



# ECOLOGY UNITS

*SOLUTIONS FOR AIR PURIFICATION*



**euroclima**<sup>®</sup>  
We care for better air



# CLEAN AIR SINCE 1963



Euroclima is a company with extensive international operations and 5 manufacturing facilities in Italy, Austria, India and UAE and more than 36.000 m<sup>2</sup> of production and offices. We are specialized in the manufacturing and worldwide distribution of air handling units and fan coil units.

We try to exceed the expectations of our customers by innovation, quality and comprehensive service. Approximately 400 employees are at present employed. Euroclima has a well distributed network of sales and service all over Europe, Asia, Middle East and Northern Africa. Our partners in various countries assume a surface covering responsibility for marketing, local servicing and optimal assistance.

# AIR TREATMENT

Airborne aerosols having a particle size of 1 micron are created out of vapours and fine during Roasting, grilling and frying. These aerosols causes nuisance odour, and can also penetrate into the human lungs and cause health damage. Therefore, it is important to remove these substances from the work area of the kitchen, and to guarantee a harmless neutral exhaust air. Upon heating, cooking fats and oils altered by hydrolysis, pyrolysis and oxidation. These processes create substances such as glycerol's, free fatty acids, aldehydes, ketones, polymeric triglycerides, nitrosamines, polycyclic aromatic hydrocarbons, whereof some are classified as hazardous to health.

Due to these circumstances, it makes sense, to clean and neutralize the exhaust air before its delivered to the environment. This requirement must be fulfilled from the ecology unit. To filter the large number of different aerosols and fission products a multistage filtering of the exhaust air is necessary.

$x \geq 100$  microns  
Metal pre-filter, aerosol filters

$0.01 \text{ microns} \leq x < 10 \text{ microns}$   
electrostatic filter

$10 \text{ microns} \leq x < 100 \text{ microns}$   
G4 prefilter

$x < 0.01 \text{ microns}$   
Carbon filters

(x ... particle size)

Pre-filter stage G4 is provided for separation of large particles. The electrostatic filter ensures a clean mechanical filtration of small particles contained in the exhaust air. A subsequent filtering with activated carbon filter helps to avoid the odour nuisance. Alternatively can be installed an ODOUR NEUTRALISER which works based on a specially blended neutralising chemical.

## Features

- Compact and plug and play solution
- Low energy plug fans with AC and EC motors
- All internal parts corrosion protected
- Unit available compliant to VDI 6022
- 50 mm double skin panels
- Casing features: D1/F9/L1/T3/TB2 as per EN 1886
- Easy installation and maintenance
- Low sound levels

ECOLOGY UNIT - UNIT SIZES					
Electrostatic filter cell		Unit Size	Filter efficiency, m <sup>3</sup> /h		
Full	Half	CAD types	H 11	H 12	H 13
1	0	6/6	2.600	2.200	1.700
1	1	9/6	3.900	3.300	2.550
2	0	12/6	5.200	4.400	3.400
4	0	12/12	10.400	8.800	6.800
6	0	18/12	15.600	13.200	10.200
6	2	21/12	18.200	15.400	11.900
8	0	24/12	20.800	17.600	13.600
9	0	18/18	23.400	19.800	15.300
9	3	21/18	27.300	23.100	17.850
12	0	24/18	31.200	26.400	20.400
16	0	24/24	41.600	35.200	27.200

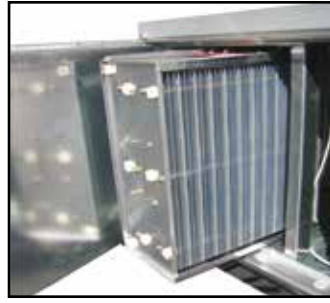
other unit sizes are available on request



# SECTIONS



**Metal filter class G2**



**Electrostatic filter H11 - H13**



**Synthetic filter class F8**



**Activated carbon filter**



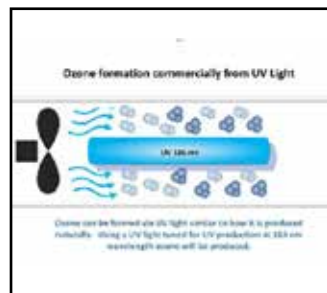
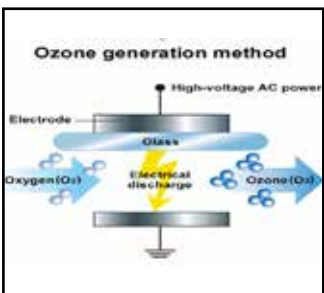
## **Plasma Section (Activated Oxygen Ions Stage)**

The exhaust air is interspersed with micro-discharges in the plasma stage. This is the basis for the non-thermal activation of neutral components via collision. The ionization, dissociation and excitation processes play a crucial role here. These processes are based on the principles of plasma physics. A chemical decomposition reaction of the odor molecules takes place due to the generation of radicals. These are essentially oxidation processes moreover agglomerating smaller particles into larger ones using the Ioniser improves filter efficiencies. Because charging airborne particles causing them to stick together. Larger, heavier particles then fall to the floor or get caught by the system filter.



