

*Personal safety
and environmental
protection*
CATALOGUE 2016



**PERSONAL SAFETY AND ENVIRONMENTAL PROTECTION
CRUMA CATALOGUE 2016**

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*Personal safety
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CATALOGUE 2016

A natural choice WITH A CUTTING-EDGE DESIGN

Specially resistant and environmentally friendly materials. New practical and functional designs. Stringent quality controls and continuous research and development processes.

A streamlined delivery service and the customized approach of our Customer Service Department.

*This is how we have been working so far
and this is our commitment for the future.*

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ABOUT US

We are a family business founded in 1974 in Barcelona, dedicated to the design, manufacture and sale of filtering ductless fume hoods, laminar flow and PCR cabinets, powder weighing cabinets and vented storage cupboards.

All our products have been designed to protect the people who work in the laboratory, their work as well as to preserve the environment.

Our cabinets are manufactured under the most stringent international standards and applying the guidelines of the Quality Management System EN ISO 9001: 2008.

More than 40 years of experience and the 3 same principles that drove our creation: **quality products, constant innovation and the flexible and personalized service that our customers require.**

Visit www.cruma.es or call **+34 933 706 162** and you will find a simple and practical formula to request quotes, answer queries or get more info.



MISSION

*Provide **protection to the lab operator** and protect the environment **through the innovation** and development of new products establishing a human working environment, dynamic and of quality for our customers.*

VISION

*We want to be for each of our customer, supplier and employee, the best company in which to grow, train, work and develop, so that **Cruma can be a reference in the protection of people in the lab, while always preserving the environment.***

VALUES

*The values referred to and manifested in all points of the development of our business project can be found in our website **www.cruma.es***



Range of SERVICES



CRUMASAT, TECHNICAL SERVICE*

- Revision and validation of the equipment
- Preventive and corrective maintenance
- Advice in assembly and handling of the equipment
- Maintenance contracts

* Only for Spain



CRUMALAB, TEST LAB

- Equipment validation
- Filter saturation tests
- Testing R & D + i
- Testing and external testing

Our CLIENTS

We sell our products directly and through an extensive network of distributors in more than 67 countries, being allocated more than 60% of our production for export (2014).



PRIVATE AND PUBLIC CENTERS

- Universities
- Research and technological centers
- Hospitals
- Analysis laboratories
- Quality Control Laboratories
- Secondary schools



THE INDUSTRIES

- Chemistry
- Pharmaceuticals
- Food & Beverage
- Agricultural
- Cosmetics
- Metallurgy

In short, any company or institution with a laboratory where chemical or biological risk exists can benefit from the protection and security provided by the products we manufacture.

Our value PROPOSITION



Modern design. Continuous innovation.

–Nothing remains, everything changes. This idea reflects the spirit of constant innovation in Cruma. Although all branches of the brand are governed by the same premise of innovation, it is in our design where innovation takes on special relevance. Cruma assume its leadership role and sets the trend to follow naturally, designing models that are bench marks whose aesthetic lines and strokes have the ability to thrill. Pure beauty.



Enhanced security. Complete safety.

–Thinking about your safety, Cruma innovates and equips its products with rigorous filtration systems, alarms and notice systems, guides of good uses, etc. We can speak about security when a laboratory of recognized prestige strictly supervises and analyzes the performance and effectiveness of a product. In the case of our products, all controls made by the technicians of our internal laboratory have been later verified and approved by an independent and reputable laboratory.



Customized products. Total customization.

–In Cruma have a wide range of standardized products. But we also know how to make you the best bespoke suit. Tell us how you want it, and we will design and manufacture the product that best suits your needs: turnkey, total customization.



Top performance

-In our desire to create the highest quality products that fully meet the needs of our customers and markets, we fulfill the requirements and recommendations of national and international standards regarding the design, manufacture, operation and maintenance of all our products, as well as those that deal with regulating and establishing the categories and characteristics of the filters equipped in our cabinets and cupboards. Moreover, our products meet the rules relating to mechanical and electrical safety set by the European Directives mentioned in the “Declaration of CE Conformity”.



Top quality

The Rigorous Quality Management System provided for in the UNE EN ISO 9001: 2008 which Cruma is certified by Lloyd’s Register is present throughout the whole process of design, development, manufacture, sale and subsequent distribution of our products.

We also manufacture our products with the highest quality materials served by proximity suppliers, all of them European. Some examples:

- Structures made of 1.2 mm galvanized steel, coated with antiacid polymer powder resin thermo-hardened at 200°C
- Side and front panels of transparent PMMA (transmission light of 93%) 6 mm thick, highly resistant to heat and acids.
- Fans of German manufacture of very low noise level and high performance.
- Programmable electronic circuits (in our factory and upon request) developed by our R & D.
- Very resistant packaging made of plywood board and with international phytosanitary certificate, and made from grown and cyclically regenerated forests..



Maximum Guarantee

And it’s not a typographical error:

7-year warranty on all products manufactured in our company.

Our
PRODUCTS

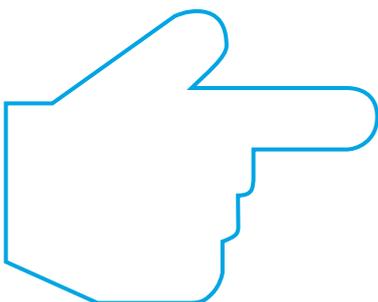
The Cruma FILTRATION FUME HOODS

Cruma manufactures two ranges of ductless filtering fume hoods: Cruma Classic and Cruma Plug&Play.

Ductless fume hoods of the **Classic** range have been designed and recently re stylized to be located anywhere: they are delivered unassembled so that they can be assembled easily in any laboratory where the access is difficult (steps or narrow doors, staircases, etc).

Ductless fume Hood of **Plug&Play** range have been designed to be used immediately without having to assemble them: simply remove them from their fantastic packaging, place them in the desired location and plug them to enjoy them. As simple as its definition follows: plug and play.

All Cruma ductless fume hoods use the **new filtration system**, developed and patented by Cruma (**Invention Patent no. 2397598**), to retain the pollutant gases and vapors generated inside the cabinet, constantly renewing laboratory air, attributing a number of advantages:





Protection of and respect for the environment

–The toxic chemical products are not released outside but retained within the filter.



Flexible

–It can be used in areas where it is difficult to remove/extract contaminated air, such as from the lower levels in buildings that have a number of floors.



Cost savings and fast set up

–No building work is needed to install ducts to channel the gas outside, which means fewer problems for a laboratory working at full capacity.



Energy savings

–The air that is sucked in is not expelled but recirculated back into the lab after the contaminating substances have been removed. This means that it is not necessary to increase the use of the air-conditioning or heating systems to compensate for the air removed.

Is a filtration fume hood... THE BEST CHOICE FOR MY JOB?

Even when dealing with a compound that can be adsorbed by active carbon, there are a number of factors such as concentration, amount used, conditions in terms of temperature and humidity, how often the work is carried out, the environmental limit values, etc., as well as any combination of these, that should be taken into consideration and duly studied as they have a direct bearing on the operator's safety and the filter's useful life.

Thus, in the vast majority of cases, when choosing the ideal fume hood and filter for a specific application it will be necessary to consult a qualified specialist technician.

For this purpose **Cruma has a form** (see the flow chart) available on our web page www.cruma.es or which can be requested on-line or by telephone. Here the user can describe the chemical products used and the parameters related to the type of operation in question so that Cruma can advise them as regards the best available option.



 1. CLIENT FILLS OUT AND SUBMITS THE FORM

 2. CRUMA TECHNICAL SPECIALISTS ANALYZE THE INFORMATION

 3. OUR TEST LABORATORY DETERMINES WHETHER THE APPLICATION IS VALID FOR A RECIRCULATION FUME HOOD

 4. A RESPONSE IS ISSUED

 5. SALE OF THE EQUIPMENT THROUGH AN AUTHORIZED DEALER

 6. POSSIBILITY OF INSTALLATION AND ASSEMBLY

 7. A VALIDATION CERTIFICATE IS ISSUED*

*WHEN THE EQUIPMENT IS INSTALLED BY CRUMA

CRUMA HELPDESK TEAM ENSURES ANNUAL MONITORING, IT INCLUDES:

 8. REVIEW THE CORRECT CONDITION AND OPERATION OF THE FUME HOOD

 9. FILTER CHANGE

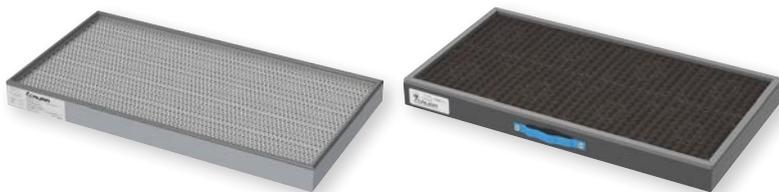
Likewise, and to serve as a guideline, Cruma can also provide a **list of adsorbable chemical products***, categorized according to the appropriate type of active carbon filter to be used, indicating:

- Physical properties
- Hazard statements and risk and safety phrases
- Warning regarding carcinogenic substances TLV, ELV and IDHL values
- Odour thresholds
- Appropriate filter type
- Approximate retention capacity

CRUMA active carbon and zeolite filters AVAILABLE

The patented Cruma filtration system is based on the adsorption phenomenon.

The filters supplied by Cruma are manufactured using active carbon that comes from the shells of coconuts, as this type has the greatest proportion of micropores, which makes it the best choice when adsorbing gas contaminants. There are six types of filters and these are used in different combinations giving us a total of 15 different types (e.g.: AD, BED, FD, etc.):



MODULAR FILTRATION COLUMN FOR GASES AND PARTICLES <small>(according to NFX 15-211:2009)</small>			
CLASS 2		CLASS 1	
Type G Handling of liquid compounds/products	 	Type 2G Liquid compounds/products handling with security molecular filter	 
Type GS Handling of liquid and particles compounds/products	 	Type 2GS Liquid and particles compounds/products handling with molecular security filter	 
		Type 2GD Handling of liquid compounds in clean room with molecular security filter	 

FILTRATION COLUMN FOR POWDERS	
Type D Handling of powder compounds	 
Type DD Handling of powder compounds in clean room	  
Type 2DD Handling of powder and molecular compounds in clean room with molecular security filter	  

 Fan
 Molecular Filter
 HEPA-H14 Filter

A

General use filter, especially appropriate for **organic fumes**, such as ketons, ethers, alcohols, xylenes, etc. These can be used with inorganic acids, but only if these are not too abundant, as the active carbon has not been impregnated and any excess acid fumes will quickly saturate this.

BE

For **inorganic acid fumes** such as: H_2SO_4 , HCl, HNO_3 , as well as for volatile sulphur compounds such as H_2S , SO_3 , etc. This can be used with organic fumes as the active carbon has been impregnated with metal compounds and neutralizing salts. This can be used with both organic and inorganic fumes provided these are present in similar proportions.

F

For **formaldehyde and formol fumes and their derivatives**; can also be used with other organic compounds. Carbon is impregnated with Cu, and, as such, should never be used with inorganic acid fumes.

K

For **NH_3 fumes and amines**; also useful for other organic compounds. The carbon is impregnated with metal salt complexes.

ABEK

Mixed type to be used when the proportions between **organic, inorganic** and **NH_3 / amines** are similar.

D

HEPA H-14 (High Efficiency Particulate Airfilter) with an efficiency rate of 99.995% for particles of $0.3 \mu m$ (a maximum particle penetration of 0.03%). For more complicated applications that generate a great deal of dust, fumes and/or aerosols and that require a high degree of protection. **This filter can be combined with any of the aforementioned depending on the requirements of the job in question.**

Ductless fume hoods

PLUG&PLAY RANGE

Plug&Play Range models G-1, G-2, G-3, G-4 & G-5



G-1



G-2



G-3



G-4



G-5

NEW FEATURES

More information on the new LCD display



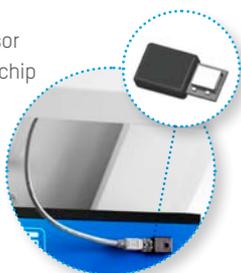
- ✓ New size 127x34mm display
- ✓ Air speed continuously monitored
- ✓ Type of filter installed, working hours, expiration date and next revision date
- ✓ Open door warning through electronic photocell
- ✓ Countdown timer
- ✓ Clock and calendar

New features and components

- ✓ Initial air flow cycle adequacy and final purge cycle
- ✓ Fault LED
- ✓ Control of air flow through Microprocessor
- ✓ Activated carbon filters with electronic chip
- ✓ Internal temperature sensor
- ✓ LED illumination

New alarms and scheduled warnings

- ✓ Open door warning
- ✓ Open door in off mode warning
- ✓ 60h of filter use warning
- ✓ Next validation warning
- ✓ Few hours of filter life warning
- ✓ Countdown timer warning
- ✓ Expired filter alarm (by hours)
- ✓ Expired filter alarm (by date)
- ✓ Temperature alarm
- ✓ Equipment without filter alarm
- ✓ Low barrier alarm

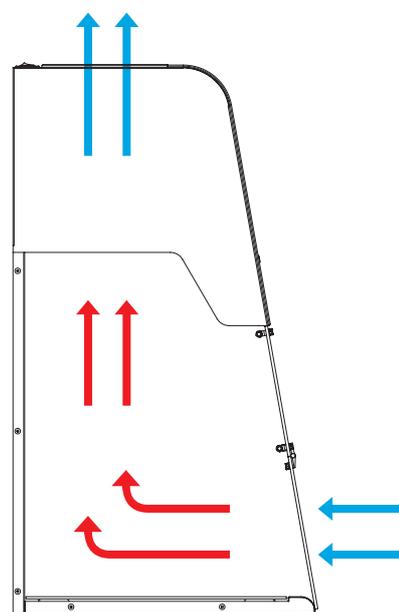


USES

General chemistry involving small volumes of reagents or chemical compounds at ambient/moderate temperature in all types of laboratories:

- ✓ Research laboratories
- ✓ Quality control laboratories
- ✓ Clinical and hospital laboratories
- ✓ University and school laboratories

...In general, in any kind of laboratory.



