

# SAFEMATE ECO

CLASS II MICROBIOLOGICAL  
SAFETY CABINET

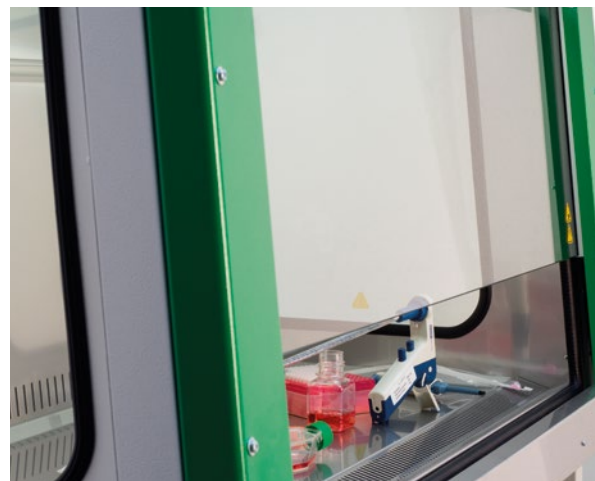


## GREEN EVOLUTION

Safemate ECO Class II (Type A2) Microbiological Safety Cabinet Series evolves from our bestseller Safemate Series adding an eco-friendly approach: the new EC Motorblowers enhance significantly the efficiency of the Cabinet reducing operating costs and improving building energy balance thanks to the lower heat output.

As always at BioAir: **Your Safety is our Commitment.**

No compromise for Operator, Product and Environment. Protection guaranteed as required by EN12469:2000 standard.



## EC TECHNOLOGY

EC stands for Electronically Commutated, and it takes advantage of the most modern technologies in order to improve efficiency reducing overall power requirements!

### HERE ARE THE FACTS!

**The New Safemate ECO Series requires 25% less Energy compared to a conventional AC Motor Cabinet. This implies that CO<sub>2</sub> emission is reduced by 250 Kg/year (average).**

### HOW DOES EC TECHNOLOGY BENEFITS YOU?

- It reduces your Energy Bill! Lower Power Consumption and Better Efficiency means money saving!
- It guarantees a lower Heat Emission compared to the conventional AC motor. This reduces running costs as well thanks to lowered building cooling load
- It saves the Planet! Lower Energy Consumption and Highest Efficiency means less CO<sub>2</sub> Emission and sustainable workflow.



# SAFEMATE ECO

CLASS II MICROBIOLOGICAL  
SAFETY CABINET



Silent operation: <49dB(A)

Tempered glass side windows  
to provide higher luminosity



Sloped front for the most  
comfortable access

Air/Aerosol tight electrical  
sliding sash with exclusive  
“yzy” movement

Solid liquid retaining  
work surface (optional)



## Italian Quality

Our cabinet are completely made in Italy using components of italian or european origins! We use only the best for our cabinets!



## German Certification

Our quality has been certified by the most prestigious body in Europe! All of our cabinets have been tested according to the most rigorous requirements to provide the best performance possible!





Utilities connection from the top



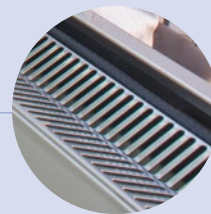
An elegantly crafted standard control panel and display, for your convenience



Integrated UV Lamp and Utilities



Anti obstruction "V" shaped front grille



#### A better world

As a manufacturer we feel that is our responsibility to reduce our ecological footprint to grant for a sustainable working place both economically and ecologically!

## MAIN SPECIFICATIONS:

- ✓ Microprocessor controlled EC motorblower enhances energy efficiency, reducing operating costs
- ✓ Fully compliant with the EN 12469 safety standard as independently tested and certified by TUV Nord, the leading testing agency in Europe
- ✓ Air and aerosol tight electrical sliding sash with unique “YZY” movement
- ✓ Available in 0.9 m, 1.2 m 1.5 m & 1.8 m cabinet widths
- ✓ Highest air flow stability both in terms of transitional disturbances and of progressive filter clogging
- ✓ Sloping front aperture to maximise user comfort
- ✓ CE certification according to Machinery Directive 89/392/ EEC, 91/368/EEC, 93/44/EEC 93/68/EEC
- ✓ Semi-automatic fumigation cycle (EN12297 tested and certified).



