

Cleanroom Air Showers

(EAS-EUS)



Air Showers are self contained chambers installed at entrances to cleanrooms and other controlled environments. They minimize particulate matter entering or exiting the clean space.

Personnel and materials entering or exiting the controlled environment are "scrubbed" by high velocity HEPA-filtered air jets with velocities of 18-30 m/s (3,543 -5,906 fpm). Contaminated air is then drawn through the base within the unit, filtered and recirculated.

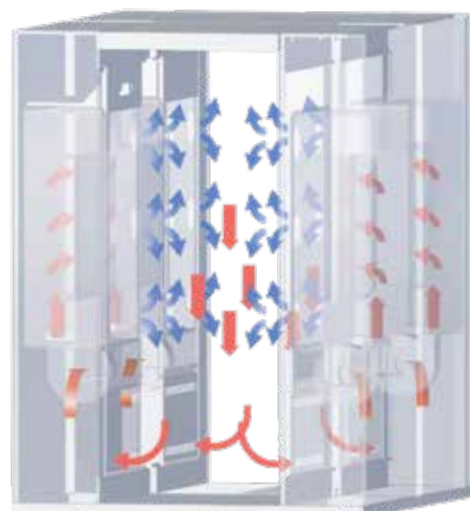
Esco is the pioneering company for the construction of air showers with different applications on areas in the micro-electronics, semiconductors, pharmaceutical, spray painting, laboratory animal research and food markets.

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.
- Mini-pleated H14 filtration achieves > 99.9999% typical efficiency at 0.3 micron particles.
- A disposable prefilter 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

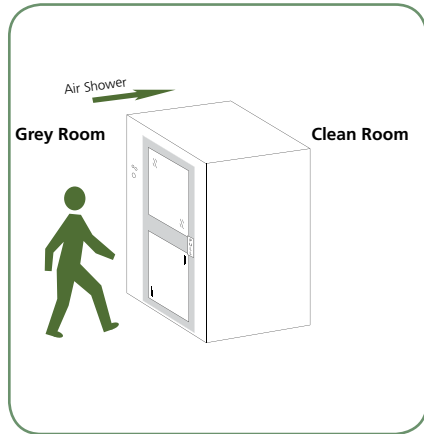
- Air is forced by the blower(s) through H14 filter(s) which are 99.9999% efficient against particles of 0.3 microns.
- Filtered air is ejected through nozzles at high velocities into the chamber. These turbulent air streams disperse particulate matter on all surfaces.
- Dispersed particulate matter 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

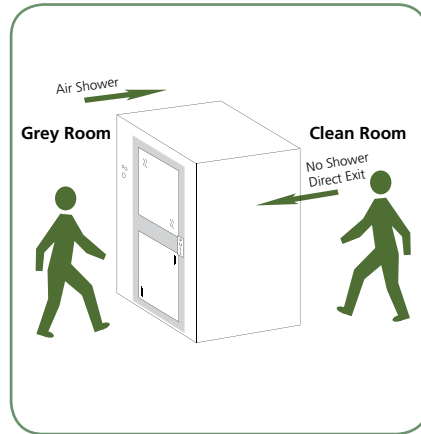
Air Shower Operating Sequences

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:



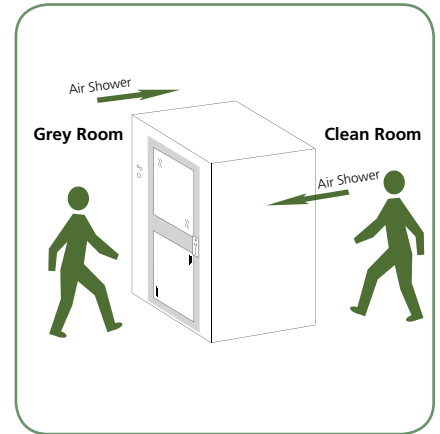
One-Way

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 into 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.



