

Single-Person-Airshower

Task

To enter or leave a cleanroom usually Airshowers are used.

The Airshower therefore has 2 tasks:

- First, the Airshower should protect the cleanroom from contaminated air and prohibit that contaminated air gets in when persons enter or leave the cleanroom.
- Second, the Airshower should blow away particles which adhere on working clothes.

When establishing the Single-Person-Airshower all 2 tasks can be solved very good.

Design

The Airshower consists of 1 part.

The modular design allows all kind of variantes concerning direction of walking through. The doors are out of safety glass (8 mm) and open to the outside.

There is a maintenance door on the grey side above the door.

Inside there are 10 nozzles in each corner from top to bottom.

There is a lighting located in the ceiling.

Two preliminary filters class EU4 are located in the bottom part of the side walls. The main filter class H13 is located in the top part of the Airshower.

Pushing an emergency stop shuts down the Airshower. Emergency stops are located on the grey side, white side or inside the Airshower.

Brief description

Having entered the Airshower the doors will be locked.

Now working clothes are subject to an intensive and purified air stream from all corners with a total of 40 nozzles.

To achieve optimal decontamination of working clothes the person should stand in the centre of the Airshower and slowly moving arms up and down.

While doing this the fan takes in the contaminated air, used as circulation air, in the floor area.

The preliminary filter eliminates the larger particles from the contaminated air. There after the pre-cleaned air flows through the main filter and is distributed to the corners.

From there, the purified air is blown back into to Airshower. This way a forced current of air is generated blowing from top to bottom. The dust laden air from the air stream cleaning process and other airborne particles are caught by the forced air current, pulled downwards, and immediately evacuated.



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Handling

The handling of the Airshower is easy.

There are interlocking doors. In the initial position both doors are closed, the door on grey side is released, the other door is locked.

Red and green LEDs display inside the Airshower and on grey and white side if a door is released or locked.

Operating mode

from grey side (contaminated area) to white side (cleanroom)

- Airshower in initial position
- Grey side door is opened and light switches on
- Person stands in the centre of the Airshower to be detected by the light barrier
- Door closes automatically
- Person is detected by the light barrier
- Door on the grey side is locked
- Fan motor starts running, air stream cleaning begins
- After 20 seconds the door on the white side is released
- Person opens the door of the white side and exits
- Door closes automatically and is locked
- Door on the grey side is released
- The Airshower is back to initial position
- After-running time of fan motor starts
- After lapse of after-running time fan motor stops

from white side (cleanroom) to grey side (contaminated area)

- Airshower cubicle in initial position
- Person presses the push button for request
- Door on the grey side is locked, fan motor starts running and light switches on
- After 3 seconds door on white side is released
- White side door is opened
- Person stands in the centre of the Airshower to be detected by the light barrier
- Door closes automatically and is locked
- After 3 seconds the door on the grey side is released
- Person opens the door on the grey side and exits
- Door on the grey side closes automatically
- The Airshower is back to initial position
- After-running time of fan motor starts
- After lapse of after-running time fan motor stops

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