

Environmental



**Klargester** Envirosafe  
Advanced Sewage Treatment Systems



*Sustainable, Reliable, Affordable*



# Klargester Envirosafe

## Introducing the new **Envirosafe** range

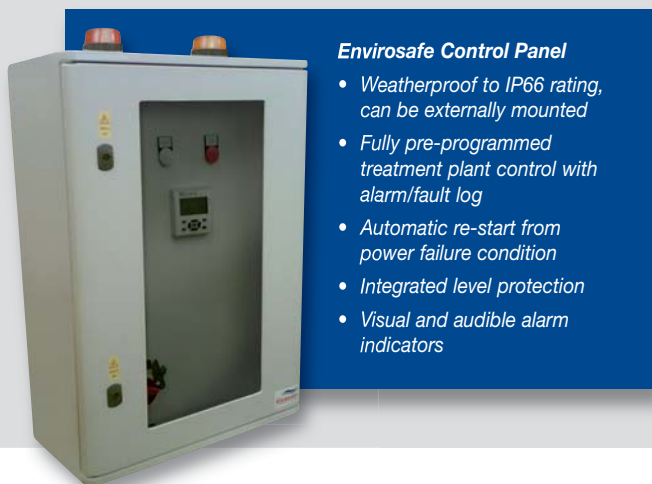
Heightened environmental standards, more stringent controls, new European guidelines and the introduction of new Building Regulations have placed greater importance than ever before on the need to install correctly sized and specified sewage treatment plants.

Such systems have to deliver high performance, but also be capable of supporting future demand, not just current level of use.

The requirement for a more flexible plant has led to the development of **Envirosafe** – a wholly new range of sewage treatment plant to meet the demands of today's consumer.

We have drawn on over 40 years of expertise in treatment plant technology in order to meet our own strict criteria in the development of the **Envirosafe** plant:

- High and medium rate performance options across a range of influent and effluent qualities
- Adaptable to specific consent requirements including 'Total Nitrogen'
- Low head loss
- Minimal footprint area
- Single piece tank for rapid installation and reduced costs
- Variable invert options
- Minimal visual impact (below ground)
- Low running costs
- May be installed in trafficked areas (subject to loading)
- Compliant with EN-12255
- Designed for applications selected in compliance with British Water Code of Practice Flows and Loads
- Low maintenance
- Alarm protected



## Process Design

**Envirosafe** sewage treatment 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.

This process takes place in three distinct stages:-

### 1. 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.

### 2. 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. Standard **Envirosafe** models utilise two aerobic treatment chambers for lower performance applications. Where higher effluent standards are required, the HEQ models employ a third anoxic zone.

### 3. 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.

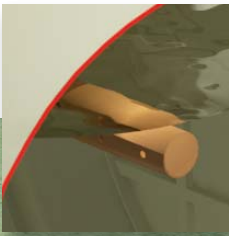
Total nitrogen consents can be achieved with HEQ models (contact our sales office for your application).

## Flow Management

**Envirosafe**'s 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.

## Options

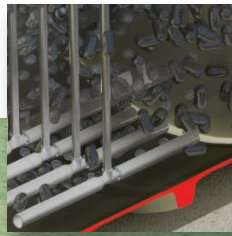
- Medium (MEQ) and high (HEQ) effluent quality configurations
- Choice of inverts (from 0.5 to 2.0m)
- Duty and Standby blowers (as required)
- Alarm Systems
- Sample chambers
- Pumping stations
- Extension shafts (to 2.0m maximum standard invert)