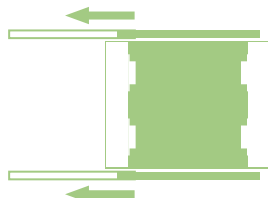
Two-Way

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



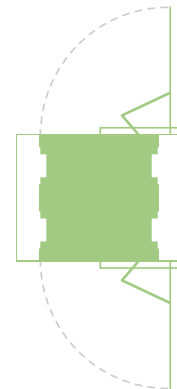
Vertical Shutter Door



Single



Double

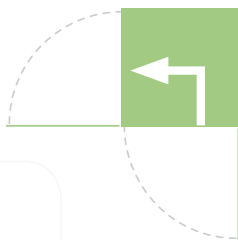


Auto-swing Door

Optional EAS Exit Directions



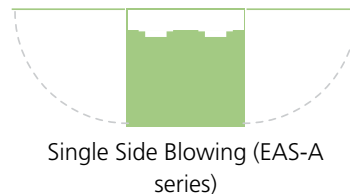
Straight-through



L-Shaped

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

EAS Blowing Type



Single Side Blowing (EAS-A series)



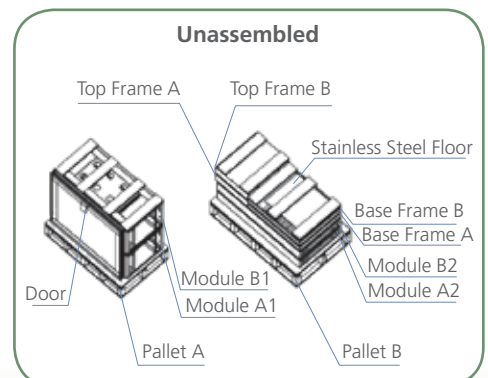
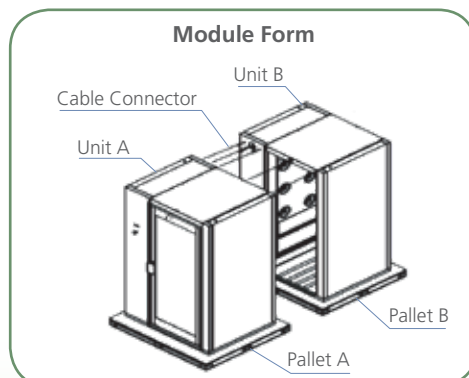
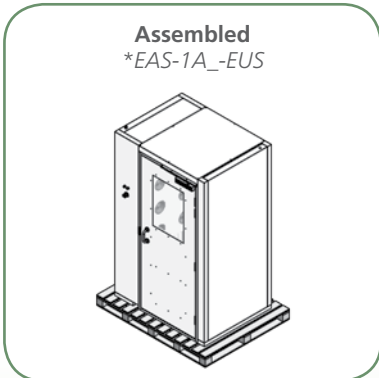
Double Side Blowing (EAS-B and C series)

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

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

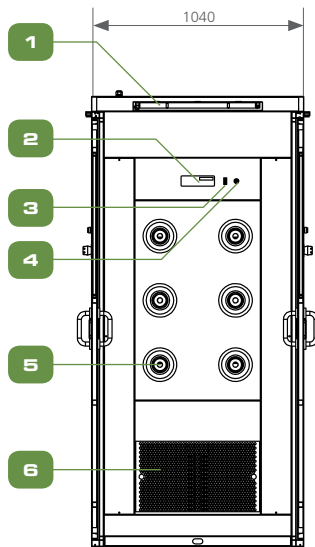
Model		EAS-1A_	EAS-2A_	EAS-3A_	
External Dimensions (W x D x H)		1385 x 1040 x 2205 mm 54.53" x 40.94" x 86.81"	1385 x 2080 x 2205 mm 54.53" x 81.89" x 86.81"	1385 x 3120 x 2205 mm 54.53" x 122.83" x 86.81"	
Internal Work Area, Dimensions (W x D x H)		915 x 920 x 2080 mm 36.02" x 36.22" x 81.89"	915 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"	
Clear 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		18-30 m/s (3,543 - 5,906 fpm)			
Number of Nozzles		6	12	18	
Air Shower Duration		Factory set at 12 seconds (adjustable)			
Persons Per Cycle		1	2-3		
		3	6-9		
Personnel Flow (Persons / Min.)		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		Main Filter: >99.9999% 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	240-220V, AC, 60/50Hz, 1Ø	EAS-1A8	EAS-2A8	EAS-3A8	
	120-110V, AC, 60/50Hz, 1Ø	EAS-1A9	EAS-2A9	EAS-3A9	
Shipping Weight and Dimensions (W x D x H)	Assembled (W x D x H)	Pallet A	1680 x 1300 x 2400 mm 66.1" x 51.2" x 94.5"	N/A	N/A
		Pallet B	N/A	N/A	N/A
		Pallet C	N/A	N/A	N/A
		Shipment Weight	Pallet A: 529.2 kg (1166.7 lbs)	N/A	N/A
	Modular (W x D x H)	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 (W x D x H)	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
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, Modes of Shipment, Model EAS-2A_-EUS

