



Getinge GEB Bioasafety Sterilizers

Safe, reliable decontamination in
biocontainment facilities



Lights on

– Geringe GEB series sterilizers

The Geringe GEB series is one example of the new breed of state-of-the-art sterilizers from the world's leading brand in infection control and contamination prevention.

Sterilizers that further perfect the efficient performance and superior throughput you can always expect from Geringe. You recognize them by their clear, light and characteristic touch-screen panels, easily readable from a distance. As well as by their thought-through and user-friendly design, making them easier to operate than ever.



Ergonomic and user-friendly

The clear and intuitive interface of the new touch-screen panels is only one of many examples of how we ensure that Geringe sterilizers are easier to operate and more ergonomic.



Specially designed for the application

For more than 100 years, Geringe has developed equipment to help improve and save people's lives.



A new sense of reality

In light of the biohazards we live with today, and may be faced with in the future, the bio-containment community is responding with a new sense of urgency to prepare for these emerging threats.

Purpose Built Bio-Safety Laboratories: New Challenges

Biocontainment laboratory facilities once considered state-of-the-art are being reconfigured and upgraded to reflect the new reality of pandemic research. There has been an absence of accepted standards governing sterilizers used in a biocontainment environment, despite the need for them.

That's why Getinge is collaborating with laboratory designers, architects and bio-containment specialists to determine industry wide guidelines for sterilizer design and installation. Getinge is dedicated to providing biocontainment sterilizer systems that minimize risks associated with existing bio-safety facilities, while establishing the benchmark of sterilization and containment for laboratories that have yet to be built.

Getinge GEB Steam Sterilizers offers:

- The independently validated Bioseal flange creates a hermetic seal between zones.
- Electrical signals to the hot zone pass through sealed conduits
- The doors of Getinge sterilizers are the cleanest, safest and simplest on the market.
- Top-quality piping and components are assembled to the highest standards.



A dedicated yet versatile range

Like all laboratories and research facilities, bio-containment suites need autoclaves for sterilization and decontamination. The pathogenic nature of the waste material from such facilities coupled with the use of the autoclave as a barrier between the facility and the outside world places special requirements on the autoclave design and processes used that standard autoclaves cannot fulfill.

The Getinge GEB Series is a standardized range of dedicated autoclaves, specifically designed for use in BSL 3 and 4 facilities.

A wide variety of chamber sizes are available, ranging from 0.3 to 17 m³ and all models are available with one or two doors as appropriate for use in the facility.

The GEB range is available with a variety of flexible program combinations to suit the type of facility, for example:

- Microbiology laboratory (including Biosafety facilities)
 - Glassware, culture media, hazardous waste
 - Animal care facility / vivarium
 - Cages, racks, bedding, pathogenic waste
- Please refer to individual product specifications for additional details.

Unique features of the GEB range includes but is not limited to:

- Validated biological sealing system (bioseal). Creates a hermetic seal between hot and cold zones. Notified body certified design.
- Hermetically sealed conduits (condulets) through the bioseal for all electrical cabling into the hot zone.
- Membrane filtration on all pneumatic signal lines passing through the bioseal.
- Isolating valves and chemical decontaminant injection ports in the process system – for decontamination of piping system prior to maintenance activities.
- Getinge’s unique effluent sterilization process. Safe and effective air removal for sterilization efficacy as well as condensate retention and sterilization.
- Optional interface for Class III Safety Cabinets (isolators)
- Uniquely designed and validated incinerator. Equipped as standard with an independent redundant controller (“Supervisor”).

GEB Series – typical models*	6610	6910	91422	102222	182222
Chamber volume, ft ³ / m ³	16/0.45	29/8.83	154/2871	170/4.8	308/8.70
Chamber width, in/mm	26/672	26/672	35/900	39/1000	71/1800
Chamber height, in/mm	26/627	36/920	57/1450	86/2200	86/2200
Chamber depth, in/mm	39/1000	53/1350	86/2200	86/2200	86/2200

* Only a selection of our available standard models. Specific sizes can be made upon request.



1. Small GEB Steam Sterilizers – 600 Series

Fully automatic high-pressure steam sterilizers with a single vertical sliding door, or two vertical sliding doors for passthrough operation.
Standard chamber volume: 10 to 26 ft³ (0.3 to 0.8 m³)

2. Medium-size GEB Steam Sterilizers – 900 Series

Fully automatic high-pressure steam sterilizers with a single vertical sliding door, or two vertical sliding doors for passthrough operation.
Standard chamber volume: 21 to 36 ft³ (0.6 to 1.1 m³).

3. Large / Bulk GEB Steam Sterilizers – 1400 and 2200 Series

Sterilizers with automatic horizontal sliding door(s) for largescale applications. They can be pit-mounted for convenient floor loading.
Standard chamber volume: 47 to 590 ft³ (1.4 to 17 m³)

Features that set the industry standards

The GEB Series Sterilizers set the industry standard for autoclaves designed specifically in response to the need for new, modern biocontainment facilities; to define a new 'state-of-the-art'.

Diaphragm isolated instrumentation

Pressure transducers and gauges are isolated from the chamber by sanitary diaphragms. This eliminates capillary piping which accumulates stagnant water in the process system (where microorganisms may multiply).

