

# SterilGARD

ENERGY EFFICIENT ENGINEERED

Class II, Type A2 Biological Safety Cabinet, Vertical Flow



The better choice  
for an optimum balance  
of energy efficiency  
with performance.

## THE BAKER COMPANY



Meets NSF  
Standards



Underwriter  
Laboratories Listed



UniPressure™  
Prewlow Plenum

INTRODUCING  
THE BAKER COMPANY  
STERILGARD e3 BIOLOGICAL SAFETY CABINETS

---



**Make the world a better place.**

- Multiple energy-saving features equal significant ongoing cost savings
- Continuously safe work environment with self-adjusting motor technology
- Quietest operation available
- Most comfortable with lowest noise and reduced heat generation
- Enhanced productivity with ReadySAFE™ mode
- Extended filter life means less user downtime and waste disposal
- Easier, faster maintenance
- Industry's most durable and reliable cabinet means lower life cycle costs and years of trouble-free operation

# SterilGARD



ENERGY EFFICIENT ENGINEERED

The SterilGARD e3 biological safety cabinet from The Baker Company offers a revolutionary airflow management system with proven containment technology that saves energy, increases productivity and improves comfort.

## **StediFLOW™ – High-efficiency airflow control system**

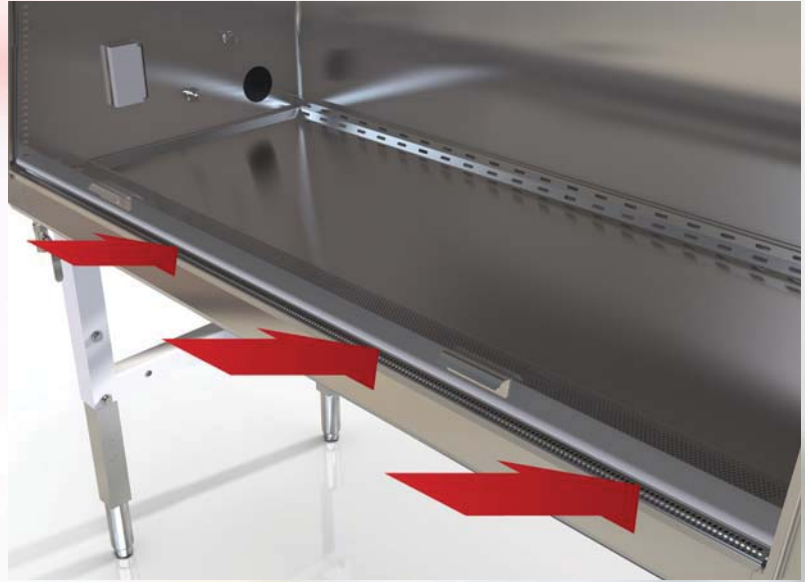
- Uses less energy without sacrificing performance or safety
- Produces less heat
- Operates more quietly with less vibration
- Motor self-adjusts for continuously safe operation of the class II biosafety cabinet
- Extends filter life, reducing the waste stream in the environment

By redesigning the blower/motor, we've created a more efficient, less demanding and quieter airflow system.



**ReadySAFE™ mode –  
Unique bypass armrest allows cabinet  
to continue operation with closed  
viewscreen**

- Saves energy costs by reducing motor speed by up to 30% when viewscreen is closed
- Maintains containment and clean air conditions to NSF 49 biological challenge criteria at all times
- Increases productivity by allowing user to have instantly safe working conditions upon opening the viewscreen
- Reduces noise level in laboratory environment when in ReadySAFE mode



ReadySAFE™ mode – Unique bypass armrest allows cabinet to continue operation with closed viewscreen

The SterilGARD e3 is the only cabinet in the industry that offers an idle mode, Baker's exclusive ReadySAFE, that is instantly safe upon resuming standard operation. The versatile mode can be used during meetings, lunch breaks and overnights to maintain safe conditions, create a quieter work environment, and save energy.

Industry's most durable and  
reliable cabinet  
means lower life cycle costs  
and years of  
trouble-free operation.



## Welcome to a new experience in biosafety cabinets.

**SAFETY** – always our top priority, safety is assured through a variety of features, including an audible/visual sash alarm system and an exclusive cable port to keep cables and tubing out of the way for proper viewscreen closure

**ENERGY EFFICIENCY** – from the motor controller to the lighting, new patent pending innovations provide significant annual cost savings while maintaining superior performance

**CONTAINMENT** – maximum protection is achieved through six technologies working in concert: our exclusive momentum air curtain, high velocity return air slots, aerodynamically designed airfoil, optimized downflow and exhaust filter, and unique air bypass armrest

**COMFORT** – with eight thoughtful features, from the viewscreen to the work environment and ergonomic design, this cabinet will leave you feeling as good at the end of the day as when you started

**EASE OF USE** – packed with convenient features and the largest, unobstructed usable work area in the industry, there's plenty of room for lab equipment and less hassle when changing filters and managing controls

**CLEANING** – an exceptionally reliable membrane-sealed control panel, and a one-piece work surface/air intake grille featuring radiused, coved corners instead of seams, allows for easy and effective cleaning

**SERVICE AND CERTIFICATION** – with an innovative electronic controller that provides diagnostic LEDs, detachable side panels, front loading filters, and a reinforced overall panel design, maintenance is quicker and easier

The SterilGARD e3 cabinet  
is the most exciting  
development in  
biological safety cabinets  
in years.

