

GlancoDISC



Where there is no centralized
treatment: biological
wastewater treatment
systems up to 20,000 PE.
Proven German technology.
Made in Turkey!



Lower carbon footprint

Lower energy consumption

Powered by renewable energy

Easy operation



We are one of the most
important companies in
the world, because one
day everything will be
cheaper than water.





In 2004, realizing that the most critical issue of the 21st century is water and the rapidly polluted environment and depleted natural resources, I saw an opportunity to serve society and make a difference against environmental problems threatening future generations.

When I was born in 1960, the world population was under 4 billion; today it is about 8 billion and by 2050 it will exceed 9 billion. Global GDP increased from about 4 trillion EUR in 1950 to more than 63 trillion EUR today.

With the tremendous growth of the world economy and population, the impact on the environment and natural resources has also increased. Will our children thank us for a world without clean drinking water, breathable air and clean rivers?

I see myself as a social entrepreneur, not a businessman. My life goal is to protect water and contribute to the future. Therefore, we decided to produce biological treatment systems based on proven biodisk technology for capacities of 200 to 20,000 PE, enabling reuse of treated water with low energy use, odorless and quiet operation.

There is an increasing need for sustainable wastewater treatment technologies. The rotating biodisk (DBD) system has the lowest energy consumption and carbon footprint among known treatment technologies.

The system can be operated easily with solar energy. The Sorgucu WWTP in the Mardin Wastewater Management Project is the first and only solar-powered wastewater treatment facility in Turkey.

From a NATO base in Kosovo to a refugee camp in Australia; from UN container housing after the Hatay earthquake to the campuses of Bogazici and Bilkent universities; from the Elazig Coca-Cola plant to Aramco oil exploration sites... We serve humanity in many countries across 5 continents.

Unfortunately, due to the rapidly increasing effects of the climate crisis, "one day everything will be cheaper than water".

Gilan Group, founded 40 years ago, transformed its global experience into PlanetTEK - an environmental technologies company - and offers solutions through international projects and partnerships.

We will work harder and continue our struggle for water - the most important issue for humanity.

Hurriyet Nejat Eydogan

PlanetTEK: environmental and treatment technologies company



We serve in nearly 30
countries on 5 continents with our facilities
200-20,000 PE (people equivalent)
far from centralized treatment, where
treated water will be reused!



Why do remote settlements need water recycling? Why GlancoDISC(r) instead of centralized treatment?



GlancoDISC



The key feature of the GlancoDISC(r) system is its natural and simple design. This provides ease of operation and maintenance.

With the lowest carbon footprint among known treatment technologies, proven German technology is especially important today.

With advanced filtration and disinfection, treated water can be reused for irrigation, car washing, toilet flushing, and similar applications.

GlancoDISC(r) achieves up to 80% energy savings and is one of the lowest energy-consuming wastewater treatment systems. Average monthly energy cost per person is about \$0.13. Because of the low power requirement, the system can easily operate with renewable energy sources.

In rotating biodisk systems, sludge forms naturally on the disc surfaces. Unlike activated sludge, it does not require continuous monitoring and frequent intervention. In a 5,000 PE plant, weekly maintenance takes about 1-2 hours and no laboratory is required.

GlancoDISC units are manufactured from corrosion-resistant materials such as fiberglass, polyethylene and polypropylene, galvanized and stainless components. Biodisk size and shape are based on proven design rules.

Because of its mechanical design, GlancoDISC(r) is odorless and silent. It uses about 0.37 kW and rotates at around 3 rpm. Since there is no air blower, oxygen enters naturally and this is the secret of its odorless operation.

Stable and reliable biological treatment: sudden hydraulic or organic load shocks do not negatively affect performance, making it suitable for villages, seasonal settlements and similar applications.

A Project Approval File (POD) is often required by the Ministry of Environment and local authorities for operating permits. As a certified environmental technology company, many of our projects have environmental / discharge permits.

Nitrogen and phosphorus removal can also be provided in the biodisk system according to European standards.

24/7 technical service. Spare parts and maintenance service worldwide.

Why choose the rotating biodisk?

Excerpts from our reference letters

Energy costs for these facilities are low and there is no odor problem. Maintenance and operation are comfortable because it is not a complex system.

We are very satisfied with the rotating biodisk system. Maintenance is easy, there is no odor, and energy consumption is very low. Thank you for your professional approach.

Mesa Mesken San. A.S.

Our customers prefer the rotating biodisk system due to ease of maintenance and stable treatment results. Low energy costs make it the right choice. If we needed wastewater treatment units today, we would still prefer rotating biodisk technology without hesitation.

TEKFEN İnsaat ve Tesisat A.Ş.



Our first unit has been operating successfully in Iskenderun since 2005.

DBD System - Operating Principle

GlancoDISC(r) is a fixed-film system where HDPP discs rotate on an epoxy-coated steel shaft at about 3-4 rpm.