This range is **delivered fully assembled**, provides a wider range of measures and has the option of incorporating multiple accessories.

The fume hoods of the **Plug&Play range** are **Class I** and / or **Class II** according to **Standard NF X 15-211**.

SERIAL EQUIPMENT

Electronic circuit with large format LCD screen	Security levels: level 1 for users and level 2 for maintenance users
Electronic anemometer device	Electronic sensor monitoring continuously air face velocity
Photocell sensor device for open door detection	Electric device with open door alarm
Electronic control device for filters replacement	The filters incorporate a microchip with miniUSB connection that identifies the type of filter installed, the expiry date and the serial no.
Illumination	96 LED Tube high light intensity and low power consumption - 16 Watts / 700 Lux
Temperature sensor	Continuous monitoring of the temperature inside the cabinet
Sampling system to analyze the filtered air at the exhaust	To detect the level of filter saturation
60 hours alarm	Countdown timer according to French NF X 15-211:2009
Electronic cronometre with audible alarm	To program the work inside the fume hood
Clock and calendar	Display of date and time
Working surface 1	Spill retention tray (2-10 liters) with working surface in white tempered glass
G4 Prefilter	G4 class pre-filtering blanket of synthetic biofibres (according to EN-779) for the retention of atmospheric dust
Cable entry holes (2)	Access to the rear wall for cables and / or services entry
Chemical Listing	Guide of retained products by type of filter
Warranty	7 years

OPTIONAL EQUIPMENT

Molecular detector	Automatic Alarm Device for detection of saturation in organic vapors filters (required for Class I according to standard NF X 15-211:2009)
Movilair	Stand with wheels and internal tray in Epoxy coated steel
Tubular steel stand	Support stand in Epoxy coated steel
Working surface 2	Spill retention tray (2-10 liters) with working surface in phenolic resin
Working surface 3	Spill retention tray (2-10 liters) with working surface in inox steel
Transparent rear back panel	Transparent polymethylmethacrylate rear panel 8 mm thick (light transmission of 93%). Ideal for teaching sessions
Voltage / Frequency	125 V / 50 Hz
Filter test kit	Dräger pump with reactive colorimetric tubes (pack 10u)
Junction frame	Allows to join two units of the same model without internal divisions

MAIN STRUCTURE

Metal parts: base frame, rear wall and head	1.2 mm galvanized coated steel with anti acid polymer resin powder heat-hardened at 200 °C
Front and side panels	Transparent polymethylmethacrylate 6 mm thick (light transmission of 93%)

MODULAR FILTRATION COLUMN FOR GASES AND PARTICLES (according to NF X 15-211:2009)

CLASS 2		CLASS 1	
Type G Handling of liquid compounds/products		Type 2G Liquid compounds/products handling with security molecular filter	
Type GS Handling of liquid and particles compounds/products		Type 2GS Liquid and particles compounds/products handling with molecular security filter	
		Type 2GD Handling of liquid compounds in clean room with molecular security filter	

 Fan  Molecular Filter  HEPA-H14 Filter

TYPES OF FILTERS

Type A	General use filter, especially appropriate for organic fumes , such as ketons, ethers, alcohols, xylenes, etc. These can be used with inorganic acids, but only if these are not too abundant, as the active carbon has not been impregnated and any excess acid fumes will quickly saturate this.
Type BE	For inorganic acid fumes such as: H ₂ SO ₄ , HCl, HN ₃ , as well as for volatile sulphur compounds such as H ₂ S, SO ₃ , etc. This can be used with organic fumes as the active carbon has been impregnated with metal compounds and neutralizing salts. This can be used with both organic and inorganic fumes provided these are present in similar proportions.
Type F	For formaldehyde and formol fumes and their derivatives ; can also be used with other organic compounds. Carbon is impregnated with Cu, and, as such, should never be used with inorganic acid fumes.
Type K	For NH₃ fumes and amines ; also useful for other organic compounds. The carbon is impregnated with metal salt complexes.
Type ABEK	Mixed type to be used when the proportions between organic, inorganic and NH₃/amines are similar.
Type D	HEPA Filter (High Efficiency Particulate Air) H-14 (standard EN-1822:1998) for filtering particles of dust and fumes.

DUCTLESS FUME HOOD. PLUG&PLAY RANGE

CRUMAG-1



The new **Cruma G-1** is perfect to remove low quantities of gaseous polluting agents and/or solid particles/aerosols from its working area in a simple, secure, efficient and cost effective way, protecting both the user and the environment.

Cruma G-1 ductless fume hood uses the **patented* Cruma Filtration System**, without any exterior duct connection. All molecular and dust particles are absorbed and retained into the filtration system.



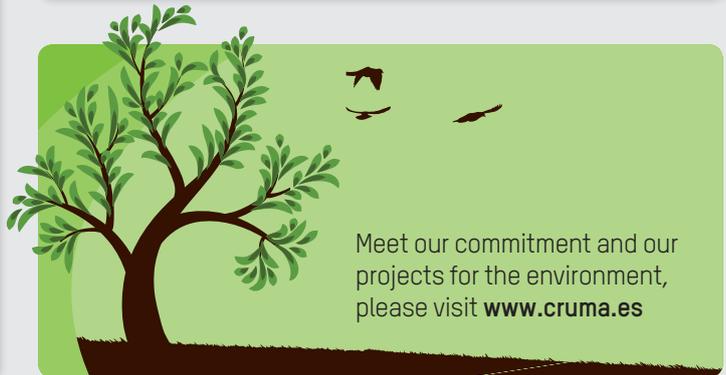
*Invention Patent No.2397598

TECHNICAL FEATURES

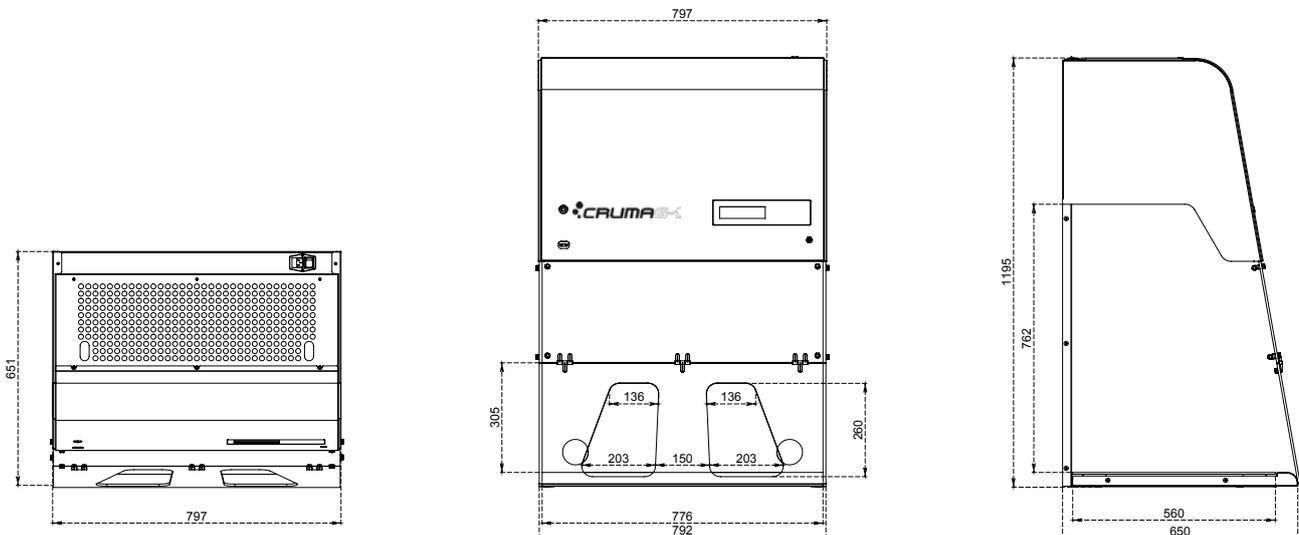
Number of filtration columns	1
Number of filters	1 to 3
Number of IP44 fans	1
Average volume of treated air	157 m ³ /h
Average face velocity	0,50 m/s
Internal volume of the cabinet	0,32 m ³
Renewals inside the cabinet / min	8,13
Total electrical power consumption	91 W
Voltage-Frequency	110-220 V / 50-60 Hz
LED light intensity	900 Lux
Noise level	45 dB
Packaging: 100% recycled wooden box with international phytosanitary certificate	Volume 0,80 m ³ Weight 95 Kg

SIZES (MM)

External			Internal		
Width	Depth	Height	Width	Depth	Height
797	650	1195	776	600	762



SIZES (mm)



DUCTLESS FUME HOOD. PLUG&PLAY RANGE

CRUMA G-2



The new **Cruma G-2** is perfect to remove low quantities of gaseous polluting agents and/or solid particles/aerosols from its working area in a simple, secure, efficient and cost effective way, protecting both the user and the environment.

Cruma G-2 ductless fume hood uses the **patented* Cruma Filtration System**, without any exterior duct connection. All molecular and dust particles are absorbed and retained into the filtration system.

*Invention Patent No.2397598



TECHNICAL FEATURES

Number of filtration columns	1
Number of filters	1 to 3
Number of IP44 fans	1
Average volume of treated air	157 m ³ /h
Average face velocity	0,50 m/s
Internal volume of the cabinet	0,40 m ³
Renewals inside the cabinet / min	6,47
Total electrical power consumption	91 W
Voltage-Frequency	110-220 V / 50-60 Hz
LED light intensity	900 Lux
Noise level	45 dB
Packaging: 100% recycled wooden box with international phytosanitary certificate	Volume 0,80 m ³ Weight 110 Kg

SIZES [MM]

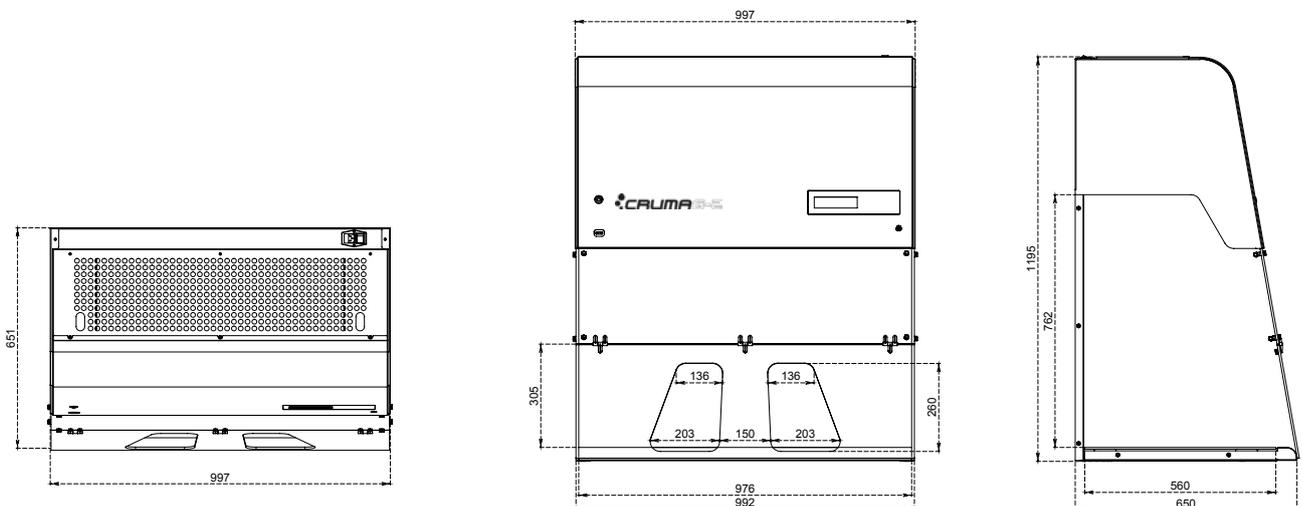
External			Internal		
Width	Depth	Height	Width	Depth	Height
997	650	1195	976	600	762

Filters with microchip and USB connection, *intelligent filtering*

Information storage and interaction with the alarm system.



