



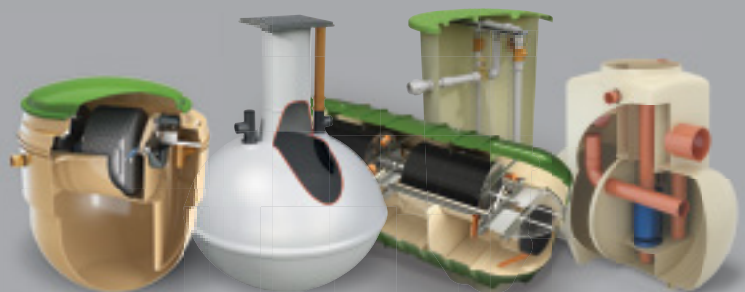
# KINGSPAN KLARGESTER PRODUCT GUIDE

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OVER  
60  
YEARS  
OF EXPERTISE



[www.kingspanklargester.com](http://www.kingspanklargester.com)  
[klargester@kingspan.com](mailto:klargester@kingspan.com)





# ABOUT KINGSPAN KLARGESTAR

## The Wastewater Management Experts

Kingspan Klargestar are the UK-based wastewater management experts with over 60 years of innovation and knowledge. Our mission is to design and manufacture tried and tested wastewater management solutions for domestic and commercial applications whilst offering one of the largest and most technologically advanced wastewater ranges available.

Our technical support teams provide focused customer service from delivery scheduling to consultancy and installation guidance. We give you the confidence of support over the lifetime of the product and beyond.

Our dedicated external area sales managers offer free site visits to discuss the project specific requirements and provide a detailed written report and specification for the best solution for your project. They can also provide on-site installation assistance when required and help you with formal discussions with Building Control, Local Planning departments, The Environmental Agency/SEPA, architects and consultants.

With over 60 years experience in delivering specialist wastewater solutions, in the UK and worldwide, you can trust Kingspan Klargestar to look after your drainage project.

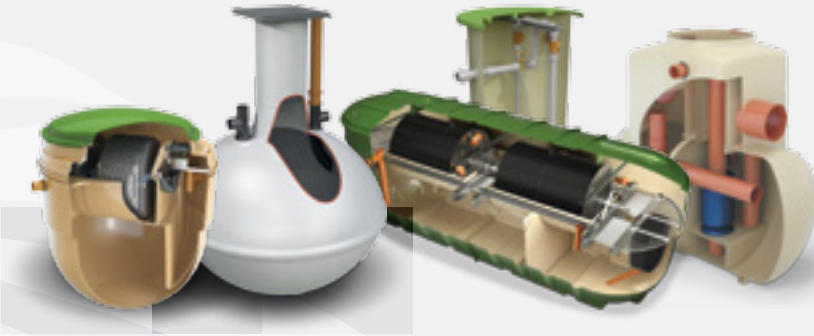
## Fully compliant wastewater treatment solutions

For over 60 years, Kingspan Klargestar has designed and manufactured innovative ways to effectively treat, pump and separate wastewater. Our wastewater solutions range for commercial, industrial and domestic applications includes sewage treatment plants, fuel and oil separators, pumping stations, grease separators, septic tanks and much more.

As established global market leaders, we offer a diverse range of innovative and 100% compliant wastewater treatment solutions for large and small scale applications. We give you relevant advice and support throughout the wastewater treatment purchasing process based on our in-depth local knowledge and expertise.



**WORLD LEADER**  
in quality wastewater  
management solutions



#### Nationwide accredited installer network

Strategically placed around the UK, Kingspan Klargester accredited installers have been professionally trained by leading industry experts. With years of experience, our installers are well placed to provide first class installation and commissioning of your wastewater systems.

Kingspan Klargester accredited installers have the expertise to survey and evaluate the specific requirements of any site plan - from a small domestic house to a large commercial scheme.

By using an accredited installer, you can be assured that you are in the secure hands of wastewater industry professionals.



## EXPERTISE

- › With over 60 years' experience delivering high performance and reliable wastewater treatment systems in the UK and worldwide, you can trust Kingspan Klargester.

## RELIABILITY

- › Our entire range of wastewater treatment solutions is engineered for high performance and built using tried and tested technology. Our unique construction ensures reliable performance over time.

## TRUST

- › Kingspan Klargester provide you with the confidence that comes from a world leading wastewater brand. Our experienced design team offer expert guidance on choosing the correct wastewater treatment system for your project.

**60**  
YEARS OF  
EXPERIENCE  
WORKING IN THE UK

CONTACT OUR  
TECHNICAL TEAM  
FOR NO OBLIGATIONS,  
PROFESSIONAL  
SUPPORT.

[klargester@kingspan.com](mailto:klargester@kingspan.com)



# DOMESTIC SEWAGE TREATMENT PLANT

Kingspan Klargester offer a range of trusted and fully compliant sewage treatment plants for domestic applications. Our systems are available in variety of sizes to suit any site.

## LOW OPERATIONAL COSTS

Advanced, unique technology across our domestic sewage treatment plant range results in one of the lowest lifetime costs in the market.



Contact the expert Kingspan Klargester team who will provide technical assistance in selecting the appropriate domestic sewage treatment plant for your application. Email [klargest@kingspan.com](mailto:klargest@kingspan.com) or call 01296 633 000

## EXPERTISE, RELIABILITY & TRUST

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Expertise, reliability and trust

## **BIODISC®** **DOMESTIC RANGE**

Our Kingspan Klargester BioDisc® sewage treatment range benefits from a wealth of industry experience and knowledge that allowed us to bring to market the first Rotational Biological Contactor treatment system over 40 years ago. The patented BioDisc® is engineered to treat wastewater to the highest level of standards. In terms of ongoing service and maintenance, it offers one of the lowest lifetime costs compared to other treatment processes. Each BioDisc® is designed to ensure 100% compliance with industry requirements, including national and international regulations such as BS EN 12566 Part 3.

## **BIOTEC™** **RANGE**

Kingspan Klargester Biotec™ sewage treatment systems are ideal for single/multiple houses and employ the well proven aerobic biological trickling filter process for the treatment of sewage. The BioTec range is fully compliant, tested and approved to BS EN 12566 Part 3 and is CE marked to meet the latest Construction products regulations. Easy to install, the Biotec™ systems are available in variety of sizes to suit any domestic application.

## **BIOFICIENT** **DOMESTIC RANGE**

The BioFicient has been specially designed for shallow dig applications, allowing for an unobtrusive below ground installation. Its unique design features include its low profile cover and adjustable extension neck, saving on-site time and expense. The BioFicient is a highly economical and reliable solution for your sewage treatment needs. With low running costs, the BioFicient is easy to maintain - with the high performance you'd expect from a Kingspan Klargester model.



BioDisc®

BioFicient MDPE

BioFicient GRP

Biotec™



# BIODISC® DOMESTIC SEWAGE TREATMENT PLANT

Kingspan Klargester BioDisc® is ideal for locations where discharge is to sub-surface irrigation (soakaway), or to a suitable watercourse where approved by the Regulator, and where a septic tank will not meet the required standards.

All our robust BioDisc® models cater for properties housing between 4-18 people. The premium BioDisc® sewage treatment system is available in four sizes for all types of domestic applications. For single house applications we offer the BA and BAx models and, for multiple homes, the Kingspan Klargester BB and BC BioDisc® models are ideal.

Because various inlet and outlet options are available, we carry out a free comprehensive site assessment to ensure the correct system model and size for your home.

The BioDisc® can be used in England and Wales for discharge to either a watercourse or soakaway without the need for a licence from the Environmental Agency in 99% of cases.



## FEATURES

- › Certified to European Standard BS EN 12566 Part 3.
- › Utilises Rotating Biological Contactor technology.
- › Low running costs.
- › Low level visibility with a lockable child-proof cover - safe for children and pets.
- › Performance certified to achieve 10mg/l BOD, 15mg/l SS and 3.8mg/l ammonia.
- › Delivers better than 95% pollution removal.
- › 10 Year warranty options available when purchased with a service and maintenance plan.
- › Supplied with a control panel and alarm.
- › Fully CE marked in line with the CPR 2013.
- › Managed Flow System.
- › Totally silent in operation.
- › The most stable process in the market.
- › Controls the discharge volume.

Integral Pump  
(IPS) Model



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## TECHNICAL SPECIFICATIONS



Unit Size	Single House Compliant with the UK Building Regulations		Multiple Houses	
	BA**	BA-X**	BB**	BC
Population Equivalent	6	9	12	18
Overall Diameter / Width (mm)	1995	1995	1995	2450
Standard Drain Invert Inlet (mm)	750*	750*	750*	600†
Standard Outlet (mm)	835	835	835	685
Depth From Invert To Base (mm)	1400	1400	1400	1820
Pipework Diameter (mm)	110	110	110	110
Sludge Storage Period (Approx)	12 months	9 months	6 months	7 months
Standard Power Supply (mm)	Single Phase	Single Phase	Single Phase	Single Phase
Motor Rating (mm)	50W	50W	50W	75W
Weight (Tonnes) Standard Units (mm)	0.388	0.418	0.418	0.650

Applications which include waste disposal units will require special sizing. Please consult Kingspan Klargester.

\* Optional invert depths of 450mm and 1250mm are available.

† Optional invert depth of 1100mm is available.

\*\* Optional integral pump available in BA, BA-X and BB models.

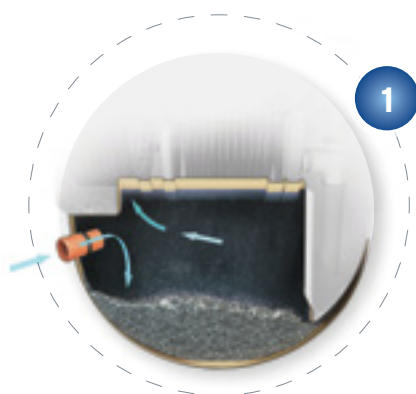
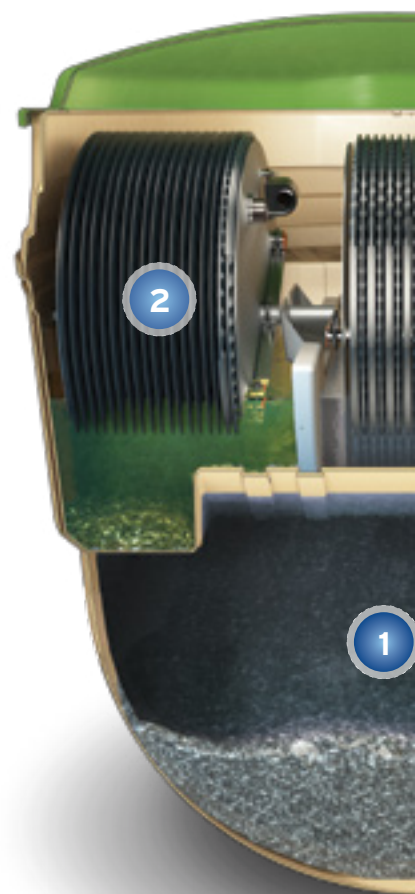


For specialist advice on our range of fully compliant sewage treatment plants, please contact our Kingspan Klargester technical team on **klargest@kingspan.com** or call **01296 633 000**

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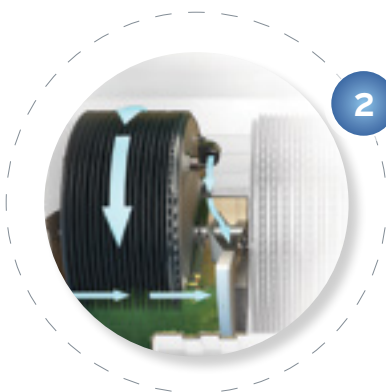
## HOW IT WORKS

The Rotational Biological Contactor (RBC) is central to the operation of each Kingspan Klargester Biodisc®. It supports a biologically active film or biomass onto which aerobic micro-organisms, naturally found in sewage, become established. Natural breakdown of sewage can then occur as described below.