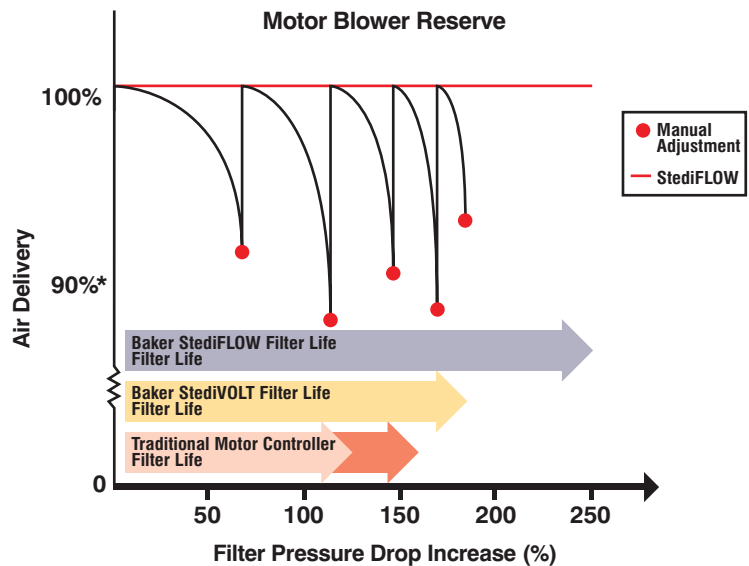
It's what you expect from  
The Baker Company.

## Industry-leading technologies provide superior protection and maximum efficiency.

### StediFLOW™ VFD Motor Controller Automatically Achieves Optimum Performance

Baker's new StediFLOW™ VFD (variable frequency drive) motor controller uses less energy, reduces heat output and operates more quietly. VFD is state-of-the-art technology in HVAC systems for performance and energy savings. The SterilGARD e3 cabinet can automatically handle an increase in pressure drop of more than 250% across the filter without reducing total air delivery more than 10%. There is no need for manual speed control.

- Maintains precise airflow.
- Reduces amperage required by 40–60% relative to the cabinet's size (4-foot, 5-foot and 6-foot), as compared with traditional cabinets.
- Automatically compensates for normal power line variations, air disruptions and filter loading.
- Constant air volume reduces risk of performance degradation, which can compromise personnel and product protection.
- ReadySAFE™ operating mode saves energy, maintains protection, and reduces noise levels.



\*Manual adjustment may occur above or below 90%.

### Electrical Cost Savings

MODEL	KW PER DAY	COST PER DAY	COST PER YEAR	SAVINGS PER YEAR
SG403A	20.40	\$1.82	\$664.30	\$456.25
SG403A-HE	6.53	\$0.57	\$208.05	
SG603A	30.60	\$2.72	\$992.80	\$744.60
SG603A-HE	7.78	\$0.68	\$248.20	

### Heat Rejection Savings

MODEL	BTU PER DAY	BTU PER YEAR	DIFFERENCE	SAVINGS PER YEAR
SG403A	69,720	25.45x10 <sup>6</sup>	60,205/day	\$572.86
SG403A-HE	9,520	3.475x10 <sup>6</sup>		
SG603A	104,592	38.18x10 <sup>6</sup>	78,032/day	\$742.49
SG603A-HE	26,560	9.694x10 <sup>6</sup>		

**NOTE:**

Based on U.S. Department of Energy national average cost of 9¢ per kilowatt-hour (<http://www.eia.doe.gov/fuelectric.html>)

Based on 8-hour Working Mode, 16-hour ReadySAFE Mode

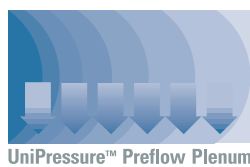
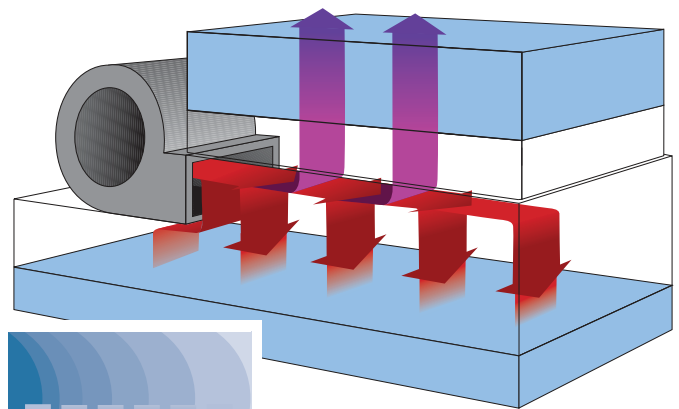
For more details on calculations, contact The Baker Company.

## Innovative UniPressure™ Preflow Plenum Design Optimizes Efficiency

The SterilGARD e3 biological safety cabinet incorporates Baker's exclusive UniPressure™ Preflow Plenum high-performance airflow system that saves energy and extends filter life by loading filters evenly.

- Creates negative pressure surrounding the positive-pressure plenum to ensure containment; any possible gasket leaks are contained under negative pressure and returned to the HEPA filters.

- Apportions and distributes air across, then through, the HEPA supply filter, improving downflow uniformity, reducing noise and increasing reserve blower/motor capacity.