SIZES (mm)



CRUMA G-3



The new **Cruma G-3** is perfect to remove low quantities of gaseous polluting agents and/or solid particles/aerosols from its working area in a simple, secure, efficient and cost effective way, protecting both the user and the environment.

Cruma G-3 ductless fume hood uses the **patented* Cruma Filtration System**, without any exterior duct connection. All molecular and dust particles are absorbed and retained into the filtration system.

*Invention Patent No.2397598

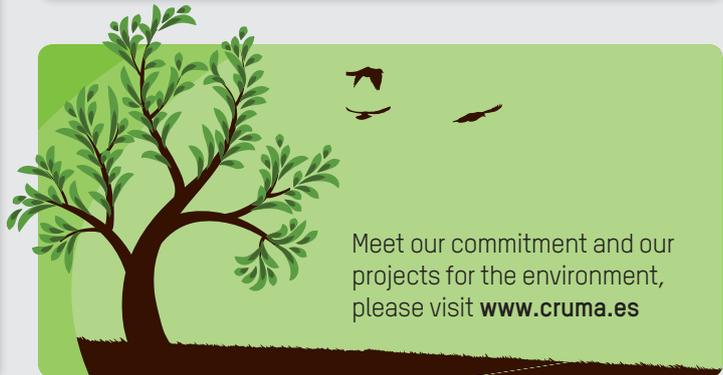


TECHNICAL FEATURES

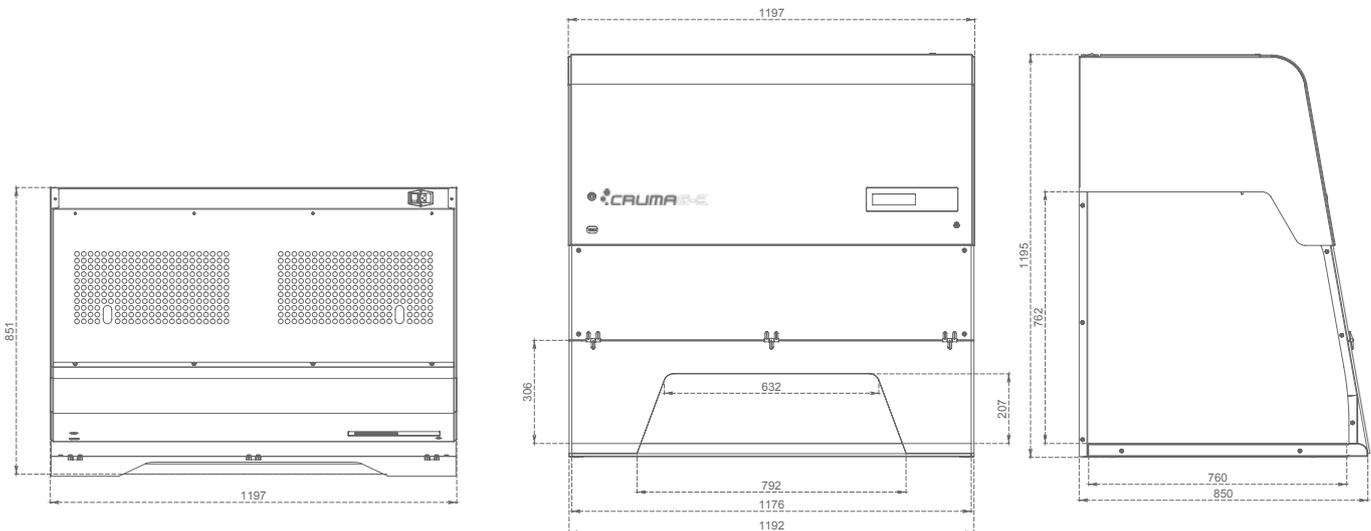
Number of filtration columns	2
Number of filters	2 to 6
Number of IP44 fans	2
Average volume of treated air	157 m ³ /h
Average face velocity	0,50 m/s
Internal volume of the cabinet	0,67 m ³
Renewals inside the cabinet / min	4,2
Total electrical power consumption	174 W
Voltage-Frequency	110-220 V / 50-60 Hz
LED light intensity	900 Lux
Noise level	45 dB
Packaging: 100% recycled wooden box with international phytosanitary certificate	Volume 1,24 m ³ Weight 130 Kg

SIZES (MM)

External			Internal		
Width	Depth	Height	Width	Depth	Height
1197	850	1195	1176	800	762



SIZES (mm)



DUCTLESS DUCTLESS FUME HOOD. PLUG&PLAY RANGE

CRUMA G-4



The new **Cruma G-4** is perfect to remove gaseous polluting agents and/or solid particles/aerosols from its working area in a simple, secure, efficient and cost effective way, protecting both the user and the environment.

Cruma G-4 ductless fume hood uses the **patented* Cruma Filtration System**, without any exterior duct connection. All molecular and dust particles are absorbed and retained into the filtration system. *Invention Patent No.2397598



TECHNICAL FEATURES

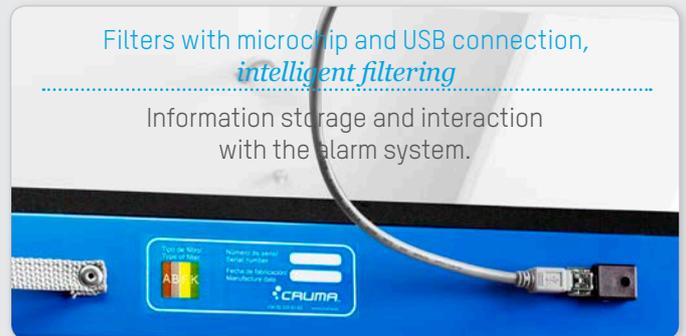
Number of filtration columns	2
Number of filters	2 to 6
Number of IP44 fans	2
Average volume of treated air	157 m ³ /h
Average face velocity	0,50 m/s
Internal volume of the cabinet	0,89 m ³
Renewals inside the cabinet / min	3,1
Total electrical power consumption	174 W
Voltage-Frequency	110-220 V / 50-60 Hz
LED light intensity	900 Lux
Noise level	45 dB
Packaging: 100% recycled wooden box with international phytosanitary certificate	Volume 1,66 m ³ Weight 160 Kg

SIZES (MM)

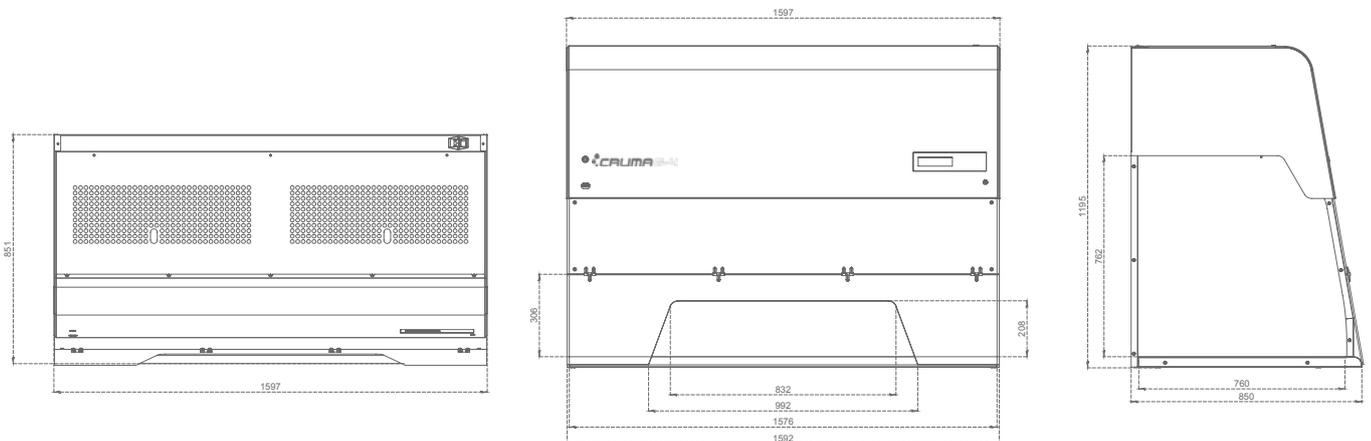
External			Internal		
Width	Depth	Height	Width	Depth	Height
1597	850	1195	1576	800	762

Filters with microchip and USB connection, *intelligent filtering*

Information storage and interaction with the alarm system.



SIZES (mm)



CRUMAG-5



The new **Cruma G-5** is perfect to remove gaseous polluting agents and/or solid particles/aerosols from its working area in a simple, secure, efficient and cost effective way, protecting both the user and the environment.

Cruma G-5 ductless fume hood uses the patented* **Cruma Filtration System**, without any exterior duct connection. All molecular and dust particles are absorbed and retained into the filtration system. *Invention Patent No.2397598

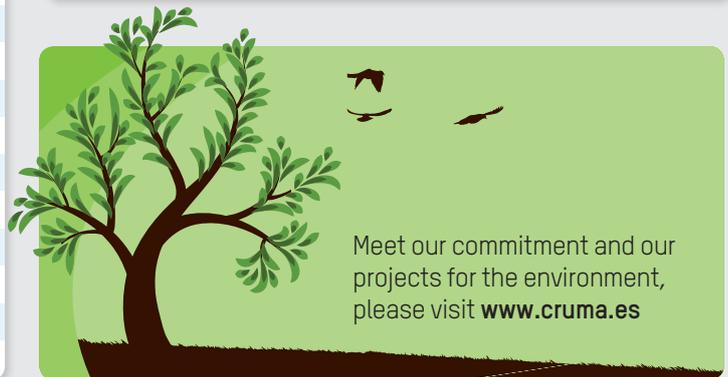


TECHNICAL FEATURES

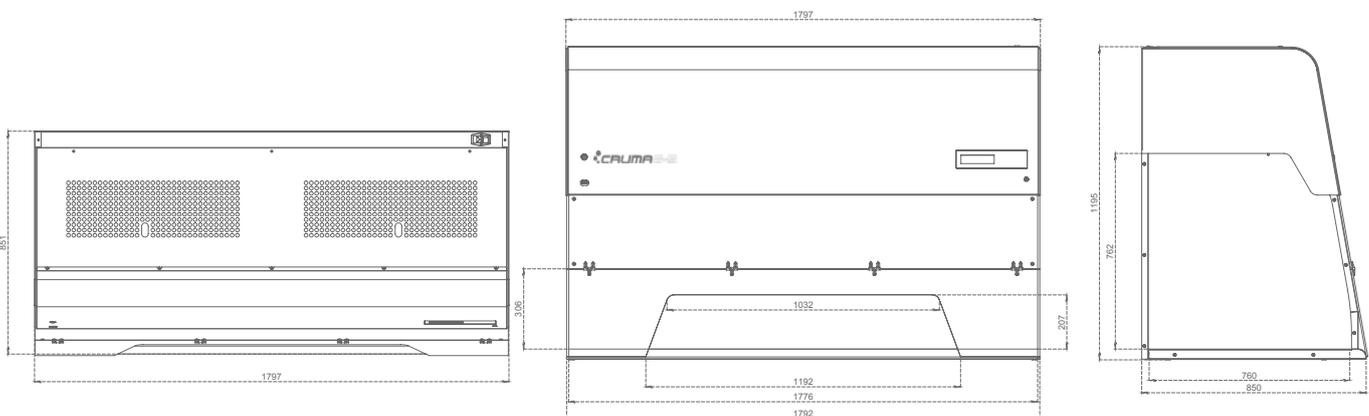
Number of filtration columns	2
Number of filters	2 to 6
Number of IP44 fans	2
Average volume of treated air	157 m ³ /h
Average face velocity	0,50 m/s
Internal volume of the cabinet	1,01 m ³
Renewals inside the cabinet / min	2,7
Total electrical power consumption	174 W
Voltage-Frequency	110-220 V / 50-60 Hz
LED light intensity	900 Lux
Noise level	45 dB
Packaging: 100% recycled wooden box with international phytosanitary certificate	Volume 1,86 m ³ Weight 180 Kg

SIZES (MM)

External			Internal		
Longitud	Width	Height	Longitud	Width	Height
1797	850	1195	1776	800	762



SIZES (mm)





we recognise our responsibility
and dependence towards a healthy environment and,
therefore, donate 1% of our annual
sales to environmental organisations
around the world.

our **1%** engagement

Ductless fume hoods CLASSIC RANGE

Classic Range models 670, 870, 990, 1010, 1200 & ECO²



NEW FEATURES



More information on the new LCD display

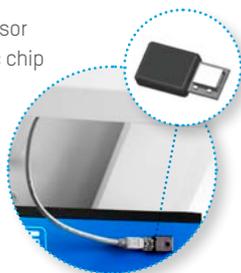
- ✓ New size 127x34mm display
- ✓ Air speed continuously monitored
- ✓ Type of filter installed, working hours, expiration date and next revision date
- ✓ Open door warning through electronic photocell
- ✓ Countdown timer
- ✓ Clock and calendar

New features and components

- ✓ Initial air flow cycle adequacy and final purge cycle
- ✓ Fault LED
- ✓ Control of air flow through Microprocessor
- ✓ Activated carbon filters with electronic chip
- ✓ LED illumination

New alarms and scheduled warnings

- ✓ Open door warning
- ✓ Open door in off mode warning
- ✓ 60h of filter use warning
- ✓ Next validation warning
- ✓ Few hours of filter life warning
- ✓ Countdown timer warning
- ✓ Expired filter alarm (by hours)
- ✓ Expired filter alarm (by date)
- ✓ Temperature alarm
- ✓ Equipment without filter alarm
- ✓ Low barrier alarm

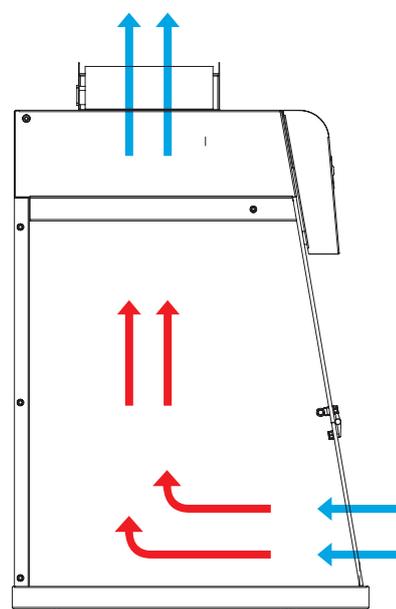


USES

General chemistry involving small volumes of reagents or chemical compounds at ambient/moderate temperature in all types of laboratories:

- ✓ Research laboratories
- ✓ Quality control laboratories
- ✓ Clinical and hospital laboratories
- ✓ University and school laboratories

...In general, in any kind of laboratory.



