

Cleanroom Air Showers

EAS-EUS



Introduction

Esco Air Showers (EAS-EUS) is self-contained chambers strategically positioned at cleanroom entrances and other controlled environments. These chambers minimize particulate matter from infiltrating the clean space.

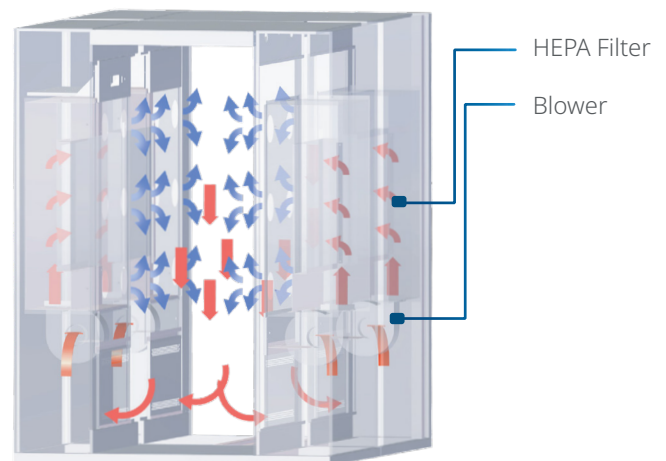
Personnel and materials entering or exiting the controlled environment are "scrubbed" by high velocity HEPA-filtered air jets with velocities 18 - 30 m/s. The contaminated air is drawn from the base, filtered, and then recirculated into the chamber maintaining a clean environment.

Main Features

- High velocity shower jets in excess of 18-30 m/s (3,543 -5,906 fpm) to ensure efficient scrubbing action to remove particulate matter.
- Operating modes can be programmed in the field.
- Microprocessor controller supervises all functions.
- HEPA (H14) filter (as per EN1822) and ULPA filter (as per IEST-RP-CC001.3) achieving >99.995% typical efficiency at 0.3 micron particles.
- A disposable pre-filter with 85% arrestance extends the life of the main filter.
- An emergency stop button is mounted on both sides of the shower.
- Indicator lights mounted on both sides of the exterior of the air shower to regulate traffic flow, in and out of the cleanroom.
- Permanently lubricated direct drive centrifugal blowers used in conjunction with stainless steel air nozzles.

EAS-EUS Airflow System

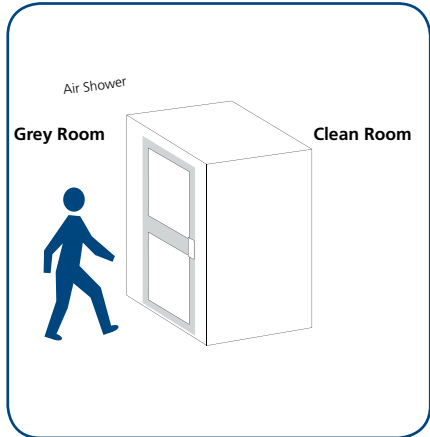
- Air is forced by the blower(s) through HEPA filter(s) which are 99.995% efficient against particles of 0.3 microns.
- Filtered air is ejected through nozzles at high velocities into the chamber. These turbulent air streams disperse particulate matter on all surfaces.
- Dispersed particulate matter migrate with the air stream towards the lower areas in the air shower chamber. Air enters the blower supply plenum through pre-filter(s) installed at the base of the chamber.
- The air is continuously filtered and recirculated. The air shower is a selfcontained device and does not exchange air with the environment it is placed in.



- H14-filtered air
- Unfiltered/potentially contaminated air

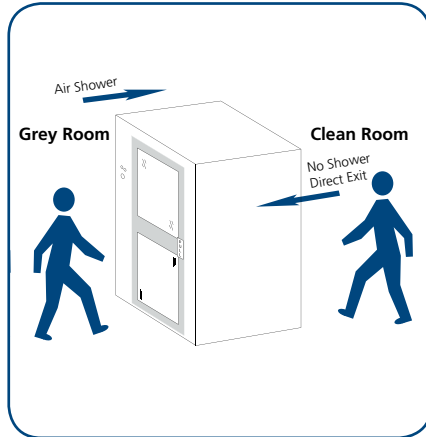
Air Shower Operating Sequences

Unlike conventional air showers which are delivered with a fixed operating sequence, the Esco Air Shower's operating sequence may be selected from three pre-programmed sequences:



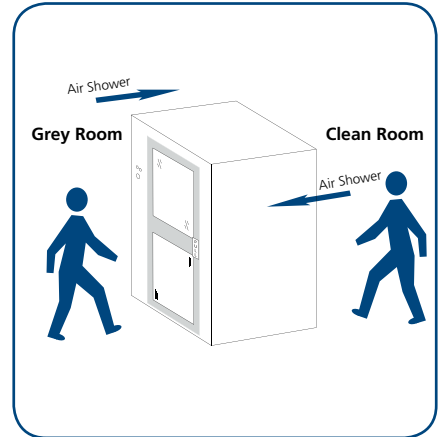
One-Way

Personnel may enter the controlled environment but not exit through the air shower. At the idle state, the clean side door is locked while the grey side is unlocked. This mode of operation is useful for controlling traffic patterns in and out of the controlled environment.



Two-Way One-Way

Personnel may enter or exit the controlled environment through the air shower. The air shower program is able to detect if the person is entering or exiting the controlled environment via door sensors and a time-sequenced control.



