



Water Purification Solutions  
for Healthcare Providers

“... From the word go our efficiency and capability within the department increased, and following installation, we can now handle over 250,000 items [running through our equipment] per year ... that’s good news for our Trust, the NHS, and our patients.”



## Introduction

### Pure water matters...

Sterile Services Departments and Endoscope Reprocessing Teams are central to ensuring that reusable surgical equipment is rigorously cleaned and sterilised to exacting standards. In a time when multi-drug resistant bacteria are making the headlines, patient numbers are increasing and tougher new cleanliness regulations are being introduced, the work of these teams has never been more important. There is no room for error when preparing surgical equipment and downtime in these departments has costly consequences, including operation cancellations.

To run at high standards and maximum efficiency, all sterilisation and disinfection equipment relies on a supply of clean, pure water, free from particles, bacteria and dissolved contaminants. **Envirogen provides reliable reverse osmosis water for decontamination**, supplying all makes and models of endoscope washers, washer-disinfectors and sterilisers to ensure optimal cleaning reliability and reduced downtime.

### Reliability you can trust

We provide purification systems for NHS and private hospitals across the UK and work with the biggest decontamination equipment manufacturers across the world, delivering some of the best purification and dispense rates in the business.

Whether you're operating a satellite endoscopy department or running a large multi-washer Sterile Services Department, we offer the best pure water solutions to feed:

- Automated Endoscope Reprocessors (AER)
- Washer-disinfectors
- Sterilisers

Accessing a whole range of water purification technologies including:

- Reverse Osmosis (RO)
- Ultrafiltration
- UV photo oxidation
- Ion Exchange
- Particulate filtration

From small prefabricated systems for the endoscope reprocessing room to large scale systems for the Sterile Services Department, we design and install the perfect solution.

## Decontamination: AER feed solutions

### EndoTherm: pure water supply for Automated Endoscope Reprocessors

Endoscopes are expensive and delicate medical devices, but their frequent use and invasive function mean that they must be cleaned quickly and thoroughly with the use of an Automated Endoscope Reprocessor (AER). These advanced machines clean endoscopes to extremely high standards. Without the benefit of high sterilising temperatures, a supply of high quality purified water is crucial to the performance of these machines. Only the purest water can ensure that endoscopes are thoroughly disinfected preventing cross-contamination.

Our EndoTherm water purification systems supply purified water for AERs. They are recommended by many AER manufacturers due to the high water quality achieved meeting past and current standards, including HTM 2030 CfPP01-06, HTM01-06, EN ISO 15883 and C32.

### EndoTherm: designed with you in mind

The EndoTherm requires only a potable water feed to produce purified water, removing ions, particles and dissolved contaminants, bacteria and endotoxins. All this on demand and fed straight into your AER at fast flow rates.

We know that space is often limited in endoscope reprocessing areas, so we have designed the EndoTherm with this in mind. The EndoTherm is a prefabricated total water purification system combining a whole range of decontamination processes in one easy to install, slimline cabinet.

### A model to suit every process

We supply a range of EndoTherm systems to meet every demand. Whether you have one AER or multiple washers we can size an EndoTherm to meet your requirements.

- **EndoTherm Mini** – our small footprint model, simplex system, with a single RO stream for supply to single or multiple washers - various outputs are available.
- **EndoTherm Duo** – with a duplex RO system - one stream can be fully functional during ongoing maintenance and servicing, providing uninterrupted supply – various outputs, models and options are available.



**If you have a very large water requirement, then our bespoke water solutions may be the best option. See page 6 for more details.**

## EndoTherm: Pure water the Envirogen way

### Reverse Osmosis system

#### Process

Using a semi-permeable membrane, ions, solid and colloidal particles, bacteria and other dissolved molecules are removed.

#### Result

Purified water meets the latest government water quality standards - HTM 01-06.

### Duplex RO process

Duplex system ensures continuity of service. One RO process is always available, even during maintenance.

High recovery rates mean that waste water streams are reduced.

### Ultraviolet treatment

#### Process

Bacteria are denatured and Colony Forming Units (CFU) removed.

#### Result

Total Viable Cell (TVC) count is reduced to less than 1 CFU/100ml.

### Ultrafiltration

#### Process

Endotoxins are removed through 0.04 micron filters.

#### Result

Gram-negative bacterial endotoxins are removed.

### Small footprint

The EndoTherm Mini is only 550mm wide, 600mm deep and 1980mm high, often resulting in reduced pipework costs as positioning next to washer could be possible.

### Buffer tank

Perfect for peak usage periods. Stainless steel buffer tank provides a clean and safe supply.

### Immersion heater

For automatic thermal sanitisation out of hours.



Remote wall-mounted alarm indicator



PLC controller with colour touch screen HMI for easy system programming

## You're in control

Every EndoTherm is powered by a PLC with a user-friendly HMI display. All functions of the system can be programmed, with secure access granted via a PIN system to ensure settings are protected. All data is downloadable to USB providing a clear record of sanitisation procedures and any alarms triggered.