The main feature of **this range** is that **it comes unassembled**, and therefore can be placed in any laboratory without any problem (narrow or difficult access).

The fume hoods of the **Classic range** are **Class II** according to **Standard NF X 15-211** and are equipped with a simple filter (for molecular adsorption of vapors / gases) or a double filter (for the retention of vapors / gas and smoke / particles).

SERIAL EQUIPMENT	
Electronic circuit with large format LCD screen	Security levels: level 1 for users and level 2 for maintenance users
Electronic anemometer device	Electronic sensor monitoring continuously air face velocity
Photocell sensor device for open door detection	Electric device with open door alarm
Electronic control device for filters replacement	The filters incorporate a microchip with miniUSB connection that identifies the type of filter installed, the expiry date and the serial no.
Illumination	96 LED Tube high light intensity and low power consumption - 16 Watts / 700 Lux
Temperature sensor	Continuous monitoring of the temperature inside the cabinet
Sampling system to analyze the filtered air at the exhaust	To detect the level of filter saturation
60 hours alarm	Countdown timer according to French NF X 15-211:2009
Electronic cronometre with audible alarm	To program the work inside the fume hood
Clock and calendar	Display of date and time
Working surface 1	Spill retention tray (2-10 liters) with working surface in white tempered glass
G4 Prefilter	G4 class pre-filtering blanket of synthetic biofibres (according to EN-779) for the retention of atmospheric dust
Cable entry holes (2)	Access to the rear wall for cables and / or services entry
Chemical Listing	Guide of retained products by type of filter
Warranty	7 years

OPTIONAL EQUIPMENT	
Movilair	Stand with wheels and internal tray in Epoxy coated steel
Tubular steel stand	Support stand in Epoxy coated steel
Working surface 2	Spill retention tray (2-10 liters) with working surface in phenolic resin
Working surface 3	Spill retention tray (2-10 liters) with working surface in inox steel
Transparent rear back panel	Transparent polymethylmethacrylate rear panel 8 mm thick (light transmission of 93%). Ideal for teaching sessions
Voltage / Frequency	125 V / 50 Hz
Filter test kit	Dräger pump with reactive colorimetric tubes (pack 10u)

MAIN STRUCTURE	
Metal parts: base frame, rear wall and head	1.2 mm galvanized coated steel with anti acid polymer resin powder heat-hardened at 200 °C
Front and side panels	Transparent polymethylmethacrylate 6 mm thick (light transmission of 93%)

MODULAR FILTRATION COLUMN FOR GASES AND PARTICLES (according to NFX 15-211:2009)	
CLASS 2	
Type G Handling of liquid compounds/products	
Type GS Handling of liquid and particles compounds/products	

TYPES OF FILTERS	
Type A	General use filter, especially appropriate for organic fumes , such as ketons, ethers, alcohols, xylenes, etc. These can be used with inorganic acids, but only if these are not too abundant, as the active carbon has not been impregnated and any excess acid fumes will quickly saturate this.
Type BE	For inorganic acid fumes such as: H2SO4, HCl, HNO3, as well as for volatile sulphur compounds such as H2S, SO3, etc. This can be used with organic fumes as the active carbon has been impregnated with metal compounds and neutralizing salts. This can be used with both organic and inorganic fumes provided these are present in similar proportions.
Type F	For formaldehyde and formol fumes and their derivatives ; can also be used with other organic compounds. Carbon is impregnated with Cu, and, as such, should never be used with inorganic acid fumes.
Type K	For NH3 fumes and amines ; also useful for other organic compounds. The carbon is impregnated with metal salt complexes.
Type ABEK	Mixed type to be used when the proportions between organic, inorganic and NH3/amines are similar.
Type D	HEPA Filter (High Efficiency Particulate Air) H-14 (standard EN-1822:1998) for filtering particles of dust and fumes.

 Fan  Molecular Filter  HEPA-H14 Filter

Perfect for small working spaces. This ductless fume hood is recommended to remove from the working area gaseous polluting agents and/or solid particles/aerosols in a simple, efficient and cost effective way, protecting both the user and the environment. **CRUMA 670** ductless fume hood uses the CRUMA filtration system.

Cruma ductless fume hoods designed to handle low toxic products are made of steel plate with antiacid polymerized epoxy coating and methylpropileno of high resistance.



TECHNICAL FEATURES

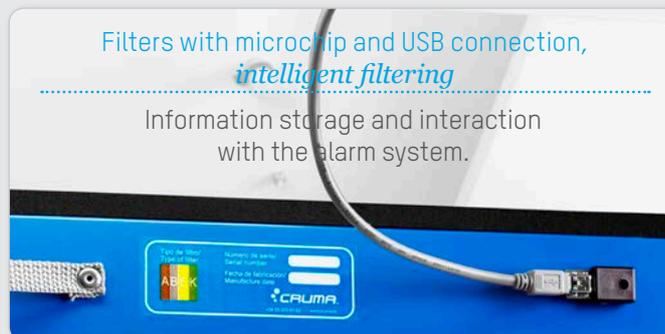
Number of filtration columns	1
Number of filters	1 to 2
Number of IP44 fans	1
Average volume of treated air	155 m ³ /h
Average face velocity	0,50 m/s
Internal volume of the cabinet	0,181 m ³
Renewals inside the cabinet / min	14,3
Total electrical power consumption	91 W
Voltage-Frequency	110-220 V - 50-60 Hz
LED light intensity	18 W - 900 Lux
Noise level	48 dB
Packaging: 100% recycled wooden box with international phytosanitary certificate	Volume 0,28 m ³ Weight 58 Kg

SIZES (MM)

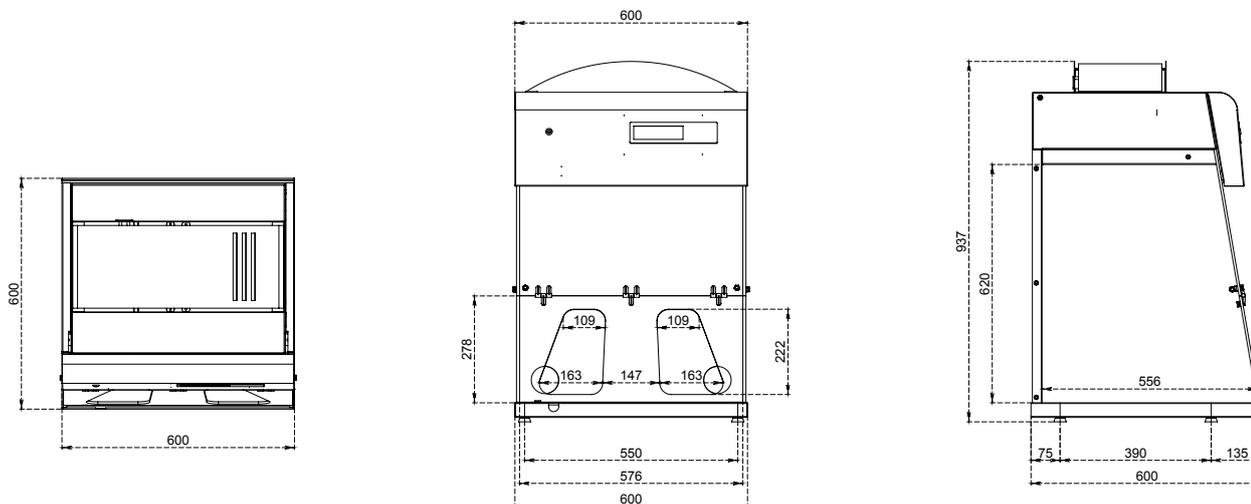
External			Internal		
Width	Depth	Height	Width	Depth	Height
600	600	937	576	556	620

Filters with microchip and USB connection,
intelligent filtering

Information storage and interaction
with the alarm system.



SIZES (mm)



DUCTLESS FUME HOOD. CLASSIC RANGE

CRUMA870



This model is perfect to be joined to another hood of similar measures or to a CRUMA 990. Ideal to remove from the working area gaseous polluting agents and/or solid particles/aerosols in a simple, efficient and cost effective way, protecting both the user and the environment. **CRUMA 870** ductless fume hood uses the CRUMA filtration system.

Cruma ductless fume hoods designed to handle low toxic products are made of steel plate with antiacid polymerized epoxy coating and methylpropileno of high resistance.

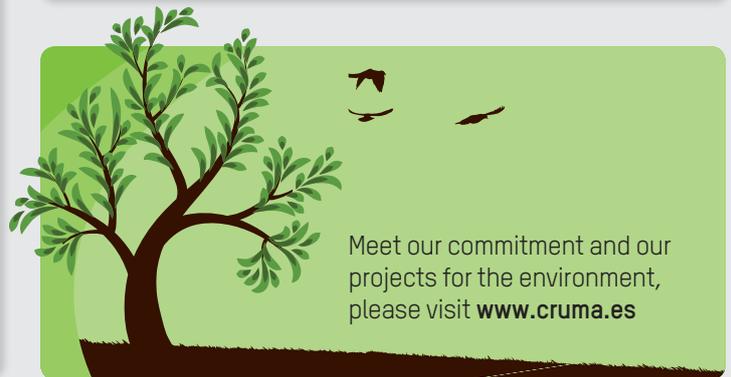


TECHNICAL FEATURES

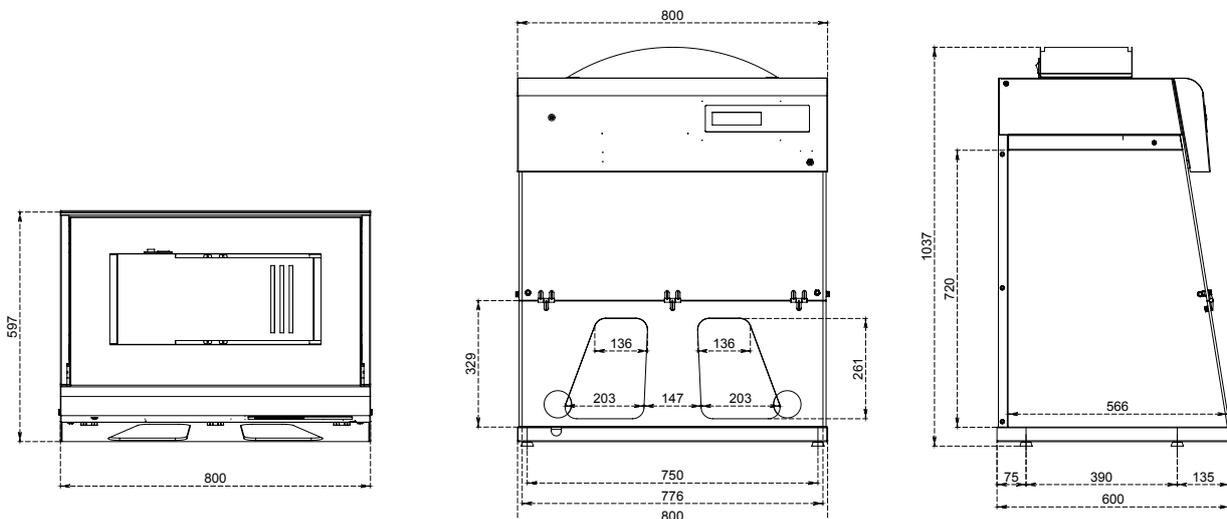
Number of filtration columns	1
Number of filters	1 to 2
Number of IP44 fans	1
Average volume of treated air	175 m ³ /h
Average face velocity	0,50 m/s
Internal volume of the cabinet	0,287 m ³
Renewals inside the cabinet / min	10,2
Total electrical power consumption	91 W
Voltage-Frequency	110-220 V - 50-60 Hz
LED light intensity	18 W / 900 Lux
Noise level	48 dB
Packaging: 100% recycled wooden box with international phytosanitary certificate	Volume 0,42 m ³ Weight 77 Kg

SIZES (MM)

External			Internal		
Width	Depth	Height	Width	Depth	Height
800	600	1037	776	566	720



SIZES (mm)



CRUMA 990



To remove from a large working area gaseous polluting agents and/or solid particles/ aerosols in a simple, efficient and cost effective way, protecting both the user and the environment. **CRUMA 990** ductless fume hood uses the CRUMA filtration system.