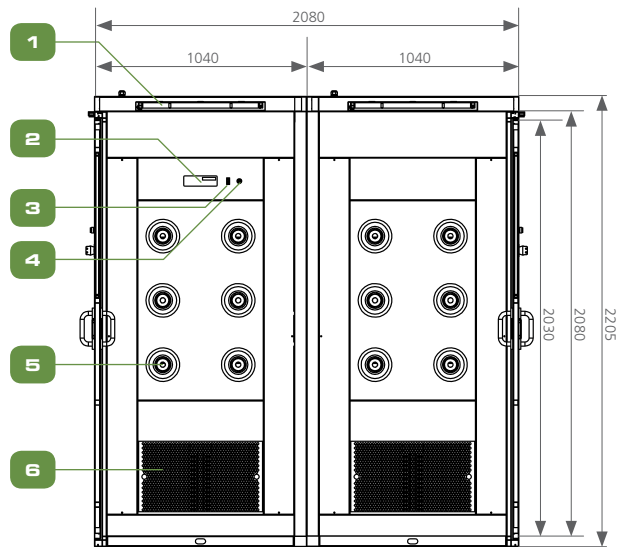


ENGINEERING DRAWING MODEL EAS-EUS (A-SERIES)

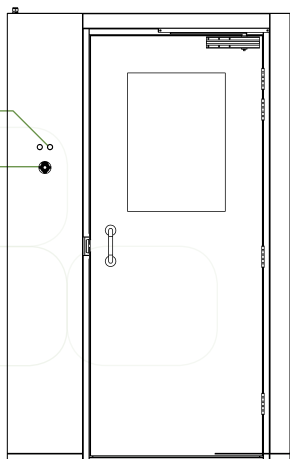
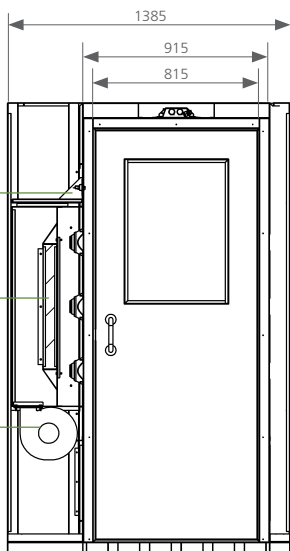
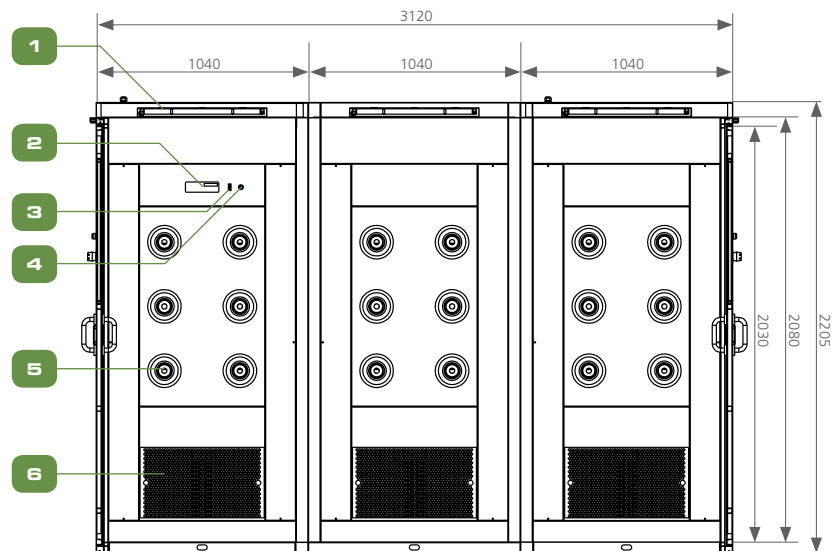
EAS-1A _EUS



