



Easy to Use: Fully Configurable Microprocessor-Based Control and Alarm System

Performance: Mini-pleated HEPA Filtration for 99.99% Typical Efficiency

Flexible: Modular Designs and a Wide Range of Options

More Choice: Three Different Modes of Operation

Esco Cleanroom Air Showers (EAS) are self-contained air chambers installed at the entrance to cleanrooms in order to minimise the amount of particulate contaminants entering the cleanroom. Personnel move through the air shower while particulate contaminants are washed off with high velocity HEPA-filtered air jets. The high air velocity of 20-22m/s ensures efficient scrubbing action necessary to remove particulate matter. Contaminated air is then taken in through the base of the unit, filtered, and recirculated into the chamber.



Model shown above: EAS-2CX

FEATURES

EAS features a programmable microprocessor control, giving users a great extent of self-customization and autonomy. Because all processes are controlled by the microprocessor, there is a high level of precision with regards to the functions of the EAS.

Unlike conventional air showers which come with a pre-programmed mode of operation, EAS allows users a choice of all three modes just by the touch of a button.

THREE MODES OF OPERATION:

One-Way: Door at cleanroom interior is locked at rest, door at cleanroom exterior is unlocked. Person enters and door at cleanroom exterior locks. Air shower cycle starts. At end of cycle door at cleanroom exterior stays locked. Door at cleanroom interior unlocks. Person exits via the door at cleanroom interior. When door at cleanroom interior closes, it locks. Door at cleanroom exterior unlocks.

Two-Way One-Way: Only one door at a time can be opened. Both doors are unlocked at rest. Person enters door at cleanroom exterior. Air shower cycle starts. At end of cycle person exits via door at cleanroom interior. Alternatively, person can enter via door at cleanroom interior, proceed through unit and exit via door at cleanroom exterior without initiating the blowers.

Two-Way: Cycle runs in both directions. Only one door at a time can be opened. Person can go in either direction and the air shower will cycle.



CONSTRUCTION FEATURES

The body of the EAS is constructed from rigid and rust-proof electro-galvanised steel sheets. These sheets have an abrasion-resistant oven-baked powder-coated finish.

Adjustable stainless steel nozzles are durable and **electrolytic zinc-coating** on the electro-galvanized steel provides an additional barrier of protection against corrosion and rust as compared to conventional uncoated cold-rolled steels.

Heavy-duty, durable aluminium framed door assemblies with clear glass windows. The doors are fitted with indicator lamps. The flooring is constructed using abrasion-resistant stainless steel which facilitates cleaning.

Industrial-grade electromagnetic locks have no moving parts and will not fail.

Emergency stop button mounted on both sides of the shower allows all doors to be unlocked instantly.

Convenient mains breaker switch mounted inside the work zone allows rapid shutdown and all doors to be unlocked instantly.

Indicator lights mounted on both sides of the air shower unit exterior **regulate traffic flow in and out of the cleanroom.**

Electronically ballasted lighting reduces energy costs compared to conventional electromagnetic ballasts. Diffusers ensure even and uniform lighting throughout the chamber.

Permanently lubricated direct drive centrifugal blowers are used in conjunction with stainless steel air nozzles. Together they provide high velocity air jets for an efficient scrubbing cleaning action.

Resettable circuit breaker for both the blower circuit and electronics boards for increased electrical safety.

All electrical components are UL listed / recognised.

FILTRATION AGENTS

Contaminated air is filtered through secondary filters and **HEPA filters featuring 99.99% efficiency in the removal of particles to 0.3 microns in size.**

A disposable pre-filter with 85% arrestance extends the life of the main filter.

OPERATING FEATURES

Depending on the mode of operation currently in use, indicator lamps at the doors will be lit red or green

according to accessibility based on the stage of shower. A red light will bar personnel from opening the door and entering / exiting while a green light gives clearance to enter/exit.

Besides choosing the mode of operation, **users also have the autonomy to set the pre-purge time, shower time and reset duration.**

To enhance cleanroom integrity, there is a **pre-purge period set to activate the blowers** when the air shower is just turned on. **Users can choose to bypass the pre-purge** by setting the duration to 0. The default duration is 10s while the maximum duration is 3 min.

Interlocking system prevents both doors from being opened at the same time, thus preserving cleanroom integrity.

The duration of shower is programmable from a minimum of 5s up to a maximum of 3 min. The default duration is 12s.

