
Water Management Solutions

Wastewater Management Commercial BioDisc[®] Product Guide



www.kingspan.me/water



Kingspan Commercial BioDisc®



Trusted wastewater treatment solutions across a wide range of commercial applications

With over 60 years' experience delivering high performance and reliable commercial wastewater treatment systems worldwide, you can trust Kingspan.

Choose between a single piece BioDisc® system (suitable for populations up to 300PE) or the new modular and containerised BioDisc system designed with ultimate flexibility in mind, suitable for applications of up to 2500PE.

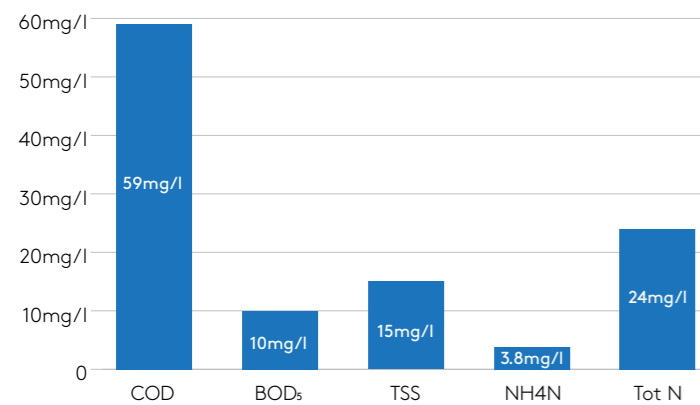
Each Commercial BioDisc® provides an engineered package solution to meet a wide range of applications and discharge qualities, and is designed to ensure 100% compliance with industry requirements across commercial sectors - international regulations such as EN 12566-3 (up to 50 PE) and EN 12255 (over 50PE).

The Kingspan range includes the well-established rotor design which is compact, structurally sound and built for long life.

Our patented flow management systems ensure optimum treatment performance in the treatment zones. BioDisc® features two chambers to ensure a totally efficient operation with a unique flow balancing facility.

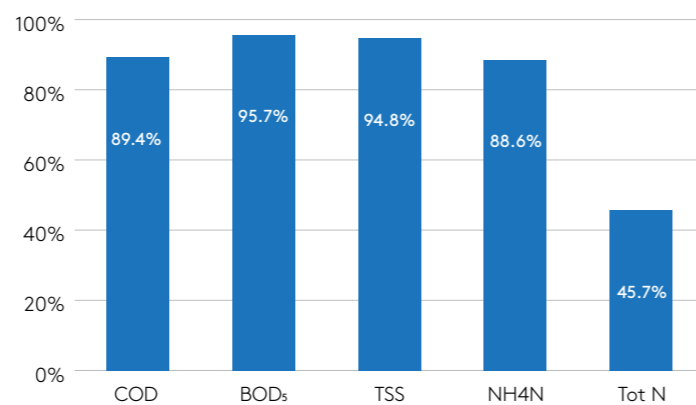
This managed flow system ensures peak performance by smoothing variable loads. Wastewater is moved at a controlled rate through the sections with the entire media area available, ensuring maximum treatment efficiency.

Treatment Efficiency (MG/L)



