

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

SterilGARD® e3 Biological Safety Cabinets



SG-403AHE



SG-503AHE



SG-603AHE

Energy-efficient and comfortable cabinets that help you 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

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

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 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

A photograph of a white SterilGARD e3 biosafety cabinet. The cabinet has a large glass view window and a control panel on the left side. The brand name 'SterilGARD' is printed on the top front panel. The cabinet is mounted on a metal stand with four legs.

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

It's what you expect from
The Baker Company.

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.

- 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.



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



Cable ports allow cables/tubing to exit side walls rather than the front work area.

- Reduces noise level in laboratory environment when in ReadySAFE mode.

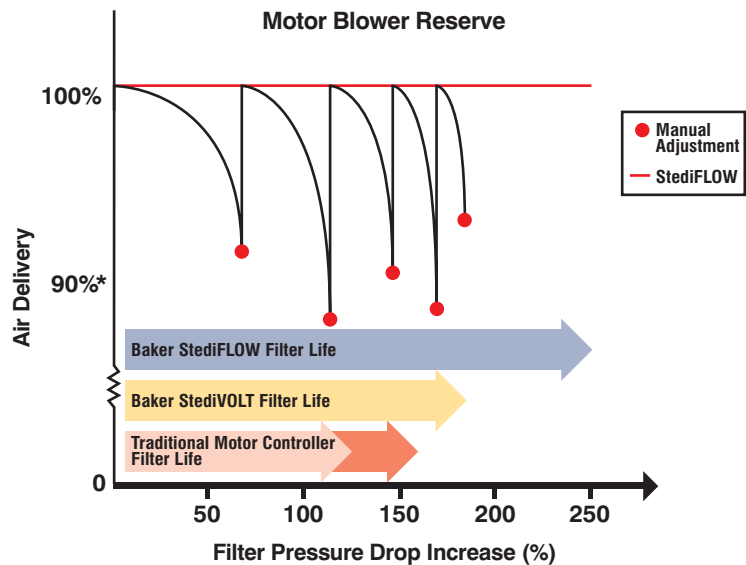
The SterilGARD e3 increases productivity by allowing user to have instantly safe working conditions upon opening the viewscreen.

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 300% 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 NUMBER	SG403A	SG403A-HE	SG603A	SG603A-HE
KW Per Day	20.40	6.53	30.60	7.78
Cost Per Day	\$1.82	\$0.57	\$2.72	\$0.68
Cost Per Year	\$664.30	\$208.05	\$992.80	\$248.20
Savings Per Year		\$456.25		\$744.60

Heat Rejection Savings

MODEL NUMBER	SG403A	SG403A-HE	SG603A	SG603A-HE
BTU Per Day	69,720	9,520	104,592	26,560
BTU Per Year	25.45x10 ⁶	3.475x10 ⁶	38.18x10 ⁶	9.694x10 ⁶
Difference		60,205/day less		78,032/day less
Savings Per Year		\$572.86		\$742.49

NOTE:

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

Based on 8-hour Working Mode, 16-hour ReadySAFE Mode. For more details on calculations, contact The Baker Company.



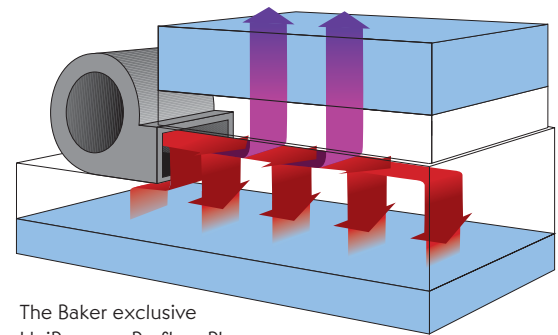
StediFLOW™ – High-Efficiency Airflow Control System

- 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.

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.



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

- 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.
- 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.

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



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

Motor/Blower 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.)

