



AQUARIA®

Blue Air line

Laminar flow,
chemical and special
cabinets
for any laboratories





AQUARIA®

Safe and reliable technology

AQUARIA, Company which is specialized to propose instruments and solutions in all the area of the environmental control, is offering its own line of laminar flow and molecular filtration cabinets.

By having a solid and modern drawing, each cabinet is equipped with the most up to date control technologies and assures a complete security either for the personnel or for the working environment.

An additional guarantee of the security and reliability is the maintenance and technical assistance services, which have been certified by the TÜV SÜD, the prestigious worldwide leader in certification and trials.



Laminar flow and chemical cabinets for laboratories

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MINI FLOW



Bench laminar flow cabinet

The MINI FLOW cabinet has been designed and realized based on the criteria of the typical vertical laminar flow cabinets, but with reduced sizes. Its own smaller sizes and the suitable wheeled floor support (optional) allow the transfer between different working areas. The possibility to reduce manually the laminar vertical flow speed makes the MINI FLOW cabinet particularly suitable to carry out weighing operations under specific conditions.

Temperate front glass window hinged to allow easy access to the working area when lifted (up to 180°) in blocking position.



APPLICATIONS

Q.C. laboratories in food, biological, cosmetic, pharmaceutical and electronic industries

Microbiology, virology and biotechnology laboratories

Animal or plant cell cultures

Teaching school and university laboratories

COMPLIANCE

The laminar flow cabinets are in compliance with:

- ISO 5 (ex Federal Standard 209D)
- Italian Electric Committee (CEI 66.5)
- CEI 62.25 norms for class 1 fixed installation equipment
- UNI-CIG regulations

TECHNICAL FEATURES

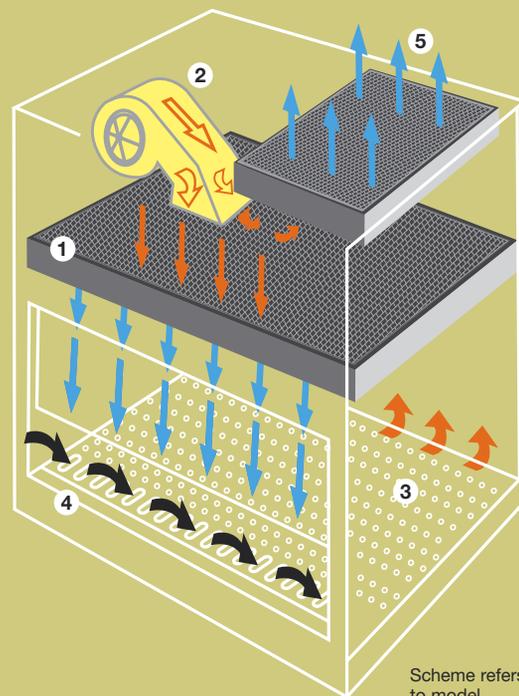
Working class:	ISO 5 (ex class 100 - according to Fed Std 209D)
HEPA filter efficiency:	> 99,995% MPPS
Carbofilter:	C100/C40; mesh 8/12; Kg. 4 granulated
Working area lighting:	> 700 lux
White lamp:	Fluorescence neon type (13 W power)
UV lamp (optional):	UV-C germicidal type (15 W power)
Noise level:	< 58 dBA
Power supply:	230 V / 50 Hz
Power requirements:	250 W

WORKING PRINCIPLE:

The air is decontaminated by the absolute filter (1) and enters the working area under laminar flow conditions, then it passes through the perforated working surface (3) and mix itself with the external air, which arrives from the front opening, in the front area of the worktop (4). The contaminated air is pulled back to the electric fan (2) located in the upper part of the cabinet to the return plenum: here 70% of the air is recycled in the working area after absolute filtration, while the remaining 30% is simply exhausted (mod. FLV), or exhausted after absolute filtration (mod. FLV/H) or exhausted after absolute filtration and molecular filtration on carbonfilter (mod. FLV/HC). The exhausted air quantity (5) has been reintegrated by the same quantity of ambient air arriving through the front opening (4), thus creating the necessary containment curtain given the required protection to the operator.

-  External air
-  Recycled air (contaminated air)
-  Sterile air

In the **PCR** model we do not have the presence of the recycled air, but simply we have the laminar flow on the worktop and exhausted air through the front opening towards the operator, (maximum protection for the product and no protection for the operator).



Scheme refers to model MINI FLOW FLV/H

MAIN FEATURES

- Outer construction is cold rolled steel, oven epoxy paint.
- Double internal extraction back wall.
- Perforated stainless-steel inox AISI 304 made by two removable panels.
- Cold rolled steel and painted tray for liquid recovery.
- Temperate front glass window hinged to allow easy access to the working area when lifted (up to 180°).
- Exhaust outlet adaptor (Ø150 mm) for external convey with PVC pipes.
- Electric fan thermally protected.
- Electronic board controlled by microprocessor.

- Air flow manual adjustment through the keyboard.
- Main control board with "soft-touch" keyboard.
- General lighted ON/OFF switch.
- Fluorescent lamp located out of the working area.
- Fluorescent lamp/UV-C lamp automatic switch, (standard with PCR model - optional for other models).
- Time meter-countdown for UV-C lamp with automatic switch-off, programmable by the operator.
- Digital general elapsed time meter.
- Visible elapsed filters working time alarm (reset to zero).

AVAILABLE MODELS

Based on the required type of filtration, we can offer:

MINI FLOW - FLV:	n° 1 HEPA absolute filter in down flow to clean by light dust (the air is drawn by the electric fan and directly exhausted)
MINI FLOW - FLV/H:	n° 1 HEPA absolute filter in down flow n° 1 HEPA filter in exhaust (the air is drawn by the electric fan and exhausted after molecular filtration)
MINI FLOW - FLV/HC:	n° 1 HEPA absolute filter in down flow n° 1 HEPA + n° 1 carbon filter in exhaust (the air is drawn by the electric fan and exhausted after absolute and molecular filtrations)
MINI FLOW - PCR:	n° 1 HEPA absolute filter in down flow n° 1 pre-filter panel on the exhausted air n° 1 UV-C lamp (power 15 W) n° 1 night closing panel

FLOW ACTIVA - HF



Horizontal laminar flow cabinet Class I

The cabinet has been designed **only for the protection of the product** and not for the operator and/or environment.

The horizontal laminar flow cabinets are featured by complete front opening, drawing air from the outside (upper part) towards the internal part of the cabinet and an horizontal sterile air laminar flow inside the working chamber generated by an absolute HEPA filter and directed to the operator. All the above gives warranty to have **class 100** sterility in the working chamber, avoiding the introduction of potentially contaminated ambient air.

Soft touch key board with antistatic protection.



APPLICATIONS

Handling of products which are sensitive to the contamination by the ambient air

Culture media preparation

Sterility controls

“In vitro” fertilization techniques

Assembly of electronic and optical instruments

Quality control in the food industry

Preparation of parenteral solutions TPN

TECHNICAL FEATURES

Working class: ISO 5 (ex class 100 - according to Fed Std 209D)

HEPA filter efficiency: 99,995% MPPS
(ex 99,999 on particles with diameter 0,3 mm)

Light intensity on the working surface: > 800 lux

Lighting: white fluorescent lamp

Noise level: < 60 dBA

Average speed LAF: > 0,40 m/sec.

Power supply: 230 V / 50 Hz

COMPLIANCE

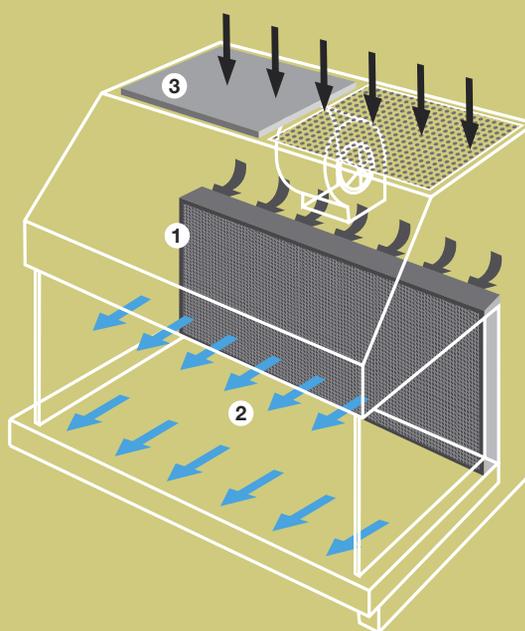
Cabinets with working area protected by horizontal laminar flow in class ISO 5 (ex class 100 - Fed. Std. 209E), bench type model, **suitable to handle products or non pathogenic culture media in sterile environment.** Equipment of class I according to the regulations CEI EN 61010-1.

The cabinet is manufactured in compliance with:

- CEI EN 61010-1
- Italian Electric Committee (CEI 66.5 and 62.25)
- UNI-CIG regulations

WORKING PRINCIPLE:

the outside ambient air crosses the high efficiency pre filters (3) and in such way the HEPA filter is more protected and has a longer working efficiency. Then the air arriving from the HEPA filter (1), located on the back wall of the working area, creates a working environmental chamber in class 100 and moving on with laminar flow (2), generates a solid front which removes potential contaminants inside the working area.



MAIN FEATURES

- Outer construction is cold rolled steel with epoxy paint.
- Internal worktop is stainless-steel inox AISI 304 with a 2B finish applied.
- Unbreakable temperate lateral glasses.
- One absolute HEPA filter in class H14.

- Electronic control of the electric motor fan to compensate the progressive obstruction of the absolute filter and pre-filters.
- Automatic control of the air flow speed.
- Electronic board controlled by the microprocessor.
- Soft touch key board with antistatic protection.

COMPARATIVE TABLE FLOW ACTIVA – HF MODELS

	90	120	180
Electric motor fan	1	1	2
Pre-filters	YES	YES	YES
Inox stainless-steel worktop	YES	YES	YES
Fluorescent lamps (13 Watt)	2	2	4
Down-flow HEPA filters	1	1	1
Power supply cable 230 V - 50 Hz ("shuko" plug)	YES	YES	YES

CONTROL BOARD

- ON/OFF green lighted switch with key.
- Digital display with horizontal laminar flow speed.
- Security key electro valve for gas connection (optional).
- Digital electronic timer of general functioning.
- Digital electronic timer of UV-C lamp (if provided).
- Countdown time meter for UV-C lamp (if provided) programmable by the customer with automatic switch off.

ACOUSTIC AND VISUAL ALARMS

- High internal chamber pressure (obstruction HEPA filter).
- Electric motor fan proper functioning.
- Horizontal laminar flow proper functioning.
- Elapsed absolute HEPA filter working time.
- Elapsed UV-C lamp working time (germicidal capacity).