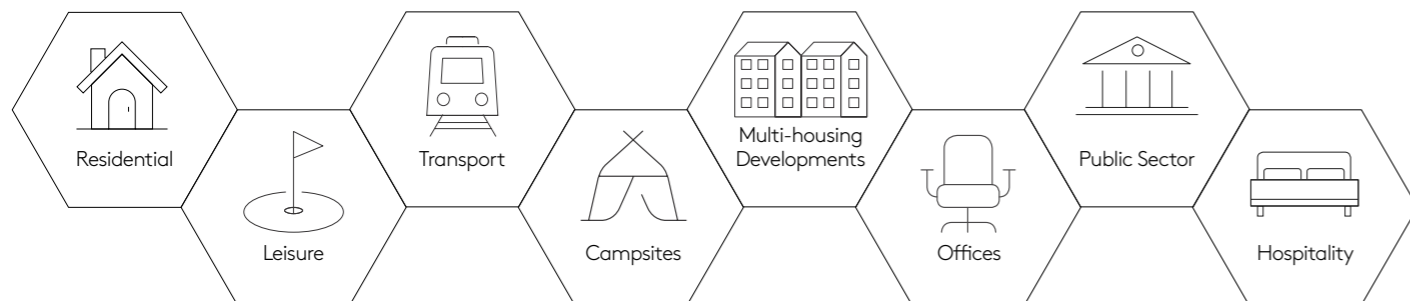
*Effluent qualities achieved under EN12566-3 test conditions, other effluent qualities for commercial systems available on request.

Treatment Efficiency (%)



Applications

The Commercial BioDisc® range is suitable for all commercial applications, including the following:



Technical Case Studies

Local Distributor Network



Port Authority chooses BioDisc BL Commercial Treatment Plant



Kingspan was contacted through a local partner to supply and install a BioDisc® BL Rotational Biological Contactor commercial treatment plant system. A key consideration for this public sector organisation was cost savings to the public purse.

- The treated effluent from the BL was discharged by gravity to a below ground 7KL tank.
- The newly installed Kingspan BL tank was used in conjunction with an Ultra Filter plant to ensure highest quality effluent, for discharge to public landscape areas.
- Cost savings and payback were a key factor in the choice of sewage treatment plant for the client. The system, after successful installation, continues to deliver significant cost savings to the public sector authority and the public purse.
- Telemetry was used to constantly monitor the quality of the treated water being discharged.

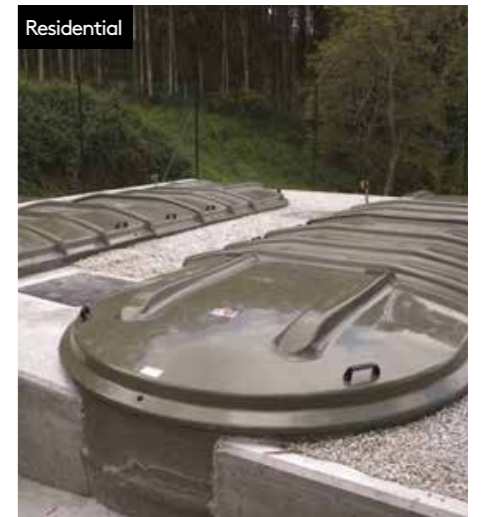
Holiday Park BioDisc BM Treatment Plant in area of conservation



Kingspan carried out the manufacturing and installation of a wastewater treatment system at a scenic holiday park. After a thorough site assessment, a BioDisc® BM commercial treatment plant system was chosen as best fit for the site conditions.

- The BM BioDisc® treatment plant offered added benefits of a totally odour free, noiseless product along with a packaged, all in one tank approach.
- Following the site assessment, it was clear that the BM BioDisc offered the most suitable solution for the tricky site conditions, due to the very high quality of effluent delivered as well as the overall robust build of the system.
- Kingspan technical support were on site to offer added support during the installation.
- The end result is a safeguarded system that ensures high performance and continuous treatment in over and underload conditions.

BioDisc Treatment Plant upgrade for local village

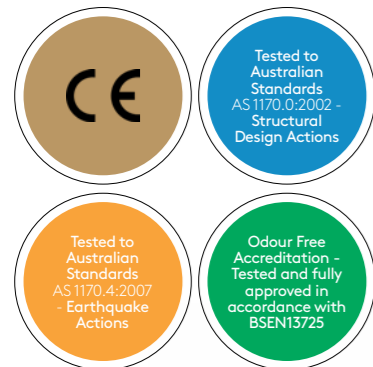


An upgrade required to a local village's traditional treatment facility was deemed necessary when the original system started to fail. The system was achieving only 70% treatment efficiency, creating environmental problems of ground pollution and odour.

