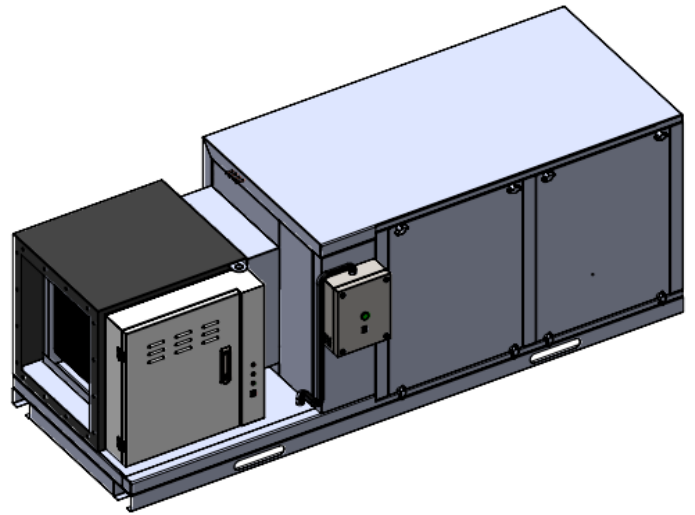


ECU Series

KINAIR ECOLOGY UNIT

Ranging from 500 CFM to 30,000 CFM



KINETICS Group

Dubai Investment Park-2, Jebel Ali, Dubai, U.A.E

Tel. : +971 4 885 7361 | Email : info@kineticsgroup.ae | Web : www.kineticsgroup.ae

SUSTAINABILITY IN KITCHEN VENTILATION

KINAIR Ecology Units



Introduction

Kitchen exhaust systems serve as a crucial mechanism for eliminating both heat and various contaminants like smoke, grease aerosols, and water vapor. While this extraction process significantly enhances indoor air quality, it presents potential challenges outdoors due to the emission of associated odors and particulates, potentially affecting neighboring facilities.

The quantity and nature of contaminants generated within a kitchen exhaust context are intrinsically tied to the ongoing cooking activities. These contaminants encompass an array of substances, including gases, vapors, aerosols, and particulates. Consequently, an effective kitchen exhaust filtration system must be versatile and encompass a diverse range of filtration methods to ensure a comprehensive solution.

In the commercial kitchen realm, methods for trapping grease and moisture are often incorporated into cooking areas. This is typically done using hoods equipped with baffles or other specialized tools designed to initially catch grease and particles. However, it's important to note that some contaminants may still escape these devices in the exhaust air. This could happen when cooking processes lack proper removal equipment or when certain substances manage to bypass initial capture methods. In such situations, thorough filtration becomes essential to effectively address these leftover contaminants.



Choosing System Configuration



Managing Grease and Smoke Particulates:

KINAIR employs a combination of electrostatic precipitators and specific particulate filter stages to remove grease aerosols, moisture, and other particulates present in the exhaust air. These filters range from washable metal filters to high-capacity bag filters and high-efficiency pleated filters (MERV 16). Depending on the level of particulate load, a tailored solution is designed, emphasizing regular maintenance, cleaning, and timely replacements to uphold performance and safety standards.

Eliminating Odors (Gases):

Cooking operations release volatile organic compounds (VOCs), leading to odors. These VOCs exist in the gas phase and cannot be addressed by particulate filters. We employ activated carbon in specialized filtration cells such as metal cassettes or canisters to effectively remove these odorous compounds. In some cases, a blend of activated carbon and other media is used. These filtration cells are designed for at least 0.1 seconds of residence time, tailored to the specific cooking activities within the kitchen.

Applications

- Restaurants
- Bakeries
- Food Courts
- Steakhouse
- Asian Cooking
- Cloud / Dark Kitchens
- Cafeterias
- Supermarkets
- Colleges and Universities
- Mixed Use Retail/Residential



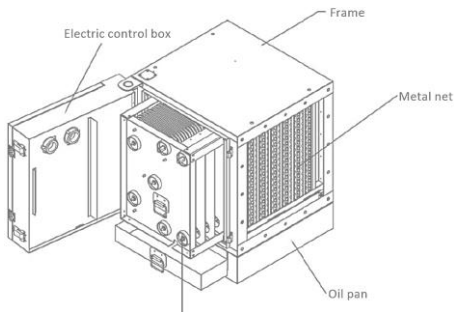
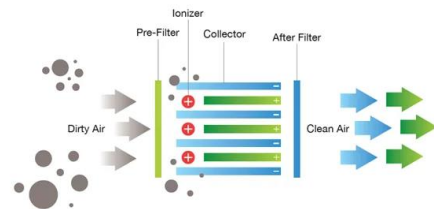
Our **ECU Series KINAIR** Ecology Units consist of ESPs (Electrostatic Precipitators) for the removal of grease and smoke and further filtration processes through multi-stages of pre-filters, fine filters, optional EPA filters, and gas phase filters. ESP, composed of ionizing and collection sections, operates on the principle of electrostatic precipitation, where grease and smoke particles are charged in the ionizing section and then enter the collector section, which is made up of parallel spaced plates. Each alternating plate is charged with the same polarity as the charged particles, which will in effect repel the particles onto the other set of plates that is grounded. The particles will remain collected on the grounded plates until they are washed away.

