

Diamond

Sewage treatment plant information pack



No worries sewage treatment



single properties not on mains drainage | small communities not on mains drainage
refurbishments | septic tank replacement | barn conversions | new builds
population equivalent 1-55 people



Environmental Wastewater Solutions

The Original WPL Diamond

The WPL Diamond range of package sewage treatment plants is specifically designed for properties not connected to mains drainage, in a range of sizes for population equivalents from 1-55 persons.

The unique design has no internal moving parts and therefore requires minimal annual maintenance, and has low running costs.

The WPL Diamond uses a treatment process which does not require any chemicals and is kind to the environment.

The continuous bacterial digestion cleans the wastewater to a standard which meets normal Environment Agency consents and this treatment process can achieve a de-sludge period of up to 3 years, much longer than other plants available.

CE Mark and BS EN12566-3

The Diamond is **CE** marked and type tested in accordance to the now mandatory BS EN12566-3, the new European standard covering small wastewater treatment plants, making it fully compliant with UK Building Regulations.

The Diamond is the “no worries” choice for sewage treatment.



Features and Benefits

- Outstanding **value for money**
- **Reliable operation** with its simple design and no internal moving parts
- **Low running cost** of the small, quiet air blower
- Continuous bacterial digestion gives the DMS range up to **3 year de-sludging intervals** (the DMC range generally requires annual de-sludging)
- **No odours** as the process does not require primary settlement
- **Excellent performance** meeting normal environment agency consent standards
- **Easy installation** as the unique design minimises labour and materials
- **5 Year warranty** on parts and labour for DMS models installed in the UK
- **Low visual impact** with small lid, flush with the ground
- **Robust construction** reduces the need for concrete backfill where ground conditions permit
- **Compact design** does not require large plant for excavation or handling
- **Reduces soakaway requirements** compared with other types of plants
- Over **40,000 units installed** world wide
- **CE marked**
- **Irish Agrément** certified

Optional Items

Integral Pump Chamber

All the existing features of the Diamond plant, but with an integral pump chamber.

This pump chamber is designed to pump the treated wastewater to a water course, ditch or soakaway which may be in an area where there is an incline, a high water table or a further than normal distance to the soakaway.

In summary, any site where the pipework prevents normal gravitational discharge.

The integral pump chamber comes with a submersible pump which can deliver up to 80 litres per minute of effluent at a head of 3.5m, and has a standard invert of 500mm.

Integral pump chamber consists of:

- 240v, 0.25 kw Submersible pump, integral float switch with stainless steel internals and non-return valve
- High level floatswitch and mounting tube
- High level alarm beacon with 10m of lead and plug
- Extension kit for an increased invert to 800mm (optional extra)
- Floatswitch adapter socket

Sample Chamber

A compact sample chamber is available, and is designed to allow easy sampling of final effluent (treated wastewater) from the treatment plant.

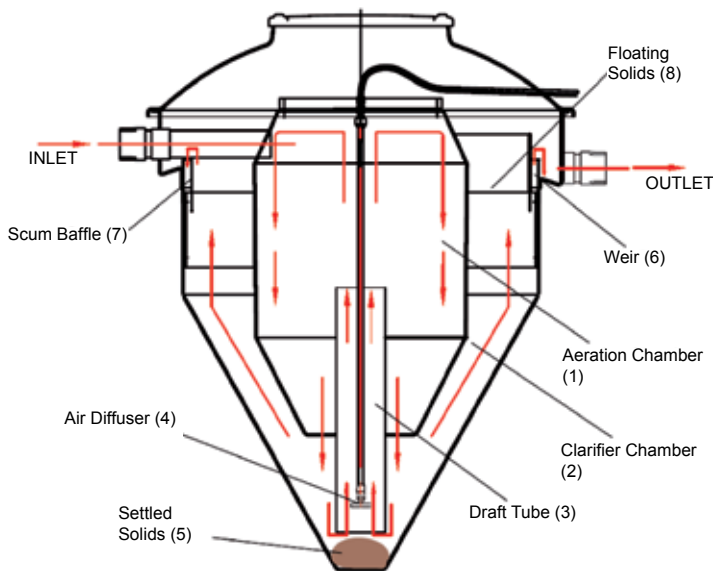
Soakaways

The final effluent (treated wastewater) from the treatment plant is usually discharged to a water course or ditch. If this is not possible, WPL can supply a soakaway system, designed specifically for each site's requirements. Please contact WPL for more information.



The Diamond Wastewater Treatment Process

- The central aeration chamber (1) is a circular tank with a sloped open base, which empties into the bottom of the outer clarifier chamber (2).
- Located in the centre of the aeration chamber is a 200mm diameter draft tube (3), which extends to 100mm from the bottom of the clarifier. Air is released at the bottom of the draft tube through a disc plate diffuser (4).
- As the diffused air rises in the draft tube it causes an upward flow of process fluid. This draws the settled solids (5) from the bottom of the clarifier up through the draft tube where they are discharged at the surface of the aeration chamber.
- The design of the draft tube ensures continuous and complete mixing of oxygen with the sewage. This oxygenation allows the various aerobic organisms that biologically degrade the wastewater contaminants to grow.
- Gravity causes the aerated solids to settle at the bottom of the tank where they are again drawn back up through the draft tube.
- As raw sewage enters the aeration chamber, it displaces biological solids from the aeration compartment to the clarifier. Less turbulent conditions in the clarifier allow the digested solids to settle to the base where they are returned back to the aeration compartment.
- The clarified (treated) effluent flows slowly up through the clarifier and over a weir (6), which extends around the periphery of the tank.
- The effluent collects in an outer trough where it is discharged through a 110mm pipe connection. The scum baffle (7) located inside the overflow weir prevents floating solids (8) from passing over the weir.



