

HiPAF

High Performance Aerated Filter Information Pack

Innovating Wastewater Solutions



| commercial properties | domestic communities | water industry |
| bespoke plants | population equivalent 1-3000 people |

The HiPAF

The WPL HiPAF is a tailor-made wastewater treatment system purposely designed to meet our customers' needs.

Combining versatility, efficient processing, reliability and a robust design, this plant meets Environment Agency standards, whilst minimising visual impact on the landscape.

With over 1200 units installed throughout the United Kingdom and overseas, the HiPAF is specified by Water Plc's including United Utilities, Yorkshire Water and Southern Water, whilst also being the preferred choice in many commercial applications not connected to main drainage.

Benefits

- Bespoke designs to meet customers individual requirements
- Minimal visual impact
- Flexible supply lead times
- Can be designed to provide a treatment quality up to 10:10:2 BOD:SS:NH₄ as part of a package solution
- Unique flow balancing in primary tank
- Copes with variable flows and loads
- Reliable operation and standby facility
- No internal moving parts, reducing the need for maintenance access
- Diffuser systems are accessible from the surface and the tank does not need emptying during maintenance on the air distribution system
- Large access covers
- Humus and primary sludges are stored in one place for simple tankering operation

Three distinct formats:

Compact plant - 1-60 persons



Designed as a single cylindrical unit, containing primary, biological and secondary treatment modules. Can be used as a mobile unit to provide additional treatment to failing plants.

Midi plant - 60-250 persons



An all in one unit containing primary, biological and secondary treatment sections, for larger applications.

Modular plant 250-3,000 persons



Individual primary, biological and secondary treatment units which can be used to construct very large treatment works.

Ideal treatment solutions for:

- Water authorities
- Camping and caravanning sites
- Villages and small communities
- Motorway service stations
- Hotels and leisure centres
- Restaurants and public houses
- Zoos



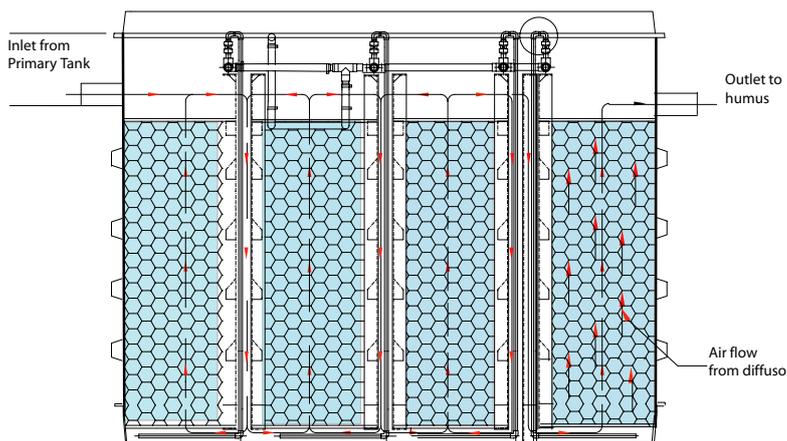
Treatment Process

- The Hi-PAF treatment plant consists of a Primary Settlement Tank, Biological Treatment module and Secondary (Humus) Settlement tank all fabricated in GRP and designed for below ground installation. The plant is fitted with large, gas strut assisted covers to give full access to all parts of the plant for maintenance and de-sludging. The package plant is supplied with a duty only or duty/standby blower, control panel housed in a GRP kiosk and 10m lengths of air hoses.
- Primary settlement is in accordance with BS6297 and the required hydraulic retention time. This ensures that 30% of the BOD will settle out in the primary tank. Plants below 500 pe will have sludge storage integral to the primary tanks. The primary settlement tank is equipped with baffles to prevent floating scum entering the biological phase of the treatment and WPL's unique forward feed system, which lowers the level in the tank during periods of low flow to provide a balancing volume for possible surges in the influent.
- After primary settlement the settled liquor is passed to the biological treatment unit, either by displacement at a controlled rate or via the air lift forward feed. The biozone is segmented internally to eliminate the risk of shortcuts and mitigate process risks associated with variable loads. The biozone segments are filled with high voidage plastic media where both carbonaceous and nitrifying processes

take place, eliminating the need for separate tanks. Air to oxidize the influent and to scour excess biomass from the filter media is introduced continuously below each chamber by a series of diffusers. Each diffuser is capable of being removed for maintenance without the necessity to shut down the plant.