Before entering the RBC, wastewater passes through the inlet structure (screen and oil trap) and then a sedimentation / equalization stage.

About 40% of the disc surface is submerged. During rotation, the disc takes the oxygen needed to oxidize organic matter and the bacteria population grows rapidly.

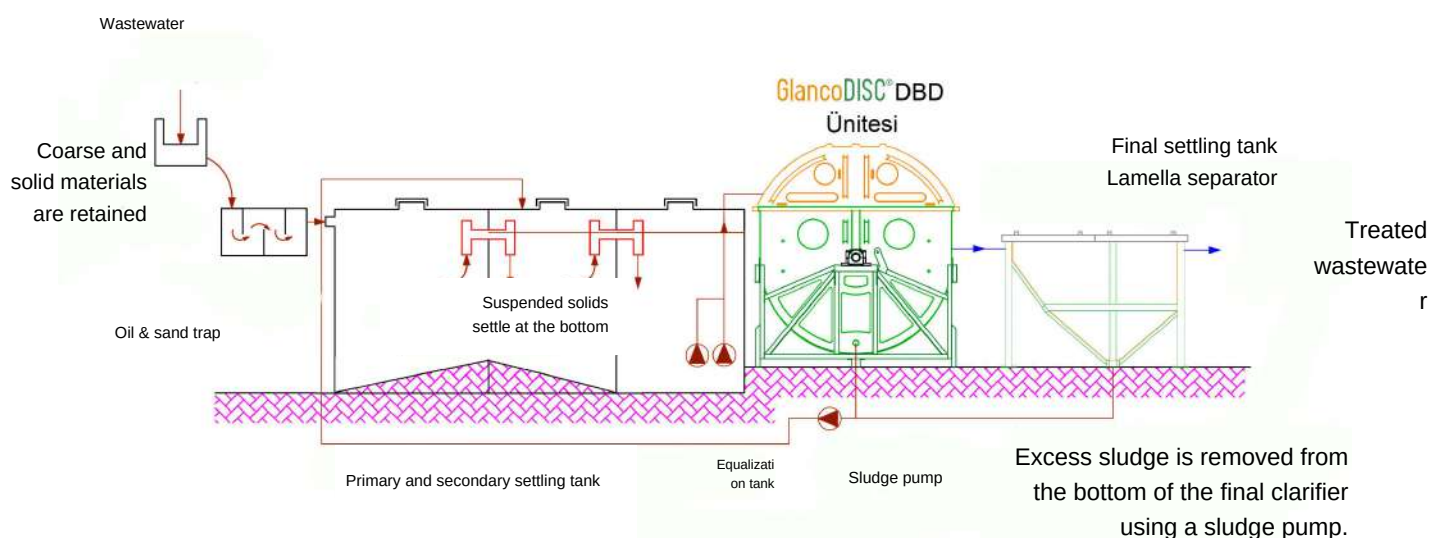
Biofilm forms naturally. When the sludge layer becomes heavy, it detaches automatically, so the required bacterial population is always maintained.

The effluent contains dead bacteria and some suspended solids detached from the discs. After final clarification / filtration and disinfection, treated water can be reused (irrigation, car wash, cooling tower water, toilet flushing, etc.).



Rotating biodisk units are transported to the project site by ABCO (Australia).

Rotating Biodisk System - Flow Diagram



Technical information

Plant capacity: 40-4000 m³/day

Capacity per unit: 40-85 m³/day (depending on hydraulic / organic load and wastewater characteristics).

Power required per unit: 0.37 kW

Corrosion-resistant materials

GRP body (fiberglass) with UV protection; HDPP discs with special additives; epoxy-coated or chrome-plated shaft; galvanized or stainless water-contact parts; heavy-duty ball bearings; epoxy-coated or galvanized chassis.