EAS-2A _EUS



EAS-3A _EUS



1. LED Housing
2. Esco Sentinel™ Silver 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)

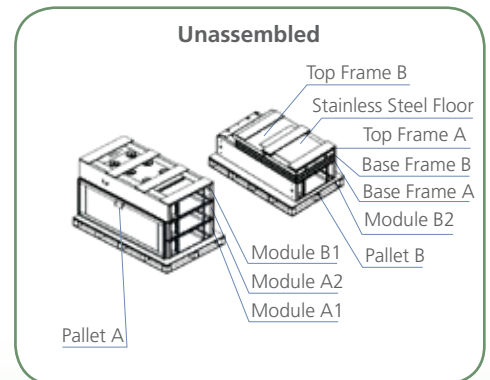
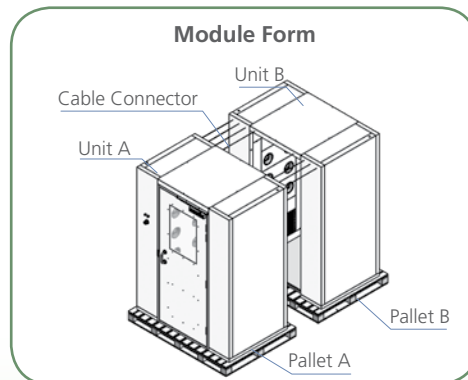
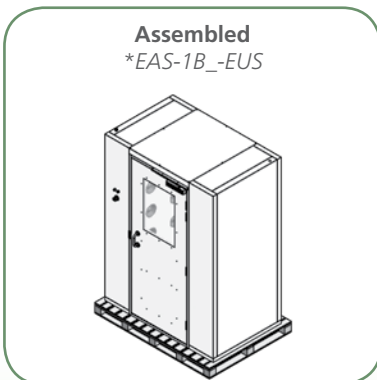
General Specifications, Cleanroom Air Shower, Model EAS-EUS (B-Series)*

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"	
Clear 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)			
Persons Per Cycle		1	2-3		
Personnel Flow (Persons / Min.)		3	6-9		
Filtration Efficiency		Main Filter: >99.9999% at 0.3 µm Pre-Filter: Arrestance 85%, efficiency 20%			
Filtration Elements		Main Filter: H14 filter Pre-Filter: Disposable and non-washable polyester fibers			
Fluorescent Lamp		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	240-220V, AC, 60/50Hz, 1Ø	EAS-1B8	EAS-2B8	EAS-3B8	
	120-110V, AC, 60/50Hz, 1Ø	EAS-1B9	EAS-2B9	EAS-3B9	
Shipping Weight and Dimensions (W x D x H)	Assembled (W x D x H)	Pallet A	1750 x 1250 x 2400 mm 68.9" x 49.2" x 94.5"	N/A	N/A
		Pallet B	N/A	N/A	N/A
		Pallet C	N/A	N/A	N/A
		Shipment Weight	Pallet A: 530.5 kg (1169.6 lbs)	N/A	N/A
	Modular (W x D x H)	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 (W x D x H)	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	Pallet A: 5.25 m ³ (185.4 ft ³)	N/A	N/A
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)	

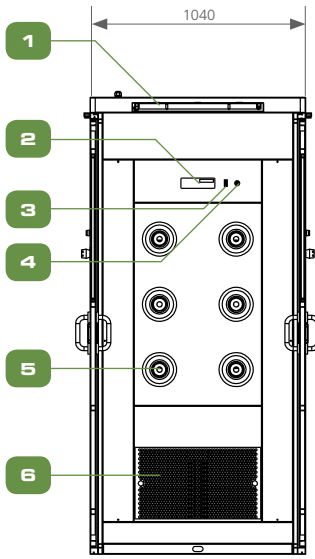
Note: EAS-B series have an option to have NO BASE with guide rail on the side of each module.

