ULTIMA

CLASS II BIOLOGICAL SAFETY CABINET

AES ENVIRONMENTAL

CLYDE-APAC

EMAIL AIRHANDLING

VOKES Filtration Technology

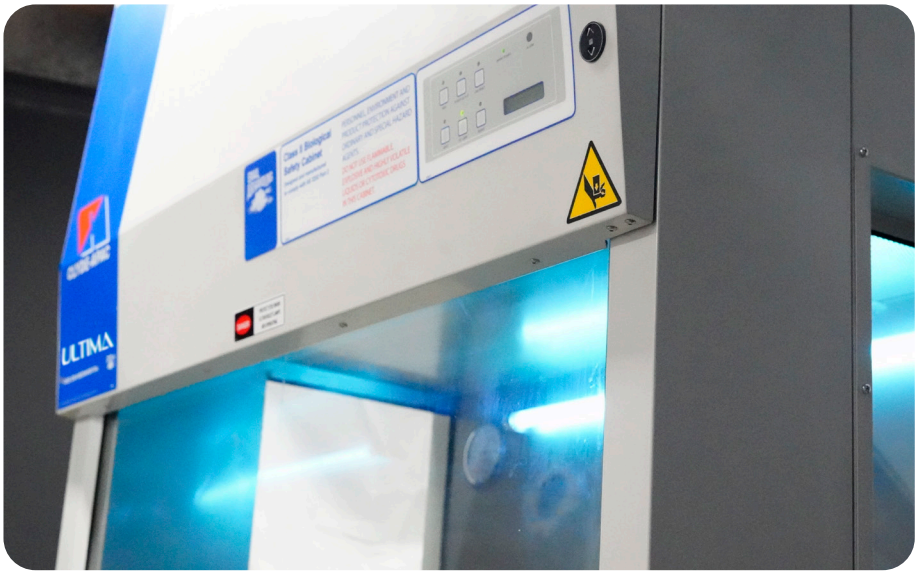
INTRODUCTION

The Ultima is AES Environmental's next-gen Class II Biological Safety Cabinet, engineered and manufactured in Australia to meet the requirements of AS 2252.2. Designed for laboratories that demand uncompromising safety and performance, the Ultima is a Class II Type A2 BSC delivers exceptional protection for operator, product, and environment.

At the heart of the Ultima is its innovative sash mechanism. Traditional cable and counterweight systems can present reliability concerns over time, but the Ultima's screw-driven actuators and rigid sash frame remove that risk.

This innovation ensures the sash remains securely locked in place throughout operation, delivering confidence for operators and setting a new benchmark for laboratory safety.

Being locally manufactured, the Ultima provides laboratories with the assurance of ongoing support from an established Australian team. With service expertise, rapid response capability, and guaranteed compliance to AS 2252.2, the Ultima is purpose-built for Australian conditions.



SILENCE WITHOUT COMPROMISING COMFORT AND SAFETY

› Quieter

The Ultima Class II has an improved air profile, allowing for quieter working whilst maintaining the same high level of performance.

› Larger Side Windows

The larger side windows of the Ultima allow for increased visibility, ideal for side-on viewing in training scenarios.

› Welded Work Zone

The work zone of the Ultima Class II is fully welded, eliminating the chances of leaks from faulty seals, increasing user safety and protection. The welded corners also allow for easier cleaning during decontamination, removing the risk of contaminants building up in the crevices of interior joints.