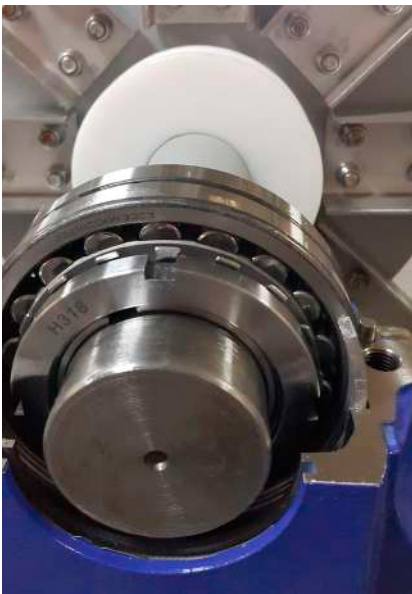
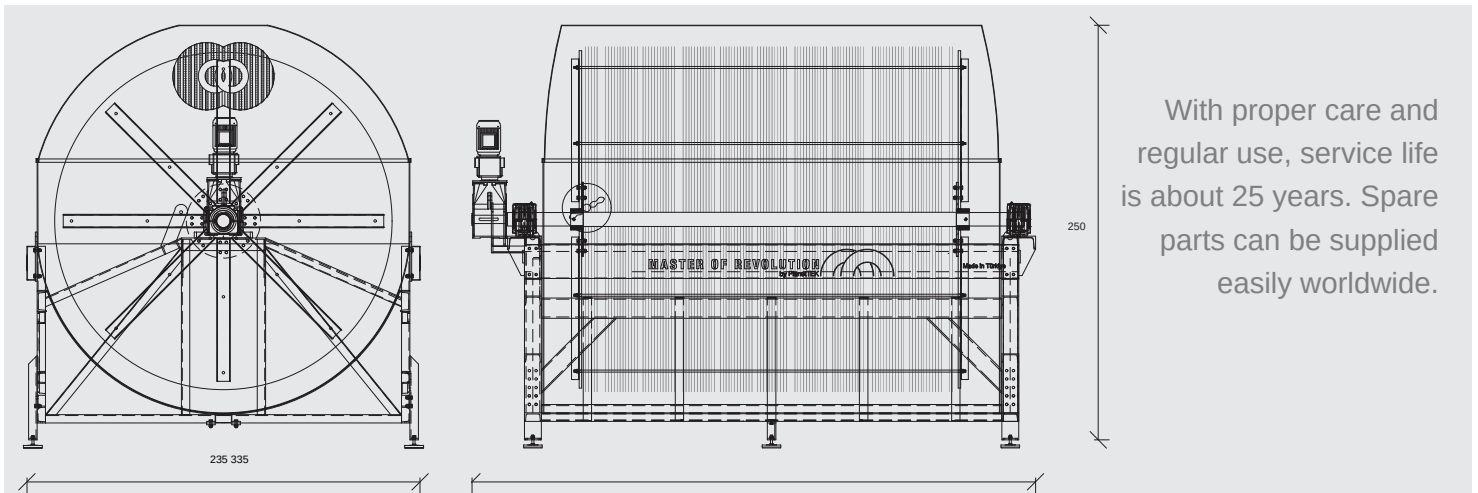
Delivery / packaging

Unit dimensions: 2350 mm x 3200 mm x 2500 mm (H)

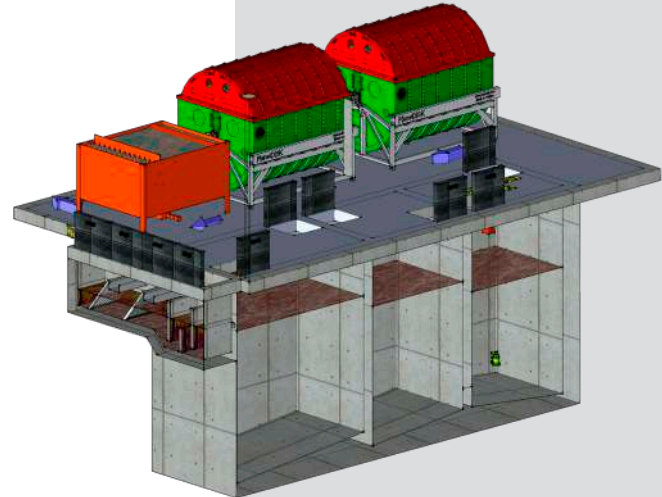
Net weight: 1900 kg

Loaded weight: 7500-8000 kg

Transport: 3 units per 40 ft HC container; 4 units per truck



GlancoDISC(r) Rotating Biodisk Wastewater Treatment Plant Capacity: 160 m³/day



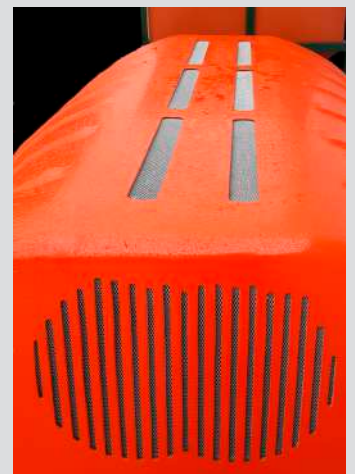
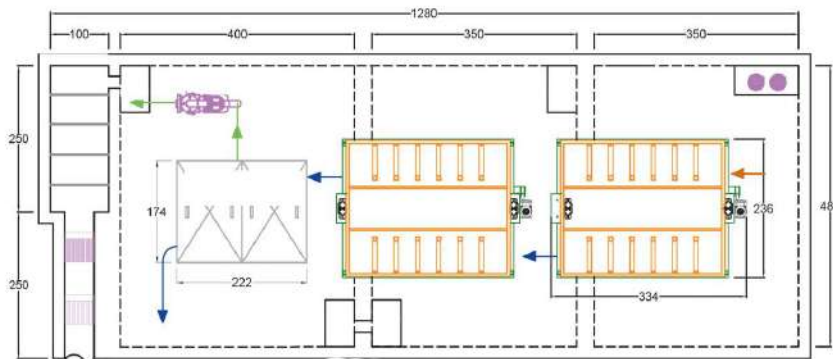
Influent values: BOD = 300 mg/L
Organic load: >60 g/person/day
Hydraulic load: >200 L/person/day