Coarse and fine particles are treated through the pre- and fine-filters, whereas odor is handled in the gas-phase filters. Clean air is then extracted through an exhaust fan that is fire-rated by UL or other equivalent standards. Our system can be accommodated with UV-C filtration along with a fire suppression system as an option. Fire-rated dampers are also provided upon request.

Main Components

Electrostatic Precipitator :

KINAIR ESP offer an exceptionally efficient means of filtering smoke & grease particles from moving air streams. Filtering kitchen extraction air presents a unique challenge due to its complex composition, encompassing grease, smoke, water vapor, and variable temperatures.



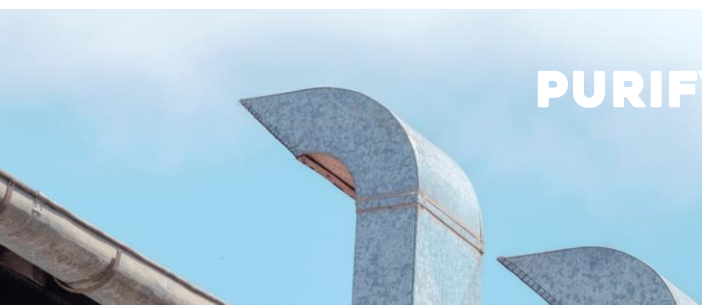
- Continuous Operating Temp. : Max. 200°C
- Operating Relative Humidity : ≤100 (%RH)
- Efficiency : MERV13, 14, 15
- Long Service Life : Up to 10 Years
- Power Consumption : Low (based on models)
- Initial Pressure Drop : Low (~ 70 Pa)

System Specification

Construction	: Double Skin
Sheet Material	: GI Sheets
Insulation Material	: PUF / Rockwool
Access Door	: Hinged / Removable
Airflow Range	: 500 – 30,000 (2x 15,000) CFM
Fan option	: DIDW / SISW (Std or 400C/2hr or UL)
Motor Option	: IE2 / IE3

Structure	: Extruded Aluminum Profiles
Sheet Thickness	: min. 0.8mm (inner & outer)
Insulation Thickness	: 2 inches
Base Frame	: 30/50/100mm GI, 2mm
Multi-stage Filtration	: ESP+Pre (G4)+Fine(F7)+Carbon – Combo varies
Optional Accessories	: DPS / DPT / Pressure gauge / Limit Switch / Marine light / Sight Window / Ozone Generator
Motor Protection	: Class F (Std.) / Class H (Optional)

**PURIFY YOUR KITCHEN AIR :
ADVANCED EXHAUST
FILTRATION**



System Specification

Exhaust Air Filtration

Different types of filters are available with wide variety of filtering materials, covering an extensive range of possibilities in filtering efficiency depending upon the application. All the filters are in accordance with latest **ISO 16890** standards.

Prefilters : Pleated & Panel filters: Available in 2 & 4" deep made up of metallic or cotton/synthetic media with metallic or cardboard frame. Efficiency rating ranging from G2 - G4 (EN779 or equivalent).



Medium & Fine Filters : Pocket & Rigid Box Filters: Pocket Filters made of non-woven synthetic media, encased in metallic frame. Alternate to pocket filters, rigid filters made of micro-fine glass fiber media arranged in mini-pleated or deep pleated construction. Filter grades ranges from M5 - F9 (EN 779 or equivalent)



EPA & HEPA Filters : Available in 11 1/2", or 6" deep, made up of micro glass fiber paper media available in various efficiency grades from H10 to H14 (EN 1882) encased in metallic or MDF frame.



Gas Phase Filters : These filters primary handles the gas phase filtration, which utilizes a broad spectrum of chemical media to ensure removal of very wide range of airborne chemicals by adsorption process. Available in V-Bank or Granular media packing.



Other Methodologies : We offer the following technologies, for filtration purposes:

- UV-C Filtration
- Bi-Polar Ionizers



Other Components

Fan & Motor

The exhaust fan section encompasses a robust SISW or DIDW centrifugal blower assembly crafted from heavy gauge steel. Centrifugal fan shall be either fire rated 400C/2hr or UL 705/762/792 Listed. The blower itself holds AMCA Ratings for both sound and air volume, indicating its high-quality performance.



Motors are totally enclosed fan-cooled (TEFC), foot-mounted, continuous duty type, IP55 protected, and have class F insulation. Rating and operating characteristics are in accordance with IE60034 standards. As standard, IE2 efficiency motors are supplied along with the unit; upon request, IE3 motors and Class H motors shall be provided. All the motors are equipped with an adjustable motor base plate for adjusting the belt tension.



Ozone Generator / Odor Neutralizer

Oduor Neutralizers works using chemical solution for reacting with odor molecules to neutralize the unwanted odors..



Ozone Generators releases ozone into the air, where it reacts with and eliminates odors, bacteria, viruses, and other contaminants by oxidizing them.

Fire Damper

UL Listed fire protection device to meet specific safety and performance standards.



It ensures reliability and compliance with fire safety regulations in buildings, providing confidence in its ability to contain and control fires.

KINETICS Sound Attenuator

Designed for low frequency performance and tested in-house, for guaranteed acoustic performance.



When it comes to installation, the attenuator is intended to be fitted after the Fan Module in the ECU Series units.



