

# Conder<sup>®</sup>SAF

SUBMERGED AERATED FILTER



THE PARTNER OF CHOICE



# Sewage treatment plant for small and large scale projects

The Conder SAF Package Sewage Treatment Plant is the perfect solution for small and large scale projects, where a population range exceeds 25 and mains drainage is unavailable.

From housing developments and other small scale projects right up to larger commercial applications including caravan parks, leisure facilities, hotels, schools, offices and industrial situations, the plant will serve a population from 30 - 600 PE as a single stream unit.

Larger populations can be accommodated with multiple stream plants.

# Conder<sup>®</sup> SAF

## Superior Technical Performance

The highly successful Conder SAF is designed and tested in accordance with BS EN 12566-3, the British Water Code of Practice for Flows and Loads as well as being CE approved.

In standard configuration the plant offers treatment better than a 20mg/L BOD:30mg/L SS: 20mg/L NH<sub>3</sub> effluent quality standard with options for 10 or 5mg/L NH<sub>3</sub> effluent quality and improved BOD and SS quality.

## Complete Below Ground Installation

Premier Tech Aqua has designed the Conder SAF to have a minimal visual impact on site location. This includes complete below ground installation, though the range is adaptable and can provide an above ground treatment solution when needed. The plant also offers a quiet, odourless operation which is assisted by a compact design with no below ground moving parts.

## Low Costs

The Conder SAF offers superior technical performance at a competitive price, offering real value for money without compromising on quality. The plant is particularly quick and easy to install which results in low initial costs, but also uses reliable, cost effective and energy efficient blowers, for operation with an integral flow management system, providing an overall competitively priced product for the duration of its lifetime.

## Quality, Adaptable Design

Premier Tech Aqua has been the manufacturer of hundreds of Conder SAF installations across the world and has pioneered the development of package sewage treatment plants. The Conder SAF utilises a proven Submerged Aerated Filter (SAF) technology for optimum performance and dependability. The adaptable design offers the availability of pumped influent or effluent, deeper inverts and the availability of high nitrification options.