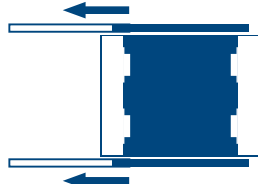
Two-Way

Personnel may enter or exit the controlled environment through the air shower. In both directions the air shower is activated. This mode of operation is useful in pharmaceutical and lab animal research applications to prevent the egress of hazardous substances and allergens from the controlled environment.

Optional EAS Shutter Doors



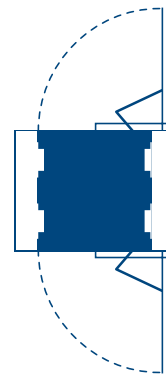
Vertical Shutter Door



Single



Double

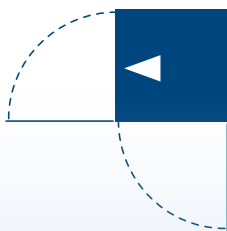


Auto Swing Door

Optional EAS Exit Directions



Straight-through



L-Shaped

*Turn Left or Turn Right as per client's specifications

EAS Blowing Type



Single Side Blowing (EAS-A series)



Optional Three Side Blowing
*With Top Blowing



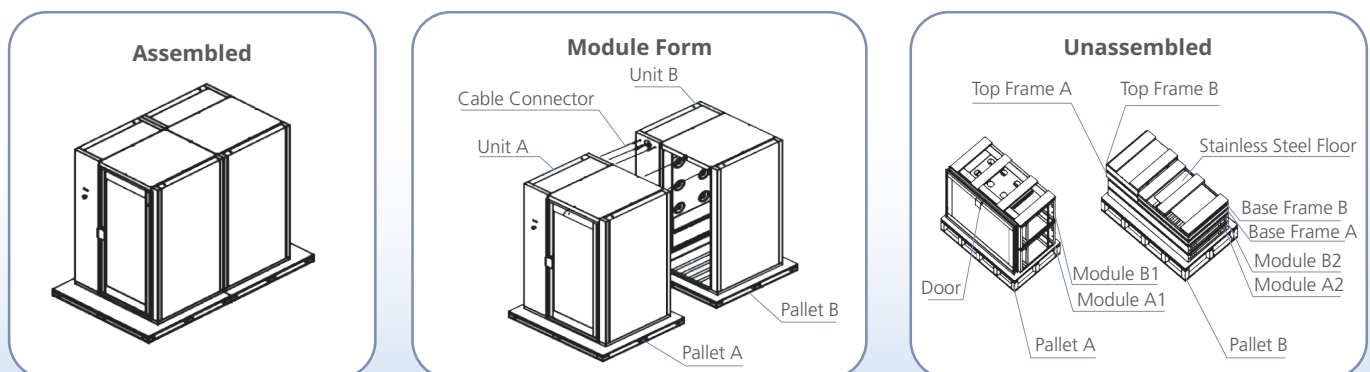
Double Side Blowing (EAS-B and C series)

General Specifications, Cleanroom Air Shower, Model EAS_EUS (A-Series)

Note to customer: Insert electrical voltage number into last model number digit _ when ordering.