The Baker exclusive UniPressure™ Preflow Plenum provides quieter, more efficient operation.



When we make a Baker cabinet, each component is rigorously tested for durability and quality.

- Telescoping filter mount provides direct seal of HEPA filters to plenum, and simplifies filter replacement.
- Closed-cell neoprene gasket forms airtight seal around filter periphery. Force is applied to full perimeter of filter rather than point force.
- Internal damper simplifies airflow balance and cabinet sealing for decontamination.

## Blower/Motor System Extends Filter Life

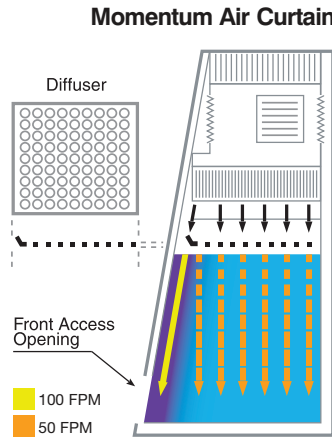
Baker's optimum blower/motor design ensures performance and extends filter life an additional 30% over our previous cabinets—the longest life in the industry—with a range of over 10 years. (High levels of background particulates may shorten HEPA filter life.)

- Provides consistent volume of air despite increases in resistance due to filter loading, resulting in extremely long filter life.
- Extended filter life minimizes filter replacement and decontamination costs, reduces use of toxic fumigants, and produces less waste in the environment.
- Filter does not need to be changed until blower/motor system cannot deliver adequate air volume to maintain nominal setpoint of  $\pm 5$  fpm.
- Requires no manual adjustment over filter's life. All filter reserve is automatic.

## Momentum Air Curtain Increases Protection

The SterilGARD e3 cabinet employs a unique momentum air curtain that offers an added measure of containment and protection exclusive to the Baker design.

- Creates strong air barrier, or momentum air curtain, at front of cabinet, increasing protective capabilities for both products and personnel.
- Strategic position of stainless steel diffuser just below supply filter creates faster airflow at front of work area. Airflow over center of work surface is gentle at nominal 50 fpm.
- Resulting air curtain combines with high-velocity return air slots, aerodynamically contoured front opening surfaces, and optimum air intake velocity to minimize turbulence and prevent migration of airborne contaminants into or out of work area.



High-velocity return air slots maximize protection.

## High-Velocity Return Air Slots Capture Unfiltered Air

Containment and cleanliness are achieved with precise control of airflow volumes and velocities. A unique feature in the Baker cabinet design, the high-velocity return air slots have been proven to maximize the biological safety cabinet's protective capabilities.

- Prevent contaminants from migrating up behind the viewscreen or around the sidewall and escaping into operator's environment.
- Prevent room air from migrating down behind the viewscreen or around the sidewall and contaminating work area.



Patent-pending, NSF-approved cable port on right allows cables and/or tubing to exit cabinet side walls rather than front work area, eliminating obstructions, hazards, and interference with proper viewscreen closure.

## Negative-Pressure Double-Wall Plenums Enhance Safety

Baker's unique all-metal, double-wall design of the SterilGARD e3 cabinet creates base, side and back wall plenums that capture and contain contaminated air under negative pressure. Any plenum that contains biologically contaminated air under positive pressure is completely surrounded by negative-pressure areas.

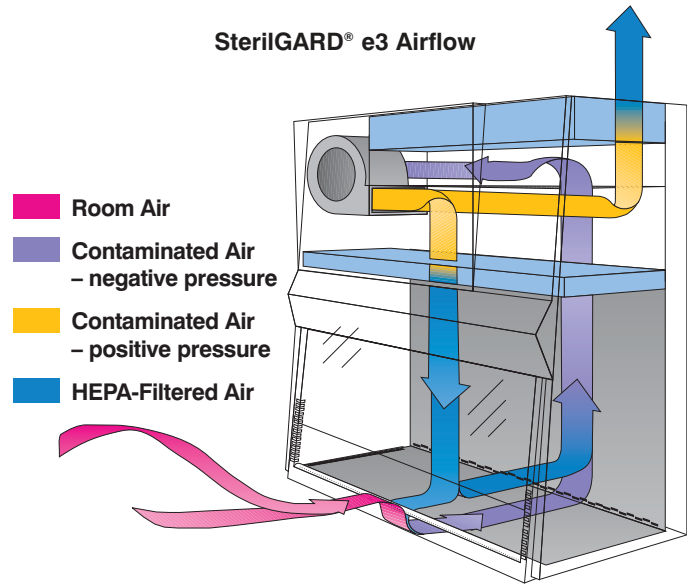
- Ensure integrity of plumbing connection, electrical outlet seals, and Baker's patent-pending cable ports.
- Prevent contaminated air from escaping into laboratory environment in event of damage to cabinet walls.



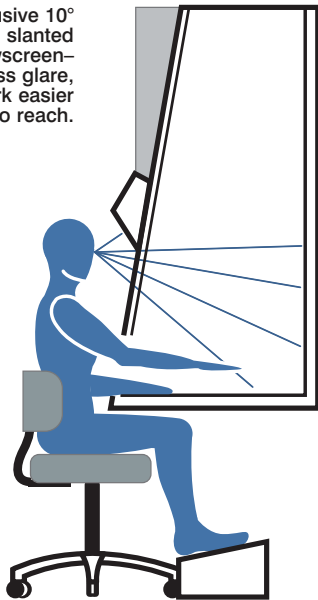
## Balanced Airflow and Exhaust Ensure Uniformity

The SterilGARD e3 cabinet features a unique airflow design that delivers unidirectional downflow air over the work area for maximum containment and protection.

