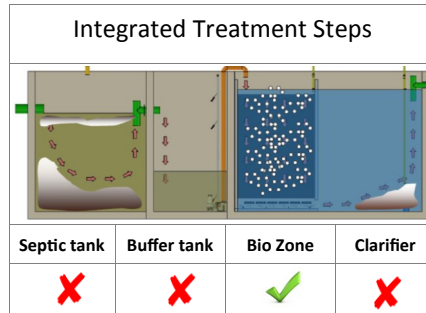


## BioReactor

### Product Description

The BioKube BioReactor is most commonly used for treating wastewater from smaller villages and factories and retro fit with daily wastewater outlet of more than 100 m<sup>3</sup>. The system is designed for placement in in-situ casted concrete tanks.

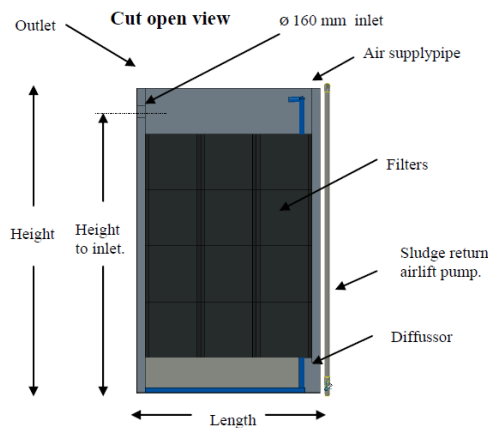


Installation of a BioReactor system in Yemen

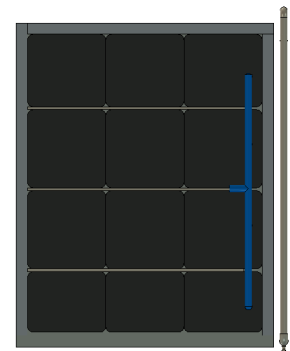
### Dimensions and Pipe Placement



3D View of a BioReactor System



Cut Open View of a BioReactor System

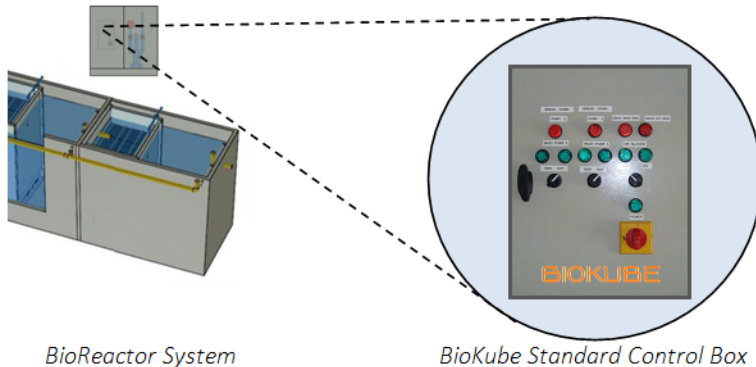


Top View of a BioReactor

### BioReactor Model Specifications

	50	75	100	150	200	250	300	350	XL
Height (mm)	2,900	2,900	2,900	3,500	3,950	4,500	5,200	5,750	5,750
Width (mm)	2,100	2,280	2,280	2,280	2,280	2,280	2,280	2,280	2,970
Length (mm)	1,900	2,060	2,220	2,220	2,220	2,220	2,220	2,220	2,970
Weight (kg)	1,400	1,550	1,650	1,850	2,050	2,225	2,450	2,650	4,200
Weight with Water (kg)	8,100	10,150	11,250	13,850	16,450	19,225	21,850	24,475	43,000
Power consump.(kwh/day/unit)	39,7	41,5	42,4	50,5	55,7	60,8	64,6	68,4	123,6
Height to inlet (mm)	2,750	2,750	2,750	3,230	3,680	4,230	4,930	5,480	5,480
Inlet/Outlet Pipe Diametre (mm)	160/160	160/160	160/160	160/160	160/160	160/160	160/160	160/160	160/160
Tank Material	PP	PP	PP	PP	PP	PP	PP	PP	PP
Airpiping Material	HDPE	HDPE	HDPE	HDPE	HDPE	HDPE	HDPE	HDPE	HDPE
No. of electrical Phases Required	3	3	3	3	3	3	3	3	3