## FEATURES FOR UNBEATEN SAFETY, QUALITY AND USABILITY:

- ✓ Air and aerosol tight electrical sliding sash system with unique “YZY” movement ensures the containment of aerosol within the chamber when the front window is fully closed. The sash can be rapidly closed in an emergency situation
- ✓ Continuous monitoring of the front barrier airflow for the highest operator safety
- ✓ Permanent monitoring of HEPA filters life span
- ✓ Multilevel alarm system
- ✓ Control panel featuring a large digital high resolution display and soft touch keys
- ✓ Steel with a perforated work surface as a no cost option
- ✓ Front aperture inlet grille is a recessed V profile in the work surface to prevent flow restriction from the user's arms / clothing
- ✓ Stainless steel internal surfaces with full access to exposed surfaces for ease of cleaning
- ✓ Cleanability Index C grade (EN12296 tested and certified)
- ✓ Sloping front aperture and rear chamber lining for optimal downflow air distribution across the work surface
- ✓ Self calibration cycle performed each time the cabinet is switched on
- ✓ Removable stainless steel three part work surface for easy steam sterilisation in an autoclave
- ✓ Interconnected UV and fluorescent lights
- ✓ C Shaped support stand for one man installation
- ✓ Side windows for maximum illumination of the working area.

## GREEN TECHNOLOGY

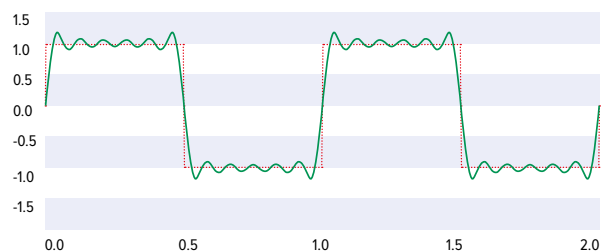
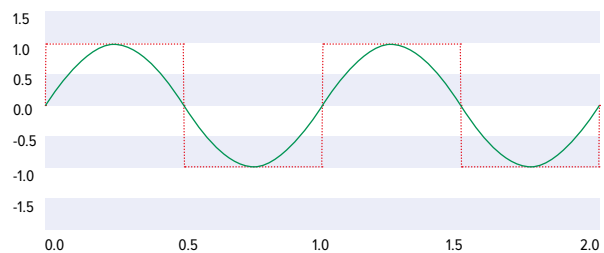
The new Safemate ECO uses a 3-Phase AC asynchronous motorblowers driven by a programmable electronic inverter with the most advanced 16khz technology: this allows direct control of the motorblower's speed obtaining higher overall efficiency and reduced noise and heat emissions.

Asynchronous 3-Phase AC induction motors with electronic control play a key role in reducing the use of Biological Safety Cabinet costs, offering a **modern solution to the problem posed by the requirement of good energy efficiency with low noise level and competitive price.**



## ADVANTAGES OF ECM MOTORS

- **Reduced running costs:** energy consumption is reduced by about 30% with comparison to standard single-phase triac-controlled motors
- **Reduced heat output:** helps reducing the overall air conditioning costs
- **Stepless speed regulation:** extremely efficient and precise regulation of airflows
- **Reduced sound level:** thanks to the sinusoidal waveform, ECM motors are more silent than conventional single-phase AC motors
- **External electronics:** the inverter is not in the contaminated area allowing for easier maintenance than with DC motors
- **Long life:** reduce maintenance costs!