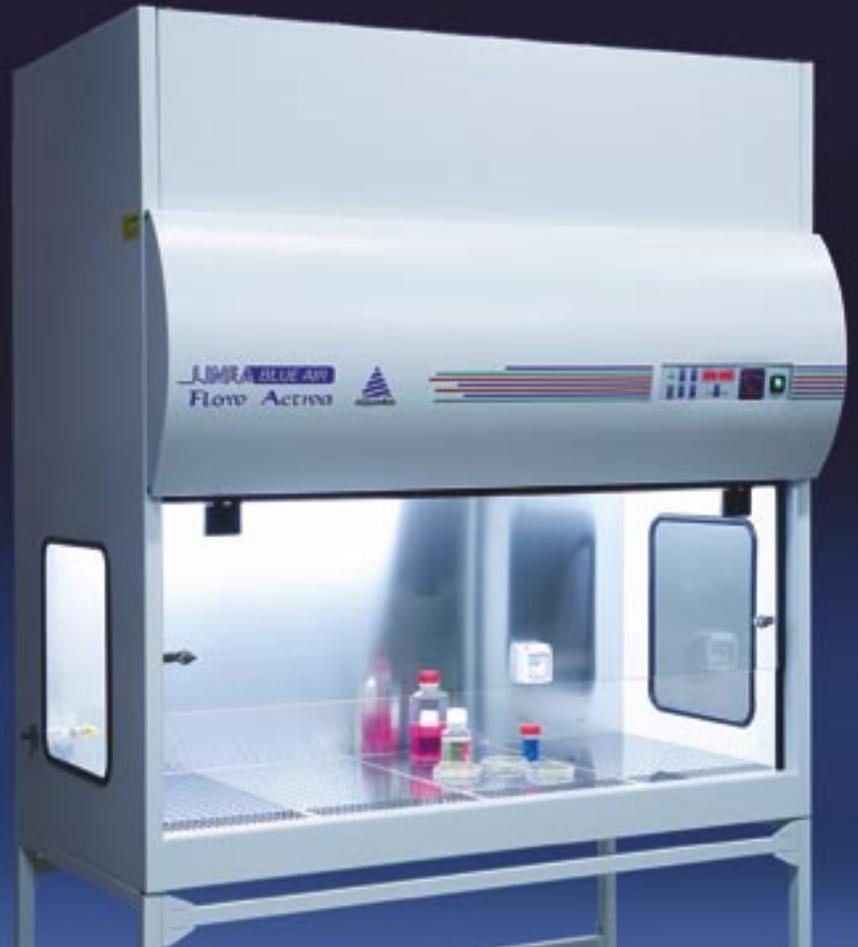
FLOW ACTIVA - VF



Vertical laminar flow cabinet

The cabinet has been designed **for the global protection of the operator, product** and, when equipped with HEPA filter in exhaust, **environment**. The cabinet **FLOW ACTIVA - VF** is a vertical laminar flow with partial air recycle (ca. 70%) via absolute HEPA filter and partial exhaust (30%) of the treated air, with protective air curtain for the operator through the entrance of the front opening, without crossing the worktop in order to avoid the contamination of the product.

Perforated stainless-steel inox worktop, made by easily removable panels.



APPLICATIONS

- Animal and plant cell cultures
- Microbiology, virology and biotechnology laboratories
- Haematology laboratories
- Q.C. pharmaceutical, cosmetic and food industries
- Assembly of electronic and optical instruments

COMPLIANCE

Cabinet with working area protected by sterile vertical laminar flow in ISO 5 (ex class 100 - Fed. St. 209D), bench type model, **suitable for the handling biological material without pathogen risk.**

The cabinet are in compliance with:

- ISO 5 (ex Federal Standard 209D)
- Italian Electric Committee (CEI 66.5)
- CEI 62.25 norms for class 1 fixed installation equipment
- UNI-CIG regulations
- EN 1822 norms (for HEPA absolute filters)

TECHNICAL FEATURES

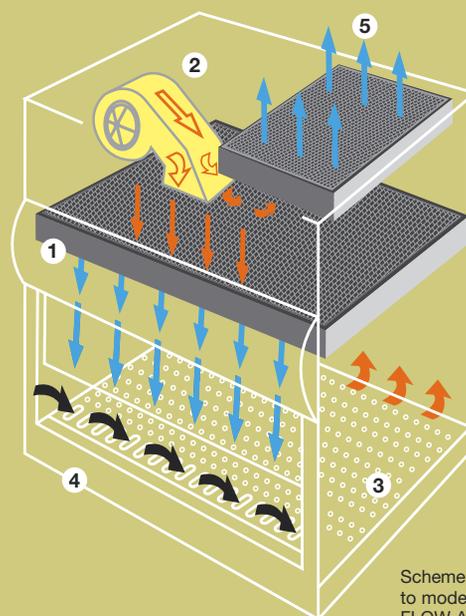
Working class:	ISO 5 (ex class 100 - according to Fed Std 209D)
HEPA filter efficiency:	> 99,995% MPPS
Working area lighting:	> 800 lux
White lamp:	fluorescence neon type n° 2 lamps by 13 W each (mod. 90) n° 2 lamps by 21 W each (mod. 120 and 150) n° 2 lamps by 35 W each (mod. 180)
Noise level:	< 60 dBA
Average LAF speed:	> 0,42 m/sec.
Average curtain speed:	> 0,42 m/sec.
Flow exhaust air:	400 mc/hr
Height front opening:	200 mm
Exhaust outlet adaptor:	250 mm vert (optional)
Power supply:	230 V / 50 Hz

WORKING PRINCIPLE:

the air is decontaminated by the absolute filter **(1)** and enters the working area under laminar flow conditions, then it passes through the perforated working surface **(3)** and mix itself with the external air, which arrives from the front opening, in the front area of the working surface **(4)**.

The contaminated air is pulled back to the electric fan **(2)** located in the upper part of the cabinet to the return plenum: here 70% of the air is recycled in the working area after absolute filtration, while the remaining 30% is exhausted directly **(in Standard model)** or after absolute filtration **(in Plus model)**. The exhausted air quantity **(5)** has been reintegrated by the same quantity of ambient air arriving through the front opening **(4)**, thus creating the necessary containment curtain given the required protection to the operator.

-  External air
-  Recycled air (contaminated air)
-  Sterile air



Scheme refers to model FLOW ACTIVA PLUS

MAIN FEATURES

Outer construction is cold rolled steel, thickness 12/10 with epoxy paint.

Double internal extraction back wall (stainless-steel inox AISI 304 panel with a 2B finished applied).

Worktop is perforated stainless steel inox AISI 304, made by easy removable panels.

Stainless-steel tray for liquid recovery under the worktop.

Front temperate glass window hinged to allow easy access to the worktop when lifted.

Polycarbonate lateral glasses.

Air scoops for DOP test both on inlet and exhaust airflow.

Automatic electronic air flow adjustment to compensate the obstruction of the filters.

Down flow and exhaust stream automatic adjustment (air containment curtain).

Electronic board controlled by a microprocessor.

Soft touch keyboard with antistatic protection.

COMPARATIVE TABLE FLOW ACTIVA – VF MODELS

	<i>Standard</i>	<i>Plus</i>
HEPA absolute filter in down flow	YES	YES
HEPA absolute filter in exhaust	NO	YES
Perforate worktop made by removable panels	YES	YES
Electric motor-fan	1	1
Gas service connection	NO	YES
Fluorescent lamp	2	2
Electric socket 4 A - 230 V - 50 Hz (for small instruments)	1	1
Power supply cable 230 V - 50 Hz ("shuko" plug)	1	1

CONTROL BOARD

ON/OFF lighted general key switch.

Digital display with real time reading of the vertical laminar flow and front air containment curtain, (m/sec).

Emergency key to increase the exhaust air flow speed and on the work top (indirect increase of the operator containment curtain).

Electronic digital elapsed time meter for general functioning.

Electronic digital elapsed time meter for UV-C lamp (if provided).

Countdown time meter for UV-C lamp (if provided) programmable by the customer with automatic switch off.

Security key electro valve for gas connection (optional).

ACOUSTIC AND VISUAL ALARMS

Laminar flow and front air containment curtain speed.

Filters obstruction (acoustic and visual).

Electric motor fan proper functioning.

Elapsed absolute filter working time.

BIO ACTIVA

**Vertical laminar flow Biohazard cabinet
Class II – A / B3 Type
(A1 / A2 norm NSF049:2002)**

TÜV Certification according UNI EN 12469

The cabinet has been designed for the **global protection of the operator, product and environment.**

The **biohazard** cabinets in **class II, A** and **B3** type are featured by the front opening window, entrance of the air from outside, vertical laminar flow air stream inside the chamber and an exhaust absolute HEPA filter is also present.

Perforated stainless-steel inox worktop, made by easily removable panels.



APPLICATIONS

- Human, animal and plant cell cultures
- Microbiology, virology and haematology laboratories
- Q.C. in the pharmaceutical, cosmetic and food industries
- Recombinant DNA handling

TECHNICAL FEATURES

Working class:	ISO 5 (ex class 100 - according to Fed Std 209D)
HEPA filter efficiency:	99,995% MPPS (ex 99,999 on particles with diameter 0,3 mm)
Light intensity on the working area:	> 800 lux
Noise level:	< 60 dBA
Exhaust air flow:	400 mc/hr
Front opening window height:	200 mm
Tray capacity for liquid recovery:	> 20 litres
Power supply:	230 V / 50 Hz

COMPLIANCE

STANDARD model:

Safety cabinet against biological risks (BIOHAZARD), with working area protected by sterile vertical laminar flow in class ISO 5 (ex class 100 - Fed. Std. 209D), bench type model, classified **class II, type A** and so **suitable to handle low/medium biological risk pathogens.**

The cabinet is manufactured in compliance with:

- European Norm UNI-EN 12469
- Italian Electric Committee (CEI 66.5)
- European Norm EN 1822 (for absolute HEPA filters)
- UNI-CIG Norm

PLUS model:

Safety cabinet against biological risks (BIOHAZARD), with working area protected by sterile vertical laminar flow in class ISO 5 (ex class 100 - Fed. Std. 209D), bench type model, classified **type A/B3** and so **suitable to handle low/medium biological risk pathogens.**

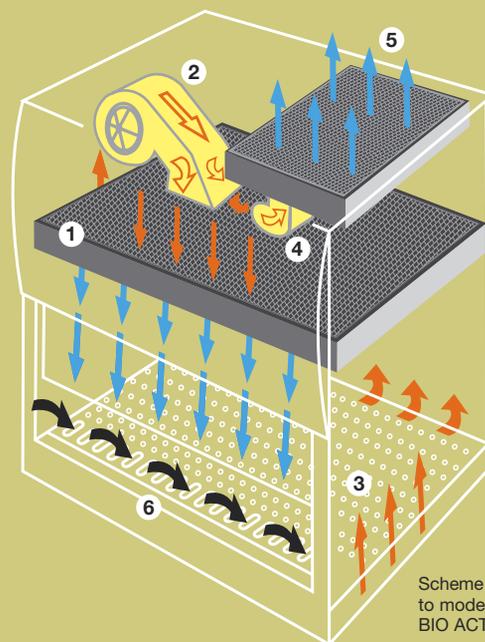
The cabinet is manufactured in compliance with:

- European Norm UNI-EN 12469
- Italian Electric Committee (CEI 66.5)
- European Norm EN 1822 (for absolute HEPA filters)
- UNI-CIG Norm
- British Standard Institution (BSI 5726)
- Deutsches Institute fuer Normueng (DIN 12950)

Both models are in compliance with recommendations by WHO and AIDS Italian Committee of the Health Ministry on safety of hospital operators.

WORKING PRINCIPLE:

the air is forced through the absolute HEPA filter (1) and enters the working area under class 100 laminar flow conditions and then the air passes through the perforated working surface (3). The contaminated air is drawn up by the electric motor fan (2) to the return plenum at the back which is, therefore, held under negative pressure: here ca. 70% of the air, after absolute filtration, is conveyed into the working surface, while the remaining 30% is exhausted via the second electric motor fan (4), after absolute filtration. The exhausted air (5) is replenished by the same quantity of ambient air entering through the front open window (6), thus creating the necessary containment curtain given the required protection to the operator and isolating the working area.



Scheme refers to model BIO ACTIVA PLUS

- External air
- Recycled air (contaminated air)
- Sterile air

MAIN FEATURES

Outer construction is cold rolled steel, epoxy painting.

Internal construction is stainless-steel inox AISI 304 with a 2B finish applied.

Worktop is perforated stainless-steel inox AISI 304 with a 2B finish applied and made by removable panels.

Tray for liquid recovery is stainless-steel inox and located under the worktop.

Front window temperate unbreakable glass hinged to allow easy access to the working area when lifted (up to 90°), and equipped with stop-gas springs as anti-fall system for the open window.

Plenum with dynamic seal.

Air scoops for DOP test both on inlet and exhaust airflow.

Electric motor fan(s) with electronic control.

Down flow and exhaust air stream with automatically adjusted speed (air front containment curtain).

Electronic board controlled by microprocessor.

Soft-touch key board with antistatic protection.

Predisposition by Ø 250 mm adaptor for the possible outside canalization of the exhaust air (optional) to transform the cabinet from class II, type A to type B3.

