BIOKUBE

COMPANY PROFILE

Biological treatment of wastewater

BIOKUBE

DANISH ENVIRONMENTAL TECHNOLOGY **ON A GLOBAL SCENE**

BioKube is a Danish company dedicated to provide high quality wastewater treatment solutions that not only meet but exceed the high and complex requirements demanded by EU regulations.

Next generation water treatment

BioKube is not only offering odorless, low footprint treatment solutions, but is leading the industry to a greener more sustainable tomorrow with a deep focus on re-using treated watewater.

At BioKube we see treated wastewater as a valuable asset that can add great value.

EFFICIENT SYSTEMS AT **A MINIMUM COST**

BioKube manufactures efficient and easy-to-maintain wastewater treatment systems that reduce energy costs while taking care of the environment. We focus mainly on production for:

- **Single house systems**
- **Systems for small cities, villages, hotels and resorts**
- **Movable systems for mining industries, oil and gas industries, soil exploration etc.**

Our wastewater systems are designed to make assembly quick and easy for customer. BioKube's wastewater systems are internationally certified to treat wastewater according to the highest standards. The technology is easily adapted to fulfill any local treatment requirements and standards.

BioKube wastewater systems require very little service and maintenance while still retaining the ability to continously treat the incoming wastewater according to the required specific local demands.

BioKube wastewater systems combine the advantage of centralized production of high quality standard systems with the use of cost-competitive local labour to install and service the wastewater systems.

BIOKUBE'S **MISSION STATEMENT**

BioKube wastewater treatment systems shall always treat wastewater better than required by the authorities with the lowest possible energy consumption.

BioKube will actively take part in Circular Economy to help fulfill The United Nations Sustainable Development Goals by offering wastewater treatment systems where:

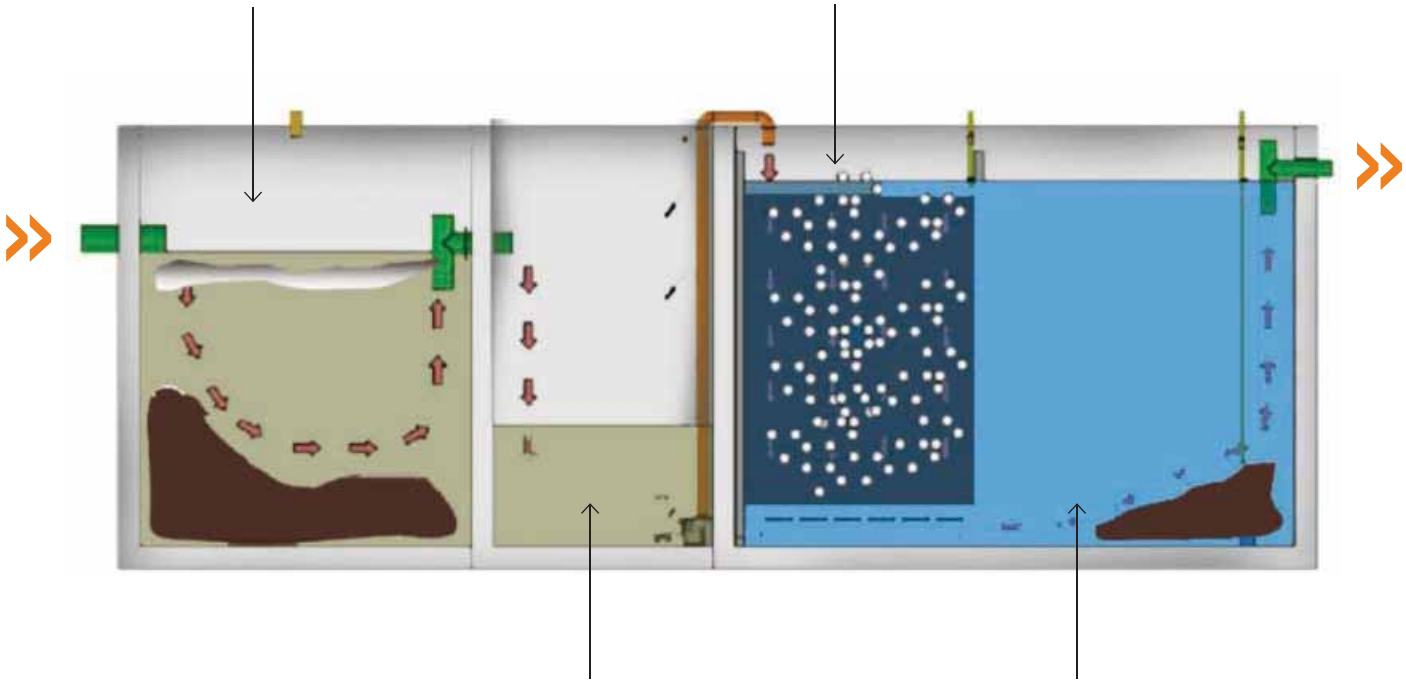
- **Treated water can be reused safely**
- **Sludge can be converted to energy or fertilizer**

BIOKUBE **LARGE SYSTEMS**

BioKube's large systems are predominantly used for domestic wastewater treatments in locations such as hotels, resorts, villages and small towns. BioKube's different models fit any installation requirement and caters for both permanent and temporary installations.

1. Septic Tank: The raw wastewater gravitates to the septic tank in which the settable suspended solids are settled pre-pairing the waste water for further treatment.

3. Biozone: In the biozone microorganisms perform degradation of the organic load in the incoming wastewater to the required levels. The chamber consists of submerged bubble diffuser aerated filters.



2. Buffer Tank: The external pump well evens out fluctuating volumes of wastewater from the source ensuring constant batches og wastewater to the treating microorganisms.

4. Clarifier: In the clarifier, biosludge – the by-product from the biological treatment process – is settled and recirculated to the septic tank by means of air lift pumps. This ensures less suspended solids in the outlet and continuous bio-sludge removal.

BIOCONTAINER – CONTAINERIZED WASTEWATER TREATMENT PLANT

BioKube offers containerized wastewater treatment plants for easy setup and relocation. This solution is ideal for remote locations such as camps and oilrig sites. We offer a variety of products in different sizes depending on your need and wishes.

As the containerized wastewater treatment plant is located inside a standard shipping container, it can be relocated and installed with ease at other locations. In most cases it is a one or two days operation and only requires a flat bedded truck and a crane.

