter	450mm
Manhole Lid Design	Provision for filling with concrete ballast
Manhole Access Extension	500mm
No Metallic Components	
Indefinite Life	Continuous Digestion
*Capita Support Capacity	1 – unlimited persons (variable)



- The requirement of a septic tank is that it shall be so designed to retain the volumetric flow for a minimum period of 24 hours, thus should each person dispose of 150 litres per day, the tank would safely support a family of 6 people or, should the disposal be 100 litres per person per day, the tank would support 10 persons, and so forth.

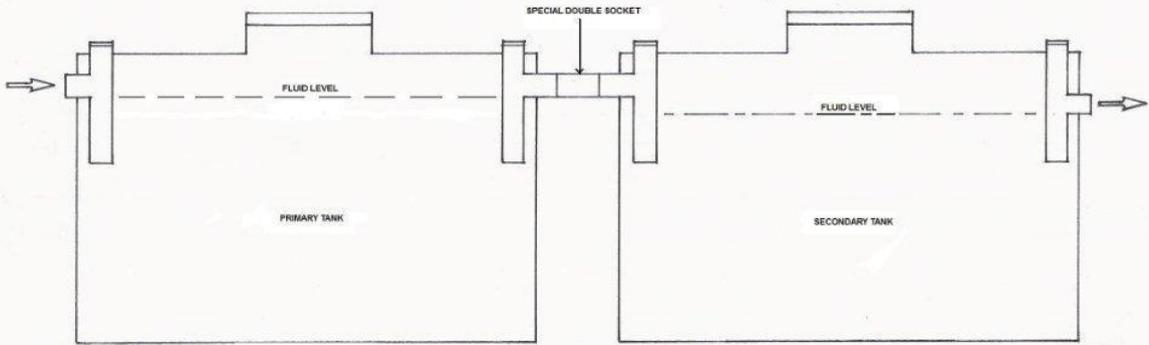
The standard double-chamber ribbed tank, manufactured from rotationally moulded polyethylene, is revolutionary and will withstand outer pressures in excess of any other form of similar product.

The tanks are so designed that they may be connected in configurations to permit a larger capita usage.

The double tank configuration allows for a daily input of 2.000 litres. In the case of the triple, quadruple, quintuple, sextuple, septuple and octuple septic tank assemblies, each would respectively treat 3.000 litres, 4.000 litres, 5.000 litres, 6.000 litres, 7.000 litres and 8.000 litres.

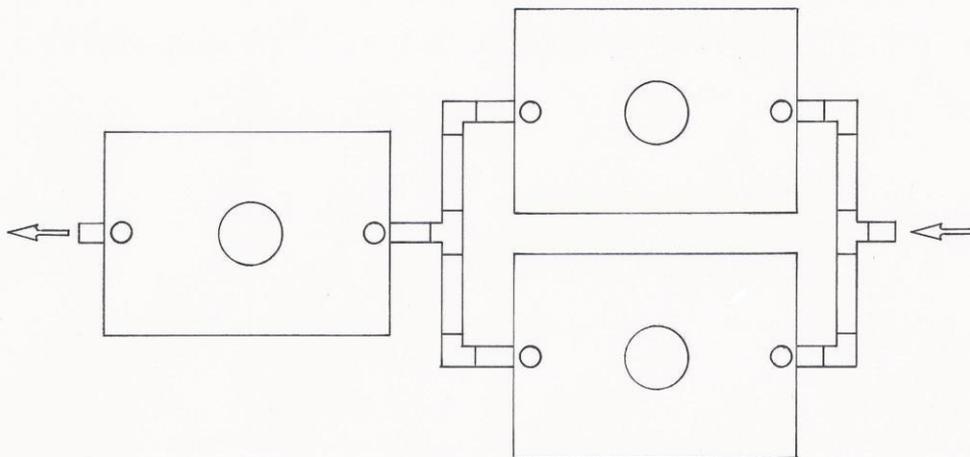
The "Poly-Rib" **should not be confused with anaerobic digesters or aqua privies.** Our product conforms with every norm of the traditional (costly constructed) masonry septic tank and incorporates the following features: a baffle with centre transfer hole to secondary chamber, scum and sludge barrier, two precisely situated and easily accessible inspection eyes, dip pipes submerged beneath the fluid level, gasses release duct, and a manhole lid with integral double handles and provision for filling with up to 15 kilograms of concrete ballast.