COMPARATIVE TABLE BIO ACTIVA MODELS

	<i>Standard</i>	<i>Plus</i>
Exhaust outlet adaptor (ø 250 mm)	NO	YES (optional)
CLASS II type	A	A/B3
HEPA filter	2	2
Electric motor fan	1	2
Gas service connection	//	2
Internal electric socket	1	1

	<i>Standard</i>	<i>Plus</i>
Average speed LAF	> 0,40 m/sec.	> 0,40 m/sec.
Average speed curtain	> 0,40 m/sec.	> 0,40 m/sec.*
Power requirement	0,54 Kw	0,66 Kw
Perforated worktop	YES	YES
Night closing panel	YES	YES
Fluorescent lamp	1	2

* 0,52 m/sec. if with exhaust outlet adaptor (B3)

CONTROL BOARD

- ON/OFF general switch with key.
- Real time digital display reading (m/sec) of vertical laminar flow and air front containment curtain speed.
- Key to control the security electro-valve for gas connection (if provided).
- Emergency key to increase the exhaust air flow speed.
- Electronic digital timer of general functioning.
- Electronic digital timer of UV-C lamp (if provided).
- Countdown time meter for UV-C lamp (if provided) programmable by the customer with automatic switch off.

ACOUSTIC AND VISUAL ALARM

- Front temperate glass window closing.
- Clogging of the filters
- Improper working conditions of the electric motor fan.
- Improper working conditions for down-flow and exhaust air stream.
- Elapsed filter working time limit.
- Elapsed UV-C working time limit.
- Elapsed absolute HEPA filter working time limit.

CERTIFICATION

- The cabinets are:
- TÜV certified (according to UNI-EN 12469).

BIO ACTIVA - VE



Vertical laminar flow Biohazard cabinet
Class II – A / B3 Type
With electric window

The cabinet has been designed for the **global protection of the operator, product and environment.**

The biohazard cabinets in **class II, A** and **B3** type are featured by the front opening window, entrance of the air from outside, vertical laminar flow air stream inside the chamber and an exhaust absolute HEPA filter is also present.



Electric window.



APPLICATIONS

- Human, animal and plant cell cultures
- Microbiology, virology and haematology laboratories
- Q.C. in the pharmaceutical, cosmetic and food industries
- Recombinant DNA handling

TECHNICAL FEATURES

Working class:	ISO 5 (ex class 100 - according to Fed Std 209D)
HEPA filter efficiency:	99,995% MPPS (ex 99,999 on particles with diameter 0,3 mm)
Light intensity on the working area:	> 800 lux
Noise level:	< 60 dBA
Exhaust air flow:	400 mc/hr
Front opening window height:	200 mm
Tray capacity for liquid recovery:	> 20 litres
Power supply:	230 V / 50 Hz

COMPLIANCE

STANDARD model:

Safety cabinet against biological risks (BIOHAZARD), with working area protected by sterile vertical laminar flow in class ISO 5 (ex class 100 - Fed. Std. 209D), bench type model, classified **class II, type A** and so **suitable to handle low/medium biological risk pathogens.**

The cabinet is manufactured in compliance with:

- European Norm UNI-EN 12469
- Italian Electric Committee (CEI 66.5)
- European Norm EN 1822 (for absolute HEPA filters)
- UNI-CIG Norm

PLUS model:

Safety cabinet against biological risks (BIOHAZARD), with working area protected by sterile vertical laminar flow in class ISO 5 (ex class 100 - Fed. Std. 209D), bench type model, classified **type A/B3** and so **suitable to handle low/medium biological risk pathogens.**

The cabinet is manufactured in compliance with:

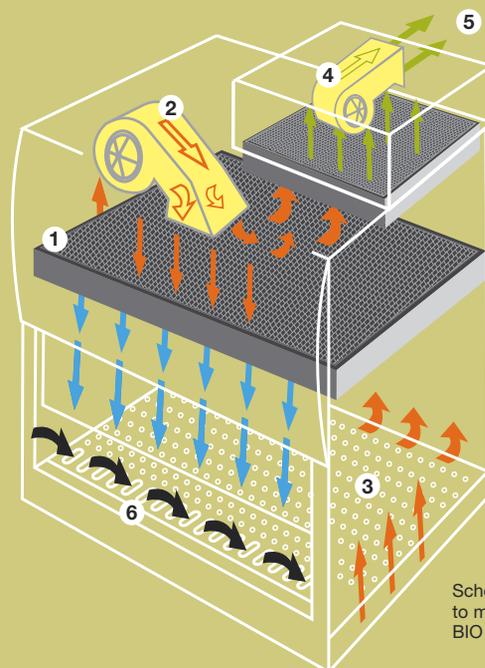
- European Norm UNI-EN 12469
- Italian Electric Committee (CEI 66.5)
- European Norm EN 1822 (for absolute HEPA filters)
- UNI-CIG Norm
- British Standard Institution (BSI 5726)
- Deutsches Institute fuer Normueng (DIN 12950)

Both models are in compliance with recommendations by WHO and AIDS Italian Committee of the Health Ministry on safety of hospital operators.

WORKING PRINCIPLE:

the air is forced through the absolute HEPA filter (1) and enters the working area under class 100 laminar flow conditions and then the air passes through the perforated working surface (3). The contaminated air is drawn up by the electric motor fan (2) to the return plenum at the back which is, therefore, held under negative pressure: here ca. 70% of the air, after absolute filtration, is conveyed into the working surface, while the remaining 30% is exhausted via the second electric motor fan (4), after absolute filtration. The exhausted air (5) is replenished by the same quantity of ambient air entering through the front open window (6), thus creating the necessary containment curtain given the required protection to the operator and isolating the working area.

-  External air
-  Recycled air (contaminated air)
-  Sterile air
-  Decontaminated air



MAIN FEATURES

- Outer construction is cold rolled steel, epoxy painting.
- Internal construction is stainless-steel inox AISI 304 with a 2B finish applied.
- Worktop is perforated stainless-steel inox AISI 304 with a 2B finish applied and made by removable panels.
- Tray for liquid recovery is stainless-steel inox and located under the working surface.
- Front window temperate unbreakable glass with motorized mechanism.
- Plenum with dynamic seal.

- Air scoops for DOP test both on inlet and exhaust airflow.
- Electric motor fan(s) with electronic control.
- Down flow and exhaust air stream with automatically adjusted speed (air front containment curtain).
- Electronic board controlled by microprocessor.
- Soft-touch key board with antistatic protection.
- Predisposition by Ø 250 mm adaptor for the possible outside canalization of the exhaust air (optional) to transform the cabinet from class II, type A to type B3.

COMPARATIVE TABLE BIO ACTIVA MODELS

	<i>Standard</i>	<i>Plus</i>
Exhaust outlet adaptor (ø 250 mm)	NO	YES (optional)
CLASS II type	A	A/B3
HEPA filter	2	2
Electric motor fan	1	2
Gas service connection	//	2
Internal electric socket	1	1

	<i>Standard</i>	<i>Plus</i>
Average speed LAF	> 0,40 m/sec.	> 0,40 m/sec.
Average speed curtain	> 0,40 m/sec.	> 0,40 m/sec.*
Max power requirement	0,64 Kw	0,81 Kw
Perforated worktop	YES	YES
Night closing panel	Not necessary	Not necessary
Fluorescent lamp	2	2

* 0,52 m/sec. if with exhaust outlet adaptor (B3)

CONTROL BOARD

- ON/OFF general switch with key.
- Real time digital display reading (m/sec) of vertical laminar flow and air front containment curtain speed.
- Key to control the security electro-valve for gas connection (if provided).
- Emergency key to increase the exhaust air flow speed.
- Electronic digital timer of general functioning.
- Electronic digital timer of UV-C lamp (if provided).
- Countdown time meter for UV-C lamp (if provided) programmable by the customer with automatic switch off.

ACOUSTIC AND VISUAL ALARM

- Front temperate glass window closing.
- Clogging of the filters
- Improper working conditions of the electric motor fan.
- Improper working conditions for down-flow and exhaust air stream.
- Elapsed filter working time limit.
- Elapsed UV-C working time limit.
- Elapsed absolute HEPA filter working time limit.

CYTO ACTIVA



Vertical laminar flow Biohazard cabinet Class II – Type A and B3

The cabinet has been designed for the **global protection of the operator, product and environment**. The biohazard cabinets in **class II, type A and B3** are featured by the front opening window, entrance of the air from outside, vertical laminar flow sterile air stream in class 100 (Federal Standard norms) inside the chamber through main absolute HEPA filter, primary filtration via absolute HEPA filter under the worktop and absolute HEPA filter to exhaust in the environment or in the outside of the 30% circulating area in the equipment.

Worktop is perforated stainless steel inox made by removal panels.



APPLICATIONS

Human, plant and animal cell cultures

Preparation of antitubercular drugs in pharmacy or oncology

Specific for cytostatics, optimal for microbiology and virology laboratories

Suitable to handle low risk pathogens, (cat. 2)

COMPLIANCES

Safety cabinet against biological risks (BIOHAZARD), with working area protected by vertical laminar flow class ISO 5 (ex class 100 - Fed. Std. 209D), bench model, classified **class II, type A/B3** and so **suitable to handle low-medium biological risk pathogens**.

The cabinets are manufactured in compliance with:

- European Norm UNI-EN 12469 and UNI 1822
- British Standard Institution (BSI 5726)
- Deutsches Institute fuer Normueng (DIN 12950)
- Italian Electric Committee (CEI 66.5)
- Norm UNI-CIG

The model is, in addition, in compliance with the recommendations by the WHO and by the AIDS National Committee of the Health Ministry on safety for hospital operators.

TECHNICAL FEATURES

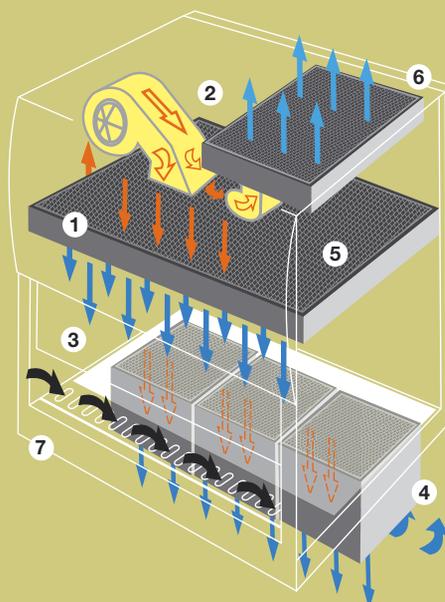
Working class:	ISO 5 (ex class 100 - according to Fed Std 209D)
HEPA filter efficiency:	99,995% MPPS (ex 99,999% with Ø particles sized ≥ 0,3 µm)
Light intensity on working surface:	> 800 lux
Noise level:	< 60 dBA
Exhaust flow air:	400 mc/h
Front opening height:	200 mm
Capacity of tray for liquid recovery:	> 20 litri

Power supply:	230 V / 50 Hz
Exhaust outlet adaptor:	250 vert (Ø ext mm) (optional to transform from class II, type A to type B3)
Thermal increase:	< 4° C
LAF average speed:	> 0,40 m/sec.
Curtain containment average speed:	> 0,45 m/sec.
Power requirement:	0,84 Kw

WORKING PRINCIPLE:

the air is decontaminated by the absolute filter (1) and enters vertically the working area under class 100 laminar flow conditions and then the air passes through the perforated working surface (3). The contaminated air crosses the first step of filtration located under the working surface (4) and then is drawn up by the electric motor fan (2), positioned in the upper part of the cabinet, to the return plenum at the back which is, therefore, held under negative pressure: here ca. 70% of the air, after absolute filtration, is conveyed into the working surface, while the remaining 30% is exhausted via the second electric motor fan (5), after absolute filtration. The exhausted air (6) is replenished by the same quantity of ambient air entering through the front open window (7), thus creating the necessary containment curtain given the required protection to the area accessing the working surface.

-  External air
-  Recycled air (contaminated air)
-  Sterile air

**MAIN FEATURES**

Outer construction is cold rolled steel, epoxy painting.

Internal walls in stainless steel inox AISI 304 with a 2B finish applied.

