

*Esco Air Shower Pass Box
Model EQU/00-EAS-PB*

Pass Boxes and Transfer Hatches

The Leading Solution for Controlled Environment Protection





EPB-A504050 and EPB-A606060
(standard pass box)

EQU/00-EAS-PB
(air shower pass box)

EPB-S616161 and EPB-S454645
(pharmaceutical grade transfer hatch)

Controlling the ingress of particulate contamination into cleanrooms and other controlled environments is paramount in order to maintain the integrity of products and processes. Personnel traffic is the

most important factor which must be controlled. Esco Pass Boxes and Transfer Hatches are an effective solution as they allow materials to be transferred into the controlled environment without actual

personnel movement. They may also be used to protect the external environment from egress of contamination, for example, in biological safety laboratory applications.

Available Models

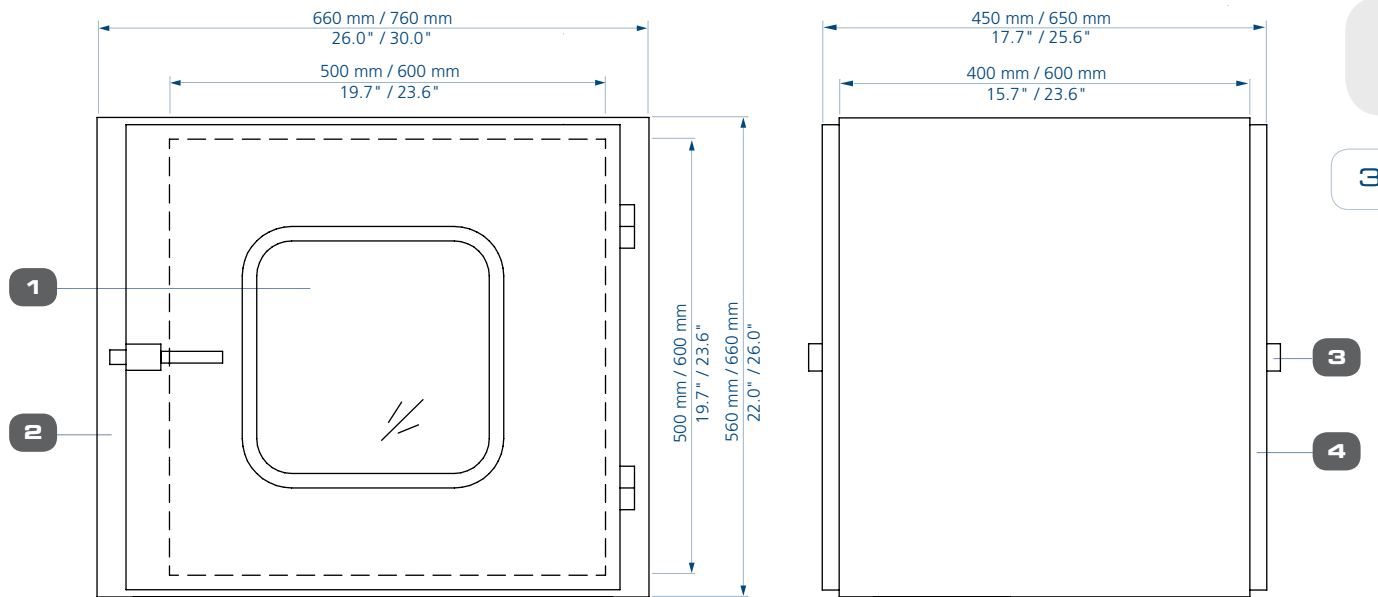
Model	Internal Dimensions	Construction	Interlock	Air Shower
EPB-A504050	500 x 400 x 500 mm (19.7" x 15.7" x 19.7")	Powder coated steel, non covered corners (optional: stainless steel)	Mechanical	-
EPB-A606060	600 x 600 x 600 mm (23.6" x 23.6" x 23.6")	Powder coated steel, non covered corners (optional: stainless steel)	Mechanical	-
EPB-S616161	610 x 610 x 610 mm (24" x 24" x 24")	2 mm stainless steel, all covered corners	Mechanical	-
EPB-S454645	450 x 460 x 450 mm (17.7" x 18.1" x 17.7")	2 mm stainless steel, all covered corners	Mechanical	-
EQU/00-EAS-PB	800 x 500 x 600 mm (31.5" x 19.7" x 23.6")	Powder coated steel, non covered corners (optional: stainless steel)	Electrical	✓

Esco Pass Box

Main Features

- Mechanical interlock is reliable, maintenance-free, fail safe and maintains clean-room integrity by preventing both doors from being opened at the same time.
- All Esco products are manufactured for the most demanding controlled environment applications.
- All components are designed for maximum chemical resistance and enhanced durability for a long service life.
- The main body of the pass box is constructed of industrial-grade electrogalvanized steel.
- The pass box base surface is constructed of stainless steel, making the work zone easy to clean
- Acrylic doors provide a clear view of the internal chamber.
- Standard 1 year warranty.

