

BIO ROTOR



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**A modern approach to
sewage treatment**

for decentralised communities >50 PE

BIO ROTOR



SUMMARY

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1. What is BIOROTOR?
2. How does it work?
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II. EVERYTHING YOU NEED TO KNOW ABOUT BIOROTOR

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III. WHY IS BIOROTOR THE BEST RBC EVER CREATED?

1. Technical comparison
2. Energy comparison

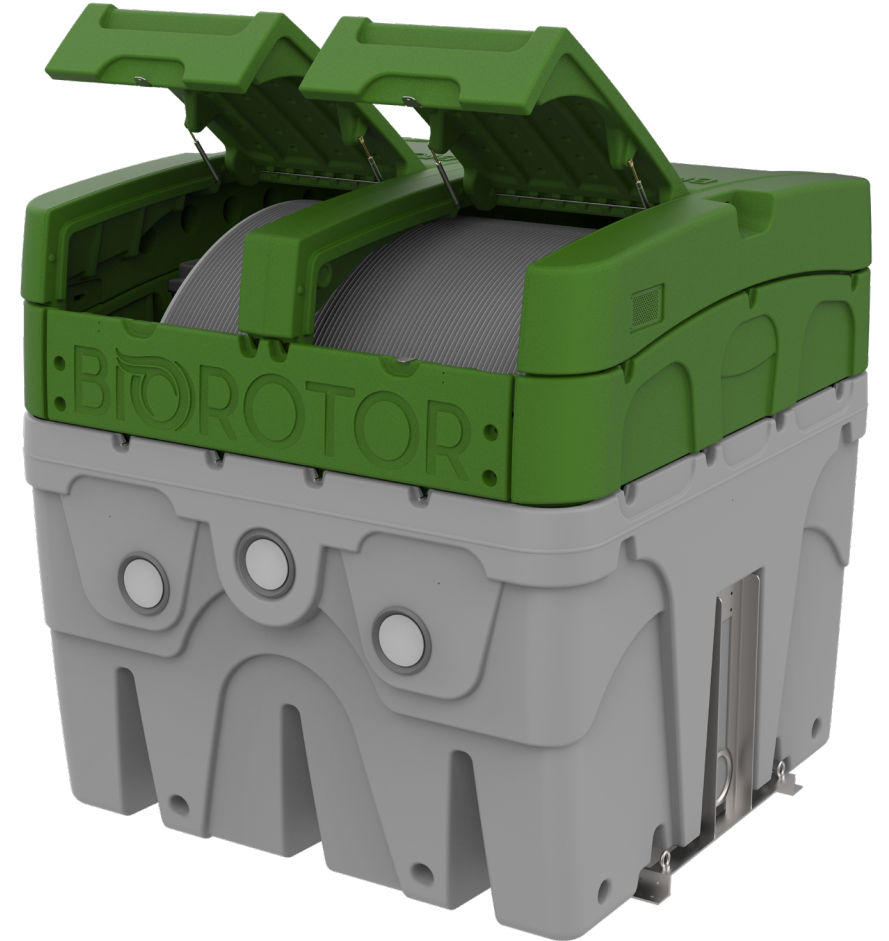


I. INTRODUCING BIOROTOR

THE FUTURE OF WASTEWATER TREATMENT

