

Mobile Container Laboratory



Industry
Life science
Biofermentation & Biopharma
Petrochemical & Energy





About Us

Innova Bio-Meditech is one of the leading global providers of laboratory and medical devices. Firmly committed to our mission of "sharing innovative bio-meditech solutions with the world" , we are dedicated to innovation in the fields of Biology Project, Life Science, Pharmacy Industry and Medical Treatment.

Innova Bio-Meditech possesses a sound distribution and service network with business partners in North and Latin America, Europe, Africa and Asia-Pacific etc, We have built up a well established R&D, manufacture network with 3 centers in Beijing, Qingdao, and shanghai. Inspired by the needs of our customers, we adopt advanced technologies and transform them into accessible innovation. This means constant effort and research, in order to more fully understand the developments of the market, produce constantly upgraded product ranges by adding new products year after year.

The passion for science

> Content

Program Characteristics	01
Function Overview	03
Shell, frame, wall, floor	04
Box internal structure	05
Ventilation and air conditioning system technology	06
Laboratory air volume, temperature and humidity, noise, differential pressure indicators	07
Experimental bench	08
Water supply and drainage system technology	09
Visualized intelligent central control system	10
Sewage treatment system	10

Mobile container laboratory using standard containers, strictly in accordance with the requirements of the PCR laboratory design, and set up decontamination room, highly integrated water, electricity, wind, equipment and other specialized. The box is equipped with lighting, UV lamps, cabinets, equipment, refrigerators, etc.; air supply pipe in the box is molded in one piece, outside the box is connected through a specialized component; exhaust air is set up separately, the wind column is integrated with the exhaust fan. When used as a vehicle-mounted laboratory, the drainage device adopts a collection device, which is taken out through the dirt outlet at regular intervals; when transported to the site for fixed use, the drainage pipe is connected to the biological wastewater treatment pool of the unit where it is located. 98% of the construction work is completed in the factory, and the transportation to the site only requires a level site and the necessary water and electricity docking to complete the installation.



Program Characteristics



Convenient and quick

Can be reserved through the site power distribution, water supply interface or water tank, medical sewage interface to quickly start the experimental testing work, on-site deployment, commissioning time of less than 2 hours.

Mobile and flexible

Compared with the square cabin laboratory, the vehicle-mounted laboratory is mobile and more space-saving, eliminating the need for cumbersome installation, without the need to provide transportation vehicles and lifting conditions.



Pollution prevention and control

The pressure in the chamber is zoned negative, unidirectional airflow to avoid aerosol contamination and reduce biosafety risks.



Real-time localization

Vehicles with GPS positioning function, independent monitoring of the experimental area, high-definition cameras, hard disk video storage.



Adequate power supply

Equipped with UPS power supply, lighting and key equipment power supply time is not less than 30MIN.



Renewable resources

Can be reused after professional maintenance, promoting cost savings and resource reuse.



Safe and Reliable

Strictly set up in accordance with the P2+ requirements for biosafety laboratories, ensuring the safety of experimental personnel while realizing rapid deployment, with effective measures for the collection and treatment of wastes, exhaust gases and wastewater, to ensure the safety of the surrounding environment and personnel, effectively isolating the contamination, leakage and spread of pathogenic microorganisms inside and outside the experimental cabin, avoiding the exposure of experimental personnel in the cabin to infection and contamination of the external environment.



Function Overview

- ◆ In order to guarantee the strength of the square cabin, the cabin is a frame composed of I-beam and square pass, with $\geq 1.5\text{mm}$ thick reinforced wave steel plate to make the surface of the box, $>6\text{mm}$ thick high-quality steel to make the support frame.
- ◆ Use $>50\text{mm}$ thick laboratory special antibacterial purification board partition and ceiling, plate thickness $>0.4\text{mm}$, antibacterial effect, with good fire, moisture, anti-degumming, high strength, heat preservation, insulation, sound absorption and other functions.
- ◆ The floor should be made of PVC coil with thickness $>2.0\text{mm}$.
- ◆ The doors and windows of the square cabin are assembled with antibacterial purification board and tempered glass to ensure the permeability and lighting effect inside the box.
- ◆ The outer window is set up as a ventilable structure according to the requirements of the biosafety laboratory.
- ◆ Configure the safety door to facilitate the placement of instruments and equipment.
- ◆ It should be able to adapt to various climatic conditions and be used normally in all-weather.