## **Odor neutralizer**

The vapor from a specially blended neutralizing agent, is mixed with ambient air drawn into the O.N. device and ionized to a negative potential of 15,000 volts. This ionized vapor then passes along a nonconductive tube to be discharged into the center of the kitchen unit via a venture spigot, the case of the kitchen unit is earthed through the same high tension circuit which makes the contaminant at an opposite potential to the negatively charged neutralizing agent vapor. This then causes the negative and positive particles to combine, so treating the malodor by chemical reaction.



## **Ozone Generators**

The Ozone Generators are located outside of the kitchen extract Unit and are connected via a spigot and small diameter ducting, this means that it is able to provide a uniform supply of ozone and hydroxyl free radicals into the extract system with an extremely low-pressure loss.



## **UV-C (short-wavelength ultraviolet radiation)**

UV-C (short-wavelength ultraviolet radiation) technology is based on the synergy which occurs when ozone and ultraviolet light are combined. Each individual unit sits directly in the air stream of the kitchen extract unit and the case is featured with a photo-catalytic liner which enhances the production of hydroxyl free radicals when exposed to UV light. The ozone combined with hydroxyl free radicals, both highly reactive oxidants, act to oxidize odors and grease, permanently destroying and altering the molecular structure of the compounds. When installed correctly our UV-C systems can reduce cooking odors by up to 90%. technology is based on the synergy which occurs when ozone and ultraviolet light are combined. Each individual unit sits directly in the air stream of the kitchen extract unit and the case is featured with a photo-catalytic liner which enhances the production of hydroxyl free radicals when exposed to UV light. The ozone combined with hydroxyl free radicals, both highly reactive oxidants, act to oxidize odors and grease, permanently destroying and altering the molecular structure of the compounds. When installed correctly our UV-C systems can reduce cooking odors by up to 90%.

# TECHNICAL

## Technical specification ECOLOGY UNIT

### Casing

Housing assembled with self supporting modular panels with an integrated base frame and sections along the upper sides of the square unit. Inside and outside walls completely smooth. The international patented snap-in-assembly construction of the inner and outer skin gives a 50 mm thick double skin panel. Insulation fixed between the panel skins for maximum acoustic and thermal insulation. Certified data of AHU casing (MB) conform to EN 1886:

- Mechanical stiffness of AHU casing: class D1
- Air tightness of casing at -400 Pa: class L1
- Air tightness of casing at +400 Pa: class L1
- Thermal conductivity of casing: class T3
- Heat bridge factor of casing: class TB2
- T2/TB2 (optional)

### Panel execution

Inner skin: 1,5 mm galvanized sheet powder coated for corrosion protection.

Outer skin: 1,0 mm galvanized sheet for additional corrosion protection.

Guides made of galvanized coated steel or Aluminium. Base frame made of galvanized sheet metal. Large dimensional access doors in same thickness and execution as panel, adjustable hinges, and door frame made of aluminium, special rubber seal with welded corners, safety locks with removable handles.

### Damper

Damper for horizontal or vertical mounting with aerofoil blades made of aluminium with rubber seal. Frame with flange made of galvanized steel sheet. Seat of the blades and transmission gears made of plastic PP/PPS resistant to corrosion and temperature. Electric driven actuation of the damper.

### Fans

- Radial fan with belt drive
- Plug fan
- Plug fan with external runner engine
- EFC three phase motor, conform to IEC standard, single speed or two speed
- Measuring device for air volume (analogue or digital)
- Repair switch
- Belt guard protection/grid for inspection door

### Filter

All filter sections are insulated with 50 mm thick double skin panel to the requirements of UL/ULC.

# SPECIFICATION

Metal filter: made of galvanized wire mesh and galvanized frame, filter class EN 779:2002 G2.  
 $x \geq 100 \mu\text{m}$

Electrostatic filter: with aluminium housing; electrical supply 230 V, 50 Hz;  
 $0.01 \text{ microns} \leq x < 10 \text{ microns}$

Synthetic filter: synthetic filter material with galvanized frame, filter class EN 779:2001 G4.  
 $10 \text{ microns} \leq x < 100 \text{ microns}$

Activated carbon filter: cartridges of coated steel sheet filled with activated carbon; easy assembly and disassembly of the filter cartridges.  
 $x < 0.01 \text{ microns}$

## **Control Components**

Control cabinet including all necessary control devices main switch:

- Circuit breaker
- Motor protection switch
- Terminal block for main supply or external components
- Circuit breaker for electrostatic filter
- Monitoring of electrostatic filter
- Filter pressure drop monitoring of pre-filter
- Default visualisation on control cabinet

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## Euroclima product catalogues



Euroclima June 2018  
 Due to its commitment of continuous product development and improvement, Euroclima reserves the right to change specifications without notice.



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