- Analysis was undertaken to determine the requirements of the upgrade. The new system needed to offer a cost effective solution, which was easy to transport to site while delivering an extremely high quality of effluent.
- The Kingspan Commercial BioDisc® was chosen to fulfill these requirements. The Commercial BioDisc® was quickly delivered to site, with technical support on site offered by the Kingspan team throughout the installation process. It also features a unique managed flow process providing protection and maintained performance when it comes to shockloading events or low-flow periods. Both are typical conditions that can occur during weekend, holiday or other seasonal periods.

Technical Specifications

Commercial BioDisc® RBC Range (up to 300 PE)



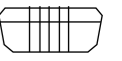
The Rotating Biological Contactor (RBC) is central to the operation of each Commercial BioDisc®. It supports the biologically active film containing the naturally occurring micro-organisms, which treat the pollutants in the sewage as described in the four stages below. Natural breakdown of sewage can then occur.

For further technical information and videos on the BioDisc® treatment plant, visit our website at: www.kingspan.me/water

Fully packaged RBC system

Delivered as a single, packaged system, the BioDisc® RBC offers low running costs due to its unique design and operational efficiencies.

Single Piece System



Technical Specifications

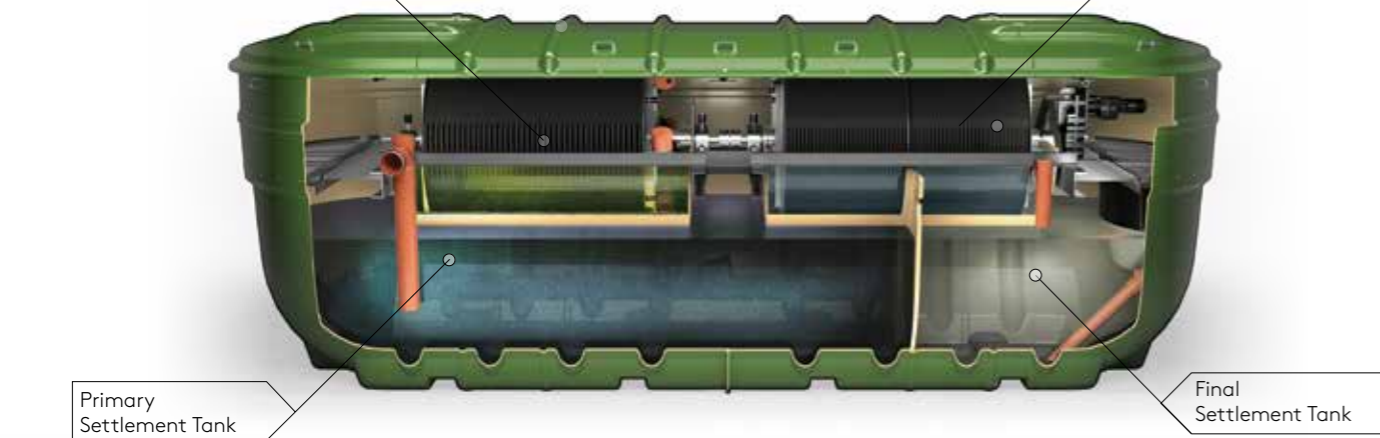
Unit Reference	BD	BE	BF	BG	BH	BJ	BK	BL	BM	BN
Population Equivalent (Std Flow)	25	35	50	70	75	100	125	150	225	300
Maximum Daily BOD (kg)	1.5	2.1	3	4.2	4.5	6	7.5	9	13.5	18
Maximum Daily Flow (m ³)	5	7	10	14	15	20	25	30	45	60
Ø/Width (mm)	2450	2450	2450	2450	2450	2450	2450	2450	2450	2450
Length (mm)	3340	3340	4345	5235	7755	7755	7755	7755	10420	13600
Inlet Invert depth (mm)	600/1100	600/1100	600/1100	600/1100	600/1000	600/1000	600/1000	600/1000	600/1000	600/1000
Depth Below Inlet Invert (mm)	1820	1820	1820	1820	1790	1790	1790	1790	1790	1790
Outlet Invert Depth (mm)	1735	1735	1720	1720	1640	1640	1640	1640	1640	1640
Overall Height (mm)	2825/3325	2825/3325	2825/3325	2825/3325	2830/3230	2830/3230	2830/3230	2830/3230	2830/3230	2830/3230
Height to Rim of Cover (mm)	2485/2985	2485/2985	2485/2985	2485/2985	2490/2890	2490/2890	2490/2890	2490/2890	2490/2890	2490/2890
Empty Weight (kg)	1100/1200	1200/1300	1315/1465	1660/1810	3000/3020	3100/3120	3200/3220	3300/3320	4200/4250	5500/5650
Standard Power Supply	1 phase	1 phase	1 phase	1 phase	1 phase	1 phase	1 phase	1 phase	1 phase	1 phase
Motor Rating - 1 Phase (Watts)	75	75	120	180	250	250	370	370	550	2 x 370
Full Load Current 1 Phase (amps)	1.1	1.1	1.3	1.6	1.5	1.5	2.35	2.35	2.8	2 x 2.35
Optional Power Supply	3 phase	3 phase	3 phase	3 phase	3 phase	3 phase	3 phase	3 phase	3 phase	3 phase
Motor Rating - 3 Phase (Watts)	90	90	120	180	250	250	370	370	550	2 x 370
Full Load Current 3 Phase (amps)	0.38	0.38	0.42	0.63	0.88	0.88	1.35	1.35	2.8	2 x 1.35
Sludge Return Pump Rating (watts)	250	250	250	250	250	250	250	250	250	250

