

Press Release

Cross filter package introduces water recycling for road sweeping vehicles

A water treatment package built around Cross automatic backwashing filtration technology will enable recycled water to be used instead of mains water in the road sweeping vehicles at a UK international airport.

Surface water from the airport flows into a perimeter-sited lake before treatment and drainage into a stream. Raw water from the lake is already used in the airport's fire tenders and with the new treatment plant can also be safely used in the sweepers. Treatment is necessary for this application in order to remove particles that can block the spray bar nozzles on the sweepers and to eliminate any risks from harmful bacteria including legionella.

The Cross-designed treatment plant – comprising the filter, Ultra-Violet (UV) disinfection equipment, pumps, valves, controls and stainless steel pipework – is contained within a compact weatherproof housing. Operation is fully automatic under PLC control. Water from the lake is pumped into the Cross Phoenix filter, which removes all solid particles above 50 microns, and through the UV treatment tube before filling an adjacent 35000 litre storage tank. When the tank is full the supply from the lake is shut-off and water from the tank re-circulated through the filter and UV tube. The system is designed to switch between the re-circulating and tank filling circuits as the water is used, without interruption to the sweeper vehicle filling operations.

As the road sweeping vehicles are in constant use in the airport's aircraft standing and apron areas the new package will provide significant savings in the cost of mains water usage. At the same time the new plant is centrally sited, saving the vehicles the repeated long journeys across the airport that used to be necessary in order to reach the mains water fill-up area.

END

Background notes

Central to Cross filtration technology is an ingeniously designed “zero-gravity” stainless steel coil with raised nodes on the surface which define a precise filter rating. The coil is manufactured using techniques that Cross has developed through its activities in the aerospace industry, where the company is recognised as a market leader in turbine heat sealing technologies. Manufactured in seven ratings between 12 and 400 microns, the “zero-gravity” coil is designed to open very slightly and evenly along its entire length when the liquid flow across it is reversed during backwashing, ensuring that the build-up of particles is completely washed away.

Cross filter systems are tailored to suit any size of duty by simply adding enough “zero-gravity” coils to match the required flow capacity. In the case of the Phoenix filter, six coils are fitted in a specially designed stainless steel housing that creates a cyclonic flow path for the water passing through, helping to keep suspended solids away from the surface of the coils and therefore extending the length of time before a backwash is required. The coils are backwashed individually in sequence and therefore forward flow is always maintained, removing the costly requirement for a redundant standby filter and simplifying the overall installation.



General view of the Cross water treatment package.



*Main components of the package, left to right:
Vehicle filling pump
Ultra-Violet disinfection tube
Cross Phoenix automatic filter
Inlet isolating valve (red actuator)
Re-circulating circuit pump
Control panel*



The “zero-gravity” coil that is central to Cross filtration technology. In this example, any particle larger than 200 microns is unable to pass between the coils, which open evenly along their entire length during backwashing to completely remove the build-up of debris.