

Air Shower Pass-Through

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Your Comprehensive Equipment Source





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Safety Notice

A thorough familiarity with all operating guidelines is essential to safe operation of the product. Failure to observe safety precautions could result in poor performance, damage to the system or other property, or serious bodily injury or death.

The following symbols are intended to call your attention to two levels of hazard involved in operation:



CAUTION

Cautions are used when failure to observe instructions could result in significant damage to equipment.



WARNING

Warnings are used when failure to observe instructions or precautions could result in injury or death.

The information presented here is subject to change without notice.

1.0 Description

Terra Universal's Air Shower Pass-throughs offer an effective way to dislodge particles from the surfaces of items that you transfer into the cleanroom.

Adjustable nozzles provide concentrated streams of high velocity HEPA-filtered air that blow off contaminants, which are purged through vents along the bottom of the chamber. Nozzles are arranged uniformly on walls to ensure effective distribution of filtered air. The closed-loop recirculating design directs contaminated air downward through grills and hollow walls of the Air Shower and back to the filter, which removes 99.99% of all particles as small as 0.3 microns.

The Air Shower Pass-through is equipped with electronic interlocks that allow only one door at a time to open, thereby preventing cross-contamination. They automatically release in the event of a power failure.





Air Shower Pass-Through

2.0 Installation



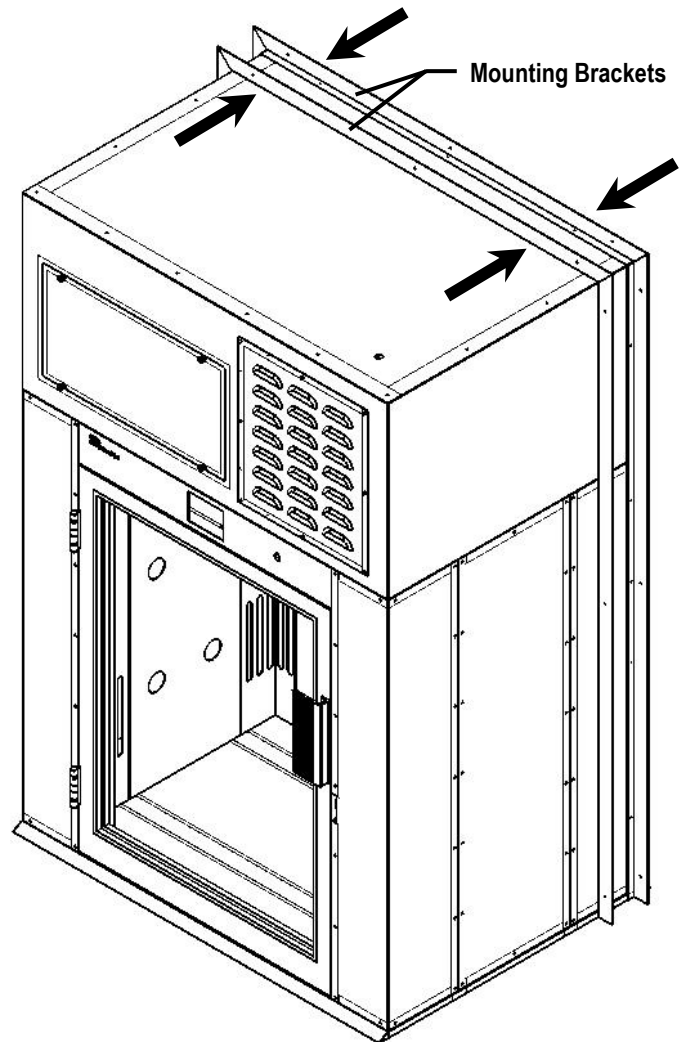
The control panel and utility access panels belong outside of the cleanroom (the “dirty” side). The cleanroom side (the “clean” side) of the pass-through is designed to have the smoothest fascia and should be installed flush with the wall (when possible) to minimize horizontal surfaces.



CAUTION

Be careful to avoid damaging the power cord that emerges from the top of the pass-through. If installed in the correct orientation, the power cord will not obstruct the installation process.