Shell, frame, wall, floor

- ◆ In order to guarantee the strength of the square cabin, the cabin is a frame composed of I-beam and square pass, with $\geq 1.5\text{mm}$ thick reinforced wave steel plate to make the surface of the box, $>6\text{mm}$ thick high-quality steel to make the support frame.
- ◆ Use $>50\text{mm}$ thick laboratory special antibacterial purification board partition and ceiling, plate thickness $>0.4\text{mm}$, antibacterial effect, with good fire, moisture, anti-degumming, high strength, heat preservation, insulation, sound absorption and other functions.
- ◆ The floor should be made of PVC coil with thickness $>2.0\text{mm}$.
- ◆ The doors and windows of the square cabin are assembled with antibacterial purification board and tempered glass to ensure the permeability and lighting effect inside the box.
- ◆ The outer window is set up as a ventilable structure according to the requirements of the biosafety laboratory.
- ◆ Configure the safety door to facilitate the placement of instruments and equipment.
- ◆ It should be able to adapt to various climatic conditions and be used normally in all-weather.



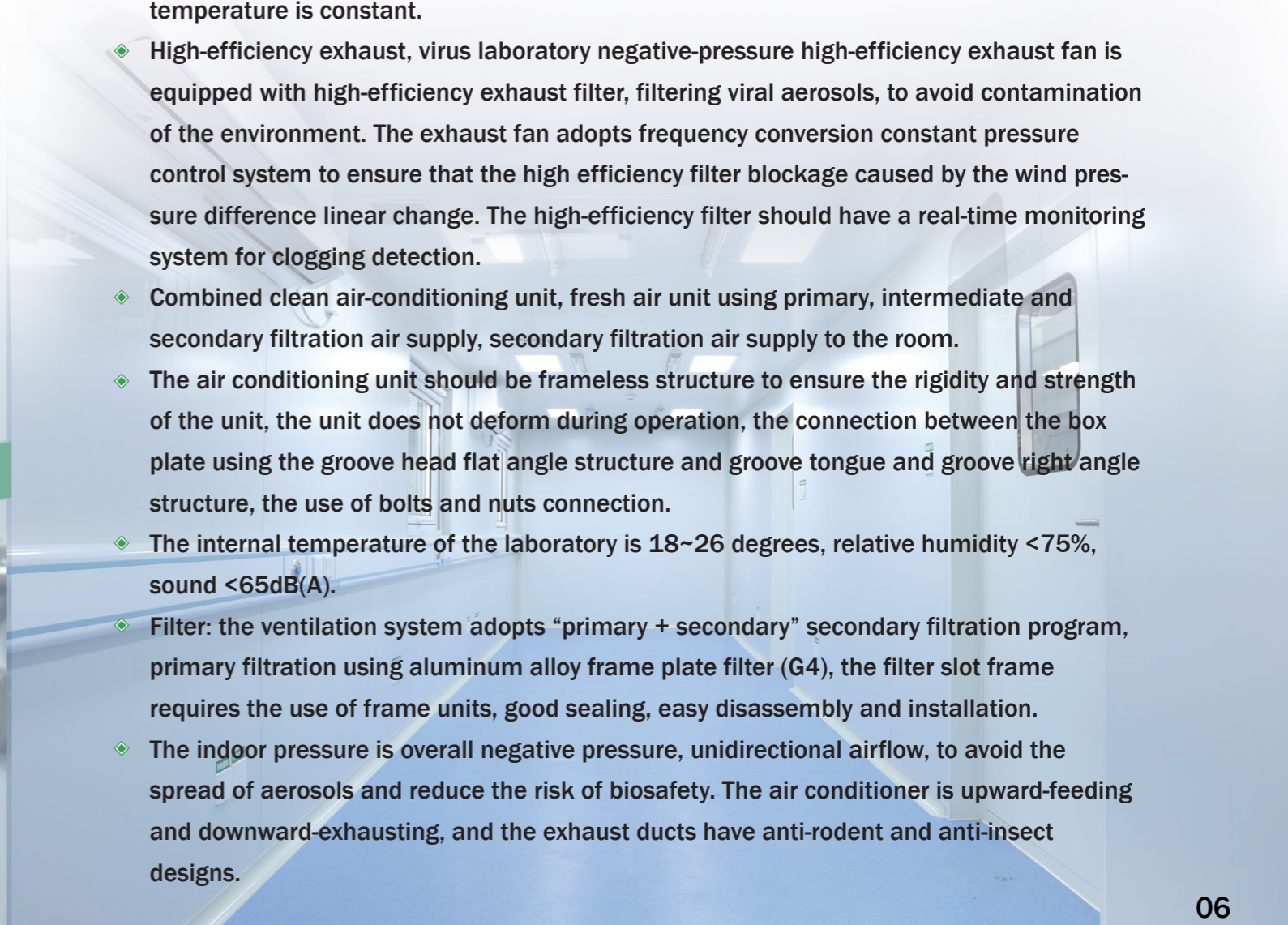
Box internal structure

- ◆ $\geq 50\text{mm}$ thick laboratory special antibacterial purification board partition and ceiling, plate thickness $\geq 0.4\text{mm}$, antibacterial effect, with good fire, moisture, anti-degumming, high strength, heat preservation, heat insulation, sound absorption and other functions.
- ◆ The corners inside the box are equipped with cleanroom-specific arc-shaped aluminum profiles to ensure that the box is smooth without hygiene corners, does not accumulate dust, and is not easy to produce mold. Equipped with ultra-thin LED ceiling light, energy saving and easy maintenance.
- ◆ Equipped with laboratory-specific ultraviolet lamp, and equipped with time-delay function, to protect the personal safety of laboratory personnel.
- ◆ The water supply and drainage lines and electrical lines in the box are distributed in an orderly manner, hidden installation, using high-quality brand materials.
- ◆ The water supply and drainage boxes are equipped in the box, which can maintain the normal operation of the laboratory under the circumstance of water cutoff.
- ◆ Mobile PCR square chamber laboratory must be equipped with an independent internal corridor.
- ◆ Mobile PCR laboratory in dealing with emergency tasks can be used as a vehicle-mounted laboratory, equipped with a dedicated equipment room, set of air conditioning, electrical, water supply and drainage and other multi-functional configurations



