

Market Leading WasteWater  
Treatment Systems

# RAISING THE BENCHMARK FOR SEWAGE TREATMENT

DOMESTIC | COMMERCIAL | AGRICULTURAL



## Regulations Update | England & Wales

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

Visit our website to find out more about your options:  
[www.harlequinwater.com/regs](http://www.harlequinwater.com/regs)



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Harlequin®  
**HydroClear**

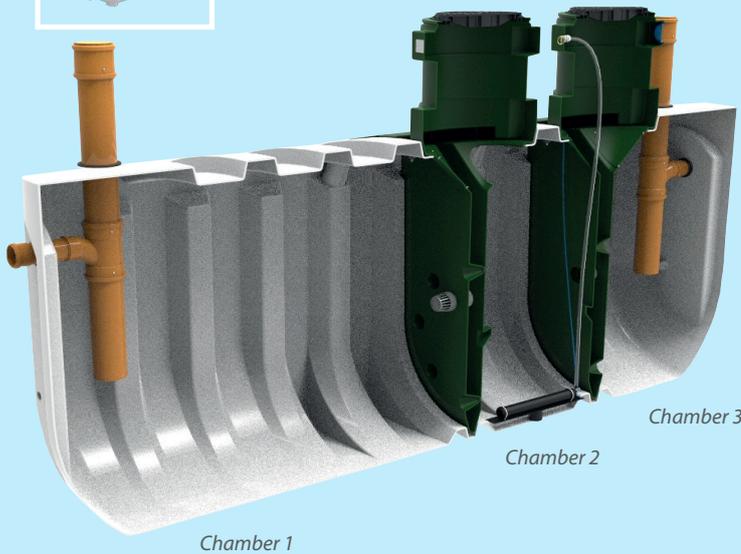
SEWAGE TREATMENT PLANT

## HYDROCLEAR

Producing an excellent **pollutant removal level of 96.6%**, wastewater from bathrooms, toilets, laundry and kitchens feeds directly into the treatment plant. From here it travels through the Harlequin HydroClear's 3 treatment chambers, finally being discharged through either a soakaway or directly into a stream. Easy to both install and maintain with low operating costs, the range boasts 6 different sized systems starting at a **domestic sized 6 population** system, available right up to a **commercial 50 population** system.



Compressor located in external housing.



## HOW IT WORKS

### Chamber 1 | Primary Settlement

Wastewater enters the treatment plant's primary chamber. As the water passes through this chamber solid matter sinks to the bottom of the tank and begins to decompose.

What is left is clarified water which then passes to the aeration chamber where a biological reaction takes place removing the dissolved constituents.

### Chamber 2 | Aeration

Within this chamber there is mobile 'Filter Media' and a 'Bubble Diffuser'. The Filter Media support large bacterial populations while induced air from the Bubble Diffuser promotes complete mixing within the chamber to create a biological reaction and ensure that full treatment is achieved.

*Unlike conventional systems, the Filter Media in the reaction chamber is self-cleaning and unable to become blocked through channelling.*

### Chamber 3 | Final Settlement

Finally, the treated effluent & bacteria flow into the final chamber where remaining small solids sink to the bottom of the chamber prior to the clarified effluent being discharged from the plant using natural displacement.

EN12566-3 Certified  
Pumped outlet also available

## BENEFITS OF THE HARLEQUIN HYDROCLEAR

### VIRTUALLY SILENT OPERATION

High performance diaphragm blowers are used and externally housed achieving a virtually silent operation.

### ODOURLESS

The system is hermetically sealed, coupled with a market leading treatment performance eliminates odour.

### MBBR TECHNOLOGY

Moving Bed Biological Reactor (MBBR) systems are self-cleaning and unable to become blocked through channelling unlike most fixed film media systems.

### CLASS LEADING PERFORMANCE

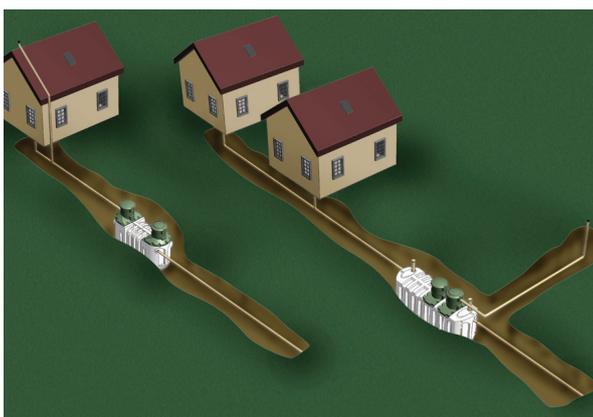
Producing an excellent 96.6% pollutant removal level, the final effluent can be directly discharged into a stream or soakaway.