The advantages of using containerized wastewater treatment plants are:

- The systems are fully transportable and can easily be relocated and reinstalled at new sites
- The entire installation is done within one day

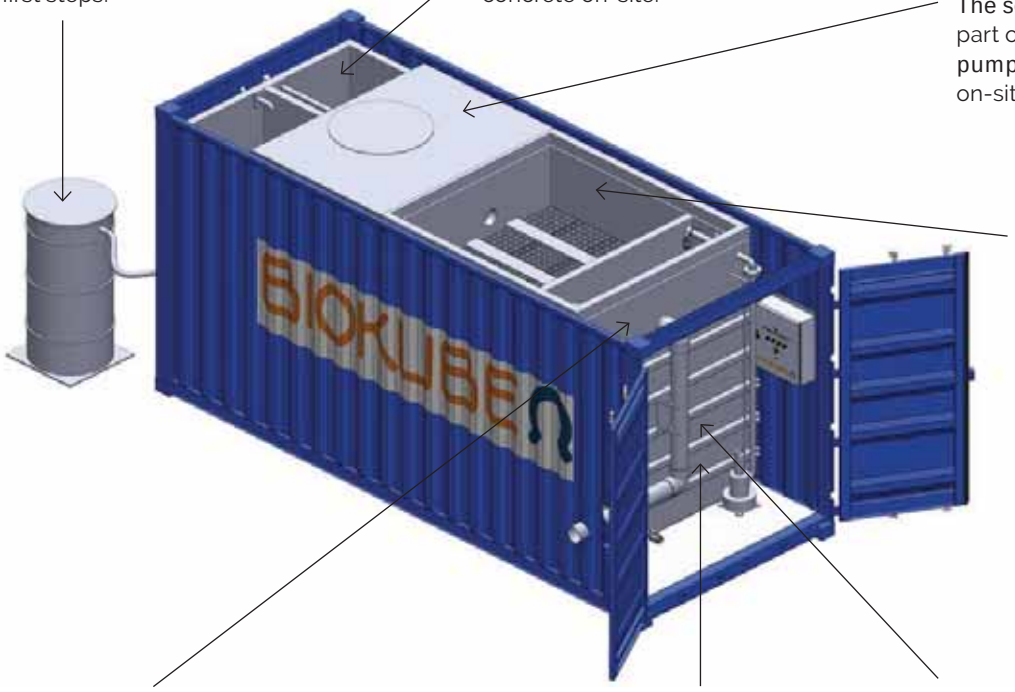
BioKube BioContainer are Supplied in different versions with various treatment steps and capacity.

Treatment Concept

1. Transfer Pump Well. The raw sewage water is transferred from the included transfer pump well equipped with inlet pump to the BioContainers first steps.

2. Buffer tank. The buffer tank evens out fluctuating in the incoming volume of wastewater from the source. The pump well is casted in concrete on-site.

3. Settling Tank: The settable suspended solids are settled. The settling tank is an integrated part of the BioContainer unit. The pump well is casted in concrete on-site or existing is to be used.



4. Biological treatment chambers: Microorganisms perform degradation of the organic load in the incoming wastewater to required level. The Bioreactors consists of submerged aerated filters, which is regarded the heart of the entire BioKube Treatment Plant.

5. Clarifying zone: From the clarifying zones the bio-sludge is recirculated to the septic tank by means of air lift pumps. This ensures less suspended solids in the outlet and continuous bio-sludge removal.

6. Control Room: The electrical control box, blowers and secondary treatment equipment is placed is situated safe and weather protected in the control room.

7. UV Treatment: The integrated UV system disinfects the treated wastewater allowing for reuse for irrigation purpose. This equipment is optional and included upon request.

BIOKUBE SELECTION OF **SMALL WASTEWATER PLANTS**

Our offer includes various types of wastewater treatment solutions for single houses, but also for entire villages. Our independently operating systems have the ability to adjust performance depending on the user's needs (from 700 to 18.000 liters per day).

These customization options affect the ability to meet all customer requirements from a variety of industries.

BioKube Venus 1850 and settling tank

Sludge water return from the wastewater treatment plant to the settling tank. BioKube's patented return removes odor nuisance hydrogen sulphide in the settling tank and ensures constant high treatment quality despite fluctuating load and volumes.

Inlet from the house to the settling tank

Inlet from the settling tank to the treatment plant. The patented timed inlet evens out the fluctuation loads throughout the day. This ensures uniform high treatment quality without risk to the environment.

The outlet from the treatment plant to nature. BioKubes outlet is only 40 cm deep, which means you can always obtain gravitation to the recipient.

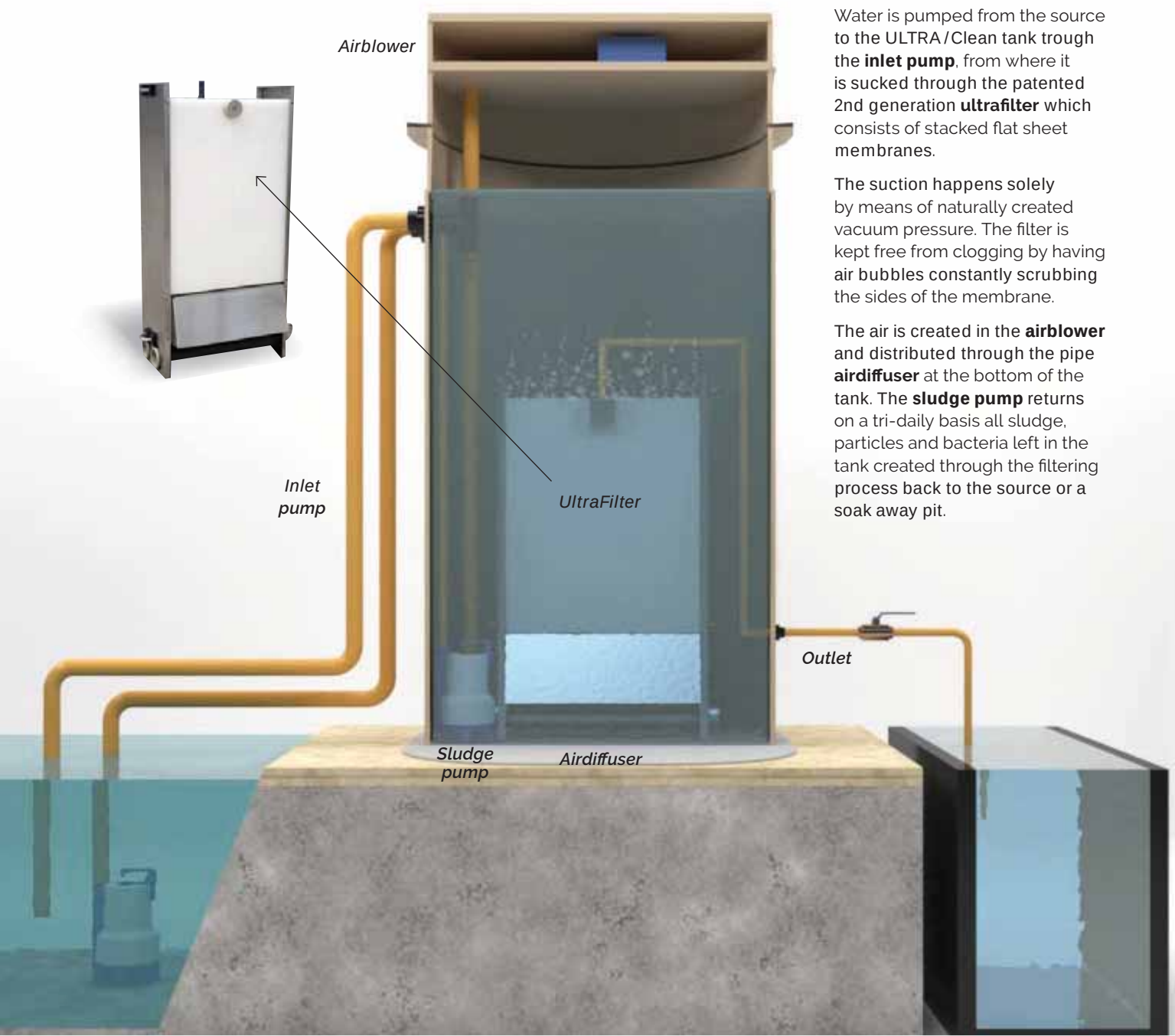
REUSE OF TREATED WATER

Water is an integral part of nature and life, and because of its bad management we are at risk of its deficit. Reuse of wastewater reduces the intake of surface and groundwater, reducing the impact of discharges on rivers and promoting water saving through repeated use of purifying water.