Esco Pass Box Technical Specifications



1. Acrylic panel
2. Interlock mechanism

3. Handle
4. Door

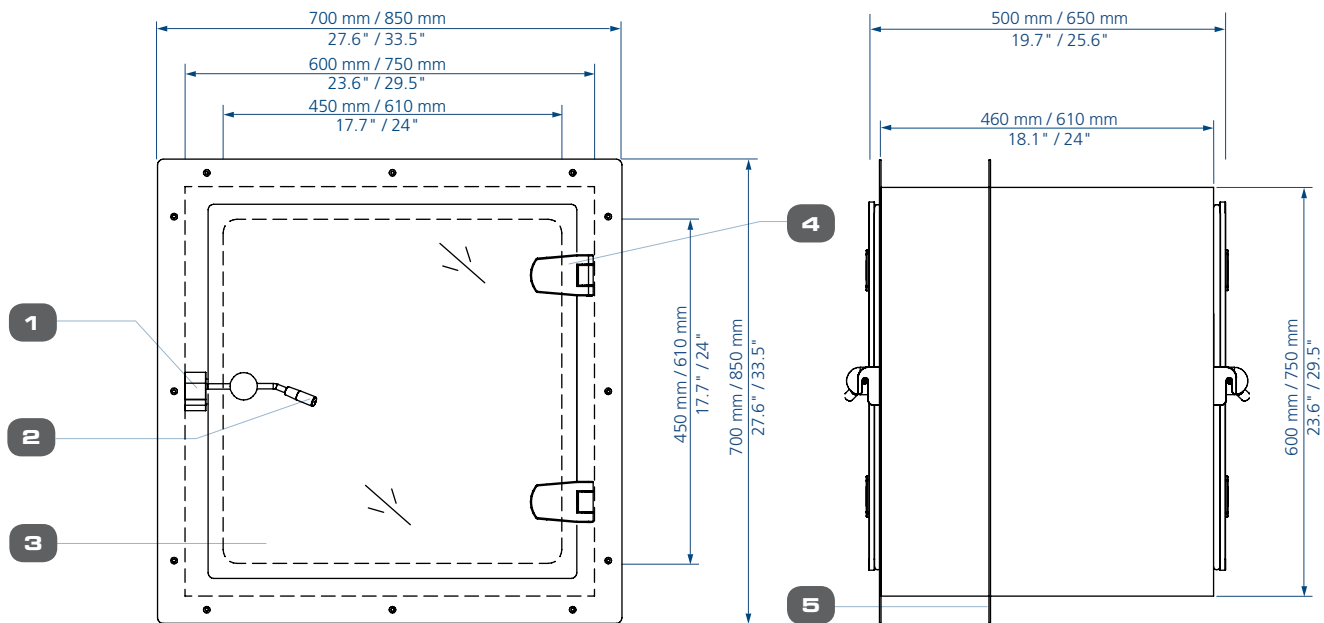
General Specifications, Esco Pass Box		
Model	EPB-A504050	EPB-A606060
External Dimensions (W x D x H)	660 x 450 x 560 mm / 26.0" x 17.7" x 22.0"	760 x 650 x 660 / 30.0" x 25.6" x 26.0"
Internal Work Area, Dimensions (W x D x H)	500 x 400 x 500 mm / 19.7" x 15.7" x 19.7"	600 x 600 x 600 mm / 23.6" x 23.6" x 23.6"
Net Weight	42.5 kg / 93.7 lbs	55.8 kg / 123 lbs
Shipping Weight	61.6 kg / 136 lbs	80.4 kg / 177 lbs
Shipping Dimensions, Maximum (W x D x H)	850 x 740 x 800 mm / 33.5" x 29.1" x 31.5"	830 x 820 x 870 mm / 32.7" x 32.3" x 34.3"
Shipping Volume, Maximum	0.5 m ³ (17.6 cu.ft.)	0.59 m ³ (20.8 cu.ft.)

