Esco Pharmacon Downflow Booth, Model DFB-G2

PHARMACON

Downflow Booth

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 150 mm (6") from terminal HEPA filter or diffuser face
- Containment Performance Target (CPT's) ≤ 100 µg/m^3 over an 8 hour Time Weighted Average (TWA) when used with proper operator techniques. CPT's of
- ≤ 10 µg/m^3 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 option

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

Features

- 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

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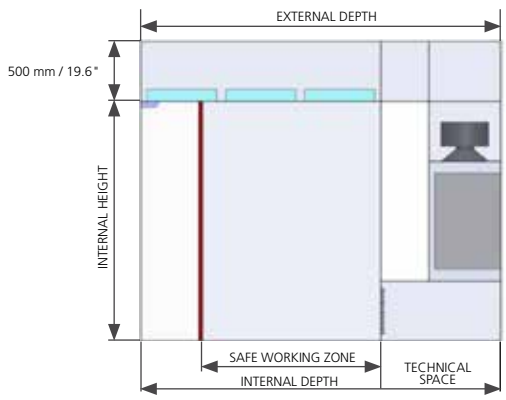
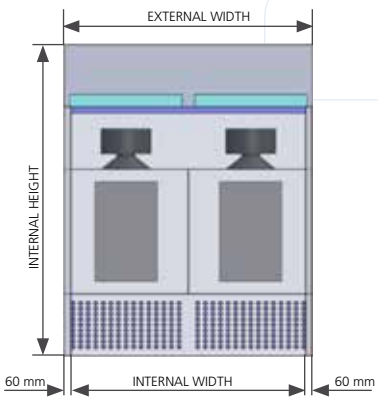
Model	Series	Explosive Rating	Inside Height	Outside Width	Inside Depth	Back Stack Depth	Filter Group	Fan/Filter Access	Recirculating or Single Pass Airflow	LOP Location	Bleed Position	Powder Coated Components	Stainless Steel Components	PVC Group	Supply Voltage	MCP Location	Control Type	Cooling Type	Other Options
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-F-PQ-RS-NILL-D-RM-3-CC-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.

		0.3 m Back Stock	0.6 m Back Stock	1.0 m Back Stock
Series	Option SC: Safe Change			✓
	Option SCNB: Safe Change No-Bag			✓
	Option ST: Standard	✓	✓	
Explosive Rating	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
	Internal Depth Options (m)	0.8, 1.2, 1.6	0.8, 1.2, 1.6, 2.0, 2.4	0.8, 1.2, 1.6, 2.0, 2.4, 2.8
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 - Front	✓		✓
Fan / Filter Access	Option A - Internal to Booth	✓	✓	✓
	Option B - External Area			✓
Airflow Arrangement	Option R - Recirculating	✓	✓	✓
	Option S - Single Pass			✓
Bleed Position	Option T - Top			✓
	Option F - Front	✓	✓	✓
M.O.C. Options	Option P: Ceiling Plenum	A: 316SS, B: 304 SS, C: White P.C. EG Steel	A: 316SS, B: 304 SS, C: White P.C. EG Steel	A: 316SS, B: 304 SS, C: White P.C. EG Steel
	Option Q: Side Panels, Rear Wall	A: 316SS, B: 304 SS, C: White P.C. EG Steel	A: 316SS, B: 304 SS, C: White P.C. EG Steel	A: 316SS, B: 304 SS, C: White P.C. EG Steel
	Option R: Filter Housings, Fan Boxes, Spacer (if present) & Transition	A: 316SS, B: 304 SS, C: White P.C. EG Steel	A: 316SS, B: 304 SS, C: White P.C. EG Steel	A: 316SS, B: 304 SS, C: White P.C. EG Steel
	Option S: Plinth	A: 316SS, B: 304 SS, C: White P.C. EG Steel	A: 316SS, B: 304 SS, C: White P.C. EG Steel	A: 316SS, B: 304 SS, C: White P.C. EG Steel
	Option T: Exhaust Grills	A: 316SS, B: 304 SS, C: White P.C. EG Steel	A: 316SS, B: 304 SS, C: White P.C. EG Steel	A: 316SS, B: 304 SS, C: White P.C. EG Steel
	Option U: Exterior Side Panels	A: 316SS, B: 304 SS, C: White P.C. EG Steel	A: 316SS, B: 304 SS, C: White P.C. EG Steel	A: 316SS, B: 304 SS, C: White P.C. EG Steel
PVC Curtains	Option T - Top			✓
	Option F - Front	✓	✓	✓

Notes:
* Explosive Rating requires full definition at the time of enquiry

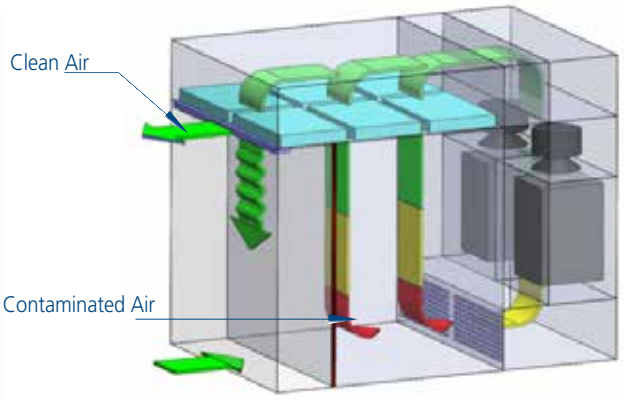




		0.3 m Back Stack	0.6 m Back Stack	1.0 m Back Stack
Voltage Supply	Option A: 230 V, 50 Hz, 1 Ph	✓		
	Option B: 400 V, 50 Hz, 3 Ph		✓	✓
	Option C: 208 V, 60 Hz, 3Ph		✓	
	Option D: 480 V, 60 Hz, 3 Ph		✓	✓
	Option E: 120 V, 60 Hz, 1 Ph	✓		

