



Screens

Utility and Industrial: Bug, Screw, Drum and Clic-Clo microscreens



The right screen for the right job

WPL provides a selection of coarse, preliminary and tertiary screens to compliment its existing range of wastewater process equipment, designed to be used on small to medium size applications for both municipal and industrial purposes.

The table below provides brief technical details, suggested applications and advantages for each type of screen, to guide the potential user towards the appropriate type of screen for their particular site.

Some non-standard sizes are available by request, further details and advice can be obtained from WPL Sales Engineers on **0845 450 4818**.

Objectives of a screen

- Prevent damage to downstream processes
- Improve efficiency of downstream processes
- Reduce contamination to watercourses
- Elimination of material that inhibits recycling

Considerations for selection of a screen

- Flow – average and maximum variation
- Type of effluent – storm, industrial, municipal
- Sewer type – long sewers result in heavy flushes of rags
- Degree of screenings removal required – screen aperture
- Type of cleaning required – manual, automatic
- Availability of power and wash water
- Health and safety – screenings contain pathogens and attract insects
- Handling, transport and disposal requirements

Our range of screens - at a glance:

Screen type	Screen aperture	Process performance (l/sec)	Approx. dimensions (mm)	Industry application	Key features
INLET Bug Screen Preliminary Screening	3 mm 6 mm	10-56	L: 1,300-1,420 W: 680-2,160 H: (approx) 1,700	Municipal plants Industrial applications Temporary and transportable applications	Above ground Transportable unit Temporary or permanent Automatic cleaning Low cost installation Low operational costs Reliable and durable Storm overflow bypass incorporated
INLET Screw Screen Preliminary Screening	3 mm 6 mm 12 mm	7-45	CS or CSP Series Channel depth: 600-1,500 Channel width: 200-800	Smaller municipal WwTW	Option to install above (steel cabinet) or below (gravity flows) ground Small footprint Shallow canal & deeper invert models available De-watering/Compactor optional Automatic cleaning (2yr brush life) Low maintenance
TERTIARY Clic-Clo microscreen	20 µm 30 µm 40 µm 60 µm 80 µm	2-260	FB Series L: 1,200-5,550 H: 900-2,000 W: 550-2,000	Municipal plants Paper and pulp Fish farms Zoos Textile industry Food and drink	Option to install above (steel cabinet) or below (gravity flows) ground Below ground channel mounted Above ground skid mounted Temporary or permanent solutions Pumped or gravity flows Easy maintenance No water supply needed Low electricity usage
INDUSTRIAL Drum Screen Primary or Tertiary Screening	0.25 mm 0.50 mm 0.75 mm 1.00 mm 2.00 mm 2.50 mm	3-850	RC & RS Series Drum diameter: 300-900 W: 1,000-2,500	Agricultural Fish processing Paper and pulp Food and drink	Automatic backwash system Good quality wedge wire screen Above ground skid mounted Emergency overflow Pump flow or gravity feed Optional screen press for de-watering and thickening
Additional Equipment	screen press/de-watering equipment transportation conveyors sluice gates thermal insulation				

Clic-Clo microscreen TERTIARY SCREEN

The WPL microscreen is an established solution for utility and larger municipal applications where tertiary solids and BOD removal is required. Recently, the new Clic-Clo model has been developed and is designed to improve whole life costs, by providing a cartridge based screen cloth that can easily be fitted within minutes, removing the need for time consuming cloth maintenance activities.

Microscreens are designed to receive pumped or gravity flows, and the unique design of the drum filter maximises the surface area of the filtration cloth to achieve high removal efficiency with extremely low operating costs.

Used on a variety of utility and municipal wastewater treatment plants as either permanent or temporary additions to existing process units, they are ideally configured to be used as retrofit items of kit where

the existing works is failing discharge consent conditions.

The Clic-Clo microscreen can handle flows of 3–200 l/s and has already been installed in more than 75 permanent utility applications throughout the UK.



Clic-Clo microscreen features

- The Clic-Clo microscreen can be installed:
 - above ground** in a stainless steel cabinet
(protects the unit from debris, leaf fall and provides sound attenuation)
 - below ground** in a precast channel when considering a gravity flow
- **Skid mounted** option available for above ground units
(can be hired for temporary use, or for pilot trials to ensure suitability for a client's need before purchase)
- **Control panel** can be provided with a **form 2** or **form 4** panel
(to accommodate particular electrical specifications, and can be connected to telemetry)
- Clic-Clo microscreen now features a **cartridge based cloth/filtration** system
 - "One-size" cartridge fits all models
 - Reduces spares stockholding
 - Polyamide or stainless steel cloths can be fitted
- System can be provided with a range of **inter-changeable cloth cartridges** from 20 microns upwards
(to provide flexibility on flow vs flux and cater for more stringent solids consents)
- A **robust** and **low maintenance** system
 - no chemicals required for cloth maintenance
 - minimal weekly interval checks required
- Integral pumped backwash system **fitted as standard**
(backwash wastewater can be discharged via an integral pumped or gravity outlet)
- **Low head loss** through the system
(low power consumption eg: a 20 l/sec typical application consumes 0.3kw/hr)
- **Fully automated** system
(process is uninterrupted during the backwash cycle)



In addition, the Clic-Clo microscreen is:

- Competitively priced
- Tried and tested across numerous water utility and industrial sites
- Backed up by WPL's engineering experts providing a dedicated after sales service

Clic-Clo microscreen - how does it work?