Esco Cleanroom Transfer Hatch

Main Features

- Mechanical interlock is reliable, maintenance-free, fail safe and maintains cleanroom integrity by preventing both doors from being opened at the same time. The interlock design has been life-tested to 10,000 cycles to guarantee long service life.
- All Esco products are manufactured for the most demanding controlled environment applications.
- All components are designed for maximum chemical resistance and enhanced durability for a long service life.
- The main body of the pass box is constructed of pharmaceutical-grade stainless steel.
- The internal side walls of the pass box are constructed from a single piece of stainless steel, with covered corners for easy cleaning.
- Transparent 10 mm (0.3") tempered glass doors provide visibility into the interior. Frameless construction is easy to clean with no joints for contaminants to accumulate.
- Durable feather edge rubber gasketed door seals maintain cleanroom integrity and are easy to clean.
- Pass box hardware has been custom designed for reliable service, featuring large, durable hinges, and ergonomic handles.
- One stainless steel mounting flange is included.
- Extended 3 year warranty.

Esco Cleanroom Transfer Hatch Technical Specifications



- 1 Mechanical interlock
2 Door handle
3 Glass door
4 Hinges
5 Removable flange



General Specifications, Esco Cleanroom Transfer Hatch

Model	EPB-S616161	EPB-S454645
External Dimensions (W x D x H)	750 x 650 x 750 mm (29.5" x 25.6" x 29.5")	600 x 500 x 600 mm (23.6" x 19.7" x 23.6")
Internal Work Area, Dimensions (W x D x H)	610 x 610 x 610 mm (24" x 24" x 24")	450 x 460 x 450 mm (17.7" x 18.1" x 17.7")
Net Weight	54.2 kg (119 lbs)	33 kg (72 lbs)
Shipping Weight	80.4 kg / 177 lbs	61.6 kg / 136 lbs
Shipping Dimensions, Maximum (W x D x H)	830 x 820 x 870 mm / 32.7" x 32.3" x 34.3"	850 x 740 x 800 mm / 33.5" x 29.1" x 31.5"
Shipping Volume, Maximum	0.59 m ³ (20.8 cu.ft.)	0.5 m ³ (17.6 cu.ft.)

Esco Air Shower Pass Box

Main Features

- Built-in air shower significantly reduces surface contamination on materials entering or exiting the controlled environment. Materials entering or exiting the controlled environment are "scrubbed" by high velocity ULPA-filtered air jets with velocities of 25 m/s (4921 fpm). Contaminated air is then drawn through the base within the unit, filtered and recirculated.
- An array of stainless steel nozzles direct high-velocity jets within the chamber.
- Air shower duration is adjustable. Standard factory pre-set is 12 seconds in both directions.

Air Shower Pass Box Construction

- Robust construction qualifies the air shower pass box for the most demanding controlled environment applications. The unit is fully assembled and ready to install and operate when shipped. All components are designed for maximum chemical resistance and enhanced durability for a long service life.
- Electrical interlock maintains cleanroom integrity by preventing both doors from being opened at the same time.
- The air shower is constructed of electrogalvanised steel sheets with an abrasion resistant oven-baked powder coated finish.

- The pass box base surface is constructed of perforated stainless steel, making the work zone easy to clean.
- Acrylic doors provide a clear view of the internal chamber.

Blower and Filtration Systems

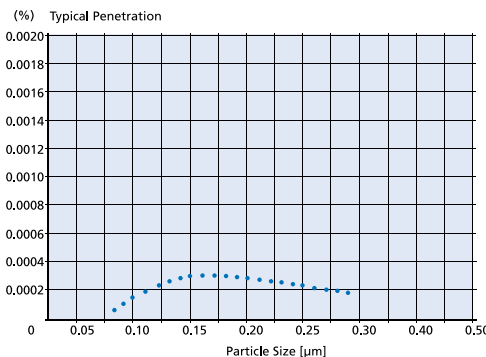
- Esco Air Shower Pass Boxes use German made ebm-papst® permanently lubricated, centrifugal motor/blowers with external rotor designs. Selected for energy efficiency, compact design, and flat profile, the completely integrated blower assembly optimizes motor cooling, with unified rotating parts and overall component balance for smooth, quiet, vibration-free operation. Weight is equally distributed to all bearings to extend bearing life.
- ULPA filter(s) provide >99.999% typical efficiency for particle sizes at 0.3 microns. Esco Air Shower filters meet the

IEST-RP-CC001.3 recommended practice for HEPA performance (USA), and EN 1822 for H13 performance (EU).