1. Filtered air descends from top to bottom of the work area in a unidirectional flow. Near the back of the work surface, the air current divides—a portion of the downflow air is pulled through the back wall grille and the remainder is pulled through the front grille.
2. Simultaneously, room air is pulled through the front opening and into the front grille. It does not enter the work area.
3. All air combines under the work surface and is pulled under negative pressure through the back and side double walls of the cabinet into the blower/motor, which blows it into the positive-pressure preflow plenum.
4. From the positive-pressure plenum, approximately 30% of the air exits the system through the exhaust filter. The remaining 70% passes through the downflow filter and re-enters the work area as particulate-free air.



Exclusive 10°  
slanted  
viewscreen—  
less glare,  
work easier  
to reach.



## Slanted Viewscreen Offers Comfort and Safety

The SterilGARD e3 cabinet has a slanted sliding viewscreen that minimizes glare and makes the cabinet easier to use and more comfortable to work in. A counterbalancing feature allows the user to open and close the viewscreen effortlessly.

- Allows operator more comfortable head and elbow position, reducing fatigue.
  - Provides safe, highly visible and easily accessible work area for wide range of procedures.
  - Rugged, easy-to-use counterweight allows easy opening and closing of viewscreen.
  - Maximum opening simplifies equipment and instrument loading and unloading.
  - Integrated alarm audibly and visually warns of improper viewscreen position.
- Viewscreen-level mute button silences alarm for 5 minutes when viewscreen is raised for cleaning, loading or unloading.
  - Laminated safety-glass construction.
  - Stainless steel edge protector prevents chipping and cracking.

## Efficient Lighting Illuminates Better while Saving Energy

Benefits of the SterilGARD e3 cabinet include new fluorescent lamps and electronic ballasts that save energy, improve visibility and enhance productivity.

- New cool-white lights use less energy, produce less heat and provide better color fidelity.
- Electronic ballasts reduce fluorescent lamp flicker, minimizing eye strain and improving productivity.
- Lamps provide an average of greater than 125 foot-candles of illumination at work surface.
- The standard bulb is outside of the containment area and is easy to replace by the cabinet operator—no service call or special ordering is required.

## Working Environment Offers Optimum Ease of Use and Comfort

In addition to the viewscreen and lighting features, a variety of convenient enhancements make the SterilGARD e3 one of the most comfortable working environments.



The microprocessor-based control board with membrane control panel simplifies operation.

- Unobstructed, usable work area is the largest in the industry and can accommodate more lab equipment because of the rear grille being parallel to the straight back wall.
- Reduced front grille depth moves work surface closer to front for better arm position, which helps minimize back pain.
- Low-profile, unitized drain pan beneath work surface allows more leg room.
- Air bypass padded armrest provides support and comfort.
- Eye-level control panel offers greater visibility and easier access.
- Nonglare work surface reduces eyestrain.
- Available stand with telescoping legs allows for an adjustable work surface height.
- Offset petcocks eliminate “knuckling” by providing easier access and reducing injury.
- Convenient built-in timers for lights and outlets come standard, minimizing risks and reducing energy consumption.
- Consolidated electrical controls on panel behind hinged light canopy offer unique access outside containment area.

## Supply and Exhaust Filters Perform Optimally

Because filters remove microorganisms and airborne particulates (e.g., aerosols) from the air, the quality, performance and useful life of downflow and exhaust filters are critical biosafety considerations.

- Leak-free performance is ensured through scan tests conducted at the factory prior to shipping and is confirmed at the cabinet’s initial certification.
- Closed-cell neoprene gasket provides airtight seal between filter assembly and metal plenum.
- VFD motor system and large-sized filters yield the longest filter life in the industry.

---

## Exclusive Designs Simplify Certification and Testing

Several SterilGARD e3 design features help simplify certification and maintenance, reducing downtime and improving life cycle costs.

- Telescoping plenum assembly puts downflow and exhaust HEPA filters within easy reach from the front of the cabinet, and allows filters to be clamped directly to plenum against closed-cell neoprene gasket.
- Exhaust and downflow filters easily inserted and removed from front, helpful if cabinet is connected to exhaust duct or room has low ceiling.
- Internal damper regulates balance between exhaust and downflow to maintain proper air circulation ratios. Damper can be adjusted by certifier to compensate for changing resistance of downflow and exhaust filters as they load with particles.

## Craftsmanship Ensures Quality

Baker cabinet designs represent many years of experience in stainless steel fabrication and craftsmanship. Design considerations such as wide radius corners, aerodynamically shaped surfaces and nonglare satin finish interiors combine to improve comfort, simplify cleaning and maintain proper containment.

- Work surface and walls are one-piece, corrosion-resistant, stainless steel with smooth radius corners for easy cleaning. White powder finish protects cold-rolled steel cabinet exterior.
- Work surface and supports are easily removed to facilitate cleaning drain pan.
- Stainless steel air diffuser/filter protector shields downflow filter in work area and provides uniform downflow and momentum air curtain.
- Protective grille under negative pressure sidewalls prevents wipes and other paper materials from being inadvertently drawn into blower system, eliminating costly servicing, decontamination and downtime.
- Entire cabinet is airtight. Each component is welded, gasketed or assembled with hermetically sealed joints. Each cabinet is bubble-tested under pressure—at the factory prior to shipping—to ensure integrity of seals.