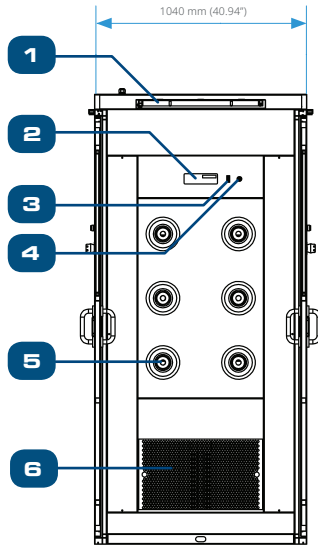
Model	EAS-1A_	EAS-2A_	EAS-3A_		
External Dimensions (W x D x H)	1385 x 1040 x 2205 mm (54.53" x 40.94" x 86.81")	1385 x 2080 x 2205 mm (54.53" x 81.89" x 86.81")	1385 x 3120 x 2205 mm (54.53" x 122.83" x 86.81")		
Internal Work Area, Dimensions (W x D x H)	915 x 920 x 2080 mm (36.02" x 36.22" x 81.89")	915 x 1960 x 2080 mm (36.02" x 77.17" x 81.89")	915 x 3000 x 2080 mm (36.02" x 118.11" x 81.89")		
Clean Door Opening (WxH)	815 x 2030 mm (32" x 79.9")				
Air Change (30-18 m/s)	110 - 182/ Hr	105 - 175/ Hr	104 - 172/ Hr		
Initial Airflow Velocity	20-22 m/s (3,937-4,330 fpm)				
Number of Nozzles	6	12	18		
Air Shower Duration	Factory set at 12 seconds (adjustable upto 3 mins)				
Persons Per Cycle	1	2-3			
Personnel Flow (Persons / Minute)	4	8-12			
Filtration Efficiency	The above figures are based on a Total Cycle Time of 16 seconds. (12 seconds of Air Shower + 4 seconds for buffer time / personnel entrance and exit)				
Filtration Elements	Filter: >99.995% at 0.3 µm Pre-Filter: Arrestance 85%, efficiency 20%				
LED light	1 x 19W	2 x 19W	3 x 19W		
Air Shower Construction	1.5 mm/ 0.06"/18 electro-galvanised steel / White oven-baked epoxy antimicrobial powder-coated finish				
Electrical	220-240V, AC, 60/50Hz, 1Ø	EAS-1A8	EAS-2A8	EAS-3A8	
	110-130V, AC, 60/50Hz, 1Ø	EAS-1A9	EAS-2A9	EAS-3A9	
Shipping Dimensions, Maximum (W x D x H)	Assembled	1680 x 1300 x 2400 mm (66.1" x 51.2" x 94.5")	N/A	N/A	
		N/A	N/A	N/A	
		N/A	N/A	N/A	
		Pallet A: 529.2 kg (1166.7 lbs)	N/A	N/A	
	Module Form	Pallet A	N/A	1680 x 1300 x 2400 mm (66.1" x 51.2" x 94.5")	1680 x 1300 x 2400 mm (66.1" x 51.2" x 94.5")
		Pallet B	N/A	1680 x 1300 x 2400 mm (66.1" x 51.2" x 94.5")	1680 x 1300 x 2400 mm (66.1" x 51.2" x 94.5")
		Pallet C	N/A	N/A	1680 x 1300 x 2400 mm (66.1" x 51.2" x 94.5")
		Shipment Weight	N/A	Pallet A: 449.8 kg (991.6 lbs) Pallet B: 449.8 kg (991.6 lbs)	Pallet A: 449.8 kg (991.6 lbs) Pallet B: 371 kg (817.9 lbs) Pallet C: 449.8 kg (991.6 lbs)
	Unassembled	Pallet A	2500 x 1500 x 1090 mm (98.4" x 59.1" x 42.9")	2500 x 1500 x 1390 mm (98.4" x 59.1" x 54.7")	2500 x 1500 x 1090 mm (98.4" x 59.1" x 42.9")
		Pallet B	N/A	N/A	2500 x 1500 x 1235 mm (98.4" x 59.1" x 48.6")
Shipment Weight		Pallet A: 530 kg (1168.5 lbs)	Pallet A: 842 kg (1856.3 lbs)	Pallet A: 568 kg (1252.2 lbs) Pallet B: 645 kg (1421.9 lbs)	
Shipping Volume, Maximum	Assembled	Pallet A: 5.24 m ³ (185 ft ³)	N/A	N/A	
	Modular	N/A	Pallet A: 5.24 m ³ (185 ft ³) Pallet B: 5.24 m ³ (185 ft ³)	Pallet A: 5.24 m ³ (185 ft ³) Pallet B: 5.24 m ³ (185 ft ³) Pallet C: 5.24 m ³ (185 ft ³)	
	Unassembled	Pallet A: 4.09 m ³ (144.4 ft ³)	Pallet A: 5.21 m ³ (183.9 ft ³)	Pallet A: 5.24 m ³ (185 ft ³) Pallet B: 4.63 m ³ (163.5 ft ³)	

Esco Cleanroom Air Showers Model EAS-2A_-EUS Modes of Shipment

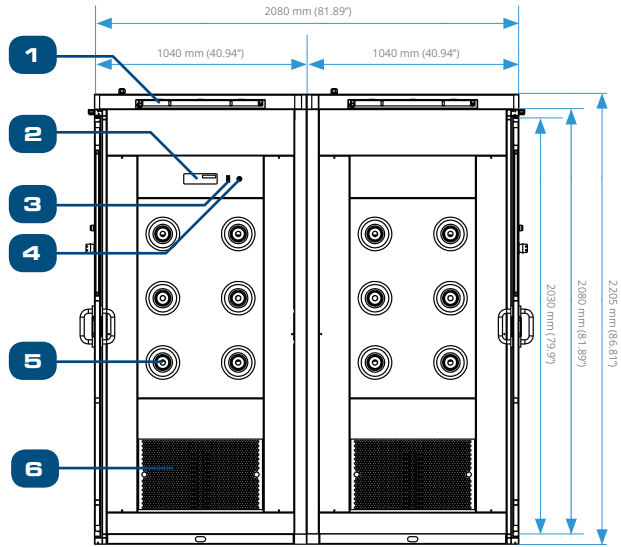


ENGINEERING DRAWING MODEL EAS-EUS (A-SERIES)

