Thermo Scientific™ 1500 Series B2
Class II, Type B2 Biological Safety Cabinet

Now its easy to select the right biological safety cabinet for your work with gases and volatile chemicals

Thermo SCIENTIFIC

Thermo Scientific 1500 Series B2 Total Exhaust Biological Safety Cabinet

Introducing the 1500 Series B2, the recommended cabinet for applications requiring no recirculation within the BSC and higher volumes of exhaust for greater dilution of volatile toxic chemicals.

The 1500 Series B2 biological safety cabinet features an ergonomic design, advanced DC motor technology, and innovative airflow system that maximizes operator safety.

The 1300 and 1500 Series portfolios of products meets the highest quality and safety standards, and is fully-compliant with NSF/ANSI 49 for Class II biological safety cabinets. The efficiency of the state-of-the-art DC motor results in significantly reduced energy consumption and cost savings. Our experienced scientists are available to understand your applications and offer support to select the best model to meet your laboratory requirements.

Thermo Scientific products simplify your decision-making process, saving you time and effort in selecting the most effective biological safety cabinet for your specific application.

Thermo Scientific™ 1500 Series B2 Total Exhaust Biological Safety Cabinet

Thermo Scientific 1300 Series A2 and 1500 Series B2 Biological Safety Cabinet

Choose the right model for your laboratory

The Thermo Scientific 1300 and 1500 Series family of products address every common use of the Class II biological safety cabinet. By selecting the 1300 Series A2, the 1300 Series A2 with a thimble exhaust, or the 1500 Series B2 biological safety cabinet, your facility will meet all applicable recommendations from NSF/ANSI 49, USP <797> and USP <800> for the preparation of sterile hazardous and non-hazardous drugs in Class II biological safety cabinets.

Biological Safety Cabinet Selection Guide

Exhaust technology recommendation for specific work applications

Work application using:	1300 series A2 cabinet vented to the room	1300 series A2 cabinet with thimble exhaust	1500 series B2 cabinet with direct duct "total exhaust"
Particulate contamination and hazards including biological agents (viruses and bacteria) at biosafety levels 1, 2, 3, or 4	Recommended	Exceeds Requirement	Exceeds Requirement
Agents in row 1 and/or for use with volatile chemicals if permitted by a chemical risk assessment	No	Recommended	Recommended
Agents in row 1 and/or for the preparation of compounded sterile preparations in accordance with USP <797>	Recommended	Exceeds Requirement	Exceeds Requirement
Agents in row 1 and/or for the preparation of hazardous drugs in accordance with USP <800>	No	Recommended	Recommended
Vulnerability of system to exhaust variation	None	Minimal	Significant
Additional annual cost of required exhaust	None	$1,900 to $2,900 annually*	$3,000 to $4,500 annually*

*Cost estimates are based on the required exhaust volume for the cabinet type, and assume a cost of $4.50 per cfm per year for replacement air. E. Mills, D. Sartor / Energy 30 (2005) 1859-1864

Innovative airflow design

Choose your Thermo Scientific 1300 and 1500 Series models based on:

1. Air recirculation inside the work chamber.

2. The external exhaust method.

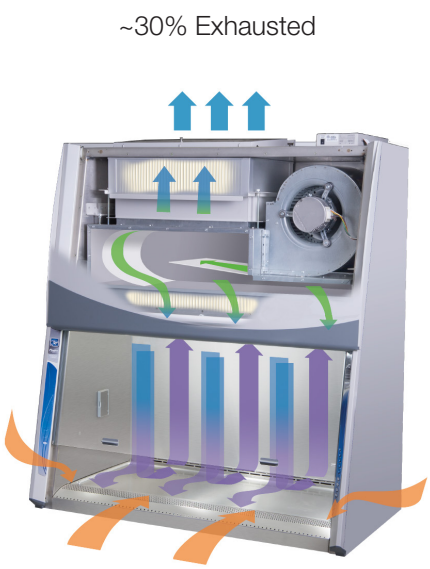
Air Recirculation Factors

The 1300 Series A2 cabinet features recirculation of filtered air inside the work chamber. Air from the external environment and filtered air from the sample work area mix inside the cabinet plenum. Some of the mixed air is filtered and exhausted out of the cabinet and the remaining air is filtered and recirculated into the work area. This process of recirculation results in rapid dilution of gases or volatile chemicals released inside the sample chamber.