First Stage Biological Treatment

Second Stage Biological Treatment

Primary Settlement Tank

Final Settlement Tank



Primary Settlement Tank

This is the initial stage of treatment and simply involves the retention of coarse solids present in raw sewage and wastewater for subsequent gradual breakdown. BioDisc® features one chamber to ensure efficient operation with a flow balancing facility.



First Stage Biological Treatment

The liquor and fine solids then flow into the first stage of Biological Treatment. A unique managed flow system ensures peak performance by smoothing variable loads.



Second Stage Biological Treatment

The liquor is then fed forward at a controlled rate into Biological Treatment stage 2 for further cleaning. This process ensures the whole media area available is utilised, delivering maximum efficiency.



Final Settlement Tank

The surplus micro-organisms continuously slough off the discs and are carried forward to the final settlement where they settle out as a humus sludge, leaving a clear treated effluent to be discharged to ground or water course. The settled humus sludge is returned to the Primary Settlement Tank by the sludge return pump under timer control. The sludge return pump also removes any floating scum which helps to keep the final settlement tank working efficiently.

Technical Specifications

Commercial BioDisc® Large RBC Range (250+)

Kingspan's modular RBC system is designed for applications with higher populations. The RBC comprises of a complete modular system containing the RBC units along with primary and final settlement tanks. Both RBC units and tanks can be increased in numbers or size to make a flexible system for an expanding or phased population growth.

Each unit is supplied as a 250PE unit and further units are supplied depending on population requirements.

Primary and final settlement tanks can be sized for the intended end population or additional tanks can be supplied in the future and fed into the system.

Each of the units can be linked to create a complete sewage treatment system. The feed to each RBC can be controlled independently to give further flexibility.

