

CLIMA VAC

AIR SOLUTIONS

www.climavac.com





Climavac is Gmech sector specialized in air solutions system to serve residential, commercial, industrial, and cleanroom industries.

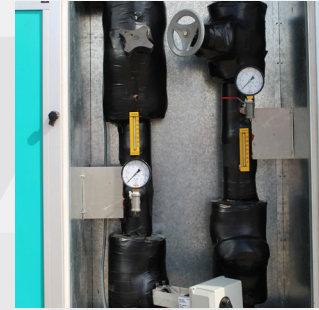
Climavac Air Handling unit

Our AHU designed to achieve energy saving using Heat recovery system, and plug fans. we achieved air purity through sand trap, pre filter, Bag filter, carbon filter, and HEPA filter We introduce to the market many types of AHU models:

- > Bag In Bag out BIBO smart AHU which used in vaccines industries, Hormone, and hazard area to protect technician and environment, this model design to Plug-n-play.
- > Smart AHU we installed Hookup, Electric, and control system Built in to plug-n-play.
- > Common AHU using High efficiency components.

Climavac Bag In Bag Out exhaust fan section

We developed our BIBO section to used in hazard applications (Vaccine line – Hormone – Betalactam- Isolation room) to protect technician and Environment from these hazard material, we provide Built in DOP mechanism to scanning filters without needs to exposed to contaminated air.



AIR HANDLING UNIT



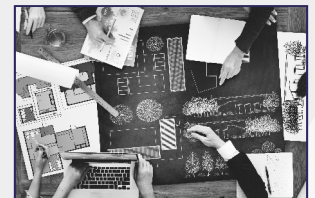
Cleanroom air conditioning :

Viewing an ever-increasing environmental pollution the quality of air that we breathe is of vital importance, Hygienic air-handling units are designed for essential features and sensitive installations of high - demanding cleanroom air conditioning applications like hospitals , operating rooms, laboratories, pharmaceutical and electronic facilities. etc, Standards , regulations and guidelines govern the air handling unit's calculation, design, manufacture, installation and maintenance.



Design criteria :

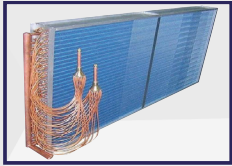
When developing, designing and manufacturing air -handling units in hygienic Air Conditioning field, the major objectives are to apply only those materials that do not pose any threat to human health and donot facilitate the growth of harmful micro organisms Internal surfaces of the units must be made of wear - resistant materials and easily accessible for cleaning and disinfection purposes all parts for air movement should allow easy inspection , cleaning and disinfection.



Features of ClimaVac Air-handling unit :

- Air Inlets and Outlets:

All units are equipped with airtight volume control dampers according to DIN regulation of air volume and pressure. Inlet sections can be equipped with weather resistant louvers or sand trap louvers.



1 - Cooling Section :

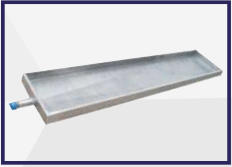
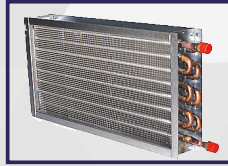
CHILLED WATER COOLER : Copper pipe with aluminum plate fins (Cu/Al) used in complex air conditioning systems-or in care of using a unit with relatively high-cooling capacity.

DIRECT EXPANSION COOLER : Copper pipe with aluminum plate fins (Cu/Al) used for lower cooling capacity systems and single air condition systems.

2 - Heating Section :

WATER HEATER : Copper pipe with aluminum plate fins (Cu/Al) frame of galvanized sheet metal.

ELECTRICAL HEATER : A complex of resistance heating elements 380V.

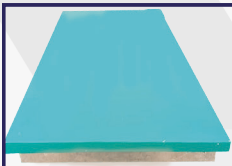
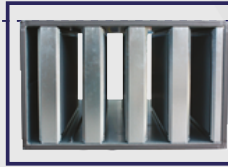


3 - Multi - sloped drain pan :

Our drain pan is designed according to 2001-62, section drain pans "shall sloped horizontal toward the drain outlet whether the fan is in the on or off position.

4 - Sound attenuator :

Our unit can be provided with sound attenuator as option in case of reducing AHU noise, we manufacture it according to AMCA 300.

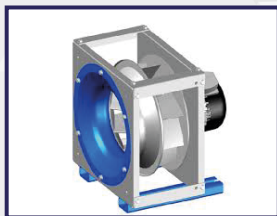
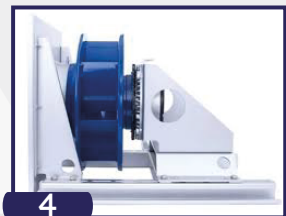


5 - Sandwich panel :

Double skin panel, unitary structure design, less connecting joints, all ensure almost total air can be supplied to the air - conditioned room. The air leakage rate is less than % 0.29. The inner skin for the panel can be stainless steel. The outer skin for the panel can be stainless steel / Plastified sheet metal / Electrostatic sheet.