### LOW MAINTENANCE COSTS

Chamber 1 capacity is as much as 66% larger than other plants, making desludging intervals up to three times longer saving the owner significant costs.

### POWER FAILURE DEFAULT

The system keeps performing as a Septic Tank in the event of a power failure.



## EASY INSTALLATION

Small diggers can be used due to the systems slim profile only requiring a small excavation which also keeps costs low.

Single tank & Multi tank systems can be moved and transported easily, even to inaccessible sites.

The shallow tank design minimises the chance of hitting bedrock or being affected by the water table.

## KEY FEATURES

Pollutant Removal

96%

MBBR System



Slim Profile



Inhabitants Served

1-50

Desludge (months)

24\*

Odourless



Simple Installation



\*Desludging interval HC6 only, depending on usage.

## CAP6

The **Harlequin CAP6** is a **compact sewage treatment plant** designed specifically for domestic installations for up to 6 inhabitants (equivalent of up to a 4 bedroom house). It is a Continuous Aeration Plant which operates using a unique bio-media system and delivers a **pollutant removal level of 96.2%** whilst also combating common problems associated with small packaged domestic plants such as media blockage & inadequate oxygen supply.



Compressor located in external housing.



EN12566-3 Certified  
Pumped outlet also available

## HOW IT WORKS

### Chamber 1 | Primary Settlement

Raw sewage flowing to the CAP unit is received in the primary settlement zone. Here, gross solids (primary sludge) settle to the bottom of the tank, where they remain until the tank is desludged. The settled sewage displaced from the primary zone then flows into the submerged filter zone, passing under a baffle.

### Chamber 2 | Reactor Vessel

Flow circulation in the submerged filter zone is generated by the hydraulic effect of the outlet air diffuser. This causes settled sewage entering the filter zone at high level to be drawn down through the media, aerating the sewage in the process. The flow circulation ensures that the influent sewage receives several passes through the filter bed at low flow.

In the filter zone, as the sewage passes over the filter media it is purified by micro-organisms growing on the surface of the media. Growth of these micro-organisms results in an excess which is shed as solid particles known as humus solids. Humus solids settling at the bottom of the filter zones are recirculated with the flow of incoming sewage and are deposited on the top of the primary settlement zone.

### Chamber 3 | Final Settlement

Sewage displaced from the submerged filter zone flows via a DIP pipe into the final settlement zone. Liquid displaced from the humus zone has now been fully treated and is known as final effluent. It is suitable for discharge to a watercourse or soakaway as defined in the consent to discharge issued by the Environment Agency.

Solids from the final settlement tank are recirculated to the primary tank via the recirculation pipework. This helps reduce the sludge build up in the humus tank and prevents stagnation during very low inflow.

## KEY FEATURES

Pollutant Removal

**96%**

Bio Media System



Strong & Compact



Inhabitants Served

**1-6**

Desludge (months)

**12\***

Odourless



Simple Installation



## BENEFITS OF THE HARLEQUIN CAP6

### BIO MEDIA SYSTEM

Similar to the MBBR system, there is no fixed media eliminating blockages that are commonly found in smaller treatment plants.

### DURABLE & STABLE PRODUCT

Made from tough durable polyethylene, it is easy to transport and has a wide base for stability.

### SAVES MONEY

With an easy installation due to the systems compact size and light weight, it also promotes low maintenance reducing costs.

### EASY MAINTENANCE

The only component that requires maintenance is the Compressor. This is located in an external housing that allows access to the compressor without coming in to contact with any sewage.

### COMPACT SYSTEM

A perfect compact solution for homes of up to 6 inhabitants (4 bedrooms).

### LOW NOISE

With a near silent air compressor housed externally, the operation of the system is virtually silent.