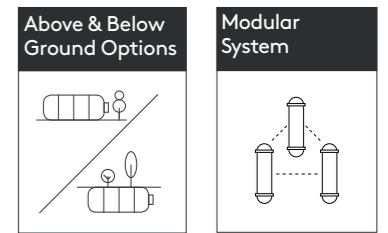
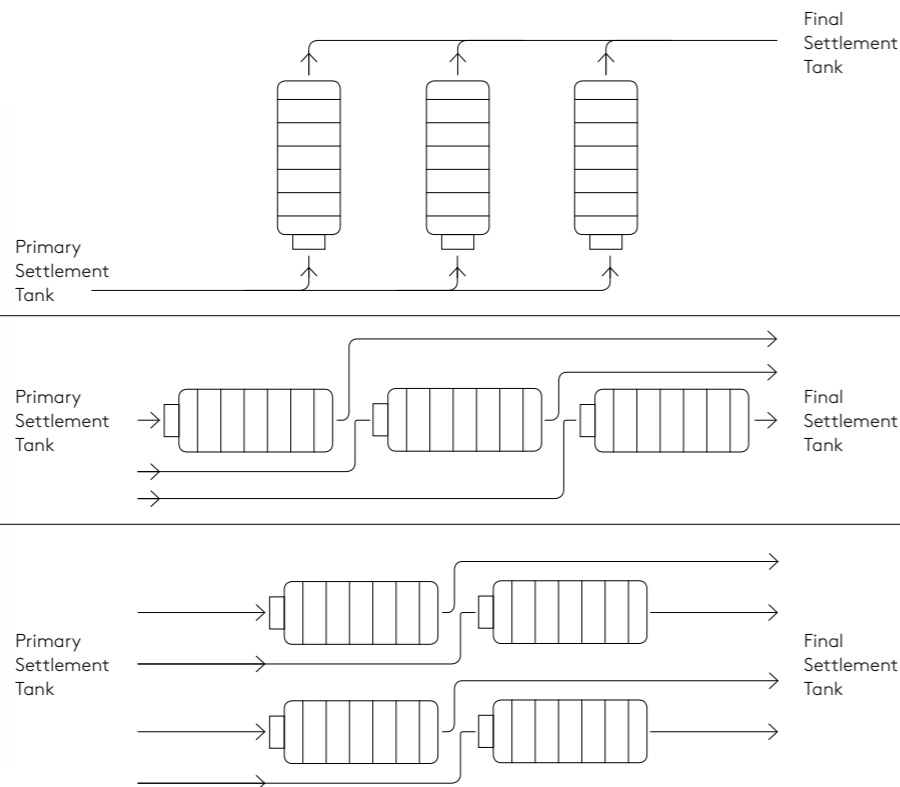
The BioDisc® RBC unit measures 6.7 metres long x 2.2 metres wide x 2.4 metres high. The size of primary and final settlement tanks will vary with each customer application and site location.



Modular RBC System

The RBC comprises a complete modular system, supplied as 250PE modules. Its unique design is containerised for ease of transport. Flexible modular layouts are available to suit even the toughest site conditions.

