

OUDELONG® Cargo cargo air shower 1400 SERIES



cargo cargo air showers serve to protect your cleanroom environment from unwanted contamination.

Clean garments become contaminated during the gowning/ungowning process, general use, and because of high traffic in the gowning area. The contamination problem is amplified when the same garment is worn several times or is taken on and off numerous times during the day.



The OUDELONG cargo air shower is a fast and effective method of removing this surface contamination, contamination that will otherwise be carried directly to your cleanroom and deposited on your product and critically clean areas by sloughing off from the surface of the garments.

The cargo air shower is quality constructed using heavy stainless steel to minimize particle generation. The units provide air flow of approximately about 4000 m³/h , 29 m/s nozzle velocities.

It has a knock-down design that allows ease-of-installation and flexibility in use. The unit can be shipped knocked down or completely assembled. When shipped knocked down, all parts will fit through a standard door. All service to the blower, motor and filters is done from inside the cargo air shower. The unit also offers an optional design that allows all the installation assembly to be done from inside the cargo air shower.

cargo air showers are available in a variety of sizes and shapes to provide a cleaning system to meet your specific application.

General

- All metal construction
- Ships knocked down or fully assembled
- HEPA filtered with 40% pleated prefilters
- Variety of sizes, configurations and options
- Low maintenance and easily serviced.

cargo air showers can greatly enhance your cleanroom's performance by removing surface contamination from cargo, clothing and cleanroom garments. Gowning/changing room areas are the interface between a dirty "street clothes" environment and a clean room environment. Unfortunately, the changing or gowning process itself releases contaminants from street clothes that can settle onto the "clean" garments. cargo air showers blow off and remove much of this contamination preventing it from entering the clean space.

What Makes the OUDELONG cargo air shower

Perform Better

An cargo air shower in many ways can be compared to vacuum cleaner. They are available in a variety of sizes, capacities and features; some work very well while others just seem to make noise. To be effective they need to have high cleaning force and power to do a good cleaning.

Cleaning Force. A good vacuum cleaner has high suction and airflow to pick up dirt. A small vacuum with low suction and airflow does little more than pick up a few crumbs. The same can be said for cargo air showers.

Some cargo air showers that have small blower/motor, low airflow and pressure fall into this category. These under-powered cargo air showers give cargo air showers a bad name. **The OUDELONG cargo air shower has high velocity and large air volume for fast, efficient cleaning.** The OUDELONG cargo air showers, as further described, offer the highest velocities combined with large airflow to provide an cargo air shower that quickly and efficiently



clears particulates from the surface of clean room garments. The additional test describes why the OUDELONG cargo air showers are the best.

In today's competitive market environment, the selection of quality raw materials is a key factor in ensuring superior performance and long product life. Our company proudly utilizes a range of high standard steel materials that not only exceed industry standards, but also demonstrate our relentless pursuit of product quality in a number of ways.

Most factories commonly use ordinary galvanized sheets in order to keep costs down. However, we understand that the quality of the material directly affects the final performance of the product. That's why we choose galvanized sheets with a zinc content well above the industry standard. Higher zinc content means better corrosion protection against oxidation and rust in harsh environments, which significantly extends the life of the product. This choice not only demonstrates our commitment to product quality, but also provides our customers with a more reliable and durable product.

In our pursuit of excellence, we don't settle for the norm. The 304 stainless steel we use is a high-quality alloy steel with a significantly higher nickel content than ordinary stainless steel. The high nickel content gives 304 stainless steel excellent corrosion resistance, making it ideal for use in a wide range of fields, including food processing, medical devices, and chemicals. The use of this material not only enhances the appearance of the product, but also ensures its long-term stability and reliability.

We also use high-quality packaging materials to ensure that the products are fully protected during transportation. The use of high-quality packaging materials not only protects the products from external environmental influences and keeps them in their original condition. Our goal is to ensure that every product we deliver is in perfect condition and meets the highest standards of quality.

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General Operation

The cargo air shower produces high pressure air, filters this air through a HEPA/ULPA filter, then flows the air through adjustable nozzles which exit at a high velocity, so air is directed towards the individuals waiting to be cleaned. This high-velocity air removes surface particles and also 'flaps' the garments to dislodge more firmly attached particles. After cleaning, the air is recirculated back to the high-pressure blower, where it is prefiltered, then HEPA/ULPA filtered and then ducted back to the adjustable high-velocity cleaning nozzles. The cargo air shower utilizes an adjustable microprocessor controller to allow easy 'on-site' adjustment of the cleaning cycle time and other critical process controls.