Cruma ductless fume hoods designed to handle low toxic products are made of steel plate with antiacid polymerized epoxy coating and methylpropileno of high resistance.

TECHNICAL FEATURES

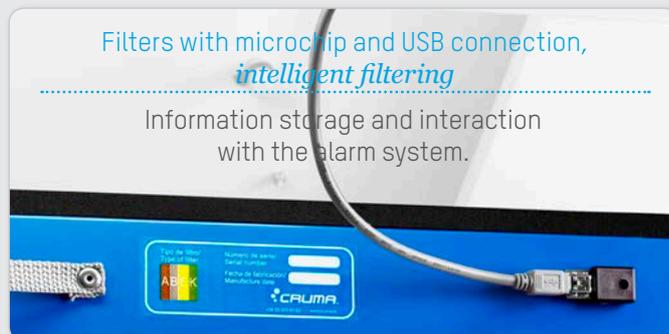
Number of filtration columns	1
Number of filters	1 to 2
Number of IP44 fans	1
Average volume of treated air	175 m ³ /h
Average face velocity	0,50 m/s
Internal volume of the cabinet	0,361 m ³
Renewals inside the cabinet / min	8,1
Total electrical power consumption	91 W
Voltage-Frequency	110-220 V - 50-60 Hz
LED light intensity	18 W / 800 Lux
Noise level	48 dB
Packaging: 100% recycled wooden box with international phytosanitary certificate	Volume 0,52 m ³ Weight 90 Kg

SIZES (MM)

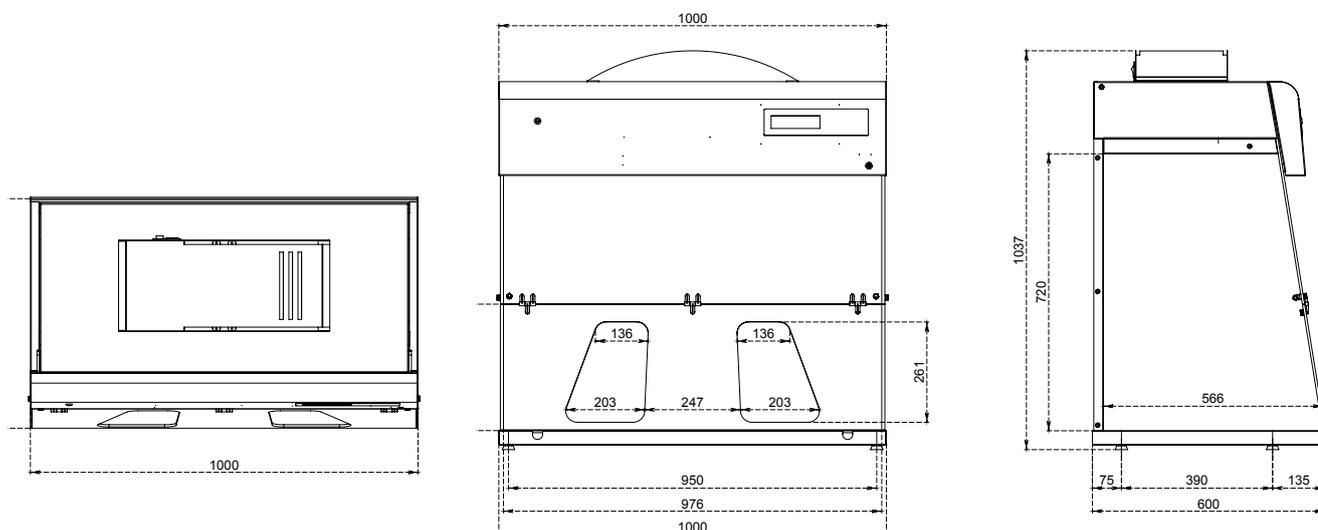
External			Internal		
Width	Depth	Height	Width	Depth	Height
1000	600	1037	976	566	720

Filters with microchip and USB connection,
intelligent filtering

Information storage and interaction
with the alarm system.



SIZES (mm)



DUCTLESS FUME HOOD. CLASSIC RANGE

CRUMA1010



Perfect for applications at **high temperature** (max. 60°C) that require a **high working space**. This model is ideal to remove gaseous polluting agents and/or solid particles/aerosols from the working space in a simple, efficient and cost effective way, protecting both the user and the environment. **CRUMA 1010** ductless fume hood uses the CRUMA filtration system.

Cruma ductless fume hoods designed to handle low toxic products are made of steel plate with antiacid polymerized epoxy coating and methylpropileno of high resistance.

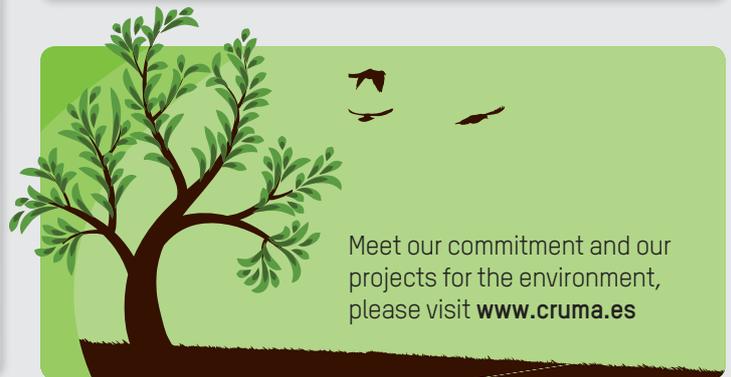


TECHNICAL FEATURES

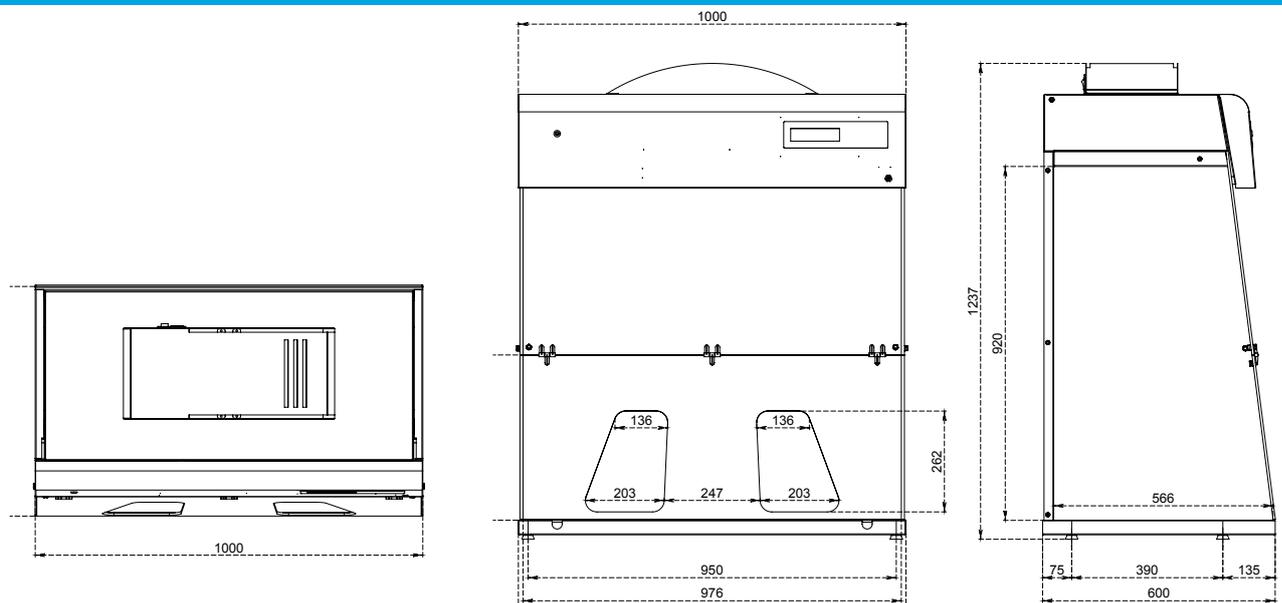
Number of filtration columns	1
Number of filters	1 to 2
Number of IP44 fans	1
Average volume of treated air	175 m ³ /h
Average face velocity	0,50 m/s
Internal volume of the cabinet	0,458 m ³
Renewals inside the cabinet / min	6,4
Total electrical power consumption	91 W
Voltage-Frequency	110-220 V - 50-60 Hz
LED light intensity	18 W / 800 Lux
Noise level	48 dB
Packaging: 100% recycled wooden box with international phytosanitary certificate	Volume 0,52 m ³ Weight 95 Kg

SIZES (MM)

External			Internal		
Width	Depth	Height	Width	Depth	Height
1000	600	1225	976	566	940



SIZES (mm)



CRUMA1200



Cruma ductless fume hood with the largest working surface. Perfect to remove gaseous polluting agents and/or solid particles/aerosols from the working space in a simple, efficient and cost effective way, protecting both the user and the environment. **CRUMA 1200** ductless fume hood uses the CRUMA filtration system, without any exterior connection.



TECHNICAL FEATURES

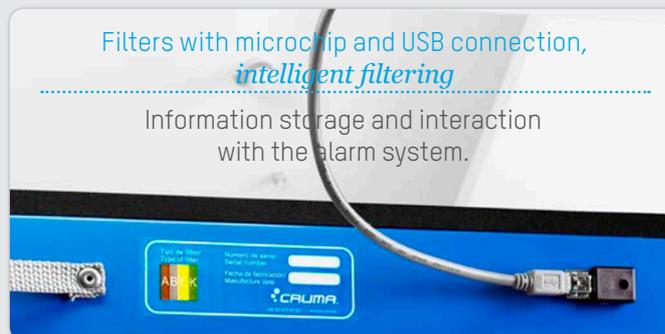
Number of filtration columns	1
Number of filters	1 to 2
Number of IP44 fans	1
Average volume of treated air	175 m ³ /h
Average face velocity	0,50 m/s
Internal volume of the cabinet	0,692 m ³
Renewals inside the cabinet / min	4,2
Total electrical power consumption	91 W
Voltage-Frequency	110-220 V - 50-60 Hz
LED light intensity	18 W / 800 Lux
Noise level	48 dB
Packaging: 100% recycled wooden box with international phytosanitary certificate	Volume 0,64 m ³ Weight 118 Kg

SIZES (MM)

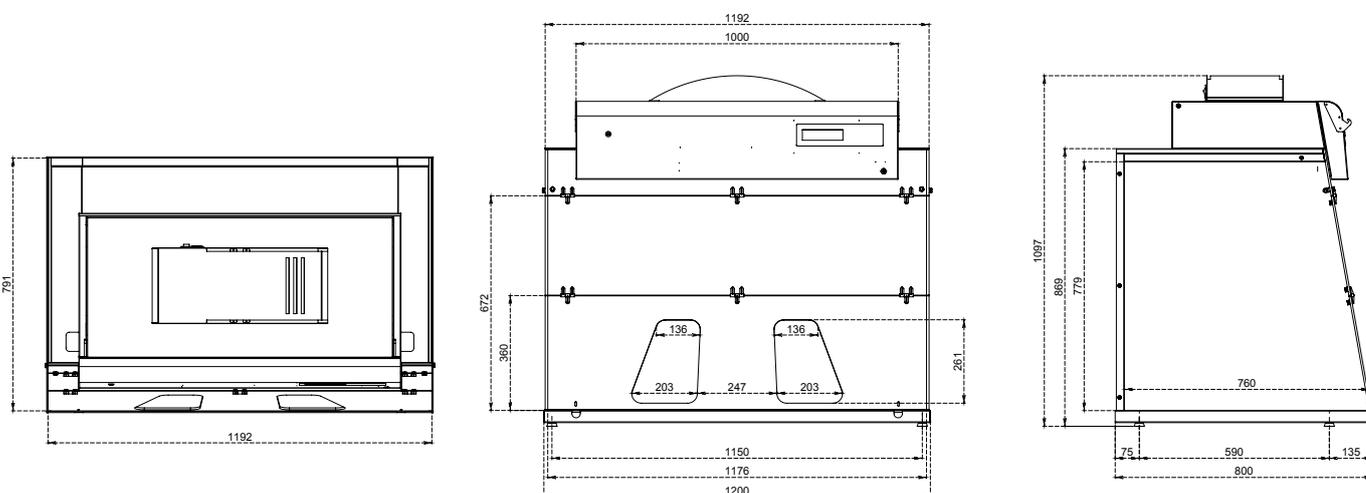
External			Internal		
Width	Depth	Height	Width	Depth	Height
1200	800	1097	1176	760	779

Filters with microchip and USB connection, *intelligent filtering*

Information storage and interaction with the alarm system.