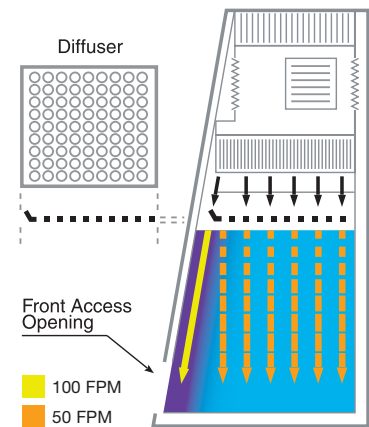
- Provides consistent volume of air despite increases in resistance due to filter loading, resulting in extremely long filter life.
- Extended filter life minimizes filter replacement and decontamination costs, reduces use of toxic fumigants, and produces less waste in the environment.
- Filter does not need to be changed until blower/motor system cannot deliver adequate air volume to maintain nominal setpoint of ± 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.

Momentum Air Curtain



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.

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



High-velocity return air slots capture unfiltered air.



Double-wall construction captures and contains contaminated air under negative pressure.

Negative-Pressure Double-Wall Plenums Enhance Safety

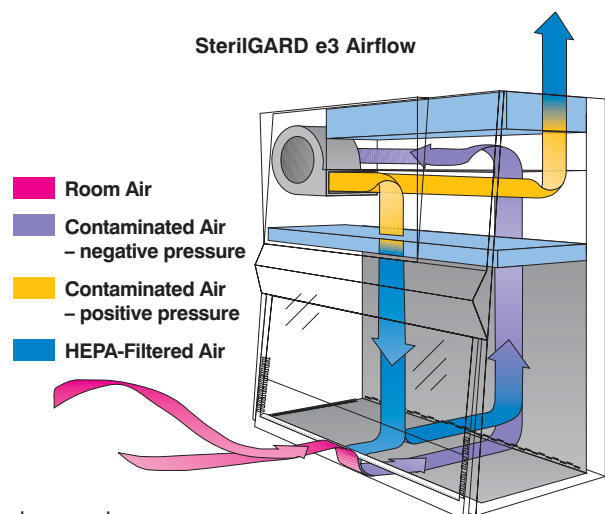
Baker's unique all-metal, double-wall design of the SterilGARD e3 cabinet creates base, side, and back wall plenums that capture and contain contaminated air under negative pressure. Any plenum that contains biologically contaminated air under positive pressure is completely surrounded by negative-pressure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

- Ensures integrity of plumbing connection, electrical outlet seals, and Baker's patent-pending cable ports.
- Prevents 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.

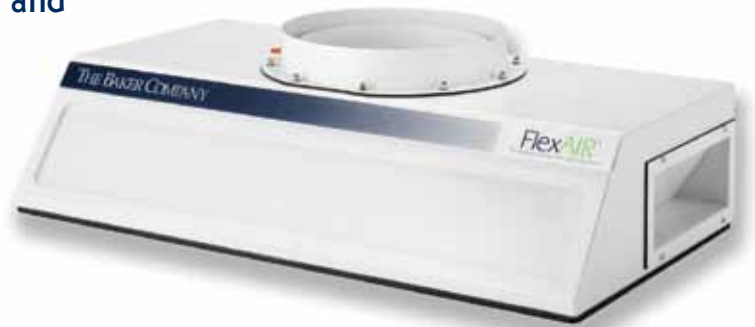
1. Filtered air descends from top to bottom of the work area in a unidirectional flow. Near the back of the work surface, the air current divides—a portion of the downflow air is pulled through the back wall grille and the remainder is pulled through the front grille.
2. Simultaneously, room air is pulled 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.



Innovation in BSC Venting Saves Energy and Provides Safer BSC Performance

Baker's new FlexAIR® Exhaust Connection combines the safety of a traditional canopy (thimble) exhaust connection with the lower exhaust flows of a traditional hard exhaust connection. Now, energy savings can be realized without sacrificing safety cabinet performance.

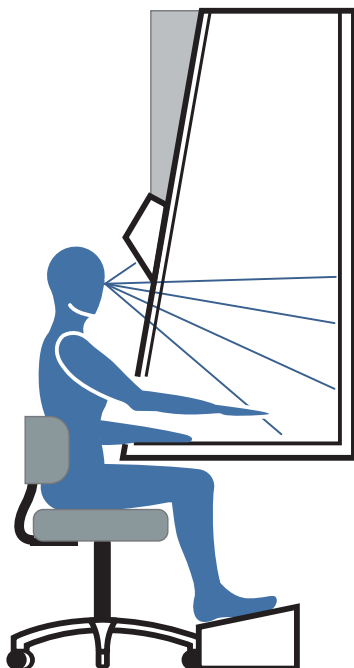
How It Works: Baker's new FlexAIR works by having dynamic closure panels. The front panel automatically opens in the event of exhaust system slowdown or failure, allowing the cabinet to maintain Class II, Type A2 BSC performance. With FlexAIR, only the minimum amount of air necessary to achieve cabinet exhaust containment is used, compared to traditional canopy exhaust connections that exhaust an additional 20% conditioned air from the room. FlexAIR reduces exhaust air volume for significant energy and cost savings.