Construction Materials

The OUDELONG cargo air shower is constructed of an all-metal, stainless steel shell. The all-steel shell design will stand up to the rigors of shipping, installation, use, and the occasional abuse of a high-traffic entry system. While we don't recommend it, you could hit the metal shell of the cargo air shower with a hammer. You would not break the cabinet as you would laminated types of construction. The steel construction also reduces the chances of biological



growth and contamination caused by systems using laminated particle board in the construction. Laminated particle board construction is fine for a single table, but not for a piece of equipment that is being integrated into your classroom system.

NOTE: A typical laminated particle board cargo air shower has the plastic laminate on the outside but often has interior concealed air ducts just painted over the raw particle board leaving a rough surface finish that harbors dirt and biological contamination. As the particle board ages and deteriorates, parts will flake off becoming a source of contamination. All-metal painted steel or stainless steel cargo air showers are the best type of cargo air shower to purchase.

Option: Stainless Steel cargo air shower.

With the stainless steel shell option, the shell of the exterior and interior cargo air shower is stainless steel. Parts located in the shower compartment behind the interior access panel, i.e. blower motor, filter support clamps, etc., are standard painted or plated materials and not stainless steel. Consult the factory for further details.

Option: Explosion-proof stainless steel.

The explosion-proof main electrical control panel mounted doors can also be made on the exterior of the cargo air shower. The explosion-proof main electrical control panel mounted doors can also be made on the exterior of the cargo air shower. The explosion-proof main electrical control panel mounted doors can also be made on the exterior of the cargo air shower.

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Shipping Knocked Down

The standard unit is fully assembled in factory, the doors are attached, power is connected, and the unit is ready to run. With proper equipment and trained personnel, the cargo air shower can be assembled in as little as approximately one hour. Assembly is fast and easy.

Option: Assemble from light parts

In order to cope with the fact that some workshops have already been constructed and complete cargo air showers are not easy to pass through the installed doors, cargo air showers can also be shipped from the factory in six sections: the bottom, the top, the two side sections, and the two doors.

Service Access

Service to the mechanical equipment, blower, motor, HEPA filter and profiler is easily done from the inside of the cargo air shower through a access panel located in the inner side of the cargo air shower. This is desirable because you don't have to penetrate the clean room ceiling surrounding the cargo air shower for maintenance. Also, the area around the cargo air shower is not accessible because of ceiling fans, lights, ducts, pipes, walls or other equipment that would make



service from the exterior difficult or impossible with exterior-mounted service panels. The unit's electrical control panel is conveniently mounted on the inside of the cargo air shower, one of the side door (see the drawing details), and is serviced from outside the cargo air shower.

Options: The control panel can be located in other upper side positions, or a lower exterior cabinet.

Doors

The doors are a heavy-duty fast roll-up door, with pins with curtains.

Options:

- Door options include double doors, power entry, stainless steel frame, power sliding and painted steel with viewing window.

Cargo air showers can be furnished with a double door, or one door so the unit can both against an existing door. A door interlock magnet can be used to prevent opening when interfacing with an existing or sliding door. The cargo air shower can be furnished with a dry contact to automatically open the door at the time of the cleaning cycle.

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Other power supply specifications can also be customized, please let us know your local power supply specifications when placing an order for better product adaptation.

Electrical Control Panel

The control panel includes the status thermal switches and microprocessor controller (PLC) used for timing the cleaning cycle and controlling the interlocks of the doors, along with the starting of the cargo air shower.

The frame of the control panel is made of plastic by default, and can be upgraded to stainless steel optional.

Microprocessor Controller and Door Start Switch

A microprocessor controls the starting of the cargo air shower so that the unit will only start when people are going through in one direction. On applications where there is bi-directional travel through the cargo air shower (people using the shower to both enter and exit the cleanroom), the cargo air shower only starts when people are going into the cleanroom, not when they are leaving.

The clearing time sequence is fully adjustable by tapping the button of the controller. There is one button for adjusting the clearing time, 0-99 seconds.



- Door A opens, Classroom Door B locks (magnetic interlock).
- Door A shuts, both Door A & B lock and clearing cycle starts.
- At the end of wait time, Door B unlocks (people can leave cargo air shower) but Door A stays locked until people have left the cargo air shower and Door B shuts. When Door B shuts, both Door A and B are unlocked and people can enter the cargo air shower from either direction.
- Traveling from the Classroom to the Clean Room:
- Door B opens, Door A locks.
- Door B shuts, Door A unlocks.
- Door A opens, Door B locks.
- People exit the shower.
- Door A shuts, both Door A and B are unlocked.

Note: It is a very easy way to reverse the door sequence that starts the cargo air showers, so rather than Door A starting the classroom Door B can start the cargo air shower.

Lighting

The standard unit includes interior fluorescent lighting with sensors and light control.