› Sliding Sash Window

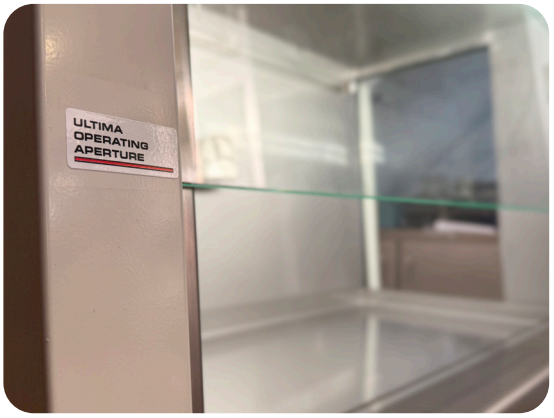
The highlight of the Ultima is found in the unique mechanism of the sliding sash window. A first of its kind, the screw-type actuator works as a safety mechanism preventing the sash window from unexpectedly falling closed and causing a serious injury. This mechanism sets the Ultima apart from the operation of other BSC's which rely on straps or wires that are prone to unexpected snapping.

INTERGRATED FILTRATION SYSTEM

The Ultima's independent H14 HEPA supply and exhaust filters deliver 99.995% efficiency at 0.3 microns—the most penetrating particle size—offering exceptional protection against both smaller and larger airborne contaminants. This advanced dual-filtration system ensures clean, particle-free airflow throughout the work zone, safeguarding your samples, personnel, and laboratory environment with the highest level of filtration performance.

DESIGN

The Ultima is designed and built in full compliance with AS 2252.2:2025, ensuring it meets the strict requirements for Class II Biological Safety Cabinets in Australia. Its welded one-piece stainless steel work zone, smooth radius corners, and removable work tray eliminate crevices where contaminants could collect, making cleaning and decontamination fast and effective.



A sash window, constructed from 6mm toughened glass, with actuator-driven locking ensures stability and prevents accidental drops, while the mechanism is positioned outside the negative plenum for safer servicing. Integrated LED lighting delivers bright illumination without heat, and the large side windows improve visibility, ideal for both daily operation and training scenarios. A watertight welded sump provides spill retention capacity, giving additional security when handling liquids.

USER COMFORT

Featuring an ergonomic slanted window, the Ultima promotes a natural working posture, reducing strain on shoulders and neck while reducing glare. For additional flexibility, the optional electric height-adjustable stand allows each user to set the cabinet at their preferred working level, ensuring comfort across a wide range of tasks.

A refined airflow profile further enhances the working environment by significantly reducing noise, minimising distraction and fatigue. By combining thoughtful ergonomics with quiet, efficient performance, the Ultima creates a safer, more comfortable workspace that helps users stay focused on their work.

SAFETY & PERFORMANCE

The Ultima is engineered to provide consistent protection for the operator, product, and environment in strict accordance with AS 2252.2:2025. A dual-fan system is the cornerstone of performance, with independent fan control ensuring stable airflow even under variable laboratory conditions. This redundancy allows the Ultima to maintain safe operating parameters over time, extending performance life and reducing unplanned downtime.

Airflow is carefully managed through the cabinet's refined laminar profile, maintaining uniform downflow across the work zone to protect sensitive samples from cross-contamination. High-efficiency H14 HEPA filters (99.995% at 0.3 microns) deliver proven particle retention, while a negative pressure containment design prevents leaks and ensures hazardous air cannot escape the cabinet. Exhaust air is filtered again before release, safeguarding both the laboratory and its personnel.

The Ultima's microprocessor control system gives operators clear, real-time visibility of cabinet status. Continuous monitoring of cabinet pressure, filter performance, and sash position ensures early detection of any deviation, with alarms and feedback built in to maintain safe operation.

WHAT'S NEW IN AS 2252.2:2025?

The 2025 edition of AS 2252.2 is the most significant update in more than a decade. It sets a higher benchmark for Class II cabinet design, placing stronger emphasis on designed safety and embedding new requirements that make cabinets safer for operators, easier to certify, and more reliable in daily use. With tighter design and performance criteria, the standard ensures that every cabinet delivers consistent protection, integrity, and operator confidence.

FEATURES:

› Sash control

Sliding windows must include secure locking mechanisms, safe load ratings, and alarms when outside the normal operating position.

› Critical performance testing

Stricter requirements for filter integrity, aperture containment, and air velocity uniformity. All verified through AS 1807 methods.