## Electrical System Provides Safeguards

The SterilGARD e3 electrical system is designed for safety and convenience.

- GFCI-protected duplex outlets with drip-proof covers are provided on each side wall.
- Independent self-resetting circuit breaker protects control circuits from possible overloads.
- Sealed connectors and fittings provide reliable containment for cabinet penetrations.
- Single power cord and plug as sole disconnect device ensure a second power source is not unintentionally left connected when performing service.
- UL-listed for electrical safety and integrity.
- Viewscreen position and UV interlock are monitored by reliable noncontact proximity switches.

## Petcocks, Valves and Plumbing Connections Offer Convenience

Plumbing and drainage connections are strategically placed for convenience and proper air management.

- One petcock and one plugged penetration are standard on right wall.
- Petcocks and penetrations are offset to prevent “knuckling” and provide for easier access and use.
- External plumbing connections are made to the bottom or back of cabinet rather than sides, allowing installation next to walls or furniture, saving valuable lab space.
- Stainless steel ball valve provides safe and effective drainage of drain pan.

## Options and Accessories

Most options, accessories and modifications are factory-installed and should be specified when ordering. Common options are listed below. For additional information, contact The Baker Company.

- Viewscreen sash opening: 10" for 4-foot and 6-foot models, 12" for 5-foot model (8" is standard)
- UV germicidal lamp
- Stainless steel IV bar
- Additional petcock (specify label and location)
- Plumb to back
- Plastic storage bins
- Ergonomic adjustable footrest
- Type A2 exhaust kit, canopy connection
  - Mass airflow monitor
  - Decon seal box
- Reinforced work surface
- Seismic restraints
- Stand with telescoping legs
- Stand with casters
- Remote-controlled petcocks
- Electric hydraulic lift
- Auxiliary wiring package (for monitoring blower switch status)
- ULPA filters

### Optional Ultraviolet Lamp with Safety Interlock

An optional ultraviolet germicidal lamp assists in contamination control.

- The lamp’s safety interlock ensures that UV illumination occurs only when the viewscreen is fully closed.
- For added safety, the UV light switch and cabinet lighting cannot be turned on simultaneously.
- Lamp runs on a timer and is used on an as-needed basis to conserve energy.

## Ordering

For ordering information, terms and conditions of sale, contact The Baker Company or visit the Baker Web site at [bakerc.com](http://bakerc.com) for the name of your authorized Baker Company representative.

## Class II, Type A2 Applications

The SterilGARD e3 biological safety cabinet is designed for many applications involving agents of low and moderate risk. Appropriate applications include, but are not limited to, sterile product preparation and biological experimentation.

- When exhausted to the room, the SterilGARD e3 cabinet is classified as a Class II, Type A2 cabinet.
- Properly vented to the outdoors through a facility exhaust system, the SterilGARD e3 cabinet exceeds minimum standards for a Class II, Type A2 cabinet (formerly B3).

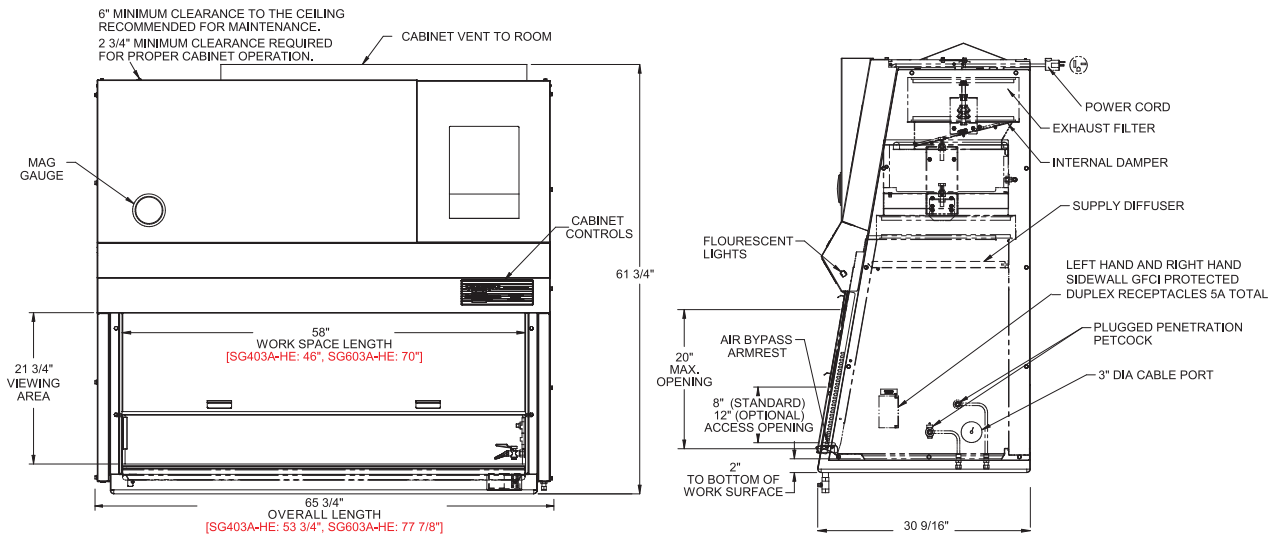
TYPE A2	EXHAUSTED TO ROOM	EXHAUSTED TO UNTREATED FACILITY EXHAUST SYSTEM	EXHAUSTED TO TREATED FACILITY EXHAUST SYSTEM
Protection from Particulates	Protects personnel, product and the environment	Protects personnel, product and the environment	Protects personnel, product and the environment
Protection from Gases and Vapors	No	Protects personnel	Protects personnel and the environment