1. Make a cut-out in the wall $\frac{1}{4}$ " taller and $\frac{1}{2}$ " wider than the body of the pass-through. The perimeter of this opening should be lined with a rigid support material (wood or metal).
2. From outside of the cleanroom, slide the pass-through into the wall cut-out until it emerges into the cleanroom by approximately 3".
3. On the “clean” side, slide one of the provided mounting brackets onto the body of the pass-through and position it so that the bracket is flush with the face of the pass-through. Fasten the mounting bracket to the pass-through with $\frac{1}{4}$ " self-tapping sheet metal screws, using the predrilled holes as a guide.
4. With the first mounting bracket fastened in place, push the pass-through back into the wall until the bracket fits tightly against the wall's surface. Fasten the bracket to the wall using appropriate fasteners.
5. On the “dirty” side of the Pass-Through, slide the remaining mounting bracket onto the pass-through and position the bracket so that it is tightly up against both the wall and the pass-through. Fasten the bracket to the body of the pass-through with $\frac{1}{4}$ " self-tapping sheet metal screws and then fasten it to the wall using the appropriate fasteners.
6. Connect the power cord to the appropriate wall outlet. Be aware that once connected, an air shower cycle may commence. The Air Shower Pass-through is now ready for use.



If flush-mounting is unnecessary for your application, the position of the pass-through in the wall cut-out can be adjusted to better fit your needs. For example, the pass-through can be positioned so that the mounting brackets are in the middle of the pass-through rather than on one end.



3.0 Operation



If the pass-through shows no signs of the power being connected, remove the vented access panel and ensure the circuit breakers are switched on.

Before use, wipe down the Air Shower Pass-through inside and out with alcohol and non-shedding wipes.

System Operation

The Air Shower system arrives preprogrammed with default functions, as well as any optional features outlined in the original order form.

Once the system is connected to power, the electronic interlock will be automatically enabled, allowing only one door to open at a time.



Never attempt to force the pass-through doors open. If the interlock malfunctions, disconnect the power supply to release the doors.

The air shower function is designed to dislodge debris from items entering the cleanroom from an uncontrolled space. Therefore, the air shower cycle will only activate following the opening of the “dirty”-side door, which has the PLC control panel above it.

When the system is first turned on, it will initialize with the following information:

| | |
|-------------|-------------------------|
| Door # 1: | Defined as the entrance |
| Door #2: | Defined as the exit |
| Cycle Time: | Default = 30 seconds |

The display will read:

| | |
|----------|--------------------|
| F1 START | F3 SET SHOWER TIME |
| F2 LIGHT | |



To transfer materials or equipment into the cleanroom,

1. Beginning on the “dirty”-side of the pass-through, open the door and place the items into the chamber.
2. Close the pass-through door. After 3 seconds, the pass-through interlock will automatically engage, locking both doors and an air shower cycle will begin.
3. After 30 seconds, the air shower will cease and both doors will unlock. Open the “clean”-side door and remove the items from the chamber.

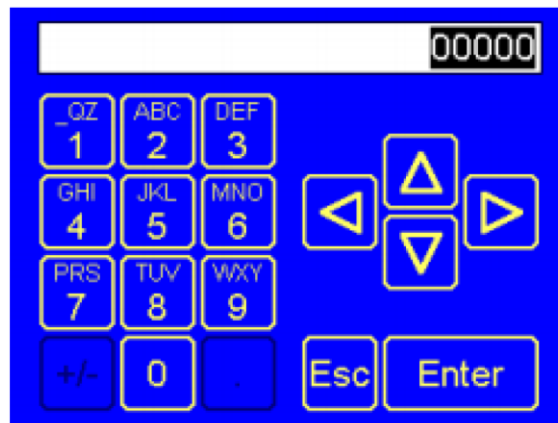
Press the F1 key to manual start the purge cycle.

When transferring items out of the cleanroom, no air shower is necessary and the cycle will not activate. After placing the items in the chamber and closing the “clean”-side door, the other side can be immediately opened to retrieve them.



Changing the Purge Cycle Time

1. Press the F3 key to reprogram the purge cycle time.
2. Enter the pass key on the virtual number pad. The Default pass key is 2345.
3. To change the cycle time value, press the UP arrow to increase the digit by one, or the DOWN arrow to decrease the digit by one. Press the left or right arrows to move the cursor.
4. Press the ENTER key after the desired cycle time is entered.
5. Press F3 to return to the main menu.



Changing the Passkey

When the shower purge time has been changed, the user must revert to another number pass key (example "0000"), otherwise the system will always display the actual pass key.

Emergency Stop

The Air Shower Pass-through includes an Emergency Stop button located above each door. Pressing this button will immediately stop the air shower cycle and disable the interlock.

If the Emergency Stop button is used, it must be manually reset. Turn the Emergency Stop button in the indicated direction to release it and restore the functionality of the pass-through.