BIOKUBE ULTRA/CLEAN
REMOVES ALL PARTICLES

BioKube ULTRA/Clean system is an advanced water treatment device designed for removing all particles including bacteria and Nematodes from river water and other natural water sources. The water is treated by means of an extremely durable and efficient, third generation ultrafiltration membrane placed in an aeration chamber.

How it works



Water is pumped from the source to the ULTRA/Clean tank trough the **inlet pump**, from where it is sucked through the patented 2nd generation **ultrafilter** which consists of stacked flat sheet membranes.

The suction happens solely by means of naturally created vacuum pressure. The filter is kept free from clogging by having air bubbles constantly scrubbing the sides of the membrane.

The air is created in the **airblower** and distributed through the pipe **airdiffuser** at the bottom of the tank. The **sludge pump** returns on a tri-daily basis all sludge, particles and bacteria left in the tank created through the filtering process back to the source or a soak away pit.

HOW CLEAN IS THE TREATED WATER?

The performance of the membranes has been tested at Biological Consulting Services, Florida, USA according to NSF standards. The laboratory results for E-coli removal was tested on raw untreated sewage water containing 1.1 x 106 E-coli. Treated water contained E-coli **45 cfu / 100 ml**.

Removal rate for E-coli is **better than 99,99992 %**. In treated sewage water after a wastewater plant, the E-coli will be less than **10 / 100 ml**.

In a lake or river containing less than 10.000 E-Coli / 100 ml the outgoing E-coli after the BioKube UltraClean will be **< 1 / 100 ml**. The EU standard for drinking water is E-coli 0 /100 ml . The proposed standard in EU for the coming regulation for reuse of reclaimed water on edible plants like salad is that E-coli should be < 10 / 100 ml.

The standard for bathing water in lakes and rivers in EU is – for acceptable quality: < 900 E-coli / 100 ml – for good quality: < 500 E-coli / 100 ml.

VERY SMALL ENERGY CONSUMPTION

The energy consumption of the BioKJube ULTRA/Clean is very small. The consumption is mainly from the blower which keeps the membrane clean. Therefore, the energy consumption will fall per m^3 treated.

5 m^3 / day system used 3,0 kWh / day (0,6 kWh per m^3 treated)

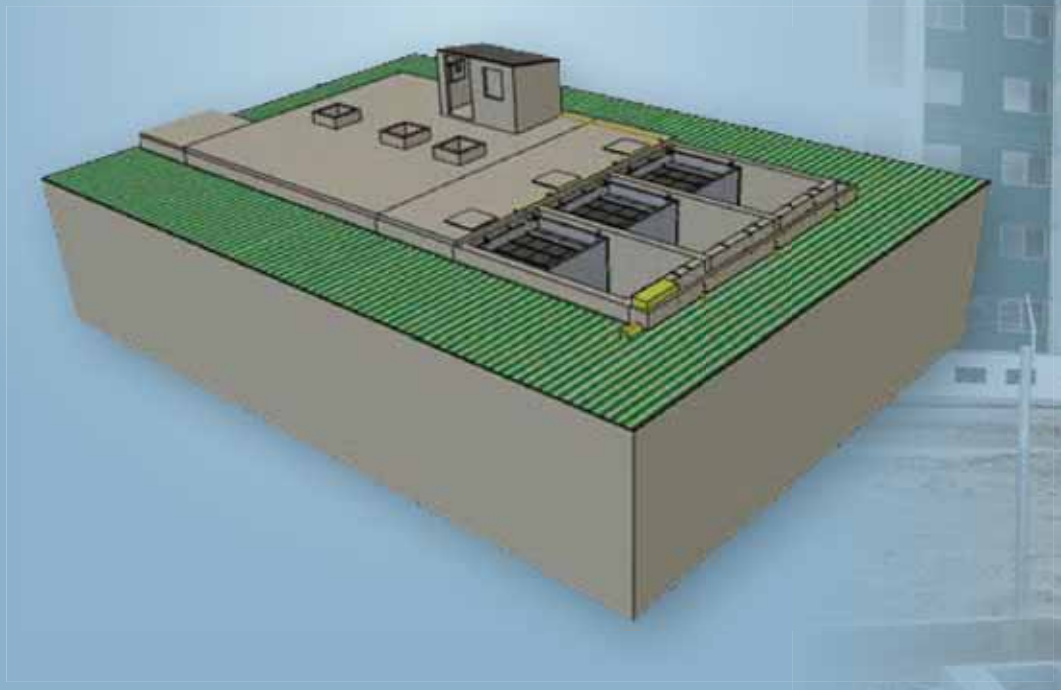
30 m^3 / day system used 12,2 kWh / day (0,4 kWh per m^3 treated)

110 m^3 / day system used 24,5 kWh / day (0,2 kWh per m^3 treated)

The ULTRA / Clean systems consumes so little energy that it can be operated on solar power.

Reference # 1 | 3 x BioReactor 250

Olympic Village, Bolivia



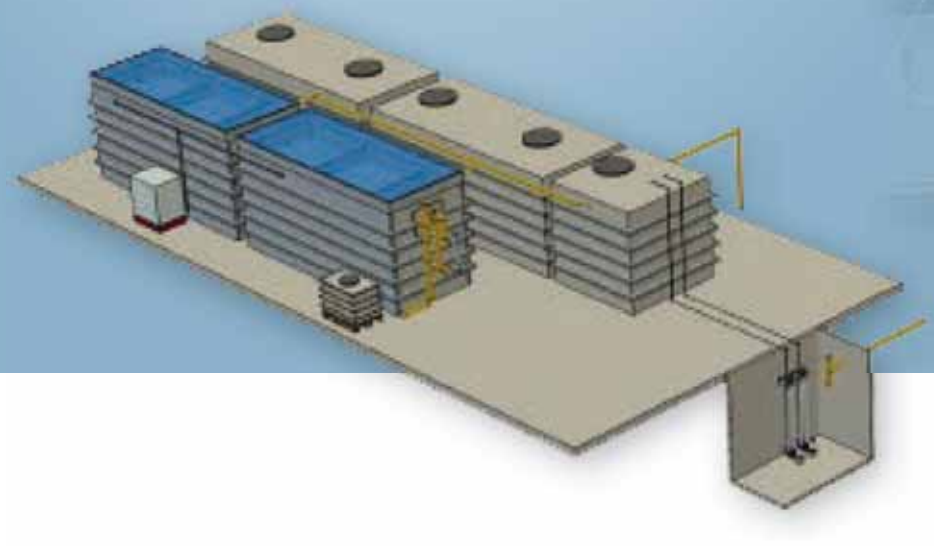
In Villa Deportiva, 3 BioReactors treat the wastewater from the sports village that was build to host the athletes from around South America when Bolivia hosted the South American games.