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

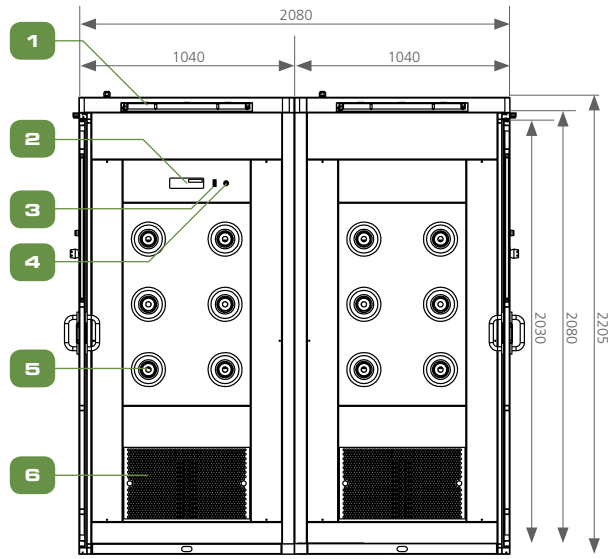


ENGINEERING DRAWING MODEL EAS-EUS (B-SERIES)

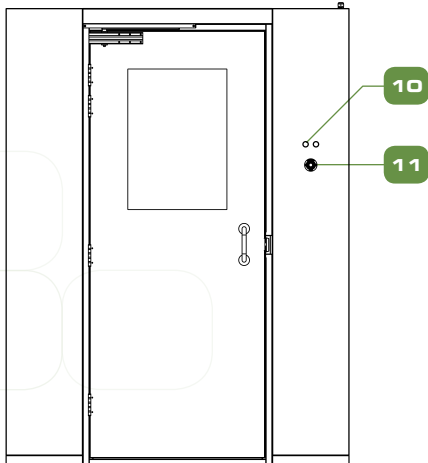
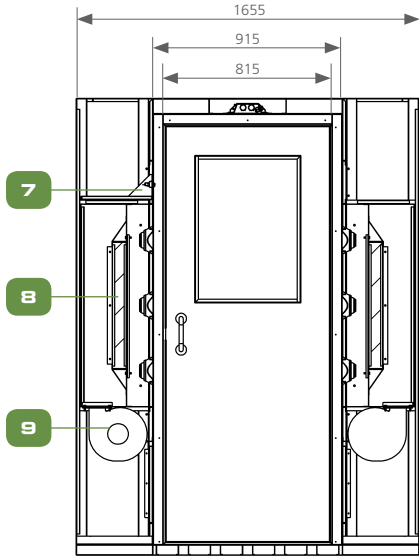
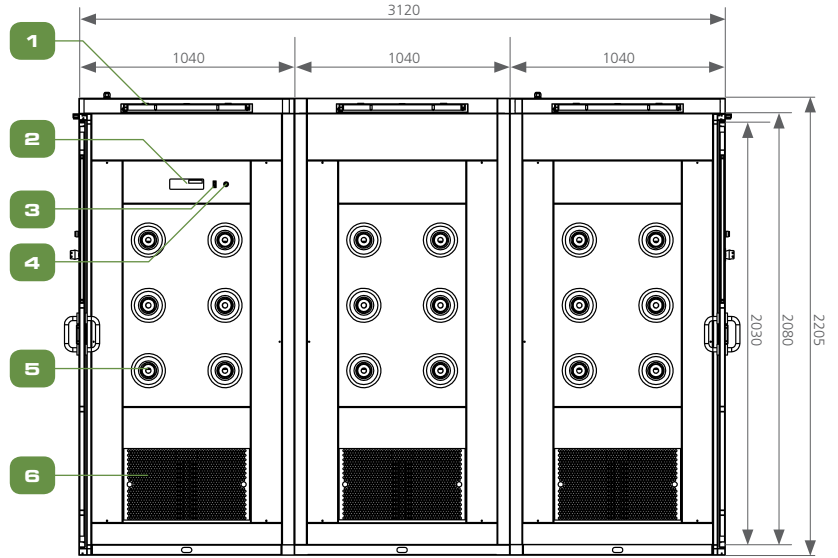
EAS-1B_EUS