## WHY “ECO”?

By providing both economical and ecological advantages, the new Safemate ECO is a logical step forward in the evolution of the Safemate Series of cabinets.

|                                    | SAFEMATE 1.2 | SAFEMATE ECO 1.2 | DIFFERENCE    |
|------------------------------------|--------------|------------------|---------------|
| Cabinet power requirement          | 465 W        | 365 W            | -100 W (-24%) |
| Motorblower only power requirement | 339 W        | 239 W            | -100 W (-29%) |
| Power consumption per year         | 1305 kWh     | 1024 kWh         | -280 kWh      |
| Annual Operating Costs             | 221 €        | 174 €            | -47 €         |
| Heat output per year               | 4455.3 kBTU  | 3497.17 kBTU     | -958.13 kBTU  |
| CO <sub>2</sub> Emission           | 656 Kg       | 515 Kg           | -141 Kg       |

## COMPARISON SETTINGS

- ✓ The needed power was measured for the motorblower only and for the whole cabinet in operational status (fluorescent lights on, Mode 1). No additional loads were connected to the cabinet power outlets
- ✓ Running costs have been calculated considering a usage profile of 9 hrs/day for 6 days/week (tot 2808 hrs/year)
- ✓ Average European electricity costs have been used to estimate the economic impact (0.17€/kWh)
- ✓ Thermal output in British Thermal Units (BTU) has been calculated multiplying the energy consumption in kilowatt hours by 3412.141
- ✓ CO<sub>2</sub> emissions were calculated considering 0.5 Kg/kWh.

## STANDARD UTILITIES

| ELECTRICAL EQUIPMENT                              | SIZE 0.9 | SIZE 1.2 | SIZE 1.5 | SIZE 1.8 |
|---------------------------------------------------|----------|----------|----------|----------|
| Automatic electronic airflow velocity control PCB | •        | •        | •        | •        |
| Main switch all position removable key            | •        | •        | •        | •        |
| UVC Lamp (backwall mounted)                       | •        | •        | •        | •        |
| Motorblower (fan)                                 | •        | •        | •        | •        |
| 2nd motorblower (fan)                             | NO       | NO       | NO       | •        |
| Inverter                                          | •        | •        | •        | •        |
| Fluorescent lamps                                 | •        | •        | •        | •        |
| Sliding window electric motor                     | •        | •        | •        | •        |
| Combustible gas solenoid valve                    | •        | •        | •        | •        |
| Tap for combustible gas line                      | •        | •        | •        | •        |
| Tap for inert fluids/vacuum line                  | •        | •        | •        | •        |
| Auxiliary electrical service socket               | •        | •        | •        | •        |
| 2nd auxiliary electrical service socket           | •        | •        | •        | •        |
| Voltage-free contact (VFC) outlet                 | •        | •        | •        | •        |
| Alarm mute connector (for service personnel only) | •        | •        | •        | •        |



## OPTIONS & ACCESSORIES

| CODE                                          | DESCRIPTION                                           | CODE                                  | SIZE 0.9 | SIZE 1.2 | SIZE 1.5 | SIZE 1.8 |
|-----------------------------------------------|-------------------------------------------------------|---------------------------------------|----------|----------|----------|----------|
| <b>AC10000</b>                                | Chest drawer                                          | 2 drawers – with castors              | ✓        | ✓        | ✓        | ✓        |
| <b>AS1L310</b>                                | Support stand 0.9                                     | h= 730 - 890 mm                       | ✓        |          |          |          |
| <b>AS1L410</b>                                | Support stand 1.2                                     |                                       |          | ✓        |          |          |
| <b>AS1L510</b>                                | Support stand 1.5                                     |                                       |          |          | ✓        |          |
| <b>AS1L610</b>                                | Support stand 1.8                                     |                                       |          |          |          | ✓        |
| <b>AZ1L010</b>                                | Castors kit                                           | With retractable foot                 | ✓        | ✓        | ✓        | ✓        |
| <b>AP1K603</b>                                | IV bar for 0.9                                        | (includes 10 hooks)                   | ✓        |          |          |          |
| <b>AP1K604</b>                                | IV bar for 1.2                                        |                                       |          | ✓        |          |          |
| <b>AP1K605</b>                                | IV bar for 1.5                                        |                                       |          |          | ✓        |          |
| <b>AP1K606</b>                                | IV bar for 1.8                                        |                                       |          |          |          | ✓        |
| <b>AZ1H613</b>                                | Armrests                                              |                                       | ✓        | ✓        | ✓        | ✓        |
| <b>DT00003</b>                                | Data output port                                      | RS232                                 | ✓        | ✓        | ✓        | ✓        |
| <b>DUCTING AND ADDITIONAL FILTERS OPTIONS</b> |                                                       |                                       |          |          |          |          |
| <b>ACMOT12</b>                                | Active extraction kit with additional charcoal filter |                                       | ✓        | ✓        |          |          |
| <b>ACMOT15</b>                                | Active extraction kit with additional charcoal filter |                                       |          |          | ✓        |          |
| <b>ACMOT18</b>                                | Active extraction kit with additional charcoal filter |                                       |          |          |          | ✓        |
| <b>AZ1A200</b>                                | Passive transition adapter kit                        | Requires remote blower for extraction | ✓        | ✓        |          |          |
| <b>AZ1B200</b>                                | Passive transition adapter kit                        |                                       |          |          | ✓        |          |
| <b>AZ1C200</b>                                | Passive transition adapter kit                        |                                       |          |          |          | ✓        |
| <b>AZ1A300</b>                                | Extraction open hood ("thimble")                      | Requires remote blower for extraction | ✓        | ✓        |          |          |
| <b>AZ1B300</b>                                | Extraction open hood ("thimble")                      |                                       |          |          | ✓        |          |
| <b>AZ1C300</b>                                | Extraction open hood ("thimble")                      |                                       |          |          |          | ✓        |

