

MIRACELL®



White | Green | Blue

The system most preferred by customers who clearly understand the economic value in purchasing a well-built and well-designed system



Sand Filter



Ultra Filtration



Activated Carbon Filter



Ultraviolet Disinfection



PROCESS DESCRIPTION

Miracell® is a fully automatic Rotating Biological Contactor (RBC) wastewater treatment system. A unique feature allows the disks connected to a shaft to rotate at a very low speed by means of a motor which is equipped with a reduction gear. The system is designed such that 40% of the disks remain submerged in the wastewater. The disks which first submerge in the wastewater are then contacted with air. As a result of this repetitive process, organisms accumulate on the disks in the course of time. These organisms receive the necessary oxygen from the air during the rotation of the disks, consume the pollutants existing in the wastewater and convert them to carbon dioxide and water in a totally natural way.

The Miracell® which operates on the RBC principle has many advantages over other package wastewater treatment systems that operate on the activated sludge principle. With conventional activated sludge systems a constant flow of air needs to be pumped through aerators by blowers in order to stimulate bacterial growth. Whereas with the Miracell® system, the bacteria are able to receive the necessary air naturally through the atmosphere.

By design Miracell® has the ability to decrease its capacity in times of

lower flow rates via bypassing unused compartments and routing wastewater to the last modular unit to conserve energy costs. Another important feature is the ability to increase capacity by simply adding disks or modular compartments.

The treated water which is discharged from the Miracell® is guaranteed for the most stringent discharge standards and either may be used as irrigation water, or directly discharged into a lake, stream, ocean or other body of water.



The Miracell wastewater treatment system has a modular design, with units that can be configured to service small to mid-sized communities between 50 and 20,000 people or businesses with water treatment needs of 10 m³/day - 4000 m³/day. It is one of the most flexible and expandable systems on the market today, where units can be easily added or moved to accommodate changes in demand. The system is certified to meet or exceed strict EU environmental discharge and irrigation standards.

FEATURES, BENEFITS & AREAS of APPLICATION

○ Standard Equipment ○ Optional Equipment

Miracell® White

Miracell Module + Sedimentation Tank

- Low energy consumption
- Low maintenance cost
- Modular
- Composite (GRP)
- Low cost
- Standard water quality

Discharge purposes in emerging countries

BOD **45** COD **120** TSS **45**

Miracell® Green

Miracell White + Sand Filter

- Low energy consumption
- Low maintenance cost
- Modular
- Composite (GRP)
- High water quality

Discharge purposes in developed countries & irrigation purposes for emerging countries

BOD **25** COD **110** TSS **35**

Miracell® Blue

Miracell Green + Ultrafiltration

- Low energy consumption
- Low maintenance cost
- Modular
- Composite (GRP)
- Superior water quality

Irrigation of landscape and vegetation, car washing, cooling towers & concrete mixing purposes in developed countries

BOD ≤ **20** COD ≤ **90** TSS ≤ **10**

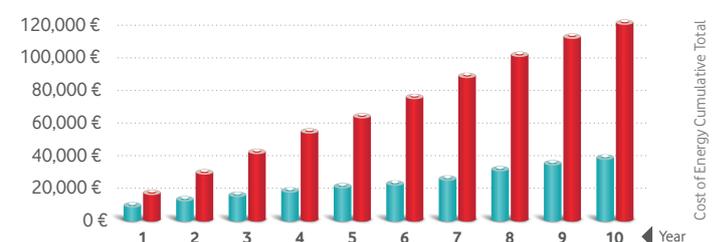
MIRACELL TECHNICAL SPECIFICATIONS

MIRACELL®	Equivalent Population (person)	Treatment Capacity (m ³ /day)	Energy Consumption	Width (cm)	Length (cm)	Height (cm)	Weight (kg)
50	250	50	0.25 kw	190	217	246	850
100	500	100	0.50 kw	190	434	246	1700
150	750	150	0.75 kw	190	651	246	2550
200	1000	200	1.00 kw	190	868	246	3400
300	1500	300	1.50 kw	190	1302	246	5100

Pump excluded in energy consumption

MIRACELL WASTEWATER TREATMENT PLANT & ACTIVATED SLUDGE SYSTEM Energy Comparison Table

1000 People Capacity / 10 Year Energy Consumption MIRACELL WWTP Annual Energy Cost ACTIVATED SLUDGE SYSTEMS Annual Energy Cost



Note: Energy cost totals are provided for comparison purposes only. Increases in energy costs and energy consumption variations due to operation - maintenance activity has been disregarded. Our firm can not be held responsible for energy consumption calculations due to energy unit price escalations or other changes.

Domestic wastewater : Accepted world norms for domestic wastewater is BOD 220 / COD 400 / TSS 210.