### PRIMARY SETTLEMENT TANK

Wastewater and sewage flows into the primary settlement tank where the large solids are retained for future removal.



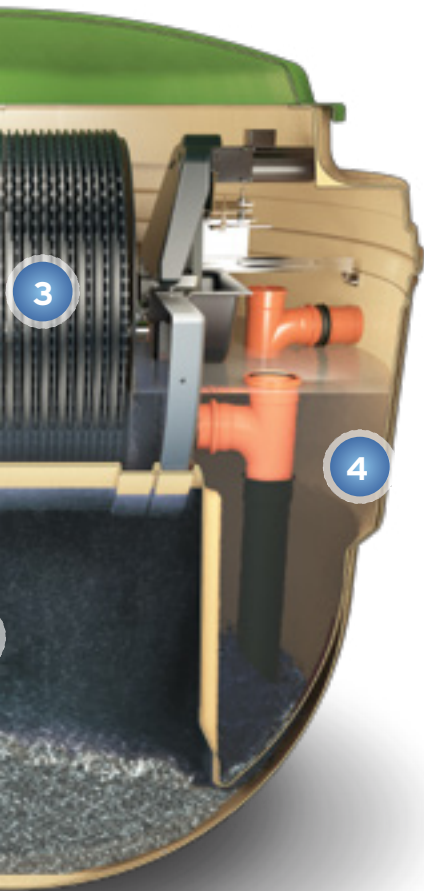
### FIRST STAGE BIOLOGICAL TREATMENT

The liquor and fine solids then flow into the Biological Treatment Zone 1 where the first stage of treatment occurs.

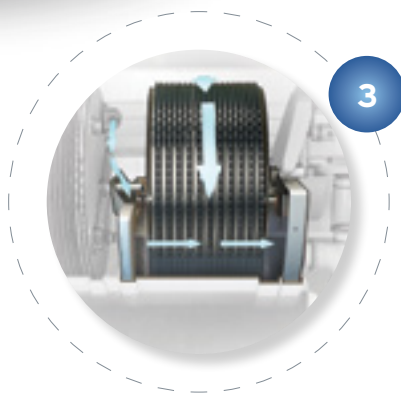




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ROTATING BIOLOGICAL CONTACTOR (RBC) comprises banks of vacuum formed polypropylene media supported by a steel shaft. This is slowly rotated by a low energy consumption electric motor and drive assembly.



3

**SECOND STAGE BIOLOGICAL TREATMENT**  
The liquor is then fed forward at a controlled rate into Biological Treatment Zone 2 for further cleaning.



4

**FINAL SETTLEMENT TANK**  
The clean liquid passes into the final settlement tank where it can be discharged to ground or water course.



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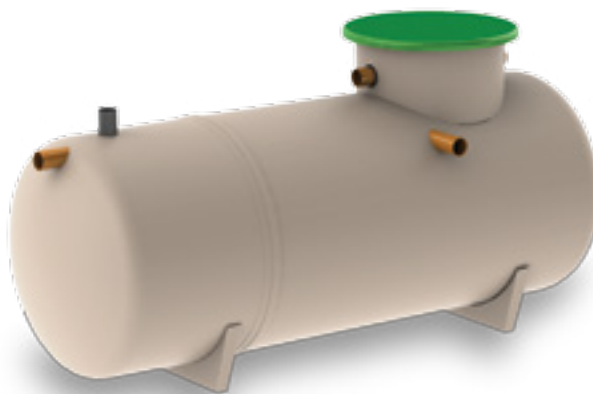
# BIOFICIENT DOMESTIC SEWAGE TREATMENT PLANT

The Kingspan Klargester BioFicient treatment plant provides a reliable and effective solution for domestic applications without access to mains drainage. Suitable for homes with up to 30 people, the BioFicient is manufactured from high quality materials and uses the latest treatment technology to deliver a high level of water discharge quality.

The BioFicient can be used in England and Wales for discharge to either a watercourse or soakaway without the need for a licence from the Environmental Agency in 99% of cases.



BioFicient 1 IPS - MDPE



BioFicient 2-6 - GRP

## FEATURES

- › Shallow Dig.
- › New low energy compressor.
- › Industry leading NH<sub>4</sub> (ammonia) removal.
- › Low level visibility with a lockable child-proof cover - safe for children and pets.
- › Suitable for installation in traffic areas (structural advice required).
- › Supplied with a control panel.
- › Easy to set up and operate and supplied with an alarm.
- › BS EN 12566 Part 3 tested and approved.
- › Fully CE marked in line with the CPR 2013.
- › Integral pump option available for BioFicient 1



## TECHNICAL SPECIFICATIONS

Model	BioFicient 1	BioFicient 2	BioFicient 3	BioFicient 4	BioFicient 5	BioFicient 6
Population Equivalent	6	8	10	15	20	30
Overall Diameter (mm)	1540	1420	1420	1920	1920	1920
Length (mm)	2500	3760	3760	3230	4390	6220
Depth (mm)	1794-2104	1830/2330/2830	1830/2330/2830	2300/2800/3300	2300/2800/3300	2300/2800/3300
Invert Invert (mm)*	500-810/500-810*	500/1000/1500	500/1000/1500	500/1000/1500	500/1000/1500	500/1000/1500
Outlet Invert (mm)	600-910/555-865*	600/1100/1600	600/1100/1600	630/1130/1630	630/1130/1630	630/1130/1630
Material	MDPE	GRP	GRP	GRP	GRP	GRP
Blower Ratings	50W	75W	75W	95W	115W	225W
Cover sizes	700	900	900	1500/900	1500/900	1500/900 + 600**

Optional inlet depth down to 1800mm

\*BioFicient 1 IPS model only

\*\*BioFicient 6 has two shafts



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## HOW IT WORKS

BioFicient unit is a new generation of package sewage treatment plant developed to treat domestic sewage waste in a simple and efficient system comprising three treatment zones within a 'uni-tank' design. The moving aerated media process used is a compact development of the traditional biological process and provides a more effective and complete means of sewage treatment.



### PRIMARY CHAMBER

Raw sewage gravitates to the unit where it is received in the primary settlement zone. Here, gross solids and other social debris settle to the bottom of the tank where they remain until the tank requires desludging. Settled sewage is displaced from primary zone and enters the first of two sequential moving aerated media reactors.



### BIOZONE 1 & 2

Solids are broken down by air agitated media in the Biozone. Media and liquid circulation in the Biozone is achieved through the use of a compressor and diffuser, which introduces fresh air into each compartment. The liquor is constantly re-circulated and contacts the moving media and as it does so, it is purified by the micro organisms growing on the surface of the media and within the moving liquor. Excess growth of biomass is shed as solid particles into the liquor.



### FINAL SETTLEMENT TANK

Where fine solids are settled out. The Final effluent is discharged via either gravity outlet or IPS chamber. With regulatory approval, it is suitable for discharge to a watercourse or drainage field.





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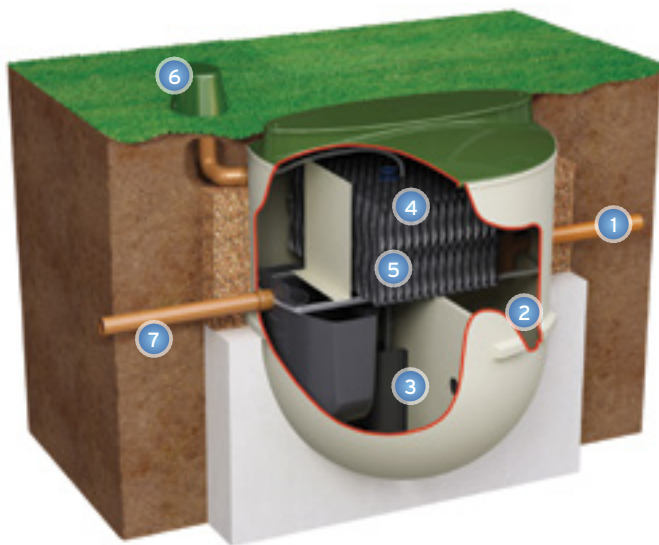


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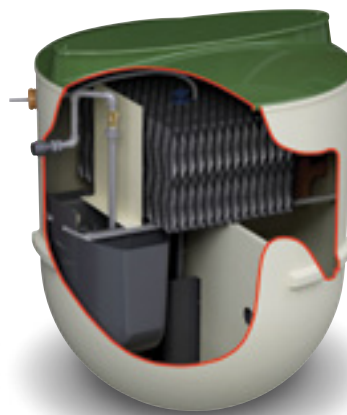
# BIOTEC™ SEWAGE TREATMENT PLANT

Kingspan Klargester Biotec™ sewage treatment systems are ideal for single/multiple houses and employ the well proven aerobic biological trickling filter process for the treatment of sewage.



- 1. Inlet
- 2. Primary settlement
- 3. Air lift
- 4. Distributor

- 5. Media
- 6. Blower
- 7. Outlet



Integral Pump (IPS) Model

## FEATURES

- › Certified to BS EN 12566 Part 3.
- › Assured performance of 20mg/l BOD, 30mg/l S.S., 20mg/l Ammonia.
- › No mechanical or electrical components within the plant – low running and maintenance costs.
- › Low level visibility with a lockable child-proof duty cover – safe for children and pets.
- › Easy to install and maintain with annual desludging.
- › Fully CE marked in line with the CPR 2013.



## HOW BIOTEC™ WORKS

The Biotec™ sewage treatment plant uses the well-proven aerobic biological process. Treatment is a three-stage process.

1. Coarse solids are filtered and retained for gradual breakdown.
2. The resulting liquid is continuously distributed over a plastic suspended filter by an integral lift, powered by a remotely sited blower.
3. The solids are allowed to settle and under normal domestic conditions, effluent of 20mg/l BOD, 30mg/l S.S., 20mg/l Ammonia can be achieved.

## BIOTEC™ TECHNICAL SPECIFICATIONS

Model	Biotec™ 1	Biotec™ 1 IPS	Biotec™ 2	Biotec™ 2 IPS	Biotec™ 3	Biotec™ 3 IPS	Biotec™ 4	Biotec™ 4 IPS
Population Equivalent	6	6	12	12	18	18	25	25
Outside Diameter (m)	1.9	1.9	1.9	1.9	2.7	2.7	2.7	2.7
BOD Load (kg/day)	0.36	0.36	0.72	0.72	1.1	1.1	1.5	1.5
Weight Empty (kg)	195	220	217	260	445	471	470	495
Depth (m)	2.2	2.2	2.7	2.7	2.6	2.6	2.6	2.6
Inlet Invert (m)	1.0*	1.0*	1.0*	1.0*	1.0*	1.0*	1.0*	1.0*
Inlet Invert to Base (m)	1.2	1.2	1.7	1.7	1.6	1.6	1.6	1.6
Outlet Invert (m)	1.1	0.605	1.1	0.605	1.1	0.605	1.1	0.655
Motor Rating (watts)	60	60	60	60	150	150	150	150

\* There are two depths of inlet in the range 1.0m and 1.5m.



