

# Baker Company BioProtect® IV Safety Cabinet for BD FACSAria™ Cell Sorters



Biological safety in flow cytometry is a growing issue for core laboratories concerned about the potential accidental exposure of operators to biological samples. Labs address these concerns through measures including established sample handling procedures, training, personal protection, and the use of biological safety cabinets.

## **Protecting Personnel, Products, and the Environment**

Biological safety cabinets (BSCs) are designed to protect operators and products from risks associated with exposure to biological agents in samples. These cabinets are among the most effective and commonly used primary containment devices in laboratories working with infectious agents. BSCs protect personnel and the environment from harmful agents and protect product (cells) from contamination.

Available specifically for the BD FACSAria™ product platform, the BioProtect IV cabinet from the Baker Company further enhances operator biosafety. The BioProtect IV provides efficient HEPA filtration and airflow control to maximize protection. A spacing-saving, accessible design simplifies installation, cleaning, and maintenance, and offers the operator a comfortable, ergonomic work environment.



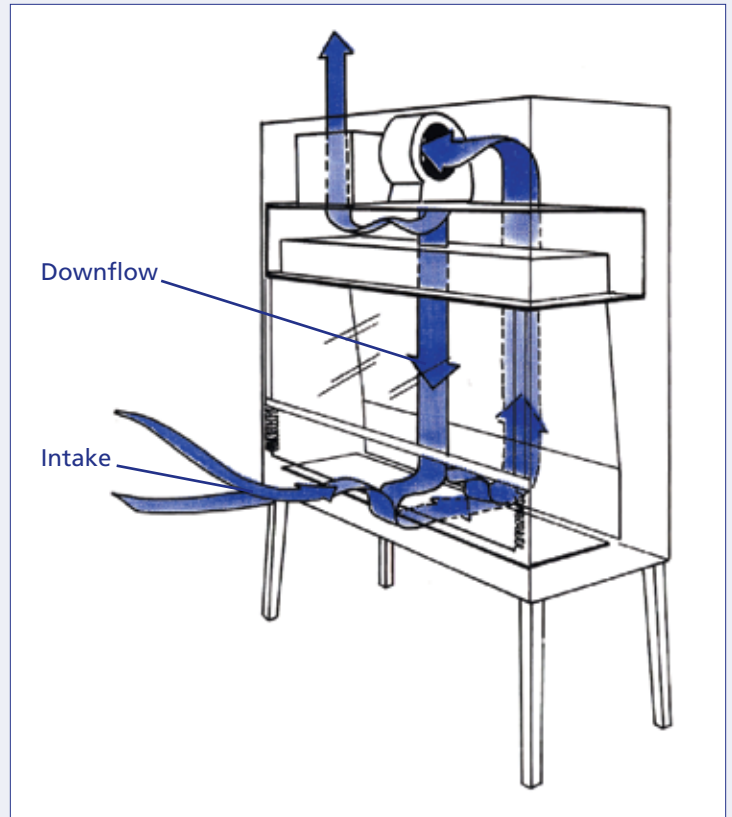
### Class II Type A2 Standard

The BioProtect IV from The Baker Company is a biosafety cabinet designed specifically for the BD FACSAria product family. Baker has verified that it meets standards for both a Class II Type A2 biosafety cabinet and the National Sanitation Foundation Internal Standard 49. Baker performed microbiologic aerosol testing to confirm compliance with the NSF-49 protocols for containment and product protection with the BD FACSAria cell sorter running inside the cabinet.

Biosafety cabinets protect operators and samples by controlling the airflow, HEPA filtering the air for contaminants, and directing exhaust air from the work area. The Baker Company BioProtect IV cabinet is designed to handle low to moderate risk biological agents, specified by NSF 49.