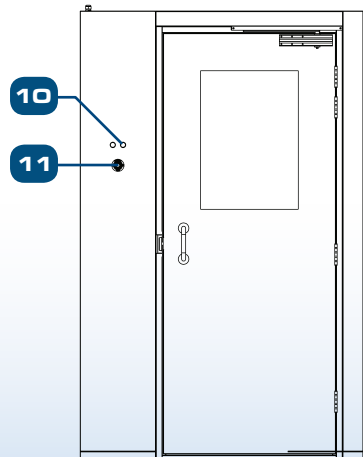
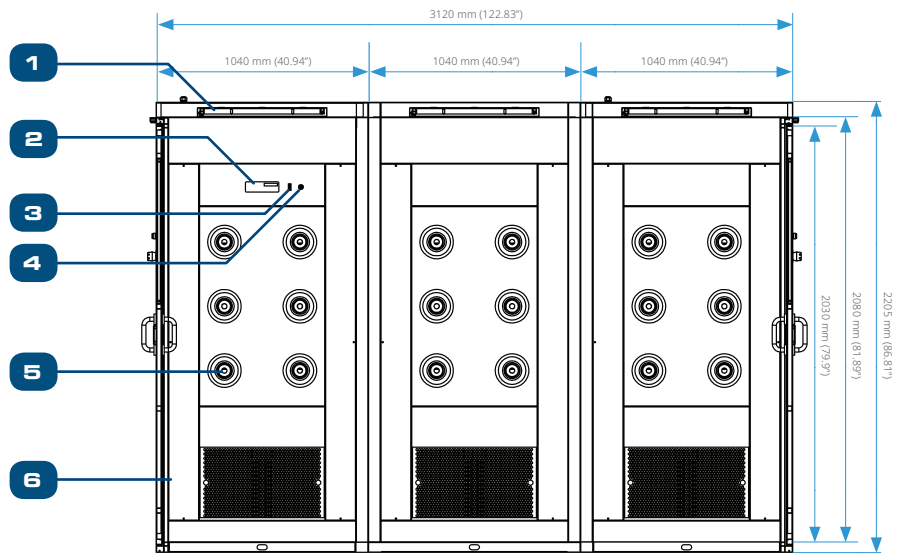
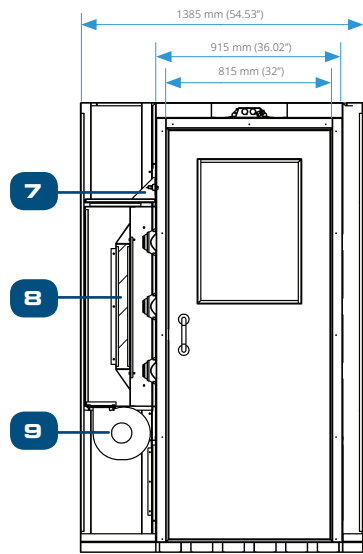
EAS-1A_-EUS



EAS-2A_-EUS



EAS-3A_-EUS



1. LED Housing
2. Esco Sentinel™ Microprocessor Controller
3. Unit Circuit Breaker Button
4. Unit On/Off Switch
5. Stainless Steel Nozzles
6. G4 Prefilters (Disposable)
7. Electrical Panel
8. H14 filters
9. Blower
10. Indicator Lights (for both grey and clean sides)
11. Emergency Stop Button (for both grey and clean sides)

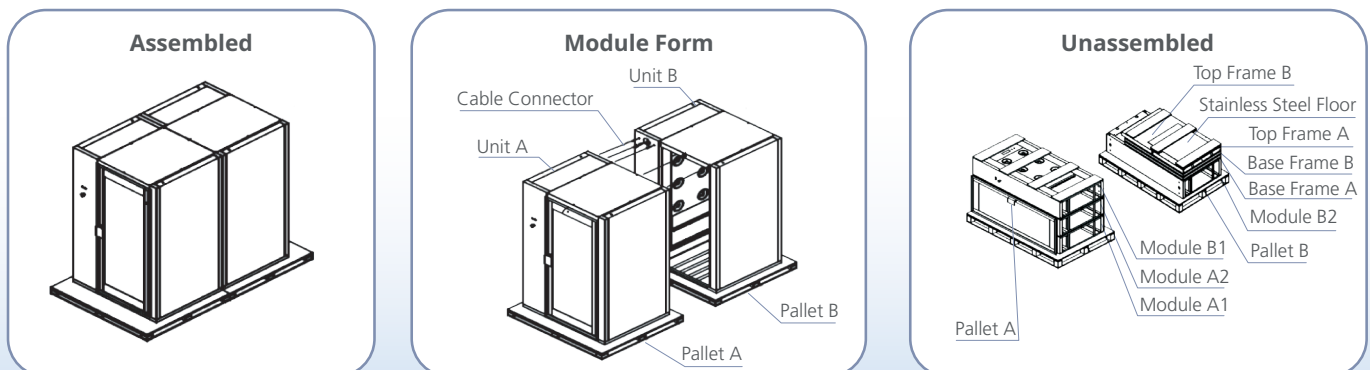
General Specifications, Cleanroom Air Shower, Model EAS_EUS (B-Series)

Note to customer: Insert electrical voltage number into last model number digit _ when ordering.