› Operator safety and comfort

Defined limits for sound levels, vibration, and lighting intensity, with ergonomics formally considered for extended use.

› Construction integrity

Stainless steel work zones with crevice-free joints, robust outer shells, and elimination of gel seals to ensure decontamination and long-term reliability.

› Safe design principles

Explicit emphasis on hazard elimination and lifecycle risk management, embedding safety into every stage of cabinet design and use.

The Ultima was developed alongside these changes, incorporating each requirement to meet, and in many cases exceed, the standard.

SAFE SLIDING SASH WINDOW

The sash window has long been the most vulnerable component in Biological Safety Cabinet design. Traditional cable and counterweight mechanisms rely on straps or wires that are prone to wear, fraying, and unexpected failure. In the worst cases, this can result in a sash free-fall, posing a serious safety risk to operators.

The Ultima changes that.

› **Fail-safe locking**
Even under power loss, the sash remains held in position, providing operators with complete confidence in safe operation.

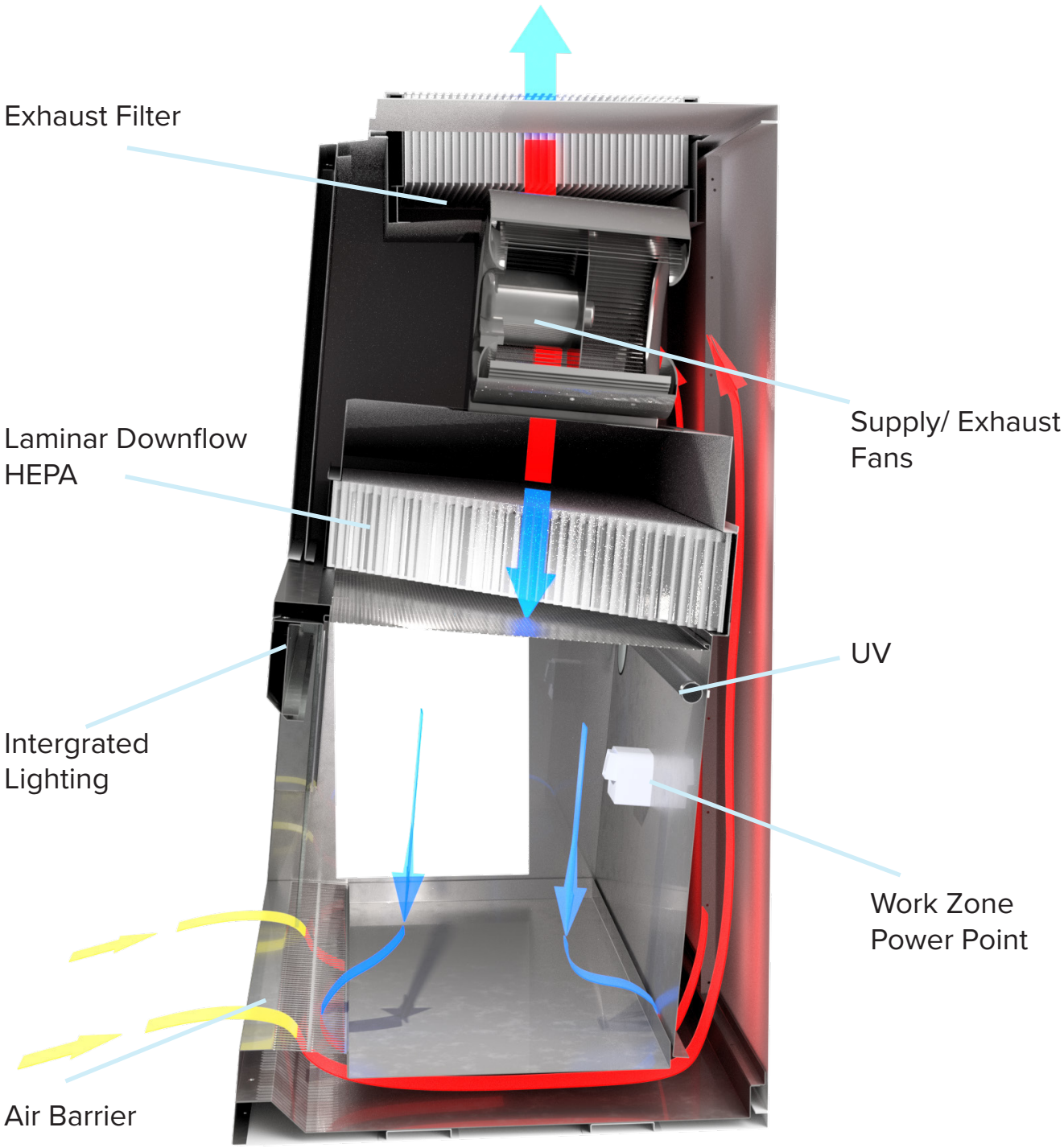
› **Screw-driven actuator system**
Replacing straps and counterweights, the Ultima uses precision screw-type actuators to control sash movement. This rigid, mechanical drive eliminates the risk of sudden drops, ensuring the sash remains securely locked in position during operation.