Required effluent quality: BOD < 25 mg/L

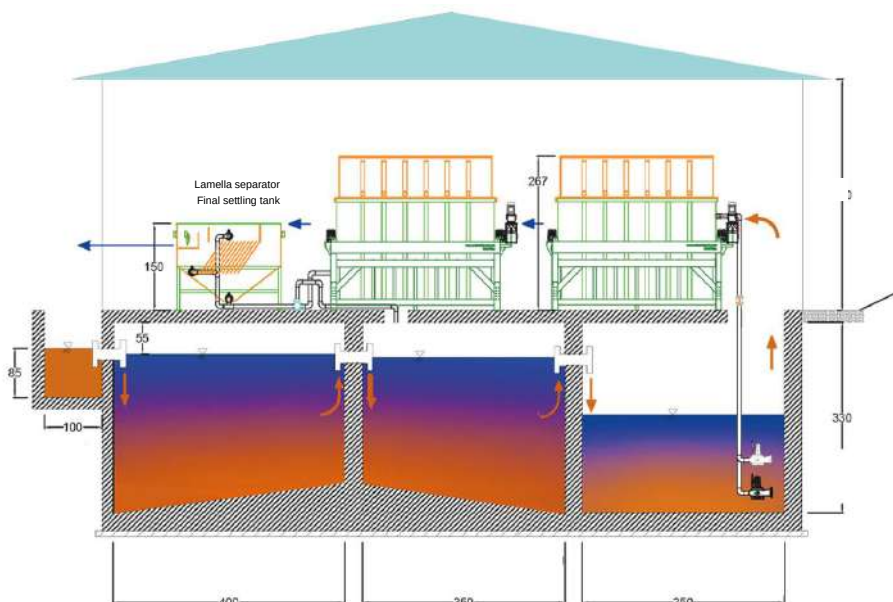
Area requirement:
50-60 m²



A biofilm layer forms on HDPP discs. Rotation provides air (oxygen) to the biomass. There is no need to monitor parameters such as dissolved oxygen, SVI or MLSS.



Required oxygen reaches the discs via openings on the unit cover. Using the cover is optional and in some cases it may not be used.



Project example



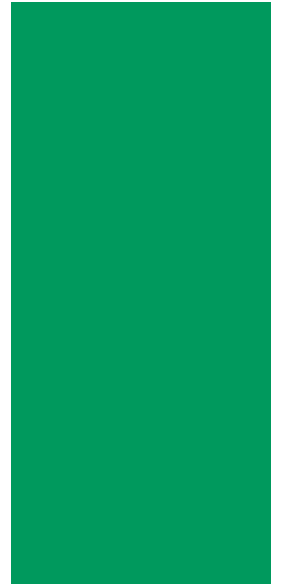
Balikesir / Turkey

In the Balya and Ivrindi districts of Balikesir, wastewater is treated using DBD rotating biodisk units.



BASKİ (Balıkesir Water and Sewerage Administration) decided on the rotating biodisk system after comparing it with aeration-based systems and evaluating energy consumption.

In this project, as in many municipalities, the most important topics were energy savings and operating costs.



The common point among the villages of Canakkale, Ankara, Amasya, Kirsehir, as well as projects in Australia, Greece and Georgia, is the rotating biodisk.



Our DBD system with a total capacity of 1,200 PE/day is located in the village of Fanisa near the 3rd largest city in Greece.





Bogazici University used conventional systems for many years. As energy costs increased and operation became more difficult, the need for a low-energy and easy-to-operate solution became clear.

Thanks to the rotating biodisk system, there were no noise and odor problems on campus and nearly EUR 20,000 per year energy savings were achieved.

Why did Bogazici University convert its wastewater treatment plant to rotating biodisk technology for a capacity of 3,500 people?



Project example

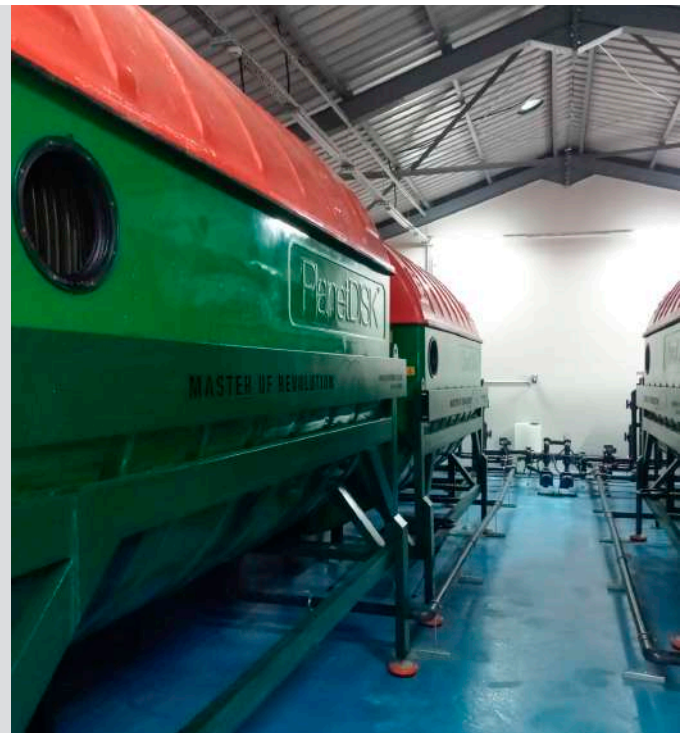
A tender was issued by ILBANK for Kırklareli Tasakli Municipality WWTP with a capacity of 315 m3/day.