For specialist advice on our range of fully compliant sewage treatment plants, please contact our Kingspan Klargester technical team on [klargest@kingspan.com](mailto:klargest@kingspan.com) or call **01296 633 000**

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# REED BEDS

## NATURAL FILTRATION PROCESS

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A reed bed is a filtration process used in conjunction with a Kingspan Klargester sewage treatment system to further enhance the quality of the effluent migrating into a drainage field or surrounding watercourse.



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## FEATURES

- › Tertiary treatment for new applications with tight discharge consents.
- › Satisfies new building regulations.
- › Improved effluent quality for existing works.
- › Very low maintenance.
- › Aesthetically pleasing and environmentally friendly.
- › Easy to install and maintain.
- › Effluent discharge is typically improved by at least 50% providing reduced BOD and suspended solids.

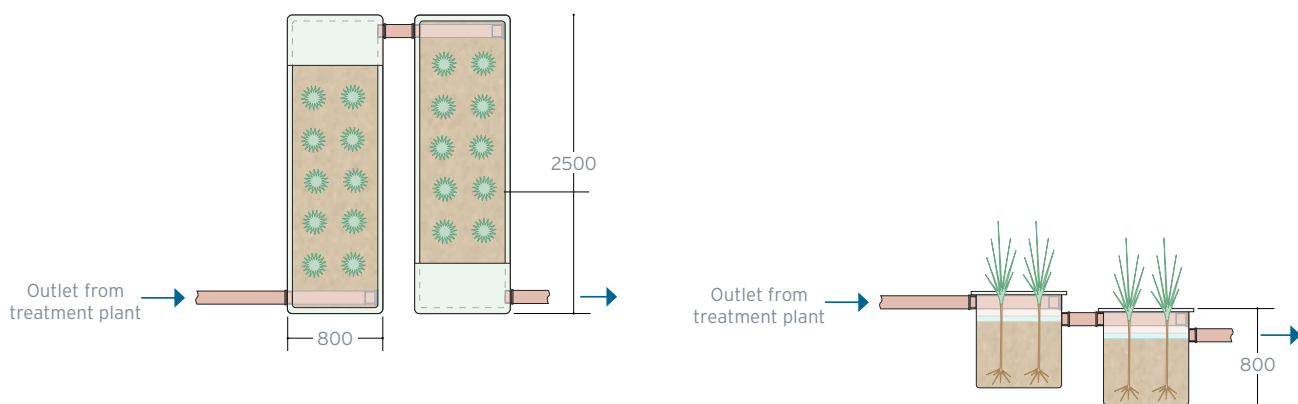
### Reed Beds

Easy to install and maintain





## HOW IT WORKS



## TECHNICAL SPECIFICATIONS

ORDERING CODE	Population Equivalent	Length (mm)	Width (mm)	Depth (mm)	No. Required	Outlet Size (mm)
HRB006	6	2500	800	800	2	110
HRB012	12	2500	800	800	4	110



For specialist advice on our range of reed beds, please contact our Kingspan Klargester technical team on **klargest@kingspan.com** or call **01296 633 000**

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# SEPTIC TANKS

Septic tanks are a traditional solution to sewage disposal needs for domestic dwellings and commercial buildings without access to mains drainage. Kingspan Klargester offer a wide range of septic tanks for domestic and commercial use, including septic tanks suitable for shallow dig applications.

## RELIABLE

Robust septic tanks for the collection and settlement of sewage



Contact the expert Kingspan Klargester team who will provide technical assistance in selecting the appropriate septic tank for your application. Email [klargest@kingspan.com](mailto:klargest@kingspan.com), visit [kingspanklargest.com](http://kingspanklargest.com), or call 01296 633 000

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## ALPHA RANGE

Kingspan Klargester Alpha tanks provide a reliable and economic solution for homes not connected to mains drainage. The Alpha septic tank comes in three sizes and is suitable for individual domestic dwellings up to a large family house. Made from composite GRP, it is strong, light and watertight.

## SIGMA RANGE

The Sigma shallow dig septic tank is designed to reduce both installation time and cost. The range is available in various sizes suitable for properties with dig height restrictions. It is robust and easy to install.

## GAMMA RANGE

Kingspan Klargester designed and manufactured an efficient and reliable septic tank suitable for shallow dig installation. The Gamma tank is an affordable solution for domestic applications with an efficiency rating of 99.97% - an industry benchmark.

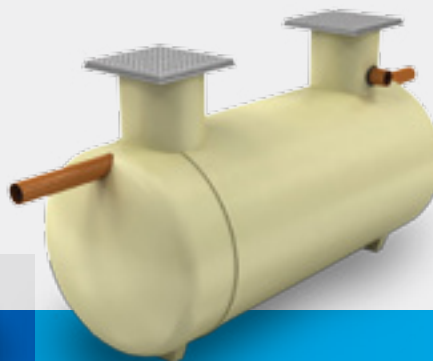
### Did you know?

If you have a septic tank that discharges directly to a surface water you will need to replace or upgrade your treatment system by 1 January 2020, or when you sell your property if before this date.

Environmental Agency - General Binding Rules



Alpha



Sigma



Gamma

# ALPHA SEPTIC TANK

A septic tank provides a traditional solution to sewage disposal needs for domestic dwellings without access to mains drainage.

Basic septic tanks only retain solids and discharge effluent of low quality. Many authorities in the UK prohibit their use. In all instances a sewage treatment system should be considered as the first option.

Septic tanks may be installed, subject to consent, in applications where:

- › Soil is of suitable porosity.
- › Installation complies with Building Regulations (Approved Document H).

- › The installation will not contaminate any ditch, stream or other watercourse. Klargest Alpha tanks provide a reliable and economic solution for homes not connected to mains drainage. Alpha tanks are manufactured from composite GRP - light and watertight.

## TECHNICAL SPECIFICATIONS

Model Reference	Volume (L)	No. People (150 Ltrs/head/day)	Overall Diameter (mm)	Height (mm)	Standard Inlet Invert (mm)	Standard Outlet Invert (mm)
STS02810	2800	5	2075	2599/3099	1000/1500	1050/1550
STS03810	3800	12	2075	2810/3310	1000/1500	1050/1550
STS04610	4600	17	2084	2984/3484	1000/1500	1050/1550

### Did you know?

If you have a septic tank that discharges directly to a surface water you will need to replace or upgrade your treatment system by 1 January 2020, or when you sell your property if before this date.

Environmental Agency - General Binding Rules

## FEATURES

- › Made from composite GRP - strong, light, and watertight.
- › Press moulded shape provides wide, squat, form which makes the tank easy to install and handle.
- › Stable base for storage.
- › Shackles are provided to aid lifting and positioning within the excavation.
- › Performance tested to BS EN 12566 Part 1 requirements.
- › Fully CE marked in line with the CPR 2013.



### Alpha Septic Tank

Robust, easily installed.





# GAMMA SEPTIC TANK

The Gamma tank is an affordable solution for domestic applications with an efficiency rating of 99.97% - an industry benchmark. Due to its design features, the Gamma tank will reduce installation time and costs. Manufactured from tough polyethylene, the tank is robust and lightweight which makes it easy to handle and install.



## FEATURES

- › Certified to BS EN 12566 Part 1.
- › Manufactured from robust, impact resistant, high quality polyethylene.
- › Strong, easy to move and simple to install.
- › Wide neck for easy access for annual desludging.
- › Trimmable neck to suit site.
- › Fully CE marked in line with the CPR 2013.

## TECHNICAL SPECIFICATIONS

Model Reference	Volume (L)	No. People (150 Ltrs/head/day)	Width (mm)	Length (mm)	Height (mm)	Standard Inlet Invert (mm)	Standard Outlet Invert (mm)	Depth (mm)
GST028	2800	5	1130	2480	1755 - 2255	500-1000	550-1050	2255
GST040	4000	13	1215	3360	1755 - 2255	500-1000	550-1050	2255



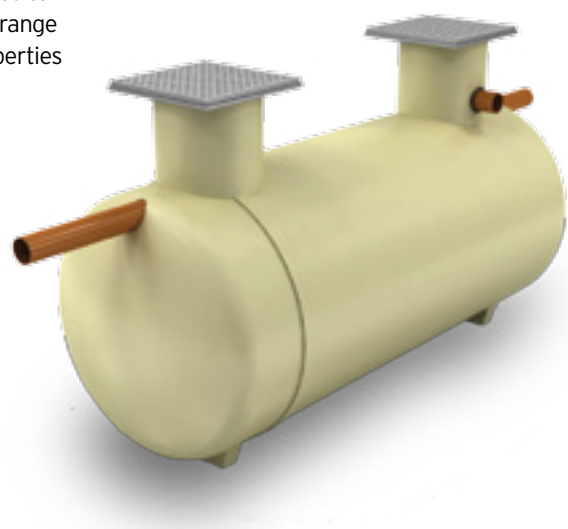
For specialist advice on our range of septic tanks, please contact our Kingspan Klargester technical team on **[klargestester@kingspan.com](mailto:klargestester@kingspan.com)** or call **01296 633 000**

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**Gamma Septic Tank**  
Highly efficient performance,  
easily installed.

# SIGMA SEPTIC TANK

The Sigma shallow dig septic tank is designed to reduce both installation time and cost. The range is available in various sizes suitable for properties with dig height restrictions.



## FEATURES

- › Made from composite GRP robust and light.
- › Robust and simple to install.
- › Less excavation costs, less soil disposal and less backfill material.
- › BS EN 12566 Part 1 approved and 99.7% efficient.
- › Fully CEE marked in line with the CPR 2013.

## TECHNICAL SPECIFICATIONS

Model Reference	Volume (L)	No. People (150 Ltrs/head/day)	Overall Diameter (mm)	Length (mm)	Standard Inlet Invert (mm)	Standard Outlet Invert (mm)	Depth (mm)
STH028	2800	5	1225	2955	500	530	1627/1587*
STH038	3800	12	1225	3895	500	530	1617/1577*
STH057	5700	24	1425	4275	500	530	1826/1786*
STH071	7150	34	1920	3225	500	550	2290
STH091	9150	47	1920	3960	500	550	2290

\*110mm diameter pipework/ 160mm diameter pipework

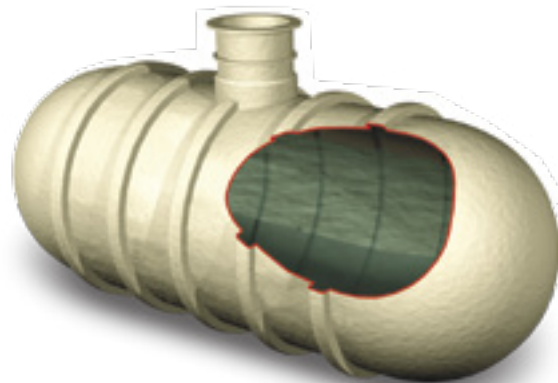


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# BELOW GROUND WATER STORAGE TANKS & CESSPOOLS

Kingspan Klargester below ground storage tanks provide a reliable solution for the collection and retention of sewage (cesspool), surface water, veterinary / animal waste, firefighting reservoirs and rainwater harvesting reservoirs.

- › Easy installation.
- › High level alarm option.
- › Lockable manhole cover.



## TECHNICAL SPECIFICATIONS

Nominal Litres	Capacity (Gallons)	Length (mm)	Diameter (mm)
18,000	3960	4317	2620
22,000	4889	5073	2620
26,000	5720	5837	2620
34,000	7480	7376	2620
46,000	10,120	9684	2620
54,000	11,880	11,222	2620
59,000	12,968	11,991	2620
63,000	13,860	12,760	2620
71,000	15,620	14,295	2620
79,000	17,380	15,833	2620

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For specialist advice on our range of septic tanks and cesspools, please contact our Kingspan Klargester technical team on **klargest@kingspan.com** or call **01296 633 000**

# COMMERCIAL SEWAGE TREATMENT PLANT

Kingspan Klargester design and manufacture tried and tested sewage treatment plants for a range of commercial applications including leisure, public, hospitality and transport. We offer one of the largest and most technically advanced sewage treatment plant ranges available on the market.