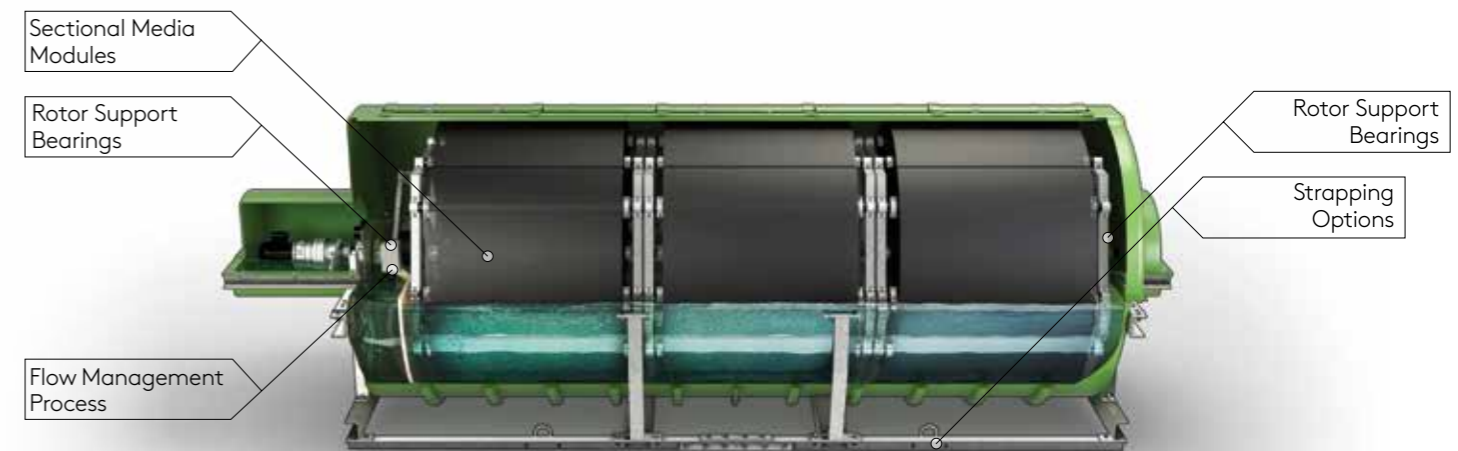
Total flexibility with a unique modular BioDisc® RBC system



Technical Specifications

Unit	Daily Flow (l/day)	Daily Load (kg/BOD/day)	Length (mm)	Width (mm)	Height (mm)	Weight (kg)	Motor Power
RBC250	50,000	15	6,700	2,210	2,400	5,000	1.1 Kw/400v

Max daily flow based on 200 L/Person/Day, system PE will vary by site flow rate per person.



01 Flow Management Process

The unique BioDisc® flow management allows for complete flexibility of forward feed rate. Rotating buckets transfer untreated water through each of the BioZones, allowing for total forward feed control. These are independently driven and allow the buckets to run at a different speed to the rotor.

02 Sectional Media Modules

The Biozone media within the BioDisc® modular system is built up in 'wedge' sections to make a two metre diameter rotor assembly. A complete wedge can be removed from the rotor for maintenance or inspection without compromising the overall rotor structure. This ensures the rotor assembly can stay in place, without the need for removal.

03 Rotor Support Bearings

The rotor assembly within BioDisc® is supported by a pillow block bearing at each end of the rotor shaft. These are equipped with self-lubricating grease cartridges to provide continual lubrication. Both of the bearings can be accessed by removing the individual covers for maintenance. It is not necessary to remove the larger main covers, allowing for easier maintenance.

04 Strapping/Lifting Options

The treatment plant can be lifted from the side by forklift truck. Forklift tubes are built into the steel construction frame. The unit can also be lifted at either end with the aid of extension forks. Alternatively, the unit can be lifted with slings. Four lifting brackets are attached to the frame and lifting shackles are provided with each unit.

Head Office

Kingspan Environmental Ltd
180 Gilford Road
Portadown, Co. Armagh
BT63 5LF
T: +44 (0) 28 3836 4400

UK

College Road North,
Aston Clinton, Aylesbury,
Buckinghamshire, HP22 5EW
T: +44 (0) 1296 633000
F: +44 (0) 1296 633001
E: water@kingspan.com

Ireland

Unit 1a, Derryboy Road
Carnbane Business Park
Newry, BT35 6QH
T: +44 (0) 28 3026 6799
E: water-IE@kingspan.com

Poland

Topolowa 5
62-090
Rokietnica
T: +48 61 660 94 71
E: woda@kingspan.com

Norway

Skiveien 42, 1410 Kolbotn,
Norway
T: +47 22 02 19 20
E: avlopslosninger@kingspan.com

Germany

Siemensstr. 12a, D-63263
Neu-Isenburg, Deutschland
T: +49 (0) 6102 3686700
E: wasser@kingspan.com

Australia

8 Bessemer St
Blacktown NSW 2148
T: 02 8889 5400
Toll Free: - 1300 736 562
E: sales.au@kingspan.com