MCP Location	OR: Onboard Right Access	✓	✓	✓
	OL: Onboard Left Access	✓	✓	✓
	OF: Onboard Front Access	✓		
	RM: Remote Mounted	✓	✓	
Control Type	Option 1: PLC/PB's/PDI/PDT - Allen Bradley Components - Closed Loop		✓	✓
	Option 2: PLC/PB's/PDI/PDT - Siemens Components - Closed Loop		✓	✓
	Option 3: PLC/HMI/PDT - Allen Bradley Components - Closed Loop		✓	✓
	Option 4: PLC/HMI/PDT - Siemens Components - Closed Loop		✓	✓
	Option 5: Sentinel Gold/PDI/PDT- Open Loop	✓		
Cooling Type	Option CC: Chilled Water		✓	✓
	Option DX: Direct Expansion		✓	✓
	Option GL: Glycol		✓	✓

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



Airflow Schematic

OPTIONS

1. High Containment Screen (1 or 5D)

2. Bench; SST or Granite Tables, W x D, Fixed to Booth or Stand Alone

3. Computer Monitor Mounting Screen

4. Airlock

5. UV Light Guards

6. Two Additional Electrical Outlets

7. Pass Through

8. Side Wall Fire Sprinkler Penetration

9. Material Handling

10. Vision Panel

11. Sound Insulation

12. Eternet & RS-232 Pass Through Connetions

13. Bumper Rails

14. Temperature & .H. Local Display

15. Drum Tipper

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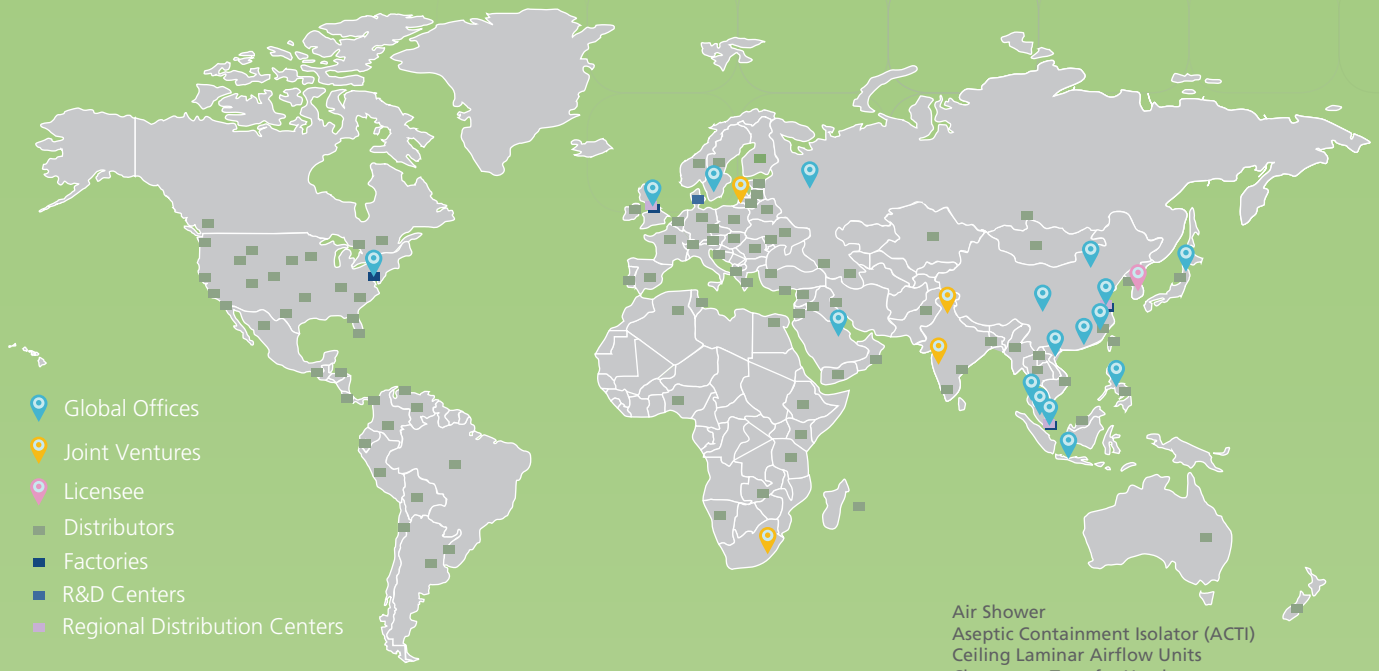

Air Shower
Aseptic Containment Isolator (ACTI)
Ceiling Laminar Airflow Units
Cleanroom Transfer Hatch
Containment Barrier Isolator (CBI)
Compounding Aseptic Isolator
Compounding Aseptic Containment Isolator
Downflow Booth (DFB)
Dynamic Floor Label Hatch
Dynamic Pass Box
Evidence Drying Cabinet
Garment Storage Cabinet
General Processing Platform Isolator (GPPI)
Healthcare Platform isolator
Laminar Flow Horizontal Trolley
Laminar Flow Straddle Units, Single and Double Laminar Flow Vertical Trolley
Pass Box
Soft Wall Cleanroom
Sputum Booth
Ventilated Balance Enclosure (VBE)
Weighing and Dispensing Containment Isolator (WDCI)

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