Ventilation and air conditioning system technology

- ◆ The laboratory professionally designed ventilation and exhaust system is designed according to P2+ standard biosafety laboratory design to ensure the clean room air volume and the set number of air changes required to ensure the stability of the differential pressure of each room step.
- ◆ The ventilation and exhaust system is made of antibacterial material, and the exhaust system is filtered by a special system to meet the normal requirements for outdoor discharge.
- ◆ Equipped with a combination of clean fresh air air conditioning system, the new air for the primary, secondary, surface cooling, reheating system, filtration and temperature control, to meet the -20 degrees to 40 degrees all-weather conditions, to ensure that the indoor temperature is constant.
- ◆ High-efficiency exhaust, virus laboratory negative-pressure high-efficiency exhaust fan is equipped with high-efficiency exhaust filter, filtering viral aerosols, to avoid contamination of the environment. The exhaust fan adopts frequency conversion constant pressure control system to ensure that the high efficiency filter blockage caused by the wind pressure difference linear change. The high-efficiency filter should have a real-time monitoring system for clogging detection.
- ◆ Combined clean air-conditioning unit, fresh air unit using primary, intermediate and secondary filtration air supply, secondary filtration air supply to the room.
- ◆ The air conditioning unit should be frameless structure to ensure the rigidity and strength of the unit, the unit does not deform during operation, the connection between the box plate using the groove head flat angle structure and groove tongue and groove right angle structure, the use of bolts and nuts connection.
- ◆ The internal temperature of the laboratory is $18\sim 26$ degrees, relative humidity $<75\%$, sound $<65\text{dB(A)}$.
- ◆ Filter: the ventilation system adopts "primary + secondary" secondary filtration program, primary filtration using aluminum alloy frame plate filter (G4), the filter slot frame requires the use of frame units, good sealing, easy disassembly and installation.
- ◆ The indoor pressure is overall negative pressure, unidirectional airflow, to avoid the spread of aerosols and reduce the risk of biosafety. The air conditioner is upward-feeding and downward-exhausting, and the exhaust ducts have anti-rodent and anti-insect designs.



