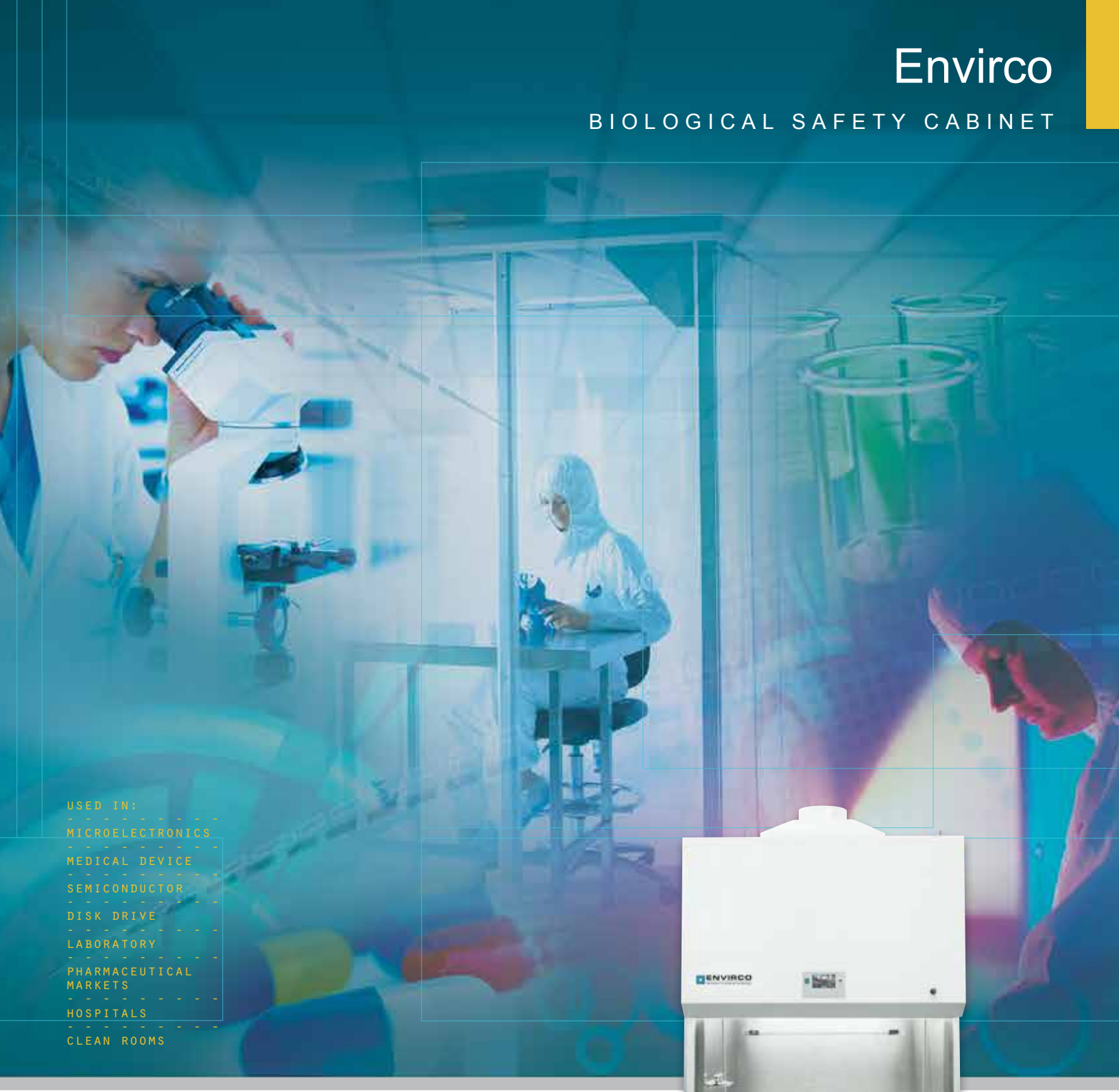
Envirco

BIOLOGICAL SAFETY CABINET



USED IN:

- MICROELECTRONICS
- MEDICAL DEVICE
- SEMICONDUCTOR
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- HOSPITALS
- CLEAN ROOMS

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Introduction

The Envirco Biological Safety Cabinet provides product, personnel and environmental protection and verifies cabinet integrity and performance. It is suitable for Biosafety Levels 1, 2 and 3 per CDC/NIH and NCR criteria. Preparation of chemotherapeutic drugs may also be performed in the Envirco Biohazard Cabinet per OSHA requirements. In addition, the cabinet provides an engineering control per the OSHA Bloodborne Pathogen Standard.