If the air chamber is idle it will reset to **standby mode**. During standby mode, blowers run at a lower speed at minimal energy while keeping the chamber clean. Ceiling lights are turned off if energy saving mode is chosen. The time that is taken to switch to standby mode is the reset duration. Users can choose from a duration of 5s up to 1 min. The default period is set to 10s.

The EAS is also orientation independent. Users are able to change the location of gray and clean sides without reprogramming the air shower or rewiring the doors.

The reset default option allows users to reset the shower period, pre-purge period and reset duration to default values. It also activates the energy saving mode. But for safety reasons, the mode of operation and the orientation of the air chamber are unchanged in the event of a reset or power failure.

The above mentioned options and customization can be conveniently deployed by accessing the menu. To prevent unauthorised access, **an Administrator Password and PIN can be configured to prevent unauthorised modification to operation parameters.**

To enhance safety, EAS has a function to detect illegal operation. Clear error messages will be displayed on a LCD screen should safety or cleanliness of the air chamber be violated. The LCD screen will also display a countdown of cleaning / shower period.

One key attraction of the EAS lies in the **wide range of options** it provides to its users as well as its **decreased dependency on service engineers**. The options are easy to customise with the user friendly interactive interface. Personnel using the air shower will also find the instructive message display and indicator lamps at doors easy to understand.

MICROPROCESSOR CONTROL FEATURES



Easy-to-clean soft touch control pad mounted centrally inside air shower chamber (no relays or switches which may corrode).

Backlit LCD display reports air shower cycle progress and operational status.



Clearly visible LEDs on the touch control and display pad indicate door interlock and shower sequence

24 hour clock display on the LCD. Users are also able to customise the time setting according to their geographical locations.

The air shower sequence may be adjusted via the soft touch control pad. Any of the 3 standard Escos air shower sequences may be chosen (refer to catalog for description of 3 standard shower sequences). Shower duration is also **easily adjusted** via the control keypad using the intuitive menu interface.

ADMIN PIN feature restricts access and ensures unauthorised personnel are not able to change any operating parameters on the microprocessor control menu

Watchdog timer resets microprocessor in case of any internal failure, thus restoring the air shower to a safe state

All doors are unlocked automatically in case of a power failure for safety reasons

Special mode in which the fan may be operated continuously for service and air velocity checks

Optional energy saving mode may be enabled via the keypad to automatically turn off the lights in the air shower when no personnel are inside

Auto reset unlocks doors in case personnel open the air shower door but do not actually enter thus preventing accidental lock-outs

Customised sequence programming is available on request from Escos

ORDERING AND SHIPMENT

Escos Air Showers can be shipped unassembled to reduce freight costs. On-site installation is easily accomplished by fastening the modular panels. All units shipped unassembled are factory wired / tested and ready for operation.

Quality control at factory before shipment:

- Functional tests and visual inspection
- Electrical safety analysis tests
- Air velocity testing

For ordering codes for individual models, **refer to the technical specifications sections of this catalogue.**

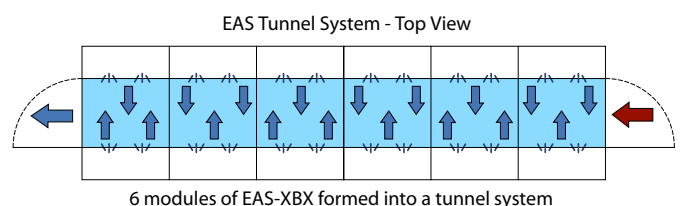
OTHER OPTIONS

EAS can be ordered without a base to allow the shower unit to mount directly to customer's floor.

Customized cleanroom air showers with:

- Modified dimensions
- Automatic sliding door with IR sensor for hands-free operation