## LOW OPERATIONAL COSTS

Advanced, unique technology across our BioDisc and BioFicient sewage treatment plant ranges results in the lowest operational costs in the market.



Contact the expert Kingspan Klargester team who will provide technical assistance in selecting the appropriate commercial sewage treatment plant for your application. Email [klargester@kingspan.com](mailto:klargester@kingspan.com), visit [kingspanklargester.com](http://kingspanklargester.com) or call 01296 633 000

## EXPERTISE, RELIABILITY & TRUST

[www.kingspanklargester.com](http://www.kingspanklargester.com)





**KINGSPAN KLARGESTER**  
Expertise, reliability and trust

## **BIODISC® COMMERCIAL RANGE**

The Kingspan Klargester BioDisc® BD-BM sewage treatment range benefits from a wealth of industry experience and knowledge that allowed us to bring to market the first Rotational Biological Contactor treatment system over 40 years ago.

The unique design of the Kingspan Klargester Commercial BioDisc® BD-BM range has a proven track record for high-quality performance, superior reliability and low operational costs.

Each system is delivered direct to your site and ready to install, giving you added peace of mind.

The BioDisc® commercial range is fully compliant with all European standards including BS EN 12255.

## **BIOFICIENT COMMERCIAL RANGE**

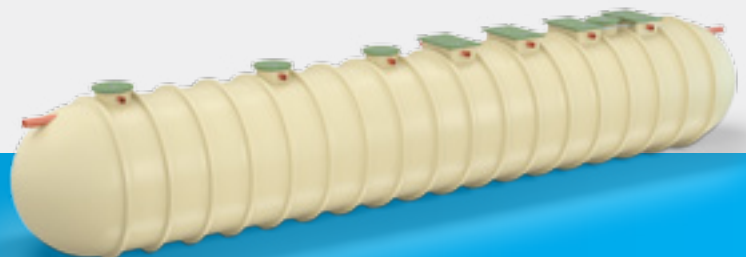
The BioFicient range from Kingspan Klargester is designed with efficiency in mind. Its design incorporates flow management in order to both stabilise influent volume variations and to minimise hydraulic impact on the final settlement process. Such control ensures that final effluent remains at a consistently high quality.

The BioFicient commercial plant range is shipped as a single piece tank up to 300PE with modular systems available for up to 1000 PE.

The BioFicient commercial range is designed in accordance with BS EN 12255.



**BioDisc® Commercial**



**BioFicient Commercial**

# BIODISC® COMMERCIAL SEWAGE TREATMENT PLANT

The unique design of the Kingspan Klargester Commercial BioDisc® BD-BM range has a proven track record for high-quality performance, superior reliability and low operational costs.

## PRODUCT BENEFITS

- › Unique RBC technology.
- › Tried and tested technology offers robust and efficient wastewater treatment.
- › Low running costs.
- › Noise free.
- › Fully removable lid for easy desludging.
- › Fully packaged system, delivered direct on site.
- › Bespoke technical support offered from our in-house technical teams.

## APPLICATIONS

The BioDisc® BD-BM range is suitable for a range of applications including:

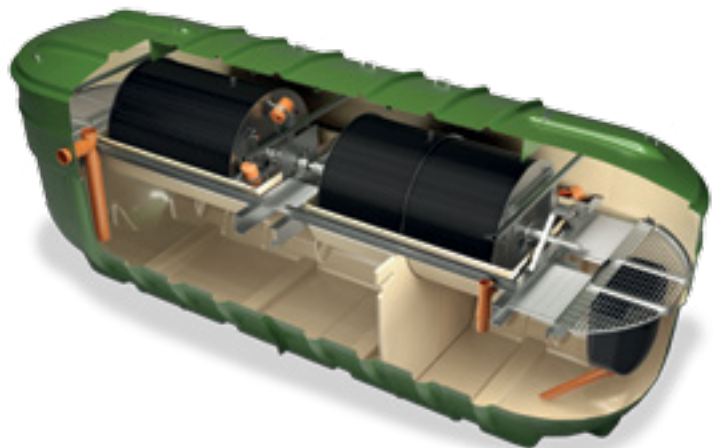
- › Leisure.
- › Public.
- › Hospitality.
- › Transport.
- › Offices.

## PERFORMANCE AND COMPLIANCE

- › 100% compliance with industry requirements across commercial sectors- including national and international regulations such as BS EN12566 Part 3 (up to 50 PE) and BS EN12255 (over 50PE).
- › Designed for applications selected in compliance with British Water Code of Practice Flows and Loads.

## FEATURES

- › Sample chambers.
- › Safety features.
- › Control panel.
- › Direct Drive.
- › Two part shaft.
- › Rotor design.





## TECHNICAL SPECIFICATIONS

Unit Size	BD	BE	BF	BG	BH	BJ	BK	BL	BM
Maximum Daily BOD (kg)	1.5	2.1	3	4.2	4.5	6	7.5	9	13.5
Maximum Daily Flow (m3)	5	7	10	14	15	20	18.8	22.2	33.75
Width (mm)	2450	2450	2450	2450	2450	2450	2450	2450	2605
Inlet Invert depth (mm)	600/1100	600/1100	600/1100	600/1100	600/1000	600/1000	600/1000	600/1000	600/1000
Depth Below Inlet Invert (mm)	1820	1820	1820	1820	1790	1790	1790	1790	1790
Outlet Invert Depth (mm)	685	685	700	700	750/1150	750/1150	750/1150	750/1150	750/1150
Overall Height (mm)	2825/3325	2825/3325	2825/3325	2825/3325	2830/3230	2830/3230	2830/3230	2830/3230	2838/3288
Height to Rim of Cover (mm)	2420/2920	2420/2920	2420/2920	2420/2920	2490/2890	2490/2890	2490/2890	2490/2890	2561
Empty Weight (kg)	1100	1200	1315	1660	3000/3020	3100/3120	3200/3220	3300/3320	3500/3610
Standard Power Supply	1 phase	1 phase	1 phase	1 phase	1 phase	1 phase	1 phase	1 phase	1 phase
Optional Power Supply	3 phase	3 phase	3 phase	3 phase	3 phase	3 phase	3 phase	3 phase	3 phase
Motor Rating - 1phase/3phase (watts)	75/60	75/60	120	180	250	250	370	370	370
Full Load Current 1 Phase (amps)	1.1	1.1	1.3	1.57	1.95	1.95	2.35	2.35	2.8
Full Load Current 3 Phase (amps)	0.35	0.35	0.42	0.63	0.88	0.88	1.35	1.35	1.5
Sludge Return Pump Rating (watts)	-	-	-	250	480	480	480	480	550

The flows and loads in the table are based on domestic applications, for commercial projects please consult Kingspan Klargester product experts.

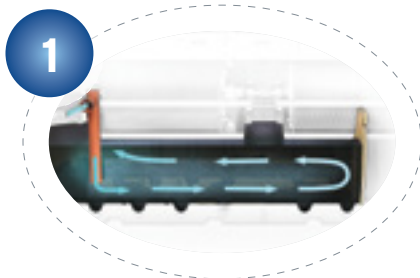
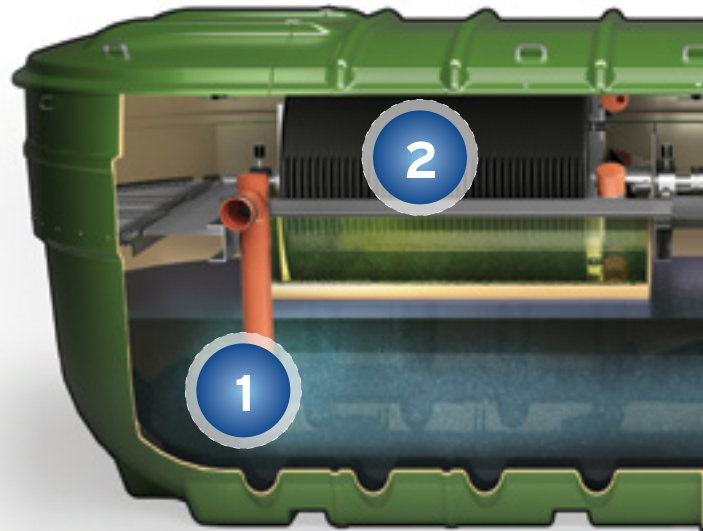


For specialist advice on our range of fully compliant sewage treatment plants, please contact our Kingspan Klargester technical team on **klargest@kingspan.com** or call **01296 633 000**

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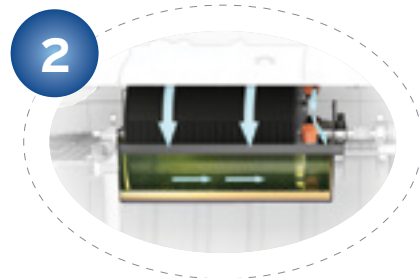
## HOW IT WORKS

The Rotational Biological Contactor (RBC) is central to the operation of each Kingspan Klargester Biodisc®. It supports a biologically active film or biomass onto which aerobic micro-organisms, naturally found in sewage, become established. Natural breakdown of sewage can then occur as described below.



### PRIMARY SETTLEMENT TANK

Wastewater and sewage flows into the primary settlement tank where the large solids are retained for future removal. Liquid level in the Primary Settlement Tank is allowed to fluctuate to absorb incoming flow surges.



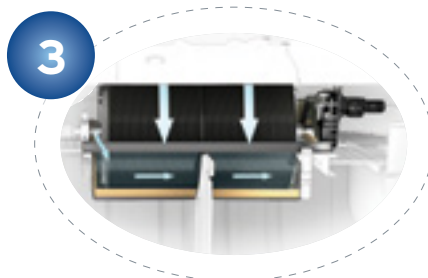
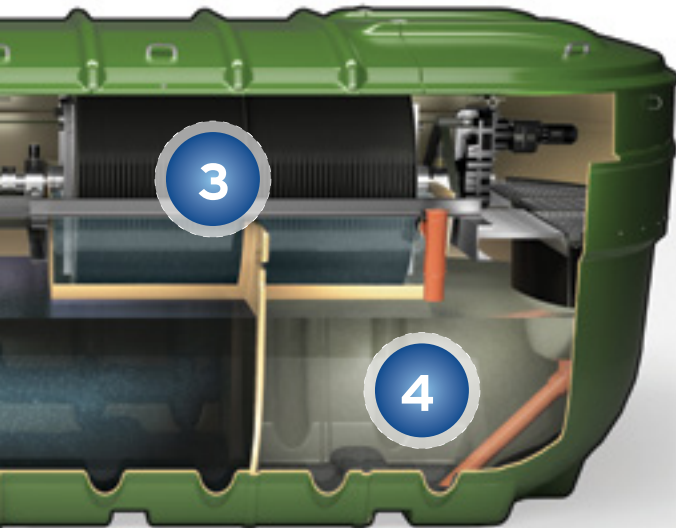
### FIRST STAGE BIOLOGICAL TREATMENT

The liquor and fine solids then flow into Biological Treatment Zone 1 where the first stage of treatment occurs. Unique managed flow system ensures peak performance by smoothing variable loads.