Door sealing mechanism

Choose from Getinge's traditional active door gasket or the revolutionary 'Slideloc'™ passive system. The active gasket is mechanically simple and inherently reliable while Getinge's Slideloc System does not rely on utilities to maintain the seal between chamber and door.

Bioseal connections

Sealed conduits are provided through the bioseal for electrical connections (with 100% redundancy). All pneumatic lines are provided with membrane filters.

Biological sealing flange (bioseal)

Typically a double door GEB autoclave is a part of the barrier between the hot and cold zone. As such, it should be treated with the care, attention and respect as any other part of the barrier, such as doors and windows. It must be designed to be hermetically sealed, and be guaranteed to remain so for its design lifetime. The cross contamination seal of a standard double door autoclave cannot do this due to thermal stresses and sealing materials typically used. Getinge's Bioseal combines bolted stainless steel panels, a rubber gasket and a wall flange that is installed in the building fabric. The design is independently validated and certified (see more details on page 9 picture 2).

Specialized waste processing

Processes are intentionally designed for effective decontamination, including treatment of plastic waste material in disposal bags and part sealed containers. This specialized process prevents fusion of the plastic materials and entrapment of air which would otherwise prevent steam penetration.

Isolating valves & injection ports

The process and drain piping system is provided with isolating valves and chemical (typically formaldehyde) injection ports to allow safe maintenance and filter changing



– Sterilization decontamination efficacy versus containment GEB series sterilizers

Containment presents several challenges to the sterilization system designer. An established principle of steam sterilization demands air removal prior to steam injection. Challenge: air in contact with materials in the chamber is contaminated and cannot be removed without treatment. A physical principle is that steam condenses when it comes in contact with cooler surfaces. Challenge: the condensate produced as steam heats the contaminated materials, prior to achieving sterilization decontamination conditions, is itself contaminated. It requires treatment prior to release to the building drain. Several options are available to treat the removed air and condensate, and should be applied based on a risk assessment of the facility design.



Option 1

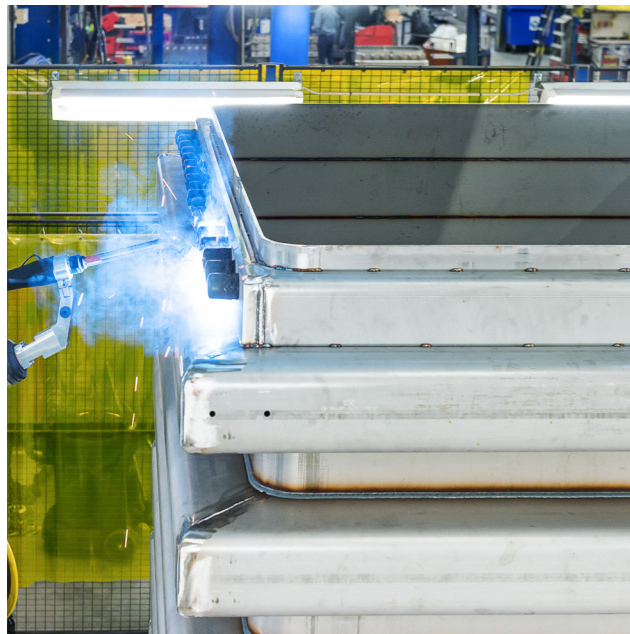
Filter the air evacuated from the chamber through a 0.22µm sterile membrane filter. This renders the air sterile and the filter is steam sterilized during the subsequent process. For added security, a second filter may be installed in the series. Additionally, an automatic in-place Water Intrusion Testing (WIT) integrity test may be performed on the filtration system. Condensate produced is collected in the chamber base and is heated by incoming steam and by the steam heated external jacket. Sterilization decontamination of the condensate is confirmed by temperature sensors.

Option 2

Pass the air through the unique Getinge incineration system. This validated ultra high temperature device provides a torturous pathway for the evacuated air. This destroys all viable organisms, rendering the exhaust air sterile and safe to discharge. Condensate is treated as described for Option 1.

Core features of the GEB series

Safeguarding your investment.



Sectional Jacket

The unique sectional jacket adds strength and rigidity to the chamber, and robotic welding eliminates defects. The resulting construction ensures a long product lifecycle to safeguard your facility and investment.



Bioseal

The independently validated bioseal flange creates a hermetic seal between zones. Fabricated from a combination of bolted steel panels and a rubber gasket. The mating wall flange is provided during construction for installation in the building fabric.



Condulets

Electrical signals to the hot zone pass through sealed conduits (condulets). Similarly pneumatic signals pass through membrane filters.



Doors

The doors of Getinge sterilizers are the cleanest, safest and simplest on the market.



Passive door

Getinge's unique "Slidelock" passive door locking system, provides a compression seal of the door gasket when the door is in the closed position. Does not rely on utilities to maintain the seal.



Process system

Top-quality piping and components are assembled to the highest standards.



Getinge is a global provider of innovative solutions for operating rooms, intensive care units, sterilization departments and for life science companies and institutions. Based on our firsthand experience and close partnerships with clinical experts, healthcare professionals and medtech specialists, we are improving everyday life for people – today and tomorrow.

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