Key to schematics:

1. inlet
2. outlet
3. water level sensor
4. filtration drum
5. backwash pipes
6. drive
7. cover
8. filtration cartridge

Type	Filtration area (m ²)	No. of cartridges
1FB	0.50	7
2FB	1.26	18
3FB	2.52	36
4FB	4.20	60
5FB	6.30	90
6FB	8.82	126

- Process water flows through the inlet pipe into the interior part of the drum filter
- Impurities are caught on the inside of the filter cloth and filtered water flows out through the cloth
- The filter remains off during this initial stage, but as the filter cloth becomes soiled the resistance to flow through the filter increases and the water level rises
- When the rising water reaches a probe, a back wash cycle is activated and the drum is rotated so that a clean section of cloth presents itself to the influent wastewater
- Simultaneously, a jet of filtered water is directed at the soiled portion of the cloth
- The solids are washed off into a trough located in the centre of the drum, flow into a wet well and are pumped back to the beginning of the works for re-treatment
- Because the clean cloth allows a greater flow to pass, the level of process water in the drum will diminish until the level probe automatically turns off the backwash cycle
- The flow of process water remains uninterrupted during the whole backwash cycle and there is no necessity for a separate supply of water for the backwash operation
- The automatic activation and de-activation of the filter minimises the amount of power needed for operation, increasing the average quality of filtered water and the density of the out flowing sludge, whilst prolonging the lifespan of the entire apparatus

Clic-Clo microscreen indicative example 1:
maximum in-flow capacity with TSS @ 25 mg/l max

Filter type	Capacity filter with 60 micron	Capacity filter with 40 micron	Capacity filter with 30 micron	Capacity filter with 20 micron
1FB	9 l/s	7 l/s	5 l/s	3 l/s
2FB	25 l/s	15 l/s	10 l/s	6 l/s
3FB	55 l/s	42 l/s	30 l/s	20 l/s
4FB	110 l/s	85 l/s	60 l/s	45 l/s
5FB	135 l/s	106 l/s	75 l/s	56 l/s
6FB	260 l/s	220 l/s	150 l/s	110 l/s

Clic-Clo microscreen indicative example 2:
maximum in-flow capacity with TSS @ 40 mg/l max

Filter type	Capacity filter with 60 micron	Capacity filter with 40 micron	Capacity filter with 30 micron	Capacity filter with 20 micron
1FB	7 l/s	5 l/s	3 l/s	2 l/s
2FB	20 l/s	13 l/s	8 l/s	5 l/s
3FB	50 l/s	38 l/s	30 l/s	17 l/s
4FB	100 l/s	77 l/s	55 l/s	35 l/s
5FB	125 l/s	96 l/s	69 l/s	44 l/s
6FB	230 l/s	200 l/s	130 l/s	90 l/s



Case studies

Leintwardine, Severn Trent Water – 5 BMF 10 “O” series

Severn Trent Water requested a proposal from WPL in 2009 to supply a microscreen. The application was to utilise the microscreen as a tertiary suspended solids polishing plant.

A microscreen was chosen as the preferred solution due to its compact size, low maintenance regime, minimal mechanical and electrical installation requirements and plant reliability.

Low carbon footprint and zero chemical cleaning requirements were also key factors within their decision making. The sewage works effluent quality was comfortably achieved with results sub 10 mg/litre being regularly observed.



Bispham Green – United Utilities – 2FB Clic-Clo microscreen

Bispham Green Sewage Works is an existing, relatively small treatment plant, located within the United Utilities region. Installed approximately 10 years ago, the effluent discharged from the treatment plant had occasionally suffered high biochemical oxygen demand levels which were linked to high suspended solids.

Although several alternative solutions were trialled WPL's new Clic-Clo microscreen was chosen as a permanent tertiary treatment solution. Retro fitting the microscreen within the existing treatment facility was easily achieved using a skid-mounted, above ground system. WPL worked closely with

United Utilities operational staff to ensure all electrical and mechanical considerations were taken into account.

These included offering a bespoke control panel, building the plant to suit the orientation of the existing plant layout and provided electrical outlet sockets to accommodate pumped and recirculation flows.



WPL inlet and industrial screens

Drum screen

The rotary drum screen is designed for separation of screenings from industrial and municipal wastewater effluent, and particularly for water containing viscous and fibrous elements, the unit can be fitted with (optional) compacting and de-watering equipment.