FlexAIR system includes an alarm feature to let workers know when the house exhaust system has slowed down or stopped. This may be important if your work includes the use of volatile organic solvents, gases, or vapors (which are not captured by HEPA filters).

MODEL NUMBER	SG403A-HE	SG503A-HE / SG603A-HE	SG403A	SG603A
	Savings versus traditional canopy, when purchased with a new BSC (8" sash)		Savings versus traditional canopy, for field replacement (8" sash)	
Exhaust Reduction	50 CFM	60 CFM	35 CFM	45 CFM
Annual Energy Savings*	\$300	\$360	\$210	\$270
Expected Payback	<1 Year	<1 Year	5-6 Years	4-5 Years

*Assumes \$6/CFM/Year conditioned air cost



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.

- 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.

Supply and Exhaust Filters Perform Optimally

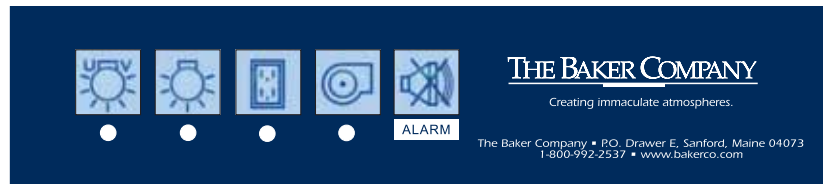
Because filters remove microorganisms and airborne particulates (e.g., aerosols) from the air, the quality, performance and useful life of downflow and exhaust filters are critical biosafety considerations.

- Leak-free performance is verified 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.

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 eyestrain 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.



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

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.



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.

- Unobstructed, usable work area is the largest in the industry and can accommodate more lab equipment.
- Reduced front grille depth moves work surface closer to front for better arm position, which helps improve posture.
- 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.
- Optional left and right side Cable Ports.

- Available stand with telescoping legs allows for an adjustable work surface height.
- Offset petcocks eliminate “knuckling” by providing easier access and hand clearance.
- 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.

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 are 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.

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.

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 for outlets protects control circuits from possible overloads.
- Sealed connectors and fittings provide reliable containment for cabinet penetrations.
- Single power cord and plug ensure a second power source is not unintentionally left connected when performing service.
- UL-listed for electrical and mechanical safety and integrity.
- Viewscreen position and UV interlock are monitored by reliable noncontact proximity switches.

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 side walls 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 verify integrity of seals.

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" or 12" for 4-foot and 6-foot models, 12" for 5-foot model (8" is standard)
- UV germicidal lamp
- Stainless steel IV bar
- Additional petcocks (specify label and location)
- Plumb to back
- Plastic storage bins
- Ergonomic adjustable footrest
- FlexAIR Exhaust Connection
- 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, sash alarm, and ReadySAFE)
- ULPA filters

Optional Ultraviolet Lamp with Safety Interlock

An optional ultraviolet germicidal lamp assists in contamination control.