In 2021, ILBANK observed the advantages of using DBD technology in this project.

Use in small settlements



In Turkey, conventional systems are generally used in municipal treatment plants. With increasing experience and a growing focus on energy efficiency, rotating biodisk technology is a strong alternative for small and medium-sized settlements.

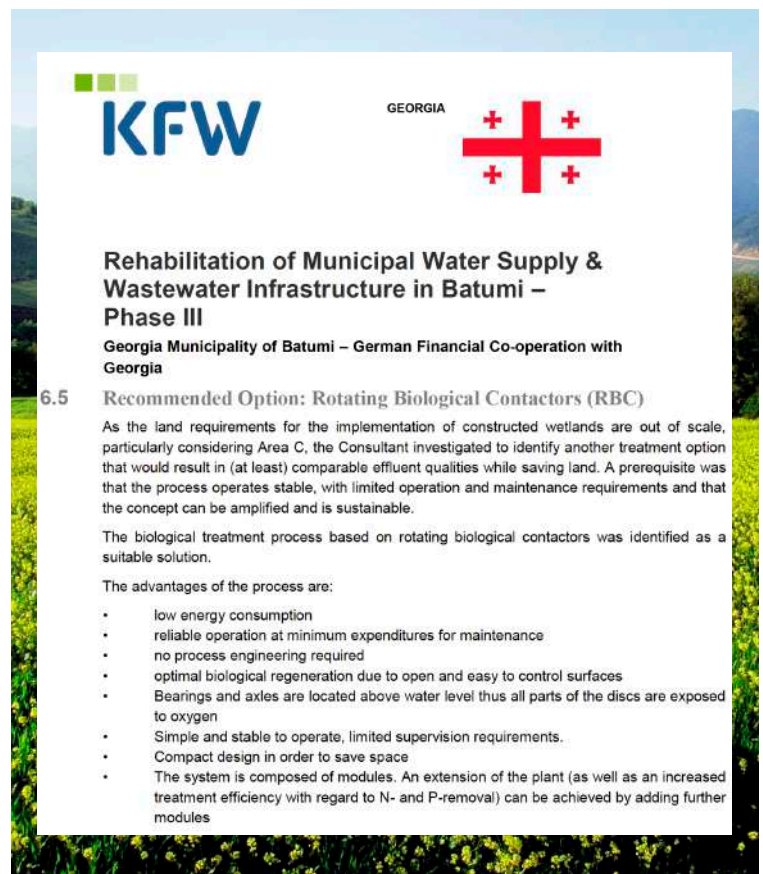


Why did the German Development Bank KfW request biodisk use in wastewater treatment projects for Georgian villages it finances?

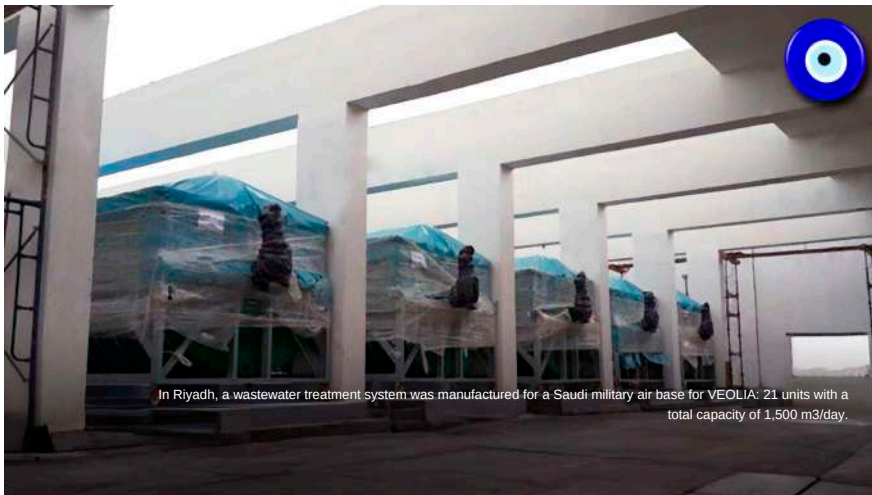
Building treatment plants for small communities is a challenge because such projects often have no technical staff and engineers to operate the facility.