Flow is delivered by pump or gravity to the inlet section where turbulence is reduced in quiescent conditions in the inlet tank. Flows enter the cylindrical drum (out to in) through a high quality wedge wire screen, periodically cleaned by a skimming plate. Screenings fall into a hopper, which can be fitted with a compacting screw conveyor.

Typical flow rates of 3-850 l/s, with mesh sizes varying between 0.25 and 2.5mm.

Advantages:

- Stainless steel construction, including sieve
- Variety of applications
- Suitable for viscous and fibrous screening
- Optional de-watering and compaction in the same unit
- Can be skid mounted for portable applications



Inlet screw screen

Screw screens are a good general purpose inlet screen, designed for small and medium sized wastewater treatment plants. The screen is supplied for below ground installation in a concrete channel, or in a stainless steel tank where a concrete channel is not required.

Maintenance is simplified by a unique pivoting system that allows the unit to be raised out of the housing or channel for cleaning. The outlet pipe can be rotated through 300 degrees to suit the site configuration with regards to screen storage. The unit can be fitted with optional de-watering and compaction equipment.

Advantages:

- Concrete channel or stainless steel tank
- Adjustable screen rod dimensions
- Screens can be supplied for deep inverts
- Low wash water and power requirements



Mobile or Emergency Treatment

- If your site has a problem that requires immediate tertiary treatment, why not use one of our mobile units?
- Please contact WPL for further advice or if you would like to hire one of these units.

0845 450 4818

Inlet bug screen

The WPL above ground circular bar screen has been developed as a mobile/temporary unit for pre-treatment of municipal and industrial wastewater. It removes fine solid impurities larger than 3 or 6mm, depending on the chosen screen aperture. It also removes grit up to 50mm, sand larger than 3 or 6mm, grease, fibres, and textiles.

The unit is equipped with an integrated bypass, which mitigates the risk associated with power failure or other damage to the fine screen. The unit is further equipped with an easy-to-open laminated cover, fitted with a "deadman switch" cut-out arrangement for safety.

Technical Details:

3 or 6mm bar spacing in one dimension
10–56 l/s flow, depending on bar spacing, width and unit size.

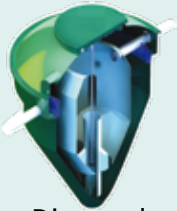
Advantages:

- 304 Stainless steel and plastic components in tank
- Low installation costs – above ground construction
- Durable & suitable for transportation
- Can be skid mounted
- Fine mesh bypass - storm overflow prevents overloading
- Compact to suit most site applications
- Can be controlled by PLC



Other WPL Products

Wastewater Treatment Plants



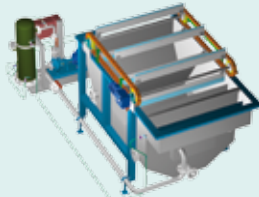
Diamond



HiPAF Modular



Hire Fleet



Industrial Effluent Treatment

Rainwater Harvesting



RainRetain (Domestic)



RainRetain (Developers)



RainBrain (Schools)



RainSustain (Commercial)

Other Products & Services



Grease Guzzler



Maintenance Contracts

Installation, Service and Maintenance

Each WPL screen is supplied with an installation manual and an operation and maintenance manual. WPL can provide on-site mechanical and electrical installation, setting to work and commissioning of the unit.

Civil installation of the units can be arranged through a nominated contractor.

Guarantee

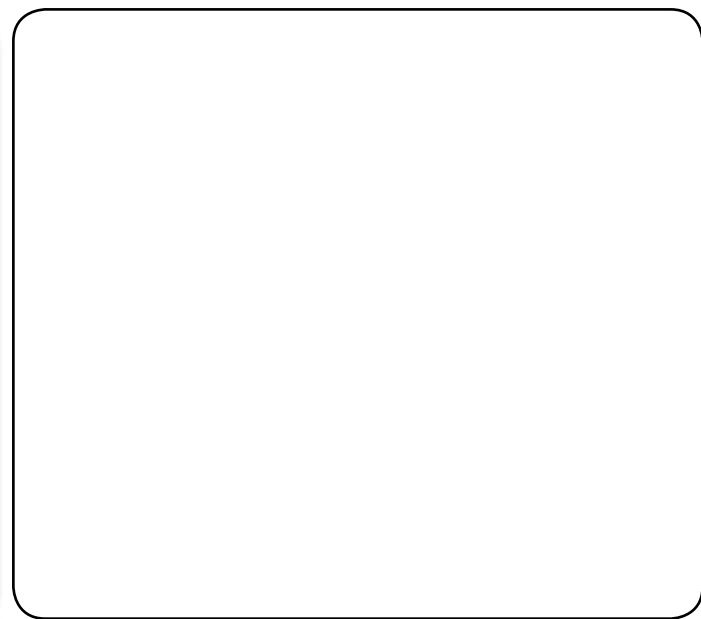
Please see the product pages for more information.



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Where to buy WPL products



About WPL Limited

WPL Limited provides 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.

