

# purite RO system

helps South Tyneside District Hospital meet  
the growing need for endoscopy services



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### A crucial role

A custom engineered water purification system, manufactured by Purite, is playing a crucial role as part of a new endoscopy suite at South Tyneside District Hospital. The new suite has been opened to meet the growing demand for endoscopy services and will help the hospital increase the throughput of endoscopes and quality of reprocessing that it is able to provide across the South Tyneside, Sunderland and Gateshead areas.

Mark Roberts, Estates Manager for South Tyneside District Hospital, explains, "The increasing pressure on our endoscope reprocessing department, combined with the fact that our various systems were reaching the end of their operating life, prompted us to develop the new endoscopy suite. Previously, we had four washer disinfectors with limited throughput. These were supported by an old Purite water purification plant, which had always been reliable but had been in service for well over ten years and was slowly becoming obsolete."

At the heart of the new endoscopy suite are eight of the latest Cantel RAPIDAER endoscope reprocessors (AERs). These compact, single chamber machines with external

scope loading are capable of running a complete cycle in just 20 minutes, enabling the decontamination team at South Tyneside District Hospital to improve significantly the throughput of disinfected instruments.

Each machine requires 135 litres per hour (45 litres per cycle) of high purity water that meets HTM 01-06 criteria, but has a peak flow demand of 30 litres per minute. This places considerable pressure on the water purification plant, which needs to be sized correctly to ensure that it is capable of providing sufficient peak flow to meet the needs of multiple AERs running simultaneously.

Mark Roberts highlights the importance of this point, "In practice, we never run all 8 machines at the same time. However, we work to a diversity figure of 75%, so it's crucial that we are able to maintain a high peak flow whenever it's needed, to eliminate the risk of a reprocessor cycle failing. This point is often overlooked by suppliers when specifying water purification systems and can have a major impact on the operation of an endoscopy unit."



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### Water purity

The Purite system is installed in a separate plant room and has been designed to provide a water supply to meet HTM 01-06 criteria, ensuring a neutral pH, conductivity below  $30\mu\text{S}/\text{cm}$  at  $35^\circ\text{C}$ , endotoxin levels less than  $0.25\text{EU}/\text{ml}$  and a total viable count below 10 cfu per 100ml. With no environmental mycobacteria or pseudomonas aeruginosa detected in 100ml samples.

This level of water purity is achieved and consistently maintained by a custom engineered and integrated water purification plant, designed to fit within a relatively small area in the plant room.

A mains supply is fed into a raw water break-tank, from where it passes through variable speed boost pumps to a combined base exchange softener and organic scavenger. Softened water is then fed through a back-washable Carbon filter, which uses activated Carbon to minimise the levels of free Chlorine, before passing through 5-micron filters and into two Purite Elite Plus reverse osmosis systems; operating duty standby.





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From the RO units, the purified water is fed to a stainless steel purified water storage and recirculation tank. Water is then supplied via variable speed distribution pumps, through an in-line UV disinfectant and 0.2-micron filters. The distribution pipework is constructed from orbitally welded stainless steel and is automatically heat sanitised at regular intervals; this is normally twice a week.

The system is designed to provide full redundancy with duplex boost and distribution pumps and RO units. Variable speed pumps are used to maximise energy efficiency and meet the variable demand from the AER's.

The complete system is controlled from a control panel within the plant room incorporating HMI display of system status and alarm conditions with outputs to a mimic panel within the endoscopy department and connection to the building management systems (BMS).

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Mark Roberts concludes, "We've worked with the team at Purite for many years and they've always provided an outstanding standard of support. For example, our local service engineer has been excellent, for both routine maintenance and, whenever we've needed it, emergency support, with a rapid response. This is one of the key factors that sets the Purite team aside from other companies that we've worked with and was a key factor in choosing them for the new installation."

With our new endoscopy suite and water purification system, plus the reassurance of dedicated technical support, we're now able to offer a faster and even more efficient service than ever before. This will benefit our colleagues in clinical departments throughout the hospital and, as a result, our patients from across the South Tyneside region."

### Contact



### Contact

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