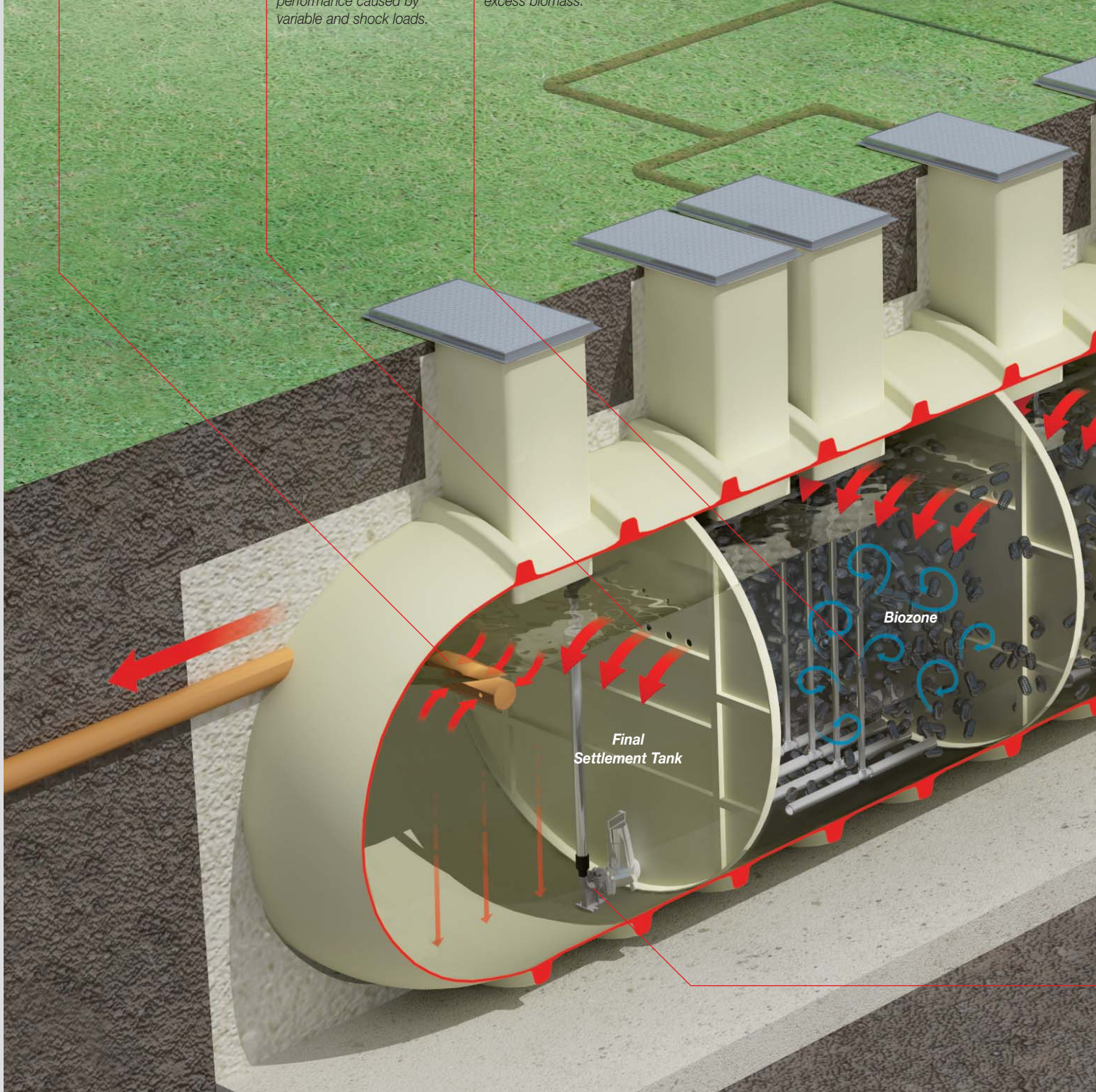
**Submerged Scum Baffle**  
The submerged baffle design prevents floating fine particles from exiting the plant, retaining scum within the final settlement chamber.



**Integral Flow Management**  
Envirosafe features internal volume balancing to counteract surges in influent and periods of low flow. This avoids the detrimental effects on process performance caused by variable and shock loads.



**Air Diffusers**  
Pumped air diffusers supply oxygen to the bacteria growing on the surface of the media. Aeration also optimises the treatment process by scouring away excess biomass.



