Introduction

Downflow booths provide operator, process and/or product protection by utilizing HEPA filtered unidirectional laminar downflow to maintain an ISO 5 environment at rest within the work zone and capture particulates during open handling processes.

The standard Esco DFBG2 has over 420 possible dimensional models and approximately 3.5 million possible system configurations ensuring that Esco can provide a standard solution to fit your specific process and facility requirements. Should a standard option not fit your requirements Esco can offer a customized solution.

The DFBG2 is designed such that through the different configurations it can be applied; but not limited to, the following markets:

- Pharmaceutical
- Cosmetic
- Nutraceutical
- Food
- Biological
- Animal
- Robotic
- Electronic

Basic Principles

Laminar airflow velocity of 0.45m/s ± 20% (89 ft/min) measured 150mm (6") from terminal HEPA filter or diffuser face

Containment Performance Target (CPT’s) ≤ 100 µg/m³ over an 8 hour Time Weighted Average (TWA) when used with proper operator techniques. CPT’s of ≤ 10 µg/m³ over an 8 hour TWA are achievable with the use of a high containment screen

ISO 5 work space environment at rest conditions

Enhanced cGMP practices

Cross contamination control through negative and positive pressure environment options

Standard Features

cGMP modular design with minimized joints and seams

6 different filter configurations available utilizing combinations of G4, F8, Carbon, H13, H14 and PLF screens

Gel Seal HEPA Filters

Integrated Filter challenge ports

Safe Change filter configurations are available for potent products, selectable to change either internally or externally to the booth

Open loop or Closed Loop fan control configurations

Recirculating or Single Pass airflow configurations allowing use for powder or solvent applications

Optional cooling coil systems to provide operator comfort

PVC strip curtains available

Energy efficient EC fan units available to minimize operating costs

Optional hazardous area configurations to meet ATEX and NEC 505 requirements.

Multiple control system options (HMI, Push Button or Sentinel Gold Microprocessor interfaces)

Modular design allows future system adjustment without full booth replacement
### Model Selection

**DFBG2**

Note: refer to the configuration table below for parameter selection options and input them into the cells above. For example: DFBG2-SC-SA-21-24-20-B-A-R-PQ-RS-NILL-D-RM-3-C-02-03-05 would be a safe change, safe area booth that has an internal height of 2.1m, an external width of 2.4m and an internal depth of 2.0m and so on. For any option that you may not desire (PVC curtains, cooling options or other options) insert NILL into the cell.

#### Series
- Option SC: Safe Change
- Option SCNB: Safe Change No-Bag
- Option ST: Standard
- Option SA: Safe Area
- Option ED: Explosive Dust
- Option EG: Explosive Gas

#### Dimensional Option
- **Internal Height Options (m)**
  - 2.1, 2.5
  - 2.1, 2.5
  - 2.1, 2.5
- **External Width Options (m)**
  - 1.6, 1.8, 2.0, 2.4, 2.6, 2.8, 3.0, 3.2, 3.4, 3.6, 3.8, 4.0, 4.2, 4.4, 4.6, 4.8, 5.0
  - 1.6, 1.8, 2.0, 2.4, 2.6, 2.8, 3.0, 3.2, 3.4, 3.6, 3.8, 4.0, 4.2, 4.4, 4.6, 4.8, 5.0
  - 1.6, 1.8, 2.0, 2.4, 2.6, 2.8, 3.0, 3.2, 3.4, 3.6, 3.8, 4.0, 4.2, 4.4, 4.6, 4.8, 5.0

#### Filter Arrangement Options
- **Option A** - G4,F8,H13,H14,PLF
- **Option B** - G4,F8,H13,H14
- **Option C** - G4,F8,H13,PLF
- **Option D** - G4,F8,H14
- **Option E** - Carbon,H14
- **Option F** - G4, H14

#### Fan / Filter Access
- **Option A** - Internal to Booth
- **Option B** - External Area

#### Airflow Access
- **Option R** - Recirculating
- **Option S** - Single Pass

#### Bleed Position
- **Option T** - Top
- **Option F** - Front

#### M.O.C. Options
- **Option P** - Ceiling Plenum
- **Option Q** - Side Panels, Rear Wall Panels, Exhaust Plenums
- **Option R** - Filter Housings, Fan Boxes, Spacer (if present) & Transition
- **Option T** - Exhaust Grills
- **Option U** - Exterior Side Panels

#### PVC Curtains
- **Option P** - Booth Front
- **Option Q** - Side Wall

#### Voltage Supply
- **Option A** - 230V 50Hz 1Ph
- **Option B** - 400V 50Hz 3Ph
- **Option C** - 208V 60Hz 3Ph
- **Option D** - 480V 60Hz 3Ph
- **Option E** - 120V 60Hz 1Ph

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**Notes:**
- Explosive Rating requires full definition at the time of enquiry.
### Options


### Mechanical

- Modular design provides the option of increasing/decreasing booth size on-site without purchasing a new piece of equipment.
- Many standard offerings to fit our client's needs result in reduced project start-up and fabrication times resulting in quicker equipment deliveries.

### Controls

- DFB control system is pre-programmed for all possible options so existing DFBs can be easily adapted to suit changing customer needs.
- Control system offerings (Siemens, AB, Sentinel Controller) provide options for international compliance and true closed loop control.

### Sales

- Automated DFBG2 sales tool allows for instant quoting and drawing generation to greatly reduce the time between RFQ and quote submittal.

### Diagram

- Clean Air
- Contaminated Air

### Table

<table>
<thead>
<tr>
<th>MCP Location</th>
<th>Option R: Filter Housings, Fan Boxes, Spacer (if present) &amp; Transition</th>
<th>Option SCNB: Safe Change No-Bag</th>
<th>Option Q: Side Panels, Rear Wall</th>
<th>Option A - G4,F8,H13,H14,PLF</th>
<th>Option U: Exterior Side Panels</th>
<th>Option A - Internal to Booth</th>
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<th>Control Type</th>
<th>Option R: Filter Housings, Fan Boxes, Spacer (if present) &amp; Transition</th>
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<th>Option Q: Side Panels, Rear Wall</th>
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<th>Cooling Type</th>
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### Diagram

Airflow Schematic

- Clean Air
- Contaminated Air

### Diagram

- Contaminated Air
- Clean Air
Since 1978, Esco has emerged as a leader in the development of controlled environment, laboratory and pharmaceutical equipment solutions. Products sold in more than 100 countries include biological safety cabinets, fume hoods, ductless fume hoods, laminar flow clean benches, animal containment workstations, cytotoxic cabinets, hospital pharmacy isolators, and PCR cabinets and instrumentation. With the most extensive product line in the industry, Esco has passed more tests, in more languages, for more certifications, throughout more countries than any biosafety cabinet manufacturer in the world. Esco remains dedicated to delivering innovative solutions for the clinical, life science, research and industrial laboratory community. www.escoglobal.com.