FACTS

Reference name:	**Villa Deportiva**
Product Type:	**3 x BioReactor 250**
Country:	**Bolivia**
Application:	**Appartment Blocks**
Capacity m³/day:	**500 m³/day - 4.350 PE**
Year of installation:	**2018**

Reference # 2 | 4 x Jupiter 50, A.G.

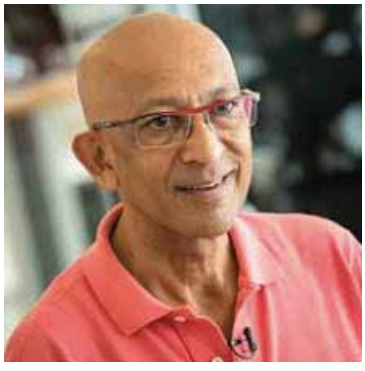
English Point Luxury Hotel, Kenya



This Jupiter plant was installed during Construction of the prestigious luxury hotel English Point Marina in Mombasa Kenya: *www.englishpointmarina.com* The plant is situated in the basement of the hotel.

FACTS

Reference name:	**English Point Marina**
Product Type:	**4 x Jupiter 50, A.G.**
Country:	**Kenya**
Application:	**Luxury Hotel**
Capacity m³/day:	**260**
Year of installation:	**2014**

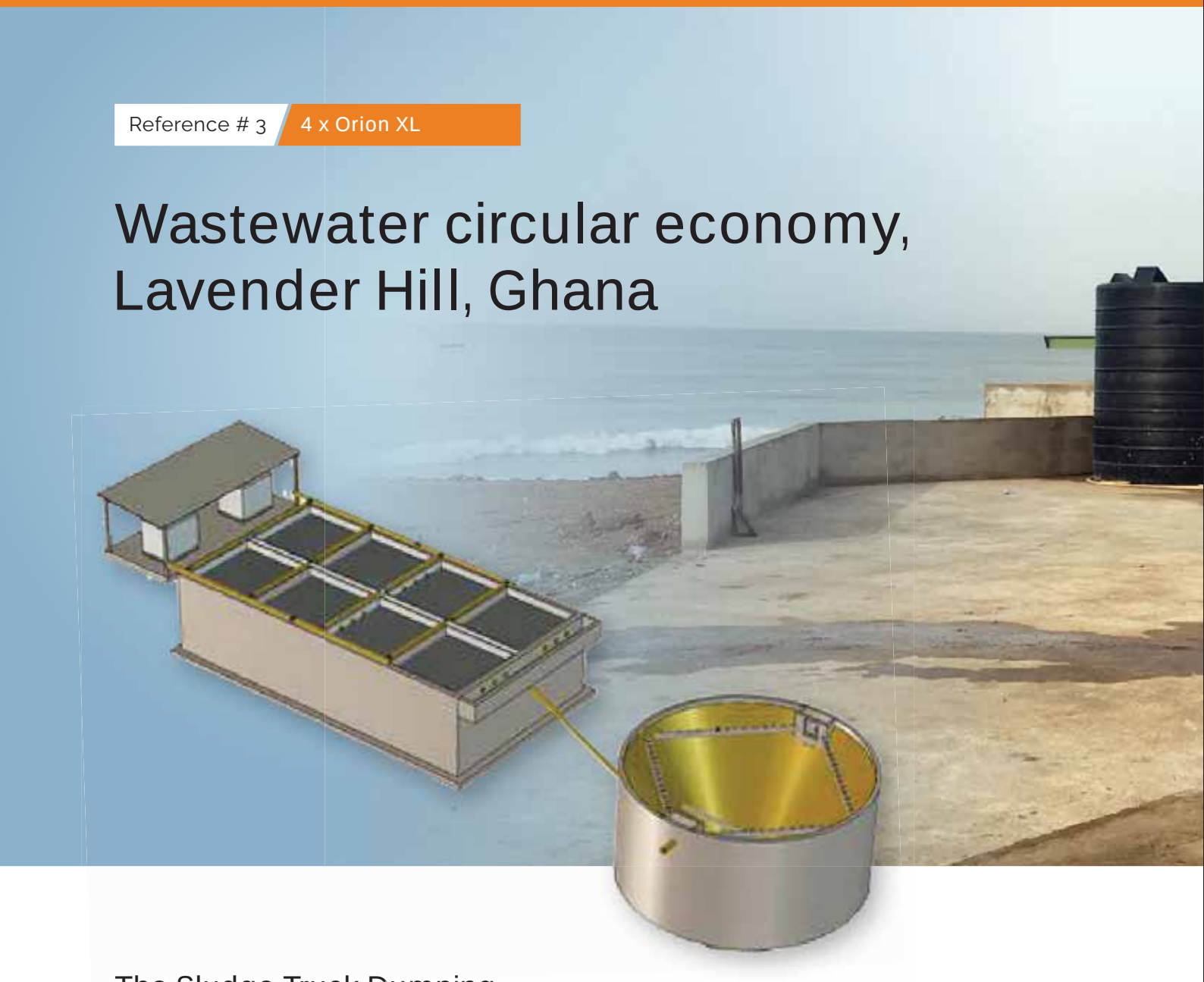


Since the treatment plant was installed we have been extremely satisfied not least from the benefits we have by being able to use the treated sewerage water for the flushing of our toilets as well as keeping our com-pound clean and our flowers and plants green and healthy at all time.