The 1500 Series B2 cabinet has NO recirculation inside the work chamber. Air from the external environment is drawn into the blower motor plenum, filtered and then pushed into the work area as downflow air. All of the downflow air and all of the air entering the cabinet through the front opening (inflow) air is “totally exhausted”, eliminating the risk of sample or user exposure to harmful chemicals through recirculation.

Due to this non-recirculated air flow and total exhaust system, the 1500 Series B2 cabinet provides a higher level of product and user protection from high concentrations of some volatile toxic chemicals and radionuclides.

A2 Airflow



Room Air **HEPA-Filtered Air**

Room air is drawn into inlet grille. Air in plenum beneath work surface is a mix of unfiltered room air, and air from the work area. The blower draws this contaminated air through back plenum of the cabinet, where approximately 70% of the air is recirculated through the supply HEPA filter and back over work area. The remaining air is discharged to the environment after passing through exhaust HEPA filter.

B2 Airflow

Unfiltered Air Under Negative Pressure **Unfiltered Air Under Positive Pressure**

Room air is drawn through top of cabinet. The air is HEPA filtered before flowing down through the work area. Room air is also drawn into the inlet grille. All of the contaminated air is drawn under the work surface, then up the rear plenum and through the exhaust HEPA filter. A dedicated remote blower and exhaust system draw 100% of filtered exhaust air out of the lab.

Exhaust considerations

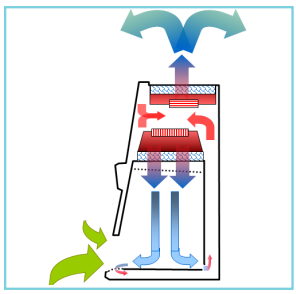
The 1300 Series A2 cabinet may be safely exhausted back into the lab environment or to the outside of the building through a thimble exhaust connection. If the cabinet is only used to contain biological or other particulate hazards, the clean filtered exhaust can be safely vented into the room.

The 1300 Series A2 cabinet with thimble exhaust should be used when work is performed with volatile toxic chemicals and radionuclides, if permitted by a chemical risk assessment. Class II, Type A2 cabinets do not trap gases with a HEPA filter making it necessary to exhaust the cabinet out of the lab through an optional thimble connection.

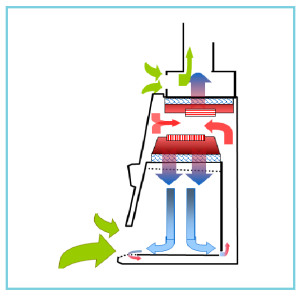
Class II, Type B2 cabinets do not have internal exhaust fans and depend on external exhaust methods to operate. The 1500 Series B2 cabinet exhausts more air than the 1300 Series A2 cabinet with thimble connection and will cost more to operate.*

Deciding between the 1300 Series A2 or 1500 Series A2 cabinet is a balance between your application and the total cost of operation over the lifetime of the cabinet.

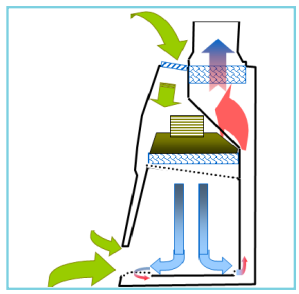
*For example, a nominal 4 foot B2 model will draw 282 cfm through the window and the balance through the supply HEPA filter as downflow to exhaust 852 cfm. A nominal 4 foot thimble-connected A2 model will only exhaust 360 to 450 cfm (depending on whether the front opening is 8 or 10 inches high).



Class II, Type A2 vented to room



Class II, Type A2 with thimble exhaust



Class II, Type A2 with direct duct "total exhaust"

Downflow air	The downflow air is supplied by a filtered mix of laboratory and sample chamber air.	The downflow air is supplied by a filtered mix of laboratory and sample chamber air.	The downflow air is supplied entirely by filtered air from the laboratory.
Inflow air	The inflow air is drawn from the laboratory into the front grille and prevented from entering the work area.	The inflow air is drawn from the laboratory into the front grille and prevented from entering the work area.	The inflow air is drawn from the laboratory into the front grille and prevented from entering the work area.
Exhaust air	The filtered exhaust air is vented into the laboratory.	The filtered exhaust air is completely captured by the thimble and exhausted out of the building.	The filtered exhaust air is completely exhausted through the direct duct connection and exhausted out of the building.