Laboratory air volume, temperature and humidity, noise, differential pressure indicators

- ◆ Air volume requirements: reagent preparation room (including buffer room), sample preparation room (including buffer room), experimental room (including buffer room), decontamination room, the number of air changes up to 15 h.
- ◆ Temperature requirements: reagent preparation room (including buffer room), sample preparation room (including buffer room), experimental room (including buffer room), decontamination room, the corridor temperature requirements to reach 18 °C -26 °C.
- ◆ Relative humidity requirements: reagent preparation room (including buffer room), sample preparation room (including buffer room), product amplification room (including buffer room), decontamination room, PCR corridor relative humidity requirements of 30% -70%.
- ◆ Noise requirements: reagent preparation room (including buffer room), sample preparation room (including buffer room), experimental room (including buffer room), decontamination room PCR corridor noise ≤ 65dB.
- ◆ The static pressure difference in the direction of the differential pressure requirements: reagent preparation buffer room a reagent preparation room static pressure difference requirements > 10Pa, sample preparation buffer room like the sample preparation room, experimental room (including buffer room) > 18Pa.



Experimental bench

Water closet: the main body adopts all-steel structure bottom suspended bottom plate design, water closet steel parts table processing (including all steel box, sealing plate, bracket and other steel workpiece), all cutting, stamping, drilling parts to go Phi flat burr; surface by degreasing, washing, pickling, washing, neutralization, phosphating, washing, high pressure rinsing, baking kiln using epoxy resin spray powder spraying high-temperature curing, the thickness of the coating > 75um To meet the technical requirements of laboratory furniture hardness, corrosion resistance, adhesion, smooth and uniform surface, consistent color, no flow hanging, wrinkled skin, bubbles, depressions, indentations. Cabinet: Laboratory cabinet for the piece-assembled structure, using > 1.0mm high-quality first-class cold-rolled steel plate (SPCCT), the surface by pickling, phosphating rust and electrostatic treatment, and spraying countryside 75um thick epoxy resin powder. Door panel: using > 1.0mm high quality cold rolled steel plate (SPCCT), and sprayed > 75um thick epoxy resin powder, the door panel adopts the left and right beveled edge design, double-layer structure inside and outside of the epoxy resin spraying middle filled with sound insulation materials; the door panel contains filler materials to play a mute role. Table top: 12.7mm thick solid core physical and chemical board, with good chemical reagent resistance, good physical properties, and anti-virus function. Operating table: the operating table in the laboratory are designed with overhanging and connected to the wall with special alloy profiles without additional support boards to reduce the dead space for hiding bacteria and make full use of the experimental space.



Water supply and drainage system technology

- ◆ Self-contained $\geq 300\text{L}$ sewage tank, equipped with sewage treatment system (drug sterilization)
- ◆ testing room, sample processing room equipped with PP laboratory sinks, eyewashes;
- ◆ Feed water for hand washing water, no sewage treatment device storage, disinfection or sterilization in the laboratory. Sewage is discharged directly into the sewage storage tank for uniform disposal. (The treated water meets the biosafety secondary standards).
- ◆ Reserve for water supply and drainage water pipe joints.



Visualized intelligent central control system

- ◆ The center control system of the square cabin monitors the status and data of the equipment in real time, including the operating status of the fan and air-conditioning unit (normal or faulty); the operating status of the room pressure value and the biosafety cabinet (running or stopping); the lighting and ultraviolet lamp (running or stopping); and the operating status of the high-efficiency exhaust air (normal or faulty).
- ◆ The central control screen of the square cabin realizes the man-machine control interface of fan, air-conditioning unit, room pressure value, lighting and ultraviolet lamp with one-key start/stop function.
- ◆ If you need to adjust the pressure value of each function according to different experimental content, no need to replace the equipment, you can directly adjust the room pressure value (within a reasonable range of pressure) through the center control coordination in the square cabin.



Sewage treatment system

Equipped with independent sewage treatment equipment, to ensure that the sewage generated by the laboratory can meet the environmental discharge standards after treatment with the equipped sewage treatment equipment.