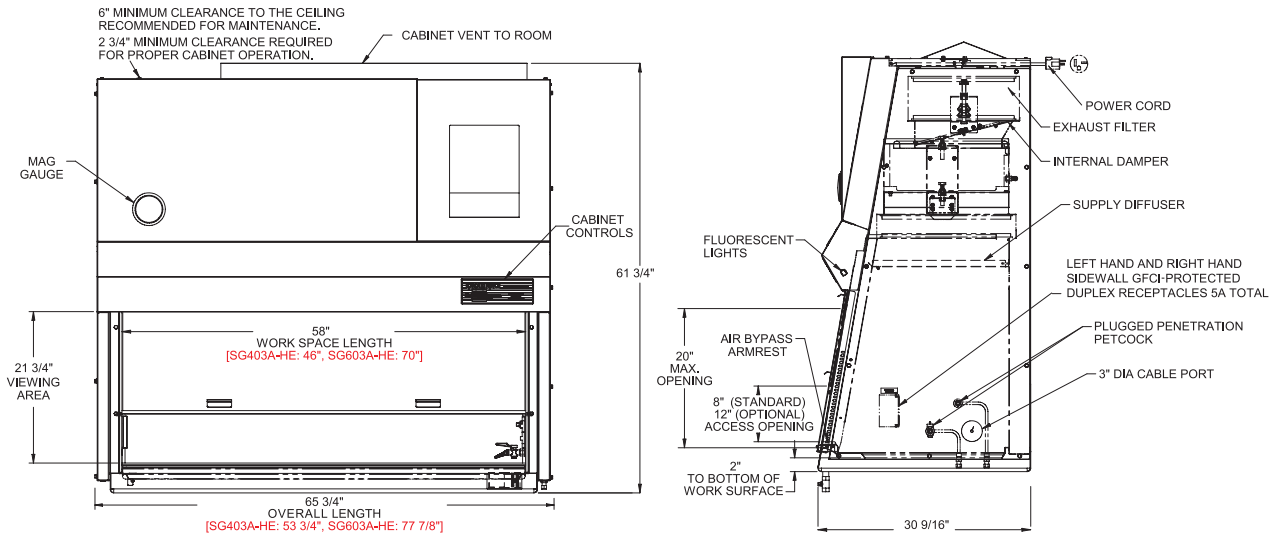
- The safety interlock ensures that UV illumination occurs only when the viewscreen is fully closed.
- The UV light switch and cabinet lighting cannot be turned on simultaneously.
- Programmable UV Lamp Timer can be used to conserve energy.

Ordering

For ordering information, terms, and conditions of sale, contact The Baker Company or visit the Baker website at bakerco.com for the name of your authorized Baker Company representative.

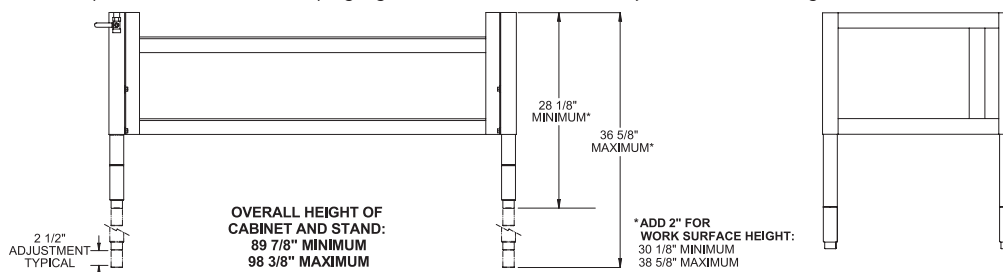
SterilGARD e3 (SG503A-HE)

(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

FILTRATION SYSTEM

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

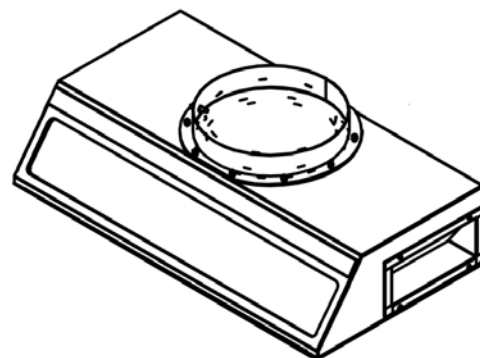
Downflow and exhaust HEPA filters can be inserted and removed from the front of the cabinet, allowing filter replacement without removing exhaust connections or moving the cabinet.

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

FLEXAIR EXHAUST CONNECTION

The FlexAIR Exhaust Connection combines the safety of a traditional canopy (thimble) exhaust connection with the lower exhaust flows of a traditional hard exhaust connection. FlexAIR reduces exhaust air volume for significant energy and cost savings.

Only the minimum amount of air necessary to achieve cabinet exhaust containment is used, compared to traditional canopy exhaust connections that exhaust an additional 20 percent conditioned air from the room.