› **Rigid sash frame**
The sash is mounted within a reinforced frame, preventing distortion or wobble and ensuring smooth, controlled travel every time.

› **User control & ergonomics**
Smooth operation allows the sash to be positioned precisely at safe working height, while the angled design supports a natural working posture without compromising the air barrier.

› **Standards-driven design**
Developed in line with AS 2252.2:2025, the Ultima sash mechanism sets a new benchmark for safe cabinet operation in Australia — providing peace of mind for laboratories, safety officers, and operators alike.

AIRFLOW



Dirty Air

Outside Air

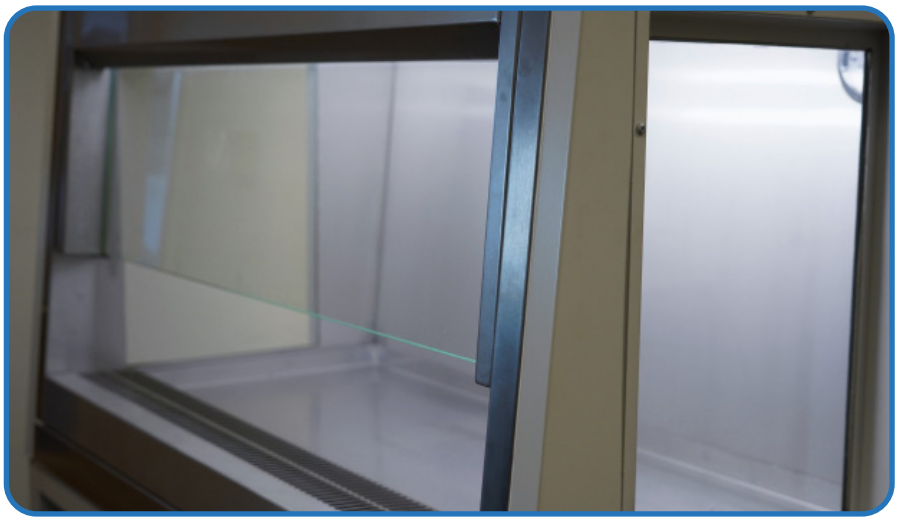
Clean Air

CABINET OPTIONS

- Choice of Top, Front, L/H or R/H exhaust
- Air tap
- Gas tap with solenoid control
- Electronically-controlled, height adjustable floor stand
- Floor stand, semi-adjustable (height to order)
- Extra power outlet (1 x power outlet supplied as standard deature)
- Uninterrupted Power Supply (UPS)
- Vacuum tap with solenoid
- Customised work zones
- Fumigation adaptor panels for work opening and exhaust