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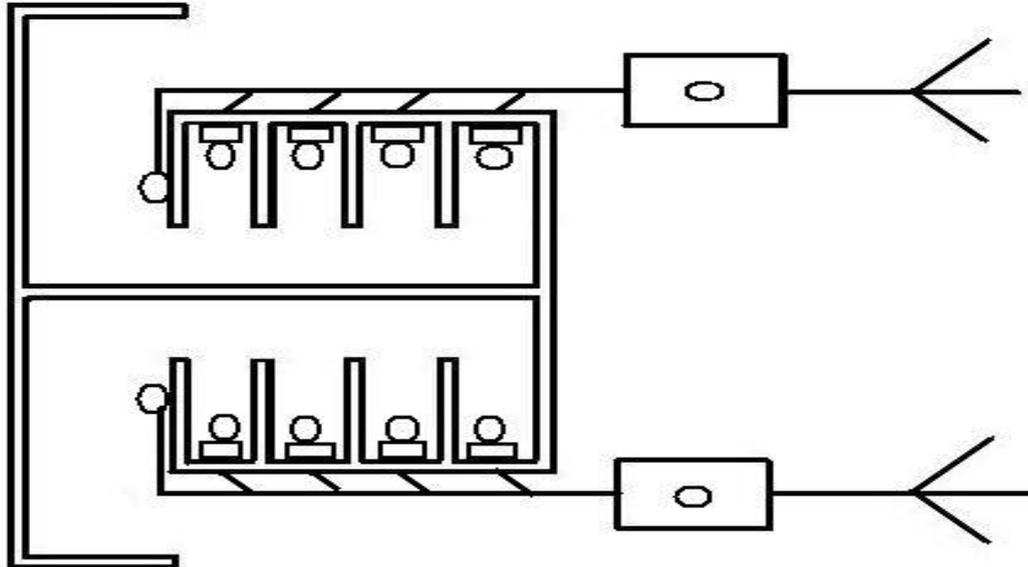
CROSS SECTION OF A 2 400 LITRE DOUBLE "POLY-RIB" SEPTIC TANK ASSEMBLY

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PLAN VIEW OF A 3 600 LITRE TRIPLE "POLY-RIB" SEPTIC TANK ASSEMBLY

## EXAMPLE OF AN ABLUTION BLOCK



## 2. INSTALLATION

There are two common designs (plumbing) of septic tank systems. In the first instance, the tank can be plumbed to accept both effluent from the w.c. and grey water from kitchens and bathrooms, i.e. a single pipeline. In the second instance, the tank would accept w.c. effluent only, and the grey water would pass through an optional grease trap and by-pass the tank/s to discharge directly to the French drain/soakaway, i.e. a dual pipeline. In the latter recommended design, the effluent would be retained for a longer period in the tank, which greatly enhances pathogen removal.

The “Poly-Rib” septic tank/s is supplied ready for installation; the instructions for installation are as follows:-

### a. Siting

The site for the septic tank assembly should be situated not less than four metres from the dwelling, and preferably not more than ten metres. The reason for this is to maintain a 1:40 fall on the sewer line without having to dig an excessively deep excavation for the tank/s.

## b. Excavation

The excavation for all tanks does not need to be refined, except that the bottom should be solid terra firma and completely level.

The size of the excavation depends on the configuration and size, and the number of tanks to give the desired capacity. The excavation sizes for each configuration will be given on request. The depth of the excavation should preferably be not more than 1,2 metres. This will ensure that the manhole covers protrude slightly above natural ground level and are readily accessible. The base of the excavation should be virgin soil and completely level from end to end.