In the KfW tender documents, the reasons for choosing DBD are stated as follows:

- ? Low energy consumption
- ? Safe operation with low maintenance
- ? No need for process engineering
- ? Easy and stable process with minimal supervision



Project example



Why did Mesa and Tekfen, Veolia (France), Metito (Qatar) and Aramco - among the prestigious companies in the region - prefer rotating biodisk technology?

We are an engineering and contracting company proven with many Project Approval Files and environmental permit documents.



Project example



Hatay - temporary earthquake housing

Challenges: urgent commissioning, variable loads, limited qualified operators, odor/noise concerns and operating cost.

Economic comparison between DBD and aerobic activated sludge systems over 15 years

Investment, energy, personnel, sludge removal, maintenance/repair and spare parts costs are included.

285,981 EUR

Total savings over 15 years

Economic comparison between DBD and MBR systems over 15 years

Investment, energy, personnel, sludge removal, maintenance/repair and spare parts costs are included.

391,740 EUR

Total savings over 15 years

Mardin Sorgucu Wastewater Treatment Plant

Challenges: limited qualified staff, need for low energy / renewable operation, odor/noise concerns and operating cost.

Why does Sorgucu town in Mardin (population 4,500) have a rotating biodisk instead of an activated sludge system?

Water scarcity is a major issue in Mardin and many southeast cities. Reuse of treated water is one of the most effective ways to protect limited clean water resources.



Project example



MARSU
MARDIN BÜYÜKŞEHİR BELEDİYESİ
MARDIN SU VE KANALİZASYON İDARESİ
GENEL MÜDÜRLÜĞÜ

Economic comparison between DBD and aerobic activated sludge systems over 15 years

Investment, energy, personnel, sludge removal, maintenance/repair and spare parts costs are included.

689,039 EUR

Total savings over 15 years

Economic comparison between DBD and MBR systems over 15 years

764,337 EUR

Investment, energy, personnel, sludge removal, maintenance/repair and spare parts costs are included.

Project example: NATO military base, Kosovo



NATO chose rotating biodisk technology for the following reasons:

- ? Operates without trained staff
- ? Low energy requirement
- ? Reliable and stable treatment results

Our system passed strict mechanical and durability tests by NATO engineers and was preferred over British, German and French alternatives.

In this project, nitrogen and phosphorus removal is also provided.

Capacity: 257 m³/day
BOD influent: 300 mg/L
BOD effluent: 25 mg/L





Coca-Cola Plant, Elazig

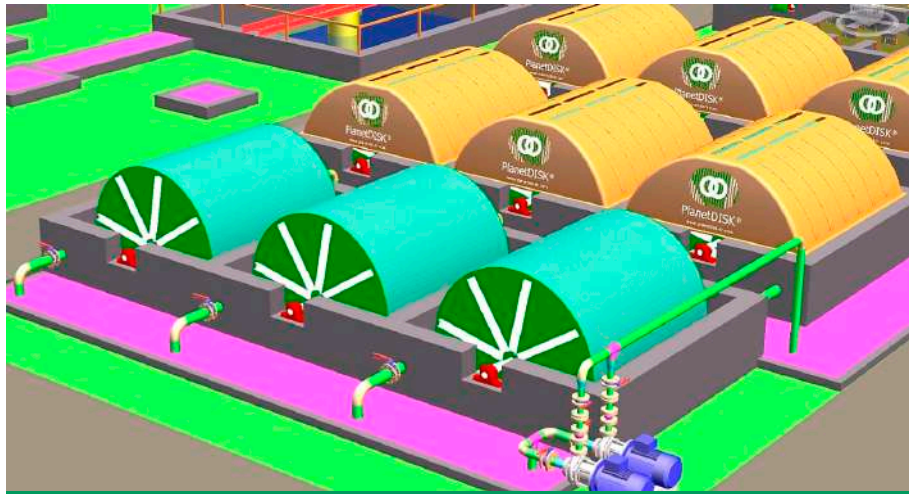


Coca-Cola preferred the rotating biodisk system due to low carbon footprint and low energy consumption.



Capacity: 680 m³/day
COD influent: 3500 mg/L
COD effluent: 1000 mg/L
Water recycling (irrigation): 50 m³/day





Different installation methods

With simple pool/bathtub-shaped pits, the facility footprint and total cost can be reduced. The rotating biodisk unit can be installed in these compact civil structures.



Australian refugee camp

Rotating biodisk units can be deployed rapidly for camps and construction sites. Using polyethylene tanks allows quick installation and operation.



When the project ends at construction sites or camps, the PLUG (plug & play) facility can be moved and reused elsewhere.



Lamella separator is used for final sedimentation and other applications.