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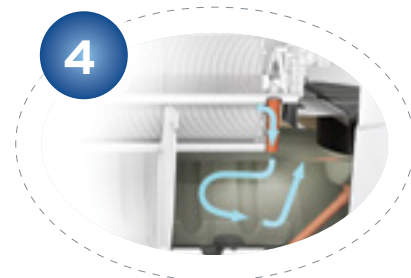


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#### **SECOND STAGE BIOLOGICAL TREATMENT**

The liquor is then fed forward at a controlled rate into Biological Treatment Zone 2 for further cleaning. This process ensures the whole media area available is utilised ensuring 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 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.



For specialist advice on our range of fully compliant sewage treatment plants, please contact our Kingspan Klargester technical team on **klargester@kingspan.com** or call **01296 633 000**



# BIOFICIENT COMMERCIAL SEWAGE TREATMENT PLANT

## PRODUCT BENEFITS

- › GRP inspection covers for increased corrosion protection.
- › Vent pipes added to every neck to allow better ventilation and air-flow.
- › Necks on each side of the primary settlement tank to allow for better inspection and easier de-sludging.
- › Biozones are now very similar in volume to aid maintenance.
- › Inlet pipe has a rodding point inside the neck for easier access.
- › A more efficient blower means less power consumption.
- › More airflow to diffusers to improve process.
- › Stainless-steel diffusers to avoid corrosion.
- › Minimal footprint area.
- › Alarm protected.
- › Variable invert options.
- › Other Made To Order options are available.

## APPLICATIONS

The BioFicient commercial range is suitable for use across the following applications:

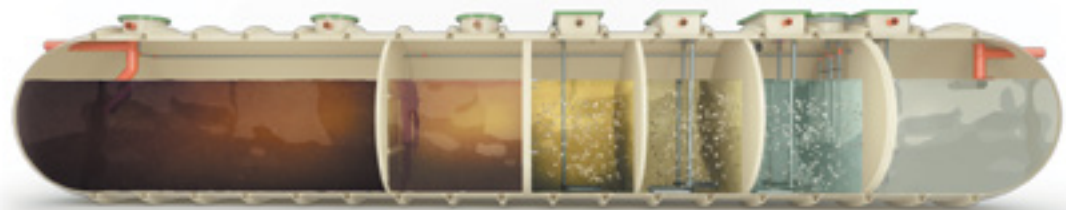
- › Residential.
- › Leisure.
- › Public sector.
- › Hospitality.
- › Transport.
- › Offices.
- › Campsites.

## PERFORMANCE AND COMPLIANCE

- › Designed in accordance with BS EN 12255
- › Designed for applications selected in compliance with British Water Code of Practice Flows and Loads.

## FEATURES

- › Choice of inverts (from 0.5 to 2.0m).
- › Alarm Systems.
- › Sample chambers.
- › Pumping stations.





## TECHNICAL SPECIFICATIONS



Model Reference	17	23	34	38	42	47	55	67	80
Max Flow (m <sup>3</sup> /day)*	8	11	15	20	25	30	40	50	60
Overall Length (m)	7.4	9.3	7.4	8.1	8.9	9.7	11.2	13.5	15.8
Height (mm)									
500mm inlet/650mm outlet invert	-	-	2960	2960	2960	2960	2960	2960	2960
500mm inlet/600mm outlet invert	2275	2275	-	-	-	-	-	-	-
800mm inlet/950mm outlet invert	-	-	3260	3260	3260	3260	3260	3260	3260
1000mm inlet/1100mm outlet invert	2775	2775	-	-	-	-	-	-	-
1500mm inlet/1650mm outlet invert	-	-	3960	3960	3960	3960	3960	3960	3960
1500mm inlet/1600mm outlet invert	3275	3275	-	-	-	-	-	-	-
2000mm inlet/2150mm outlet invert	-	-	4460	4460	4460	4460	4460	4460	4460
2000mm inlet/2100mm outlet invert	3775	3775	-	-	-	-	-	-	-
Volume (m <sup>3</sup> )	17	23	34	38	42	47	55	67	80
Weight approx (kg)	1200	1450	3000	3200	3400	3800	4200	4700	5400
See more at: <a href="https://www.kingspanenviro.com/klargester/bioficient-commercial-sewage-treatment-plant#sthash.Pcdbuihm.dpuf">https://www.kingspanenviro.com/klargester/bioficient-commercial-sewage-treatment-plant#sthash.Pcdbuihm.dpuf</a>									

\*Some units have more than one access shaft - diameter of largest shown.



For specialist advice on our range of fully compliant sewage treatment plants, please contact our Kingspan Klargester technical team on **klargester@kingspan.com** or call **01296 633 000**

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## HOW IT WORKS

BioFicient is designed for large domestic and commercial applications such as camp sites, hotels or industrial units. The plants employ a plug flow combination of aerobic and anoxic processes in a fluidised bed arrangement. This operates in conjunction with an advanced system of air diffusers and selected media to deliver optimum levels of purification. As well as catering for large commercial developments, we also offer a bespoke BioFicient solution for up to 1000 PE.



**1**  
PRIMARY  
SETTLEMENT  
TANK 1

**2**  
PRIMARY  
SETTLEMENT  
TANK 2

**3**  
BIOZONE 1

**4**  
BIOZONE 2

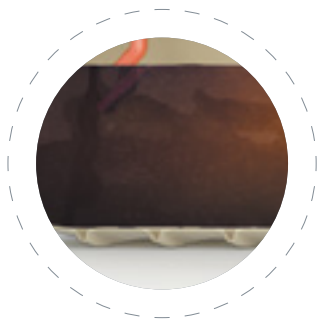
**5**  
BIOZONE 3

**6**  
FINAL SETTLEMENT  
TANK

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#### **PRIMARY SETTLEMENT**

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. Envirosafe features two chambers to ensure efficient operation with a flow balancing facility.



#### **FINAL SETTLEMENT**

A natural by-product of biological treatment is humus sludge and this is separated for further treatment. The treated effluent is discharged via the outlet.



#### **BIOLOGICAL TREATMENT**

Substantial BOD reduction takes place here, where the carbonaceous pollutants are removed by presenting the sewage to the micro-organisms in the presence of oxygen. The treatment is achieved by high efficiency air diffusers continually pumping oxygen through the biological media and fluidised effluent.



For specialist advice on our range of fully compliant sewage treatment plants, please contact our Kingspan Klargester technical team on **klargestester@kingspan.com** or call **01296 633 000**

# GREASE SEPARATORS

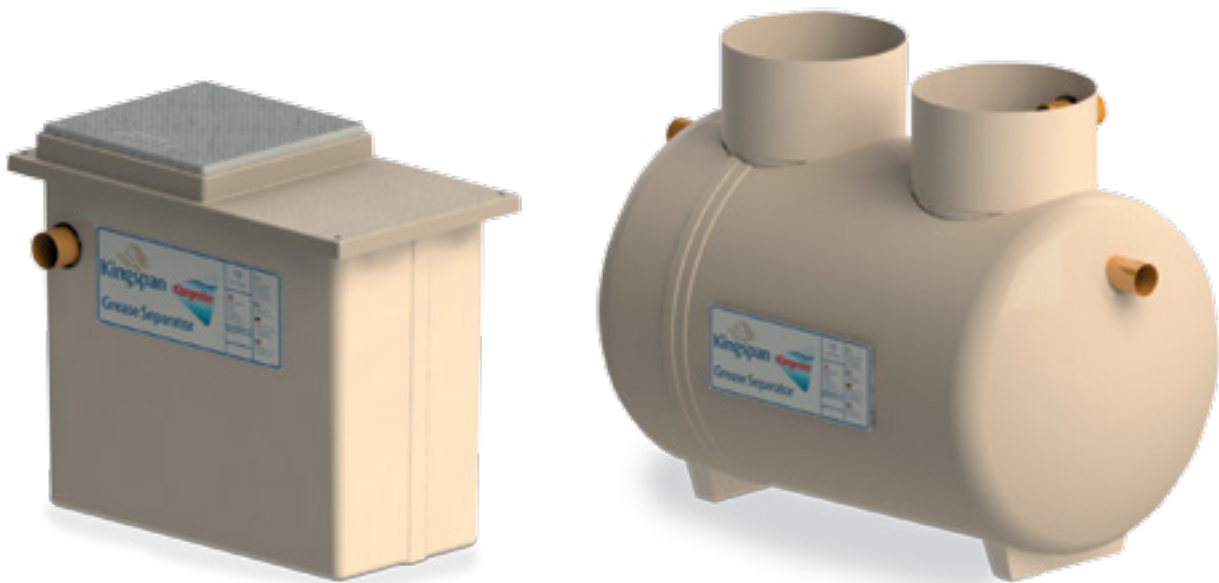
Kingspan Klargester grease separators are an effective and hygienic method of separating fat and grease from wastewater flow. Grease separators are designed for restaurants, hotels, public houses, canteens, etc.

Grease separators allow fats and grease to naturally separate out from water, allowing

their removal prior to the wastewater reaching the drainage system. The separator should be installed close to the source of contamination before any foul waste can enter the drainage flow and to suit the expected liquid temperature.

## FEATURES

- › Greatly reduces drain blockages, for maximum operational efficiency.
- › Helps improve performance of septic tanks and field drains and achieve best results.
- › Prevents contamination of small sewage treatment plants, reducing risk of breakdown.
- › Designed in accordance with BS EN 1825 Part 1.
- › Protects mains drainage system from grease blockages.







## TECHNICAL SPECIFICATIONS

Separator Model	Width Of Unit	Length Of Unit	Capacity (L)	Approx Weight (kg)		Shipping Height (mm)	Fall Across The Unit (mm)
				Empty	Full		
NSG01	700	1300	500	70	570	1100	75
NSG02	1000	1600	1000	90	1090	1175	75

Separator Model	Length Of Tank Body	Distance Between Necks	Capacity	Approx Weight		Shipping Height	Fall Across The Unit
				Empty	Full		
NSG04	2072	872	2000L	120kg	1860kg	1570	70
NSG06	3018	1818	3000L	160kg	2820kg	1570	70
NSG09	3895	2690	4000L	190kg	3760kg	1570	70
NSG18	3231	1931	8000L	300kg	7162kg	2120	70
NSG24	4386	3086	11000L	380kg	9885kg	2120	70

### TDS004IP - GREASE SEPARATORS TECHNICAL SIZING GUIDE

Meals Per Day	Standard Meals	Fast Food	Fine Cuisine
40	NSG01	NSG01	NSG02
60	NSG02	NSG02	NSG02
80	NSG02	NSG02	NSG04
100	NSG02	NSG04	NSG04
200	NSG04	NSG06	NSG09
300	NSG06	NSG09	NSG18
500	NSG09	NSG18	NSG18
700	NSG18	NSG18	NSG24
900	NSG18	NSG24	
1300	NSG24		



For specialist advice on our range of grease separators, please contact our Kingspan Klargester technical team on **klargest@kingspan.com** or call **01296 633 000**

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# PUMPING STATIONS

Kingspan Klargester offer complete wastewater and surface water pumping solutions. From basements to caravans, extensions to courtyards. If your commercial or domestic property isn't connected to the sewer, or if it's below the sewer line, our pump systems will take care of all your water, sewage and effluent.

**FULLY INTEGRATED**  
Kingspan Klargester offer trusted, fully integrated pumping stations solutions for a range of on and off-mains, commercial and domestic applications.



Contact the expert Kingspan Klargester team who will provide technical assistance in selecting the appropriate pumping station for your application. Email [klargester@kingspan.com](mailto:klargester@kingspan.com), visit [kingspanklargestester.com](http://kingspanklargestester.com) or call **01296 633 000**



Our range of pumping solutions are made with the highest-quality materials and fittings and all are manufactured under the quality procedures of BS ISO 9001:2000 and HS ISO 18001. And, importantly, they comply with Building Regulations Document H1 Foul Drainage and British Standards BS EN 752, including options for 24-hour waste storage.