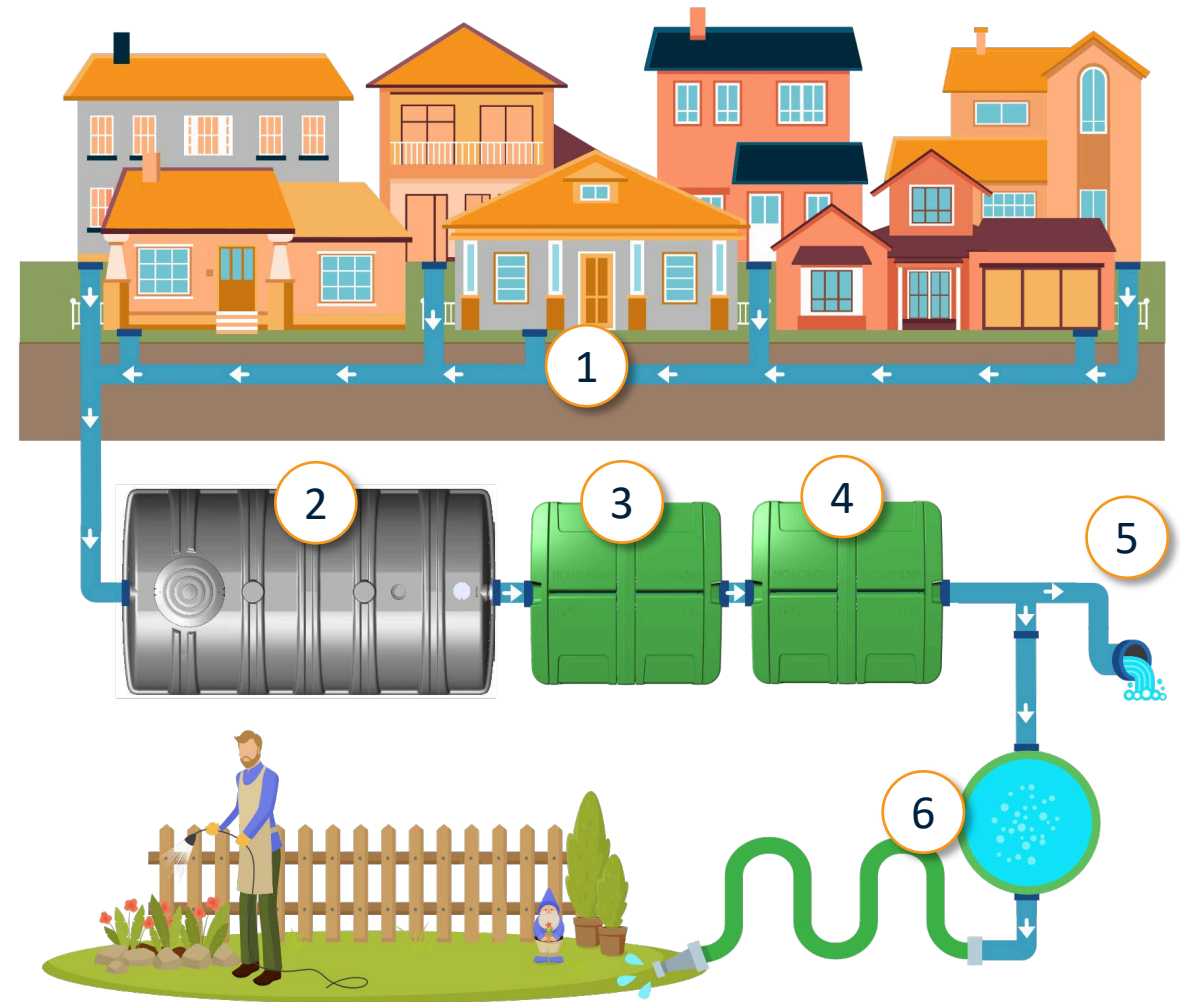
WHAT IS BIOROTOR?

BIOROTOR is the most innovative rotating biological contactor (RBC) system in the world.

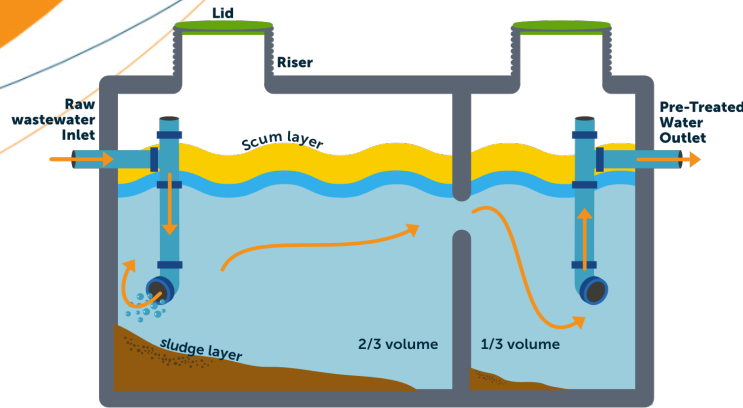


HOW DOES BIOROTOR WORK?

- 1 Wastewater is collected
- 2 Wastewater enters the first tank for **primary treatment**
- 3 It goes into the **BIOROTOR** for secondary treatment
- 4 Then into the **lamella clarifier**
- 5 That's it! The treated water can be **discharged**
- 6 The effluent water can also be **reused for irrigation** after going through a polishing treatment



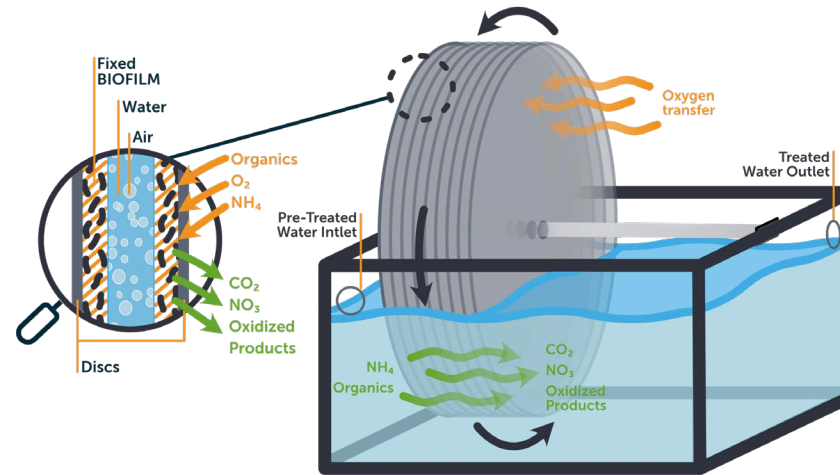
HOW DOES BIOROTOR WORK?