Airflow System

- 70% air recirculation.
- 30% air exhaust.

The unit maintains a minimum average inflow velocity of 0.65 m/s and average downflow velocity of 0.37 m/s.

Product Features

- **Advanced Microprocessor Control System:** This control system measures the air flow pressure accurately, strictly balancing the air velocity for entire working chamber. A unique advanced feature is an indicator bar on the LED control panel that is as an indicator for the life main filter and exhaust filter. This indicator will remind the user to replace the HEPA filters on time and will provide additional protection for the operator and environment.
- **Intelligent Filter Compensation System:** The vertical airflow will be automatically supplied at the speed of 0.37m/s ± 0.015m/s without interruption. When filter block occurs, the fan motor will increase its speed to ensure constant vertical air flow to guarantee the safe performance.
- **HEPA Filter.** 99.998% Efficient (0.3 microns), constructed of pleated borosilicate glass fibers.
- The motor driven front window can be moved smoothly and exactly to a desired position, and it can be completely closed when not use, providing a physical barrier.
- **Easy to Decontaminate and Disinfect:** The working chamber of the safety cabinet can easily be cleaned and disinfected. The stainless steel counter surface can be removed for autoclaving. The UV light can only be turned on when the front window is closed completely and the fluorescent lamp is turned off. It avoids the potential hazard to the operator from UV light.

The filter replacement and blower maintenance can be performed from the front of the cabinet.

Figure 1

Figure 2

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Performance Features

- HEPA Filter (Standard for Manual Window Series) 99.998% efficient (0.3 microns) HEPA filter is constructed of borosilicate glass fibers.
- Filter Life Indicator: The pressure is displayed on the control panel to show the life of the main filter and exhaust filter.
- A microprocessor control system with LED display makes it clear for all control and safety functions.
- True airflow velocity (both down-flow and inflow) sensing technology, with temperature compensation for improved sensor accuracy. The velocity value shows continuous digital display on the front LED control panel for constant monitoring.
- UV timer function to control the decontamination cycle and maximize lamp life.
- Easy to decontaminate and disinfect. The working chamber of the safety cabinet is easy to be cleaned and disinfected. The stainless steel counter surface can be removed for autoclaving.
- Weight-balanced front window.

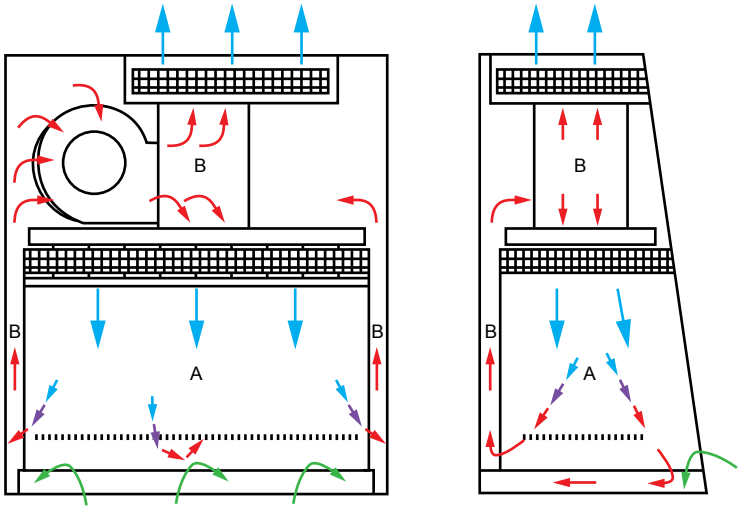
Ergonomic Features

- 10° Sloped front enhanced mobility and depth of reach into the work area, also provides maximum protection.
- Control panel is sloped downwards to provide the operator (in a setting position) a better view of and an easier access to the controls.
- Inclined, sliding sash.

Safety Features

- **Cabinet Leak Test:** Cabinets have to pass pressure decay test as defined in the US Stand ANSI/NSF 49:2002.
- **KI-Discus Containment Test:** Cabinets are tested using the KI-Discus method for containment and operator safety at the manufacturing site.
- **Filter Leak Test:** Cabinets are tested using an aerosol photometer according to US Standard ANSI/NSF 49:2002. This test determines the integrity of down-flow and exhaust filters, filter housings and filter mounting frames.
- Automatic self-filtering cycle at start-up requires a fixed period of warm-up period during which the cabinet work zone is purged of contaminants before use.
- Intrinsically-safe negative pressure design.
- The motor/blower system is able to compensate automatically to maintain the down-flow air at the speed of 0.37±0.015 without interruption to guarantee the safe performance.
- Interlocked UV light only operates when blower and fluorescent light are off and sash is closed.
- Front window glass (standard) or non-reflecting multi-layer safety glass (optional), which provides enhanced UV protection for operators.
- Audible and visual alarms prompt the operator in case of any unsafe condition.