Remote alarm indicators are available for reliable monitoring, even when the EndoTherm system is located away from the AER.

**“Since the EndoTherm installation, we have not had to cancel any operations. It really has been a breath of fresh air.”**

**Andy Jones, Hospital Manager,  
Fairfield Independent Hospital**

## Decontamination: SSD solutions

### Pure water supply for Sterile Services Departments

We know that Sterile Services Departments (SSDs) are busy production lines, processing hundreds of sets of surgical equipment a day, with the precision and attention to detail required when there is no room for error.

Whether you have a single washer in a satellite location or a centralised department with multiple washer-disinfectors and autoclaves, you need a high quality, pure source of water to ensure perfect results.

### EndoTherm: for smaller departments

The EndoTherm is the perfect partner for smaller SSDs for supplying single or multiple washer-disinfectors and sterilisers.

The EndoTherm SSD system is a complete, standalone, water purification system delivering reverse osmosis (RO), ultraviolet treatment and ultrafiltration processes to remove ions, solid particles and dissolved molecules, bacteria and endotoxins.

The resulting pure water is supplied at an elevated temperature of between 60 - 70°C, reducing process times within washer-disinfectors and sterilisers and increasing your output rates.

The EndoTherm range is available in a variety of sizes, and also offers duplex RO options for continuous supply even during maintenance. And of course, all systems are fully compliant with the latest guidelines, including CfPP01-01 and HTM01-01.

[For more information on the EndoTherm range, see page 4](#)

### Bespoke solutions for larger departments

As hospitals move to more centralised facilities, consolidating their resources and saving money, SSD requirements change. Larger departments require a more bespoke solution, delivering a reliable source of pure water, when it's needed, with no interruption to supply.

Our expert team of engineers take the time to understand your requirements and challenges on site and then design the solution to match. We have a whole suite of technologies to ensure that even the most stringent requirements are met, including:

- Reverse Osmosis
- Ion Exchange
- Ultraviolet treatment
- Sub micron filtration

From the treatment technology to sterile storage tanks, and all the necessary pipework and ring main installation, we design and install the entire package. Our dedicated project managers ensure that each project runs to schedule with no impact to your day to day operation. We'll even loan temporary process equipment whilst the work is underway to ensure that there is no effect on your sterilising capability whilst installation takes place.

**“In every SSD, department managers want to optimise the speed and performance of their sterilisation equipment to ensure targets are met. Items for sterilisation therefore need to be processed more quickly and efficiently with effective water treatment being critical. Close collaboration with Envirogen at the early stages, meant a robust workable solution was put in place to guarantee continuous operation. I am pleased to say that during the installation the SSD did not miss a single wash cycle.”**

**Technical Manager, Musgrove Park Hospital**



### **Guy's and St. Thomas' hospital, London**

Increasing patient numbers meant that a second SSD department was required at Guy's hospital, as well as a refurbishment of the existing system at St. Thomas' hospital. Both departments required centralised disinfection, sterilisation and endoscope reprocessing. Envirogen proposed two bespoke RO systems combined with an EndoTherm Mini in order to meet the multiple requirements. The newly developed sites now process 125,000 trays a year and also complete all of the SSD processes for Great Ormond Street hospital.



“What I like about the EndoTherm Mini is that we don't have to touch them. They require minimal attention. We see the TVC results and they are always zero. Within 2 years the systems will pay for themselves, with the savings on chemicals and the reduction in staffing costs due to its automatic self-sanitisation.”

**Neville Fowler, Technical Manager,  
Guy's and St. Thomas' NHS Foundation Trust**



# General hospital boiler room and facilities solutions

## Water purification for plant and boiler rooms

A reliable supply of hot water and steam is essential for the day to day running of hospitals. A comfortable, controlled air temperature and humidity must be maintained at all times, and hot water and steam must be available on demand for equipment processing whenever they are needed.

Industrial boilers and combined heat and power (CHP) plants of this size and complexity can be expensive to run, costly to maintain and can cause serious site-wide issues if they break down. Boilers need to be kept in optimum working order to prevent breakdowns, but also to ensure that they are working as efficiently as possible to save on unnecessarily high energy bills.

Providing boilers with a standardised and pure supply of incoming water protects your boiler, preventing scale and deposit build-up and avoids issues with carryover, steam purity and condensate line corrosion.



## Essential water solutions for hospital boilers and CHP plants

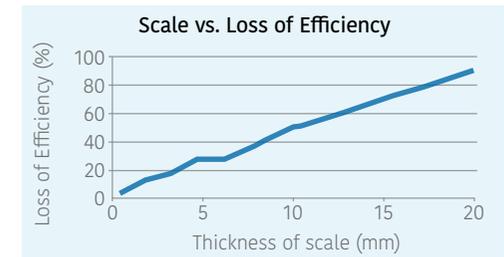
Many areas in the UK have 'hard' water and it is the dissolved carbonates, other minerals and corrosion deposits within the feed water that cause scale and deposit build-up.

