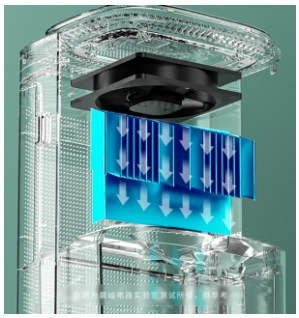
AIR PURIFICATION WITH DEHUMIDIFICATION.

Product Features:

1. Touch control panel
2. Rated power: 90 watts
3. Timer: 1-24 hours
4. Pre-filter + H13 filter
5. Negative ion
6. Centrifugal fan + impeller
7. 220V/50Hz power supply inlet
8. Water tray
9. Product size: 250x210x320mm

Model: APD-5



Dehumidifier Specifications:

1. Dehumidification capacity: 0.75 liter/day
2. Noise level: 46dB(A)
3. Watertank capacity: 1.6L (w/water full indictor)
4. Maximum power input: 90W
5. coverage area: 1,000 sq.ft

Technical Details:

1. Material: High-quality imported cold-rolled plates for upper and lower covers and dispersion plate with outdoor environmentally friendly paint; aluminum-zinc-plated sheet for the housing.
2. Fan: Centrifugal fan (low noise). Fan power supply: 220V 50Hz.
3. Equipped with partition-free high-efficiency filter with aluminum frame, filtration efficiency: Class 100 @ 0.3um, 99.995% H13.
4. Equipped with honeycomb activated carbon particle filter, effectively removes harmful substances such as formaldehyde, benzene, VOCs, etc., from the air.
5. Equipped with touch control for three-speed air volume adjustment and germicidal lamp timer.
6. Equipped with UV germicidal lamp for effective bacteria elimination (recommended disinfection time within 5 minutes).
7. Air velocity: 0.45-0.75 m/s ±5% (adjustable in three gears).
8. Noise level: 23-38dB ±3dB (static test in front of high-efficiency filter at a distance of 1m).
9. Rated power: 90watts, power supply: 220V 50Hz, equipped with leakage protection switch (can disconnect within 0.1 seconds)

The Benefits of an Air Sterilization Unit Integrated with a Dehumidifier in Medical Environments

In medical environments such as hospitals, clinics, and healthcare facilities, maintaining optimal indoor air quality (IAQ) is critical. Airborne contaminants, pathogens, and humidity levels can significantly impact patient health, staff well-being, and the overall hygiene of the facility. An integrated system combining an air sterilization unit with a dehumidifier offers a robust solution to mitigate these risks and improve the overall environmental quality.

Key Benefits

1. Reduction of Airborne Pathogens

Air sterilization units, particularly those utilizing UVC light, HEPA filtration, activated carbon filters, and negative ion generators, are highly effective in neutralizing airborne pathogens such as viruses, bacteria, and mold spores. UVC light destroys the genetic material of microorganisms, rendering them incapable of replication or causing infection. Combining these units with dehumidifiers further enhances their efficacy, as viruses and bacteria tend to thrive in high-humidity environments.

A dehumidifier reduces the moisture content in the air, making it less conducive for pathogens to survive and spread. Lower humidity levels between 40-60% have been proven to reduce the viability of viruses and bacteria, helping in the overall air sanitization process.

2. Prevention of Mold Growth

Mold growth is a significant issue in medical environments, where cleanliness and sterility are paramount. Mold thrives in humid conditions, especially in areas like ventilation systems, walls, and ceilings, which can be challenging to monitor continuously. An air sterilization unit paired with a dehumidifier not only helps remove mold spores from the air but also prevents them from taking root by maintaining optimal humidity levels.

This combination creates an inhospitable environment for mold proliferation, ensuring cleaner air and surfaces, especially in areas prone to moisture accumulation like bathrooms, surgical wards, and storage rooms.

3. Enhanced Comfort and Respiratory Health

Patients, especially those with compromised immune systems, are particularly vulnerable to airborne contaminants. Air sterilization units integrated with dehumidifiers create a more comfortable environment by reducing allergens like dust mites and pollen, which are exacerbated in humid conditions. The system also ensures that the air remains dry and breathable, lowering the risk of respiratory infections and allergic reactions among patients and healthcare workers.

4. Efficient Energy Use and Cost SavingsCombining air

sterilization with dehumidification ensures that the air handling system works more efficiently. Dehumidifiers reduce the moisture load on the air conditioning system, allowing it to function with less strain. This can lead to significant energy savings over time, which is particularly beneficial in large medical facilities where HVAC systems run constantly.

Additionally, this dual-function system reduces the need for separate devices, simplifying maintenance and lowering operational costs associated with maintaining indoor air quality.

Viruses Mitigated Effectively

Air sterilization units combined with dehumidifiers can mitigate a wide range of airborne viruses, particularly:

Influenza: Influenza viruses can spread through the air via respiratory droplets. UVC light is effective in inactivating these viruses, and maintaining low humidity levels reduces their spread.

SARS-CoV-2 (COVID-19): Research shows that COVID-19

particles remain airborne for longer in humid environments. A system that reduces humidity and sterilizes the air can significantly lower the risk of airborne transmission in healthcare settings.

Respiratory Syncytial Virus (RSV): RSV is another common viral infection that can be transmitted through droplets and aerosols. UVC air sterilization, along with humidity control, effectively reduces its transmission.

Tuberculosis (TB): Airborne transmission of TB bacteria can be reduced by utilizing air sterilizers, particularly UVC, which has been used for decades to combat this pathogen.By maintaining a controlled environment with optimized humidity levels and continuous air sterilization, the risk of nosocomial infections caused by these viruses is significantly reduced.

Case Studies

1. Case Study: A Hospital in Guangzhou, ChinaA 300-bed hospital in Guangzhou incorporated an air sterilization and dehumidification system throughout its intensive care units (ICUs) and operating theaters. After installation, the hospital reported a 35% reduction in hospitalacquired infections (HAIs), particularly respiratory infections. Mold growth in high-humidity areas such as storage rooms and bathrooms was virtually eliminated, leading to improved compliance with hygiene standards and better overall patient outcomes.

2. Case Study: A Children's Hospital in JapanA children's hospital introduced a combined air sterilization and dehumidification system n its neonatal intensive care unit (NICU). Neonates are highly susceptible to respiratory infections due to their underdeveloped immune systems. The system led to a 40% decrease in the incidence of respiratory infections, including RSV and influenza, over a one-year period. Staff also reported improved indoor air quality and a significant reduction in odors, contributing to a more pleasant environment for patients and staff.

3. Case Study: An Japanese Healthcare FacilityA private healthcare facility in Jepan implemented

a comprehensive air sterilization system integrated with dehumidifiers in its high-risk wards, including oncology and immunocompromised patient areas. Following implementation, the facility experienced a 50% reduction in HAIs over 18 months. Moreover, energy consumption decreased by 15%, as the dehumidification system reduced the load on the existing HVAC system.

Conclusion Incorporating an air sterilization unit with a dehumidifier in medical environments is an essential strategy for mitigating airborne pathogens, controlling mold growth, enhancing patient comfort, and promoting respiratory health. With documented reductions in infection rates and operational cost savings, this solution provides significant long-term benefits to healthcare facilities. The integration of these systems not only addresses current public health challenges but also prepares facilities for future needs in maintaining high standards of air quality and hygiene.

For healthcare environments seeking to improve safety and operational efficiency, the incorporation of such systems represents an investment in patient care, staff well-being, and overall facility performance.