SterilGARD e3 Containment and Protection



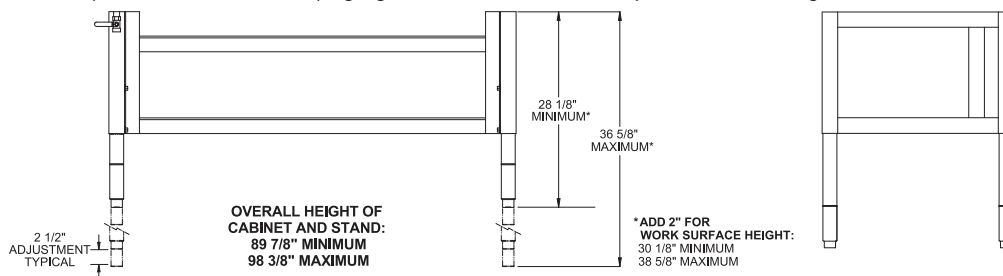
## SterilGARD e3 (SG503A-HE)

(Specific measurements for the SG403A-HE and the SG603A-HE are given in red.)



### Telescoping Stand (optional)

An optional stand with telescoping legs allows the cabinet to be adjusted to a wide range of standard work surface heights.



### SITE PREPARATION ELECTRICAL SYSTEM

- 115 VAC, 20A, 60Hz, 1 phase
- One 14' power cord with 20-amp plug, NEMA 5-20P
- Unit is cULus-Listed as certified for electrical, fire and personal safety
- Two ground-fault circuit interrupter-protected interior duplex receptacles at 5.0 (SG403A-HE and SG503A-HE) and 3.0 (SG603A-HE) total amps protected by a self-resetting circuit breaker

### EXHAUST OPTIONS

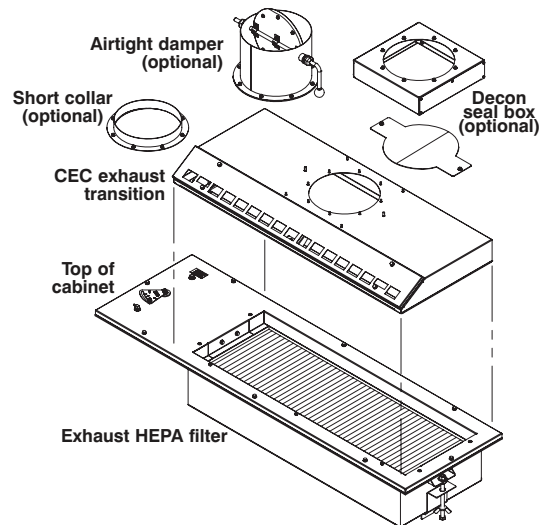
The SterilGARD e3 is designed for Type A2 installations. For added convenience, the cabinet design includes several innovative features that offer flexibility.

Downflow and exhaust HEPA filters can be inserted and removed from the front of the cabinet, allowing filter replacement without removing exhaust connections or moving the cabinet.

### CANOPY EXHAUST CONNECTION (CEC)

Laboratories that share common exhaust systems typically experience changes in airflow that can compromise cabinet operation. Such problems include (a) too much room air being drawn through the cabinet, causing potential product contamination, or (b) too little air drawn through the cabinet, compromising personnel and/or product protection.

Located between the cabinet exhaust HEPA filter and the building exhaust system, the canopy exhaust air gap maintains Type A2 cabinet performance over a range of exhaust flow rates (see chart). Type A2 cabinet performance is also maintained in the event of total building exhaust failure. The SterilGARD e3 canopy exhaust connection (CEC) incorporates the following features:

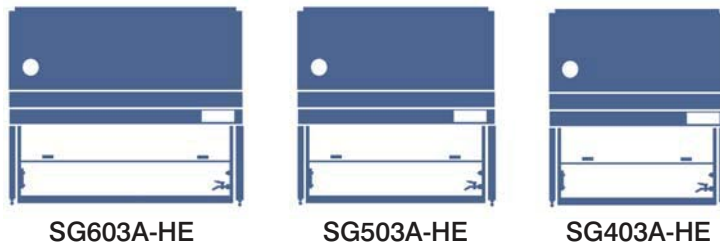


- Designed for quick, efficient installation to protect cabinet from performance degradation caused by in-house exhaust system fluctuation.
- Unique combination design consists of an exhaust transition (ET) that creates the desired air gap in the overall connection.
- 10" diameter exhaust connection collar.

### FILTRATION SYSTEM

- Exhaust and downflow HEPA filters are both 99.99% efficient.
- Optional ULPA filters are 99.999% efficient.