## BioReactor



BioReactor System

BioKube Standard Control Box

### BioKube Control Unit

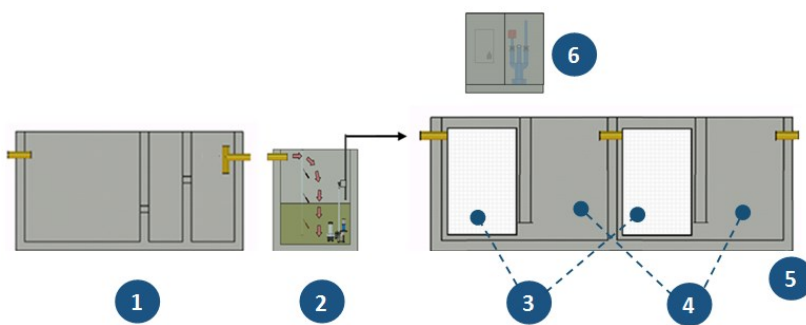
All electrical component in the BioReactor system; e.g. blowers, pumps, UV-units , are integrated and connected to the BioKube Standard Control Box, from where the power is distributed and controlled.

The Control Box is placed in an external weather protected shed (see drawing).

The plant is normally powered with 340 Volt, 3 phase power supply.

Systems for 110V power supply regions can be supplied upon request.

### Full Installation Principles



The above example illustrates two BioReactor units in series. Systems can also be configured with 1-4 units in series and multiple sets in parallel.

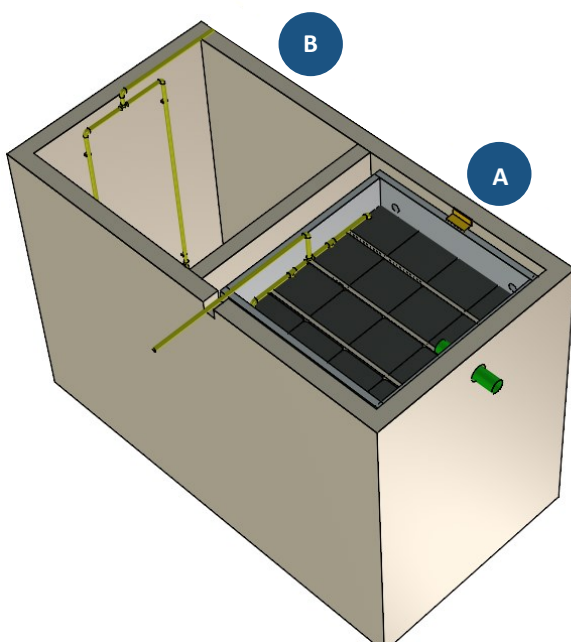
### Installation Components

A full BioReactor installation typically consists of the following major parts and cleaning steps

- |               |                                    |
|---------------|------------------------------------|
| 1 Septic Tank | 4 Clarifying Zone                  |
| 2 Buffer Tank | 5 Tanks for "3" & "4"              |
| 3 BioReactors | 6 Shed with Control Box and Blower |

A complete system can consist of multiple BioReactor Units modular installed in parallel and 1-4 units in series. For more information see the installation manual.

### Construction Principles - Tank for treatment & clarifying zone



### Construction Principles

Each BioReactor unit must be installed in a concrete tank forming space for (A) the treatment unit and a (B) clarifying zone.

**A** The concrete tank for each of the treatment zones should be at least 10 cm wider and 50 cm deeper than the BioReactors.

**B** The clarifying zone is recommended to have a size that allows for a minimum of two hours retention time and a surface area to secure maximum uplift speed of 1 m/h.

For further and more specific design guidelines please see the BioReactor project dimensioning and layout manual.