Important Note: The Thermo Scientific 1500 Series B2 biological safety cabinet requires an exhaust system capable of drawing 852 cfm against a negative static pressure of 1.8" w.g. for the four foot wide unit and 1,265 cfm against a negative static pressure of 2.2" w.g. when the exhaust HEPA filter is new, and up to 2.5" w.g. when loaded prior to replacement. The exhaust flow must be adjustable to allow for variation over the life of the exhaust HEPA filter.

Three key considerations

Effective installation of your 1500 Series B2 Biological Safety Cabinet

1. Exhaust

- A dedicated exhaust is recommended for each 1500 Series B2 cabinet to ensure steady exhaust volume
- Roof blowers should offer a stack that extends straight upward at least 10 feet above the roof surface to avoid building exhaust to be re-captured by intake channels
- Roof exhaust fans should be energized by direct-connected electric motors to avoid failures caused by fan belt failures
- The exhaust system can be fitted with a back-draft damper to prevent the reversing of airflow in the system if applicable
- If hazardous biological agents are used in the research application, a gas-tight damper is provided to assure easy isolation of the cabinet for decontamination

2. Room pressurization

- Extreme room pressurization differentials can negatively impact the working environment. Using the exhaust of the 1500 Series B2 cabinet as the only exhaust from the lab is not recommended
- The supply and exhaust airflow of the lab should be installed separately to ensure that system balance can be maintained independently without sacrificing performance of the 1500 Series B2 cabinet

3. Managing filter life

- The downflow filter on a 1500 Series B2 cabinet is subjected to more than twice the rate of loading as a recirculating A2 cabinet
- The auto compensation feature in the 1500 Series B2 allows for safe use of air pre-filters for additional extension of HEPA filter life
- If the 1500 Series B2 cabinet is installed in rooms supplied with HEPA-filtered air this will minimize filter loading and increase filter life

Enormous promise, significant challenges

As the world leader in serving science, we understand your challenges and share your goal of achieving breakthroughs in cell biology. We are committed to developing and delivering innovative tools that help you overcome obstacles and achieve excellence at every stage of your cell culture process – from growth and passage to culture and experimentation through characterization, analysis and storage. Please visit us at **www.thermofisher.com/cellculture** to learn more about our comprehensive portfolio of high quality equipment, consumables, and services for your cell culture lab.

Simplifying safety decisions

The 1500 Series B2 Biological Safety Cabinet - Designed for safe and easy work with gases and volatile chemicals

Enhanced user protection
Auto compensation feature allows the safe use of optional downflow air prefilters. Automatic adjustment of downflow velocity during HEPA filter loading provides added product protection.

Contamination control
Timed UV light option reduces risk of sample contamination and lowers bulb replacement costs.

Safe operation
Convenient display lets you see the cabinet is operating safely while you are working.

Operator comfort
10° sloped window for ergonomic posture reduces strain and fatigue associated with long working hours.

Ease-of-cleaning
Single-piece stainless steel work tray minimizes loss of pipette tips and spills into the drain pan.

The most advanced Class II, Type B2 cabinet available with superior ergonomics and airflow design.

All Class II, Type B2 biological safety cabinets are built for applications that require working with volatile toxic chemicals and radionuclides, or the aseptic processing of hazardous drugs.

A complete laboratory containment system includes not only the selection of the proper cabinet, but also the correct set up of the exhaust system, building ventilation, and room pressurization. Our experts can provide guidance to ensure your complete lab is set up safely.

thermoscientific

Ordering Information for 1500 Series Class II, Type B2 Biological Safety Cabinets