Model	EAS-1B_	EAS-2B_	EAS-3B_		
External Dimensions (W x D x H)	1655 x 1040 x 2205 mm (65.16" x 40.94" x 86.81")	1655 x 2080 x 2205 mm (65.16" x 81.89" x 86.81")	1655 x 3120 x 2205 mm (65.16" x 122.83" x 86.81")		
Internal Work Area, Dimensions (W x D x H)	915 x 920 x 2080 mm (36.02" x 36.22" x 81.89")	915 x 1960 x 2080 mm (36.02" x 77.17" x 81.89")	915 x 3000 x 2080 mm (36.02" x 118.11" x 81.89")		
Clean Door Opening (WxH)	815 x 2030 mm (32" x 79.9")				
Air Change (30-18 m/s)	219 - 364/ Hr	209 - 349/ Hr	207 - 344/ Hr		
Initial Airflow Velocity	18-30 m/s (3,543 - 5,906 fpm)				
Number of Nozzles	12	24	36		
Air Shower Duration	Factory set at 12 seconds (adjustable upto 3 mins)				
Persons Per Cycle	1	2-3			
Personnel Flow (Persons / Minute)	3	6-9			
	Above figures based on: Total Cycle Time of 20 seconds (12 seconds of Air Shower + 4 seconds for buffer time + 5 second blower stopping time delay / personnel entrance and exit)				
Filtration Efficiency	Filter: >99.995% at 0.3 µm Pre-Filter: Arrestance 85%, efficiency 20%				
Filtration Elements	Main Filter: H14 filter Pre-Filter: Disposable and non-washable polyester fibers				
LED light	1 x 19W	2 x 19W	3 x 19W		
Air Shower Construction	1.5 mm / 0.06"/18 electro-galvanised steel / White oven-baked epoxy antimicrobial powder-coated finish				
Electrical	220-240V, AC, 60/50Hz, 1Ø	EAS-1B8	EAS-2B8	EAS-3B8	
	110-130V, AC, 60/50Hz, 1Ø	EAS-1B9	EAS-2B9	EAS-3B9	
Shipping Dimensions, Maximum (W x D x H)*	Assembled	1750 x 1250 2400 mm (68.9" x 49.2" x 94.5")	N/A	N/A	
		N/A	N/A	N/A	
		N/A	N/A	N/A	
		Pallet A: 530.5 kg (1169.6 lbs)	N/A	N/A	
	Module Form	Pallet A	N/A	1750 x 1250 x 2400 mm (68.9" x 49.2" x 94.5")	1750 x 1250 x 2400 mm (68.9" x 49.2" x 94.5")
		Pallet B	N/A	1750 x 1250 x 2400 mm (68.9" x 49.2" x 94.5")	1750 x 1250 x 2400 mm (68.9" x 49.2" x 94.5")
		Pallet C	N/A	N/A	1750 x 1250 x 2400 mm (68.9" x 49.2" x 94.5")
		Shipment Weight	N/A	Pallet A: 530.5 kg (1169.6 lbs) Pallet B: 530.5 kg (1169.6 lbs)	Pallet A: 530.5 kg (1169.6 lbs) Pallet B: 462 kg (1018.5 lbs) Pallet C: 530.5 kg (1169.6 lbs)
	Unassembled	Pallet A	2500 x 1500 x 1090 mm (98.4" x 59.1" x 42.9")	2500 x 1500 x 1090 mm (98.4" x 59.1" x 42.9")	2500 x 1500 x 1380 mm (98.4" x 59.1" x 54.3")
		Pallet B	N/A	2500 x 1500 x 1090 mm (98.4" x 59.1" x 42.9")	2500 x 1500 x 1455 mm (98.4" x 59.1" x 57.3")
Shipment Weight		Pallet A: 608 kg (1340.4 lbs)	Pallet A: 608 kg (1340.4 lbs) Pallet B: 452 kg (996.5 lbs)	Pallet A: 730.7 kg (1610.9 lbs) Pallet B: 736.7 kg (1624.1 lbs)	
Shipping Volume, Maximum	Assembled	Pallet A: 5.25 m ³ (185.4 ft ³)	N/A	N/A	
	Modular	N/A	Pallet A: 5.25 m ³ (185.4 ft ³) Pallet B: 5.25 m ³ (185.4 ft ³)	Pallet A: 5.25 m ³ (185.4 ft ³) Pallet B: 5.25 m ³ (185.4 ft ³) Pallet C: 5.25 m ³ (185.4 ft ³)	
	Unassembled	Pallet A: 4.09 m ³ (144.4 ft ³)	Pallet A: 4.09 m ³ (144.4 ft ³) Pallet B: 4.09 m ³ (144.4 ft ³)	Pallet A: 5.18 m ³ (182.9 ft ³) Pallet B: 5.46 m ³ (192.8 ft ³)	

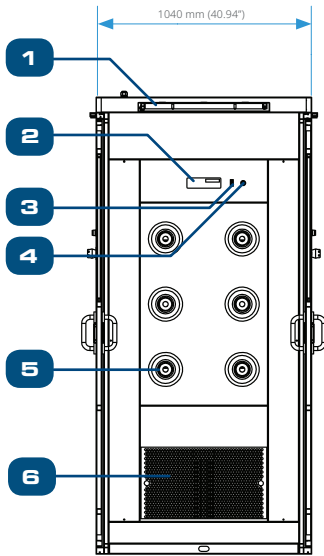
Note: EAS-C series have an option to have NO BASE with guide rail on the side of each module.

Esco Cleanroom Air Showers Model EAS-2B_-EUS Modes of Shipment

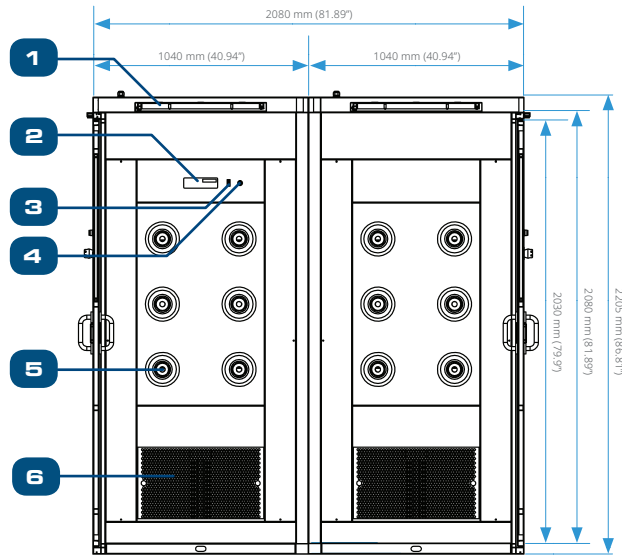


ENGINEERING DRAWING MODEL EAS-EUS (B-SERIES)