Worktop is perforated stainless steel inox AISI 304, made by removal panels.

Tray for liquid recovery is stainless steel inox, located under the worktop.

Front window temperate unbreakable glass hinged to allow easy access to the working area when lifted (up to 90°), and equipped with stop-gas springs as anti-fall system for the window opening and with acoustic alarm for wrong operating position.

Two absolute (HEPA) filters, which are extractable from the front and upper side, with efficiency superior to 99,995 MPPS (ex 99,999% with Ø particles sized $\geq 0,3 \mu\text{m}$) and in compliance with all the regulations.

First absolute filtration step with absolute HEPA filter located under the worktop, with efficiency superior to 99,995 MPPS (ex 99,999% with Ø particles sized $\geq 0,3 \mu\text{m}$) and in compliance with all the regulations.

Filters change-over system by transparent PVC bag (bag in – bag out).

Plenum with dynamic seal.

2 electronically controlled electric motor fans to compensate the progressive filters clogging.

Predisposition by Ø 250 mm adaptor for the possible outside canalization of the exhaust air (optional) to transform the cabinet from class II, type A to type B3.

Automatic flow rate adjustment for the down-flow and exhaust (containment curtain) air stream.

Main control board controlled by microprocessor.

Soft touch key board with antistatic protection.

CABINETS EQUIPMENT

- 1 special floor support.
- 1 perforated, decomposable, removable worktop.
- 1 closing “night” front panel, (with keys).
- 1 principal centrifugal electric motor fan by 550 W.
- 1 exhaust centrifugal electric motor fan by 190 W.
- 2 fluorescent lamps.

- 3 filtration steps by HEPA filter.
- 2 gas connections (burning gas & other gases).
- 1 electric socket by 4 A – 230 V – 50 Hz for small equipments.
- 1 cable for power supply 230 V – 50 hz with “shuko” plug.

MAIN CONTROL BOARD

ON/OFF general switch with key.

Push-button system to control the gas electro-valve, power supply of the internal socket, lighting of the fluorescent and UV-C lamps (with inter-block), the electric motor fans and power supply led.

Digital display with real time reading of the vertical laminar flow and containment curtain flow rate speed, in m/sec.

Emergency push-bottom to increase the exhaust flow rate speed, (curtain containment to protect the operator).

Electronic digital time meter display of general functioning.

Electronic digital time meter display of UV-C lamp functioning (if provided).

Countdown time meter for UV-C lamp programmable by the customer with automatic switch off.

ACUSTIC AND VISUAL ALARM

Front window opening.

Defective functioning of the electric motor fan.

Anomalies on the down-flow and exhaust streams (containment curtain).

UV-C lamp end life.

Digital display filters working time limit.

THREE ACTIVA

Safety biohazard cabinet class III

The cabinet has been designed with a working area which is hermetically sealed to guarantee the highest level of personal protection by biological risk. The incoming air is crossing an HEPA filter and then is exhausted totally through a double layer of serial ULPA filters. The product, although handled in a sterile environment, is indeed subject to risk of contamination due to the turbulence of the air flow inside the working area. The presence of air turbulences does not suggest to use this cabinet in case it is necessary to preserve and guarantee the sterility of the product.

The access to the working area is guaranteed by latex sleeve gloves, which are installed and fixed, via a coupling flange, on the front window of the cabinet.



APPLICATIONS

Research centres specialized isolation and concentration of high active and viable viruses

Microbiology, virology and haematology laboratories

Preparation of antitubercular drugs in pharmacy and oncology

Handling of mutagen, cancer, radioactive, pathogenous genotoxic micro-organisms with high biological risk

COMPLIANCE

Safety cabinet against biological risk (BIOHAZARD), bench type model, classified **class III type B2 (100% exhausted air)** and so **suitable to handle high risk pathogens**, (group IV).

The cabinets are in compliance with:

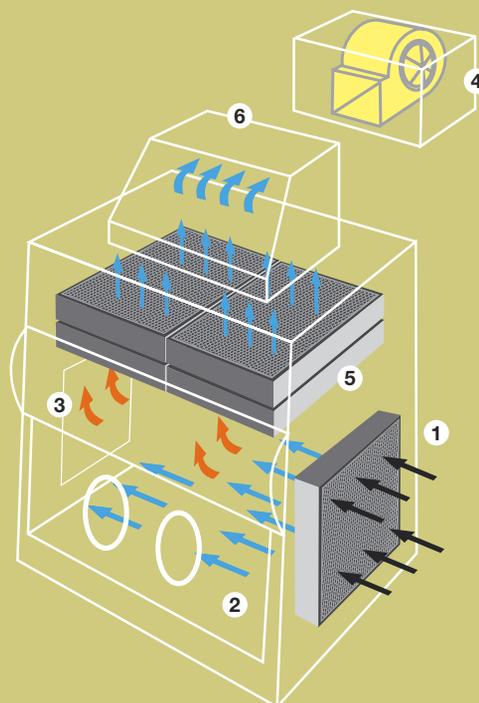
- European Norm EN 1822 and EN 12469:2000
- British Standard Institution (BSI 5726 – Part 1)
- Deutsches Institut fuer Normung (DIN 12950 Teil 10)

TECHNICAL FEATURES

Filtration efficiency:	filter HEPA: 99,995% MPPS filter ULPA: 99,9995% MPPS
White lamp:	fluorescent neon (18 W) with diffuser, IP 65 protection
UV-C lamp:	20 W power and activation inter-blocked compared with fluorescent lighting
Incoming air speed:	min. 0,70 m/sec. - max. 1,10 m/sec. (measured on vertical surface of the lateral incoming air flow opening)
Exhaust outlet adapter:	250 vert (Ø ext mm)
Power supply:	monophase 230 V ; 50 Hz ; 1200 Watt max.
Power requirements:	0,3 KW
Additional allowed powers:	Socket 2P+T max. 900 Watt

WORKING PRINCIPLE :

the ambient air enters from the lateral right side of the equipment after sterilization through absolute HEPA filter (1). Then the air flow crosses all the working chamber (2) over the stainless steel worktop. The contaminated air (3), pulled by an electric motor fan (4) which maintains negative pressure inside the cabinet, is then decontaminated passing through a double layer of ULPA filters (5). The clean air (6) is exhausted via sealed piping system.

**MAIN FEATURES**

Outer construction is cold rolled steel (thickness 15/10), epoxy painting, RAL 7035.

Working chamber is stainless-steel inox 304 with a 2B finish applied, with rounded edges and corners and totally enclosed with an air space at negative pressure.

Working area is totally closed and hermetically sealed, accessible only through the materials crossover box.

The materials crossover box is located on the lateral left side of the equipment, with double temperate glass door having hermetic seal and equipped with safety key lock.

Stainless-steel inox AISI 304 worktop.

Front safety transparent screen made by temperate glass, thickness 8 mm, equipped with 5 handle bars to fix hermetically the closing.

Front panel to access the working area equipped with n° 2 extensible latex gloves, which can be replaced from outside via the method Glove IN / Glove OUT.

The absolute filtration of the incoming air from the ambient is realized on the lateral right side through n° 1 HEPA absolute filter with efficiency of 99,995 MPPS (according to norm EN 1822) (ex 999,999% according to Fed. Std. 209 E and BS 3928).

Absolute filtration of the exhausted air through n° 2 layers of ULPA filter in class H15 with efficiency of 99,9995 MPPS according to norm EN 1822.

The air is totally exhausted outside the building (zero recycle) via sealed piping system (Ø 250 mm) made of PVC or zinc plated stainless steel or other suitable materials.

Air scoop for DOP test on exhaust air flow connection.

Remote radial electric motor fan made of polypropylene (technical features and sizes of the electric motor fan should be decided on the base of type and length of the necessary tubing canalization).

Automatic adjustment of the air flow speed, which is pre-set according to the progressive blocking of the incoming absolute filter and of the 2 absolute filters in exhaust.

Automatic adjustment of the circulating air flow speed to avoid tampering by non authorized personnel (however the parameter can be set up again to modify the standard setting).

Real time check of the incoming air flow (in m/sec) via digital display.

UV-C Lamp (20 W) with inter-blocked activation as regards the fluorescent lighting.

Electronic main board controlled by a microprocessor.

Soft touch keyboard with antistatic protection.

N.B.: Upon request the cabinet can be supplied with HEPA filter on the left side and the material cross over box on the right side.

CONTROL BOARD

ON/OFF lighted bipolar switch.

Digital display with indication of circulating air flow speed (in m/sec).

Electronic digital elapsed time meter of general instrument functioning.

Electronic digital elapsed time meter of UV-C lamp functioning.

Countdown time meter for UV-C lamp programmable by the customer with automatic switch off.

ACOUSTIC AND VISUAL ALARM

Air flow speed or insufficient internal working chamber depression.

Digital display filters working time limit.

Digital display UV-C lamp working time limit.

ACTIVA GP



Extractor bench model cabinet with absolute and molecular filtration

The cabinet has been designed for the protection against the risk to inhale toxic powders and fumes; the **Activa GP** cabinets allows to remove, yet in its reduced sizes, the polluting substances that are emitted during the different working processes.



APPLICATIONS

Microbiology, virology and haematology laboratories using low risk microorganism (cat. 1) with reduced protection of the product

Q.C. in pharmaceutical, cosmetic and food industries

TECHNICAL FEATURES

Noise level:	< 60 dBA
Air flow:	300 mc/h ca.
Air speed:	0,5 m/sec. at the front opening (manually adjustable)
Power supply:	230 V 50 Hz

COMPLIANCE

The cabinets are manufactured in compliance with:

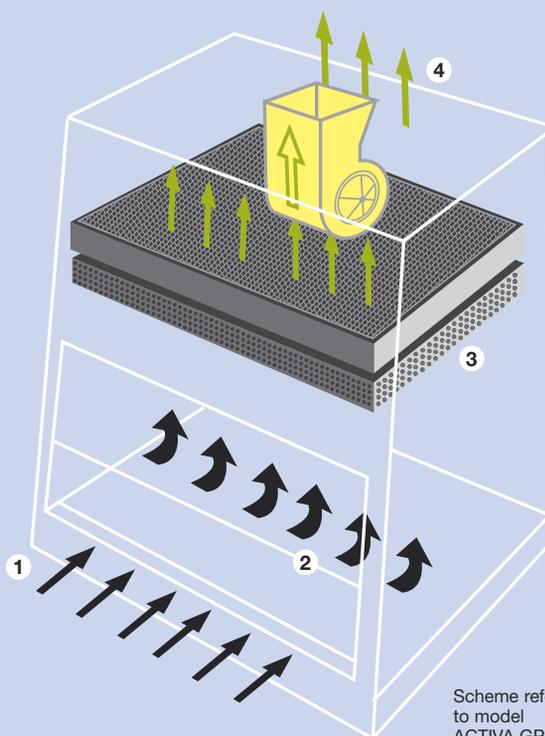
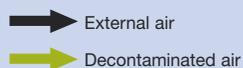
- Italian Electric Committee (CEI 66.5)
- DIN 12924 and DIN 12927 norms

CERTIFICATIONS

Italian National Research Council certification for ammonia fumes.

WORKING PRINCIPLES:

The cabinet generates an air flow which pulls in air from the outside **(1)** towards the working area **(2)**. The fumes, which are eventually dispersed in the working area **(2)**, are exhausted after molecular filtration by carbon filters **(mod. GP-CH and GP-C)** and/or absolute HEPA filters **(mod. GP-CH and GP-H)** **(3)**. The filtered air is ejected from the cabinet and recycled in the ambient or canalized outside the working room, **(4)**.

**MAIN FEATURES**

Outer construction in cold rolled stainless-steel, with epoxy painting.

Lateral walls in transparent polycarbonate.

Worktop in removable rolled steel inox AISI 304.

Front panel in transparent polycarbonate with manual vertical sliding.

Electric motor fan with manual adjustable speed.

AVAILABLE MODELS

Depending upon the type of filtration, we can have available the following models:

ACTIVA GP - CH: with overlapped
1 HEPA filter with filtration efficiency equals to 99,995% MPPS in class H14 (Norm EN 1822)
1 carbon filter (thickness 40 mm).