Should the base soil be unstable, cast a level 75mm thick concrete slab at the bottom of the excavation, whilst maintaining the specified depth of 1,2 metres from natural ground level. Allow three days to harden. The invert level is 950mm from the base to the underside of the 110mm  $\varnothing$  inlet pipe. It is essential that these parameters are strictly adhered to, so that, when installation takes place, it is a simple matter to slide all components together.

## c. Pipe Connections

All rubber seals and related pipes should be coated in a lubricant, as specified by the manufacturers, or sunlight liquid soap, or soft soap. By virtue of the level base, complete installation takes only a few hours.

**If the system is being installed at a new site, do not connect the sewer until all contractors have left the building site. Contractors are notorious for washing all types of items down the drain, including paint, cement, rags, cement bags, sand and any other type of building by-product. Give the sewer a thorough flushing before connecting it to the sewage plant.**

## d. Back-filling

It is important that the back-filling instructions are followed closely. The back-fill should consist of a mixture of refined soil, preferably river sand, in a dry mix with 5% cement, although a slightly damp mixture will suffice. The back-fill material, as described, should be firmly rammed around each tank.

As back-filling takes place, water should simultaneously be placed in the tank/s and as the level increases, so the back-fill should match the level of the water, in order to equalise pressure both inside and outside the tank/s. As the level of the water covers the stabilizer bar by approximately 150mm, the water should be switched off and the balance of the back-filling can take place until the tank is covered, which is approximately where the manhole protrudes from the top of the tank. This method of back-filling, by equalising the outer pressure with the inner pressure, is applicable to every model of the "Poly-Rib" septic tanks.

Under no circumstances should the soil interfere with the settling of the manhole cover, which is tapered specifically to prevent any odours escaping, or surface water entering the tanks.

For all practical purposes, the installation is now complete.

### 3. MAINTENANCE

“Poly-Rib” septic tanks are maintenance-free. Should de-sludging be required, or should the system be poisoned by the addition of non-biodegradable matter, the system would need to be “honeysucked”, washed out, and the process started once more. We would caution that, when “honeysucking” (emptying) the tank/s does take place, it should be done under supervision to ensure that the baffle and/or the stabiliser bar is not broken or dislodged by the heavy-duty suction hose and nozzle. The 450mm diameter manhole allows easy access.

### 4. ENVIRONMENTAL MANAGEMENT

It should be remembered that the effluent contained in these tanks is still toxic, and should not be allowed to flow into the environment.

### 5. SAFETY CONSIDERATIONS

We reiterate that the effluent contains high levels of toxicity and this should never be permitted to lie in puddles or dams.

When there are children around, ensure that concrete ballast is cast in the lids of the manholes to prevent the children from opening the manholes. If a person falls into one of the units, drowning could result.

### 6. DISCLAIMER

**Ballam-Waterslot “Poly-Rib” conservancy tanks, septic tanks and sewage treatment plants are designed to operate under specific environmental conditions. Should the end user opt to ignore these physical parameters, then Ballam-Waterslot accepts no responsibility for any damages, or consequential losses, as a result of collapsed tanks, electrical surges, power failures, chemical poisoning of the system, or any other related cause.**

**N.B.** We are constantly receiving frantic calls from potential customers who have been advised by their architect to install a septic tank/French drain system, and are then advised by their local council that, the strata of dolomite, clay, decomposed granite, rock, etc., apart from being in a sensitive area, prohibits the use of septic tank systems. It is thus that we would remind anyone with a similar problem that we produce on-site sewage treatment plants – details of which may be obtained directly from us or from viewing the relevant section on our website.

**All Enquiries may be directed to our Enquiry Form or:**

Tel: +27 (0) 12-347-9151 | +27 (0) 12-347-9013 Fax: +27 (0) 12-347-9174 Cell: +27 (0) 82-417-8069

E-mail: [ballam@rmweb.co.za](mailto:ballam@rmweb.co.za) Postal Address: P.O. Box 65399, Erasmusrand, Pretoria, 0165