- Fan sections :

Standard units use PLUG - FANS or DIDW built driven fans. Single or double inlet fan units complete with accessories such as condensate drain plug, inspection hatches and special EPOXY paints are used at request.



- HEPA filter :

Absolute standard box style HEPA filters for use in built - up bank systems, side access air filter housings and equipment that accepts rectangular configurations. All Absolutes is individually tested and is available in efficiencies of 0.3µ.

- Active Carbon filter :

A filter based on active carbon is used for absorption of substances, that cannot be caught by other types of filters (like odors, gases and pairs of toxic substances).



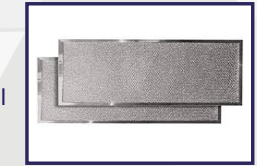
- Synthetic Pre filter :

Panel - type pre filters, G3 and G4 class in accordance to EN779. Filter depth 50 mm reinforced with steel mesh panel frame made of galvanized steel.

- Aluminum Pre filter :

FRAME : Galvanized Steel or Aluminum.

MEDIA : Multiple Layers of corrugated and fine mesh expanded metal sheets.



- Pocket Filter Fine Filtration :

Filter Class F6 (60 - 65%) - Green Color

Filter Class F7 (80 - 85%) - Pink Color

Filter Class F8 (90 - 95%) - Yellow Color

Filter Class F8 (95 > 98%) - Off white Color

-Rotary heat exchanger :

A rotary heat exchanger is a rotary honeycomb matrix with layers of aluminum ribbon, which is slowly rotated within the supply and exhaust air streams. As the wheel rotates, heat is picked up from the exhaust air stream in one half of the rotation and given up to the fresh air stream in the other half of the rotation, thus waste heat energy from the exhaust air stream is transferred to the matrix material and then from the matrix material to the fresh air stream, raising the temperature of the supply air stream.



-Plate heat exchanger :

Heat exchanger where heat is transferred from the flow of exhaust air to the incoming air from Heat exchanger is made of profiled aluminum plates, packed with elastic heat -r esistant sealant. The sealing provides a reliable separation of the supply and exhaust air, eliminating internal flows, and not allowing moisture, dirt, odors and microorganisms transfer between streams. To avoid frosting heat exchanger provides active protection by means of the bypass channel. Drain pan is installed under the heat exchanger.



SMART BIBO AIR HANDLING UNIT



Climavac introduces a new technology that allows the use of air-handling units in areas where the risk of contamination is high. The new technology Bag In Bag Out (BIBO) (safe change) specially designed to protect maintenance personnel from hazardous contaminants during filter change out.

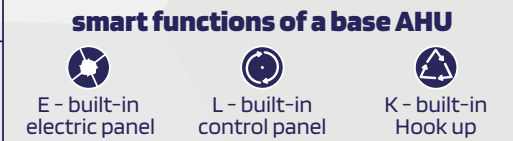
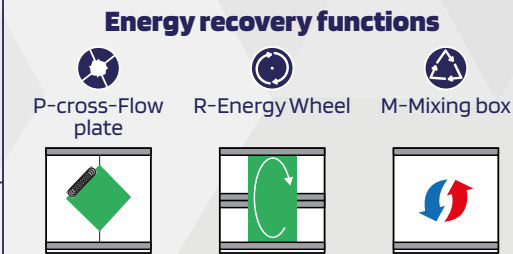
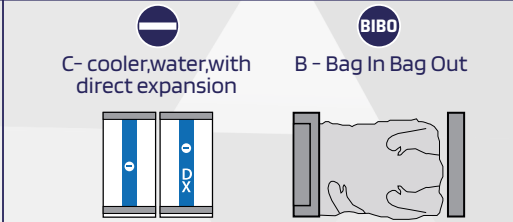
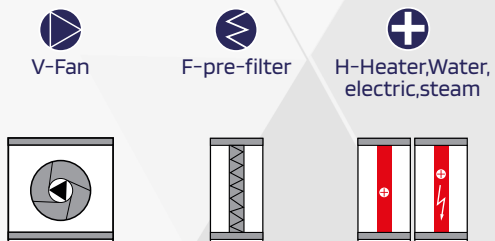
The new design of the air-handling units includes energy efficient components. These include the use of low power consumption fans and heat exchangers, unit is equipped with integrated controls that allow easy operation and monitoring, unit can be equipped with either counterflow, rotor or recoler as energy recovery solutions.

capacity :

720 : 24000 [m³/h]