Kingspan Klargester offer expert advice at every stage of your project. Our in-house technical team offers free advice on design, installation and commissioning of your pumping system.

## APPLICATIONS FOR DOMESTIC PUMPING STATIONS RANGE:

- › Domestic properties.
- › Small commercial offices.
- › Remote classrooms.
- › Roof and surface water.

## APPLICATIONS FOR COMMERCIAL PUMPING STATIONS RANGE:

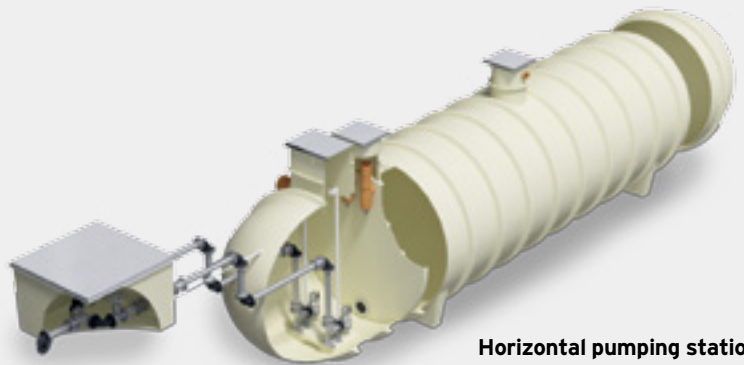
- › Housing developments.
- › Large commercial developments.
- › Industrial developments.
- › Caravan/camping sites.
- › Schools.
- › Hotels and restaurants.
- › Nursing homes.
- › Surface water run-off.
- › Attenuated water.



**Vertical pumping stations**



**Horizontal pumping stations**





# VERTICAL PUMPING STATIONS

Our Pumpstor Commercial pumping systems are ideal for developments and premises where drainage by gravity isn't an option. The range includes solutions for sewage treatment plants, surface water and septic tanks. Tanks and pumps come in a range of sizes and dimensions and have a 24-hour storage capacity for foul waste to comply with Building Regulations.

Pumpstor Commercial pumping stations are made from robust GRP. They are designed as a single-piece chamber with two separate sections, one for normal operation and one for emergency storage.



## TECHNICAL SPECIFICATIONS

Vertical Tank Size (mm)	Capacity (Ltrs)	Tank Material	Control Panel	Alarm	Pump Type
1250 Diameter	4200	GRP	Included	Standard	Single/Twin
1800 Diameter	9500	GRP	Included	Standard	Single/Twin
2600 Diameter	21,000	GRP	Included	Standard	Single/Twin

## BENEFITS

- › High-level alarm.
- › Internal lifting chains and guide rails (as specified).
- › Wide range of pump options including macerators/solids handling/vortex.
- › Range of emergency overflow tanks.
- › Inlet connection sizes to suit site.
- › Various invert depths and positions.
- › GRP chambers with internal pipework in plastic, galvanised or cast iron.
- › Optional kiosks with warning beacons and optional telemetry systems.
- › Service and maintenance plans available to prolong the life of the pump systems.



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# HORIZONTAL PUMPING STATIONS

If power supplies fail, Pumpstor Commercial responds instantly, separating liquids and solids into a separate chamber and storing waste for up to 24 hours. Once power is restored, the pumps will work normally again without further maintenance.

## Horizontal pumping stations

One piece tank chamber for reduced on-site time and installation costs.



## TECHNICAL SPECIFICATIONS

Tank Size (mm)	Capacity (Ltrs)	Tank Material	Control Panel	Alarm	Pump Type
2,600 Diameter	18000-79000	GRP	Included	Standard	Single/Twin

## BENEFITS

- › Single-tank installation up to 79m<sup>3</sup> (multiple tank systems available).
- › Multiple valve chamber location and invert options.
- › Weir screen features innovative removable filters, so there's no need to access the chamber during maintenance.
- › High-level alarm.
- › Totally sealed system.
- › One-piece tank chamber for easy installation.
- › Minimal on-site assembly.
- › Less crana and shallower excavation than concrete pumping stations.
- › On-site Health & Safety issues are minimised - no requirement for personnel to enter the tank.



For specialist advice on our range of pumping stations, please contact our Kingspan Klargester technical team on **klargest@kingspan.com** or call **01296 633 000**

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# DOMESTIC & DOMESTIC+

Our domestic pumping stations are ideal for homes or properties with up to 13 people. Quick and simple to install, they require minimal maintenance. They come with single or twin

pumps, and are suitable for sewage, surface water and effluent. Appropriate for 24 Hour storage requirements.

## KEY FACTORS TO SIZE YOUR SYSTEM

- › Application: domestic, residential or commercial?
- › Material application: sewage, effluent or surface water?
- › Inlet depth (below ground level)?
- › Pumping distance and lift?
- › Electrical supply?



Domestic

Domestic+

## FEATURES

- › Made with super-tough, low maintenance GRP and high quality polyethylene for guaranteed durability.
- › Comes with options of remote monitoring systems.
- › Designed with easy access features for maintenance.
- › Choose from either 110mm or 160mm inlet connections.
- › Lockable covers for optimum security.
- › Quick connection outlet couplings.

## TECHNICAL SPECIFICATIONS

### DOMESTIC

Chamber Size	Capacity (Ltrs)	Tank Material	Control Panel	Alarm	Pump Type
900 x 2080	1,250	GRP	Included	Optional	Single/Twin
560 x 1650	1,600	GRP	Included	Optional	Single/Twin

### DOMESTIC+

Chamber Size	Capacity (Ltrs)	Tank Material	Control Panel	Alarm	Pump Type
1000 x 2000	1450	Polyethylene	Included	Standard	Single/Twin
1000 x 2500	2200	Polyethylene	Included	Standard	Single/Twin



## COMPACT PUMPING STATIONS

Our proven range now includes a series of compact pump systems. Quick to install and easy to maintain, they're the ideal solution for outbuildings and extensions, cellars, pool houses and external WCs. They can be used for effluent or sewage, depending on the pump, distance and height.



### TECHNICAL SPECIFICATIONS

Chamber Size (mm)	Capacity (Ltrs)	Tank Material	Control Panel	Alarm	Pump Type
610 x 700	200	GRP	N/A	Optional	Single
560 x 1,650	400	GRP	N/A	Optional	Single

## BENEFITS

- › Non-return valves and outlet pipe compression coupling as standard.
- › 3 pump options; effluent low head, effluent high head and sewage vortex.
- › Service and maintenance plans available to prolong the life of the pump systems.
- › Complete pre-fabricated solution ready for installation.
- › Fully automatic.

## ADOPTABLE & HIGH SPECIFICATION PUMP SYSTEMS

The adoptable and high specification pump stations are designed to meet the requirements of 'Sewers for Adoption 7th Edition' and the 'Water Industry Standard' (WIS): On the 1st of October 2016, all pumping stations serving two or more domestic properties in England and

Wales will become the responsibility of the Water Companies. Our adoptable pumping stations are completely prefabricated. They can be used for effluent or sewage, depending on the pump, distance and height.



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For specialist advice on our range of pumping stations, please contact our Kingspan Klargester technical team on **klargest@kingspan.com** or call **01296 633 000**

# FUEL AND OIL SEPARATORS

Kingspan Klargester offer a range of fully compliant fuel/oil separators for a wide range of applications; commercial, infrastructural, hospitality, leisure and industrial.

## HIGH PERFORMANCE

Trusted fuel and oil separator solutions, engineered for continued high performance and reliability.



Contact the expert Kingspan Klargester team who will provide technical assistance in selecting the appropriate separator for your application. Email [klargest@kingspan.com](mailto:klargest@kingspan.com), visit [kingspanklargest.com](http://kingspanklargest.com) or call 01296 633 000

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## WHEN IS A SEPARATOR NEEDED?

### Full Retention Separators

Full retention separators are used in high risk spillage areas such as fuel distribution depots, vehicle workshops and scrap yards.

### Bypass Separators

Bypass separators are used when it is considered an acceptable risk to not provide full treatment for very high flows, i.e. where the risk of a large spillage and heavy rainfall occurring at the same time is small.

### Forecourt Separators

Forecourt separators are used to intercept hydrocarbon pollutants such as petroleum and oil to prevent their entry to the drainage system. Typical applications include petrol filling station forecourts and car breaker yards.

## SEPARATOR STANDARDS AND TYPES

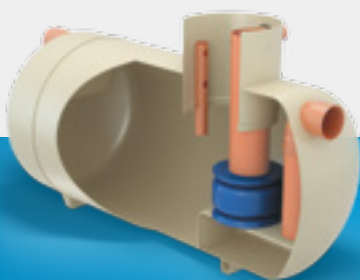
Kingspan Klargester have adopted European standard EN 858-1 and EN 858-2 for the design and use of prefabricated oil separators. New prefabricated separators should comply with the standard.

## SEPARATOR CLASSES

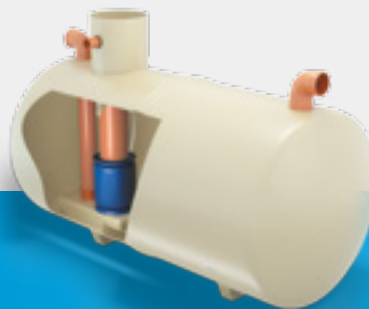
Kingspan Klargester Class 1 fuel and oil separators are tested to exceed all European standards.

### CLASS 1 FUEL AND OIL SEPARATORS

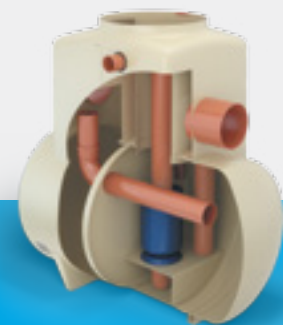
Designed to achieve a concentration of less than 5mg/l of oil under standard test conditions.



Full Retention Separators



Forecourt Separators



Bypass Separators

# BYPASS SEPARATORS

## NSB RANGE

Bypass separators are used when it is considered an acceptable risk to not provide full treatment for very high flows, i.e. where the risk of a large spillage and heavy rainfall occurring at the same time is small:

- › Surface car parks.
- › Roadways.
- › Lightly contaminated commercial areas.

### PRODUCT BENEFITS

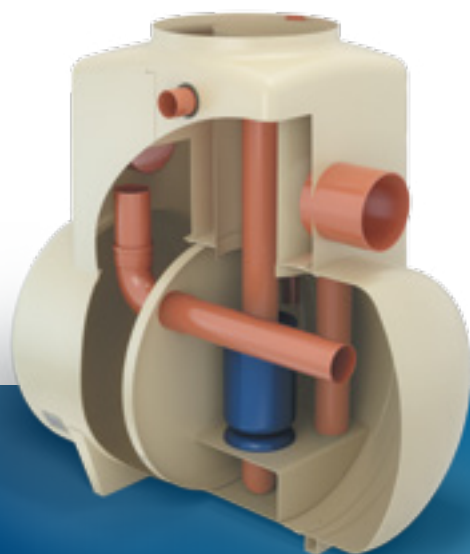
- › Light and easy to install.
- › Inclusive of silt storage volume.
- › Fitted inlet/outlet connectors.
- › Vent points within necks.
- › Oil alarm system available (required by EN 858-1 and PPG3).
- › Extension access shafts for deep inverts.
- › Maintenance from ground level.
- › GRP or polyethylene construction (subject to model).

