



NYMANIDA  
-5 AUG 2015

# HiPAF

The WPL HiPAF (High Performance Aerated Filter) is tailor-made to meet our customers' needs, combining versatility, efficient process design and low visual impact. The HiPAF is specified by Water Authorities throughout the UK and used in many commercial applications not connected to mains drainage.

The HiPAF system is available in three distinct formats:

- compact plant**  
1-60 Population Equivalent

From single house to 60 population equivalent, designed as a single cylindrical unit, containing primary, biological and secondary treatment tanks.
- midi plant**  
60-250 Population Equivalent

An all in one unit containing primary, biological and secondary treatment tanks. For larger developments up to 250 population equivalent.
- modular plant**  
250-3,000 Population Equivalent

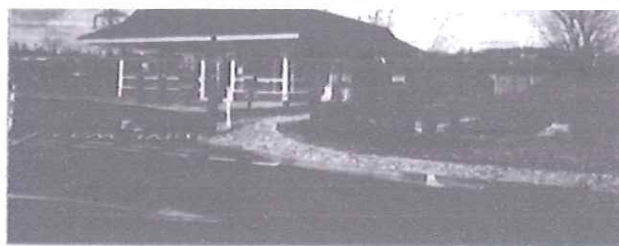
Individual primary, biological and secondary treatment units which can be used to construct very large treatment works economically - up to 3,000 population equivalent.



All these types of plant benefit from the unique HiPAF features and come complete with compressors, kiosk, control panel and air hoses to install and use straight away.

**benefits**

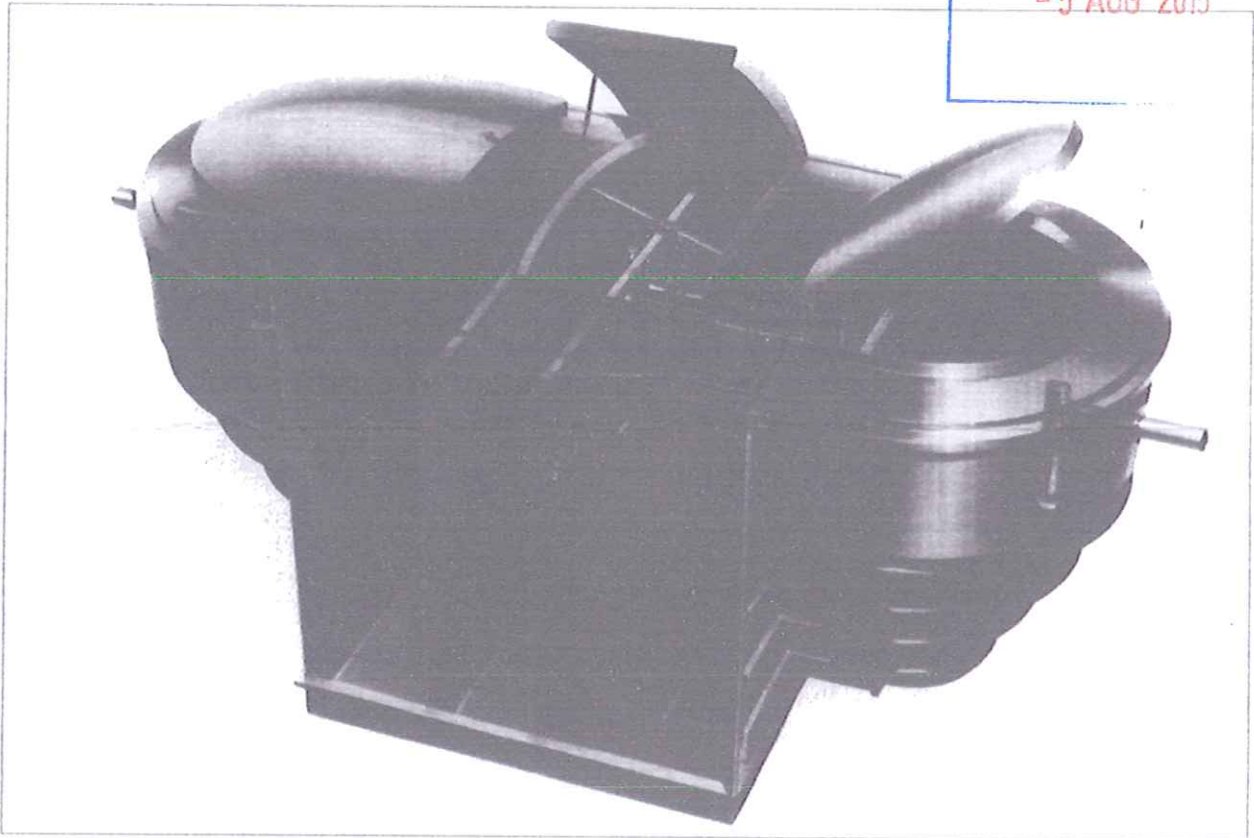
- Minimum visual impact
- Low maintenance and whole life costs
- Treats to the highest standards ie 10:10:3 BOD:SS:N
- Unique flow balancing in primary tank
- Copes with variable flows and loads
- Reliable operation with standby facility
- Each plant designed to customer requirements



## Process description

N/A

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The package treatment plant consists of a primary settlement tank, biological treatment module, 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 for maintenance and de-sludging. The package plant is also supplied complete with duty only air blower and control panel housed in a GRP kiosk, and 10m lengths of air hose.

The primary settlement tanks are designed in accordance with BS 6297, where it is anticipated 30% of the BOD load will settle out and there is sufficient volume for sludge storage. The primary settlement tank is equipped with baffles to prevent any floating scum entering the biological phase of the treatment, and with 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 influent flows under gravity to a number of biological treatment modules arranged in series. A submerged bed aerated filter by design, the module is split into several chambers, each filled with high voidage plastic media.

Within these chambers, both carbonaceous and nitrifying processes take place. 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. This tank is designed for an overflow rate of 0.9m per hour at full flow to treatment. It is equipped with air lift pumps which are arranged to periodically and, automatically, transfer settled humus sludge 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 is provided by a duty only air blower that is housed in an acoustic lined GRP kiosk.

A Form 1 control panel, also housed in the GRP kiosk, automatically controls the operation of the plant.