Primary Tank

Pre-treatment = Phase separation

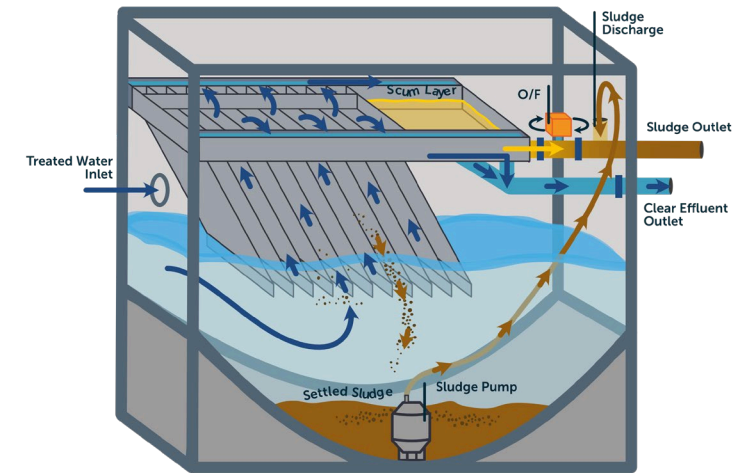
The undissolved parts (solids) sink to the bottom and the floating parts (fats, oils and greases) form a floating layer.



BIOROTOR

Biological Treatment

A consortium of aerobic and anaerobic facultative microorganisms breakdown available dissolved organic pollutants through natural venting that occurs across the rotating discs.



Lamella Clarifier

Phase separation

The sludge released from the discs is separated from the treated water by physical means and collected at the bottom of the tank. The parallel screens (lamellas) significantly increase the sedimentation rate of the particles, ensuring an effluent of excellent quality.

WHO NEEDS A BIOROTOR?



RESIDENTIAL

Residential estates,
Compounds and
Small villages



HOSPITALITY

Hotels, Resorts and
Camping facilities



COMMERCIAL

Offices, Educational
institutions, Construction
or Mining compounds,
Shopping Centres



INDUSTRIAL

Biodegradable
wastewaters
Wineries, Food
industry, other
industries



DOMESTIC WASTEWATER TREATMENT

Up to 10 000 PE



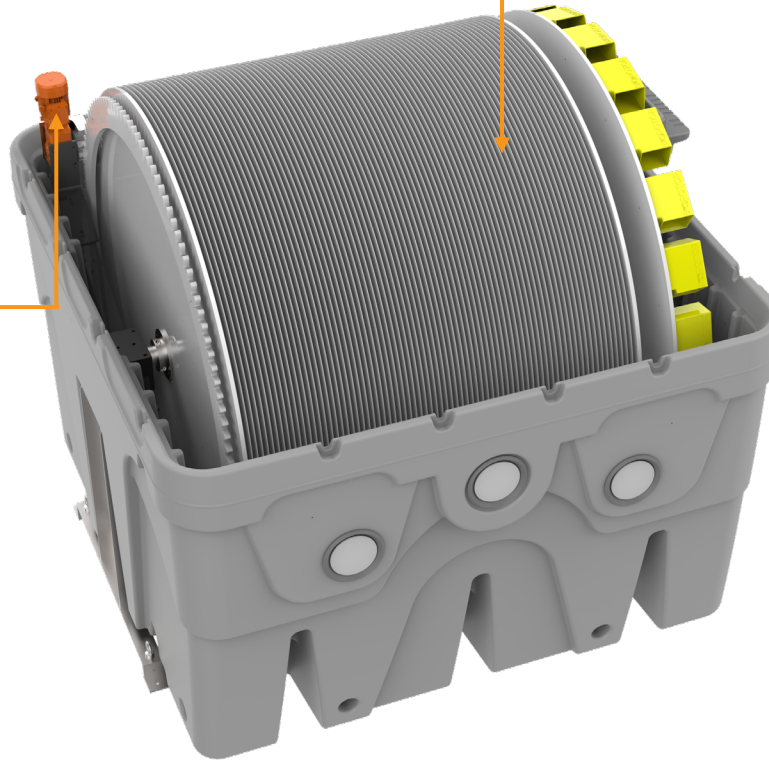
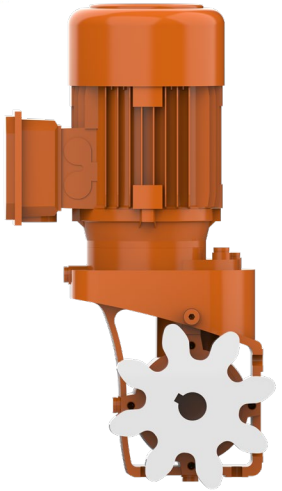
II. EVERYTHING YOU NEED TO KNOW ABOUT BIOROTOR

THE MOST INNOVATIVE RBC SYSTEM

KEY COMPONENTS

INDEPENDENT DRIVE SYSTEM

Small, independent drive motor, which allows **each module** to operate **separately**, thereby **reducing energy (0,25kW)** and dependability



DISCS : HIGH-QUALITY MEDIA

The BIOROTOR's media is made with flat **virgin Polypropylene (PP) discs** that have a diameter of 2,0 m. This **high-quality media** also ensures a consistent biofilm thickness with continuous biofilm sloughing to maintain an ideal biomass for effective treatment.