Alnoor Kanji, Director English Point Marina

Reference # 3 | 4 x Orion XL

Wastewater circular economy, Lavender Hill, Ghana

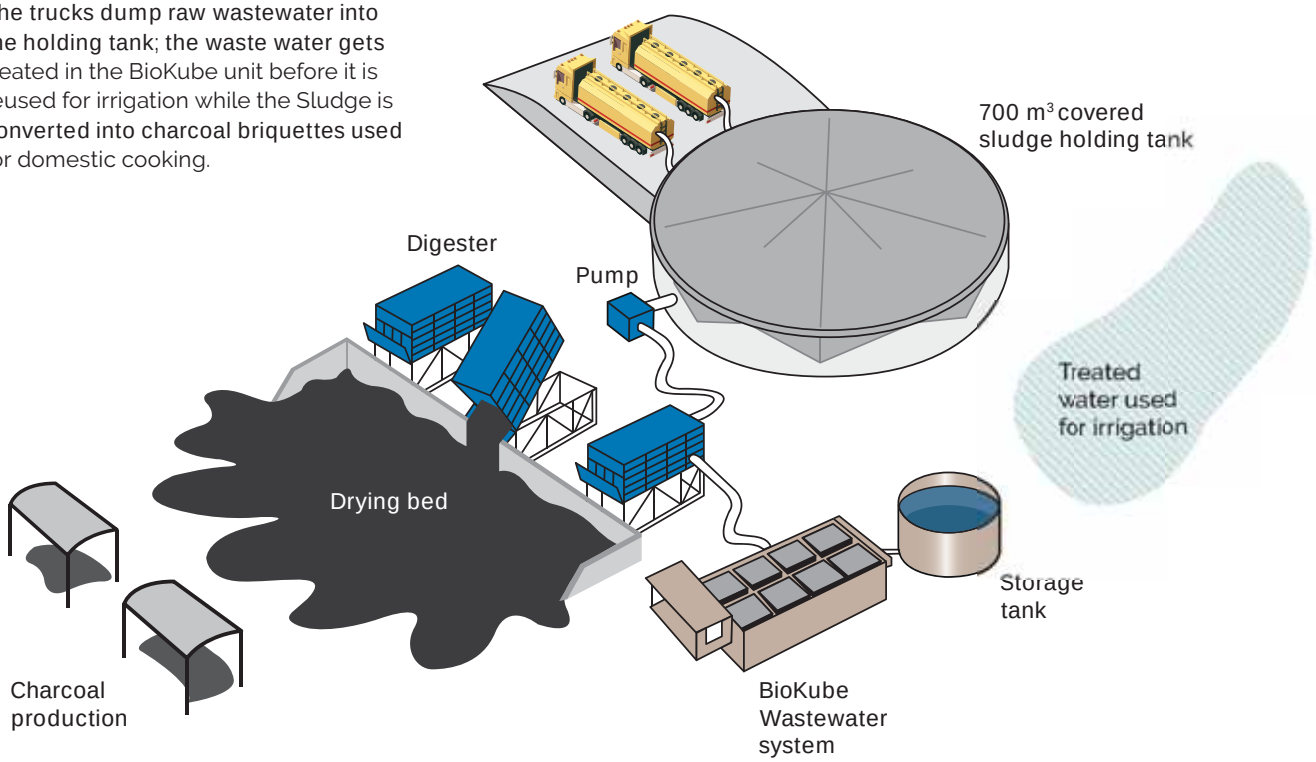


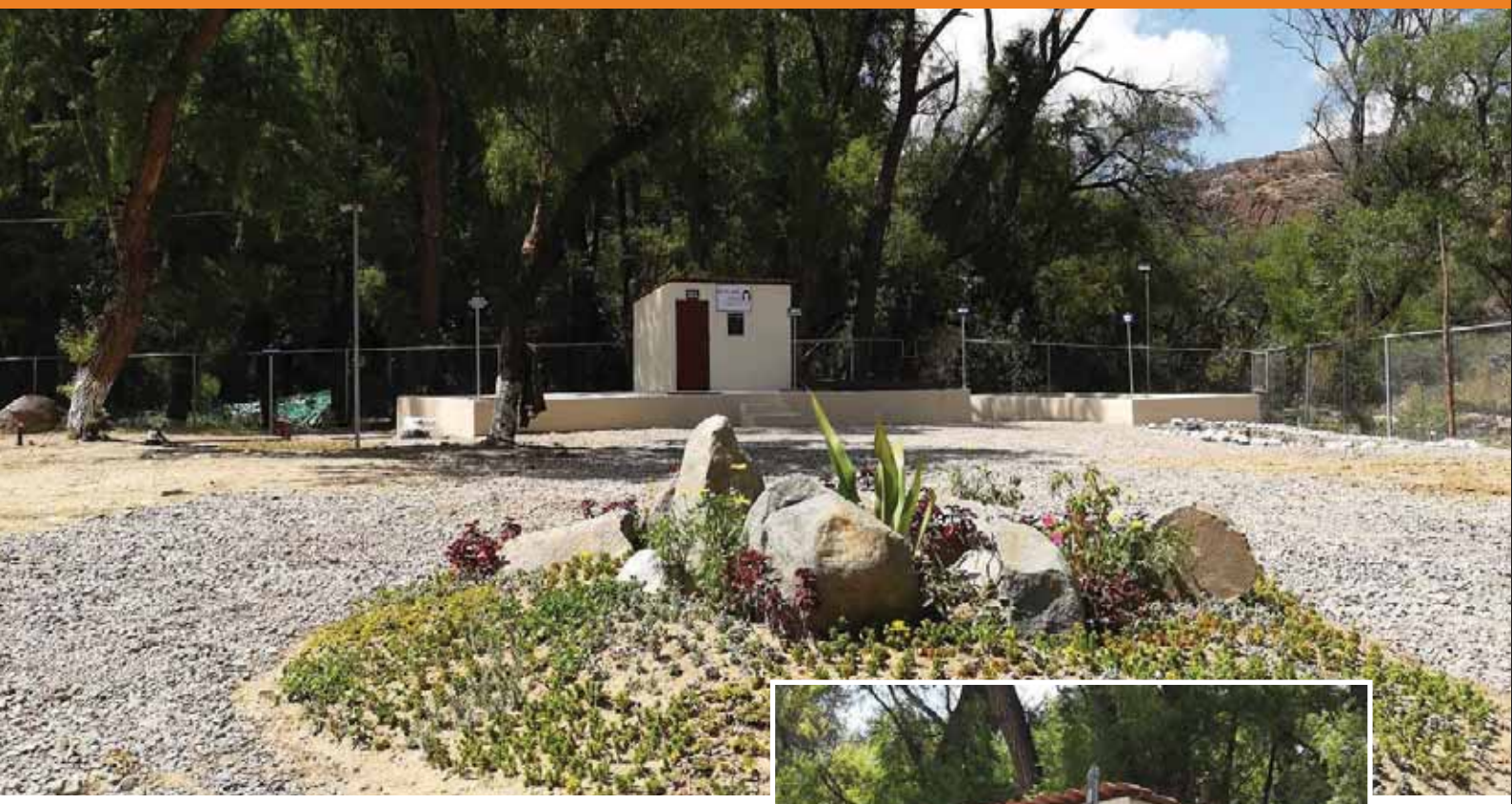
The Sludge Truck Dumping Station treats the wastewater from public toilet around in Ghanisean capital, Accra. Before this station was build the trucks used to dump the raw waste-water directly into the ocean. Now the wastewater and the sludge gets treated and reused, which ensures cleaner beaches and a better environment, benefiting not only the eco-system but also tourism.