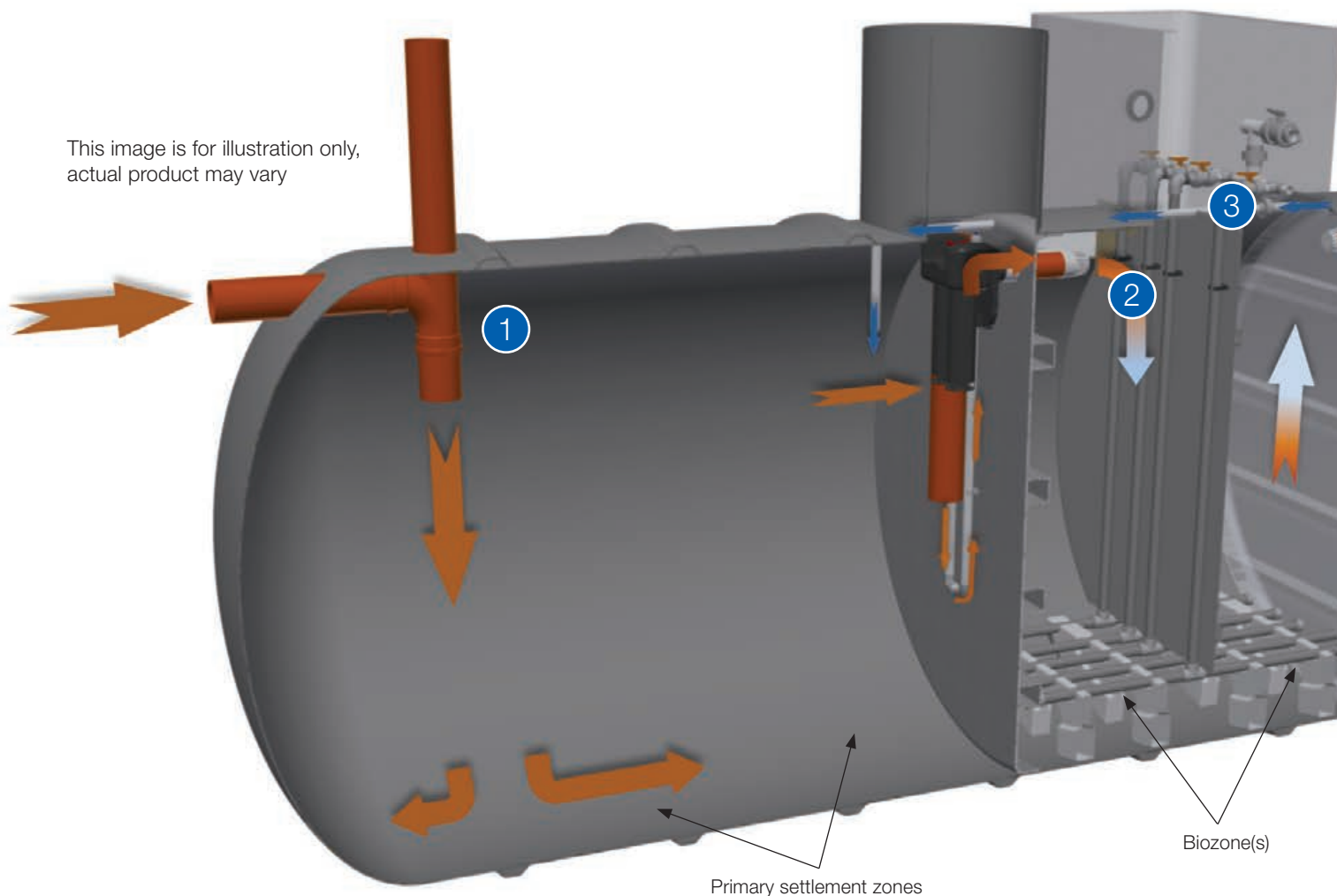
## How the Conder SAF Works

The Conder SAF Treatment Plant comes in four variations, dependant upon population size and application parameters.

- Unitank (singular tank)
- Semi Modular Tank (two tank system)
- Modular (three tank system)
- Multi Stream Systems (bespoke application design)

The tank(s) form three treatment stages; primary settlement, biological treatment (biozone) and humus settlement. Flow through all of the treatment stages from inlet to outlet occurs through gravity and integral airlift.

This image is for illustration only, actual product may vary



## Step 1

The incoming wastewater is received in the primary settlement zone which has two purposes;

- To remove the majority of the incoming settleable material
- To store this material (primary sludge) along with humus sludge until it is periodically removed by desludging.

## Step 2

Flow from the primary zone then passes through a built in impingement pre-filter, that prevents suspended solids from entering the biozone combined with forward flow entering the biozone. This is combined with forward flow into the biozone via an airlift which is controlled by a solenoid valve and timer. The biozone contains a number of sections, which contain loose plastic media. The high surface area of the media encourages growth of the bacteria and other organisms (biomass) which treat the wastewater.

## Step 3

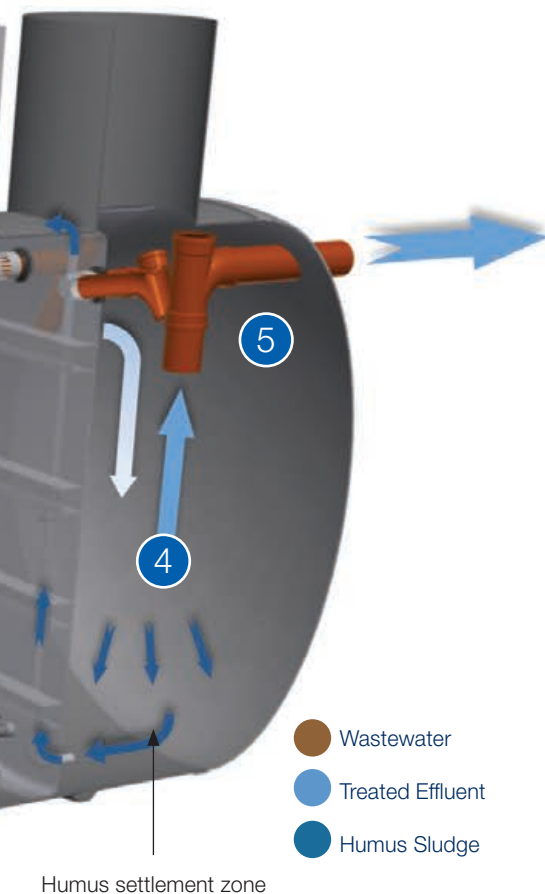
Air is then introduced below the media, by means of above ground blowers. This air fulfils the requirements for oxygen and also scours the media which removes excess biomass.