FlexAIR works by having dynamic closure panels. The front and side panels open automatically in the event of either too much or not enough exhaust flow, allowing the cabinet to maintain Class II, Type A2 BSC performance.

- 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.
- 12" diameter exhaust connection collar.



SG603A-HE

SG503A-HE

SG403A-HE

MODEL NUMBER	SG403A-HE	SG503A-HE	SG603A-HE
Size	4'	5'	6'
Opening Max.	20"	20"	20"
Electrical (Requires 20-AMP Outlet)	115V, AC 20A, 60 Hz	115V, AC 20A, 60 Hz	115V, AC 20A, 60 Hz
Interior Dimension (h x f-b x w) Usuable Workspace	27 ⁷ / ₁₆ " x 20 ³ / ₁₆ " x 44"	27 ⁷ / ₁₆ " x 18 ¹ / ₂ " x 56"	27 ⁷ / ₁₆ " x 19 ⁵ / ₈ " x 68"
Interior Dimension (h x f-b x w)	27 ⁷ / ₁₆ " x 24 ⁹ / ₁₆ " x 46"	27 ⁷ / ₁₆ " x 24 ⁹ / ₁₆ " x 58"	27 ⁷ / ₁₆ " x 24 ⁹ / ₁₆ " x 70"
Exterior Dimensions (h x f-b x w)	61 ³ / ₄ " x 30 ⁹ / ₁₆ " x 53 ³ / ₄ "	61 ³ / ₄ " x 30 ⁹ / ₁₆ " x 65 ³ / ₄ "	61 ³ / ₄ " x 30 ⁹ / ₁₆ " x 77 ⁷ / ₈ "
Cabinet Weight* (lbs)	668	756	830
Shipping Weight** (lbs)	798	906	1000
Sash Height	8" / 10"	8" / 12"	8" / 10"
Noise (dBA)	60 / 61	65 / 67	65 / 66
Operating Amperage [†]	3.6 / 4.0	4.0 / 6.7	5.5 / 6.7
Readysafe Amperage	1.6 / 1.7	1.7 / 1.9	2.0 / 2.0
Power Consumption ^{††}	432 / 480	480 / 804	660 / 804
Heat Generation [‡] (BTU/hr)	1474 / 1638	1638 / 2743	2252 / 2743

*Includes optional stand

**Includes packaging and optional stand

[†]Amperage for new cabinet with clean filters

^{††}Power consumption at 120V

[‡]Calculated maximum based on operating amperage

Exhaust Requirements

	Exhaust CFM Min/Max	Static Pressure W.C.		
		8" duct	10" duct	12" duct
SG403A-HE 8" Sash	290 / 663	-0.10 / -0.32	-0.04 / -0.17	-0.03 / -0.08
SG403A-HE 10" Sash	360 / 701	-0.15 / -0.62	-0.05 / -0.18	-0.04 / -0.10
SG403A-HE 12" Sash	415 / 871	-0.17 / -0.75	-0.07 / -0.30	-0.05 / -0.25
SG503A-HE 8" Sash	360 / 700	-0.15 / -0.62	-0.05 / -0.16	-0.04 / -0.12
SG503A-HE 12" Sash	560 / 850	-0.22 / -0.74	-0.09 / -0.24	-0.07 / -0.17
SG603A-HE 8" Sash	460 / 845	-0.15 / -0.74	-0.07 / -0.18	-0.06 / -0.13
SG603A-HE 10" Sash	550 / 945	-0.20 / -0.78	-0.11 / -0.24	-0.09 / -0.16
SG603A-HE 12" Sash	644 / 1114	-0.30 / -0.79	-0.14 / -0.36	-0.11 / -0.30

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 300% 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", 10", and 12" 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.
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 27⁷/₁₆" 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 front-loading.
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 5 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™.
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. Filter protector on top of cabinet is cold-rolled steel with a powder coated finish.
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 30¹/₂" to 32⁵/₈" and 36¹/₈" to 38⁵/₈".
21. Viewscreen guide design shall be a counterweighted pulley system allowing ease of movement up and down.

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 electronic ballasts producing an average of 125 foot-candles illumination at work surface.

CONSTRUCTION

1. The vertical sliding viewscreen shall be slanted at an angle of 10° 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.

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 NSF/ANSI #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.

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