

Selecting a New Autoclave - the importance of the right choice

When selecting a new autoclave a number of factors need to be considered. Firstly, all potential users should be consulted to establish their requirements as these may vary depending on the nature of the procedures undertaken.

Types of questions to ask

- Is there a need to process wrapped items i.e. for storage purposes?
- Is there a need to process hollow items, such as dental hand pieces or cannulae?
- Is there a need to process porous items, such as drapes or gowns?

If the answer to these questions is **no**, a simple downward displacement autoclave will be sufficient.

If the answer to any of these questions is **yes**, then a vacuum autoclave will be required. This will ensure relevant guidelines laid down by bodies such as the Medicines & Healthcare products Regulatory Agency (MHRA), (formerly known as the Medical Devices Agency (MDA)), are met. Please note the type of vacuum autoclave required will depend on the nature of the items to be processed. Again it is important to identify user requirements before purchase.

The table below outlines the classification of benchtop autoclaves as defined in the draft European standard prEN13060. This classification has been adopted by the MHRA as a method of clarification⁽¹⁾.

Classification PrEN. ⁽²⁾	Suitable for Processing	Eschmann Model
N Type (Downward Displacement)	Unwrapped solid instruments for immediate use.	SES 2000 Little Sister 3 Little Sister 5
S Type (Vacuum)	Items specified by the autoclave manufacturer. N.B. Eschmann units suitable for naked and single wrapped solid and hollow items.	Little Sister 5 Vacuum Little Sister Quick Vac

Classification PrEN. ⁽²⁾	Suitable for Processing	Eschmann Model
B Type (Vacuum)	Unwrapped & wrapped solid and hollow instruments. Porous loads, e.g drapes & gowns.	Little Sister 3 Vacuum

Differences between displacement and vacuum autoclaves

For sterilization to be effective, saturated steam must come into contact with all surfaces of the items to be processed. In traditional style autoclaves, air (which is a barrier to contact) is passively removed from the autoclave chamber by simple displacement. This method is not considered effective when processing items which are wrapped or porous as air may become trapped inside the packaging or in material, (i.e. drapes).

In a vacuum autoclave, air is forcibly removed from the chamber both before and after the sterilization phase. This increases steam penetration into the load and improves the overall effectiveness of the process.

Having established if a vacuum autoclave is needed, it will also be necessary to determine the chamber size and load capacity required. While some autoclaves have large chambers this is not always indicative of their capability to process large loads. It is important therefore, to check the loading capacity of an autoclave versus the weight of the loads to be processed by the practice. Eschmann's Little Sister 3 & SES 2000 autoclaves for example, take a maximum of 6kgs per load in their 20cm chamber autoclaves, while their 25cm versions can process up to 8kgs.

Steam penetration tests such as the Bowie & Dick Type and the hollow load process challenge device are designed to replicate the type of load the autoclave has been designed to process. In this way, the autoclave's performance can be verified effectively and consistently. Steam penetration tests should be carried out each day that the autoclave is used. (Ref MDA DB 2002 (06).) (For further information on routine testing please refer to Advice Sheet No 5).

An important note on drying

An efficient drying phase is an essential consideration for anyone purchasing a vacuum autoclave. This is because any pouched, wrapped or porous item leaving the autoclave chamber damp or wet following sterilization is at risk of becoming re-contaminated before re-use. To ensure articles of this nature leave the autoclave chamber dry, the ability to extend the drying phase is desirable. This will accommodate any complex or large loads which may not fully dry during standard drying. Drying is also necessary for items which are to be stored for non-sterile use.

Drying is not required for instruments for immediate use. However, it is important to ensure that items are sufficiently cool before exposing to the patient.

Compliance

It is essential for all surgeries wishing to comply with the MHRA's recommendations and those of the Department of Health's Health Technical Memoranda (HTM's) that assurance is obtained, (if necessary in writing) from the autoclave manufacturer to confirm their autoclaves are compliant with the relevant standards.

Servicing and maintenance

New equipment will be supplied, with a warranty period during when faulty or substandard performance can be rectified. This should not be a substitute for appropriate service cover. Routine service and maintenance should be considered an integral part of any equipment's acquisition. Make sure the autoclave supplier can provide this very necessary service.

¹ Classification of autoclaves as described in the Draft European Standard prEN 13060 and adopted by the Medicines & Healthcare products Regulatory Agency in their most recent publication Device Bulletin MDA DB 2002 (06).

² prEN = proposed European Norm.

SES Little Sister Benchtop Autoclave Advice Sheets

- No 1 The Decontamination Cycle
- No 2 Pre-sterilization Cleaning & Disinfection
- No 3 Selecting A New Autoclave
- No 4 Best Practice in Use of Benchtop Autoclaves
- No 5 Autoclave Testing
- No 6 Health Technical Memoranda
- No 7 Frequently used terms

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