FACTS

Reference name:	**Lavender Hill**
Product Type:	**4 x Orion XL**
Country:	**Ghana**
Application:	**Sludge Truck Dump Station**
Capacity m³/day:	**960 m³/day - 10.000 PE**
Year of installation:	**2017**

The trucks dump raw wastewater into the holding tank; the waste water gets treated in the BioKube unit before it is reused for irrigation while the Sludge is converted into charcoal briquettes used for domestic cooking.

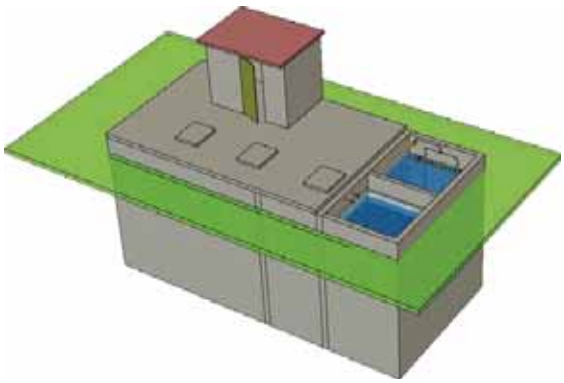




Reference # 4 | 1 x BioReactor 250

Village, Bolivia

This single BioReactor treats wastewater from a district of the Bolivian city Cochabamba. The treated wastewater is directly led out into the Rocha river.



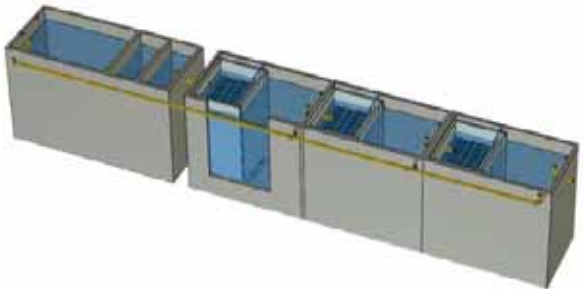
FACTS

Reference name:	**Sacaba**
Product Type:	**1 x BioReactor 250**
Country:	**Bolivia**
Application:	**Large city district area**
Capacity m³/day:	**160 m³/day - 1.760 PE**
Year of installation:	**2018**

Reference # 5 | 3 x BioReactor 75

Cityhall, Thailand

The treatment plant is fully concealed underground and space is used for secondary purposes – the City Hall's outdoor canteen as shown in the pictures.



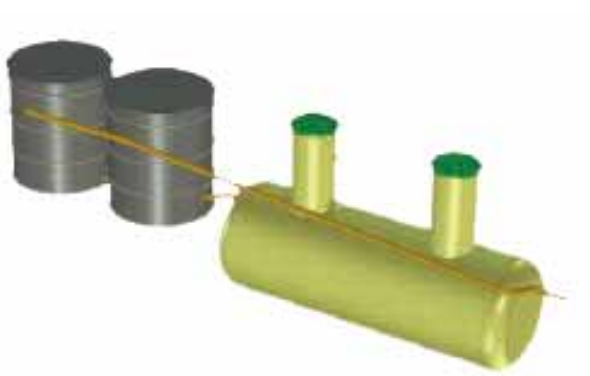
FACTS

Reference name:	**Notamburi**
Product Type:	**3 x BioReactor 75**
Country:	**Thailand**
Application:	**City Hall**
Capacity m³/day:	**75 m³/day - 500 PE**
Year of installation:	**2008**

Reference # 6a | 2 x Mars 6000

Boarding School, Denmark

The sewage treatment plant runs on totally green energy, originating from the windmill seen on the photo above. It is powered by the windmill in the background. It treats wastewater from a nearby folk high school.



FACTS

Reference name:	**The Folk High School of Western Jutland**
Product Type:	**2 x Mars 6000**
Country:	**Denmark**
Application:	**Folk high School**
Capacity m³/day:	**18 m³/day - 150 PE**
Year of installation:	**2018**

Reference # 6b | Venus

Single household, Denmark

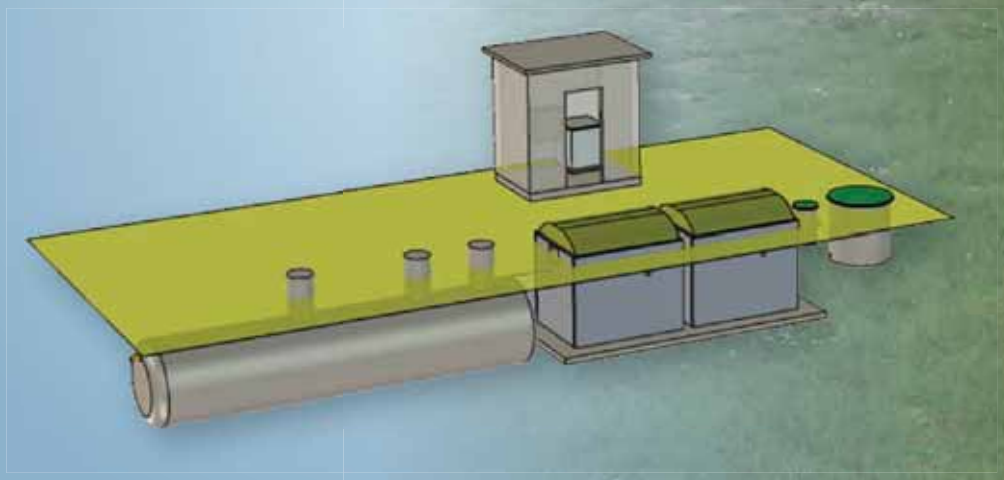
Celebrating the installation of the BioKube plant number 2000. The entire BioKube staff was well met to join the celebration. The plant has been running smoothly ever since it was installed.

FACTS

Reference name:	**Venus single household**
Product Type:	**Venus 1850**
Country:	**Denmark**
Application:	**Single household**
Capacity m³/day:	**0,75 m³/day - 5 PE**
Year of installation:	**2009**

Reference # 7 | 3 x Jupiter 50

Hotel Resort, Poland



The Jupiter 50 plant was installed with plastic settling tanks and is situated just few metres from the hotel's outdoor spa section. In spite of the close proximity to the wellness area, no odor complaints have so far been given by the hotel's customers. This is due to the fact that all wastewater associated smells and odors are effectively removed by the patented BioKube Technology.

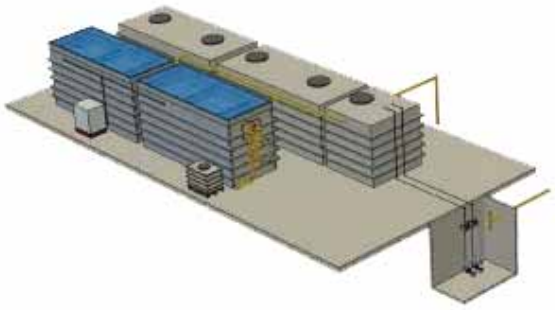
FACTS

Reference name:	**Brodnica Poland**
Product Type:	**3 x Jupiter 50**
Country:	**Poland**
Application:	**Luxury Spa Resort**
Capacity m³/day:	**75 m³/day - 150 PE**
Year of installation:	**2007**

Reference # 8 | 2 x Jupiter 50

Mountain Resort, Sweden

The treatment plant, installed at the Swedish Mountain Hotel, treats all the hotels wastewater to the required standards. The hotel is situated in a remote mountain area of northern Sweden, which experiences harsh and cold weather conditions most of the year.