## PRODUCT DIMENSIONS

	Inhabitants served	Desludging Intervals (Months)	Total Capacity (L)	Organic Load (g BOD/day)	Max daily flow (per day L)	Energy used (kWh/day)	Weight (kg)	Length (mm)	Width (mm)	Height to ground level (mm)
CAP6	1-6	12*	3,400	340	1,200	1.4	275	1,660	1,600	2,180
HC6	1-6	24*	4,440	360	1,200	1.8	450	3,400	1,250	2,560
HC8	4-8	12*	4,440	480	1,200	2.5	450	3,400	1,250	2,560
HC12	7-12	9	5,950	720	2,400	2.5	550	4,500	1,400	2,560
HC20	13-20	9	7,960	1,200	4,000	2.7	700	5,680	1,400	2,560
HC30	21-30	6	11,410	1,800	6,000	3.6	1,080	9,600 (min)	1,400	2,560
HC40	31-41	6	14,920	2,400	8,000	5.2	1,190	10,780 (min)	1,400	2,560
HC50	41-50	6	18,400	3,000	10,000	5.8	1,590	14,780 (min)	1,400	2,560

\*Desludging interval depending on usage.

## KEY FEATURES

- Strong
- Simple Installation
- 1-22 Inhabitants
- Flat base for stability
- Moulded in lifting eyes

## HOW IT WORKS

Designed in accordance with British Standard Code of Practice BS6297, our Septic Tanks are designed with a long flow path which ensures a high degree of settlement, thus providing a low level of suspended solids suitable for discharge into an underground soakaway system.

## SEPTIC TANKS

A Septic Tank is designed to provide primary treatment to crude waste water. It retains solids and allows them to settle out, where they can be partially broken down by biological action so that only the remaining liquor (normally called effluent) is then sufficiently treated to soak into the ground in an underground soakaway system.

### HARLEQUIN SEPTIC TANK FEATURES:

- EN-12566 Part 1 compliant
- Perfect solution when a treatment plant cannot be used
- Quality material manufacturing
- Flat base for stability when transporting and installing
- Fully lockable pedestrian duty manhole cover
- Inlet pipe can be rotated by 180° to line up with drainage lines for almost any direction



### SPECIFICATIONS

	ST27	ST38	ST45	ST60
Population Served	1-4	5-10	11-14	15-22
Max hydraulic load (l/day)	720	1,800	2,520	3,960
Organic load (g BOD/day)	n/a	n/a	n/a	n/a
NH3 (g/per day)	n/a	n/a	n/a	n/a
Total Capacity (litres)	2,728	3,800	4,546	6,000
Diameter (mm)	1,840	2,045	2,165	2,365
Height to ground level (mm)	2,550	2,790	2,920	3,115
Empty plant weight (kg)	160	200	230	280
Energy usage (kWh/day)	0	0	0	0
Desludging interval (months)	12	12	12	12

Find out more about our systems online:  
[www.harlequinwater.com](http://www.harlequinwater.com)

## ABOUT HARLEQUIN MFG

Harlequin have been at the forefront of manufacturing development in the rotationally moulded plastic storage products industry for over 35 years. From its base in N. Ireland, Harlequin now sell to over 25 countries worldwide with an unrivalled reputation for quality, backed up with its 9001, 14001 and 18001 Quality Standard Certifications.

## Harlequin Storage Tanks

RELIABLE CONTAINERS



Oil Tanks



Fuel Tanks



AdBlue



Water Tanks



Bunkers

Find out more at: [www.harlequin-mfg.com](http://www.harlequin-mfg.com)

## Harlequin HydroStore

RAINWATER HARVESTING



### OPTIONS:

- Garden Harvest
- Home Harvest Direct
- Home Harvest Gravity

Find out more at: [www.harlequinwater.com](http://www.harlequinwater.com)

## Harlequin HeatStream

HOT WATER SYSTEM



### OPTIONS:

- Direct
- Indirect
- Twin

Find out more at: [www.harlequin-heatstream.com](http://www.harlequin-heatstream.com)

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Harlequin  
**HydroClear**  
SEWAGE TREATMENT PLANT



A member of  
BRITISH WATER

*\*actual product colours may vary from colours shown. All information contained herein is understood to be correct at time of publication. Harlequin MFG Ltd reserve the right to amend product specifications without notice. Please check our website for the most up to date product information.*