Final settling tank (Lamella)

Key points

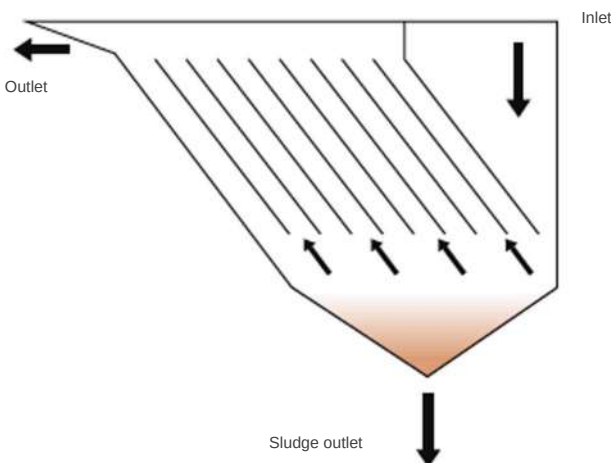
Effective sedimentation is achieved even in small volumes by increasing the active surface area. Performs reliably under variable loads.

Accumulated sludge is removed from the bottom by an external sludge pump (1-2 times per hour).

Compared to reinforced-concrete tanks, it occupies very small space and does not consume energy.

Other products: coarse screen, fine screen, basket screen, flocculators, pipe mixers, fast & slow mixers, bucket elevators, etc.

Materials: fiberglass body, plastic lamella plates, carbon steel frame (epoxy coated).



Our honor list



ENKA



Our references (partial list) - Abroad

Our references (partial list) - Turkey

Sideraulic System - Italy

Texas, USA - Industrial facility

Long Beach Panorama - Dovitch Construction

TRNC - New Pier Beach Project (Housing)

Palestine - Dura Hospital (Nutech)

Pakistan - Islamabad Healing Hospital (Orient Engineering)

Newmont Twin Hills - ABCO Water Systems

Australia - Villa Project

Azerbaijan - Alat Free Economic Zone

Saudi Arabia - Residential Compound Project (Metito)

Riyadh, Saudi Arabia - Military Base (VEOLIA)

Pakistan - Research Center

Libya - Misrata Free Zone (TML Construction)

Konamola - Hill Companies Group

Australia - Town

Pakistan - Emaar Residence, Karachi (Orient Engineering)

Pristina, Kosovo - NATO Military Base (PROTECH AL)

South Africa - Buzzing Bird Project

Gaborone, Botswana - Multi-Waste Limited

Anse aux Pins, Seychelles - Metito Hotels

Puebla, Mexico - ThyssenKrupp Plant (XELERA)

Greece - Larisa city villages (Contractor)

Pakistan - Mangla Dam Camp (DDFC Limited)

Australian Government - Healing Treatment

Papua New Guinea - Refugee Camp

Jeddah Yanbu - Aramco Pipeline Operation

Saudi Arabia - Campus

ECETAS Construction - financed by German bank KfW

Batumi, Georgia - financed village Tsakhefi

Djibouti - Italian Hospital (Aqualiflex)

Doha, Qatar - Warehouse Project (Metito)

Ghana - Luxury Housing Project (Capital Water) (Chile)

Chevron Petroleum - Construction Site

Kazakhstan - Drilling Site

Algeria - Dam Construction Site (ENKA Construction)

Hatay - Project

Ankara - Bilkent University

Coca-Cola Turkey - Elazig Plant (Industrial)

Istanbul Beykoz Municipality - Parks & Gardens Directorate

Kirklareli (Hamidiye) (Public) - ILBANK / Tasaki Village

Ankara - CİTEKC? TUNCLAR Highway Bus Station / Military Base

Nigde - Seftihan Thermal Tourism Area (Public)

Kirikkale - Barton

Canakkale Ezine (Public) - ILBANK / AFAD Housing Project

Canakkale Biga Kemer Village (Public) - Canakkale Provincial Administration

Kocaeli - Information Valley Technology Development

Bodrum, Mugla - Garanti Koza Power Plant / PUPA

Bodrum - Vieira Vista Homes (NORM Construction)

Bodrum - Ruh Bodrum (Cinar Elite Construction)

Kirsehir Yaylaozu Village (Solar Powered) (Public)

Kirsehir Provincial Administration

Balikesir Ivrindi (Public) - BASKI Water & Sewerage

Ankara SEREFLIKOC H?SAR (Public) - TOKI Construction (EMT)

Istanbul (Kilyos / Kayabasi) (Public)

Bogazici University Campus / Amasya Provincial Administration

Bodrum, Mugla - Daphni Homes in Mila (Le Meridien)

Zakaryakoy, Istanbul - INANLAR INSAAT - VADI

SURGUCU - Mardin Water & Sewerage (Solar Panels) (Public)

Rize - Project





DBD or conventional systems?