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

Warranty

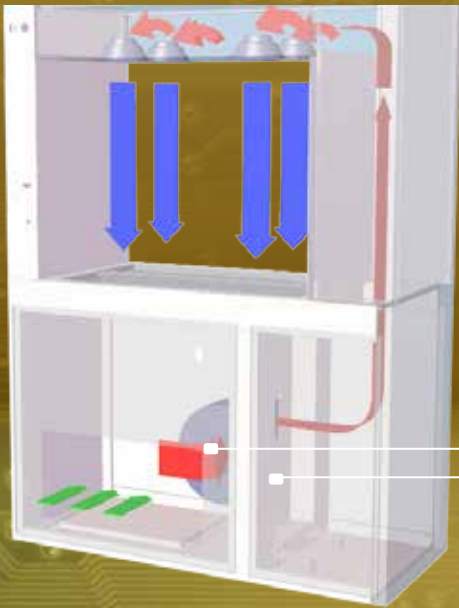
- All Esco Air Shower Pass Boxes are covered by 1 year warranty. Contact your local Sales Representative for warranty details.



Esco ULPA Filter Efficiency

Esco cabinets use ULPA filters (per IEST-RP-CC001.3) instead of conventional HEPA filters commonly found in cleanroom product. While HEPA filters offer >99.99% typical efficiency at 0.3 micron level, ULPA filters provide >99.999% typical efficiency for particle sizes of 0.1 to 0.3 micron level.

