



HyZone

Class II Microbiological Safety Cabinets

for operator,
environment and
product protection.

Microbiological Safety Cabinets

Microbiological Safety Cabinets are used to give operator, environment and product protection when handling dangerous biological materials. It is important to differentiate between conventional Unidirectional Air Flow (formerly called Laminar Air Flow or LAF) systems which give a particulate controlled atmosphere for critical operations and Microbiological Safety cabinets which give importance to Operator, Environment and Product Protection.

Selection of a Biological Safety Cabinet depends on the type of biologically hazardous materials handled inside the cabinet. Various International bodies recommend some biological risk classifications by taking into account the pathogenic nature of biological materials and minimum requirements for guaranteeing protection to personnel, environment and materials during their manipulations.

DPAG, DHSS-GB (The Dangerous Pathogens Advisory Group – Department of Health and Social Security – Great Britain), CDC-USA (Centre for Diseases Control, United States of America) World Health Organization (WHO), NCI-USA (National Cancer Institute), NIH-USA (National Institute of Health) etc., are some of the major contributors to development of parameters to classify different pathogens.



Classification of Microbiological Safety Cabinets

Different countries have adopted various standards and specifications for this equipment, but the following standards are generally accepted worldwide:

- NSF/ANSI 49 -2002 (National Sanitation Foundation, USA)
- EN 12469 -2000 (European Standard)
- AS 2252 -2004 (Australian Standard)

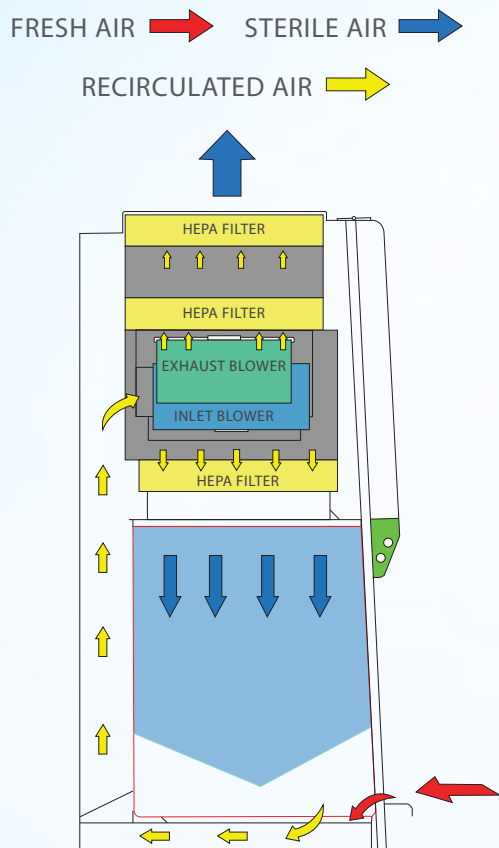
Microbiological Safety Cabinets are divided into Basic 3 Classes

Function	Class I	Class II	Class III
Operator protection	Good	Good	Excellent
Environmental protection	Good	Excellent	Excellent
Product protection	None	Excellent	Poor

HyZone Class II Cabinets are available in 3 types.

Class	Exhaust Air %	Recirculated Air %	Exhaust Connection
II A2	30	70	Into Room/Loose Connected to exhaust duct
II B1	70	30	Ducted out of Room
II B2	100	0	Ducted out of Room

Notes: 1: All designs shown above are with HEPA filter plenums (supply and exhaust) surrounded by negative pressure and with two HEPA filters in series in the exhaust
 2: Class I and Class III cabinets for special applications are available on request.



Principle of Operation

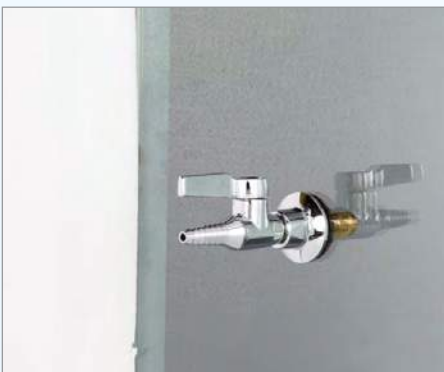
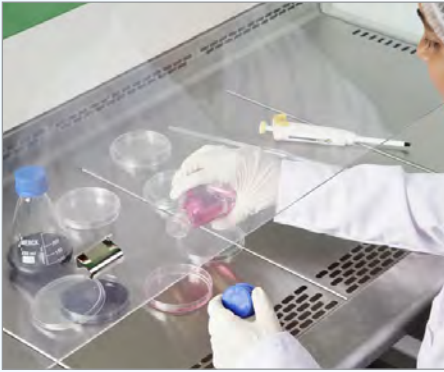
Fresh air is drawn in from the slots at the front opening. This air passes under the work surface and joins the return air plenum. The main blower then pushes air into another plenum which also accommodates Supply HEPA filter, the exhaust blower plenum and Exhaust HEPA filters. The inward air flow barrier prevents contaminants from exiting the work area.

The innovative cabinet design and positioning of supply and exhaust HEPA plenums in a negative envelope ensure that accidental air leakages are contained.