SIZES (mm)



ECO² is the new fumehood that Cruma has developed on demand of our clients.

Our R&D department has created this new model following two main premises: **Economy** and **Ecology**. Therefore its name. **ECO²**, meeting the needs of a market in evolution and constantly demanding new products, respects both the environment and the lab user with the same performance, functionality and quality of all Cruma products.

As a matter of fact, ECO² has passed the same quality and security tests of all other Cruma hoods, satisfying the requirements of all clients.

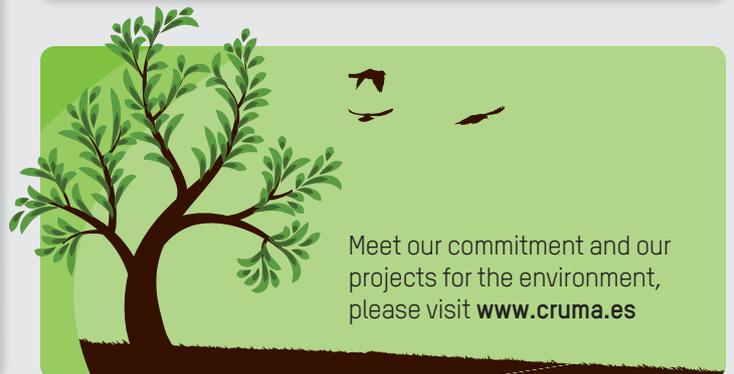


ESPECIFICACIONES TÉCNICAS

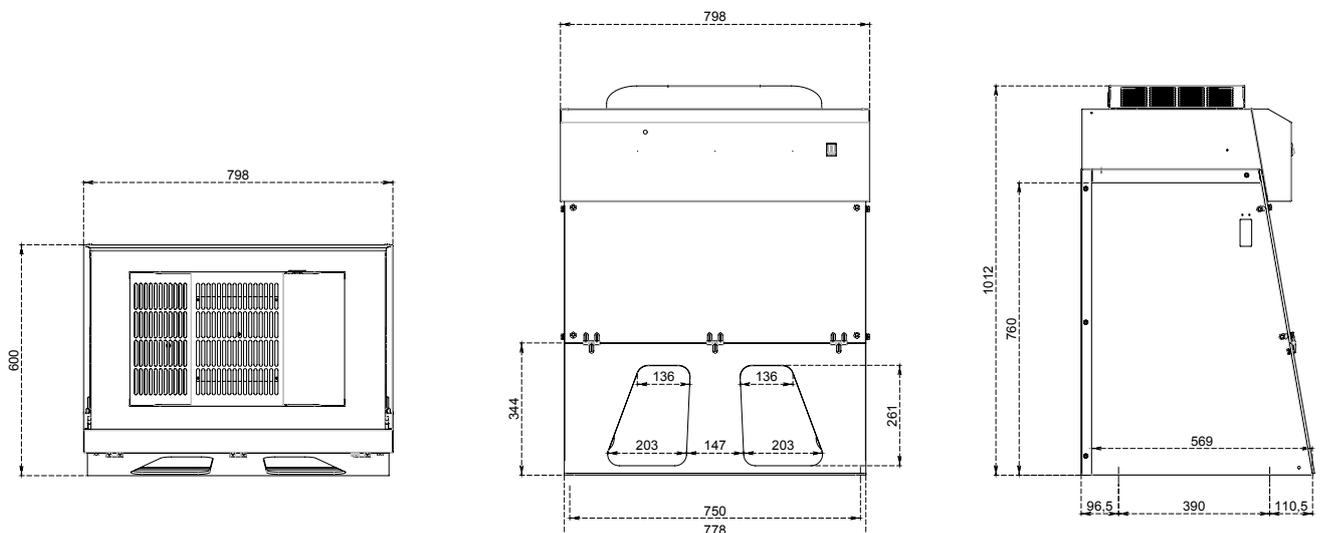
Number of filtration columns	1
Number of filters	1 to 2
Number of IP44 fans	1
Average volume of treated air	175 m ³ /h
Average face velocity	0,50 m/s
Internal volume of the cabinet	0,287 m ³
Renewals inside the cabinet / min	9-11
Total electrical power consumption	47 W
Voltage-Frequency	110-220 V - 50-60 Hz
Light intensity	Optional
Noise level	48 dB
Packaging: 100% recycled wooden box with international phytosanitary certificate	Volume 0,42 m ³ Weight 65 Kg

SIZES (MM)

External			Internal		
Width	Depth	Height	Width	Depth	Height
780	600	1010	778	569	760



SIZES (mm)



Vented storage CUPBOARD



Model Cruma 2010

2010

NEW FEATURES



More information on the new LCD display

- ✓ New size 127x34mm display
- ✓ Air speed continuously monitored
- ✓ Type of filter installed, working hours, expiration date and next revision date
- ✓ Countdown timer
- ✓ Clock and calendar

New features and components

- ✓ Fault LED
- ✓ Control of air flow through Microprocessor
- ✓ HEPA filters with electronic chip
- ✓ LED illumination

New alarms and scheduled warnings

- ✓ Next validation warning
- ✓ Few hours of filter life warning
- ✓ Countdown timer warning
- ✓ Expired filter alarm (by hours)
- ✓ Expired filter alarm (by date)
- ✓ Equipment without filter alarm

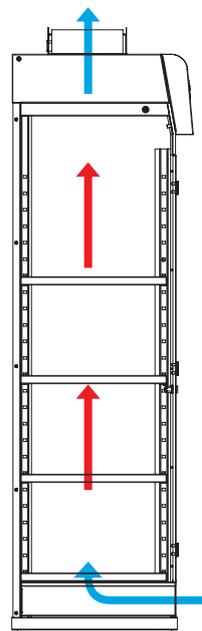


USES

Storage of chemicals under the criteria of incompatibilities.

Filters available:

- ✓ **Type A:** adsorption of vapours and organic solvents (ketones, ethers, alcohols and cyclics, etc.). Activated carbon without impregnation.
- ✓ **Type BE:** inorganic gases such as Cl₂, HCl, HNO₃, etc. and volatile sulphur compounds (H₂S, H₂SO₄ and SO_x, etc.). Activated carbon impregnated with metal compounds and neutralising salts.
- ✓ **Type F:** specific to formaldehyde and derivatives. Impregnated with Cu.



The CRUMA storage and filtration system is based on the technology employed in the CRUMA ASPIRATION AND FILTRATION FUME HOODS.

They are made up of ventilation and filtration systems which prevent stored inflammable, corrosive or toxic products from accumulating inside the cabinet or being expelled into the laboratory or workroom. When compared to other chemical product storage cabinets, their main advantages are:

- ✓ They avoid the accumulation of vapours produced by the stored products inside the cabinet and reduce the risk of the formation of potentially explosive atmospheres inside the cabinet.
- ✓ They prevent vapours produced inside the cabinet from being expelled into the laboratory or workroom, thus avoiding these from being re-circulated through the laboratory or workroom and affecting the personnel inside.

Although the storage of chemical products does not usually cause many accidents with respect to number, however, the few that do occur can become very serious if the necessary technical and/or organisational measures are not taken. Such measures will depend on the quantities and level of danger involved in the stored products. This makes adequate management and organisation of the warehouse essential, by minimising the product stocks, full control of their inventories, taking into account any incompatibilities among them and efficiently separating them in order to prevent them from mixing or aggravation of the consequences in the case of accident, the use of safety containers and the specifications of the installations according to the danger levels of the products etc.

INCOMPATIBILITIES IN THE STORAGE OF CHEMICAL PRODUCTS SEPARATE OR JOINT STORAGE

	EXPLOSIVES	COMBURENTS	INFLAMMABLE	TOXIC	CORROSIVE	HARMFUL
EXPLOSIVES	YES	NO	NO	NO	NO	NO
COMBURENTS	NO	YES	NO	NO	NO	(2)
INFLAMMABLE	NO	NO	YES	NO	(1)	YES
TOXIC	NO	NO	NO	YES	YES	YES
CORROSIVE	NO	NO	(1)	YES	YES	YES
HARMFUL	NO	(2)	YES	YES	YES	YES

(1) They may be stored together if corrosive products are not packed in fragile containers.

(2) They may be stored together if certain measures of prevention are taken. These are general criteria. For any other type of classification of danger levels, the possible storage incompatibilities must be more fully examined.

✓ Products that react with water must not be stored in the same area as other inflammable or combustible liquids.

✓ Inflammable or combustible liquids must not be stored in conventional refrigerators.

CRUMA 2010



Cruma 2010 vented chemical storage cupboard, with the same filtration technology used by Cruma in its fume cupboards during more than 30 years, allow the storage of liquid reactives, reducing the space used, and removing the inflammable, corrosive or toxic vapours by adsorption by means of an specific activated carbon filter, and recirculating the purified air into the laboratory.

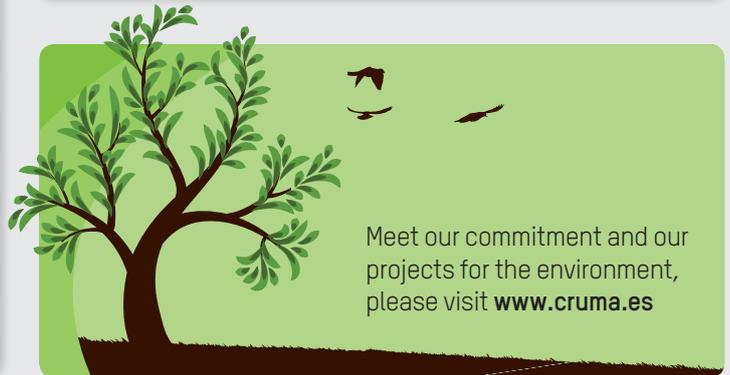
In compliance with the main requirements and recommendations of the strictest standards: BS7258, CSAZ 316.5, AFNOR NF X 15-211 (Class II), EN-1822, EN-141, UNE EN ISO 9001-200.

TECHNICAL FEATURES

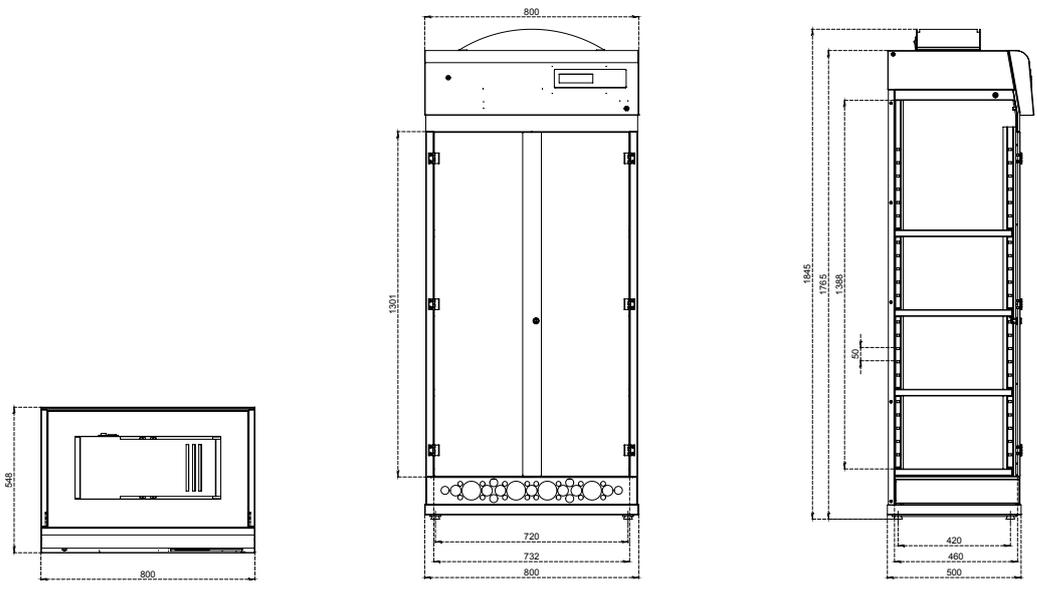
Number of filtration columns	1
Number of filters	1 to 2
Number of IP44 fans	1
Average volume of treated air	160 m ³ /h
Average face velocity	0,50 m/s
Internal volume of the cupboard	0,567 m ³
Renewals inside the cabinet / min	4,6
Total electrical power consumption Voltage-	91 W
Frequency	110-220 V - 50-60 Hz
LED light intensity	800 Lux
Noise level	48 dB
Packaging: 100% recycled wooden box with international phytosanitary certificate	Volume 1,1 m ³ Weight 150 Kg

SIZES (MM)