## Detailed Specifications



SG603A-HE

SG503A-HE

SG403A-HE

MODEL NO.	SIZE	OPENING MAX.	ELECTRICAL REQUIRES 20 AMP OUTLET	INTERIOR DIMENSIONS USABLE WORKSPACE	EXTERIOR DIMENSIONS	CABINET WEIGHT* (lbs)	SHIPPING WEIGHT** (lbs)
SG403A-HE	4'	20"	115V, AC 20A, 60 Hz	46" W x 20 <sup>3</sup> / <sub>16</sub> " F-B x 27 <sup>7</sup> / <sub>16</sub> " H	53 <sup>3</sup> / <sub>4</sub> " W x 30 <sup>9</sup> / <sub>16</sub> " F-B x 61 <sup>3</sup> / <sub>4</sub> " H	668	798
SG503A-HE	5'	20"	115V, AC 20A, 60 Hz	58" W x 19 <sup>5</sup> / <sub>8</sub> " F-B x 27 <sup>7</sup> / <sub>16</sub> " H	65 <sup>3</sup> / <sub>4</sub> " W x 30 <sup>9</sup> / <sub>16</sub> " F-B x 61 <sup>3</sup> / <sub>4</sub> " H	756	906
SG603A-HE	6'	20"	115V, AC 20A, 60 Hz	70" W x 19 <sup>5</sup> / <sub>8</sub> " F-B x 27 <sup>7</sup> / <sub>16</sub> " H	77 <sup>7</sup> / <sub>8</sub> " W x 30 <sup>9</sup> / <sub>16</sub> " F-B x 61 <sup>3</sup> / <sub>4</sub> " H	830	1000

\* Includes optional stand

\*\* Includes packaging and optional stand

MODEL NO.	SASH HEIGHT	NOISE (dBa)	OPERATING AMPERAGE*	READYSAFE AMPERAGE	POWER CONSUMPTION** (Watts)	HEAT GENERATION† (BTU/hr)
SG403A-HE	8"	60	3.6	1.6	432	1474
	10"	61	4.0	1.7	480	1638
SG503A-HE	8"	65	4.0	1.7	480	1638
	12"	67	6.7	1.9	804	2743
SG603A-HE	8"	65	5.5	2.0	660	2252
	10"	66	6.7	2.0	804	2743

\* Amperage for new cabinet with clean filters

\*\* Power consumption at 120V

† Calculated maximum based on operating amperage

MODEL NO.* WITH CANOPY EXHAUST CONNECTION (CEC)	EXHAUST REQUIREMENTS		
	SASH HEIGHT	EXHAUST FLOW RATE	EXHAUST STATIC PRESSURE**
SG403A-HE	8"	345 CFM	-0.25" WC
	10"	430 CFM	-0.30" WC
SG503A-HE	8"	430 CFM	-0.35" WC
	12"	645 CFM	-0.40" WC
SG603A-HE	8"	520 CFM	-0.40" WC
	10"	650 CFM	-0.50" WC

\* Cabinets previously classified as Class II, Type A/B3 are now classified as Class II, Type A2. These cabinets can be exhausted to the room (previous Type A classification) or connected to a facility exhaust system (previous Type B3 classification) via a "canopy" connection (previously referred to as a "thimble"). NSF 49 (2002) specifies the "canopy" connection only because vented exhaust through a "hard" connection, though technically possible, may not meet NSF criteria. Consult The Baker Company or your laboratory safety officer for details.

\*\* With the optional airtight damper, add 0.1" WC (25 Pa) to the above static pressure requirements.

### SterilGard, Class II, Type A2 Biological Safety Cabinet, Vertical Flow

#### PERFORMANCE

1. Manufacturer shall provide a certified copy of the personnel, product and cross-contamination (biological) tests, equivalent to or more demanding than as specified in NSF International Standard #49, performed on the unit selected from the corresponding statistical sample. Tests may be witnessed by a representative of the purchaser.
2. Cabinet shall have momentum air curtain downflow velocity profile, i.e., a higher velocity of downflow behind the viewscreen relative to downflow velocity over the work surface for added personnel and product protection.
3. High velocity return air slots shall be located at each end of the front access opening. These slots help to prevent contaminated air from being drawn into the work area along the edges of the side wall and from escaping the work area to the ambient environment.
4. High velocity return air slots shall also be located behind the viewscreen on the top edge for enhanced containment and product protection.
5. Cabinet shall be capable of automatically handling a 250% minimum increase in filter loading without reducing total air delivery by more than 10%. Test data to verify these capabilities shall be available upon request.
6. Intake velocity through the front access opening shall be minimum of 100 FPM. Standard openings are 8" and 10" for the 403A-HE and 603A-HE; standard openings for the 503A-HE are 8" and 12".
7. Unit must be listed by NSF International as meeting Standard #49.
8. Each unit, before shipping, shall have a complete physical test to assure cabinet meets Class II requirements. A copy of this test will be provided with the operator's manual shipped with the unit.
9. The unit shall have standard HEPA filters for a protection effectiveness of 99.99% on 0.3 micron size particles by DOP test. Filters shall be serviceable from front of cabinet.
10. Cabinet interior (work area) construction: one-piece 16-gauge, Type 304 stainless steel, with a smooth,  $7/16$ " radius between rear and side walls, and easily cleanable, radiused corners on the work surface tray.
11. Work area side walls and rear wall to be one-piece construction. A straight back wall shall be provided to maximize work area and easily accommodate laboratory equipment.
12. Cabinet shall be double wall construction with negative pressure airflow between the walls, from drain pan to top, surrounding the sides and back of work area and cable port.
13. Bottom of access opening shall be aerodynamic airflow design directing airflow into the front grille to improve access opening containment capability and bypass armrest.
14. Cabinet shall have a unitized drain pan with  $7/16$ " radius on all sides and a fully removable work surface and work surface supports to facilitate cleaning.
15. Cabinet shall be equipped with a stainless steel ball valve to allow safe and effective draining of spills.
16. Stainless steel air diffuser and filter protector provided in work area and on top of cabinet.
17. Externally adjustable internal damper provided to compensate for changing resistance of exhaust and supply filters during certification.
18. One petcock and one plugged penetration are provided as standard on the right side wall. Left side wall is prepunched for optional/additional plumbing connections.
19. All external plumbing connections to the petcocks shall be made through the bottom or back of the cabinet and not the sides, allowing zero clearance between the unit and the building walls or equipment to its right and left.
20. The unit is available with an optional stand, which includes telescoping legs that allow the work surface height to be set from  $30\frac{1}{8}$ " to  $38\frac{5}{8}$ ".
21. Viewscreen guide design shall be a counterweighted pulley system allowing effortless movement up and down.