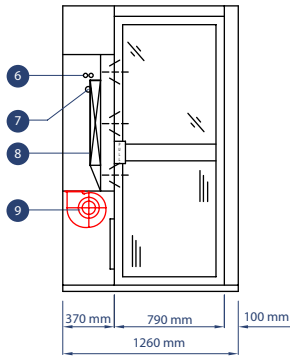
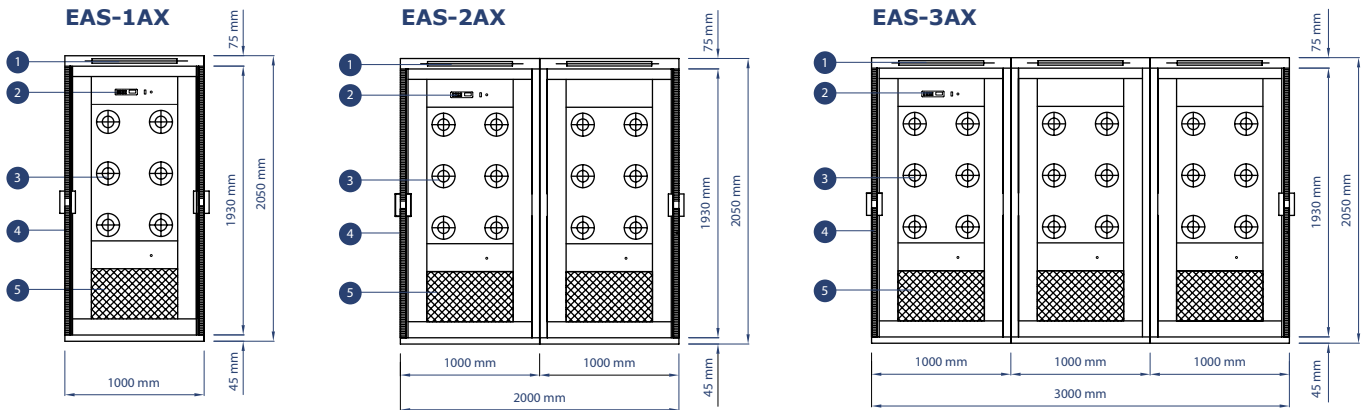
Multiple modules can be ordered to form **1 tunnel system** (contact Escos for further details). See below for illustration.



A-Series

Single Leaf Door / Single Side Shower
Model Code: EAS-XAX

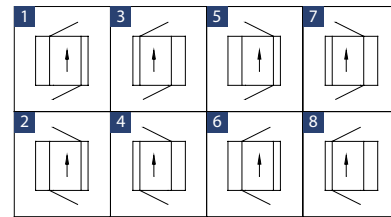
ESCO Cleanroom Air Shower



- Engineering Details**
1. Fluorescent Light
 2. Esco Microprocessor Control
 3. Nozzles
 4. Door
 5. Pre-Filter
 6. Indicator Light
 7. Emergency Switch
 8. HEPA Filter
 9. Blower