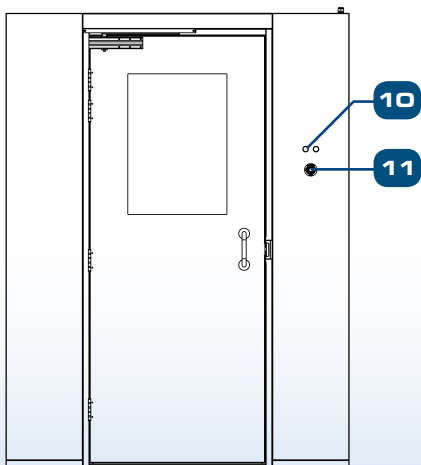
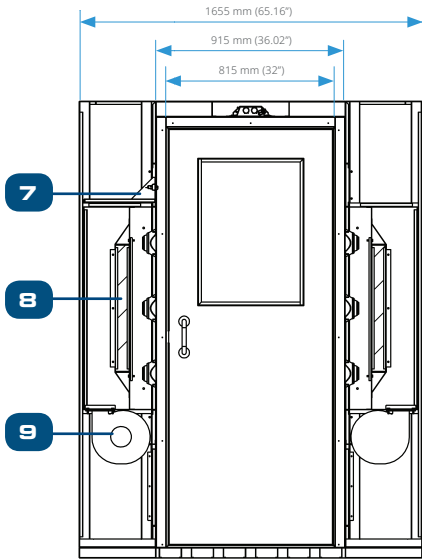
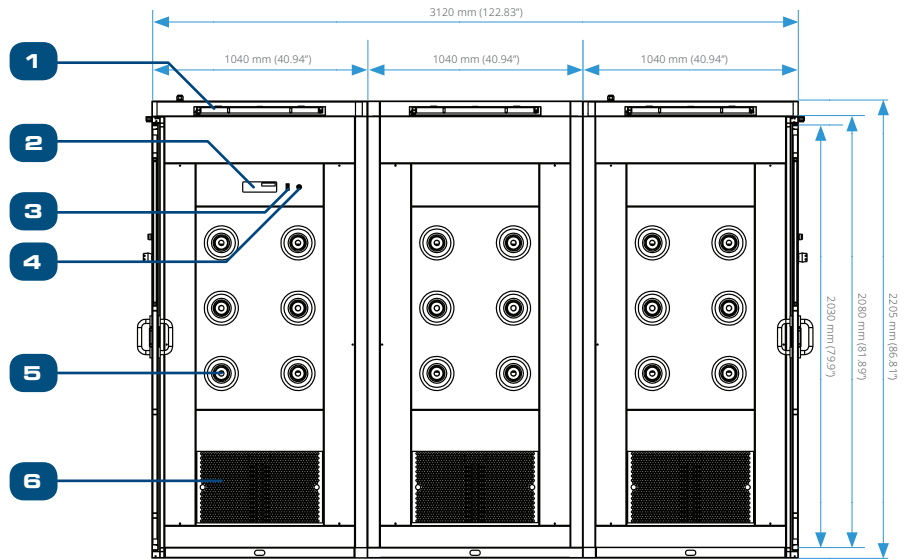
EAS-1B_-EUS



EAS-2B_-EUS



EAS-3B_-EUS



1. LED Housing
2. Esco Sentinel™ Microprocessor Controller
3. Unit Circuit Breaker Button
4. Unit On/Off Switch
5. Stainless Steel Nozzles
6. G4 Prefilters (Disposable)
7. Electrical Panel
8. H14 filters
9. Blower
10. Indicator Lights (for both grey and clean sides)
11. Emergency Stop Button (for both grey and clean sides)

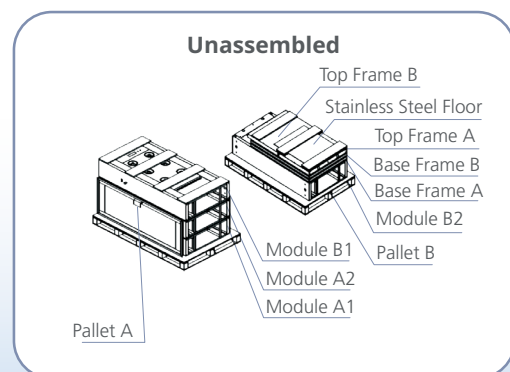
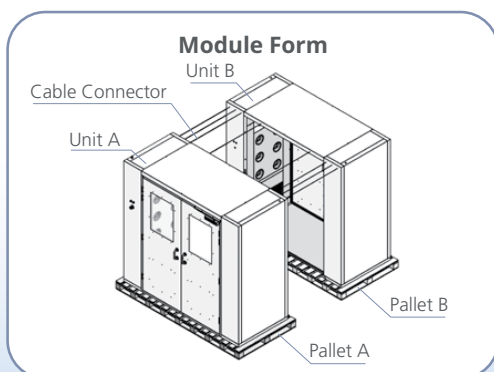
General Specifications, Cleanroom Air Shower, Model EAS_EUS (C-Series)

Note to customer: Insert electrical voltage number into last model number digit _ when ordering.