#### CONSTRUCTION

1. The vertical sliding viewscreen shall be slanted at an angle of  $10^\circ$  from vertical, capable of moving to a fully closed position during shutdown periods.
2. Viewscreen shall be constructed of  $1/4$ " laminated safety plate glass, with a maximum opening of 20" for equipment loading.
3. All biologically contaminated ducts, plenums and work area side walls shall be permanent metal construction and maintained under negative pressure or enclosed within a negative pressure zone.
4. Interior work area shall be  $27\frac{7}{16}$ " high.
5. Cabinet shall have The Baker Company's exclusive UniPressure Preflow Plenum, designed to provide more uniform airflow to the supply filter.
6. Supply and exhaust filters shall be frontloading.
7. A telescoping plenum assembly shall be provided to allow the filters to be directly clamped to the plenum against a closed-cell neoprene gasket. Plenum applies force to full perimeter of filters, rather than point force.
8. Unit shall have an audible alarm and a flashing LED to indicate when the sliding viewscreen is in an unsafe position. An alarm mute switch shall be provided on the front-mounted cabinet control panel to allow the operator to mute the alarm tone for brief adjustments. The alarm shall automatically reactivate after five minutes if the viewscreen remains in an unsafe position.
9. Cabinet exterior construction: seal panels and dress panels of 16-gauge cold-rolled steel, powder coated finish, painted PermaWhite™.

#### ELECTRICAL

1. Complete unit shall be listed as certified by Underwriters Laboratory (cULus) for electrical, fire and personal safety.
2. Cabinet shall have a microprocessor-based control system with an easy-to-clean membrane control panel mounted on the front of the cabinet facing down towards the user when sitting at the unit.
3. Cabinet shall have adjustable timers for fluorescent lights, outlets and optional UV lights. Timers operate in 15-minute intervals.
4. Work area shall be provided with two GFCI protected duplex outlets with drip-proof covers and shall be protected by a self-resetting circuit breaker.
5. A single 14-foot power cord and plug (NEMA 5-20P) shall be provided for electrical power source.
6. The unit shall have optional UV light with a shutoff safety feature when the viewscreen is raised.
7. The unit shall have electronic ballasts for UV and fluorescent lighting to provide longer life and lower heat output.
8. Cabinet shall have an externally mounted fluorescent light fixture with solid state ballasts producing 125 foot-candles illumination at work surface.

### Caution

A Class II, Type A2 biological safety cabinet is suitable for work with agents in the absence of volatile toxic chemicals and volatile radionuclides per NSF 49.

With proper ventilation to the outside, a Class II, Type A2 biological safety cabinet is suitable for work with agents assigned to biosafety levels 1, 2 or 3, treated with minute quantities of volatile toxic chemicals and trace amounts of radionuclides required as an adjunct to microbiological studies, that will not interfere with the work when recirculated in the downflow air (as stated in National Sanitation Foundation International Standard #49).

**Note: The adequacy of this containment cabinet for the user's personal safety, as with any containment cabinet, should be determined by an industrial hygienist or safety officer. Site preparation information, architectural drawings, detailed dimensions and purchase specifications are available.**

### Warranty

The Baker Company, Inc., expressly represents and warrants all goods (a) to be as specified (and described) in The Baker Company catalogs and literature, and (b) to be free under normal use, service and testing (all as described in The Baker Company catalogs and literature) from defects in material and workmanship for a period of thirty-six months from the invoice date.

The exclusive remedy for any breach or violation of this warranty is as follows: The Baker Company, Inc., will F.O.B. Sanford, Maine, furnish without charge repairs to or replacement of the parts or equipment that proved defective in material or workmanship. No claim may be made for any incidental or consequential damages.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE UNLESS OTHERWISE AGREED IN WRITING SIGNED BY THE BAKER COMPANY. (THE BAKER COMPANY SHALL NOT BE RESPONSIBLE FOR ANY IMPROPER USE, INSTALLATION, SERVICE OR TESTING OF THE GOODS.)

## THE BAKER COMPANY

P.O. Drawer E, Sanford, ME 04073 • (207) 324-8773 • (800) 992-2537 • Fax: (207) 324-3869 • [www.bakerco.com](http://www.bakerco.com)

© 2008 The Baker Company. All rights reserved.