Envirogen offers a range of solutions including:

- Reverse Osmosis (RO) - using semi-permeable membranes to remove all types of dissolved and suspended solids. Ideal for supplying standardised pure water feeds for boilers.
- Ion Exchange - using water softeners, or occasionally demineralisation plants, for extra purification. Demineralisation is ideal for producing highly pure, deionised water for use in final stage cleaning in laboratories and in hospital procedures. Higher purity water for such applications is now normally achieved using RO and a further demineralising polishing step.
- Filtration for removal of both suspended and dissolved contaminants from mains and borehole water supplies.

Installing water treatment technology ensures:

- Reduced boiler blowdown and increased boiler efficiency
- Elimination of scale and reduced corrosion in boilers, pipework other appliances and hardware



If used in conjunction with an efficient water treatment chemical programme, good boiler feed tank and deaerator design, boiler blowdown rates can be reduced to between 1% and 2% of evaporation.



### From design to commissioning...

Our experienced team will design a bespoke solution to meet your exact requirements, taking into account your existing treatment facilities, the steam and hot water needs that you have on site, as well the space available. We manage the entire process, from initial design through to installation, commissioning and servicing, ensuring that your system is completed to time and budget with minimum disruption to your existing operations.

All consumables can be readily replaced and we carry all items in stock ready for next day delivery.

No matter which system we install, we never leave site without ensuring that engineers and operators are fully trained and that the system is fully commissioned and ready to use.

Envirogen are actively involved in a number of organisations including the CEA and are active members of groups promoting technical solutions within the NHS and private medical sectors.



## Service

### Keeping it clean – comprehensive service plans for ongoing support

Whether you've installed one of our standard EndoTherm systems or a more bespoke water purification solution, you'll be relying on a constant supply of high-quality water feeding your AERs, washer-disinfectors, sterilisers and boilers.

Breakdowns and disruption in supply can have costly implications, resulting in cancelled operations, temporary ward closures and bad publicity.

That's why we offer comprehensive service plans, suited to your needs, to ensure your systems continue to work in excellent order.

Our team of engineers are:

- Located nationwide - for local support
- Highly trained with up-to-date knowledge of all of the latest technology
- Equipped with fully stocked vans - for instant consumable replacement
- Provided with smart technology - for fast spare parts order and a real-time availability view, as well as up to the minute data on the history of each site

Our servicing plans also extend to other manufacturer and installer systems, so no matter how you clean your water, we can ensure that high standards are maintained throughout – all included in one easy package.



## PureCare Priority Response

Designed specifically with healthcare in mind, our PureCare Response package offers:

- Planned service and maintenance on all water treatment and process machinery
- Onsite breakdown response guaranteed within 24 hours
- Emergency telephone support 24/7

We also offer a range of more comprehensive plans, including all repairs and callout charges. Ask your Envirogen representative for more details.



## Annual Consumables Pack

Most of our clients purchase an annual consumables pack for complete peace of mind. We'll tailor the pack to your specific requirements ensuring that you have enough replacement filters and cartridges for whenever you need them.

### Additional options available include:

Critical Spares pack, Media Replacement, Water Sampling, Instrument Calibration, Disinfection and Sanitisation, Membrane Cleaning, and Validation Processes.



## Long-life cartridges and consumables for all water purification systems

A key element in the continued efficiency of your water purification system is the timely replacement of consumable items, such as filters, membranes and cartridges.

Our large UK based distribution centre stocks a huge range of consumable items, both Envirogen and alternative brands, including:

- Cartridge filters
- Reverse Osmosis/ Ultrafiltration membranes
- Pumps
- Valves
- Ultraviolet lamps
- Sanitisation chemicals
- Ion Exchange resins
- Vent filters
- Carbon pre-filters
- Cylinder exchanges

For all systems including all sizes of EndoTherm Mini and Duo and Bespoke Reverse Osmosis plants.

Our high-quality consumables range are developed for long-life. They are guaranteed, checked and tested to ensure that they meet our stringent quality standards. All items are accredited to EN ISO 9001.

Our team will help you choose the consumables that match your purification system, no matter the manufacturer. We also provide competitively priced annual consumable packs so you can be assured that you'll have replacements whenever you need them.

All stocked items are available for next day delivery as standard, and our engineers carry a large range of stock on their vans ready for replacement as required on servicing and repair visits.

Contact us for more details or to arrange an initial meeting.

### About Envirogen

Envirogen provides water solutions to many industry sectors supplying industrial water and wastewater treatment and processing solutions. We solve complex challenges relating to water availability and quality and help our customers to increase productivity, reduce costs and meet environmental and sustainability targets.

We do this through offering:

- Best in class technology
- Expertise in design, project management and engineering
- World-class manufacturing capability

For more information about Envirogen water solutions and to find out how we can help your business grow, please contact us:

**Call us: +44 (0) 1531 636328**

**Email us: [info@envirogen.com](mailto:info@envirogen.com)**

**Visit us online: [envirogen.com](http://envirogen.com)**

Envirogen is a global company with offices and distribution centres across the globe. Our European headquarters are based in the UK.

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