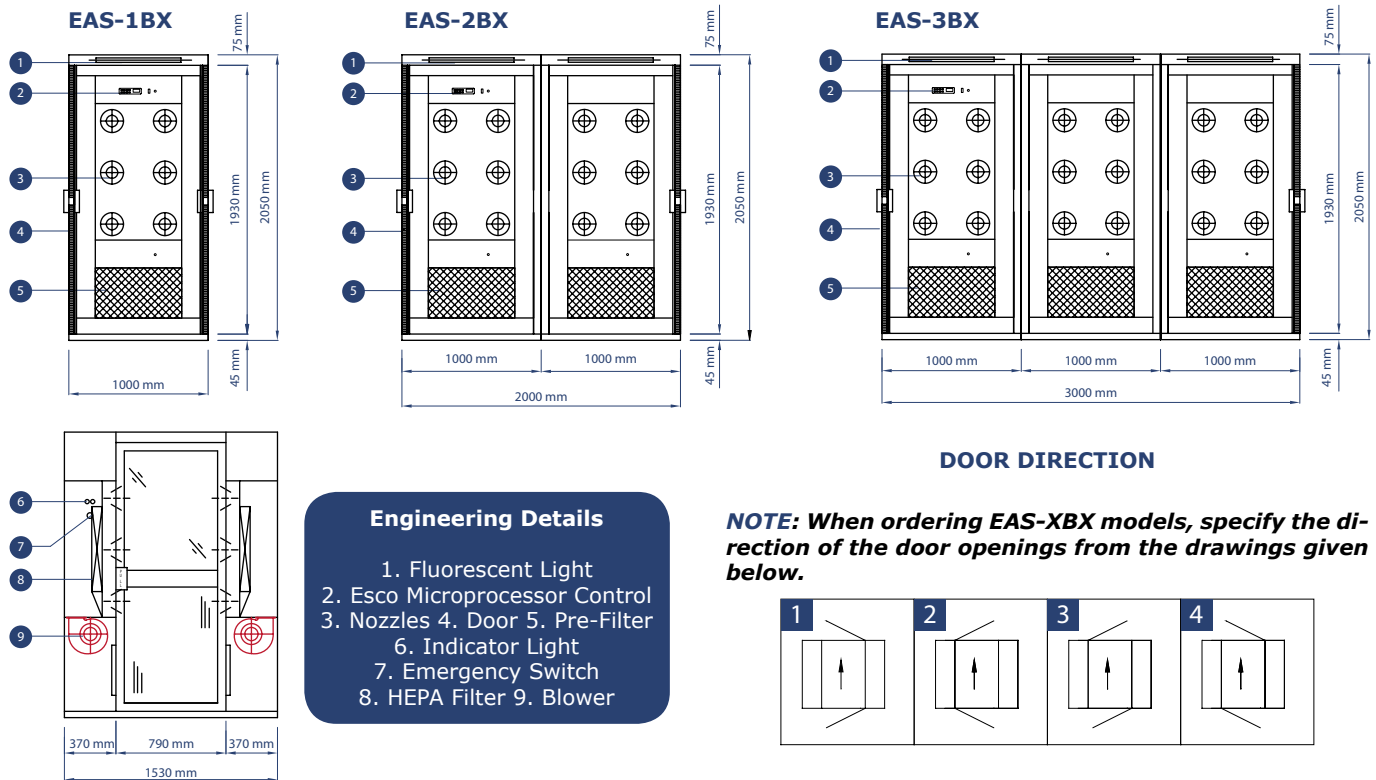
DOOR DIRECTIONS

NOTE: When ordering EAS-XAX models, specify the direction of the door openings from the drawings given below.



MODEL	EAS-1AX*	EAS-2AX*	EAS-3AX*	
External Dimensions (L x W x H)	1260 x 1000 x 2050 mm 49.7" x 39.4" x 80.7"	1260 x 2000 x 2050 mm 49.7" x 78.7" x 80.7"	1260 x 3000 x 2050 mm 49.7" x 118.1" x 80.7"	
Internal Work Zone (L x W x H)	790 x 920 x 1930 mm 31.1" x 36.2" x 76.0"	790 x 1920 x 1930 mm 31.1" x 75.6" x 76.0"	790 x 2920 x 1930 mm 31.1" x 75.6" x 76.0"	
Air Change	380 per hour	370 per hour	360 per hour	
Air Velocity	20-22 m/s or 3,937-4,330 fpm			
Number of Nozzles	6	12	18	
Air Shower Duration	Factory setting at 12 seconds (adjustable)			
Persons Per Cycle	1	2-3	4-6	
Personnel Flow [Persons / Min.]	4	8-12	15-23	
Filtration Efficiency	Above figures based on: Total Cycle Time of 16 seconds (= 12 seconds of Air Shower + 4 seconds for buffer time / personnel entrance and exit) Main Filter: >99.99% at 0.3 µm Pre-Filter: Arrestance 85%, efficiency 20%			
Filtration Elements	Main Filter: HEPA filter Pre-Filter: Disposable and non-washable polyester fibers			
Noise Level	<58 dBA (at initial blower speed setting; subject to ambient conditions)			
Fluorescent Lighting	20W x 1	20W x 2	20W x 3	
Main Body	1.5 mmt electro-galvanised steel / White oven-baked epoxy powder-coated finish			
Power Supply Options	Choose from the following power supply configuration codes when ordering (e.g. EAS-1A3, for 220-240VAC 60Hz) 1: 220-240VAC 50HZ 2: 110-130VAC 60HZ 3: 220-240VAC 60HZ 4: 110-130VAC 50HZ 5: 100-110VAC 50HZ/60HZ			
Max. Power Consumption	During Operation	245W	490W	735W
	During Standby	113W	226W	339W
Gross Weight	520 kg / 1146 lbs	1040 kg / 2293 lbs	1560 kg / 3440 lbs	
Net Weight	355 kg / 783 lbs	710 kg / 1565 lbs	1065 kg / 2348 lbs	
Crating Size Fully Assembled	1420 x 1220 x 2210 mm 55.9" x 48.0" x 87.0"	(1420 x 1220 x 2210) x 2 (55.9" x 48.0" x 87.0") x 2	(1420 x 1220 x 2210) x 3 (55.9" x 48.0" x 87.0") x 3	
Crating Size Unassembled	2180 x 1150 x 900 mm 85.8" x 45.3" x 35.4"	(2180 x 1150 x 900) x 2 (85.8" x 45.3" x 35.4") x 2	(2180 x 1150 x 900) x 3 (85.8" x 45.3" x 35.4") x 3	