ACTIVA GP - H: 1 HEPA filter with filtration efficiency equals to 99,995% MPPS in class H14 (Norm EN 1822).

ACTIVA GP - C: 1 carbon filter (thickness 40 mm).

N.B: to consult the list of available filters, see page 33

MINI BLACK



Extractor bench model cabinet with absolute and molecular filtration

The cabinet has been designed for the **protection of the operator and environment** by potential contaminations due to the handling of toxic or harmful chemical substances in the working area.

Removable worktop tray-type, stainless steel inox AISI 304.



APPLICATIONS

Research food, biology, chemistry, cosmetic, pharmaceutical and electronic laboratories

Anatomy, pathologic histology, endoscopy and veterinary surgery hospital departments

Q.C. laboratories of food, chemical and pharmaceutical industries

Clinical-chemistry analysis, agriculture, food and hydro-biologic laboratories

Teaching schools, universities and museum laboratories

COMPLIANCES

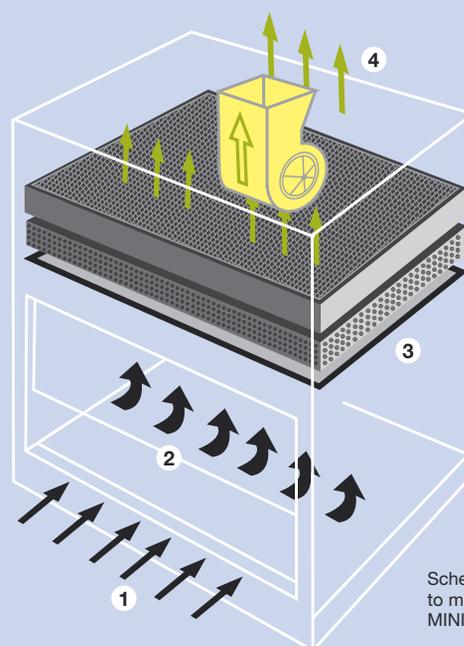
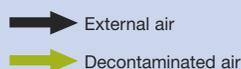
The cabinets are manufactured in compliance with the norms DIN 12924 and DIN 12927.

TECHNICAL FEATURES

White lamp:	fluorescent (13 W power)
Working area lighting:	> 700 lux
Noise level:	< 58 dBA
Power requirement:	250 W
Front window flap height:	min. 200 mm - max. 350 mm
Power supply:	230 V 50 Hz

WORKING PRINCIPLE:

the cabinet generates an air flow which pulls in air from the outside **(1)** towards the working area **(2)**. The fumes, which are eventually present in the working area **(2)**, are exhausted after molecular filtration by carbon filters **(mod. Mini Black –CH and -C)** and/or absolute HEPA filters **(mod. Mini Black – CH and - H) (3)**. The filtered air is ejected from the cabinet and recycled in the ambient or canalized outside the working room **(4)**.



Scheme refers to model MINI BLACK - CH

MAIN FEATURES

Outer construction in cold rolled stainless-steel, with epoxy painting.

Double back extraction bottom panel to make uniform horizontal air flow.

Worktop removable tray-type for liquid containment in rolled steel inox AISI 304.

Temperate front glass, with manual tip-up flap, (and option “full-open” stop position).

Electric motor fan, thermally protected.

Exhaust outlet adaptor (Ø 150 mm) for external convey with PVC pipes.

Main electronic board controlled by microprocessor.

Soft-touch membrane control board.

CONTROL BOARD

General lighted ON/OFF switch.

Push-buttons to switch on UV-C and fluorescent lights with interblock (optional).

Push-button to adjust manually the air flow (by the operator).

Electronic digital time meter of general functioning.

Electronic digital UV-C lamp time meter (if provided).

Countdown time meter for UV-C lamp programmable by the customer with automatic switch off.

ACOUSTIC AND VISUAL ALARMS

Digital visual pre-alarm elapsed filter working time to replace filter (reset to zero)

AVAILABLE MODELS

Depending upon the type of required filtration, we have available the following models:

MINI BLACK - CH: with overlapping
1 HEPA filter with filtration efficiency equals to 99,995% MPPS in class H14 (Norm EN 1822)
1 carbon filter (thickness 40 mm) for generic solvent.

MINI BLACK - H: 1 HEPA filter with filtration efficiency equals to 99,995% MPPS in class H14 (Norm EN 1822).

MINI BLACK - C: 1 carbon filter (thickness 100 mm) for generic solvents.

N.B: to consult the list of available filters, see page 33

BLACK ACTIVA

Cabinet with molecular filtration by adsorbance on active carbons

Certified EN 14175

The cabinet has been designed for the protection **of the operator and the surrounding/external environment** by possible contaminations while handling harmful chemical substances coming from the working area. The cabinet **BLACK ACTIVA** offers the opportunity to install, in addition to the principal active carbon filter, a second “safety carbon filter” aiming to cut off potential escapes of fumes through the main used out filter.

Soft touch membrane keyboard, with antistatic protection.



APPLICATIONS

Food, biology, chemistry, cosmetic, pharmaceutical and electronic research laboratories

Anatomy, pathologic histology, endoscopy and veterinary surgery hospital departments

Q.C. laboratories of food, chemical and pharmaceutical industries

Clinical-chemistry analysis, agriculture, food and hydro-biologic laboratories

Teaching schools, universities and museum laboratories

COMPLIANCES

The cabinets are manufactured in compliance with:

- Electric Italian Committee (CEI 66.5)
- European Norm EN 61010

CERTIFICATIONS

The cabinets are featured by:

- Certification according the European Norm EN 14175-3:2003

MAIN FEATURES

White lamp:	fluorescent (IP 65)
Noise level:	< 60 dBA
Air flow speed:	0,45 m/sec. (set by manufacturing) (protean parameter from 0,40 to 0,60 m/sec.)
Power supply:	230 V - 50 Hz (monophase)

CONTROL BOARD

General lighted ON/OFF switch.

Digital display with real time reading of the air at the entrance, (m/sec).

Push-button to set electric motor fan going.

Push-button to light the fluorescent lamp.

Push-button to set electric sliding sash window going, (only Plus model).

Elapsed time meter for electric motor fans functioning and filters working time limit.

ACOUSTIC AND VISUAL ALARM

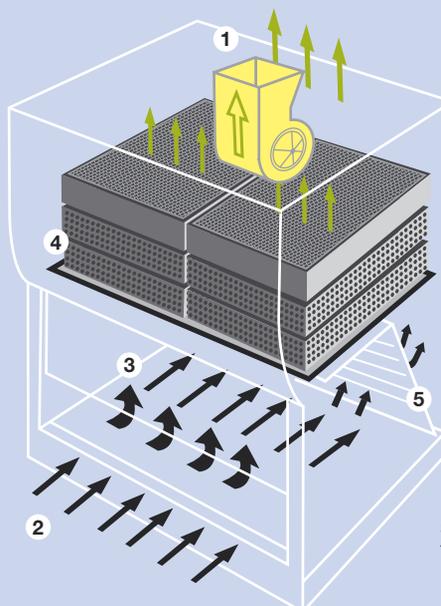
Pre-filters clogging.

Elapsed filter working time (to replace filter- resettable).

Insufficient air flow speed alarm, (only Plus model).

WORKING PRINCIPLE:

the cabinet, through the electric motor fan (1), pulls in air from the outside (2) towards the working area (3) and conveys the air flow into the superior ejection. The possible fumes which are spread over during the working process are then conveyed to the outside after molecular filtration (4), and so the operator is protected by contingent toxic inhalations. In the **Plus** model the air, due to the presence of the slotted panels (5), is homogeneously distributed to make uniform horizontal and vertical air flow, before the filtration and the ejection to the outside. The filtered air, ejected from the cabinet, is recycled in the ambient or exhausted out of the working room. The process of carbon adsorption is closed linked to its microporous structure: to protect its integrity the cabinet is equipped with prefilters which retain the dust particles that could clog up the carbon filter pores and so reducing the exchange surface and the working time of the filter itself.



Scheme refers to model PLUS

- External air
- Decontaminated air

MAIN FEATURES

- Outer construction in cold rolled steel with epoxy painting.
- The internal walls could be coated with PVC in case of use of particularly aggressive substances.
- Worktop in steel inox AISI 316 or monolithic stoneware (optional depending upon the intended use), with or without sink.
- Unbreakable front glass.
- Possibility to exhaust the ejected air.
- Predisposition to accommodate up to 3 filter in a row (3 carbon filters or 2 carbon filter plus 1 HEPA filter) on each filtration group, of different thickness.

- Manual or automatic adjustment of the air flow speed in order to compensate:
 - change of position of the front glass window
 - progressive clogging of the pre-filter and filter
 - possible air turbulence in the working area caused by the presence of some operators.

Main electronic board controlled by microprocessor.
Soft touch membrane keyboard with antistatic protection.

Possibility to customize the cabinet given the wide list of available optional accessories.

N.B. upon request, the Plus model can be equipped with a suitable inox stainless steel perforated worktop under aspiration, getting in this way an additional aspiration phase towards the bottom under the worktop itself.

COMPARATIVE TABLE BLACK ACTIVA MODELS

	Mod. 90	Mod. 120	Mod. 150	Mod. 180	Mod. 210	Mod. 240
Power requirements	Standard: 270 W Plus: 445 W		Standard: 300 W Plus: 470 W		Standard: 560 W Plus: 800 W	
Radial electric fan	1	1	1	1	2	2
Fluorescent lamp	1 by 18 W	1 by 18 W	1 by 36 W	1 by 36 W	1 by 58 W	1 by 58 W
Worktop	This accessory depends upon the needs					
Prefilters	2	2	3	3	4	4
Nbr. of filters per each filtration step	2 type A selection by needs	2 type B selection by needs	3 type A selection by needs	3 type B selection by needs	4 type A selection by needs	4 type B selection by needs

COMPARATIVE TABLE BLACK ACTIVA STANDARD AND PLUS

	Standard	Plus		Standard	Plus
Temperate front glass window	Tip-up opening	Front sliding sash window	Air flow speed adjustment	Manual	Automatic
Push-button front sliding sash window electric motor	NO	YES	Push-button to adjust manually the incoming air speed, positioned on the key board	YES	NO
Double back slotted bottom to make uniform air flow into the working chamber	NO	YES (polycarbonate)	Insufficient speed alarm	NO	YES
Real time reading of the air flow speed (m/sec) on a digital display	NO	YES			

N.B: to consult the list of available filters, see page 33

BLACK ACTIVA - TP

**Cabinet with molecular filtration
by adsorbance on active carbons**

Certified EN 14175

The cabinet has been designed for the **protection of the operator and the surrounding and external environment**, by possible contaminations while handling harmful chemical substances coming from the working area. The cabinet has been proven to be very useful in departments where the operator is using substances like formaldehyde, glutaraldehyde, or other substances particularly harmless for the same operator, like those which are used in pathologic anatomy, histology, autopsy and forensic medicine laboratories. The cabinet **Black Activa** offers the possibility to install, in addition to the principal activated carbon filter also another second "safety" carbon filter (Safety Carbon Filter) aiming to cut off potential escapes of fumes through the main used out filter.



*Worktop is stainless-steel
inox AISI 316
or monolithic stoneware.*



APPLICATIONS

Departments of pathologic anatomy and pathologic histology, endoscope and veterinary surgery.

CONTROL BOARD

- General lighted ON/OFF switch.
- Digital display with real time reading of the air at the entrance, (m/sec).
- Push-button to set electric motor fan going.
- Push-button to light the fluorescent lamp.
- Push-button to set electric sliding sash window going, (only Plus model).
- Elapsed time meter for electric motor fans functioning and filters working time limit.