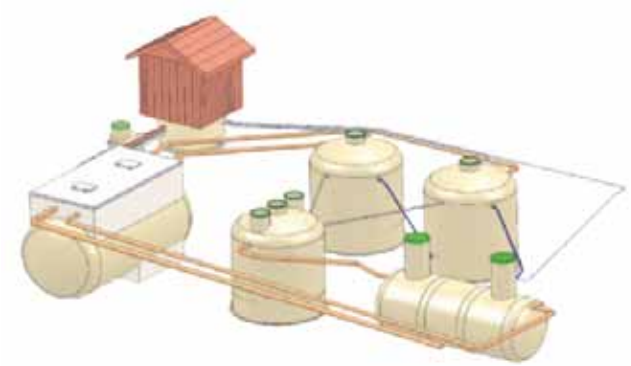
FACTS

Reference name:	**Sylarna Mountain Hotel**
Product Type:	**2 x Jupiter 50**
Country:	**Sweden**
Application:	**Mountain Trekking Hotel**
Capacity m³/day:	**40 m³/day - 250 PE**
Year of installation:	**2017**

Reference # 9 | 1 x Reactor 150+

Cold Area Town, Norway

This treatment plant is capable of treating the wastewater from a Norwegian village. The plant fully meets the strict Norwegian treatment standard, in spite of several successive months of extremely low temperatures.

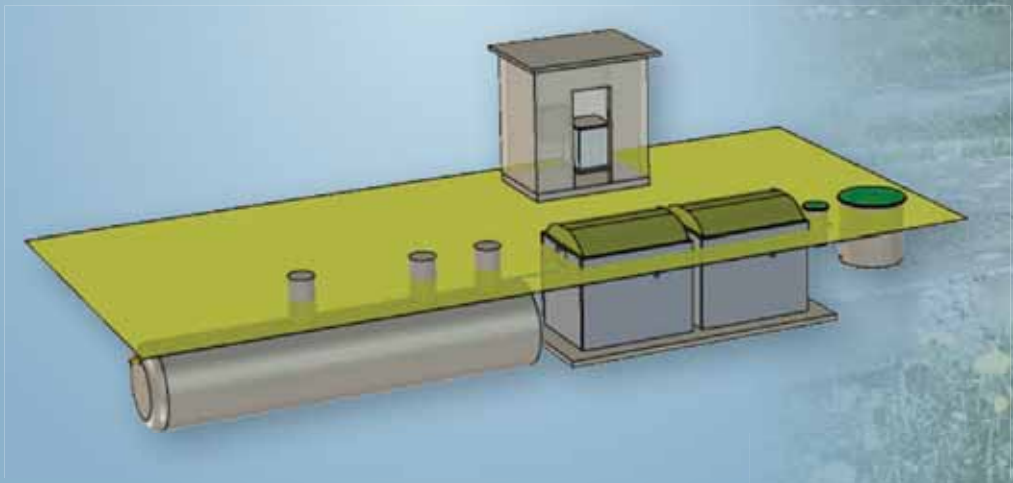


FACTS

Reference name:	**Cold Area Town**
Product Type:	**1 x Reactor 150+**
Country:	**Norway**
Application:	**Cold Area Village**
Capacity m³/day:	**90 m³/day - 600 PE**
Year of installation:	**2013**

Reference # 10 | 3 x Jupiter 25

Small Village, Denmark



The Jupiter was installed by the Municipality of Næstved in Denmark in 2013. It has since served as a 125 PE plant. Effluent tests have been made 12 times annually and the plant has so far not experienced any problems or technical failures.

FACTS

Reference name:	**Dysted**
Product Type:	**3 x Jupiter 25**
Country:	**Denmark**
Application:	**Village**
Capacity m³/day:	**25 m³/day - 200 PE**
Year of installation:	**2013**

Reference # 11 | 2 x 40' BioContainer

Oil Camp, Oman

Two mobile 40 feet BioContainer installation in Oman that treat the wastewater from an oil camp. The system can easily be relocated via truck.

FACTS

Reference name:	**Carillion Alawi LLC**
Product Type:	**2x40' BioContainer BioMax**
Country:	**Oman**
Application:	**Oil camp**
Capacity m³/day:	**200 m³/day - 1000 PE**
Year of installation:	**2008**

Reference # 12 | BioContainer 20'

Oil Camp, Iraq

20 feet BioContainer installation in Northern Iraq where mobility for the plant is an essential requirement. This BioContainer is moved around to various oil fields in Northern Iraq and can easily be lifted to be carried by a truck. The environment in Northern Iraq is very dry and warm, this does not affect the treatment process. The treated wastewater is gravitating in the dry soil as shown on the picture, from where its sparks new life into the dry soil.

FACTS

Reference name:	**Viking Drilling**
Product Type:	**BioContainer 20' Combi EB**
Country:	**Iraq**
Application:	**Oil drilling camp**
Capacity m³/day:	**36 m³/day - 180 PE**
Year of installation:	**2012**

Reference # 13 | BioContainer 20'

Mining Camp, Guinea

This BioContainer is used in various mining sites around Guinea and is transported by truck. The BioContainer treats wastewater from the entire mining camp and the treated water can safely be discharged to the nature.

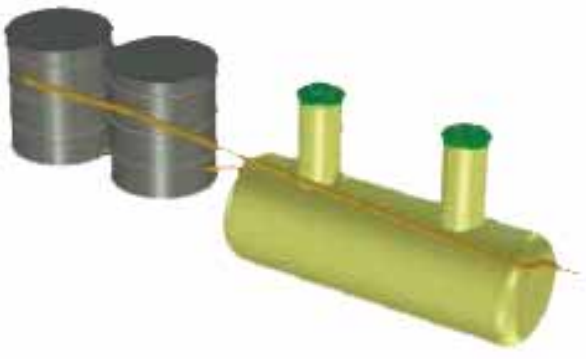
FACTS

Reference name:	**BHP Billiton Mining Camp**
Product Type:	**20' BioContainer Combi IB**
Country:	**Guinea**
Application:	**Mining Camp**
Capacity m³/day:	**50 m³/day - 250 PE**
Year of installation:	**2009**

Reference # 14 | Mars Combi, 2C

Labour Camp, Kuwait

This Mars Combi with a septic tank and the biological treatment combined in one compact unit, is installed in a transport metal rack, allowing it to be easily lifted and relocated.