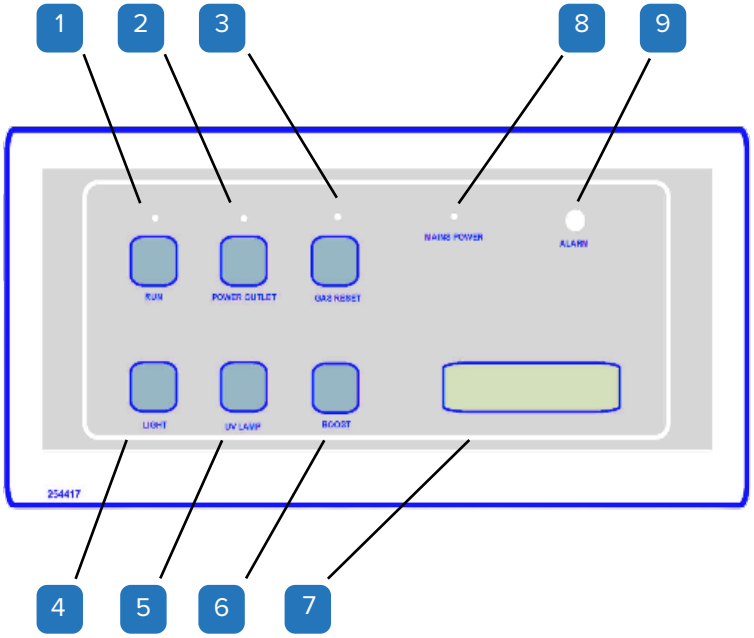
Gas tap

Adjustable floor stand



Glass sides & large front access opening

OPERATION



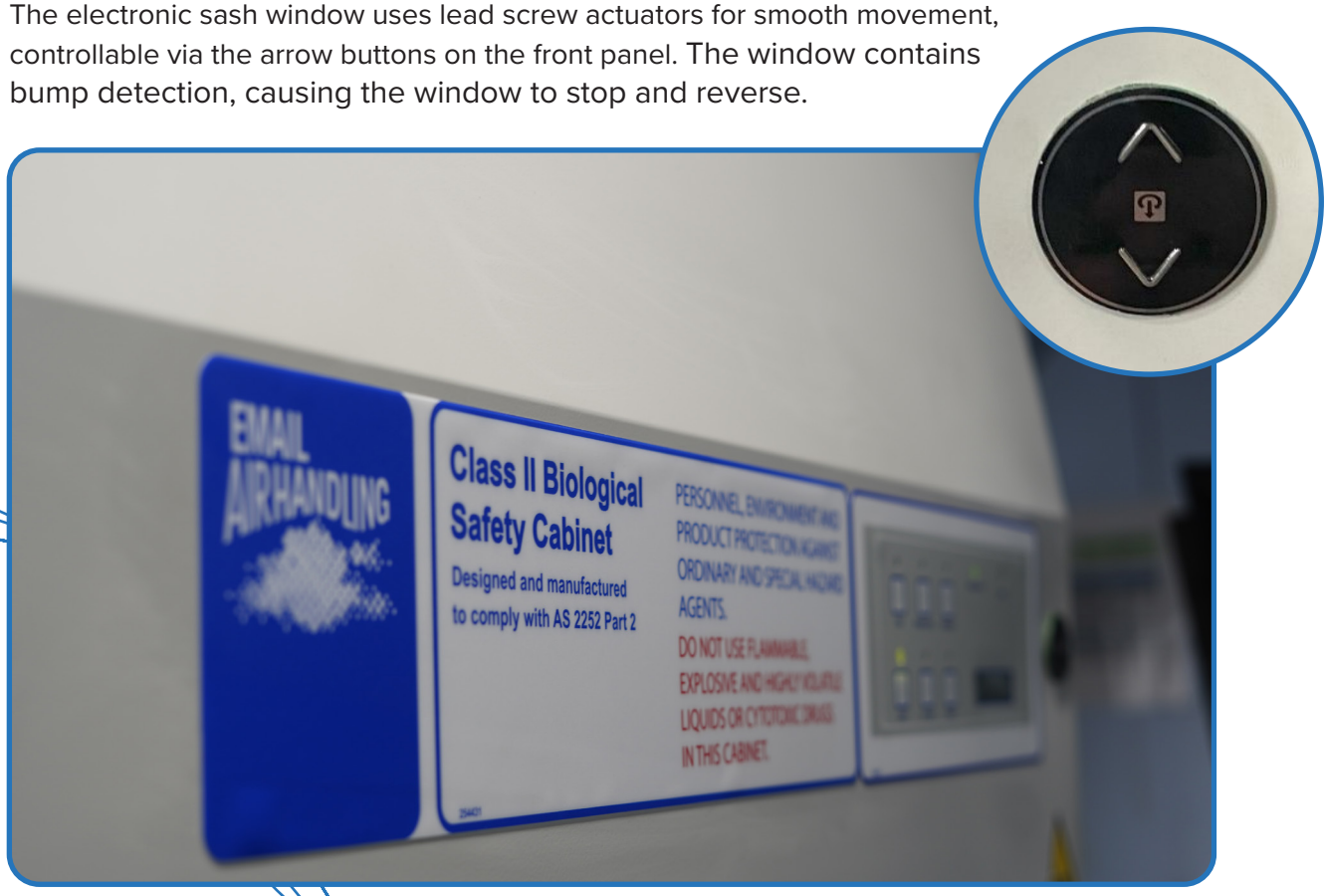
Control Panel

1. Fan/post-useover-run switch
2. Power outlet switch
3. Gas reset switch*
4. Fluorescent light switch
5. UV lamp switch*
6. Boost mode switch
7. Display panel
8. Mains power indicator
9. Alarm indicator

*optional function

Viewing Window Control Panel

The electronic sash window uses lead screw actuators for smooth movement, controllable via the arrow buttons on the front panel. The window contains bump detection, causing the window to stop and reverse.



GENERAL SPECIFICATION ULTIMA CLASS II BIOLOGICAL SAFETY CABINET

Model		Ultima 90	Ultima 120	Ultima 150	Ultima 180
Part No.		1687-7000/90T/S	1687-7000/120T/S	1687-7000/150T/S	1687-7000/180T/S
Nominal Size		0.9m (3')	1.2m (4')	1.5m (5')	1.8m (6')
External Dimensions (WxDxH)		1085x790x1570mm	1385x790x1575mm	1685x790x1570mm	1985x790x1570mm
Internal Work Zone Dimensions (WxDxH)		880x580x620mm	1180x595x615mm	1480x580x620mm	1780x580x620mm
Test Opening		180mm	180mm	180mm	180mm
Working Opening		180mm	180mm	180mm	180mm
Fans: 240V single phase direct drive		2	2	3	3
Average Airflow Velocity	Inflow to grille	1m per second at set point			
	Downflow	0.4 - 0.45m per second			
Sound Emission*		< 62 dB (A)	< 62 dB (A)	< 62 dB (A)	< 62 dB (A)
Airflow Velocity	Inflow	120L/s	175L/s	220L/s	300L/s