External			Internal		
Width	Depth	Height	Width	Depth	Height
800	548	1845	732	460	1388



SIZES (mm)



Powder weighing CABINETS

Models P-1 & P-2



P-1



P-2

NEW FEATURES



More information on the new LCD display

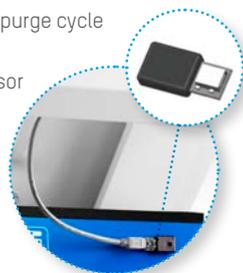
- ✓ New size 127x34mm display
- ✓ Air speed continuously monitored
- ✓ Type of filter installed, working hours, expiration date and next revision date
- ✓ Open door warning through electronic photocell
- ✓ Countdown timer
- ✓ Clock and calendar

New features and components

- ✓ Initial air flow cycle adequacy and final purge cycle
- ✓ Fault LED
- ✓ Control of air flow through Microprocessor
- ✓ Filters with electronic chip
- ✓ Internal temperature sensor

New alarms and scheduled warnings

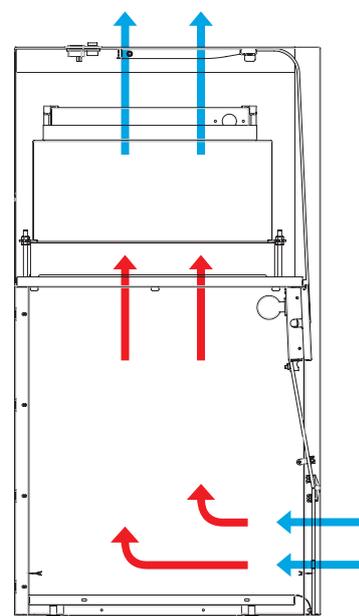
- ✓ Open door warning
- ✓ Open door in off mode warning
- ✓ Next validation warning
- ✓ Few hours of filter life warning
- ✓ Countdown timer warning
- ✓ Expired filter alarm (by hours)
- ✓ Expired filter alarm (by date)
- ✓ Temperature alarm
- ✓ Equipment without filter alarm
- ✓ Low barrier alarm



USES

- ✓ Analysis laboratories
- ✓ Research laboratories
- ✓ Quality control laboratories
- ✓ Clinical laboratories, etc...

...in short, in any laboratory.



To protect the operator during powder weighing operations, Cruma designed a new cabinet with **double HEPA filtration** for the retention of particles of 0.3 microns or larger: a main filter H-14 + and exhaust safety filter H-14. Optionally it can be configured with an activated exhaust carbon filter instead of the H-14 filter.

Weighing operations must be performed in a controlled environment that eliminates any risk of operator exposure to manipulated products and guarantee the level of precision required by the applications of drug companies.

SERIAL EQUIPMENT	
Electronic circuit with large format LCD screen	Security levels: level 1 for users and level 2 for maintenance users
Electronic anemometer device	Electronic sensor monitoring continuously air face velocity
Photocell sensor device for open door detection	Electric device with open door alarm
Electronic control device for filters replacement	The filters incorporate a microchip with miniUSB connection that identifies the type of filter installed, the expiry date and the serial no.
Illumination	96 LED Tube high light intensity and low power consumption - 16 Watts / 700 Lux
Electronic cronometre with audible alarm	To program the work inside the fume hood
Clock and calendar	Display of date and time
Working surface 1	Spill retention tray (2-10 liters) with working surface in white tempered glass
Switched electrical outlet	Electrical socket placed on the inside of the cabinet to connect a weighing balance.
Warranty	7 years

POWDER FILTRATION COLUMN	
Type DG Manipulación de productos en polvo con filtro de seguridad molecular	
Tipo DD Handling of powder with safety filter HEPA-H14	

 Fan
  Molecular Filter
  HEPA-H14 Filter

OPTIONAL EQUIPMENT	
Movilair	Stand with wheels and internal tray in Epoxy coated steel
Tubular steel stand	Support stand in Epoxy coated steel
Working surface 2	Spill retention tray (2-10 liters) with working surface in phenolic resin
Voltage / Frequency	125 V / 50 Hz

MAIN STRUCTURE	
Metal parts	1.2 mm galvanized coated steel with anti acid polymer resin powder heat-hardened at 200 °C
Doors	Transparent polymethylmethacrylate 6 mm thick (light transmission of 93%)

CRUMA P-1



Cruma P-1 technology retains particles and molecules (if necessary) for the total safety of the operator and without any risk of dispersion of pollutants in the environment.



TECHNICAL FEATURES

Number of filtration columns	1
Number of filters	2
Number of IP44 fans	1
Average volume of treated air	175 m ³ /h
Average face velocity	0,50 m/s
Internal volume of the cabinet	0,236 m ³
Renewals inside the cabinet / min	9.6
Total electrical power consumption	73 W
Voltage-Frequency	110-220 V / 50-60 Hz
LED light intensity	900 Lux
Noise level	48 dB
Packaging: 100% recycled wooden box with international phytosanitary certificate	Volume 0,74 m ³ Weight 112 Kg

SIZES (MM)

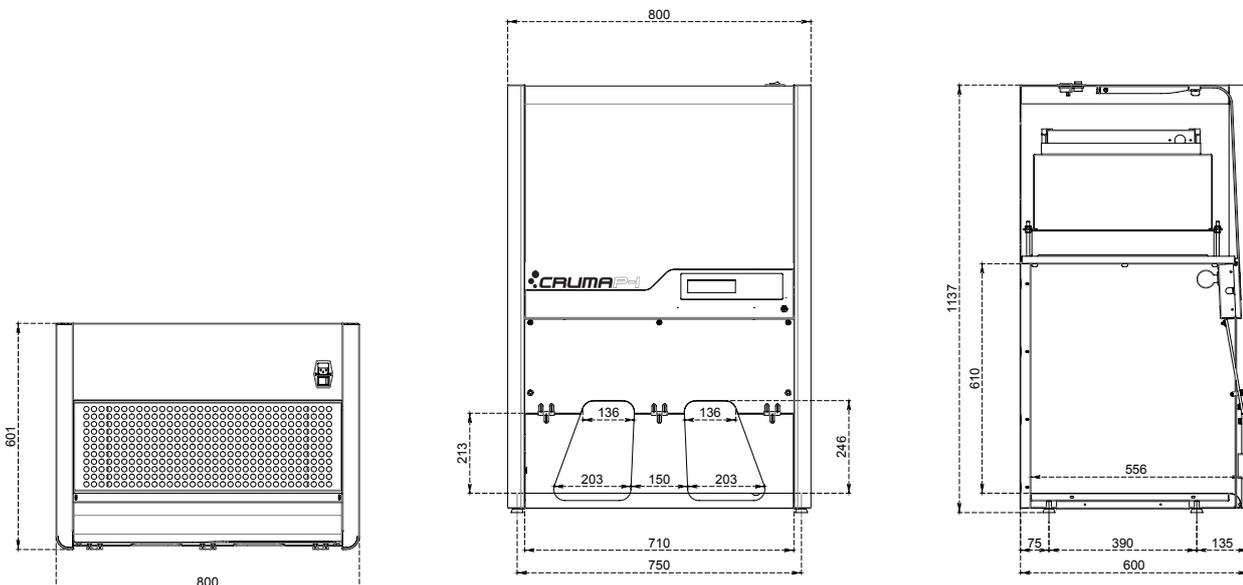
External			Internal		
Width	Depth	Height	Width	Depth	Height
800	600	1137	710	556	610

Filters with microchip and USB connection, *intelligent filtering*

Information storage and interaction with the alarm system.



SIZES (mm)



CRUMAP-2



Cruma P-2 technology retains particles and molecules (if necessary) for the total safety of the operator and without any risk of dispersion of pollutants in the environment.

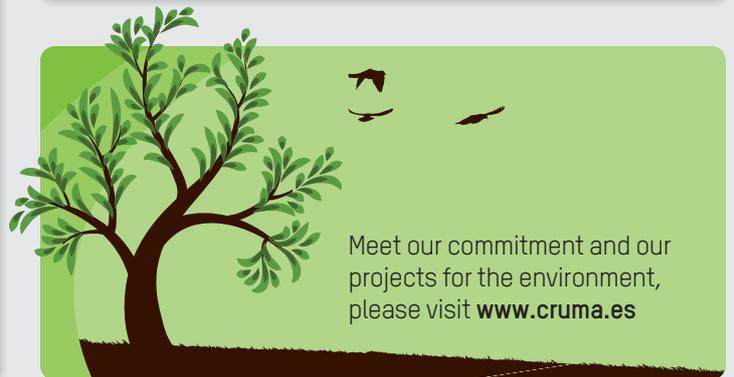


TECHNICAL FEATURES

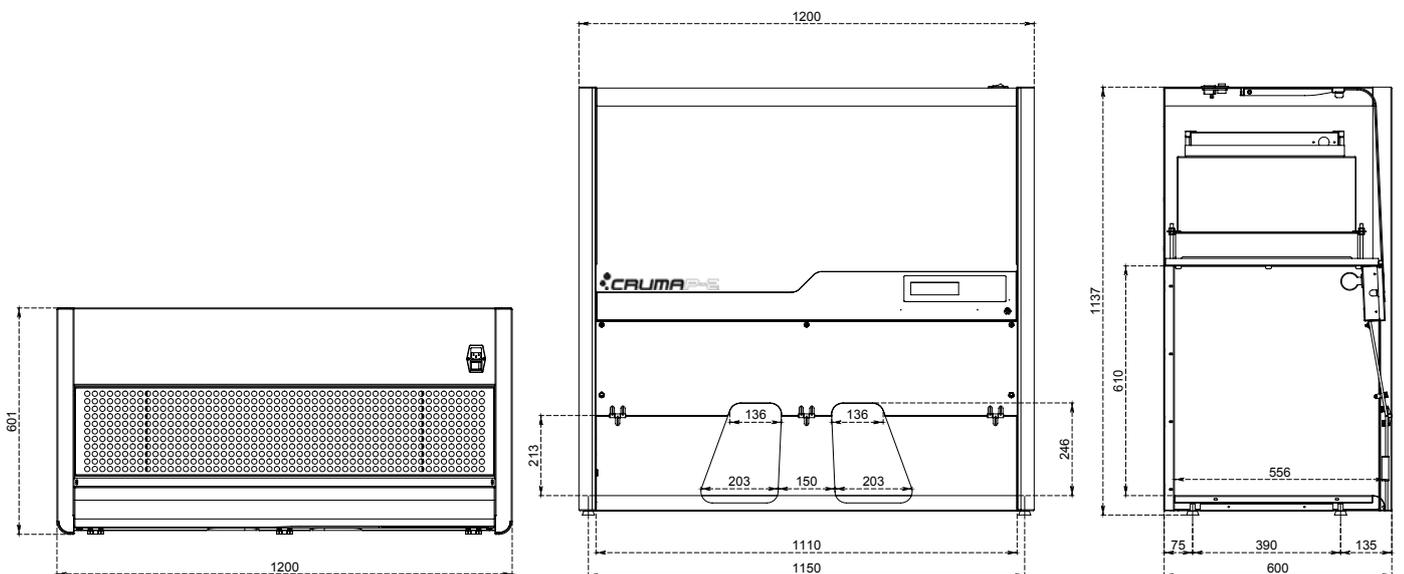
Number of filtration columns	1
Number of filters	2
Number of IP44 fans	1
Average volume of treated air	175 m ³ /h
Average face velocity	0,50 m/s
Internal volume of the cabinet	0,376 m ³
Renewals inside the cabinet / min	8,3
Total electrical power consumption	91 W
Voltage-Frequency	110-220 V - 50-60 Hz
LED light intensity	900 Lux
Noise level	48 dB
Packaging: 100% recycled wooden box with international phytosanitary certificate	Volume 0,95 m ³ Weight 142 Kg

SIZES (MM)

External			Internal		
Width	Depth	Height	Width	Depth	Height
1200	600	1137	1110	556	610



SIZES (mm)



Laminar flow CABINETS

Unassembled models 670FL, 870FL, HZ-1 & HZ-2



Assembled models FL-1 & FL-2



NEW FEATURES

More information on the new LCD display



- ✓ New size 127x34mm display
- ✓ Type of filter installed, working hours, expiration date and next revision date
- ✓ Countdown timer, clock and calendar

New features and components

- ✓ Initial cycle flow adequacy and final purge cycle
- ✓ Fault LED
- ✓ Control of air flow through Microprocessor
- ✓ HEPA filters with electronic chip
- ✓ LED illumination

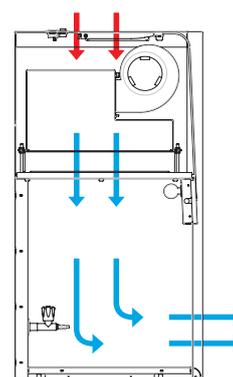
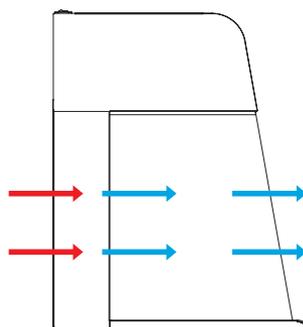
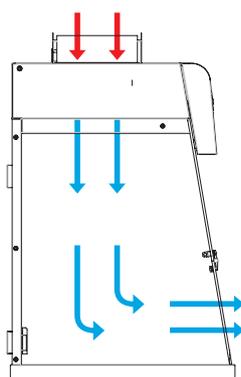
New alarms and scheduled warnings

- ✓ Next validation warning
- ✓ Few hours of filter life warning
- ✓ Countdown timer warning
- ✓ Expired filter alarm by hours & by date
- ✓ Equipment without filter alarm



USES

- ✓ Laboratory food industries in general
- ✓ Transfer of drugs in the pharmacy department
- ✓ Hematology and clinical analysis
- ✓ Filled with antibiotics and injectable drugs (except cytostatic) microscopic analysis
- ✓ Tissue culture bags reconstitution of parenteral methods of assisted fertilization techniques
- ✓ Micropropagation
- ✓ Plant cell cultures
- ✓ Water quality control
- ✓ Manufacturing of electronic devices...