**Blower Kiosk (optional)**

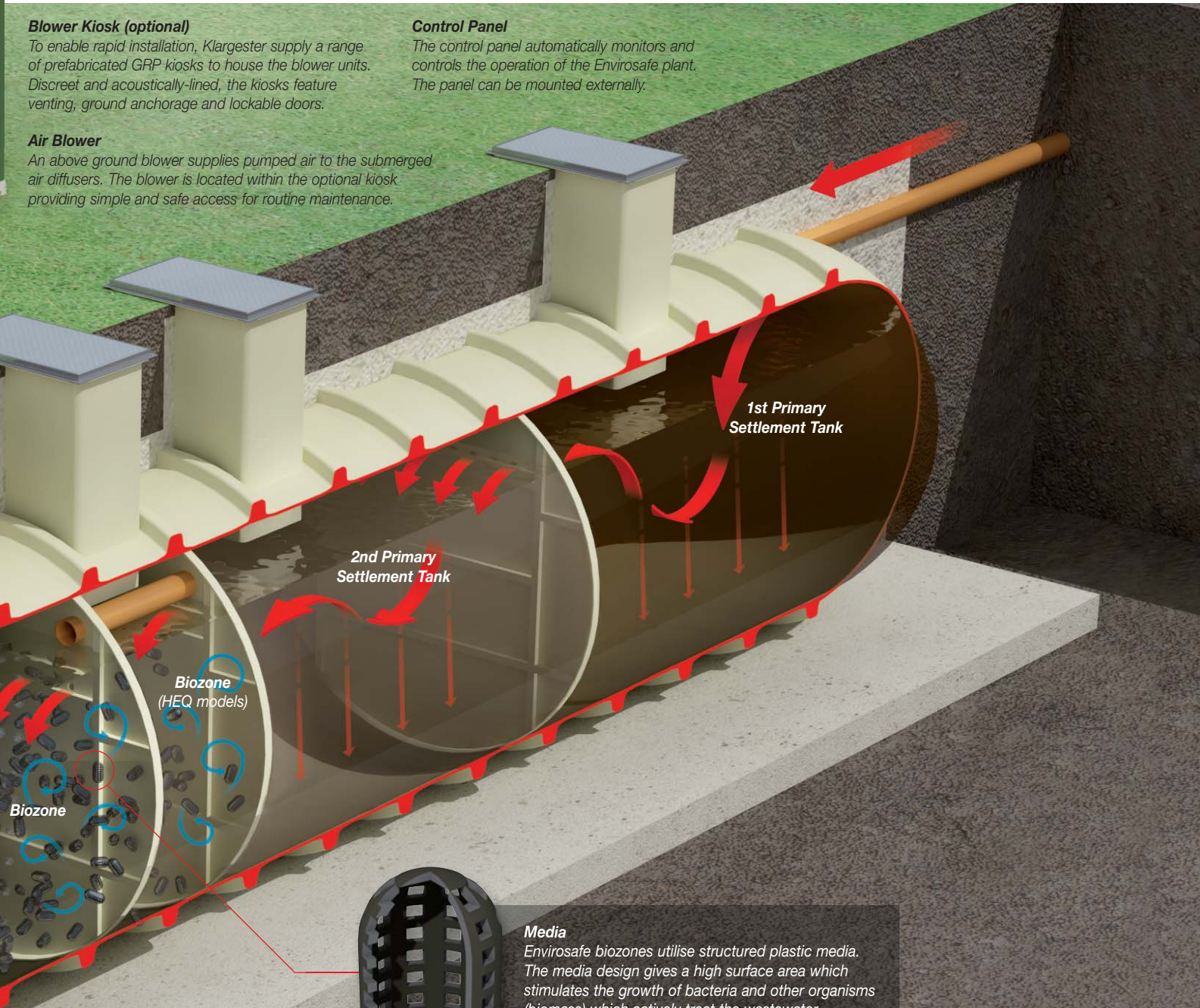
To enable rapid installation, Klargester supply a range of prefabricated GRP kiosks to house the blower units. Discreet and acoustically-lined, the kiosks feature venting, ground anchorage and lockable doors.

**Air Blower**

An above ground blower supplies pumped air to the submerged air diffusers. The blower is located within the optional kiosk providing simple and safe access for routine maintenance.

**Control Panel**

The control panel automatically monitors and controls the operation of the Envirosafe plant. The panel can be mounted externally.