## Step 4

The combination of treated wastewater and excess solids is then transferred forward into the humus settlement zone. Here, the humus solids settle to the bottom of the tank with the treated water being discharged at the top. These heavier solids are recycled into the primary zone for an airlift which is control by a solenoid valve and timer.

## Step 5

The treated (final) effluent subsequently leaves the plant via the dipped outlet pipe. The movement of the fluid through the whole system is by gravity displacement. The option for a final clear effluent pumped discharge is available.



## Plant Kiosk

Conder SAF products are provided with a mild steel kiosk. This kiosk houses the aeration blowers, timer valves and the electrical control panel.

The electrical control panel provides all the required electrical equipment for the starting, running and monitoring of the plant. The control panel can be adapted to accommodate other mechanical and electrical devices associated with the plant, for example a final effluent pump station or UV disinfection.



This image is for illustrative purposes only, actual product may vary.

The kiosk is fitted with an alarm beacon as standard and can be provided with telemetry for remote plant monitoring. Other innovative features include thermostatic cut off controls and air filter monitoring to extend blower life.

### Standard Features Include:

- Integrated air filter – draws in fresh air from the outside and filters any particles to protect the blower
- Pressure switch - air filter benefits from a pressure switch which monitors any pressure drop across the filter
- Blower pressure monitoring and protection – if a high pressure is detected, the blower will shut down and the alarm beacon will flash to notify the operator
- Automatic shut down and restart when high temperature is detected

# Specifications

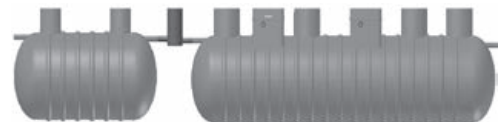
The tables below can be used as a specification guide in choosing the correct Conder SAF Treatment Plant for your project. All applications should be specified to comply with the British Water Code of Practice for Flows and Loads. Further advice and assistance is available from our experienced internal and external sales teams prior to installation. Site visits and assessments are recommended for all plants to ensure the correct equipment is proposed for each application.

## Unitank SAF System



Product Reference	Primary Settlement/ Biozone/Humus Tank		Dry Weather Flow (DWF) (m <sup>3</sup> /day)	Max Load Per Day		
	Tank Diameter (m)	Overall Length (m)		BOD (kg/day)	NH <sub>3</sub> (kg/day)	Desludging Interval
CSAF 30 N20	1.8	4.79	6.0	1.8	0.24	120
CSAF 35 N20	1.8	5.40	7.0	2.1	0.28	120
CSAF 40 N20	1.8	6.10	8.0	2.4	0.32	120
CSAF 50 N20	1.8	7.50	10.0	3.0	0.40	120
CSAF 60 N20	2.5	4.25	9.0	3.6	0.48	90
CSAF 60 N10	2.5	4.85	9.0	3.6	0.48	90
CSAF 60 N05	2.5	5.46	9.0	3.6	0.48	90
CSAF 75 N20	2.5	4.81	11.3	4.5	0.60	90
CSAF 75 N10	2.5	5.57	11.3	4.5	0.60	90
CSAF 75 N05	2.5	6.32	11.3	4.5	0.60	90
CSAF 100 N20	2.5	6.28	15.0	6.0	0.80	90
CSAF 100 N10	2.5	7.28	15.0	6.0	0.80	90
CSAF 100 N05	2.5	8.28	15.0	6.0	0.80	90
CSAF 125 N20	2.5	7.78	18.8	7.5	1.00	90
CSAF 125 N10	2.5	9.03	18.8	7.5	1.00	90
CSAF 125 N05	2.5	10.29	18.8	7.5	1.00	90
CSAF 150 N20	2.5	9.26	22.5	9.0	1.20	90
CSAF 150 N10	2.5	10.77	22.5	9.0	1.20	90
CSAF 150 N05	2.5	12.27	22.5	9.0	1.20	90
CSAF 200 N20	2.5	11.00	30.0	12.0	1.60	60
CSAF 200 N10	2.5	13.00	30.0	12.0	1.60	60
CSAF 200 N05	3.0	10.66	30.0	12.0	1.60	60
CSAF 250 N20	2.5	13.67	37.5	15.0	2.00	60
CSAF 300 N20	3.0	11.81	45.0	18.0	2.40	60