Thickness of the first and last discs	15 mm
Thickness of the other discs	1.7 mm
Diameter	2,0 m

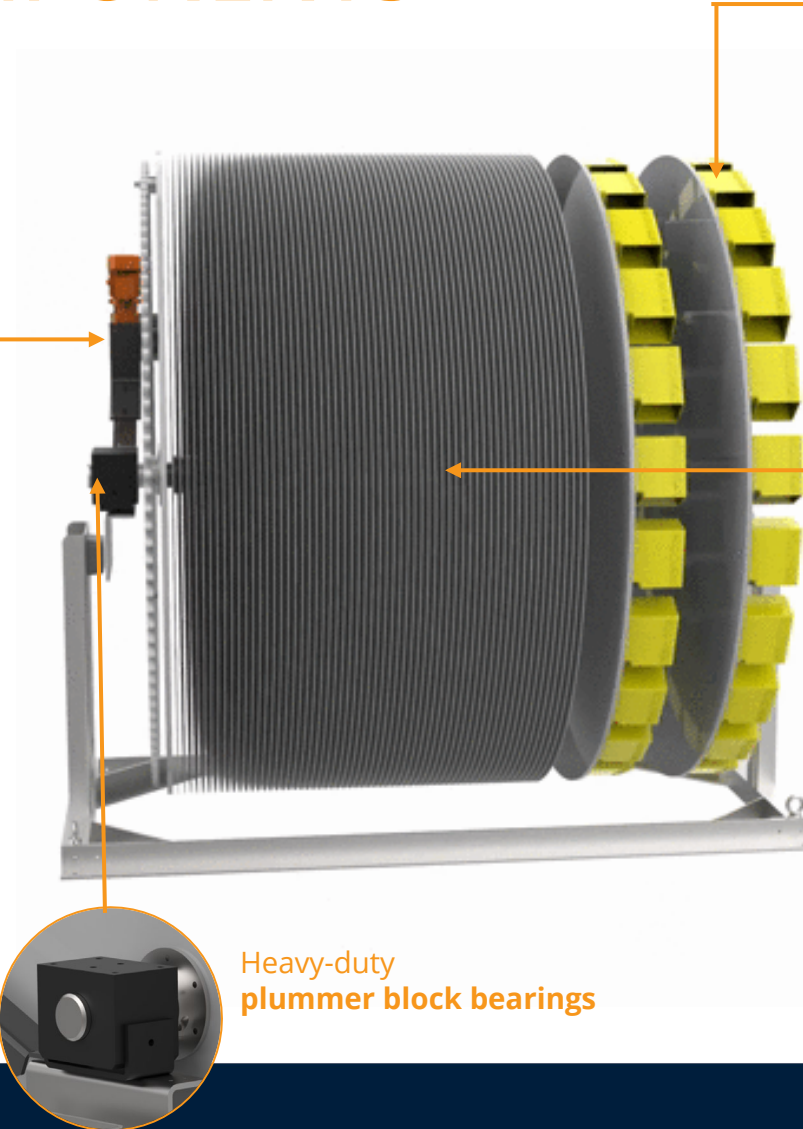
BIOROTOR features a **novel spacer design** to ensure unsurpassed stability of the disc package.

We have 3x spacers, 11 mm, 15 mm and 17 mm.

KEY COMPONENTS

RING GEAR DRIVE:

BIOROTOR optimizes energy efficiency by incorporating a ring gear drive **on the outer perimeter of the disc**. By this eliminating large, heavy and costly gearboxes in shaft drive or sprocket drive arrangements.



Heavy-duty
plummer block bearings

WATER TRANSFER BUCKETS

A bucket elevator system enables process versatility, **enabling flow control, nutrient removal processes, or lifting for downstream processes.**