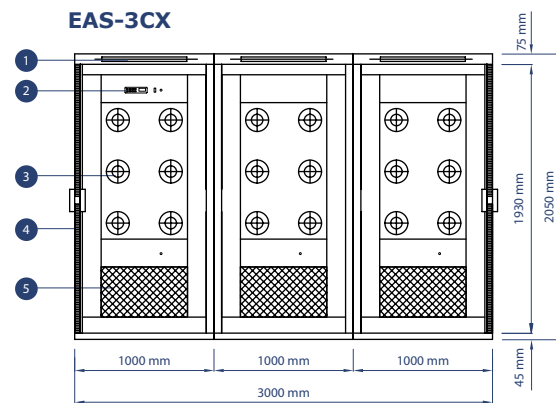
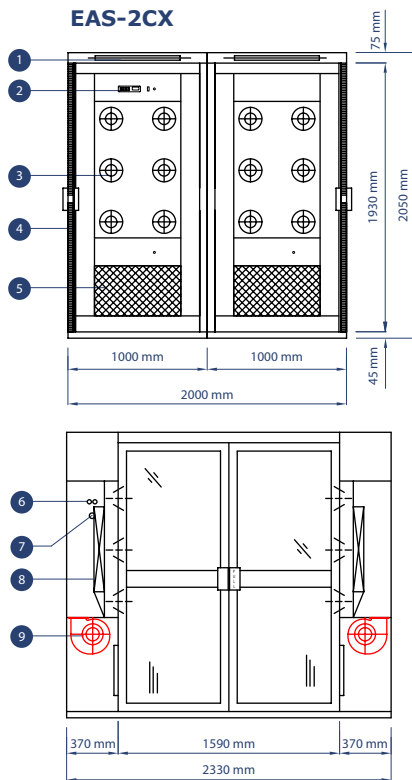
*Where X denotes the power supply option code. See "Power Supply Options" section above



¹ EAS B-series Air Shower models are suitable for configuration as a tunnel system. Refer to page 6 for an illustration.

MODEL	EAS-1BX*	EAS-2BX*	EAS-3BX*	
External Dimensions (L x W x H)	1530 x 1000 x 2050 mm 60.2" x 39.4" x 80.7"	1530 x 2000 x 2050 mm 60.2" x 78.7" x 80.7"	1530 x 3000 x 2050 mm 60.2" x 118.1" x 80.7"	
Internal Work Zone (L x W x H)	790 x 920 x 1930 mm 31.1" x 36.2" x 76.0"	790 x 1920 x 1930 mm 31.1" x 75.6" x 76.0"	790 x 2920 x 1930 mm 31.1" x 115.0" x 76.0"	
Air Change	770 per hour	740 per hour	720 per hour	
Air Velocity	20-22 m/s or 3,937-4,330 fpm			
Number of Nozzles	12	24	36	
Air Shower Duration	Factory setting at 12 seconds (adjustable)			
Persons Per Cycle	1	2-3	4-6	
Personnel Flow [Persons / Min.]	4	8-12	15-23	
Filtration Efficiency	Main Filter: >99.99% at 0.3 µm Pre-Filter: Arrestance 85%, efficiency 20%			
Filtration Elements	Main Filter: HEPA filter Pre-Filter: Disposable and non-washable polyester fibers			
Noise Level	<58 dBA (at initial blower speed setting; subject to ambient conditions)			
Fluorescent Lighting	20W x 1	20W x 2	20W x 3	
Main Body	1.5 mmt electro-galvanised steel / White oven-baked epoxy powder-coated finish			
Power Supply Options	Choose from the following power supply configuration codes when ordering (e.g. EAS-2B5, for 100-110VAC 50HZ/60HZ) 1: 220-240VAC 50HZ 2: 110-130VAC 60HZ 3: 220-240VAC 60HZ 4: 110-130VAC 50HZ 5: 100-110VAC 50HZ/60HZ			
Max. Power Consumption	During Operation	458W	916W	1374W
	During Standby	162W	324W	486W
Gross Weight	1420 kg / 3131 lbs	1420 kg / 3131 lbs	2130 kg / 4696 lbs	
Net Weight	824 kg / 1817 lbs	824 kg / 1817 lbs	1236 kg / 2725 lbs	
Crating Size Fully Assembled	(1680 x 1220 x 2210) x 2 (66.1" x 48.0" x 87.0") x 2	(1680 x 1220 x 2210) x 2 (66.1" x 48.0" x 87.0") x 2	(1680 x 1220 x 2210) x 3 (66.1" x 48.0" x 87.0") x 3	
Crating Size Unassembled	(2180 x 1150 x 1200) x 2 (85.8" x 45.3" x 47.2") x 2	(2180 x 1150 x 900) x 2 (85.8" x 45.3" x 35.4") x 2	(2180 x 1150 x 900) x 3 (85.8" x 45.3" x 35.4") x 3	

*Where X denotes the power supply option code. See "Power Supply Options" section above.