	Downflow	310L/s	410L/s	520L/s	620L/s
	Exhaust	120L/s	175L/s	220L/s	300L/s
HEPA Filter Typical Efficiency	Downflow	99.995% at 0.1 to 0.3 microns to AS4260/EN1822			
	Exhaust	99.995% at 0.1 to 0.3 microns to AS4260/EN1822			
Germicidal UV Lamp AS1807:2021 Clause 4.5		400mW/m²			
Fluorescent Lamp Intensity S1807:2021 Clause 4.5		1200 Lux			
Certification to Australian Standards		AS1807: 2021 Clause 4.1/ Clause 4.3/ Clause 4.4/ Clause 4.5/ Clause 4.7/ Clause 4.9/ Clause 4.10			
Cabinet Contruction AS2252.5 - 2009	Main Body	1.2mm 18 gauge powder coated electro galvanised steel			
	Work Surface	1.2mm 18 gauge type 304 stainless steel with B2 finish			
	Side Walls and Sump	1.2mm 18 gauge type 304 stainless steel with B2 finish			
Gas tightness of outer shell		Gas tightness of outer shell determined in accordance with AS1807:2021 Cl. 4.11			
Front viewing window		6mm laminated glass	6mm laminated glass	6mm laminated glass	6mm laminated glass
Electrical 220- 240V AC 50Hz	Cabinet Power/ Amp	1300 Watts - 10 Amps	1300 Watts - 10 Amps	1300 Watts - 10 Amps	1300 Watts - 10 Amps
	Outlet Amp Fuse	10 Amps	10 Amps	10 Amps	10 Amps
	Full Load Amps	4.5 Amps	4.5 Amps	6.75 Amps	6.75 Amps
	Power Consumption	0.7 Kw	0.7 Kw	0.9 Kw	0.9 Kw
Cabinet Net Weight (kg)		210	250	280	300
Shipping Dimensions		1085x800x1650mm	1400x800x1650mm	1650x800x1650mm	2025x800x1650mm
Total Shipping Weight (kg)		240	280	310	330
Shipping Volume		1.4322m³	1.848m³	2.178m³	2.673m³