Airflow Diagram



- Room Air
- Contaminated Work Chamber Air
- Clean HEPA Filter Air
- **A** Protected Area
- **B** Unprotected Air

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Technical Information

Model	11228-001	**Nominal Size**	4 ft. (1.2m)
External Dimension (WxDxH)	55.9”x33.4”x85.5” (1421x850x2180mm)	**Internal Size (WxDxH)**	48”x26.1”x25.6” (1220x665x650mm)
Motors	(1) ECM Motor Speed adjustable, high-efficiency and low power consumption. 120V	**Base Standing**	Height: 24.9m (63mm) Made of 239 Rectangular Steel Tube
Average Airflow Velocity	Inflow: 105 FPM (0.53 ± 0.025m/s) Downflow: 66 FPM (0.33 ± 0.025m/s)	**Weight**	Assembled: 690 lbs Crated: 847lbs, 39”x62”x74”
Airflow Volume	Inflow: 275 CFM (465m³/h) Downflow: 571 CFM (67%; 956 m³/h)		
Sash Opening Height	8” (200mm)	**Petcocks**	(1) Gas, (1) Water Located on the Left Wall of the Workarea
UV	30W Germicidal UV Lamp Emission of 253.7 nanometers for Most Efficient	**Fluorescent Lamp Intensity**	> 650 Lux
Cabinet Construction	Work Area: 0.6” (1.5mm) 304 Stainless Steel Frame: Cold-Roll Steel Sheets with Electrostatic Coating	**Range of Atmospheric Pressure**	70kPa ~ 106kPa
HEPA Filter Efficiency	> 99.998% for Particle Size Above 0.3 microns	**Sound**	≤ 67 dB(A)
Filter Guard Type	Aluminum Alloy	**Exhaust**	33%: 275 CFM (465 m³/h)
Supply Filter 1	99.998% MPPS HEPA (H14)	**Exhaust Filter 1**	99.996% @ MPPS
Supply Filter 2	99.998% MPPS HEPA (H14)	**Exhaust Filter 2**	99.996% @ MPPS
Ground Resistance	≤ 0.10Ω	**Voltage Resistance**	2 seconds No Breakdown with DC1200V
Electrical	AC 120V ± 10%, 60Hz ± 1Hz Full Load Amps: 9A BTU/Hr: 1689	**Electrical Outlet**	(1) Water-proof Type (5) Holes, 500W Located on the Right Wall of the Workarea
Standard Accessories	Remote Control Spare UV Lamp Power Cord 16.4” (5m) (2) Fuse Tubes Power Key		
Optional Accessories	Stainless Steel IV Bar with Hooks (# 266193-001) Exhaust System (Exhaust Collar, Exhaust Blower, and Duct) Duct Collar (#64162-023)		

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Notes

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Cleanroom Products

- MAC 10® Original
- MAC 10® IQ™
- MAC 10® LE-AC
- MAC 10® LE-DC
- Ducted Ceiling Module: DCM
- AC or DC Control Systems

Hospital & Healthcare

Hospital & Healthcare

- IsoClean® and IsoClean with Ultraviolet Light
- AirCeil®
- Hospi-Gard® Room Pressure Monitor

Enviramedic Products

- HOR Horizontal Flow Enclosure
- HCF Horizontal Flow Surgery Room
- VOR Vertical Flow Surgery Isolator
- MAC-T Grid System for Cleanrooms

Pharmaceutical

Pharmaceutical & Medical Device

- MAC 10®, MAC 10® (IQ) Rx™, & MAC 10® (XL) Rx™
- Unimodule M-2 Vertical Unidirectional Flow Workstation
- METD 100% Exhausted Vertical Flow Workstation
- Unidirectional Downflow Module
- RX Stainless Steel Construction

Laboratory & Research

Laboratory & Research

- 100-Plus Horizontal or Vertical Flow Clean Bench
- Unidirectional Flow Horizontal Flow Bench (LF)
- VLF 797 Unidirectional Flow Clean Bench
- TT Table Top Horizontal Flow Clean Bench
- EnviraLab Sterility Module: ESM
- Biological Safety Cabinet

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