Biozone (HEQ models)

1st Primary Settlement Tank

2nd Primary Settlement Tank

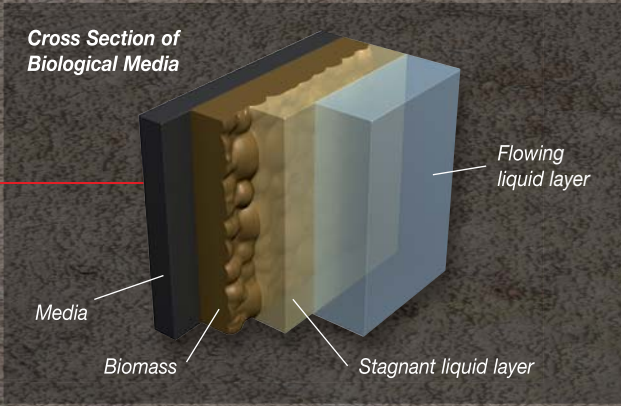
Biozone

**Media**

Envirosafe biozones utilise structured plastic media. The media design gives a high surface area which stimulates the growth of bacteria and other organisms (biomass) which actively treat the wastewater.

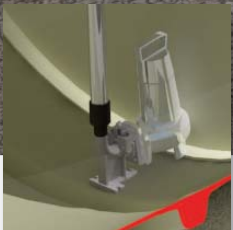


**Cross Section of Biological Media**

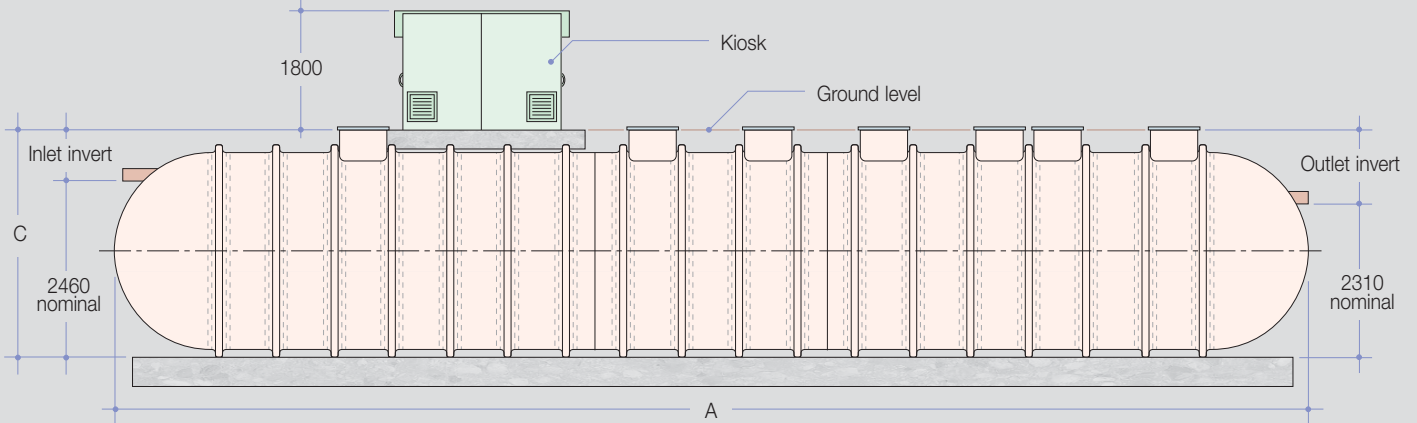


**Sludge Return**

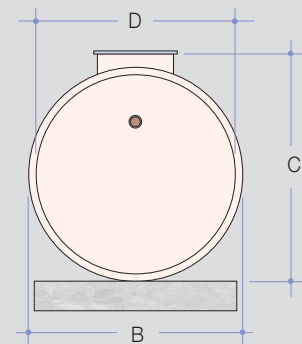
Surplus biomass is recirculated into the primary settlement chamber by a timer controlled pump. Here it is co-settled with the main sludge residue.