EAS-2B_EUS



EAS-3B_EUS



1. LED Housing
2. Esco Sentinel™ Silver 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)

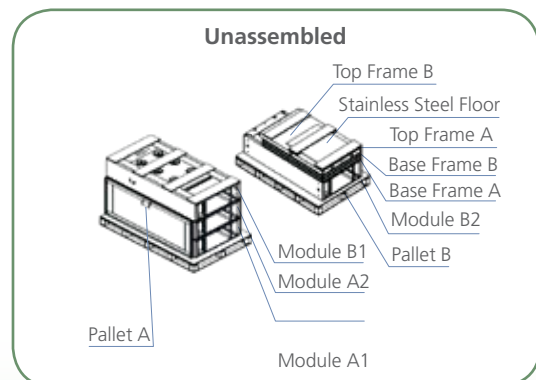
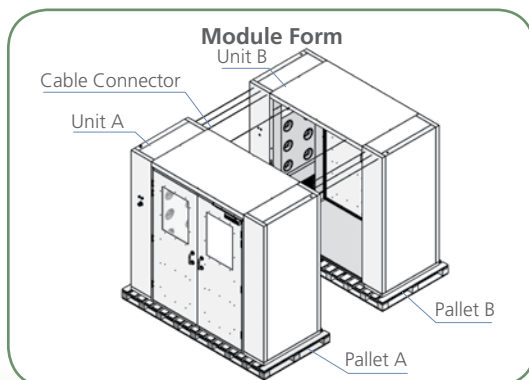
General Specifications, Cleanroom Air Shower, Model EAS-EUS (C-Series)*

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)		2435 x 2080 x 2205 mm 95.87" x 81.89" x 86.81"	2435 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"	
Clear 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 / Min.)		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		Main Filter: >99.9999% at 0.3 µm Pre-Filter: Arrestance 85%, efficiency 20%		
Filtration Elements		Main Filter: H14 filter Pre-Filter: Disposable and non-washable polyester fibers		
Fluorescent Lamp		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	240-220V, AC, 60/50Hz, 1Ø	EAS-2C8	EAS-3C8	
	120-110V, AC, 60/50Hz, 1Ø	EAS-2C9	EAS-3C9	
Shipping Weight and Dimensions (W x D x H)	Assembled (W x D x H)	Pallet A	N/A	
		Pallet B	N/A	
		Pallet C	N/A	
		Shipment Weight	N/A	
	Modular (W x D x H)	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 (W x D x H)	Pallet A	2700 x 1570 x 1890 mm 106.3" x 61.8" x 74.4"	2700 x 1570 x 1890 mm 106.3" x 61.8" x 74.4"
		Pallet B	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"
		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)
		Assembled	N/A	
Shipping Volume, Maximum	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)	