SHORT, SINGLE-PIECE, STAINLESS-STEEL SHAFT

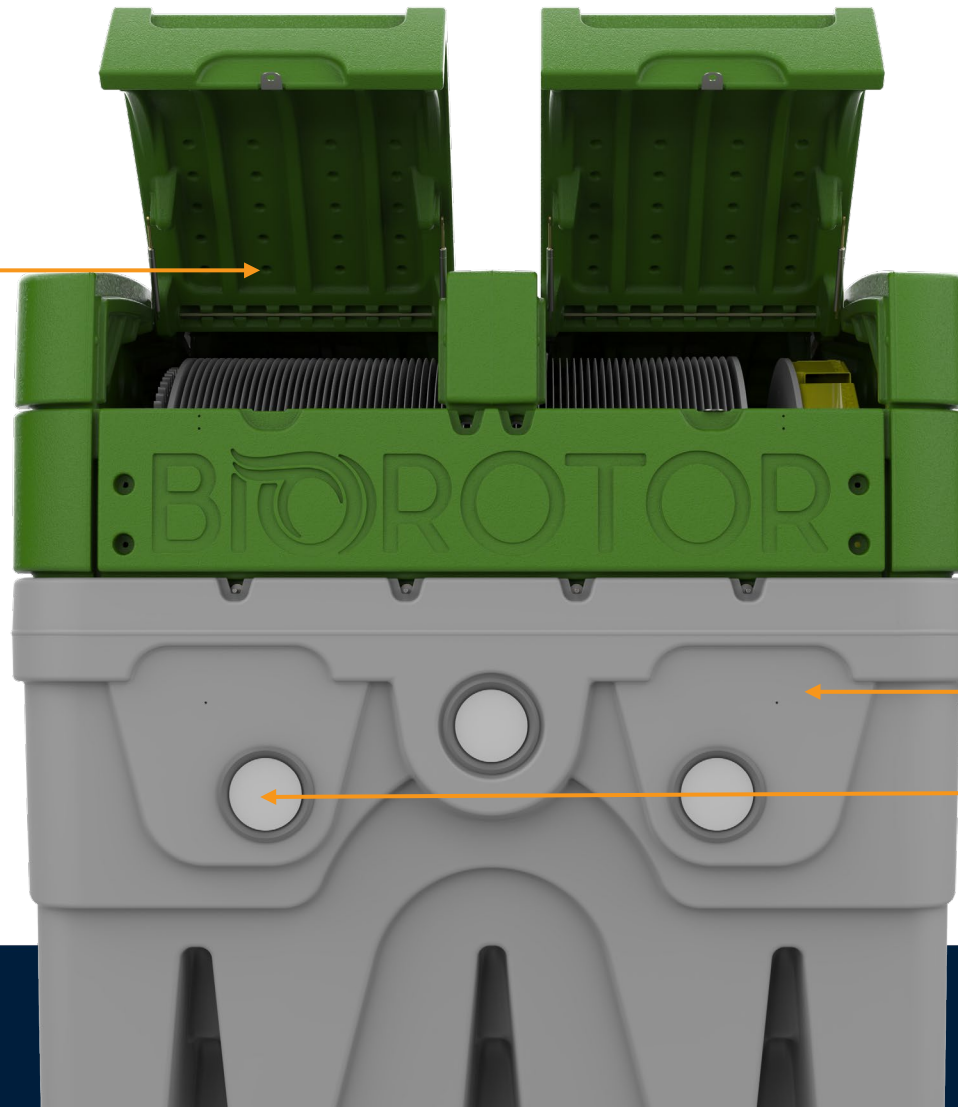
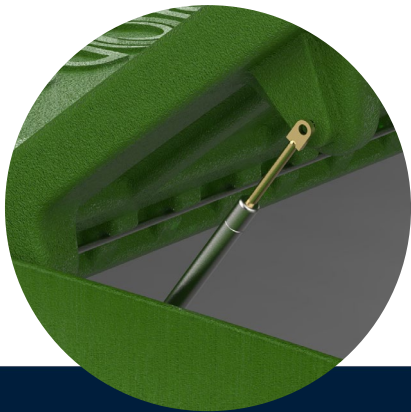
To keep the overall mechanical design weight at a minimum without compromising on the structural integrity of the critical drive components.

This considerably **reduces the load and wear on the drive, shaft and bearings**

KEY COMPONENTS

LOCKABLE COVERS

The covers are **lightweight and lockable for single-handed access** during routine inspection or maintenance.