## Modular Two Tank System



Product	Primary Tank			Biozone Tank		Dry Weather Flow (DWF) (m <sup>3</sup> /day)	BOD (kg/day)	NH <sub>3</sub> (kg/day)	Desludging Interval
	Tank Ref:	Tank Diameter (m)	Length (m)	Tank Diameter (m)	Length (m)				
CSAF 250 N10	PT27	2.5	5.590	3.0	8.26	37.5	15	2.0	60
CSAF 250 N05	PT27	2.5	5.590	3.0	9.94	37.5	15	2.0	60
CSAF 300 N10	PT32	2.5	6.970	3.0	9.80	45.0	18	2.4	60
CSAF 300 N05	PT32	2.5	6.970	3.0	11.82	45.0	18	2.4	60
CSAF 350 N20	PT36	2.5	7.762	2.5	11.95	52.5	21	2.8	60
CSAF 350 N10	PT36	2.5	7.762	3.0	11.33	52.5	21	2.8	60
CSAF 350 N05	PT36	2.5	7.762	3.0	13.69	52.5	21	2.8	60
CSAF 400 N20	PT40	2.5	8.600	3.0	10.17	60.0	24	3.2	60
CSAF 400 N10	PT40	2.5	8.600	3.0	12.87	60.0	24	3.2	60
CSAF 500 N20	PT50	2.5	10.880	3.0	12.58	75.0	30	4.0	60

## Modular Three Tank Systems



Product	Primary Tank			Biozone Tank		Humus Clarifier Tank			Dry Weather Flow (DWF) (m <sup>3</sup> /day)	BOD (kg/day)	NH <sub>3</sub> (kg/day)	Desludging Interval
	Tank Ref:	Tank Diameter (m)	Length (m)	Tank Diameter (m)	Length (m)	Tank Ref:	Diameter (m)	Length (m)				
CSAF 400 N05	PT40	2.5	8.60	3.0	12.00	HM22	2.5	5.005	60.0	24	3.2	60
CSAF 500 N10	PT50	2.5	10.88	3.0	11.33	HM30	2.5	6.265	75.0	30	4.0	60
CSAF 600 N20	PT60	2.5	12.95	3.0	9.31	HM35	2.5	7.755	90.0	36	4.8	60

# Multi Stream Systems

For larger applications Premier Tech Aqua's engineered solutions division offer multi stream systems to meet specific application requirements.

The number and sequence of streams/tanks will be selected by our experienced sales and technical team to meet specific customer requirements. Detailed involvement at an early stage is a must for these applications.



# Above Ground Systems

All of the standard and bespoke Conder SAF solutions can be manufactured for above ground installation, please contact the Premier Tech Aqua sales team for more information.



# Installation

The Conder SAF Package Sewage Treatment Plant requires a relatively low cost and easy installation process. All Conder SAF plants can be manufactured to allow installation with either granular or concrete backfill, with granular backfill providing significant reductions in installation costs.



Premier Tech Aqua work closely with a nationwide network of installation partners and detailed installation guidelines are provided for each product.

All electrical work should be carried out in accordance with current regulations (for example NIC/EIC/Building Regulations).

# Peripherals

- Access shafts (for deeper pipework inverts)
- Acoustically lagged control kiosks
- Hot climate kiosk
- Client specified control panel
- Standby blower
- Client specified control kiosk
- Sample chamber
- Phosphate reduction
- UV Disinfection
- Scada/Telemetry
- GMS Dial Out
- Tertiary Treatment with coco filter technology
- Heavy-duty covers
- Final effluent pump station to overcome discharge level issues
- Feed pump stations

# Servicing

Premier Tech Aqua recommend that a maintenance agreement is taken out to service the plant. Regular desludging (emptying) of the Primary Tank is also needed to ensure consistent operational efficiency. This should take place at intervals between 60 – 120 days, depending on the size of the plant and the plant loading (see tables within specification section). Premier Tech Aqua can provide access to a nationwide network of British Water Accredited service partners who can offer a comprehensive range of servicing including commissioning and on-going service contracts. Please contact the Premier Tech Aqua sales team for further information.