COMPLIANCES

The cabinets are manufactured in compliance with:

- Electric Italian Committee (CEI 66.5)
- European Norm EN 61010

MAIN FEATURES

White lamp:	fluorescent (IP 65)
Noise level:	< 60 dBA
Air flow speed:	0,45 m/sec. (set by manufacturing) (protean parameter from 0,40 to 0,60 m/sec.)
Power supply:	230 V - 50 Hz (monophase)

ACOUSTIC AND VISUAL ALARM

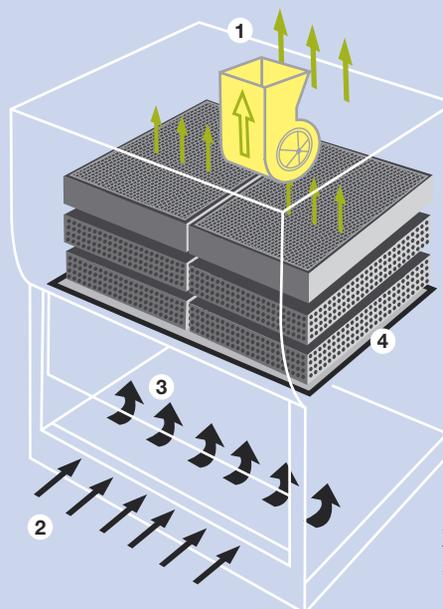
- Pre-filters clogging.
- Elapsed filter working time (to replace filter- resettable).
- Insufficient air flow speed alarm, (only Plus model).

CERTIFICATIONS

- The cabinets are featured by:
- Certification according the European Norm EN 14175-3:2003

WORKING PRINCIPLE:

the cabinet, through the electric motor fan (1), pulls in air from the outside (2) towards the working area (3) and conveys the air flow into the superior ejection. The possible fumes which are spread over during the working process are then conveyed to the outside after molecular filtration (4), and so the operator is protected by contingent toxic inhalations. In the **Plus** model the air, due to the presence of the slotted panels (5), is homogeneously distributed to make uniform horizontal and vertical air flow, before the filtration and the ejection to the outside. The filtered air, ejected from the cabinet, is recycled in the ambient or exhausted out of the working room. The process of carbon adsorption is closed linked to its microporous structure: to protect its integrity the cabinet is equipped with prefilters which retain the dust particles that could clog up the carbon filter pores and so reducing the exchange surface and the working time of the filter itself.



MAIN FEATURES

- Outer construction in cold rolled steel with epoxy painting.
- The internal walls could be coated with polycarbonate in case of use of particularly aggressive substances.
- Worktop in steel inox AISI 316 or monolithic stoneware (optional depending upon the intended use), with or without sink.
- Unbreakable front glass.
- Possibility to exhaust the ejected air.
- Predisposition to accommodate up to 3 filter in a row (3 carbon filters or 2 carbon filter plus 1 HEPA filter) on each filtration group, of different thickness

- Manual or automatic adjustment of the air flow speed in order to compensate:
 - change of position of the front glass window
 - progressive clogging of the pre-filter and filter
 - possible air turbulence in the working area caused by the presence of some operators.
- Main electronic board controlled by microprocessor.
- Soft touch membrane keyboard with antistatic protection.

COMPARATIVE TABLE BLACK ACTIVA TP MODELS

	120	180
Power requirements	Standard: 270 W Plus: 445 W	Standard: 300 W Plus: 470 W
Ejected air flow	min: 200m ³ /h; max: 800m ³ /h	min: 200m ³ /h; max: 800m ³ /h
Radial electric motor fan	1	1
Fluorescent lamp	1 by 18 Watt IP 65	1 by 36 Watt IP 65
Worktop	This accessory depends upon the needs, however always equipped with at least one sink	
Prefilters	2	2
Nbr. of filters for each filtration step	2 C200/Tipo B specific for formaldehyde/glutaraldehyde	3 C200/Tipo B specific for formaldehyde/glutaraldehyde

COMPARATIVE TABLE STANDARD AND PLUS BLACK ACTIVA TP

	Standard	Plus
Temperate front glass window	Tip up opening	Motorized sash glass window
Push-buttons sliding motorized sash opening	NO	YES
Double back slotted bottom to make uniform air flow into the working chamber	NO	YES (polycarbonate)
Real time reading of the air flow speed (m/sec) on a digital display	NO	YES

	Standard	Plus
Air flow speed adjustment	Manual	Automatic
Push-button to adjust manually the incoming air speed, positioned on the key board	YES	NO
Insufficient speed alarm	NO	YES

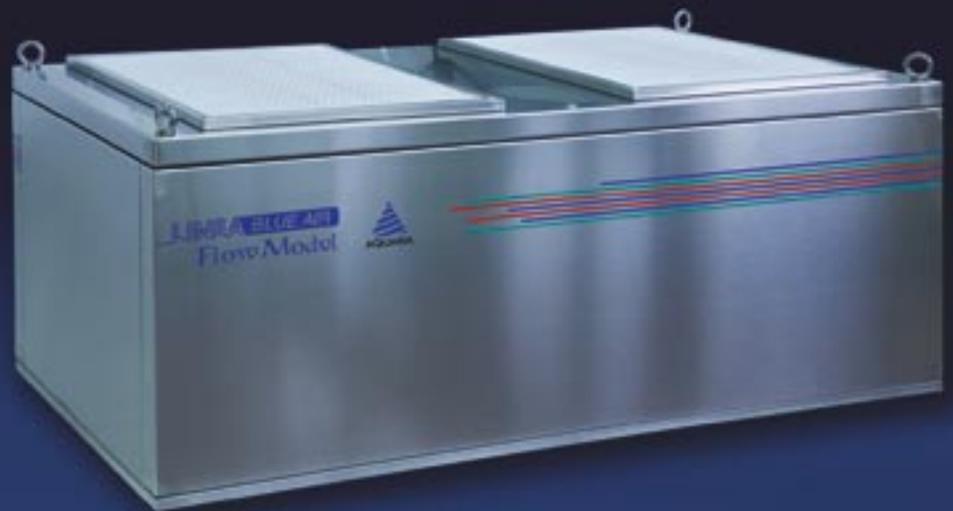
N.B: to consult the list of available filters, see page 33

Modular appliance **FLOW MODUL**



Blowing sterile air

Laminar flow hanging modular module equipped with absolute HEPA filter in class H14. The **Flow Modul** can be hanged on the ceiling or installed on lines/legs to be positioned on the production lines or in area where it is necessary to clean the lower area. Due to the modularity of its basic component, this unit is very flexible, so allowing to realize configurations which are suitable to any possible requirements.



APPLICATIONS

Food industry
 Chemical industry
 Electronic industry
 Pharmaceutical industry
 Fine mechanical industry
 Optical industry

TECHNICAL FEATURES

HEPA filter class:	H14
HEPA filter efficiency:	99,995% MPPS
Noise level:	< 60 dBA
Vertical flow speed:	0,40 m/sec.
Air flow at 0,40 m/sec:	1.100 m ³ /h ca.
Power supply:	203 V 50 Hz
Required power:	270 Watt

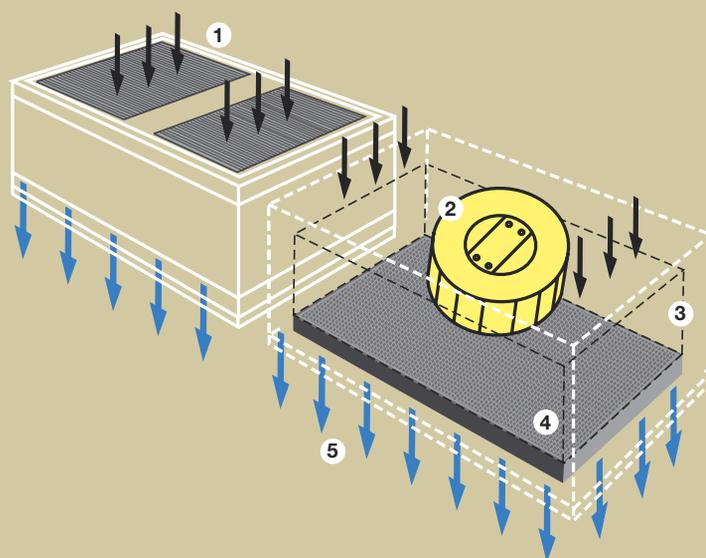
COMPLIANCES

The modules are in compliance with:

- European Norms EN 1822
- Italian Electric Committee CEI 66.5

WORKING PRINCIPLE:

the ambient air, which comes from outside through the two prefilters (1) located on the upper panel, is conveyed by the radial internal electric motor fan (2) on the plenum (3), which allows an uniform distribution of the air, so keeping a balanced pressure on the HEPA filter (4). The outgoing air flow (5) will have a constant speed and will be uniformly distributed. The outgoing sterile laminar flow, according to the way how the modulus is installed, can be either horizontal or vertical.

**MAIN FEATURES**

Functioning with total recycle in surrounding environment.

Rectangular structure made of stainless steel inox AISI 304 (or anodized aluminium) equipped with net to protect the installed filter.

Horizontal or vertical installation, with respect to the product to be protected by laminar air flow.

Blowing radial electric motor fan.

Control board made of plastic material, positioned on the wall.

MODELS AND SIZES

	<i>Overall dimension</i>	<i>Usefull dimension blowing surface</i>	<i>Mod. weight inox</i>	<i>Mod. weight aluminium</i>
mod. 120	1.280 x 680 x 450 mm	1.190 x 580 mm	100 Kg.	85 Kg.
mod. 180	1.890 x 680 x 450 mm	1.800 x 580 mm	150 Kg.	130 Kg.

CONTROLL BOARD

Electric system filter 10 A.

Modular magnetothermic automatic differential calibration switch appropriated to the number of protected moduli (max. n° 4 appliances protected by the same switch).

Manual variator made by electronic board with manual rheostat positioned on the board, to adjust faster the air flow at the entrance.

Elapsed time meter for the electric motor fan functioning: installation made by the manufacturer on the frontal panel of the electric board with protection door.

ACCESSORIES

M12 eyebolt to hung the modulus on the ceiling.

Lateral stirrups to fix on the wall.

Floor support legs in stainless steel inox. Useful height = 2 m.

Curtain made of transparent, soft, thickness 2 mm. PVC. Std. height 2 m.

Automatic variator to command the voltage (and so the air flow) of the electric motor fan (max n° 2 electric motor fans controlled by the same variator).

Fluorescent lamps to light the under part area of the modulus with 36 W ceiling light.

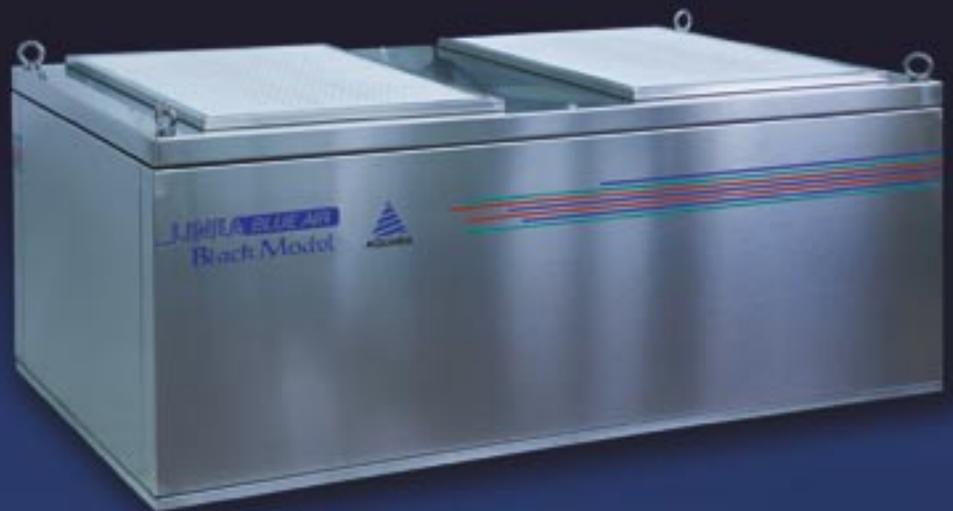
Differential analogical type gauge with scale 0-50 mmH2O to detect continuously and in real time the value of the air overpressure inside the plenum head in respect to the value of the environmental pressure.