Specifications	4 foot cabinets				6 foot cabinets			
Cat. No.	1510	1515	1517	1517F, G, or M	1560	1562	1564	1564F, G, or M
With factory installed UV Light	1511	1516	1518	1518F, G, or M	1561	1563	1565	1565F, G, or M
Electric Requirements	115 V, 50/60 Hz	230 V, 50/60 Hz			115 V, 50/60 Hz	230 V, 50/60 Hz		
Internal Receptacles and Power Cord	US	China/ Australia	Nema 6-15	Avail. with Schuko (F), UK (G) or India (M)	US	China/ Australia	Nema 6-15	Avail. with Schuko (F), UK (G) or India (M)
Damper	Damper 10-inch diameter air-tight damper included							
Dimensions								
Exterior Dimensions H x W x D in. (mm)	72.6 x 54.3 x 31.6 (1844 x 1379 x 803)				72.6 x 78 x 31.6 (1844 x 1981 x 803)			
Interior Dimensions H x W x D in. (mm) (Work area is taller in front, shorter in back)	25.7-29.2 x 48.5 x 25.5 (653-742 x 1232 x 648)				25.7-29.2 x 72.5 x 25.5 (653-742 x 1841 x 648)			
Working Height of Front Window in. (mm)	8 (203)				8 (203)			
Maximum Opening Height of Front Window in. (mm)	21.75 (552)				21.75 (552)			
Work Surface Area square in. (m^2)	854 (0.55)				1276 (0.82)			
Shipping Dimensions H x W x D in. (mm)	81 x 72 x 44 (2057 x 1829 x 1118)				81 x 86 x 44 (2057 x 2184 x 1118)			
Weight								
Net weight, lbs (kg)	545 (247)				720 (327)			
Shipping weight, lbs (kg)	646 (293)				836 (379)			
Ventilation System								
Exhaust/Air Volume measured with DIM CFM (m^3/h)	665 cfm @ 1.8" w.g. (1130 cmh @ 448 Pa)				998 cfm @ 2.2" w.g. (1696 cmh @ 548 Pa)			
Exhaust/Air Volume measured with traverse CFM (m^3/h)	852 cfm @ 1.8" w.g. (1448 cmh @ 448 Pa)				1265 cfm @ 2.2" w.g. (2149 cmh @ 548 Pa)			
Heat Emission								
Heat Emission at 25°C ambient kW	0.022				0.024			
Filter Specification								
Supply/Exhaust Air Filter	99.99% @ .3 Micron				99.99% @ .3 Micron			
Performance								
Certification	NSF/ANSI 49, ETL, ETL, CE				NSF/ANSI 49, ETL, ETL, CE			
Sound Pressure Level dB (A)	65				66			
Lighting Power fc	91				91			
Electrical Data								
Power Consumption, operating set point kW	0.28				0.37			
Current Consumption Amps	2.4	1.2	1.2	1.2	2.4	1.2	1.2	1.2
Receptacles (Rear Wall)	2 duplex, GFI	2 single	2 duplex	2 single	2 duplex, GFI	2 single	2 duplex	2 single

*Clean filters, fans at full speed, interior lighting activated.
ETL tests the products to the following UL and Canadian standards: UL Standard 61010-1, CAN/CSA Standard C22.2 No. 1010.1. CE Mark applies only to 230 V models.

Options and Accessories

Cat. No.	Description	Description
3730402	Adjustable height base stand for 4 foot cabinet	Provides comfortable working height of 30" to 36" adjustable by one inch increments. Adjustable height stand is preassembled and shipped on a skid for easy installation. Must be ordered seperately
3730602	Adjustable height base stand for 6 foot cabinet	
3990001	30" fixed stand for 4 foot cabinet, for seated applications	Provides fixed working height of 30" to 36". Not pre-assembled. Must be ordered separately.
3990005	36" fixed stand for 4 foot cabinet for standing applications	
3990003	30" fixed stand for 6 foot cabinet, for seated applications	
3990007	36" fixed stand for 6 foot cabinet for standing applications	
3857001	Floor Anchoring Brackets	Used to secure base stand to the floor of the lab.
3858611	IV Bag Holder Kit for 4 foot cabinet	Provides bar and hooks to hang IV bags near interior ceiling of the cabinet.
3858613	IV Bag Holder Kit for 6 foot cabinet	
3858800	Backdraft Damper 10-inch diameter	Prevents reversing of airflow in the exhaust system.
3859501	Supply ULPA Filter Option for 4 foot cabinet	Rated at 99.999% efficiency with particles 0.12 microns.
3859503	Supply ULPA Filter Option for 6 foot cabinet	
3859601	Exhaust ULPA Filter Option for 4 foot cabinet	
3859603	Exhaust ULPA Filter Option for 6 foot cabinet	
3747502	Service Valve Kit	Rated for use with air and non-combustible gas applications. Must be ordered separately.
3850500	Prefilter for 4 foot cabinet	Installed on the top of the cabinet to filter out room contaminants. Preserves life of the downflow HEPA or ULPA filters.
3850501	Prefilter for 6 foot cabinet	

Find out more at **thermofisher.com/BSC**

ThermoFisher SCIENTIFIC