ROBUST ROTOMOLDED TANK

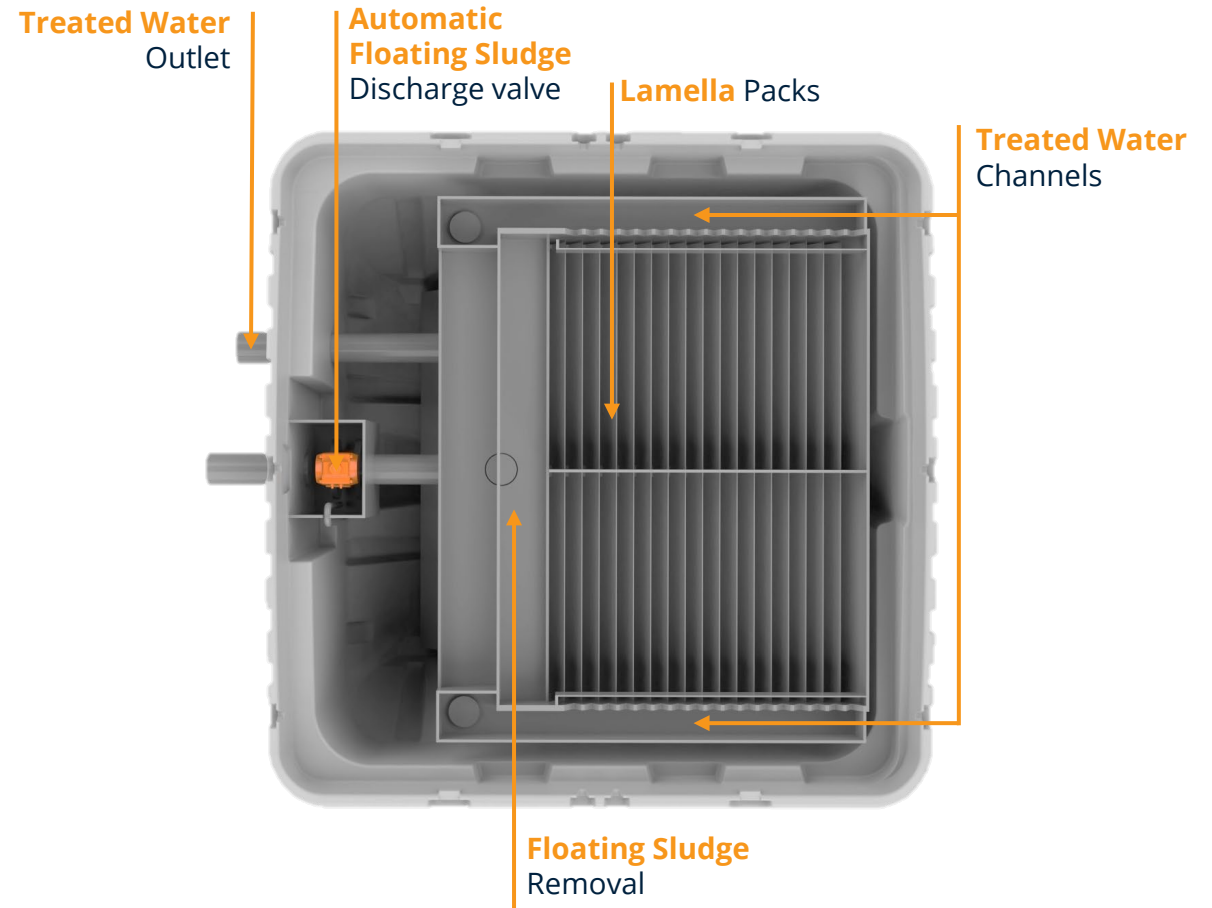
The tank is made with robust corrosion resistant materials : **polyethylene plastic and stainless steel**, are used throughout the construction, guaranteeing a long-service life.

6X LARGE Ø 160 MM PORTS

KEY COMPONENTS

Lamella Clarifier:

- ✓ Durable **PE & PP Construction**
- ✓ **Sludge** hopper
- ✓ Automatic settled sludge **discharge pump**