Exit Signage

The standard unit includes exit signage on the interior wall of the shower. The signage is illuminated when the door is open and the door is locked when the door is shut.

The interior fluorescent light of the cargo air shower is normally off, indicating it is okay to enter the cargo air shower. When the door opens, the light turns on, indicating it is time to exit the shower. The light will remain on while people are in the cargo air shower, but turns off when exit door has shut, indicating it is okay to enter the cargo air shower.

Optional Door Interlocks

A low-voltage magnetic door interlock prevents both doors from being opened at the same time. When one door is opened, the other door's magnet is energized which prevents the door from opening. During the clearing cycle, both door magnets are energized (locked) to prevent anyone from entering or leaving before the cycle is completed.

When door interlocks are installed, total three "emergency power off" (EPO) panic buttons are provided on the interior and both exterior ends of the air shower. When the EPO button is pressed, the interlock magnets de-energize and both doors can be opened because pressing the EPO button deactivates the interlock system and unlocks the doors.

When the EPO button is pressed, interlocks are deactivated and an audible alarm sounds alerting individuals to the emergency condition. A dry contact for a remote alarm or alarm is available to indicate that the EPO system has been activated. The alarm is turned off by a key switch on the inside wall of the cargo air shower.



room with the door interlock magnets, a door start switch is used and the wall start switch is eliminated.

Blower/Motor

The blower wheel is an energy efficient backward curved aluminum wheel. It is direct drive mounted to an efficient, three phase motor with sealed ball bearings for low maintenance and long life. The complete assembly is vibration isolated from the rest of the cargo air shower.

The blower assembly is mounted on top of the unit with the Oudelong and is vented through an access panel on the interior of the cargo air shower.

Filters

The system uses a high capacity 400mm x 400mm x 50mm deep MPA metal framed filter that has a 99.97% efficiency (DOP test) rating on 0.3 micron particles.

Options:

- 400MM MPA metal framed filter
- 400MM LPA metal framed filter

The MPA filter is vented through an access panel located in the interior ceiling of the cargo air shower.

The LPA filter is vented through an access panel located in the exterior ceiling of the cargo air shower. The LPA filter is designed to provide a higher level of filtration than the MPA filter and is used in the clean room.

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Air Nozzles

uniform concentration of nozzles for fast effective cleaning.

The nozzles are stainless steel. They have a 30mm nozzle diameter with a 20mm nozzle air velocity. (That velocity is the highest velocity measured at the outlet of the nozzle.) This high nozzle velocity provides more cleaning force to effectively dislodge particles and other contaminants.

Optional Ceiling Air Purge

The cargo air shower can be equipped with an internal ceiling MPA/LPA filter to provide a constant downward airflow.

When the ceiling purge filter is used in conjunction with the optional motor breaks, the interior of the cargo air shower is purged of contamination prior to the cleanroom door being opened. The length of the purged time is adjustable from 0 to 15 seconds. The interior light flicker option is used to indicate when the purge time is complete and the person can enter the clean room.

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Optional Variable Frequency Drive, Nozzle Air Purge

The cargo air shower can be equipped with a variable frequency drive that allows the blower to run at a low speed when not in the high-velocity cleaning cycle. This low constant air moving volume keeps the interior of the cargo air shower cleaner by purging and clearing the interior.

Optional Point Ionization

DC point-type point ionization can be mounted in the interior of the cargo air shower to help reduce static charges.

Optional Magnahelic Pressure Gages

The unit can be furnished with Magnahelic pressure gages to measure the differential pressure across the HEPA filter and/or baffles to indicate when the filter needs replacing.

For more information, please contact us at oudelongsales04@163.com or visit our website at www.oudelong.com.

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Air Conditioning/Cooling

Most applications have about a 10-degree temperature rise. Units with a high duty cycle can have over a 20-degree temperature rise. The typical time spent inside the cargo air shower is approximately 10 to 15 seconds. People are in and out of the shower before it would become a problem. When supplying air conditioning to the cargo air shower it is recommended to use a self-contained air handler that recirculates air within the cargo air shower. Optional self-contained A/C units can be installed on the cargo air shower. Please contact the factory for further details on cooling.

Optional cargo air shower Styles and Configurations

90 Degree cargo air showers

The cargo air shower can be provided with the doors in a 90-degree configuration for those applications that straight in will not work.

Three Door cargo air showers



This range air shower has three doors. The typical configuration is one entrance door and two doors exiting to two different cleanrooms.

Multiple Units Tuned

Two or more range air showers can be combined to form a longer unit. By adding complete sections, an efficient arrangement for the modules will be maintained.