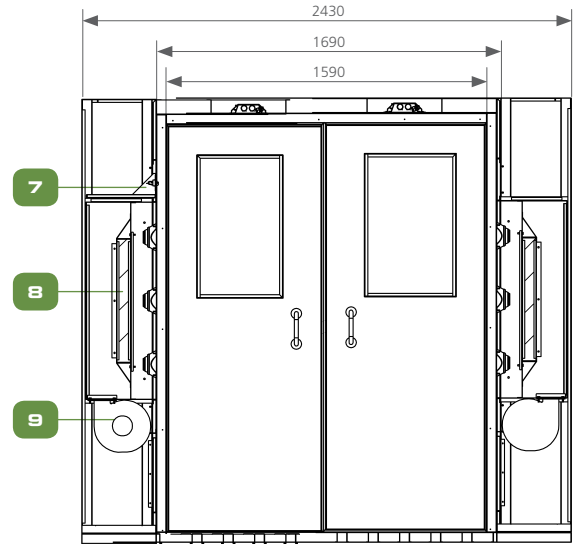
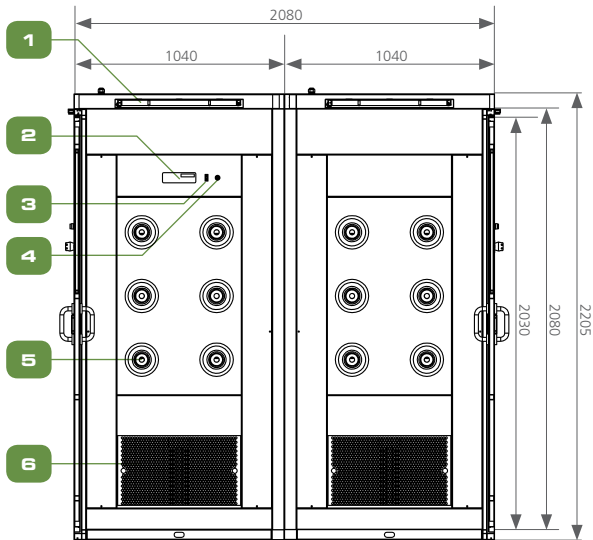
Note: EAS-C series have an option to have NO BASE with guide rail on the side of each module.

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

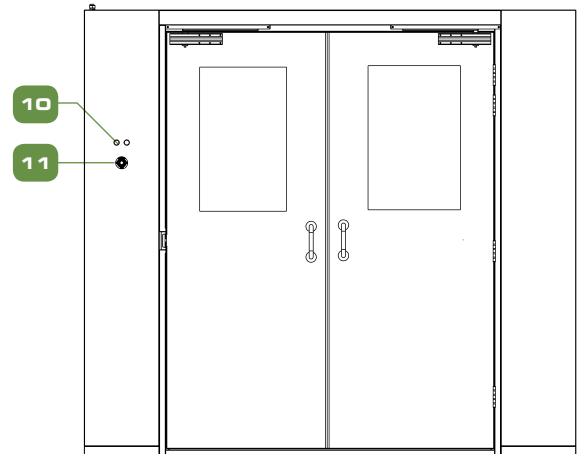
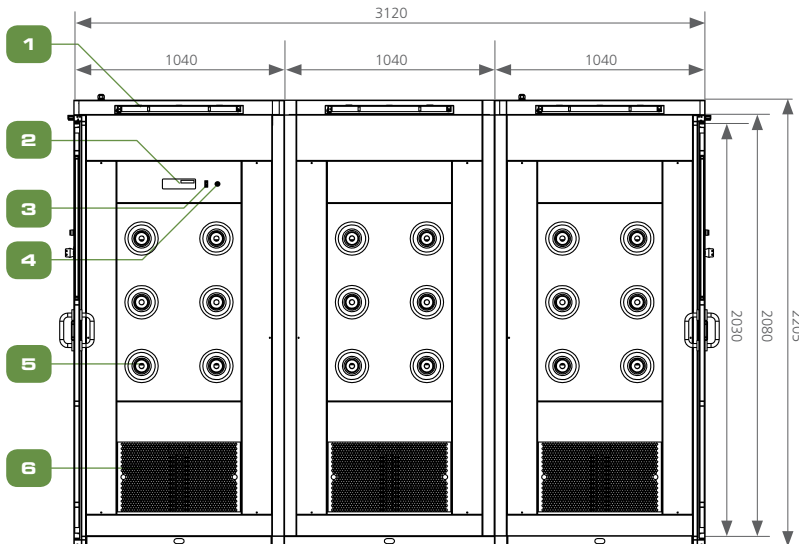


ENGINEERING DRAWING MODEL EAS-EUS (C-SERIES)

EAS-2C_-EUS



EAS-3C_-EUS



1. LED Housing
2. Esco Sentinel™ Silver 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)

ESCO PHARMA

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