BIOROTOR'S KEY FEATURES

**Compact &
Modular design**

**Revolutionary
Drive system**

**Durable
Components**

**Easy installation
and light system**

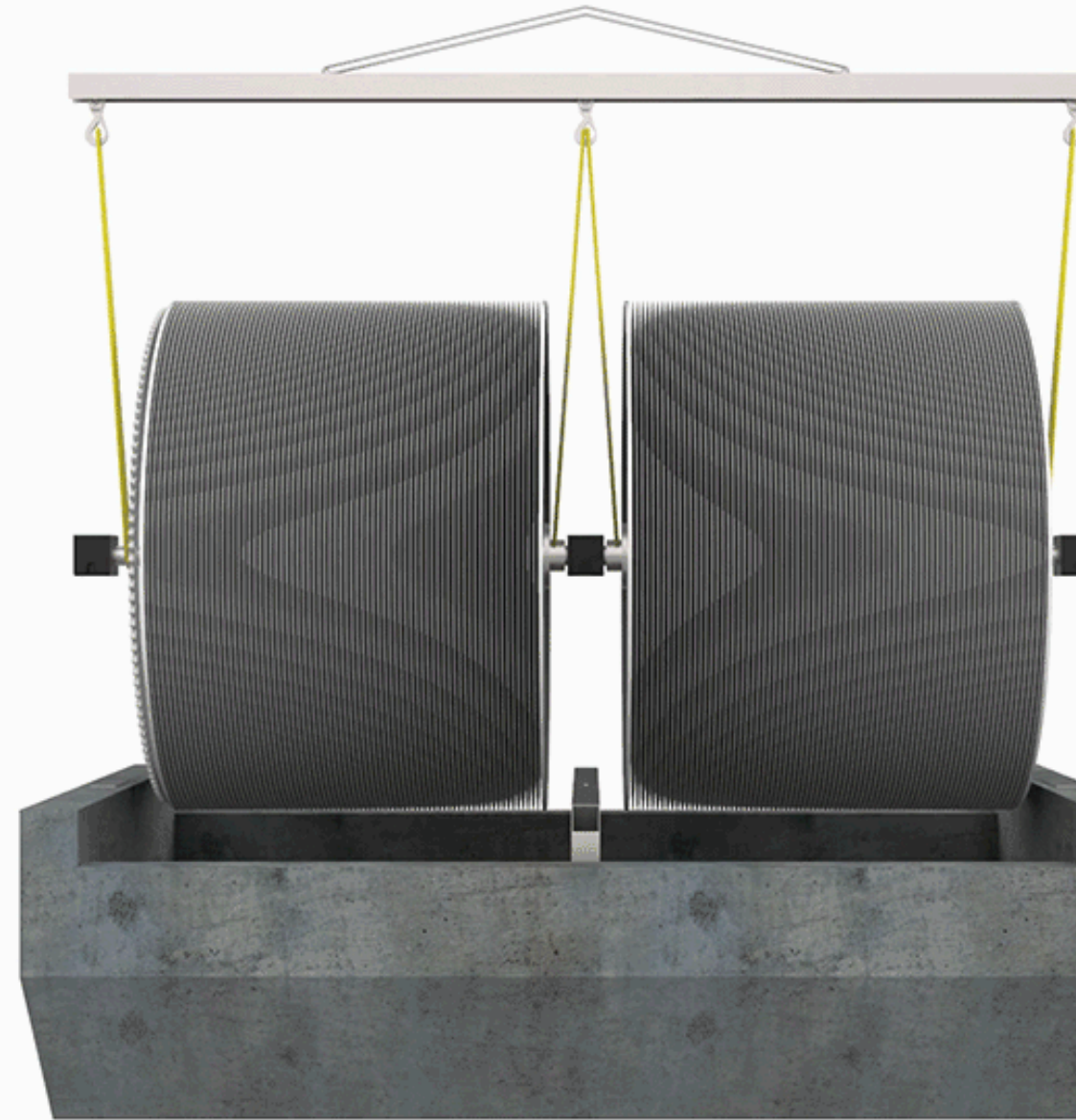
**Simple and
independent
operation**

BIOROTOR'S KEY FEATURES

Retrofit Option

Because recycling is a second nature for us, we designed BIOROTOR keeping in mind that **some systems just need a little upgrade to have a second life.**

With BIOROTOR, you can **modernize or replace an existing system to transform it into a state-of-the-art sewage system** which is cost-effective, robust, and very easy to maintain.



BIOROTOR'S KEY ADVANTAGES



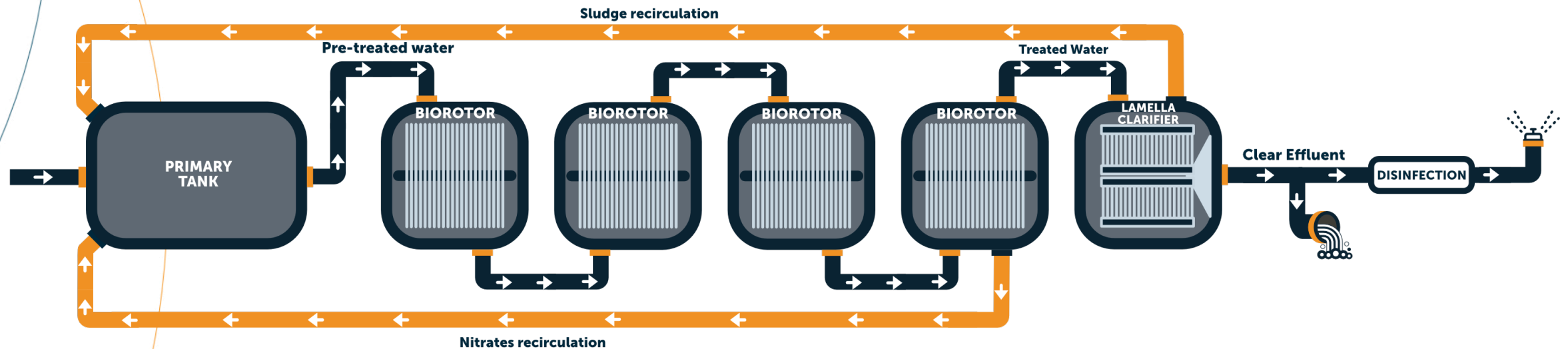
After decades of experience in RBC systems around the world, BIOROTOR integrates the best of this technology to develop an unsurpassed product in the market.

KEY ADVANTAGES



All configurations are possible **to fit with your project** (depending on the technical spec.)

- **Number of BIOROTOR modules**
- **With or without recirculation for nitrate treatment**
- **Size adaptation for retrofit projects**
- **With or without tertiary treatment**



KEY ADVANTAGES



Very small motor with minimal power consumption (greater energy savings thank our unique gear drive system)

BIOROTOR has the lowest energy requirement per cubic meter of water treated compared to other treatment technologies.



Each BIOROTOR module is powered by its own engine.

This allows to have a system **where each motor can be driven by solar energy**, which is an ideal solution for rural areas.