### PERFORMANCE AND COMPLIANCE

- › Bypass separators are tested by British standards institute (BSI). Certified flow and process performance assessing affluent qualities to the requirements of BS EN 858 Part 1.
- › The calculated drainage areas served by each separator are indicated according to the formula given by PPG3  $NSB = 0.0018A(m^2)$ .
- › Class I separators are designed to achieve a concentration of 5mg/litre of oil under standard test conditions.

**To specify a nominal size bypass separator, the following information is needed:**

- › The calculated flow rate for the drainage area served. Our designs are based on the assumption that any interconnecting pipework fitted elsewhere on the site does not impede flow into or out of the separator and that the flow is not pumped.
- › The drain invert inlet depth.
- › Pipework type, size and orientation.







## TECHNICAL SPECIFICATIONS

Product Code	Flow (l/s)	Peak Flow Rate (l/s)	Drainage Area (m 2)	Storage Capacity (Ltrs)		Length (mm)	Diameter (mm)	Access Shaft Diameter (mm)*	Base Inlet Invert (mm)	Base to Outlet Invert (mm)	Standard Fall Across (mm)	Min Inlet Invert (mm)	Standard Pipework Diameter (mm)**	Max Inlet Invert (mm)
				Silt	Oil									
POLYETHYLENE CHAMBER CONSTRUCTION														
NSBP003	3	30	1670	300	45	1700	1350	600	1460	1360	100	500	160/315	2000
NSBP004	4.5	45	2500	450	60	1700	1350	600	1460	1360	100	500	160/315	2000
NSBP006	6	60	3335	600	90	1700	1350	600	1460	1360	100	500	160/315	2000
GRP CHAMBER CONSTRUCTION														
NSBE010	10	100	5560	1000	150	2070	1220	750	1450	1350	100	700	315	2000
NSBE015	15	150	8335	1500	225	2950	1220	750	1450	1350	100	700	315	2000
NSBE020	20	200	11111	2000	300	3893	1220	750	1450	1350	100	700	375	2000
NSBE025	25	250	13890	2500	375	3575	1420	750	1680	1580	100	700	375	2000
NSBE030	30	300	16670	3000	450	4265	1420	750	1680	1580	100	700	450	2000
NSBE040	40	400	22222	4000	600	3230	1920	600	2185	2035	150	1000	500	2000
NSBE050	50	500	27778	5000	750	3960	1920	600	2185	2035	150	1000	600	2000
NSBE075	75	750	41667	7500	1125	5841	1920	600	2235	2035	200	950	675	2000
NSBE100	100	1000	55556	10000	1500	7661	1920	600	2235	2035	200	950	750	2000
NSBE125	125	1250	69444	12500	1875	9548	1920	600	2235	2035	200	950	750	2000

\* Some units have more than one access shaft - diameter of largest shown.

\*\* Larger pipework available on request.

Extension parts for deeper inverts can be provided for on site assembly



For specialist advice on our range of fuel and oil separators, please contact our Kingspan Klargester technical team on **klargester@kingspan.com** or call **01296 633 000**

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# FULL RETENTION SEPARATORS

## NSF RANGE

Full retention separators are used in high risk spillage areas such as fuel distribution depots, vehicle workshops and scrap yards.

### PERFORMANCE AND COMPLIANCE

- › Kingspan Klargestar were the first UK manufacturer to have the required range (3-30 l/sec) certified to BS EN 858 Part 1 in the UK.
- › The NSF number denotes the flow at which the separator operates.
- › Approved by The British Standards Institute (BSI) in relation to flow and process performance, meeting effluent quality requirements of BS EN 858 Part 1.
- › Larger separator designs have been determined using the formulas extrapolated from the test range.

Each full retention separator design includes the necessary volume requirements for:

- › Oil separation capacity
- › Oil storage volume
- › Silt storage capacity

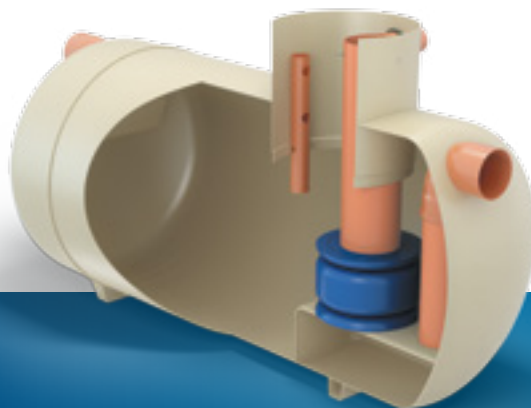
- › Coalescer
- › Automatic closure device

#### To specify a nominal size full retention separator, the following information is needed:

- › The calculated flow rate for the drainage area served. Our designs are based on the assumption that any interconnecting pipework fitted elsewhere on site does not impede flow into or out of the separator and that the influent is not pumped.
- › The required discharge standard. This will decide whether a Class I or Class II unit is required.
- › The drain invert inlet depth.
- › Pipework type, size and orientation.

## BENEFITS

- › Light and easy to install.
- › 3-30 l/sec range independently tested and performance sampled.
- › Certified by the BSI.
- › Inclusive of silt storage volume.
- › Fitted inlet/outlet connectors.
- › Oil alarm system available.
- › Vent points within necks.
- › Extension access shafts for deep inverts.
- › Maintenance from ground level.
- › GRP or polyethylene construction (subject to model).



### Full Retention Separators - NSF Range

Fully compliant, tested to BS EN 858 Part 1.



## TECHNICAL SPECIFICATIONS

Product code	Flow (l/s)	Drainage Area (m2) PPG-3 (0.018)	Storage Capacity (Ltrs)		Length (mm)	Diameter (mm)	Manhole Cover Dimensions (mm)	Base Inlet Invert (mm)	Base to Outlet Invert (mm)	Min Inlet Invert (mm)	Standard Pipework Diameter (mm)	Max Inlet Invert (mm)
			Silt	Oil								
POLYETHYLENE CHAMBER CONSTRUCTION												
NSFP003	3	170	300	30	1700	1350	600	1410	1335	550	160	2000
NSFP006	6	335	600	60	1700	1350	600	1410	1335	550	160	2000
GRP CHAMBER CONSTRUCTION												
NSFA010	10	555	1000	100	2610	1214	600	1050	1000	500	200	2000
NSFA015	15	835	1500	150	3910	1214	600	1050	1000	500	200	2000
NSFA020	20	1115	2000	200	3230	1970	600	1810	1760	1000	315	2000
NSFA030	30	1670	3000	300	3960	1970	600	1810	1760	1000	315	2000
NSFA040	40	2225	4000	400	4750	1970	600	1810	1760	1000	315	2000
NSFA050	50	2780	5000	500	5790	1970	600	1810	1760	1000	315	2000
NSFA065	65	3160	6500	650	7360	1970	600	1810	1760	1000	315	2000
NSFA080	80	4445	8000	800	5744	2820	600	2500	2450	1000	315	2000
NSFA100	100	5560	10000	1000	6200	2820	600	2500	2450	1000	400	2000
NSFA125	125	6945	12500	1250	7365	2820	600	2500	2450	1000	450	2000
NSFA150	150	8335	15000	1500	8675	2820	600	2500	2450	1000	525	2000
NSFA175	175	9725	17500	1750	9975	2820	600	2500	2450	1000	525	2000
NSFA200	200	11110	20000	2000	11,280	2820	600	2500	2450	1000	600	2000
NSFA285	285	15833	28500	2850	15833	2820	600	2550	2450	1000	600	2000

\*Some units have more than one access shaft - diameter of largest shown.  
Extension parts for deeper inverts can be provided for on site assembly



For specialist advice on our range of fuel and oil separators, please contact our Kingspan Klargester technical team on **klargest@kingspan.com** or call **01296 633 000**

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# FORECOURT SEPARATORS

Forecourt separators are used to intercept hydrocarbon pollutants such as petroleum and oil to prevent their entry to the drainage system. Typical applications include petrol filling station forecourts and similar areas.

## PERFORMANCE AND COMPLIANCE

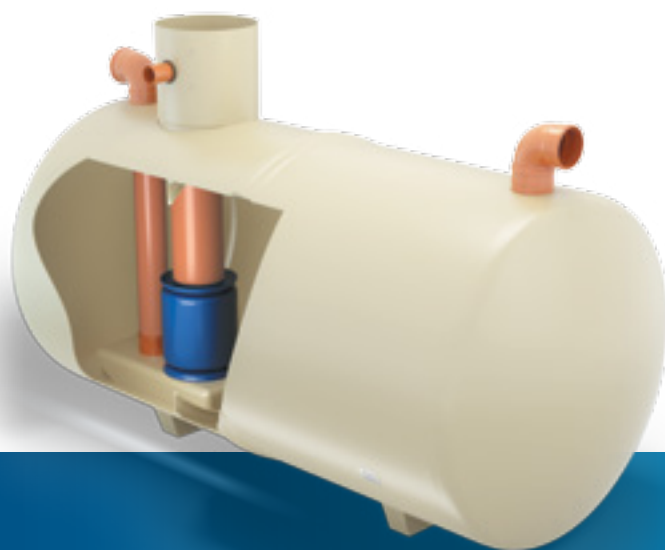
- › Operation ensures that the flow cannot exit the unit without first passing through the coalescer assembly.
- › In normal operation, the forecourt separator has sufficient capacity to provide storage for separated pollutants within the main chamber, but is also able to contain up to 7,600 litres of pollutant arising from the spillage of a fuel delivery tanker compartment on the petrol forecourt.
- › The separator has been designed to ensure that oil cannot exit the separator in the event of a major spillage, subsequently the separator should be emptied immediately.

## INSTALLATION

- › The unit should be installed on a suitable concrete base slab and surrounded with concrete.
- › If the separator is to be installed within a trafficked area, then a suitable cover slab must be designed to ensure that loads are not transmitted to the unit.
- › The separator should be installed and vented in accordance with Health and Safety Guidance Note HS(G)41 for filling stations.
- › Subject to Local Authority requirements.

## BENEFITS

- › Light and easy to install.
- › Inclusive of silt storage volume.
- › Fitted inlet/outlet connectors.
- › Vent points within necks.
- › Extension access shafts for deep inverts.
- › Maintenance from ground level.
- › Oil storage volume.
- › Coalescer (Class I unit only).
- › Automatic closure device.
- › Oil alarm system available.



**Forecourt Separators**  
Easy to install, fully secure.



## TECHNICAL SPECIFICATIONS

Model reference	Total capacity (litres)	Drainage area (m2)	Max flow rate (l/s)	Length (mm)	Diameter (mm)	Access shaft diameter (mm)	Base to inlet invert (mm)	Base to outlet invert (mm)	Standart fall across unit (mm)	Min inlet invert (mm)	Standard pipework (mm)	Empty weight (kg)
FS010	10000	555	10	3963	1920	600	2110	2060	50	400	160	500
FS010	10000	1110	20	3963	1920	600	2110	2060	50	400	200	500



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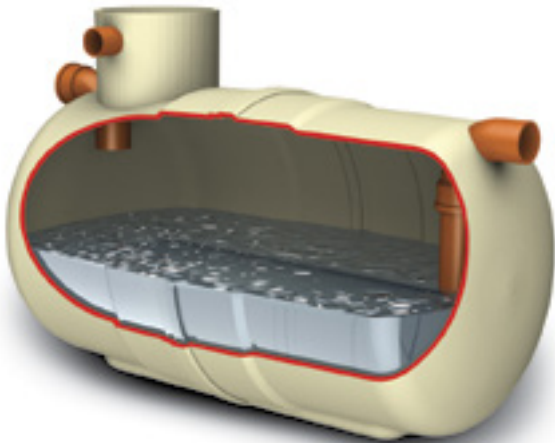
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# WASHDOWN & SILT

This unit can be used in areas such as car wash and other cleaning facilities that discharge directly into a foul drain, which feeds to a municipal treatment facility.