Model		EAS-2C_	EAS-3C_		
External Dimensions (W x D x H)		2430 x 2080 x 2205 mm (95.87" x 81.89" x 86.81")	2430 x 3120 x 2205 mm (95.87" x 122.83" x 86.81")		
Internal Work Area, Dimensions (W x D x H)		1690 X 1960 X 2080 mm (66.54" x 77.17" x 81.89")	1690 X 3000 X 2080 mm (66.54" x 118.11" x 81.89")		
Clean Door Opening (WxH)		1590 x 2030 mm (62.6" x 79.9")			
Air Change (30-18 m/s)		113 - 188/ Hr	112 - 186/ Hr		
Initial Airflow Velocity		18-30 m/s (3,543 - 5,906 fpm)			
Number of Nozzles		24	36		
Air Shower Duration		Factory set at 12 seconds (adjustable)			
Persons Per Cycle		2-3	4-6		
Personnel Flow (Persons / Minute)		6-9	10-21		
		Above figures based on: Total Cycle Time of 20 seconds (12 seconds of Air Shower + 4 seconds for buffer time + 5 second blower stopping time delay / personnel entrance and exit)			
Filtration Efficiency		Filter: >99.995% at 0.3 µm Pre-Filter: Arrestance 85%, efficiency 20%			
Filtration Elements		Main Filter: H14 filter Pre-Filter: Disposable and non-washable polyester fibers			
LED light		4 x 19W	6 x 19W		
Air Shower Construction		1.5 mm / 0.06"/18 electro-galvanised steel / White oven-baked epoxy antimicrobial powder-coated finish			
Electrical	220-240V, AC, 60/50Hz, 1Ø	EAS-2C8	EAS-3C8		
	110-130V, AC, 60/50Hz, 1Ø	EAS-2C9	EAS-3C9		
Shipping Dimensions, Maximum (W x D x H)*	Assembled		N/A	N/A	
			N/A	N/A	
			N/A	N/A	
			N/A	N/A	
	Module Form		Pallet A	2600 X 1200 X 2400 mm (102.4" x 47.2" x 94.5")	2600 x 1200 x 2400 mm (102.4" x 47.2" x 94.5")
			Pallet B	2600 X 1200 X 2400 mm (102.4" x 47.2" x 94.5")	2600 x 1200 x 2400 mm (102.4" x 47.2" x 94.5")
			Pallet C	N/A	2600 x 1200 x 2400 mm (102.4" x 47.2" x 94.5")
			Shipment Weight	Pallet A: 753 kg (1660.08 lbs) Pallet B: 753 kg (1660.08 lbs)	Pallet A: 753 kg (1660.08 lbs) Pallet B: 642 kg (1415.4 lbs) Pallet C: 753 kg (1660.08 lbs)
	Unassembled		Pallet A	2700 x 1570 x 1190 mm (106.3" x 61.8" x 46.9")	2700 x 1570 x 1530 mm (106.3" x 61.8" x 60.2")
			Pallet B	N/A	2500 x 1500 x 1090 mm (98.4" x 59.1" x 42.9")
Shipment Weight			Pallet A: 684.8 kg (1509.7 lbs) Pallet B: 741 kg (1633.63 lbs)	Pallet A: 843 kg (1858.5 lbs) Pallet B: 1073.3 kg (2366.2 lbs)	
Shipping Volume, Maximum	Assembled		N/A	N/A	
	Modular		Pallet A: 7.49 m ³ (264.5 ft ³) Pallet B: 7.49 m ³ (264.5 ft ³)	Pallet A: 7.49 m ³ (264.5 ft ³) Pallet B: 7.49 m ³ (264.5 ft ³) Pallet C: 7.49 m ³ (264.5 ft ³)	
	Unassembled		Pallet A: 8.01 m ³ (282.9 ft ³) Pallet B: 5.04 m ³ (177.9 ft ³)	Pallet A: 8.01 m ³ (282.9 ft ³) Pallet B: 6.49 m ³ (229.2 ft ³)	

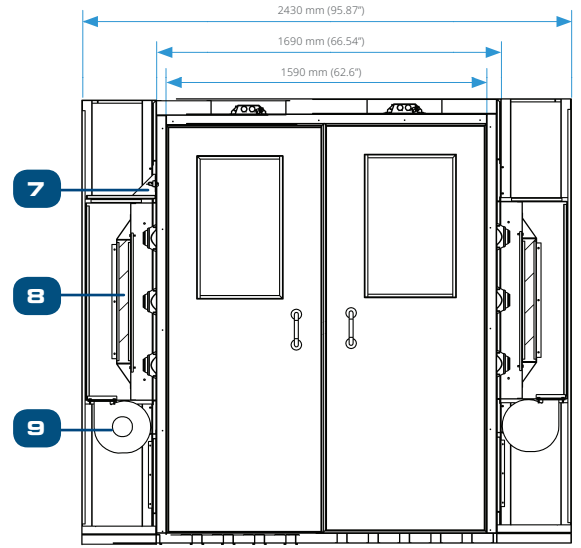
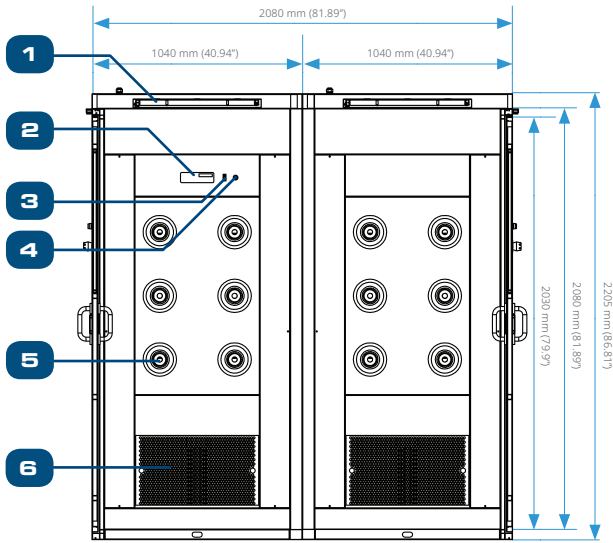
Note: EAS-C series have an option to have NO BASE with guide rail on the side of each module.