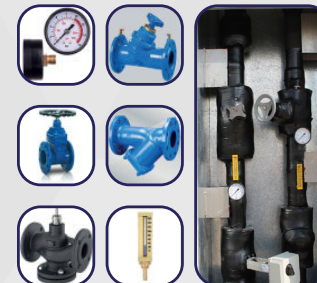
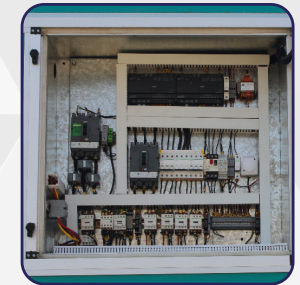
Functions:

Basic functions of a base AHU Basic



Built-in Electrical and control panel :

can be connected with Building Management System BMS which can be controlled remotely and linked to automation systems with standard communication protocols support.



Built-in Hook up :

(Manual valves – Control valve – gauges – Thermometers)

The Bag In Bag Out BIBO access filter system :

is a safe and effective way to remove contaminated particulate filters, Protecting workers using indirect contact with filter contaminated media, and secure environment.



AMCA certified Fans driven with VSD.



AHRI coil certified.

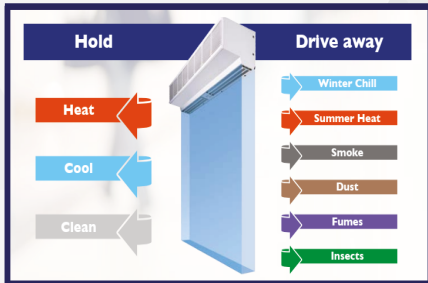


Plug-n-play solution

INDUSTRIAL AIR CURTAIN

Industrial air curtain :

Climavac industrial air curtain is a product which creates a uniform stream of directed air, whether heated or unheated, across an opening to create a barrier inhibiting the transfer of heat and particulate matter from one zone to the other.

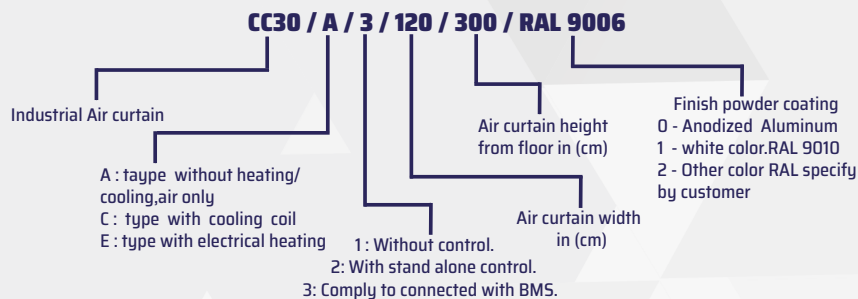


The benefits of using climavac industrial air curtain :

- Significant energy savings.
- Improved indoor air quality.
- Increased building performance.
- Enhanced safety from one zone to the other.

Climavac industrial air curtain is designed to be tailor-made, adaptable to any customer's needs. structure made of aluminum profiles and galvanized steel panels, large perforated inlet grille. Double - inlet centrifugal fans driven by an external rotor motor and low noise level. EC models assembled with very low consumption efficiency fans.

Order code



LAMINAR AIR FLOW



Climavac's LAF (Laminar Air Flow) Cabinets are manufactured by ISO 14644-1.

The LAF Cabinet is designed to provide a vertical airflow which is different from regular fan filter units.

LAF Cabinets are isolated in the downflow area with plastic curtains. With the assistance of positive pressure inside this isolated area, any air outside this unit will not be able to get inside and cause contamination.

Laminar Air Flow Cabinets provide a sterile environment to protect product quality which is essential where sensitive products (medicine, foods, etc.) can be affected by dust and particles.

These cabinets filter the air and reduce dust and particles in the environment. The fan draws the ambient air through the pre-filter and the pre-filter (G4) protects the HEPA filter and fan from coarse particles. The air is let to the working area after passing through the HEPA filter and diffuser.

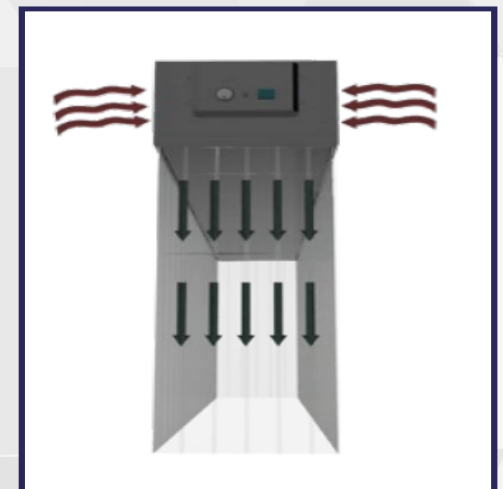
The curtain in laminar flow cabinets protects up to the desired height in the work area.