DBD		Activated sludge system
Carbon footprint: the lowest among all known treatment technologies. ✓		Carbon footprint: 6-7 times higher than the rotating biodisk.
Very low noise level (<60 dB) High noise (~90 dB), unpleasant humming and strong odor ✓		
Corrosion and decay	All metal parts in contact with wastewater are stainless or hot-dip galvanized. The structure is made from PE/PP and is designed for long-term durability. The metallic frame is galvanized or epoxy protected. ✓	Severe rusting and decay, typically within 3-4 years.
	Maintenance: no fixed and complex measurements are required. Biofilm detaches naturally. No special care except monthly bearing lubrication and weekly lamella washing (about 2-5 minutes). Regular screen cleaning is important. ✓	Requires significant maintenance. Disposal of excess activated sludge must be managed. Stable operation is difficult and depends heavily on human factors.
Energy and operating cost	With an energy cost of about \$0.1 per person per month, it is among the lowest-energy wastewater treatment systems. Low number of moving parts means little spare part need. ✓	8-9 times higher energy consumption due to powerful blowers; frequent blower failures.
Footprint: more than 50% less area. PlanetDISK(r) can be placed in a 2.5 m x 3 m area. ✓		Compared to biodisc units, it may require up to 2x the footprint.
Sludge quantity and characteristics	Produces about half the sludge compared to the other system; activated sludge generates large amounts of excess sludge. ✓	
Operation management and parameter tracking	No special measurement tools are required and sludge is not recirculated. ✓	Dissolved oxygen, SVI and MLSS must be monitored continuously by trained staff, requiring extra laboratory tools and equipment.



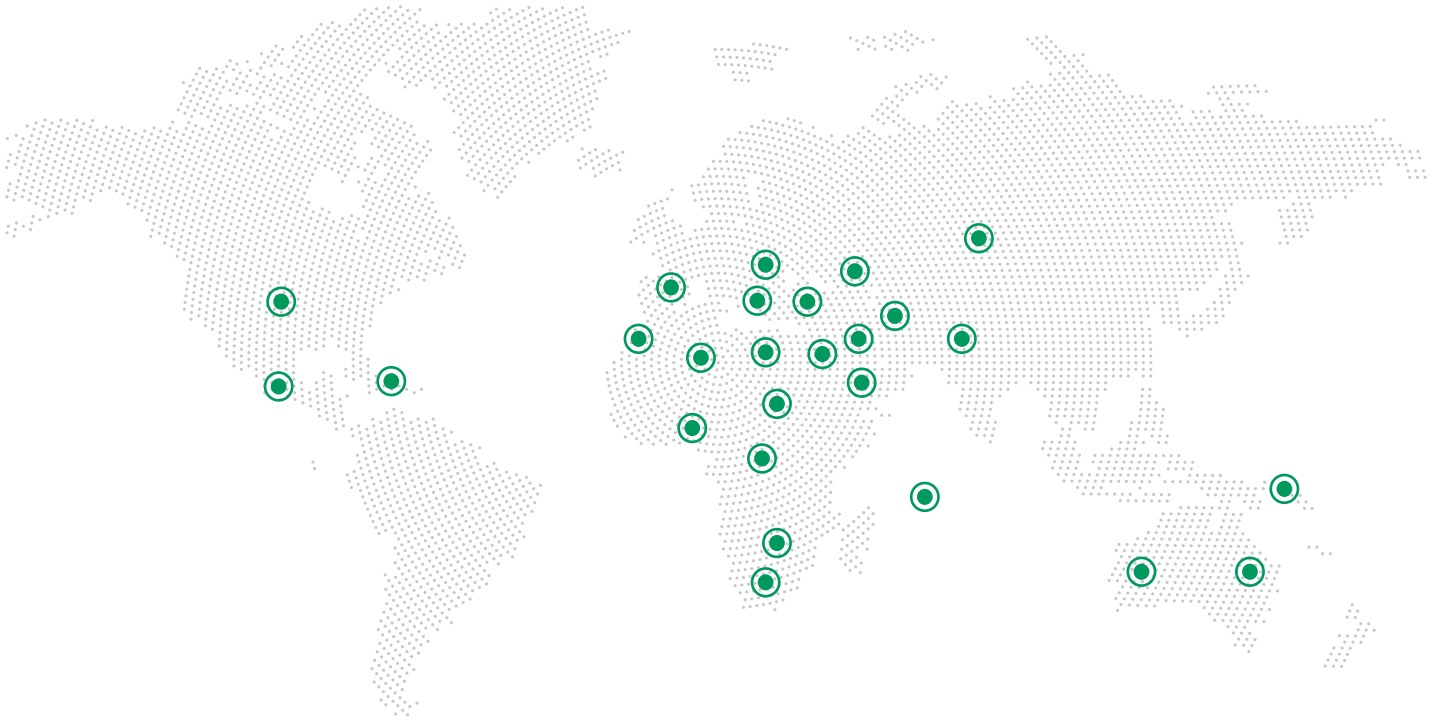
DBD applications: domestic and industrial wastewater; hotels, schools, factories; camps (disaster victims and refugees); construction and mining sites; shopping centers, stadiums, prisons, mass housing and greywater.



**MADE IN
TÜRKİYE**

Now we serve on 5 continents!





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