If emulsifiers are present the discharge must not be allowed to enter an NS unit.



## TECHNICAL SPECIFICATIONS

ORDERING CODE	Total Capacity (Ltrs)	Max. Rec. Silt (Ltrs)	Max. Flow Rate (l/s)	Length (mm)	Diameter (mm)	Access Shaft Diameter (mm)	Base Inlet Invert (mm)	Base to Outlet Invert (mm)	Standard Fall Across (mm)	Min Inlet Invert (mm)	Standard Pipework Diameter (mm)	Approx. Empty (kg)
W1/010	1000	500	3	1123	1225	460	1150	1100	50	500	160	60
W1/020	2000	1000	5	2074	1225	460	1150	1100	50	500	160	120
W1/030	3000	1500	8	2952	1225	460	1150	1100	50	500	160	150
W1/040	4000	2000	11	3898	1225	460	1150	1100	50	500	160	180
W1/060	6000	3000	16	4530	1440	600	1360	1310	50	500	160	320
W1/080	8000	4000	22	3200	2020	600	2005	1955	50	500	160	585
W1/100	10000	5000	27	3915	2020	600	2005	1955	50	500	160	680
W1/120	12000	6000	33	4640	2020	600	2005	1955	50	500	160	770
W1/150	15000	7500	41	5435	2075	600	1940	1890	50	500	160	965
W1/190	19000	9500	52	6865	2075	600	1940	1890	50	500	160	1200



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### Applications

These units can be used to serve vehicle wash down areas and car wash facilities, although it should be noted that the prime function of such separators is for the removal of silt. Typical locations using wash down separators are: car wash, tool hire depots, truck cleansing, construction compounds cleansing points.

Locations requiring silt separators are: highly silted sites where NS separators are used, i.e. works constructions sites and temporary work compounds.

Our Washdown and Silt Separators are manufactured from durable, rot and corrosion proof glass reinforced polyester combining lightweight with outstanding strength. The units are delivered complete with inlet and outlet pipework as well as factory fitted access shafts to ensure quick and easy installation on site.

### How it works

As contaminated water passes through the separation chamber, it is retained long enough to allow solids to sink to the bottom of the unit. Our design uses a maximum of 6 minutes hydraulic retention time, at the flow rate given. The separator water is then able to discharge safely.

The nature of the silt varies depending on either the ground or surface receiving the flow. These aspects should be considered when selecting the size of the unit in relation to the flow being treated.



For specialist advice on our range washdown & silt separators, please contact our Kingspan Klargester technical team on **klargester@kingspan.com** or call **01296 633 000**

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# RAINWATER HARVESTING SYSTEMS

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## DOMESTIC ENVIREAU RAINWATER HARVESTING

Fully Integrated Rainwater Harvesting Systems for homes

The Domestic Envireau Rainwater Harvesting system has been designed as a low cost installation for self-build projects and residential developments. Envireau works by taking the rain from your roof gutters, filtering out leaves and debris and storing the water in an underground tank. This is then pumped into the house to be used for non-potable applications such as toilet flushing and washing machines. If the tank runs empty, the system automatically switches to mains supply. Easy to install, simple to maintain, automatic in operation; the Domestic Envireau System has been developed to provide the homeowner with a 'fit-and-forget' system, ensuring an automatic supply of harvested rainwater.



**Envireau Gravity System**



**Envireau Direct System**



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## ENVIREAU GRAVITY SYSTEM

The Envireau Gravity System is ideal for domestic applications which use an elevated header tank to store filtered water after the main tank. It has a major advantage in that in the event of a power failure on site (or the rain stocks running dry) the system will automatically switch to mains water supply to ensure a continuity of service. The water from the header tank will flow by gravity to the serviced appliances. The system will always draw from the rainwater supply first.

### TECHNICAL SPECIFICATIONS

ORDERING CODE	Roof Size (Rec.) (m2)	Diameter (mm)	Height (mm)	Length (mm)	Inlet & Outlet Invert (mm)
ENVG060KSW	60	1350	2200	1700	500-800
ENVG100KSW	100	1700	2443	2000	500-900
ENVG150KSW	150	1800	2543	2400	500-900
ENVG200KSW	200	2070	2793	2400	500-900

### USES

- › WC and urinal flushing
- › Irrigation and landscape watering
- › Garden watering
- › Vehicle washing
- › Domestic laundry



## ENVIREAU DIRECT SYSTEM

The Envireau Direct System is used where it is impractical to have a header tank for example in homes that have converted attic spaces and no room for a header tank. Therefore the filtered rainwater is pumped direct from the holding tank to the various appliances. The main advantage of this system is that rainwater is delivered to the appliances at mains pressure or higher.

### TECHNICAL SPECIFICATIONS

ORDERING CODE	Roof Size (Rec.) (m2)	Diameter (mm)	Height (mm)	Length (mm)	Inlet & Outlet Invert (mm)
ENVG060KSW	60	1350	2200	1700	500-800
ENVG100KSW	100	1700	2443	2000	500-900
ENVG150KSW	150	1800	2543	2400	500-900
ENVG200KSW	200	2070	2793	2400	500-900



› Compliant with Code for Sustainable Homes / Part G Building Regulations

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# BELOW GROUND RAINWATER STORAGE & DELIVERY SYSTEM

An economical rainwater harvesting system for domestic and commercial applications

## RAINTRAP

The RainTrap system comprises of a filter, an underground storage tank and a pump. Rainwater runs down the roof and into the guttering and downpipes in the normal way before passing through the filter, which removes any leaves or debris. Rainwater is stored in the underground tank from which it is pumped at a constant pressure to a garden sprinkler or hose as required.



## FEATURES

- › Easy to install.
- › Inexpensive.
- › Simple on / off operation.
- › Suitable for existing and new homes.
- › Automatic rainwater diversion when tank reaches full capacity.
- › Available in a variety of sizes from 2,800-4,600 litres.
- › Internal self-cleaning leaf filter.
- › Designed and manufactured in the UK.

## TECHNICAL SPECIFICATIONS

ORDERING CODE	Capacity (Ltrs)	Diameter (mm)	Height Base to outlet (mm)
RT2800	2800	2070	1540
RT3800	3800	2070	1760
RT4600	4600	2080	1925





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## AQUABANK

AquaBank is a range of simplified rainwater harvesting systems controlled by a pump, suitable for either direct or gravity fed applications. Operation of the system does not require a control panel, display panel or depth sensor. Suitable for single and multi-residential applications.



## FEATURES

- › Easy to install.
- › Simplified system design for rapid installation.
- › Quick-start set-up procedure.
- › 'Kit in a box' of key components.
- › Delivered to site on single pallet.
- › Easy conversion to gravity system with header tank.
- › Minimal energy use in operation.
- › Designed in accordance with BS EN 8515.

## TECHNICAL SPECIFICATIONS

### DIRECT

ORDERING CODE	Capacity (Ltrs)
AQB010DKSW	1000
AQB028DKSW	2800
AQB038DKSW	3800
AQB046DKSW	4600
AQB060DKSW	6000

### GRAVITY

ORDERING CODE	Capacity (Ltrs)
AQB010GKSW	1000
AQB028GKSW	2800
AQB038GKSW	3800
AQB046GKSW	4600
AQB060GKSW	6000



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# COMMERCIAL ENVIREAU RAINWATER HARVESTING

Fully integrated rainwater harvesting system  
for commercial premises

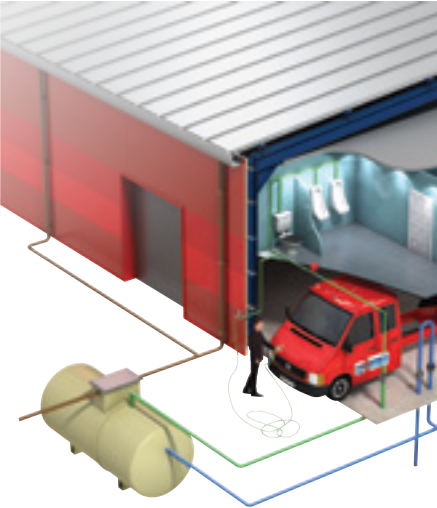
The most common and unobtrusive water storage option is to locate the harvested rain below ground. Kingspan Klargester have been designing and manufacturing integrated rainwater systems for over a decade. What we have developed is the Kingspan Klargester Envireau system. Easy to install, simple to maintain, automatic in operation; Envireau delivers a dependable supply of harvested rainwater. The system permits totally flexible scope for component selection in order for Envireau to be tailored to each building and water application.

Tanks are carefully sized and selected to take into consideration factors such as roof water yield, projected water consumption and ground work criteria such as prevailing water table, soil conditions and requirements for trafficked access. Filters and pumps are likewise selected to match the system specifications and performance criteria, to minimise maintenance and to ensure the water is kept at an optimum level of clarity and supply pressure.

SINGLE PUMP ORDERING CODE	Twin Pump Ordering Code	Capacity (Ltrs)	Diameter(m)
ENV0200SKSW	ENV0200TKSW	6000	1.4
ENV0275SKSW	ENV0275TKSW	8000	1.8
ENV0350SKSW	ENV0350TKSW	10000	1.8
ENV0485SKSW	ENV0485TKSW	14000	1.8
ENV0625SKSW	ENV0625TKSW	18000	2.6
ENV0765SKSW	ENV0765TKSW	22000	2.6
ENV0900SKSW	ENV0900TKSW	26000	2.6
ENV1040SKSW	ENV1040TKSW	30000	2.6
ENV1320SKSW	ENV1320TKSW	38000	2.6
ENV1460SKSW	ENV1460TKSW	42000	2.6
ENV1735SKSW	ENV1735TKSW	50000	2.6
ENV2050SKSW	ENV2050TKSW	59000	2.6
ENV2325SKSW	ENV2325TKSW	67000	2.6
ENV2745SKSW	ENV2745TKSW	79000	2.6

# FEATURES

- › Capacities from 6,000 to 79,000 litres within a single tank.
- › Multiple tanks can be joined to cater for larger volumes.
- › Can be installed under trafficked areas (with reinforced concrete support).
- › Complete packaged units delivered directly to site.





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## UK INSTALLATIONS



**Kent**  
**THANET EARTH**

Green house developments  
Four vertical pumping stations



**Goole**  
**ELITE OFFICE FURNITURE**

Surface water separators, foul, effluent and crude sewage pump stations, grease trap and BioFicient commercial system.



**Liverpool**  
**EVERTON FOOTBALL CLUB  
(Training Ground)**

Modular BioFicient commercial system  
Fuel/Oil Separators



**Manchester**  
**MANCHESTER CITY FOOTBALL CLUB  
(Training Ground)**

Oil Separator



**Clifford**  
**THE CASTLEFIELDS INN**

Commercial sewage treatment plant  
Biodisc® BJ



**Kettering**  
**PRIMARK DISTRIBUTION CENTRE**

Modular BioFicient commercial system



**Wing**  
**BARN CONVERSION**

Domestic sewage treatment plant  
Biodisc® BA



**London**  
**SUPERMARKET CARPARK**

Bypass separator NSBE50



**Dundee**  
**NEW BLOCK OF FLATS**

A complex sewage and surface pumping system

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- › Pumping solutions
- › Separators



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Kingspan Klargester - Product Guide - English - February 2017