Engineering Details

1. Fluorescent Light
2. Esco Microprocessor Control
3. Nozzles
4. Door
5. Pre-Filter
6. Indicator Light
7. Emergency Switch
8. HEPA Filter
9. Blower

² EAS C-series Air Shower models are suitable for cleanrooms that have in/outflow of large materials.

MODEL	EAS-2CX*	EAS-3CX*	
External Dimensions (L x W x H)	2330 x 2000 x 2050 mm 91.7" x 78.7" x 80.7"	2330 x 3000 x 2050 mm 91.7" x 118.1" x 80.7"	
Internal Work Zone (L x W x H)	1590 x 1920 x 1930 mm 62.6" x 75.6" x 76.0"	1590 x 2920 x 1930 mm 62.6" x 115.0" x 76.0"	
Air Change	370 per hour	360 per hour	
Air Velocity	20-22 m/s or 3,937-4,330 fpm		
Number of Nozzles	24	36	
Air Shower Duration	Factory setting at 12 seconds (adjustable)		
Persons Per Cycle	2-3	4-6	
Personnel Flow [Persons / Min.]	8-12	15-23	
Filtration Efficiency	Main Filter: >99.99% at 0.3 µm Pre-Filter: Arrestance 85%, efficiency 20%		
Filtration Elements	Main Filter: HEPA filter Pre-Filter: Disposable and non-washable polyester fibers		
Noise Level	<58 dBA (at initial blower speed setting; subject to ambient conditions)		
Fluorescent Lighting	20W x 4	20W x 6	
Main Body	1.5 mmt electro-galvanised steel / White oven-baked epoxy powder-coated finish		
Power Supply Options	Choose from the following power supply configuration codes when ordering (e.g. EAS-3C4, for 110-130VAC 50Hz) 1: 220-240VAC 50HZ 2: 110-130VAC 60HZ 3: 220-240VAC 60HZ 4: 110-130VAC 50HZ 5: 100-110VAC 50HZ/60HZ		
Power Consumption	During Operation	916W	1374W
	During Standby	324W	486W
Gross Weight	1580 kg / 3483 lbs	2130 kg / 4696 lbs	
Net Weight	962 kg / 2121 lbs	1236 kg / 2725 lbs	
Crating Size Fully Assembled	(2370 x 1220 x 2210) x 2 (93.3" x 48.0" x 87.0") x 2	(2370 x 1220 x 2210) x 3 (93.3" x 48.0" x 87.0") x 3	
Crating Size Unassembled	(2180 x 1150 x 1360) x 2 (85.8" x 45.3" x 53.5") x 2	(2180 x 1150 x 1360) x 3 (85.8" x 45.3" x 53.5") x 3	

*Where X denotes the power supply option code. See "Power Supply Options" section above

OTHER PRODUCTS AVAILABLE FROM ESCO CLEANROOM CONSTRUCTION COMPONENTS DIVISION:

Air Shower Pass Throughs



Air Shower Pass Boxes



Fan Filter Units



One of Esco's five main divisions, our **Cleanroom Construction Components** division specializes in HEPA-filtered cleanroom construction components for use in critical environments to protect products and processes from micro-contamination.

Our product line is employed internationally by many of the world's most reputable cleanroom engineering firms in turnkey cleanroom construction projects.

We invite you to learn more about how Esco can help you reduce capital and long-term costs, increase efficiency, and achieve only the most stringent levels of contamination control performance.

- Backed by Esco's unparalleled experience of more than 20 years in critical environments and cleanrooms; not only in clean air device manufacturing but also turnkey projects.
- Lowest initial capital investment and lifecycle costs; coupled with technical innovation recognized the world over.
- Compliance with the latest international standards for clean air, critical environments and electrical safety.
- Fully integrated and mechanized manufacturing processes at our sheet metal processing centre utilizing only raw materials of the highest quality and the latest industrial production techniques.
- Competitive lead times with many items from stock.



***All products are manufactured under
a quality system registered to:***
ISO 9001 TOTAL QUALITY MANAGEMENT
ISO 14001 ENVIRONMENTAL MANAGEMENT SYSTEM