General Specification of HyZone Class II Microbiological Safety Cabinets

Model		A2003	A2004
Work table width		0.9 m (3')	1.2 m (4')
External Dimensions (W x D x H)	Without Base Stand	1035 x 800 x 1470 mm	1340 x 800 x 1470 mm
	With Base Stand, 711mm	1035 x 800 x 2181 mm	1340 x 800 x 2181 mm
Internal Work Area Dimensions (W x D x H)		982 x 563 x 670 mm	1270 x 563 x 670 mm
Average Airflow Velocity	Inflow	0.45 m/s (90 FPM) +/- 20%	
	Downflow	0.30 to 0.45 m/s (60 to 90 FPM) with uniformity of better than +/- 20%	
HEPA Filter Typical Efficiency	Downflow	>99.997% at 0.3 micron, H 14 as per EN 1822	
	Exhaust		
Noise level	Cabinet	<62 dBA at 45 dBA ambient	<62 dBA at 45 dBA ambient
Fluorescent Light Intensity		>1200 Lux (>100 foot candles)	>1200 Lux (>100 foot candles)
Cabinet Construction	Main Body	1.2 mm (0.05") 18 gauge steel with powder-coated finish	1.2 mm (0.05") 18 gauge steel with powder-coated finish
	Work table	1.5 mm (0.06") 16 gauge stainless steel, type 304,	1.5 mm (0.06") 16 gauge stainless steel, type 304,
	Side Walls	UV absorbing tempered glass, 5 mm (0.2"), transparent	UV absorbing tempered glass, 5 mm (0.2"), transparent
Electrical	220-240V, AC, 50Hz, 1Φ		
	Cabinet Power/ Amp	450 W / 2.5 AMP	500 W / 3 AMP

HyZone Class II Microbiological Safety Cabinets



HyZone Class II Microbiological Safety Cabinets from ThermoLab blend knowledge, experience and innovative design changes in creating state-of-the-art equipment as part of its offerings. HyZone is a Class II Microbiological Cabinet, designed and built to meet, if not exceed, performance requirements of the EN 12469:2000 Standard. 70% air is re-circulated through the main H14 HEPA Filter within the cabinet, while the remaining 30% is exhausted through two H14 HEPA filters in series.

HyZone Cabinets are suitable for handling microorganisms and pathogens as defined by the appropriate International Standards, current health and safety guidelines and legislation aimed at safeguarding health and safety of operators at work.

95 % of your requirements are met by Class II A2 Cabinets. However, Class I and Class III cabinets can be manufactured if your work so warrants.

Salient features of HyZone Class II Microbiological Safety Cabinets

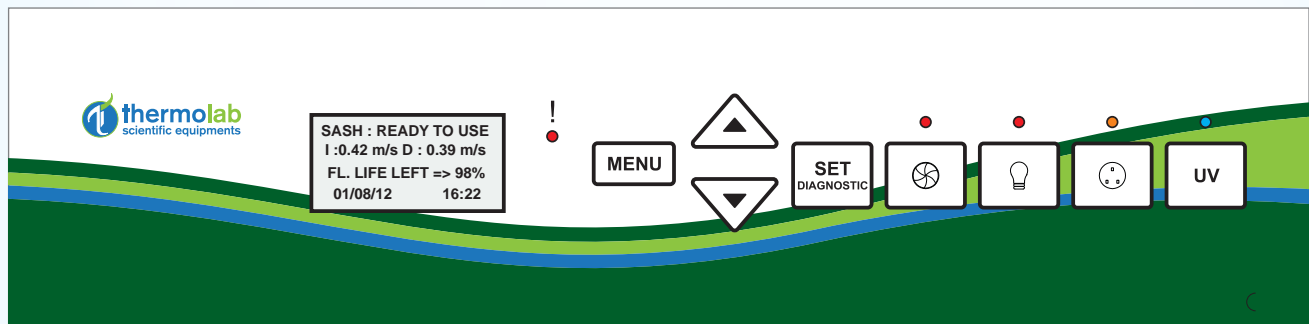
- Independent blowers for Supply and Exhaust air
- Double HEPA filtration of Exhaust air
- Negative pressure envelope (shroud) for HEPA filter Plenums and Return air path to prevent escape of Contaminated air to atmosphere and work area
- Simultaneous real time monitoring and display of Supply and Exhaust air velocities
- Monitoring of work area temperature
- Sliding front sash with counter weights for easy operation
- Microprocessor controlled operations with Normal, Fast Start and Service modes and alarms
- Ergonomic design like angled front sash, arm rest etc., for operator comfort
- RS 232 connectivity
- EN 12469:2000 compliant



Soft Touch Keyboard

Membrane touch keyboard and the rear-lit LCD display all required data keeping the operator constantly up to date of the cabinet conditions:

- Estimated life of HEPA filters
- Estimated life of UV lamp
- Cabinet Temperature
- Laminar airflow (Unidirectional Down Flow) velocity and frontal air barrier (in flow) velocity
- Front sash position



Audio Visual alarms are provided for :

- Out of range or incorrect laminar airflow velocity and frontal air barrier velocity
- Incorrect position of front sash-window
- Clogging of HEPA filters
- End of life-cycle of UV Lamp
- Out of range temperature

APPLICATIONS AREAS :

- Microbiology
- Medical Devices
- Virology
- Pharmaceuticals
- Haematology
- Pathology
- Cell culture
- Blood Bank
- Recombinant – DNA
- Eye Bank
- Stem Cells Research
- Reconstitution of Parenteral drugs
- Biotechnology
- Genetics.



Quality Assurance

Each unit is factory tested to meet international guidelines and dispatched in ready-to-plug-in condition. ThermoLab's testing services are available to assist you in routine maintenance and revalidation.



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