III. WHY IS BIOROTOR THE BEST RBC EVER CREATED?

TECHNICAL COMPARISON

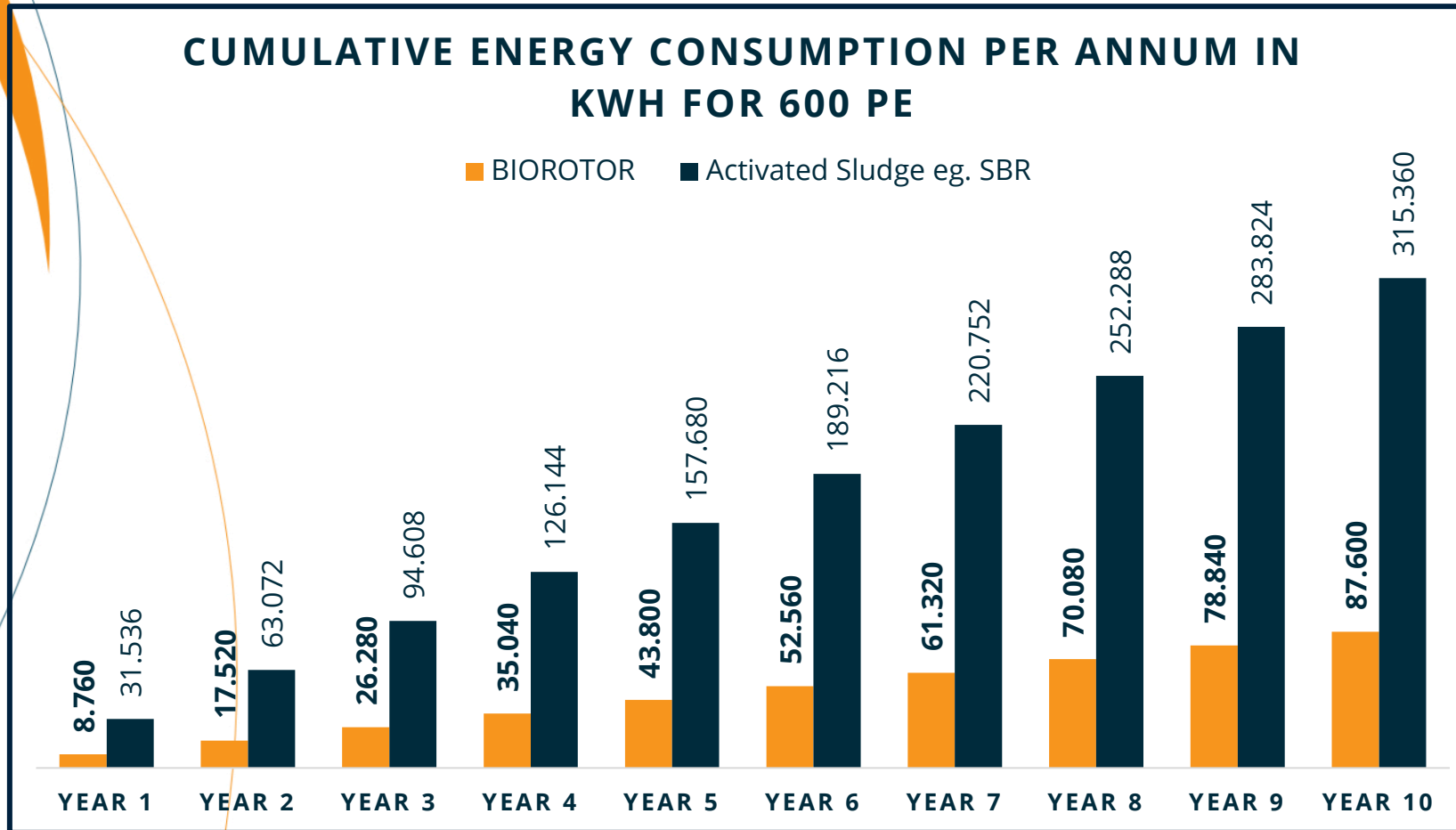
	BIOROTOR	AS & SBR	MBBR & SB-FFBR
Low Operating Costs	✓	✗	✗
Requires minimal power	✓	✗	✗
Autonomous Operation	✓	✗	✗
No expert operator input required	✓	✗	✗
Silent Operation	✓	✗	✗
No virus and bacteria projections due to aerosol	✓	✗	✗
Longer dislodge intervals thanks to a lower sludge production	✓	✗	✗
Sustainable system with no chemical or additives required	✓	✗	✗
Easy transportation to rural sites	✓	✗	✗
Accessible mechanical components for an easy maintenance	✓	✗	✗
Flexible options	✓	✗	✗

BIOROTOR is unmatched when comparing these key features with other technologies.

In every regard, BIOROTOR offers a preferred solution compared to conventional sewage treatment technologies.

These advantages translate into capital and operational cost savings.

ENERGY COMPARISON (600 PE)



This example illustrates a 3 MODULE RBC (600 PE) with lamella clarifier, compared with an equivalent-capacity Activated Sludge system, or a SBR system using either diffusers or surface aerators.

The energy consumption of BIOROTOR represents only 27% of the average energy consumption of an equivalent-capacity Activated Sludge system, or a SBR system.



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