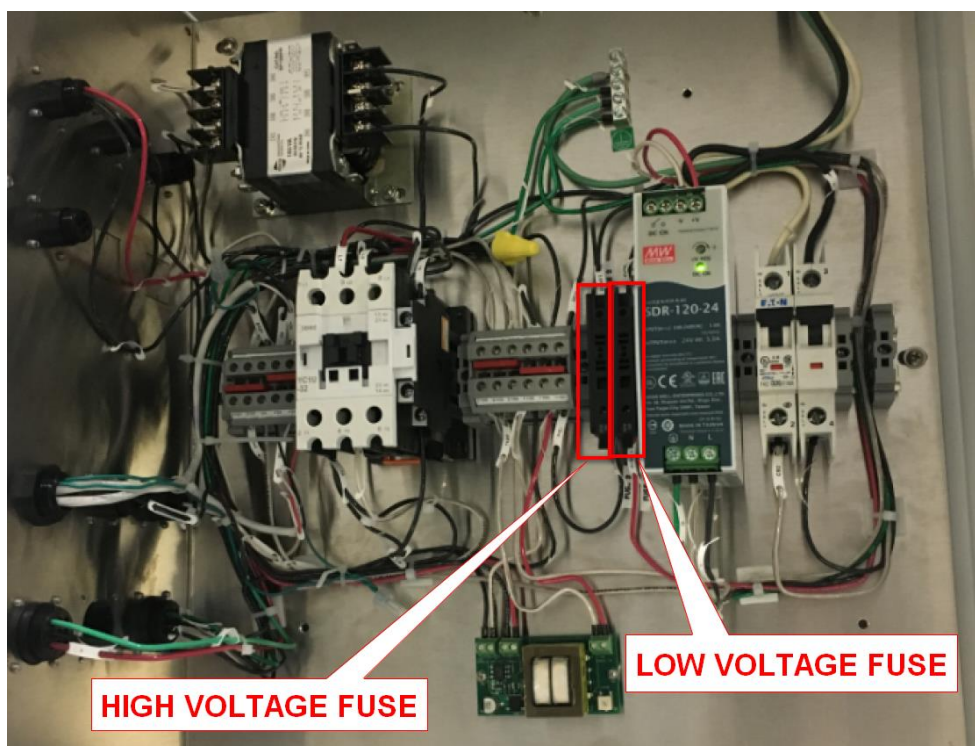


4.0 Troubleshooting




Ensure the system is disconnected from power before checking fuses.

- System does not power on: check high voltage fuse indicated on the image below.
- PLC screen does not turn on: check low voltage fuse indicated on the image below.



5.0 Specifications

| | | |
|-------------------------------------------------------------------------------------|------------------------------------------------|---------------------|
| Chamber Dimensions | 35"W x 32"D x 48"H | |
| Overall Dimensions | 53"W x 39"D x 79"H | |
| Air Velocity | 8000 FPM | |
| Filter | 11.5" x 24" x 12" | |
| Material | 304/316 Stainless Steel or Powder Coated Steel | |
|  | Blower Specifications | |
| | Manufacturer | Grainger |
| | Model # | 7C447 |
| | Power Rating | 1 HP |
| | Phase | Single |
| | Wheel Diameter | 10 $\frac{9}{16}$ " |



6.0 Maintenance

Under typical conditions (8 hours of operation per day), filters should be replaced every year.

For optimal operation, the Air Shower Pass-through should be monitored periodically with an Air Velocity Meter. Air velocity will initially average about 8,000 fpm measured at each air nozzle. When this reading drops to below 80% of the initial value, the corresponding HEPA filter is approaching the end of its useful service life and should be replaced.



CAUTION

Because HEPA filter mini-pleats are easily damaged, always handle the filter by the edges. Avoid touching the filter face.

HEPA Filter Replacement

The HEPA filter access panel is located above the touchscreen control panel on the “dirty”-side of the pass-through. It can be easily identified by the two handles attached to its surface.

To replace the filter,

- 1) Unscrew the 12 cap nuts that hold the access panel in place.
- 2) Using the handles, carefully pull the access panel off of the pass-through.
- 3) Remove the old filter from the stainless steel housing inside.
- 4) Install the new filter, being careful not to touch or otherwise damage the filter media.
- 5) Reinstall the access panel.

| Replacement Filter |
|--------------------|
|--------------------|

| |
|----------|
| #PA03798 |
|----------|

Cleaning

Stainless steel surfaces can be cleaned with alcohol and a suitable non-shedding wipe. Plastic and aluminum surfaces should be cleaned with a mild detergent (test for compatibility on an inconspicuous surface).



7.0 Warranty

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Generally, customers can improve the chance of collecting on a freight claim by following these procedures: 1) formally requesting that the carrier inspect the shipment immediately upon suspecting damage or shortage to verify condition; 2) notifying the carrier upon discovery of concealed damage and requesting an inspection within 15 days of receipt, both in person or phone and following up via mail; 3) keeping the shipment as intact as possible, including retaining original packaging materials and keeping the product as close to the original receiving location as possible; 4) holding salvage for disposition by the carrier.

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