

STEAM STERILISATION BEST PRACTICE

HIGH-QUALITY STEAM FOR STERILE SERVICES

ACHIEVING RELIABLE HIGH-QUALITY STERILISATION THROUGH THE PROVISION OF DRY CLEAN STEAM

spirax sarco

Introduction

Sterilisation is vital to the healthcare industry, keeping surgical equipment and supplies clean and eliminating potential contamination risks. Instruments that are not completely contaminant-free could compromise patient outcomes. Ideally, sterilisation works properly every time, helping safeguard patient health and keeping sterile services operations efficient.

Steam provides the most reliable and efficient method of achieving effective sterilisation. It is a simple, fast and safe way to disinfect reusable equipment, but to be effective, a continuous supply of clean, dry steam is needed.

This guide provides Authorising Engineers and Hospital Managers in sterile services departments the information needed to guarantee high quality steam for sterilisation. It explores how Clean Steam Generators (CSGs) can help to deliver a reliable process and avoid well-known issues such as wet packs, and overly long sterilisation cycle times.



The importance of clean steam generation

When considering Clean Steam Generators, it is important to know their function and why they are so important to the healthcare environment. A CSG uses regular plant steam to boil a clean water supply (such as reverse osmosis water) into steam that is free of harmful substances and impurities. It does this via a steam heating coil that uses primary plant steam as the thermal energy source to evaporate the clean feedwater. This high-quality steam can then be applied directly to the sterilisation process where it is needed. Steam in the sterilisation process is subject to strict quality control. Specifically, EN 285 sets out in detail the minimum requirements. These include the amount of moisture in the steam, the quantity of non-condensable gasses (NCGs) allowed and the degree of superheated steam permitted.

According to EN 285, steam used in large steam sterilisers must meet the following conditions:

- A dryness fraction of 0.95 or better
- Constituting less than 3.5 per cent NCGs
- Superheat present in steam should not exceed 25 ºC



Contamination – what are the risks, and how can you avoid them?

Contamination can happen through overloading, mishandling medical devices or insufficient drying time. However, the generation, delivery and overall quality of steam supply can also be a major factor. even minute quantities of contaminants can have potential harmful effects.

Conventional plant steam systems often comprise a network of pipework typically made of mild steel. As such, the use of plant steam for sterilisation could introduce undesirable contaminants, even when dryness, NCGs and superheat are within EN 285 limits. Completely segregating the plant steam from the sterilisation process by using a CSG allows for the use of a clean feedwater supply and high-quality materials, resulting in a consistent clean steam supply to sterile services.

Wet packs

Dry steam is also extremely important in reducing contamination risks. If steam dryness drops below 95 per cent, the excess moisture carried in the steam can cause wet autoclave loads. This is a problem because water that remains on or inside a sterilised pack post-cooling can provide a pathway for bacteria, so the sterilised device or instrument cannot be used.

Because of this moisture, these impaired items are commonly known as ‘wet packs’ or ‘wet loads,’ and they can have a major impact on a healthcare facility’s day-to-day operations. These include:

- Contamination risks presented by unsterile instruments
- Delayed and cancelled surgical procedures
- Compromised patient outcomes
- Costs associated with reprocessing, including water, energy and technician times
- Logistical concerns, including time spent troubleshooting, investigating and fixing the issue



As you upgrade your steam supply and increase steam quality, the risk of wet loads and the problems they cause decrease. Regularly testing your steam is key to understanding its quality. By testing steam samples at different times of day, you can better gauge the likely range of steam quality as system demands change.

Clean Steam Generators from Spirax Sarco

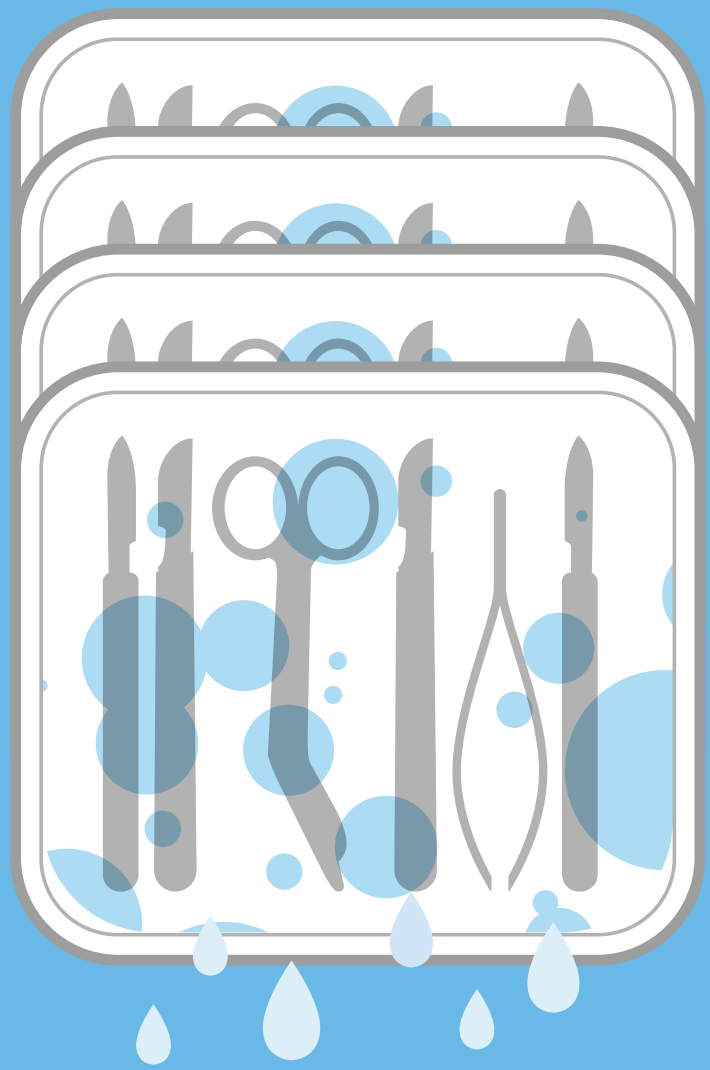
The most effective way of reducing the risk of wet packs is to consider generating high-quality steam on-site through a CSG. By establishing a dedicated clean supply, you can ensure the provision of high-quality steam required at the point of use.

Spirax Sarco can provide pre-assembled compact CSGs that are ready to install into your plant room and can be quickly integrated with your building's utilities. We can also develop customised CSG equipment that has been uniquely designed and tested to suit your sterilisation department's needs.

CSG standout features

A standout feature of our CSG solution is the integral deaerator that removes undesirable non-condensable gases such as oxygen from the feedwater. This system design allows for very reliable delivery of dry steam at requirements above the minimum 0.95 set out in EN 285, even under the rapidly fluctuating steam load conditions that are typical of autoclave demand.

Our dedicated CSGs are also made of high-grade stainless steel to ensure corrosion resistance, enabling the consistent provision of high-quality steam. Centralising this clean steam generation allows for a higher level of process control, which is further improved by smart management software that all combine to deliver steam to the autoclaves at the quality required, consistently and repeatably.





In Summary

To ensure reliable high-quality sterilisation, where the supply of steam meets standards set out in EN 285, Hospital Managers and Authorising Engineers need to provide the correct quality steam to sterile decontamination facilities.

By utilising CSGs within the sterilisation process, healthcare facilities can better control the quality of their steam supply while also avoiding the disruption associated with issues such as wet packs and wet loads.

For more information, visit **spiraxsarco.com**