**Technical Specification**



High Effluent Quality (HEQ) Models	7H	38H	42H	47H	55H	67H	80H
Maximum flow (m <sup>3</sup> /day)	15	20	25	30	40	50	60
Retention time (hrs)	46	39	35	32	28	28	27
Medium Effluent Quality (MEQ) Models	**	38	42	47	55	67	80
Maximum flow (m <sup>3</sup> /day)	17	23	28	35	46	58	70
Retention time (hrs)	41	34	34	28	26	24	23
A Overall Length (m)	7.4	8.1	8.9	9.7	11.2	13.5	15.8
B Overall Width (m)	2.8						
C Height (m)							
500mm Inlet / 650mm Outlet Invert*	3.02						
1000mm Inlet / 1150mm Outlet Invert*	3.52						
1500mm Inlet / 1650mm Outlet Invert*	4.02						
2000mm Inlet / 2150mm Outlet Invert*	4.52						
D Diameter (m)	2.6						
Volume (m <sup>3</sup> )	34	38	42	47	55	67	80
Weight approx (kg)	3000	3200	3400	3800	4200	4700	5400
Inlet / Outlet Diameter (mm)	160						



**Notes:**

\* Extension necks can be added to turrets to achieve deeper inverts. Alternative pipe sizes may be ordered. For deep installations over our standard 2m invert, we recommend an independent civil engineer advice be sourced. Weights are dry weights and installers must ensure there is no water in the tanks before lifting. All weights are approximate. Klargester reserve the right to alter the above dimensions without prior notice.

\*\*See Klargester Biotec™ range, model ref. Biotec™ 7.

**Service & Maintenance**

**Envirosafe's** individual chambers have large dedicated manholes to allow quick and easy maintenance access. Servicing is also simplified as **Envirosafe's** flow control makes it unnecessary to empty the biozones, as is the case with other designs of treatment plant.

As a result, the biozones immediately resume operation following servicing, whilst the influent level is restored. As a result there is no loss of plant performance during periodic maintenance.

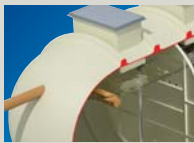
**Specialist Advice**

Delivering high quality effluent requires careful evaluation of the various parameters affecting each scheme. Relatively minor changes may result in the loss of one or more of the required effluent qualities.

Klargester's team of technical specialists assess each site's demands and application and tailor a technical specification to meet the consent requirements.

Plant sizing is not only calculated on current demand but also gauged on potential future loading in order to meet the latest legislative criteria.

# The Market Leading Range of Klargester Sewage Treatment, Pumping and Drainage Solutions from Kingspan Environmental



Commercial Sewage Treatment Plants



Large Capacity Pumping Stations



Stormwater Attenuation Systems



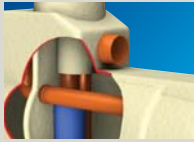
Domestic Sewage Treatment Plants



Packaged Pump Systems



Reed Beds



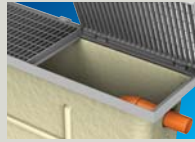
Oil/Water Separators



Septic Tanks



Below Ground Storage Tanks



Grease & Silt Traps



Packaged Drainage Systems

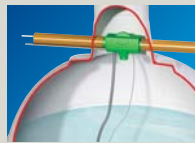
## KingspanWater Rainwater Harvesting Solutions



Residential & Commercial Rainwater Harvesting



Domestic Rainwater Harvesting



Garden Watering Systems

## Klargester Accredited Installers

Strategically located throughout the UK and Ireland, Klargester Accredited Installers are appointed following a selection process which assesses their installation expertise, reputation and financial status.

These performance criteria, together with their design skills and knowledge of Klargester products are also reviewed to ensure that the highest levels of professionalism are maintained.



## Free Site Visit

To help determine your exact requirements, Klargester offer free site visit support from our team of specialist Area Sales Managers. Please call, fax or click for more information.

## Kingspan Environmental Service

Who better to look after your treatment plant than the people who designed and built it?

Kingspan Environmental have a dedicated service division providing maintenance for wastewater treatment products.

Factory trained engineers are available for site visits as part of a planned maintenance contract or on a one-off call out basis.

To find out more about protecting your investment and ensuring peace of mind, contact us on **0845 355 0555** or visit us online at

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



Accredited to  
**BS EN ISO 9001: 2008**  
**BS OHSAS 18001: 2007**



Issue No. 7: August 2010



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