Modular appliance

BLACK MODUL

Extracting air

Modular hanging modulus with molecular filtration by adsorption on active carbon. The **Black Modul** can be hanged on the ceiling or installed on lines/legs to be positioned on the production lines or in area where it is necessary to clean the lower area. Due to the modularity of its basic component, this unit is very flexible, so allowing to realize configurations which are suitable to any possible requirements.



APPLICATIONS

- Food industry
- Chemical industry
- Electronic industry
- Pharmaceutical industry
- Fine mechanical industry
- Optical industry

TECHNICAL FEATURES

Noise level:	< 60 dBA
Vertical air flow speed:	0,40 m/sec.
Air flow at 0,40 m/s:	1.050 m ³ /h ca.
Power supply:	230 V 50 Hz
Required power:	270 Watt

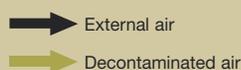
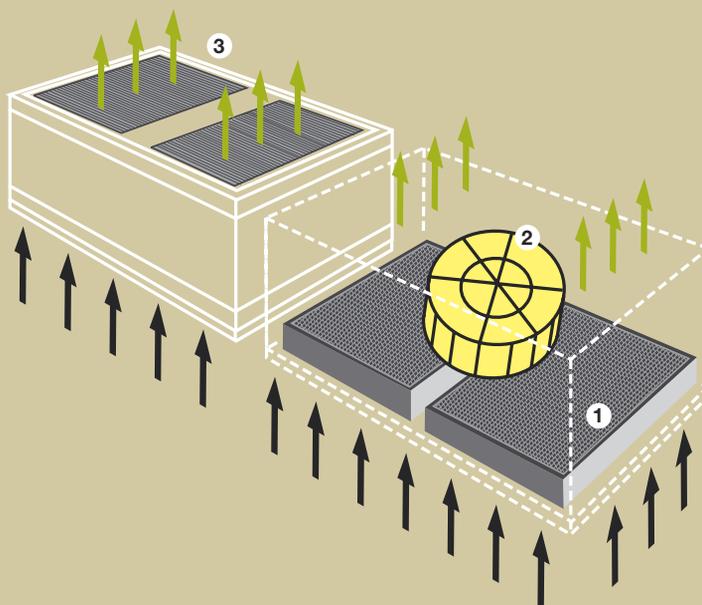
COMPLIANCES

The modules are in compliance with:

- European Norms EN 1822
- Italian Electric Committee CEI 66.5

WORKING PRINCIPLE:

The ambient air, which comes from outside through the radial electric motor fan (2), crosses the two carbon filters (1) located on the lower panel, and so it is decontaminated. This decontaminated area is conveyed to the ejection duct (3) positioned on the surface which is opposite to the one of the filters. The outgoing air flow, according to the way how the modulus is installed, can be either horizontal or vertical.

**MAIN FEATURES**

Functioning with total recycle in surrounding environment.

Rectangular structure made of stainless steel inox AISI 304 (or anodized aluminium) equipped with net to protect the installed filter.

Horizontal or vertical installation, with respect to the fumes or gases that should be adsorbed.

Extracting radial electric motor fan.

Control board made of plastic material, positioned on the wall.

Carbon filter as standard equipment.

MODELS AND SIZES

	<i>Overall dimension</i>	<i>Usefull dimension blowing surface</i>	<i>Mod. weight inox</i>	<i>Mod. weight aluminium</i>
mod. 120	1.280 x 680 x 530 mm	1.190 x 580 mm	130 Kg.	115 Kg.
mod. 180	1.890 x 680 x 530 mm	1.800 x 580 mm	180 Kg.	160 Kg.

CONTROLL BOARD

Electric system filter 10 A.

Modular magnetothermic automatic differential calibration switch appropriated to the number of protected moduli (max. n° 4 appliances protected by the same switch).

Manual variator made by electronic board with manual rheostat positioned on the board, to adjust faster the air flow at the entrance.

Elapsed time meter for the electric motor fan functioning: installation made by the manufacturer on the frontal panel of the electric board with protection door.

ACCESSORIES

M12 eyebolt to hung the modulus on the ceiling.

Lateral stirrups to fix on the wall.

Floor support legs in stainless steel inox. Useful height = 2 m.

Curtain made of transparent, soft, thickness 2 mm. PVC. Std. height 2 m.

Automatic variator to command the voltage (and so the air flow) of the electric motor fan (max n° 2 electric motor fans controlled by the same variator).

Fluorescent lamps to light the under part area of the modulus with 36 W ceiling light.

Differential analogical type gauge with scale 0-50 mmH₂O to detect continuously and in real time the value of the air overpressure inside the plenum head in respect to the value of the environmental pressure.

MINI FLOW

	<i>Overall dimensions (L x P x H)</i>	<i>Useful internal dimensions (L x P x H)</i>	<i>Gross weight</i>	<i>Net weight</i>
mod. FLV	800 x 580 x 940 mm	795 x 500 x 540 mm	85 kg.	70 kg.
mod. FLV/H	800 x 580 x 940 mm	795 x 500 x 540 mm	88 kg.	73 kg.
mod. FLV/HC	800 x 580 x 940 mm	795 x 500 x 540 mm	93 kg.	78 kg.
mod. PCR	800 x 580 x 940 mm	795 x 500 x 540 mm	85 kg.	70 kg.

FLOW ACTIVA - HF

	<i>Overall dimensions (L x P x H)</i>	<i>Useful internal dimensions (L x P x H)</i>	<i>Gross weight</i>	<i>Net weight</i>
mod. 90	970 x 1.050 x 1.225 mm	810 x 610 x 735 mm	150 kg.	130 kg.
mod. 120	1.270 x 1.050 x 1.225 mm	1.110 x 610 x 735 mm	200 kg.	180 kg.
mod. 180	1.880 x 1.050 x 1.225 mm	1.720 x 610 x 735 mm	310 kg.	290 kg.

FLOW ACTIVA - VF

	<i>Overall dimensions (L x P x H)</i>	<i>Useful internal dimensions (L x P x H)</i>	<i>Gross weight</i>	<i>Net weight</i>
mod. 90	985 x 795 x 1.400 mm	980 x 570 x 635 mm	150 kg.	110 kg.
mod. 120	1.285 x 795 x 1.400 mm	1.280 x 570 x 635 mm	170 kg.	130 kg.
mod. 150	1.470 x 795 x 1.400 mm	1.465 x 570 x 635 mm	200 kg.	150 kg.
mod. 180	1.895 x 795 x 1.400 mm	1.890 x 570 x 635 mm	250 kg.	230 kg.

BIO ACTIVA

	<i>Overall dimensions (L x P x H)</i>	<i>Useful internal dimensions (L x P x H)</i>	<i>Gross weight</i>	<i>Net weight</i>
mod. 90	1.285 x 795 x 1.450 mm	885 x 600 x 655 mm	230 kg.	200 kg.
mod. 120	1.285 x 795 x 1.450 mm	1.185 x 600 x 655 mm	240 kg.	210 kg.
mod. 180	1.895 x 795 x 1.450 mm	1.795 x 600 x 655 mm	300 kg.	270 kg.

BIO ACTIVA VE

	<i>Overall dimensions (L x P) excluded support</i>	<i>Useful internal dimensions (L x P x H)</i>	<i>Gross weight</i>	<i>Net weight</i>
mod. 120	1.285 x 790 mm	1.220 x 710 x 650 mm	220 kg.	200 kg.
mod. 150	1.485 x 790 mm	1.425 x 710 x 650 mm	250 kg.	225 kg.
mod. 180	1.890 x 790 mm	1.825 x 710 x 650 mm	280 kg.	260 kg.

Height Mod. Standard: 1.310 mm

Height Mod. Plus: 1.510 mm

CYTO ACTIVA

	<i>Overall dimensions (L x P x H)</i>	<i>Useful internal dimensions (L x P x H)</i>	<i>Gross weight</i>	<i>Net weight</i>
mod. 120	1.285 x 795 x 1.450 mm	1.185 x 600 x 655 mm	340 kg.	300 kg.
mod. 180	1.895 x 795 x 1.450 mm	1.790 x 600 x 655 mm	420 kg.	380 kg.

Floor support height (mandatory for both models): 780 mm

THREE ACTIVA

	<i>Overall dimensions (L x P x H)</i>	<i>Useful internal dimensions (L x P x H)</i>	<i>Gross weight</i>	<i>Net weight</i>
mod. 120	1.580 x 750 x 1.650 mm	1.160 x 630 x 900 mm	230 kg.	200 kg.

MINI FLOW

<i>Floor support with or without wheels</i>	<i>UV germicide lamp by 15 W</i>	<i>Internal electric socket IP55 230V/50Hz</i>
<i>Night front closing panel</i>	<i>Ball tap for vacuum, burning or technical gases</i>	<i>Filters HEPA - H14</i>
	<i>Safety elettrovalve for gas tap</i>	<i>Carbon filter</i>

FLOW ACTIVA - HF

<i>Floor support</i>	<i>Safety electrovalve for gas tap</i>	<i>Roll curtain self wrapping in soft PVC with closing stop</i>	<i>Phlebo bar holder</i>
<i>Furniture, drawer</i>	<i>Germicide UV lamp</i>	<i>Electronic gas burner</i>	<i>Internal electric tower socket 230V/50Hz</i>
<i>Ball tap for vacuum, burning or technical gases</i>			<i>Prefilters</i>
			<i>HEPA filters - H14</i>

FLOW ACTIVA - VF

<i>Motorized front sash glass window</i>	<i>Ball tap for vacuum, burning and technical gases</i>	<i>Electronic gas burner</i>	<i>HEPA filters - H14</i>
<i>Worktop closed as a tray (USA type) alternative to the standard model</i>	<i>Safety electrovalve for gas tap</i>	<i>Exhaust outlet adapter. (ATTENTION: either for Standard or Plus model, this accessories requires ALWAYS the electric exhaust motor fan kit and its respective board)</i>	<i>Carbon filter</i>
<i>Floor support</i>	<i>Germicide UV lamp</i>		<i>(ATTENTION: the additon of the HEPA filter and/or the carbon filters requires ALWAYS the electric exhaust motor fan kit)</i>
<i>Furniture, drawers</i>	<i>Night closing front panel</i>		
	<i>Formaldehyde sterilization gas kit on front panel</i>		

BIO ACTIVA

<i>Worktop closed as a tray (USA type) alternative to the standard model</i>	<i>Ball tap for vacuum, burning and technical gases</i>	<i>Phlebo bar holder</i>	<i>HEPA filters - H14</i>
<i>Floor support</i>	<i>Safety electrovalve for gas tap</i>	<i>Formaldehyde sterilization gas kit on front panel</i>	<i>Active carbon filters (thickness 40 mm) for each internal filtering group on the exhaust flow, plus double gasket (PLUS model only)</i>
<i>Furniture, drawers</i>	<i>Germicide UV lamp</i>	<i>Exhaust outlet adapter</i>	
	<i>Electronic gas burner</i>		

BIO ACTIVA - VE

<i>Worktop closed as a tray (USA type) alternative to the standard model</i>	<i>Ball tap for vacuum, burning and technical gases</i>	<i>Phlebo bar holder</i>	<i>HEPA filters - H14</i>
<i>Floor support</i>	<i>Safety electrovalve for gas tap</i>	<i>Formaldehyde sterilization gas kit on front panel</i>	<i>Active carbon filters (thickness 40 mm) for each internal filtering group on the exhaust flow, plus double gasket (PLUS model only)</i>
<i>Furniture, drawers</i>	<i>Germicide UV lamp</i>	<i>Exhaust outlet adapter</i>	
	<i>Electronic gas burner</i>		

CYTO ACTIVA

<i>Worktop closed as a tray (USA type) alternative to the standard model</i>	<i>Ball tap for vacuum, burning and technical gases</i>	<i>Electronic gas burner with foot-pedal button</i>	<i>Exhaust outlet adapter (ATTENTION: the exhaust electric motor fan and its board is needed every time we have to exhaust or to add carbon filter or supplementary HEPA filter)</i>
<i>Metallic furniture, drawers</i>	<i>Safety electrovalve for gas tap</i>	<i>Formaldehyde sterilization gas kit on front panel</i>	
	<i>Germicide UV lamp</i>	<i>Phlebo bar holder</i>	

THREE ACTIVA

<i>Floor support</i>	<i>Safety electrovalve for gas tap</i>	<i>One way air valve in the equipment, ø 250 mm</i>
<i>Furniture, drawers</i>	<i>Socket and electric boards</i>	<i>HEPA filters - H14</i>
<i>Ball tap for vacuum, burning and technical gases</i>		<i>Carbon filters</i>

ACTIVA GP

	<i>Overall dimensions (L x P x H)</i>	<i>Useful internal dimensions (L x P x H)</i>	<i>Net weight</i>
mod. CH	525 x 510 x 760 mm	500 x 460 x 360 mm	44 kg.
mod. H	525 x 510 x 760 mm	500 x 460 x 360 mm	38 kg.
mod. C	525 x 510 x 760 mm	500 x 460 x 360 mm	42 kg.