## TECHNICAL DATA

| DESCRIPTION                        | SIZE 0.9 | SIZE 1.2 | SIZE 1.5 | SIZE 1.8 |
|------------------------------------|----------|----------|----------|----------|
| Part No. (solid work surface)      | LDD2200  | LDE2200  | LDF2200  | LDG2200  |
| Part No. (perforated work surface) | LDD2201  | LDE2201  | LDF2201  | LDG2201  |

### SPECIFICATIONS

Reference Standards:

IEC 61010-1:2010 / EN 61010-1:2010  
IEC 61326-1:2012 / EN 61236-1:2013 / EN 12469:2000

|                                                          |                     |      |      |      |
|----------------------------------------------------------|---------------------|------|------|------|
| Electrical insulating/protection class [IEC 61140]:      | I                   |      |      |      |
| Mains supply voltage:                                    | 220-240 V- 50/60 Hz |      |      |      |
| Required power line (W): (700 W service socket included) | 1200                | 1200 | 1350 | 1750 |
| *Absorbed power (W): (fan and light on only)             | 270                 | 375  | 430  | 650  |
| Window glass UVC radiations retention (%):               | 98                  |      |      |      |
| Combustible gas fixture max pressure (mbar):             | 20                  |      |      |      |
| Inert fluids/vacuum fixture max pressure (bar):          | 4                   |      |      |      |
| Electrical service socket max current (A):               | 3                   |      |      |      |

### WEIGHT AND SIZE

|                                                      |                   |                   |                   |                   |
|------------------------------------------------------|-------------------|-------------------|-------------------|-------------------|
| Weight (Kg):                                         | 230               | 260               | 300               | 360               |
| Overall size L x D x H (mm) (without support stand): | 1075 x 840 x 1450 | 1380 x 840 x 1450 | 1685 x 840 x 1450 | 1990 x 840 x 1450 |
| Front aperture size L x H (mm):                      | 860 x 195         | 1165 x 195        | 1470 x 195        | 1775 x 195        |
| Working space size L x D x H (mm):                   | 925 x 580 x 700   | 1230 x 580 x 700  | 1530 x 580 x 700  | 1840 x 580 x 700  |

### MATERIALS

|                               |                                                 |
|-------------------------------|-------------------------------------------------|
| Main structure:               | cold rolled steel, stove enamel coated RAL 7035 |
| Working space surface:        | stainless steel AISI 304- SB finishing          |
| Front and side walls windows: | laminated safety glass                          |