The working area is under positive pressure and this allows the air to be conveyed from under the curtain to the environment the device is located in.

With this configuration, the finished product is protected by preventing contaminated air from entering the work area.

Filter replacement time can vary depending on the frequency of operation of the system and environmental pollution. It is recommended to perform a monthly visual check of the pre-filter and change if needed.

HEPA filters should be changed when the pressure gauge reaches 450 Pa. After changing a HEPA filter, a filter leak test should be performed using DOP test fittings.



CLEANROOM AIR SHOWER



Introduction :

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 20-22m/s (4000-4300fpm).

Contaminated air is then drawn through the base within the unit, filtered and recirculated. Cleanroom applications: The greatest source of particulate contamination in a cleanroom is the operator. Air showers are installed between gowning areas and the cleanroom. The air shower enhances cleanroom operating protocol by serving as a reminder to all operators that they are entering a controlled environment. Personnel therefore develop the habit of gowning up properly before entering the air shower.

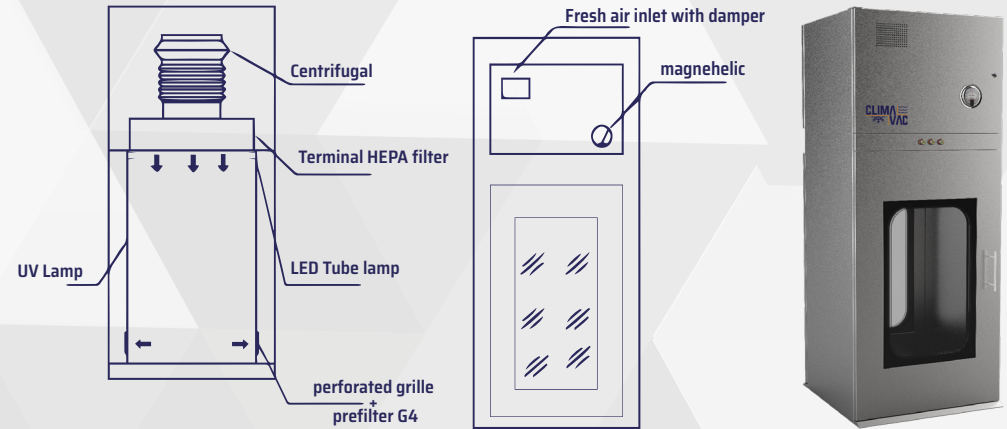
Pharmaceutical and lab animal research ap-

plications: Air showers keep pharmaceutical production and lab animal breeding areas clean and also minimize egress of hazardous substances and allergens from the controlled environment

Main Features :

- High velocity shower jets in excess of 20 m/s ensure efficient scrubbing action to remove particulate matter.
- Operating modes can be programmed in the field.
- HEPA filtration achieves > 99.99% typical efficiency at 0.3-micron particles.
- A disposable pre-filter with 85% arrestance extends the life of the main filter.
- An emergency stop button is mounted on both sides of the shower.
- Permanently lubricated direct drive centrifugal blowers are used in conjunction with air nozzles.

DYNAMIC PASS BOX



Climavac introduces one of the common use products in pharmaceutical manufacturing industries, pass boxes are normally used to transfer a particular material between two areas generally of different cleanliness levels. The boxes can be said to transfer the materials from a high level of cleanliness to a lower level of cleanliness or vice-versa. The pass boxes while transferring the material, help to prevent air from flowing from one area to another.

Functions :

A dynamic pass box is a cubicle box which utilizes interlocked doors located on both sides. This protects the controlled environment from being polluted while the transfer of material is taking place inside. A static pass box, on the other hand, has got an electromagnetic interlocking arrangement which is located between the two doors. The arrangement is fitted with an LED indicator which helps to show whether any door is open.

Technical specification:

- 1-Cabinet and doors construction:**
 - Stainless Steel 316L sheet metal.
 - Stainless Steel 304 sheet metal.
 - Sheet metal with Electrostatic coating.
- 2-Interlock**
Dynamic pass box is provided with interlock system between two doors prevents opening two doors at the same time.
- 3-Filtration:**
 - Return grille with Prefilter G4.
 - HEPA Filter H14 or H13.
- 4-Circulation Fan:**
Our standard fan holds AMCA Certificate.
- 5-UV Lamp:**
Dynamic pass box is provided with UV lamp Integrated with timer to adjusting the cycle.
- 6-Supply air inside cabinet:**
The air enters the cabinet through nozzle relevant with the area and the dimension of the cabinet.

- AIR HANDLING UNIT
- BAG IN BAG OUT
- FAN SECTION
- AIR CURTAIN
- AIR SHOWER
- PASS BOX



CLIMAVAC SUCCESS PARTNERS

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