Process Performance

The Diamond is proven to “clean” the wastewater to a standard of 20mg/l Biological Oxygen Demand (BOD), 30mg/l Suspended Solids (SS) and 20mg Ammoniacal Nitrogen (AMM-N) on a 95 percentile basis.

If more stringent environmental requirements are specified, please contact WPL for details 0845 450 4818.

WPL also provides a data sheet to assist you with soakaway construction.

Loading and Power Consumption

Model	DMS2	DMS3	DMS4	DMS5	DMC6	DMC7	DMC8	DMC9
Population range (persons)	1-6	5-11	10-15	14-20	21-27	28-35	36-45	46-55
Maximum organic loading BOD/day (grams) A WPL/British Water Loading Guide providing further information for non-domestic applications is available	360	660	900	1200	1620	2100	2700	3300
Maximum blower power consumption (kw) ** (depending on blower model)	0.12	0.13	0.17	0.24	0.55/0.9*	0.75/0.9*	0.75/0.9*	0.75/0.9*

*For DMC Models using 3 Phase electrics, maximum blower power consumption 0.9 kw
(Blower manufacturer's data for power consumption is approximate and based on normal plant conditions.)

Process performance is subject to strict adherence to WPL's Installation Manual, User Guide/Operation & Maintenance Manual, & a start up period of 6-12 weeks depending on plant loadings and water temperature.

WPL provides a full brochure that details consents to discharge and how to calculate whether your soakaway area or discharge point (drainage ditch or stream) will meet the requirements. Please contact us, or your local distributor, for more information.

Dimensions

Model	Outside diameter	Height to inlet	*Inlet invert depth	Height to outlet	In ground depth	Weight empty	Total capacity
DMS2	1.85m	1.71m	570mm	1.61m	2.29m	120 Kg	2271 ltr
DMS3	2.1m	1.84m	700mm	1.74m	2.6m	160 Kg	3028 ltr
DMS4	2.1m	2.05m	700mm	1.93m	2.8m	210 Kg	3974 ltr
DMS5	2.1m	2.05m	700mm	1.93m	2.8m	210 Kg	3974 ltr
DMC6	3.2m	2.77m	590mm	2.67m	3.5m	380 Kg	9056 ltr
DMC7	3.2m	2.77m	590mm	2.67m	3.5m	380 Kg	9056 ltr
DMC8	3.2m	3.14m	590mm	3.04m	3.86m	460 Kg	15038 ltr
DMC9	3.2m	3.14m	590mm	3.04m	3.86m	460 Kg	15038 ltr

* Deeper inverts can be accommodated with our standard invert extensions; contact WPL for further information.

Blower Installation

Each blower is supplied complete with an alarm and an enclosure to protect it from outdoor conditions. It should be connected to a single-phase supply (240v) via a suitable IP55 rated weatherproof socket or fused spur (not supplied) by a competent electrician. Included is 10m of airline to connect between the blower and the tank, however, blower installations of up to 30m from the tank can be accommodated. Please contact WPL or your authorised distributor for advice.

Regular Maintenance & Servicing

Each Diamond is supplied with a User Guide/Operation & Maintenance Manual which provides useful information to ensure the plant operates effectively. A Maintenance Log Book is also supplied to record regular maintenance which should be carried out by a qualified service engineer. WPL Limited offers service and maintenance contracts carried out by their team of British Water qualified service engineers. The DMS range will require de-sludging every 1-3 years, and the DMC range will generally require annual de-sludging.

Availability

WPL manufactures the full Diamond range at its production facility in Hampshire. Units are normally delivered ex-stock.

Guarantee

The Diamond DMS units come with a comprehensive five year parts and workmanship warranty on the blower and plant, and export DMS units come with a comprehensive two year parts and workmanship warranty on the blower and plant. The Diamond DMC units come with a comprehensive two year parts and workmanship warranty on the blower and plant.

All guarantees are subject to regular maintenance being carried out, as specified in the User Guide/Operation & Maintenance Manual supplied with each unit.

The unit's sturdy Glass Reinforced Plastic (GRP) construction and WPL's quality assurance procedures permit a minimum life expectancy of 25 years.

About WPL Limited

WPL Limited provide innovative and reliable wastewater treatment, rainwater harvesting and grease management systems for domestic, commercial and industrial markets as well as holding a prominent position as a supplier to the water companies. As an internationally recognised leader in the design, manufacture and supply of both standardised, and bespoke environmental solutions, WPL Limited is dedicated to ensure the provision of high quality products and services.

Environmental Policy

WPL Limited is ISO14001 accredited. WPL Limited rigorously fulfils its vision of protecting the environment by delivering reliable wastewater solutions. A strong focus on quality and compliance ensures that all wastewater treatment systems are designed to work within the guidelines of the British Water Code of Practice and exceed all present and proposed discharge consent standards enforced by the Environment Agency, SEPA and other regulatory authorities.



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