- Following biological treatment the effluent flows into the secondary (Humus) settlement tank where the excess biomass settles out. The humus tank is equipped with air lift pumps which are arranged to automatically transfer settled humus sludges to the primary tank for co-settlement.
- The treated effluent flows under gravity to the works outfall.
- Air to oxygenate the effluent in the biological treatment chamber and operate the various airlifts will be provided by duty only or duty/standby air blower that is housed in a discreet acoustically lined kiosk, located above ground. This eliminates the need for any mechanical moving parts within the treatment plant, and provides safe and clean working access for maintenance.
- A Form 1 control panel also housed in the GRP kiosk will automatically control the operation of the plant.

Flow pattern through segmented biozone



Design Parameters

Dry Weather Flow = 200litres/head/day or other specified flows

Biochemical Oxygen Demand (BOD) = 60grams/head/day

Peak Flow to Treatment = plants designed for specified multiples of dry weather flow

Invert Depth = 0.5 to 1.5m

Discharge Standards = BOD 10mg/l : Suspended Solids 10mg/l (with tertiary treatment): Amm. Nitrogen 2mg/l



Housing development at Green Loaning, Scotland, 150 pe

This site was designed using an integral primary tanks, biological and humus settlement tanks, whilst incorporating fixed desludge pipes with Bauer connections. The Kiosk houses duty and standby compressors, Water Plc specified control panel and telemetry links.



Motorway S/S near Sutton Scotney, 1500 pe

This site incorporates separate primary, biological treatment and humus settlement tanks. It also has a separate sludge storage tank (RAD System) with aerobic sludge digestion to reduce tanker visits.

It has been designed to allow for the addition of extra treatment modules should activity increase at the service area or the consent standard tighten.

Blower Installation

Each Hi-PAF comes complete with blower, control panel (wired in accordance with the 16th Edition), air distribution manifold and a weatherproof/acoustic enclosure to protect it from outdoor conditions.

It can be supplied with either three or single phase electrics. Included is 10m of airline to connect between the blowers and the tank.

If the blower is sited further than 10m from the plant, blower and airline hose upgrades are available. Please contact WPL or your authorised distributor for advice.

Guarantee

The HiPAF sewage treatment range comes with a comprehensive two year guarantee on workmanship for the plant and 12 months on the blower.

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

WPL is recognised internationally as a principle designer and manufacturer of high quality package and turnkey sewage treatment systems, and grease management solutions.

It has over 14 years' industry experience and services an extensive customer portfolio comprising the UK's major water utilities, all areas of the commercial sector and the domestic market place.

The company's consistent focus on ecology, coupled with extensive research & development into new technology, have enabled it to far exceed all existing and proposed discharge consent standards enforced by the Environment Agency, SEPA and other regulatory authorities.

Delivery

Deliveries within mainland England, Scotland & Wales can normally be guaranteed between 8 to 12 weeks depending on factory loading. Please contact WPL if you have specific requirements.

Options include:

- Twin blowers for duty/standby operation
- Inlet invert depth from 0.5 to 1.5 meters
- Servicing contracts tailored to client requirements
- Tertiary treatment options for onerous consents and failing plants
- Separate sludge handling and sludge digestion to minimise tankering costs
- Volt free telemetry contacts on control panel
- Upgrades of existing works to meet changing loads or new consent standards
- Complete turnkey service via a preferred contractor including initial site survey
- Service and post commissioning analytical facilities



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