Esco Air Shower Pass Box Airflow Diagram



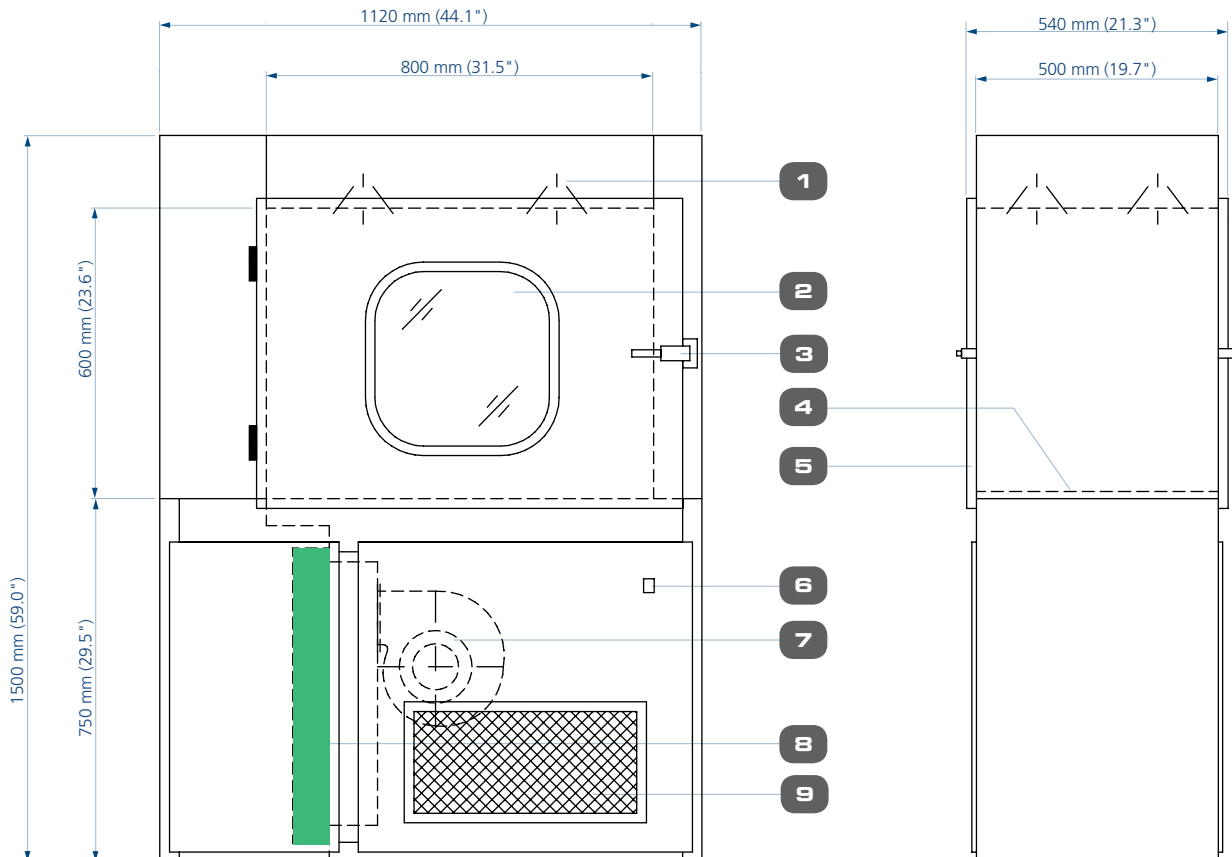
Blower

ULPA Filter

- ULPA-filtered air
- Unfiltered / Potentially contaminated air
- Room air / Inflow air

- Air is forced by the blower(s) through ULPA filter(s) which are >99.999% 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.
- The air is continuously filtered and recirculated.

Esco Air Shower Pass Box Technical Specifications



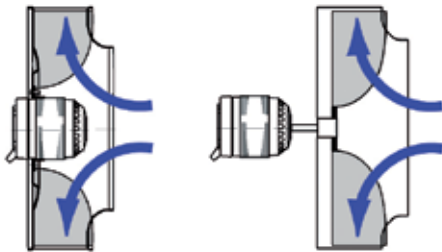
- | | |
|------------------------------------|-----------------------|
| 1 Nozzles (4 nos) | 6. Operating switches |
| 2. Acrylic panel | 7. Blower |
| 3. Handle | 8. ULPA filter |
| 4. Perforated stainless steel base | 9. Pre-filter |
| 5. Door | |

General Specifications, Esco Air Shower Pass Box

Model	EQU/00-EAS-PB	
External Dimensions (W x D x H)	1120 x 540 x 1500 mm (44.1" x 21.3" x 59.0")	
Internal Work Area, Dimensions (W x D x H)	800 x 500 x 600 mm (31.5" x 19.7" x 23.6")	
Air Change	1360 / hr	
Air Velocity (m/s)	25 m/s (4921 fpm)	
Number of Nozzles	4	
Air Shower Duration (seconds)	Factory set at 12 seconds (adjustable)	
Pre-Filter	Washable non-woven polyester fibers with 85% arrestance and 20% efficiency	
ULPA Filter Typical Efficiency	>99.999% at particle size 0.3 µm	
Main Body	1.5 mm electrogalvanised steel / White oven-baked epoxy powder-coated finish	
Electrical *	Voltage	220 - 240 V, AC, 50 Hz, 1Ø
	Cabinet Full Load Amps (FLA)	1.75 A
	Cabinet Nominal Power	250 W
	Cabinet BTU	853
Net Weight	130 kg (286 lbs)	
Shipping Weight	164.3 kg (362 lbs)	
Shipping Dimensions, Maximum (W x D x H)	1120 x 570 x 1650 mm (44.1" x 22.4" x 65.0")	
Shipping Volume, Maximum	1.05 m ³ (37 cu.ft.)	

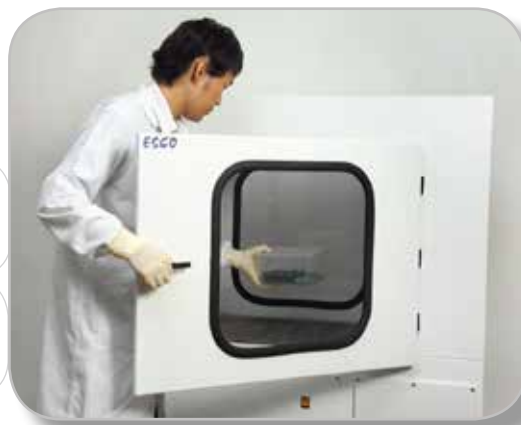
* Additional voltages may be available; contact Esco for ordering information.

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Esco Centrifugal Fan with External Rotor Motor (left) vs. Conventional Fan with Standard Motor (right)

- Esco cabinets use German made **ebm-papst**® permanently lubricated, centrifugal motor/blowers with external rotor designs.
- Integrated blades narrow the profile and eliminate need for a motor shaft.
- Motors are selected for energy efficiency, compact design, and flat profile. The completely integrated assembly optimizes motor cooling.
- All rotating parts are unitized and balanced for smooth, quiet, vibration-free operation.





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