MINI BLACK

	<i>Overall dimensions (L x P x H)</i>	<i>Useful internal dimensions (L x P x H)</i>	<i>Net weight</i>
mod. CH	800 x 580 x 940 mm	795 x 500 x 575 mm	76 kg.
mod. H	800 x 580 x 940 mm	795 x 500 x 575 mm	69 kg.
mod. C	800 x 580 x 940 mm	795 x 500 x 575 mm	73 kg.

BLACK ACTIVA

	<i>Overall dimensions (L x P x H)</i>	<i>Useful internal dimensions (L x P x H)</i>	<i>Dimensions support base (L x P x H)</i>	<i>Net weight (w/out filters)</i>
mod. 90	905 x 750 x 1500 mm	860 x 730 x 865 mm	910 x 750 x 840 mm	130 kg.
mod. 120	1.205 x 750 x 1.500 mm	1.160 x 730 x 865 mm	1.210 x 750 x 840 mm	150 kg.
mod. 150	1.505 x 750 x 1.500 mm	1.460 x 730 x 865 mm	1.510 x 750 x 840 mm	170 kg.
mod. 180	1.805 x 750 x 1.500 mm	1.760 x 730 x 865 mm	1.810 x 750 x 840 mm	190 kg.
mod. 210	2.105 x 750 x 1.500 mm	2.060 x 730 x 865 mm	2.110 x 750 x 840 mm	250 kg.
mod. 240	2.405 x 750 x 1.500 mm	2.360 x 730 x 865 mm	2.410 x 750 x 840 mm	270 kg.

BLACK ACTIVA - TP

	<i>Overall dimensions (L x P x H)</i>	<i>Useful internal dimensions (L x P x H)</i>	<i>Dimensions support base (L x P x H)</i>	<i>Net weight (w/out filters)</i>
mod. 120	1.205 x 750 x 1500 mm	1.160 x 730 x 865 mm	1.210 x 750 x 840 mm	170 kg.
mod. 150	1.505 x 750 x 1500 mm	1.460 x 730 x 865 mm	1.510 x 750 x 840 mm	170 kg.
mod. 180	1.805 x 750 x 1500 mm	1.760 x 730 x 865 mm	1.810 x 750 x 840 mm	205 kg.

ACTIVA GP

Floor support with or without wheels

Ball tap for liquids, vacuum and burning or technical gases

Internal electric socket IP55 230V/50Hz

MINI BLACK

Floor support with or without wheels

Germicide UV lamp

Safety electrovalve for gas tap

HEPA filters - H14

Night front closing panel

Ball taps for liquids, vacuum and burning or technical gases

Internal electric socket IP55 230V/50Hz

Active carbon filters

BLACK ACTIVA

Lateral window left/right in polycarbonate with hinged door

Floor support (h. 80 cm)

Complete system for wasting and trituration

Dictaphone + foot-pedal + microphone + cassette

IR detector for the presence of operator

Furniture, drawer, shelves, foot stool

Electric control board with Schuko plugs type CEE -2P+T-16A/250V

Exhaust outlet adaptor and piping accessories

Worktop in stainless steel inox AISI 316 with or without sinks, (possibility to customize)

Taps for liquids, vacuum, burning and technical gases

Panel holding frame, connection to support electric control board, water and gas remote

Prefilters

Worktop in monolithic stoneware with or without sinks

Safety electrovalve for gas tap

Lamp with magnifying glass RIMSA

HEPA filters - H14

Formaline feeding system

Controlled waste plant (exhaust liquid collection)

Adjustable light RIMSA with halogen lamp

Active carbon filters

BLACK ACTIVA - TP

IR detector for the presence of operator

Safety electrovalve for gas tap

Panel holding frame, connection to support electric control board, water and gas remote

Exhaust outlet adaptor and piping accessories

Worktop in vitrosteeel with at least one sink (possibility to customize)

Formaline feeding system

Lamp with magnifying glass RIMSA

Differential analogical gauge on the hexhaust outlet (for PLUS model)

Floor support (h. 80 cm)

Complete system for wasting and trituration

Adjustable light RIMSA with halogen lamp

Prefilters

Furniture, drawers, shelves, foot stool

Electric control board with Schuko plugs type CEE -2P+T-16A/250V

Dictaphone + foot-pedal + microphone + cassette

HEPA filters - H14

Taps for liquids, vacuum, burning and technical gases

Controlled waste plant (exhaust liquid collection)

Active carbon filters C200 (per formaldehyde-glutaraldehyde)

AVAILABLE CARBON FILTERS FOR ALL THE CHEMICAL CABINETS

- **Active carbons filter C100**
for general purposes, this filter adsorbs most part of the aliphatic and aromatic hydrocarbons, solvents, organic acids, alcohols, aldehyde, esteries, ketones, halogen, sulphurized and nitrogenous compounds as well as odours
- **Active carbons filter C100-C7**
for specific adsorption of ethidium bromide
- **Active carbons filter C200**
for specific adsorption of formaldehyde and glutaraldehyde

- **Active carbons filter C100E**
for specific adsorption of ethers
- **Active carbons filter C300**
for specific adsorption of ammonia and ammines
- **Active carbons filter C400**
for specific adsorption of inorganic acids and for SO₂, H₂SO₄ and HCL
- **Active carbons filter C410**
for specific adsorption of mercaptan and H₂S

- **Active carbons filter CI-HG**
for specific adsorption of mercury vapours
- **Active carbons filter CI-RI**
for specific adsorption of iodine (I 125 and I 129) vapours and methyl iodide
- **Active carbons filter CMS**
multilayers with large spectrum for demo school use

The table has a pure indicative value. The most common used chemical substances are split in four categories according to active carbon adsorption capacity in connection with its weight.

A - the active carbon is able to adsorb these substances from 15 to 50% of its weight: for these substances the standard filter type **C100** is sufficient.

B - the active carbon is able to adsorb these substances from 5 to 20% of its weight: for these substances is recommended to add a safety additional filter, or to use a specific absorption carbon filter. In some cases the most suitable filter is shown in parenthesis.

C - the active carbon is able to adsorb these substances in a quantity lower than 5% of its weight: for these substances, if a specific filter is not available, it becomes necessary to convey the filtered air outside the building.

D - the active carbon is able to adsorb these substances in a quantity lower than 1% of its weight: for these substances it becomes necessary to convey outside the ejected filtered air.

The right selection of the type of filter to be installed in the chemical cabinet, assures a better protection, a higher containment factor as well as a longer working time of the same filter.

A: 15-50% **B:** 5-20% **C:** 1-5% **D:** < 1%

Aromatic Hydrocarbons

A Benzene
A Naphtalene
A Styrene Monomer
A Toluene
A Toluidine
A Xylene

Aliphatic Hydrocarbons

D Acetylene
C Butadiene
B Butylene
A Cyclohexane
C Heptylene
B Hexane
C Hexylene
B Isobutane
D Methane
B Pentane
C Propane
B Propylene

Acids

A Acetic
A Acetic Anhydride
A Acrylic
A Butyric
A Caprylic
A Carboic
B Formic
A Lactic
A Palmitic
A Phenol
A Propionic
A Valeric

Alcohols

A Amyl
A Butyl
A Ciclohexanol
A Ethyl
A Isopropyl
B Methanol (Methyl)
A Propyl

Aldehydes and Ketones

C Acetaldehyde
B Acetone
B Acrolein
B Acrylaldehyde
A Benzaldehyde
B Butyraldehyde
A Caproaldehyde
A Crotonaldehyde
A Cyclohexanone
A Dietyl Ketone
A Dipropil Ketone
C Formaldehyde (C200)
B Glutaraldehyde (C200)
A Mesityl Oxide
A Methyl Butylketone
A Methyl Ethylketone
A Methyl Isobutylketone
B Propionaldehyde
A Valeric Aldehyde
A Valeraldehyde

Esters

A Butyl Acetate
A Cellosolve Acetate
A Ethyl Acetate
A Ethyl Acrylate
B Ethyl Formate
A Isopropyl Acetate
B Methyl Acetate
A Methyl Acrylate
B Methyl Formate
A Propyl Acetate

Ethers

A Amyl (C-100E)
A Butyl (C-100E)
A Cellosolve (C-100E)
A Dioxan (C-100E)
B Ethyl (C-100E)
B Ethylene (C-100E)
A Isopropyl (C-100E)
B Methyl (C-100E)
A Methyl Cellosolve (C-100E)
A Propyl (C-100E)

Halogens

A Bromine
A Butyl Chloride
B Carbon Tetrachloride
A Chlorine
A Chloro Picrin
A Chloro Nitropropan
A Chlorobenzene
A Chlorobutadiene
A Chloroform
A Dibromoethane
A Dichlorobenzene
A Dichlorodifluoro Ethane
B Dichlorodifluoro Methane
A Dichlorethyl Ether
A Dichloromethane
B Dichloromonofluoro Methane
A Dichloropropane
B Dichlorotetrafluoro Ethane
B Ethyl Chloride
B Ethyl Bromide
A Ethylene Chlorohydrine
A Ethylene Dichloride
B Fluorotrichloromethane
C Freon
C Hydrogen Bromide
C Hydrogen Chloride
C Hydrogen Fluoride
B Hydrogen Iodide
A Iodine
A Iodoform
B Methyl Bromide
B Methyl Chloride
A Methyl Chloroform
A Methylene Chloride
A Monochlorobenzene
B Monofluorotrichloro Methane
A Paradichlorobenzene
A Perchloroethylene
B Phosgene
A Propyl Chloride
A Tetrachloro Ethane
A Tetrachloro Ethylene
A Trichloro Ethylene
B Vinyl Chloride

Nitrogen Compounds

C Amines (C300)
D Ammonia (C300)
A Aniline
B Diethylamine
A Dimethylamine
B Ethylamine
C Hydrogen Cyanide (C420)
A Indole
A Nicotine
B Nitric acid fumes
A Nitrobenzene
A Nitroethane
A Nitrogen Dioxide
A Nitromethane
A Nitropropane
A Nitrotoulene
A Nitroglycerine
A Pyridine
A Skatole
A Urea
A Uric acid

Sulphur Compounds

B Carbon Disulphide
A Dimethyl Sulphate
A Ethyl Mercaptan
C Hydrogen Sulphide (C410)
A Mercaptan
A Methyl Mercaptan
C Sulphur Dioxide
B Sulphur Trioxide
A Sulphur acid
A Tetrahydrothiophene

Miscellaneous

A Adhesive
A Animal odours
D Camphor
D Carbon Dioxide (SM 100)
D Carbon Monoxide (SM 100)
A Citrus fruits
A Cooking odours
A Degreasing solvents
B Deodorisers
A Detergents
A Hospital odours
A Human odours
A Leather
A Nicotine
A Odours from stables
A Ozone
A Perfume
A Petrol
A Plastic
A Poultry odours
B Putrefying odours
A Putrescine
A Rancid oils and fats
A Resins
A Rubber
A Stale odours
C Tobacco smoke (CM 100)
C Tar odours
A Toilet odours
A Turpentine
A Varnish
A Vinegar
B Wood Alcohol