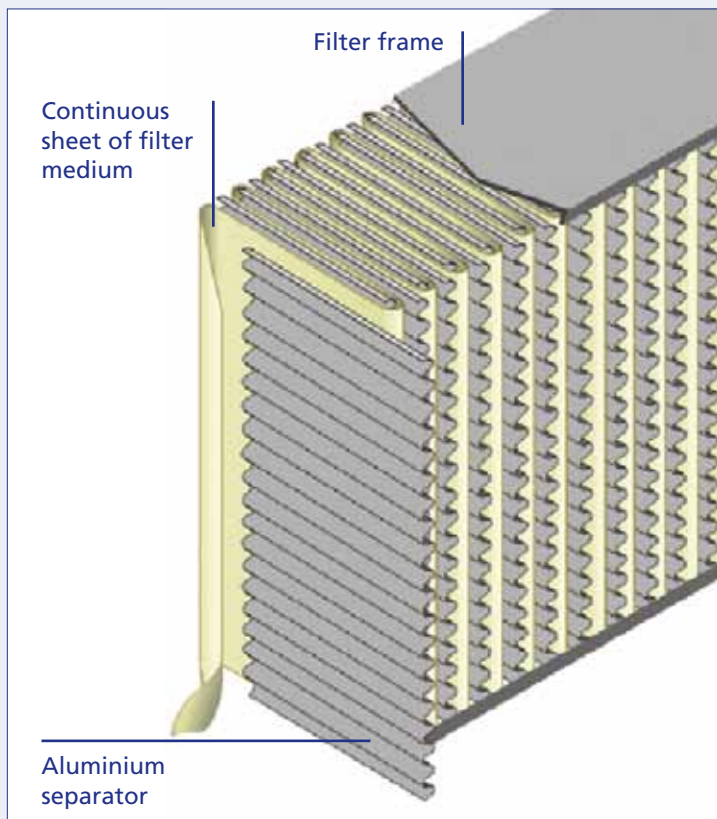
### BD FACSAria Design Minimizes Exposure Risk

Engineered with aerosol management in mind, the BD FACSAria system features an enclosed pathway from sample injection chamber to sort collection tubes. Additionally, the innovation built inside the BD FACSAria system is uniquely suited for operator safety since the system requires minimal interaction while in operation inside the BioProtect IV. The BD FACSAria instrument does not require any user alignment, and all of the controls can be accessed through the software (such as the fluidic controls), minimizing exposure to aerosols.



### Airflow

As a standard Class II Type A2 BSC, the BioProtect IV recirculates 70% of the air taken in. The remaining 30% is exhausted.



The HEPA filter design has very high collection efficiency, with a unique combination of HEPA filters made of boron silicate microfibers formed into a flat sheet by a process similar to making paper. Flat filter sheets are pleated to increase the overall surface area and pleats are separated by aluminum baffles that direct the airflow through the filter.

#### **Airflow Control in the BioProtect IV**

The BioProtect IV controls the direction, volume, and speed of airflow to direct potentially harmful particles away from the operator. Air in the cabinet is filtered and circulated around the work surface, and a separate airflow at the front of the cabinet creates a protective barrier for the operator. Should the airflow drop below a calibrated set point, an audible alarm issues a warning.

#### **HEPA Filters – The Heart of the System**

In the BioProtect IV, high efficiency particulate air (HEPA) filters remove microorganisms and airborne particulates (aerosols) from the air. Filters are placed where the air enters and exits the work area. Filters also are placed where a percentage of the air is exhausted from the cabinet and where the cabinet air is recirculated. HEPA filters in the BioProtect IV support the removal of a minimum of 99.97% of thermally generated DOP smoke particles or equivalent with a diameter of 0.3  $\mu\text{m}$ .

#### **Easy Access When Needed**

A unique double door system in the BioProtect IV provides ready access to the work area, enabling staging of samples for experiments. Safety glass doors allow viewing from outside the cabinet. Operators can access the sorting and sample loading area through an 8-inch sash opening, which is typical for Class II BSCs. A one-piece work surface with radiused, coved corners enables faster, more thorough cleaning.

The BD FACSAria cell sorter plugs into an internal power outlet in the BioProtect IV, simplifying installation and setup. Cable ports are located on the side walls of the cabinet so that the computer and monitor can be quickly connected without compromising containment.

#### **Convenient, Space-Saving Cart**

Designed specifically to house BD FACSAria cell sorters, the BioProtect IV comes with a heavy duty stainless steel cart to support the instrument and properly position it within the cabinet. This hydraulic cart is on casters, so that a properly decontaminated BD FACSAria sorter can be completely removed from the enclosure for service.

To minimize the overall space needed in the laboratory, the BD FACSAria Fluidics Cart fits in an area under the BioProtect IV cart, which has been designed to accept connecting hoses and fluidics cables.

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