* Factory sound level test performed with new filters installed. Expected performance with used filters < 65 dB (A) in accordance with AS 2252.2

TESTING AND SERVICE

AES Environmental, through its NATA-accredited laboratory (No. 1139), offers comprehensive on-site maintenance, testing, and certification services for safety cabinets, laminar flow workstations, cleanrooms, and HEPA filter installations. It is reccommended all BSC's should be atleast once a year accredited to an approved standard and adjusted by a competent technician, preferably from an independant ILAC/NATA accredited laboratory.

AUSTRALIAN STANDARDS

Ultima cabinets comply with AS 2252.2 in all three vital areas:

- Cabinet design/construction
- Cabinet performance
- Air filter performance

Some cabinets on the Australian market do not comply in all of these areas. A decision to use such equipment should be taken only after careful consideration of the risk posed by the materials to be handled and with the agreement of those who will operate the equipment. (See current and proposed Health and Safety Regulations).

CERTIFICATION

Ultima Class II Biological Safety cabinets are factory tested and certified by a NATA-Accredited laboratory. Additional on-site testing and certification is recommended as follows:

- On site prior to use
- At least once a year
- After HEPA filter replacement
- After any re-location
- Change in work program

In special circumstances, such as significant change in the work programme, or where unsafe cabinet operation is suspected.

AES Environmental maintains an ISO 9001:2015 quality management system to ensure process and product conformance.

Please note: Specifiers and intending users should see AS2252.2 which sets out the intended applications and limitations of these cabinets.

GET TO KNOW US

AES Environmental is a family-owned, engineering and manufacturing business. The company comprises of major brands situated in the Air Filtration, Pollution Control and Life Sciences markets. Those brands and products are market-leading names within their fields ensuring that AES Environmental is capable of fulfilling its goal of providing the market with a single, integrated source for air filtration, clean room and pollution control needs.

Whatever business area you operate in, effective air filtration and pollution control is vital for your products, processes and people. All our products are manufactured in Australia and along with that, we offer installation and service Australia wide, that you can always rely on.

AES Environmental consists of an Australian head office and manufacturing location in Sydney, NSW, manufacturing and service operations in Perth, WA, Adelaide, S.A. and service operations in Melbourne, Vic. Internationally the business operates manufacturing facilities in Bangkok, Thailand and Newcastle Upon-Tyne, UK.

However large or small the need, with expertise in just about every area of industrial and process filtration and separation, we're ready to help to deliver the products and 'hands-on' support to help you build a better future.

GET IN TOUCH!

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