Esco Cleanroom Air Showers Model EAS-2C_-EUS Modes of Shipment

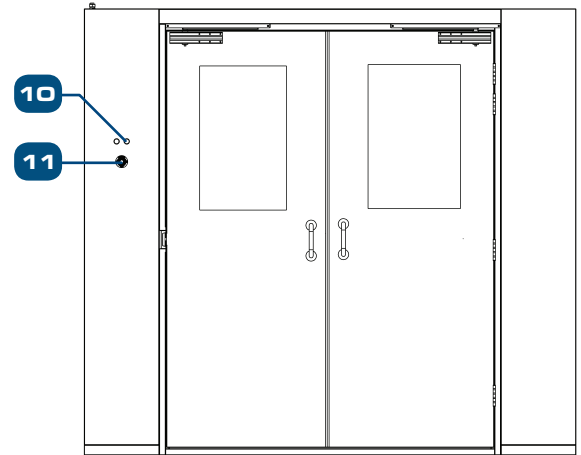
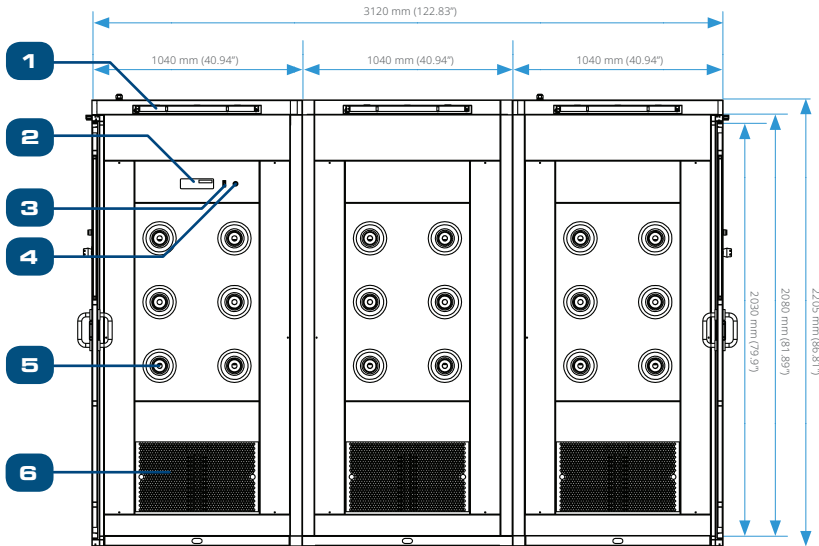


ENGINEERING DRAWING MODEL EAS-EUS (C-SERIES)

EAS-2C_EUS



EAS-3C_EUS



- | | | |
|---|-------------------------------|---|
| 1. LED Housing | 5. Stainless Steel Nozzles | 9. Blower |
| 2. Esco Sentinel™ Microprocessor Controller | 6. G4 Prefilters (Disposable) | 10. Indicator Lights (for both grey and clean sides) |
| 3. Unit Circuit Breaker Button | 7. Electrical Panel | 11. Emergency Stop Button (for both grey and clean sides) |
| 4. Unit On/Off Switch | 8. H14 filters | |



Esco Pharma
19 Changi South Street 1, Singapore 486779
Tel: +65 65420833
Email: mail@escolifesciences.com

Esco Technologies, Inc.
2512 Metropolitan Drive, Suite 120 B
Feasterville- Trevose, PA 19053-6738
Tel: +1 215 322 2155
Email: eti.pharma@escolifesciences.com

Esco GB Ltd
Unit 2 R-evolution @ Gateway 36, Kestrel Way, Barnsley, S70 5SZ
Tel: +44 (0) 1226 360 799
Email: egb.info@escolifesciences.com

Esco Lifesciences Offices: Bangladesh | China | Denmark | Germany | Hong Kong | India | Indonesia | Italy | Japan | Lithuania | Malaysia | Myanmar | Philippines | Russia | Singapore | South Africa | South Korea | Taiwan | Thailand | UAE | UK | USA | Vietnam



30 10688 - Cleanroom: EAS-EUS Brochure - A4 - v4(Blue) - 10282024
Esco can accept no responsibility for possible errors in catalogues, brochures and other printed materials. Esco reserves the right to alter its products and specifications without notice. All rights reserved. Esco and logos in this material are the property of Esco and the respective companies.