FACTS

Reference name:	**Oil Labour Camp**
Product Type:	**Mars Combi, 2C**
Country:	**Kuwait**
Application:	**Labour Camp**
Capacity m³/day:	**6 m³/day - 30 PE**
Year of installation:	**2018**

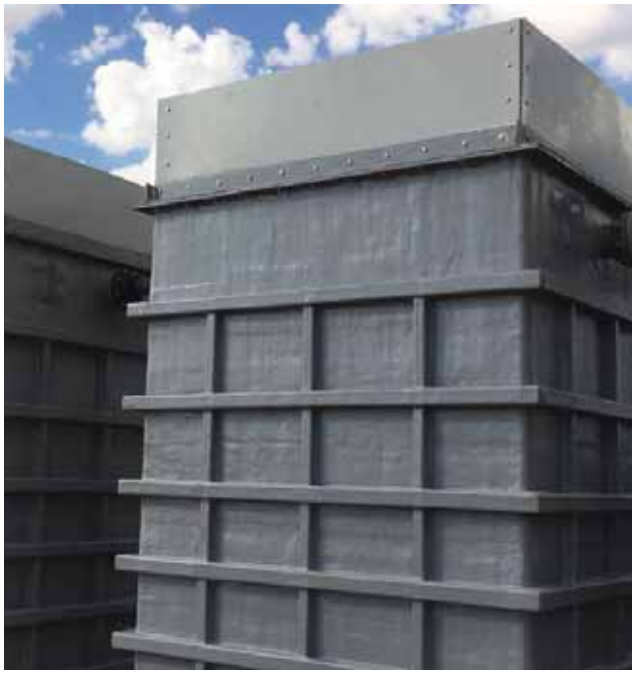
Reference # 15 | 3 x Saturn 150

Residental Area, Australia

The treatment plant is installed completely above ground and is located at a very remote community in Northern Australia. For reuse of the treated wastewater, additionally sand filters, UV lighting and Chlorination were installed.

FACTS

Reference name:	**Julia Creek**
Product Type:	**3 x Saturn 150**
Country:	**Australia**
Application:	**Labour camp**
Capacity m³/day:	**100 m³/ 1300 PE**
Year of installation:	**2017**



Reference # 16 | 2 x BioReactor 250

Brewery, Panama

The BioKube system treats the processed water from the Artesan Brewery in Panama City. The BioKube classic solution concept is applied, consisting of a settling tank, buffer tank, 2 x Biozone and 2 clarifiers, making the process very stable, simple and extremely cost competitive compared to other available treatments solutions for brewery wastewater.

FACTS

Reference name:	**Artesan Brewery Plant**
Product Type:	**2 x BioReactor 250**
Country:	**Panama**
Application:	**Brewery - Industrial Wastewater**
Capacity m³/day:	**20 m³/day**
Year of installation:	**2017**

Reference # 17 | BioKube ABOF 20

Biological Oilfighter, Denmark

Dinitrol, a Danish Car Rust protection center, has met the government opposed stricter environmental requirements by installing a biological treatment plant from BioKube after the oil separator. The technology is highly reliable and requires a minimum of maintenance.

FACTS

Reference name:	**Dinitrol Rust Protection Center**
Product Type:	**BioKube ABOF 20**
Country:	**Denmark**
Application:	**Advanced biological oilfighter**
Capacity m³/day:	**20 cars pr. day**
Year of installation:	**2017**

Reference # 16 BioReactor

Camping Village, Croatia

This BioReactor is installed on the beautiful island of Pag in the Adriatic Sea, Croatia. The BioReactors are installed close to the beach and right next to a volleyball field. Odorless is an essential need for this plant, so the plant will not interfere with the summer guests.

FACTS

Reference name:	**Beach Plant**
Product Type:	**BioReactor**
Country:	**Croatia**
Application:	**Simuni Camping Village**
Capacity m³/day:	**500 m³/day**
Year of installation:	**2015**

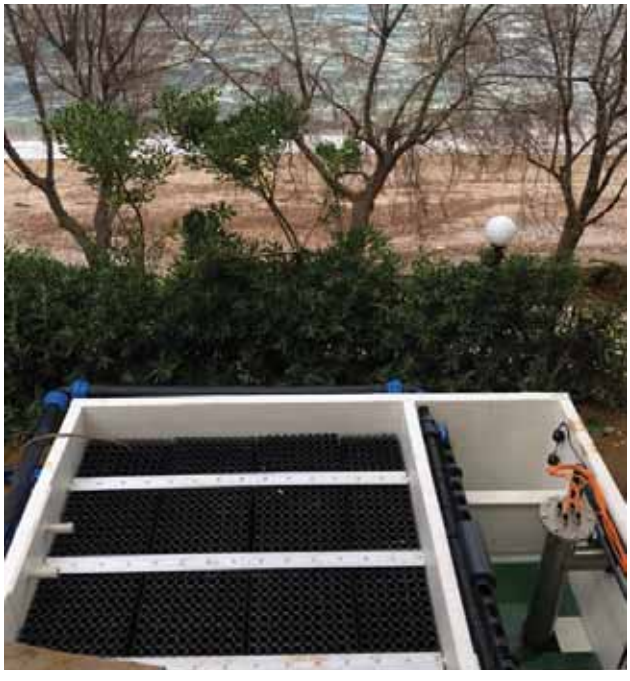
Reference # 16 | Jupiter 50

Camping site, Croatia

Jupiter installation at Camping Nevio in Croatia, this plant is installed close to the beach and the Adriatic Sea. BioKube is odorless and is therefore not disturbing the beach or camping quests.

FACTS

Reference name:	**Jupiter at camp site**
Product Type:	**2 x Jupiter 50**
Country:	**Croatia**
Application:	**Camping Nevio**
Capacity m³/day:	**60 m³/day**
Year of installation:	**2016**



WHY CHOOSE BIOKUBE?

BIOKUBE STANDARD MODULES CAN EASILY BE CONVERTED TO A SPECIFIC REQUIREMENT

BioKubes many standard modules can be combined in many ways, and do therefore fulfill any treatment demands.

SYSTEM BUILT ABOVE GROUND, OR INGROUND, OR IN A CONTAINER, YOUR CHOICE

BioKube design can fulfill any requirement regarding place of installation.

BIOKUBE SYSTEMS ARE ENERGY EFFICIENT

BioKube systems will treat wastewater using minimum possible energy while still fulfilling the required treatment demands.

BIOKUBE GIVES YOU TOTAL CIRCULAR ECONOMY

The treated water from a BioKube should be safe to reuse. Sludge can be converted to energy or fertilizer.

BIOKUBE SMALL SYSTEMS ARE CE MARKED

BioKube small systems are certified after the international standard CEN 12566 and the systems are CE marked.

BIOKUBE SYSTEMS ARE DELIVERED PLUG AND PLAY

BioKube small systems are delivered from stock ready to install. Typical installation time 1 – 2 days.


BIOKUBE
Anlæg nr. 2000

More than 6000 units in over 50 countries

BioKube is a Danish company, which was established in 2004 and since then has supplied environmentally friendly treatment plants for wastewater both in Denmark and abroad.

Today, more than 6,000 BioKube plants are installed in 50 countries around the world. From the extreme cold areas in northern Norway to the blazing heat in the deserts in the middle East.

Our technology is covered by several international patents.

BIOKUBE

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