These tunnels can be used for 'large batch' clearing if a large number of people will enter and exit as a group, or for 'continuous flow' clearing where the showering time is how long it takes to walk the length of the tunnel.

Both 30 degree and straight through range air showers can be combined to form the tunnel configuration.

NOTE: The cost for additional sections is lower than for the first unit, because the cost of the doors and electrical control is covered by the first unit and additional units don't need these items.

Low Profile range air shower

The OUDELONG low profile model has an overall assembled height of 2000mm. The unit has the shower assembly, HEPA filter and electrical components mounted on the top, so as to permit the lower height. It can be assembled in a space 2000mm high, making it ideal for low ceiling rooms. The showering time is adjustable. The unit is shaped downwards to the point that all users will fit through a standard doorway.

It can be used with carts, conveyors, pallets and continuous belt operation.

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The style of range air shower can use swing doors, vertical sliding, horizontal sliding or no doors. Please consult factory with details of your specific application, so we can configure an range air shower that will meet your specific needs.

Wall Mounted Pass Thru range air showers

Similar to the pass clearing, but smaller and mounts off the floor. Consult the factory for details.

range air showers for Decontamination of individuals when leaving a Controlled Space

These range air showers are similar to the standard range air shower but have a few common options:

1) They typically do not have door interlocks.

2) They have wall start switches.

3) They often are not walk through, but only have one door and the end without the door is just against an existing wall so you enter and exit through the same door.

4) Lower side wall profiles unless grated floor option is chosen.

5) A respirator should be used for the toxic materials being cleared off. **RESPIRATOR IS NOT REQUIRED FOR DECONTAMINATION OF TOXIC MATERIALS**

DECONTAMINATION OF TOXIC MATERIALS



is. Optional compressed air fitting can also be installed to allow additional blow-off during cleaning or to blow air into the water covered to 'blow it up' and make it easier to clean the garment. Consult the factory for details.

Custom Features

Many other customized sizes and features can be provided. Contact the factory for more information.

Garment Type and Cleaning Effectiveness

The cleaning effectiveness of the cargo air shower is affected by the type of garments, the size, shape and type of contamination. Large light particles such as lint, hair, dander and skin flakes are the easiest to remove.

Particulate contamination adheres to garments in two basic ways. Either by mechanical entrapment or by an electrical attraction.

Mechanical bonds between the garment and the contamination are reduced when smooth surface garments are utilized. These include "slacks" and those made from synthetic materials such as lycra, lycra, velour and nylon, to name a few. These materials are less clinging and remove the majority of the contamination. However, garments made from cotton, wool, silk, leather, etc. are more difficult to clean. These materials are more clinging and remove the majority of the contamination. However, garments made from cotton, wool, silk, leather, etc. are more difficult to clean.

Without using an cargo air shower, individuals are often cleaner when they leave the clean space because a large portion of the contamination they had on their garments will have fallen off within the clean space. Using an cargo air shower is an effective way to remove much of the contamination that would otherwise come off within the clean space.

Flow restriction plate mechanisms can be installed on the air shower to dissipate some of the change on the garments, helping to reduce the holding change forces of the garment, making it easier for the air to blow the particles off. In many cleanroom applications, much of the contamination in the room is carried in on the garments of the individuals working within the room. Typically, they bring it to the most critical area.

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Mounting Against Wall

The cargo air shower can be installed so the entire cargo air shower sticks through the wall, with space around the cargo air shower. This space is filled with an optional trim angle. The shower can also built up against a wall with an opening large enough for door and end-mounted hardware. Approximately 1200 mm x 2000 mm contact factory for different sizes of other models. Please request a quote with a specific job number.



before planning cut-outs. Different configurations and sizes may require different cut-outs. When the unit is butting against the wall, the contact point between the cargo air shower and the framed opening is typically caulked or small trim molding is applied. The exterior of the cargo air shower would have a trim angle.

Receiving cargo air shower

The total weight for a single standard cargo air shower is approximately 500 kg.

Please use a forklift to move the cargo air shower to the designated position during installation.

NOTE: The trucked down cargo air shower needs room on the sides of the unit during the assembly process to install the blower mounting bolts. Once the unit is assembled, no space is required on the sides of the unit.

After the unit is assembled, moved into place and the mounting complete:

A) An electrician needs to connect power to the cargo air shower, start the unit, and check blower rotation.

B) A sprinker contractor needs to install the sprinker.

C) The installer touches up the paint. After the unit is installed, the installer will magnetic door methods, and confirms that high-velocity air is flowing out the rollers. If the blower is running backwards, air will come out of rollers but only at about 3 mph. Blower rotation can also be confirmed by looking at the blower.

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Single Turn Pattern

Right Turn Pattern



U-Shaped Pattern



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