
Innovative filter system added to Bristol City Council's air conditioning

Bristol City Council have installed an innovative filter system designed by Cross Manufacturing to clean up the water in the air conditioning circuits at the city centre Council House.

Council engineers had been experiencing problems with the chiller plant strainers, which were becoming blocked with sediment and particles carried in the air conditioning pipework. Although the problem could be solved by flushing out the pipework, this would be a laborious task after which the sediment would begin to build up again. The council engineers therefore decided to adopt a solution that offers a permanent cure.

The Cross Forced Sedimentation filter is a specially designed package that can be retrofitted to existing circuits or fitted as original equipment on new plants. The system causes sediment to collect in a velocity-free sump, from where it is pumped for filtration. This has the advantage of filtering out the sediment at a greatly increased concentration that would be found in the pipework itself, thus reducing the size of the filtration equipment required as well as speeding up the entire removal process.



Filtration is performed by a Cross Winchester filter, which uses a separate water supply for backwashing to ensure that any water treatment regime in the pipework does not become diluted. Backwashing is triggered by measuring the increased pressure drop across the filter elements caused by the build-up of debris, backed up by a programmable timer and manual override. The filter elements consist of patented Cross 'zero gravity' coils, manufactured from stainless steel and normally guaranteed for five years' operation. Raised ridges on the coil surface determine a precise filtration gap, selectable between 400 and 12 microns, enabling a coarse filter rating to be initially used on badly fouled circuits, which can be replaced with a finer rating once the bulk of the contamination has been removed.

One of the reasons for installing the new Cross filter at the Bristol Council House is the successful use of a larger Cross filter on another part of the air conditioning plant. A large ornamental moat outside of the building is used as the source of cooling water for the chiller plant. Because the water in the moat is vulnerable to high levels of contamination contingent with its city centre location, it has always been necessary to filter it at the point of extraction. This arduous duty is performed by a Cross System 2000 filter system, installed in 1999 to replace an earlier Cross filter that had been in continuous operation for ten years.