### PERFORMANCES

|                                                                                          |                        |         |          |          |
|------------------------------------------------------------------------------------------|------------------------|---------|----------|----------|
| Laminar Air Flow mean velocity [EN 12469](m/s):                                          | 0,35 ÷ 0,40            |         |          |          |
| Inflow Air Barrier mean velocity [EN 12469](m/s):                                        | 0,53 ±10%              |         |          |          |
| Exhaust Air flow rate (m³/h):                                                            | 330±10%                | 450±10% | 500 ±10% | 600 ±10% |
| Exhaust Air flow ratio (%):                                                              | 30±10                  |         |          |          |
| Apf - Aperture Protection Factor [EN 12469]:<br>(Retention efficiency at front aperture) | ≥1,0 x 10 <sup>5</sup> |         |          |          |
| Working space air cleanliness class [EN 14644-1]:                                        | ISO 5                  |         |          |          |
| Illuminance [EN 12469] (lux):                                                            | >750                   |         |          |          |
| ** Sound level [EN ISO 3744] (dB[A]):                                                    | <49                    | <50     | <54      | <58      |
| Vibration [EN 12469] (mm RMS):                                                           | <0,005                 |         |          |          |
| Max increase inside cabinet in temperature from the ambient [EN 12469] (°C):             | <5                     |         |          |          |

### FILTERS

|                                                |           |
|------------------------------------------------|-----------|
| Filters efficiency class [EN 1822-1]:          | H14 ***   |
| Filters global MPPS efficiency [EN 1822-1](%): | 99,995    |
| MPPS diameter [EN1822-1](µm):                  | 0,1 ÷ 0,3 |

\* Measured in operating conditions. Power requirements with lights off at minimum airflow speeds (as per EN12469:2000), are about 35% less than those shown in table.

\*\* Measured in operating conditions. Actual values at customer site may be different due to room structure.

\*\*\* Efficiency higher than ULPA (Class F) as per IESP-RP-CC001.

## OVER 40 YEARS OF EXPERIENCE

**BioAir has been manufacturing Biohazard and Laminar Air Flow cabinets** since the early '70s, when the Gelaire® brand became the "gold standard" for airborne contamination control in laboratories all over the world.

A family of Recirculating Fume Hoods, based on the adsorption of toxic vapors by charcoal filters, was successfully introduced a few years later, thus positioning the Company as the only one seriously focused on the protection of its operators, in line with its inspiring motto "Your safety is our commitment".

This unique know-how and insistence on quality were continually developed, and 25 years on, under the name of BioAir®, the entire range was completely re-designed to meet the changing requirements of laboratory staff and increasingly stringent regulations.

At the top of the range are the Biohazard Cabinets (or Microbiological Safety Cabinets - MSC), the sum of the Company's know-how, certified to European standards (EN12469:2000) and also complying with Australian regulations. In other words, they are designed to provide technicians with the maximum level of safety when used according to GLP/GMP standards in their respective environments.

Today, in a facility occupying over 2,800 square meters, BioAir manufactures a full range of microbiological safety cabinets, laminar flow cabinets and fume cupboards, with over 15 models, many of which available in different sizes. Customized models and cabinets designed for specific applications can be produced by our team of skilled engineers and operators.

Decades of experience in sales and support for cell biologists have enabled BioAir to give the market an extremely innovative CO<sub>2</sub> Incubator, the Safegrow® PRO, the fruit of deep knowledge of the optimum conditions required for critical tissue culture methods and input from scientists engaged in growing cells in vitro.

The core business of the recently established BioAir® Industrial Team is the design, manufacturing and validation of customized equipment for the protection of the operator and of the product in pharmaceutical and healthcare production facilities.

This dedicated team will leverage the long experience and production capability acquired in laboratory LAF applications to offer complex equipment ranging from **dispensing/sampling Downflow Booths** and **Clean Rooms** to **RABS** and **Isolators** for Regenerative Medicine and Advanced Cell Therapy.

## PLUS BIOAIR

### MADE IN ITALY

Our products are designed and produced in Italy, drawing on the long tradition and internationally recognized high quality of Italian manufacturing, to bring you the best equipment for your safety.

### TRADITION AND EXPERIENCE

All our Microbiological Safety Cabinets were designed with your safety in mind and that's a task where even the smallest details count. Our team stems directly from the company that launched the market for MSCs in Europe, so we put a lot of history and experience into all our products, as well as care over those often-overlooked details that improve your safety.

### WE CARE FOR YOU

Thanks to our network of highly trained dealers and distributors, our complete portfolio and long experience in the field, we will always be able to help you find the right product for your needs, no matter how unique they are. And our commitment doesn't stop there: our Service network will make sure your equipment always performs at its best.



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