To ensure the reliability of the tests, it is vital that the work performed inside the cabinet is not contaminated. To create this sterile environment, the air flow generated in Cruma vertical and horizontal laminar flow cabinets is - according to ISO class 5 (former Class 100).

In **FL** models the air flow goes through a **HEPA H-14** filter (manufactured according to EN-1822 regulation) at a constant speed, crosses the cabinet in laminar state and in a vertical direction, generating a sterile area Class 100 (according to the American Federal Standard 209E and equivalent to the rule ISO Class 5) and protecting the sample from external contamination and cross contamination between samples.

Filtering system of one stage with a minimum efficiency of 99,995% for particles of 0,3 μm in the upper part and with extraction of 100% of the air flow to the exterior.

OPTIONAL EQUIPMENT

Gas tap
Vacuum tap
UV light for HZ-1, HZ-2 & HZ-3
Stand with wheels Movilair for 670 & PCR
Stand with wheels Movilair for 870
Stand with wheels Movilair for FL-1
Stand with wheels Movilair for HZ-1
Tubular stand for 670 & PCR
Tubular stand for 870
Tubular stand for FL-2
Tubular stand for HZ-1
Tubular stand for HZ-2
Tubular stand for HZ-3

SERIAL EQUIPMENT

Electronic circuit with large format LCD display	Security levels: level 1 for users and level 2 for maintenance users
Filters controlled by microprocessor	The filters are provided with a microchip with mini USB connection identifying the type of filter installed, the expiry date and the serial number
Illumination	96 LED high light intensity and low consumption 16 Watts / 900 Lux
Digital timer with audible warning	Hourmeter for the control and warning of the work in the cabinet
Clock and Calendar	Display of date and time
Steel work surface	Worktop of stainless steel surface AISI 304 2B
G4 prefilter	Pre-filtering class G4 biofibre synthetic blanket
Warranty	7 years

MAIN STRUCTURE

Metallic parts	1.2 mm galvanized steel, coated with antiacid polymer powder resin thermo-hardened at 200 °C
Side Panels	Transparent polymethylmethacrylate 8 mm thick (light transmission of 93%)

CRUMA 670FL



CRUMA vertical laminar flow hood with ISO Class 5 air purity creates a sterile environment free of particles and/or microorganisms that ensures the reliability of any test inside the hood. It incorporates a HEPA H-14 absolute filter whose minimum efficiency is of 99.995% for particles of 0.3 μm , and a 15W UV germicide lamp designed to decontaminate the hood before and after each use.

Cruma has updated the cabinet with the latest techniques for a better protection of the samples. In compliance with the EN-1822, DIN-24184, US St-209, ISO-14644, EN-ISO 90001:2000.

It includes **new important technical features** in order to satisfy the operator in his everyday task and his protection at work, taking care of the environment as well. All this with the same quality as always and up to 5 year guarantee.



TECHNICAL FEATURES

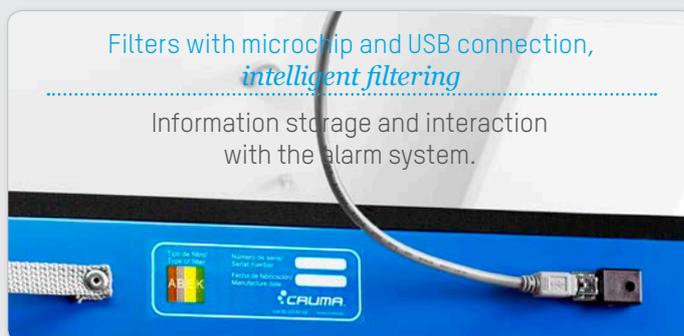
Number of filters	1
Number of IP44 fans	1
Average face velocity	0,40 m/s
Total electrical power consumption	102 W
Voltage-Frequency	110-220 V / 50-60 Hz
LED light intensity	900 Lux
UV germicidal lamp	15W
Noise level	48 dB
Packaging: 100% recycled wooden box with international phytosanitary certificate	Volume 0,28 m ³ Weight 65 Kg

SIZES (MM)

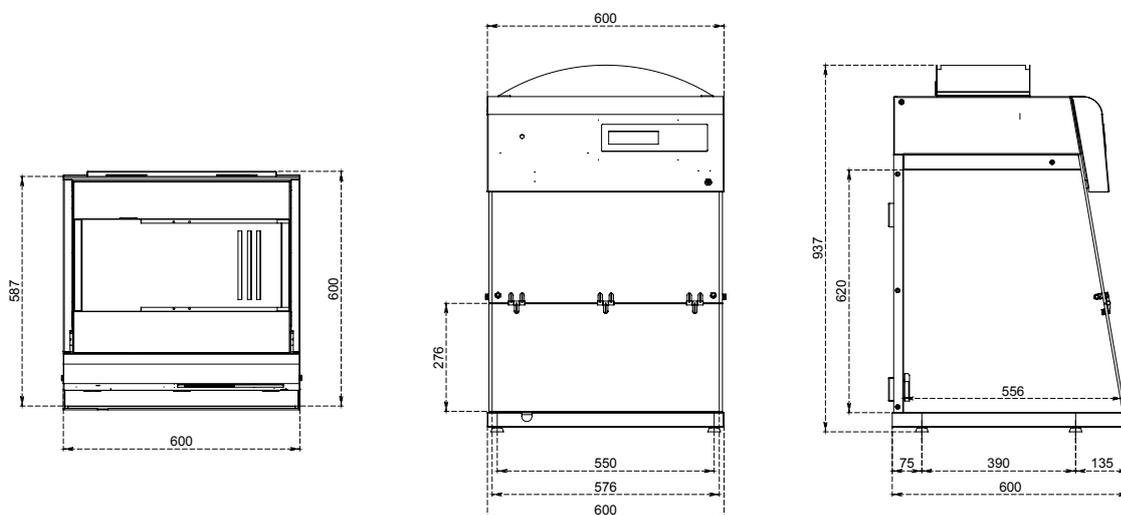
External			Internal		
Width	Depth	Height	Width	Depth	Height
600	600	930	575	560	630

Filters with microchip and USB connection, *intelligent filtering*

Information storage and interaction with the alarm system.



SIZES (mm)



VERTICAL LAMINAR FLOW FOR SAMPLE PROTECTION

CRUMA 870FL



CRUMA vertical laminar flow hood with ISO Class 5 air purity creates a sterile environment free of particles and/or microorganisms that ensures the reliability of any test inside the hood. It incorporates a HEPA H-14 absolute filter whose minimum efficiency is of 99.995% for particles of 0.3 μm , and a 15W UV germicide lamp designed to decontaminate the hood before and after each use.

Cruma has updated the cabinet with the latest techniques for a better protection of the samples. In compliance with the EN-1822, DIN-24184, US St-209, ISO-14644, EN-ISO 90001:2000. It includes **new important technical features** in order to satisfy the operator in his everyday task and his protection at work, taking care of the environment as well. All this with the same quality as always and up to 5 year guarantee.

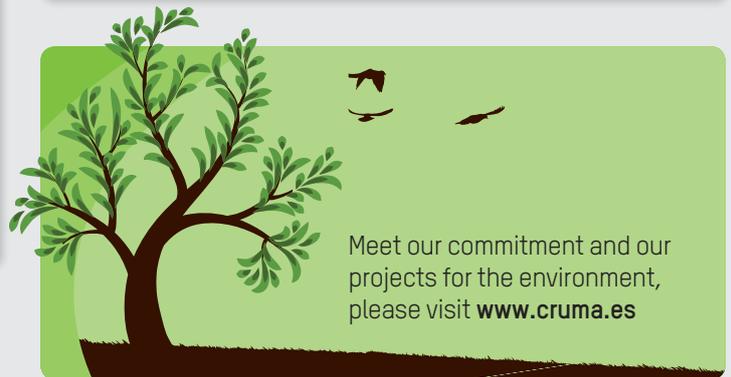


TECHNICAL FEATURES

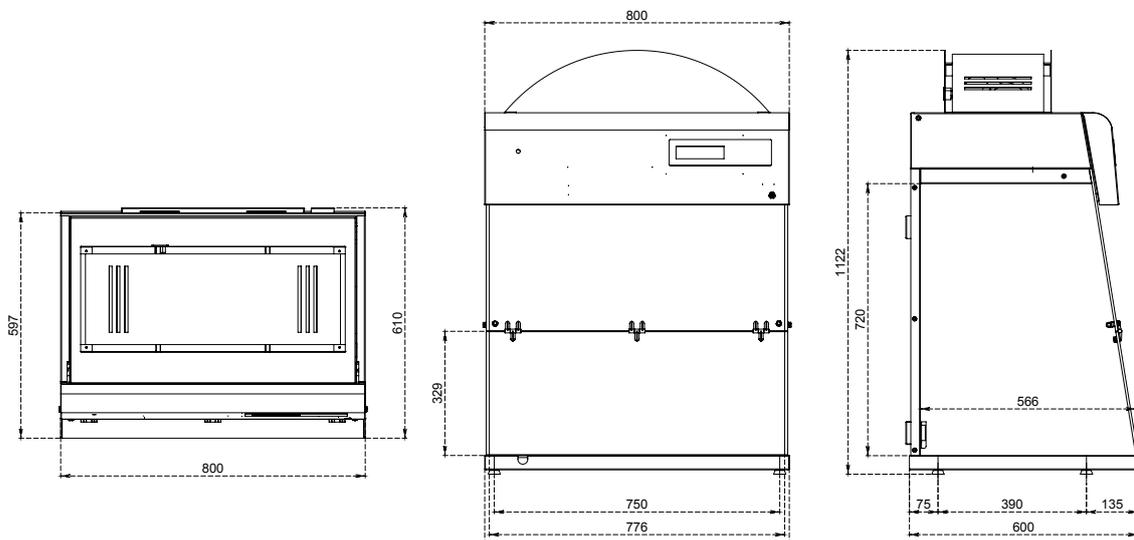
Number of filters	1
Number of IP44 fans	1
Average face velocity	0,40 m/s
Total electrical power consumption	226 W
Voltage-Frequency	110-220 V / 50-60 Hz
LED light intensity	900 Lux
UV germicidal lamp	15W
Noise level	50 dB
Packaging: 100% recycled wooden box with international phytosanitary certificate	Volume 0,42 m ³ Weight 92 Kg

SIZES (MM)

External			Internal		
Width	Depth	Height	Width	Depth	Height
800	600	1125	775	560	740



SIZES (mm)



CRUMA HZ-1



The new **Cruma HZ-1** is our little horizontal laminar flow cabinet Class ISO 5 (former class 100) ideal for works that should ensure the protection of the products against external and cross-contamination.

The unique mounting system of the sidewalls, positioned inside the perimeter of the filter, prevents contaminants from entering into the work area through the same filter frame thanks to the Venturi-effect.



TECHNICAL FEATURES

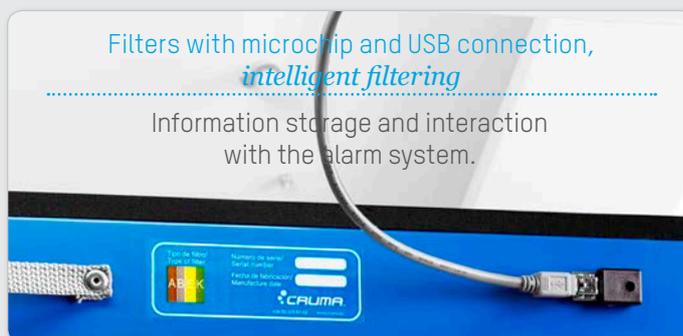
Number of filters	1
Number of IP44 fans	1
Average face velocity	0,40 m/s
Total electrical power consumption	211 W
Voltage-Frequency	110-220 V / 50-60 Hz
LED light intensity	18W / 900 Lux
Noise level	50 dB
Packaging: 100% recycled wooden box with international phytosanitary certificate	Volume 0,38 m ³ Weight 80 Kg

SIZES (MM)

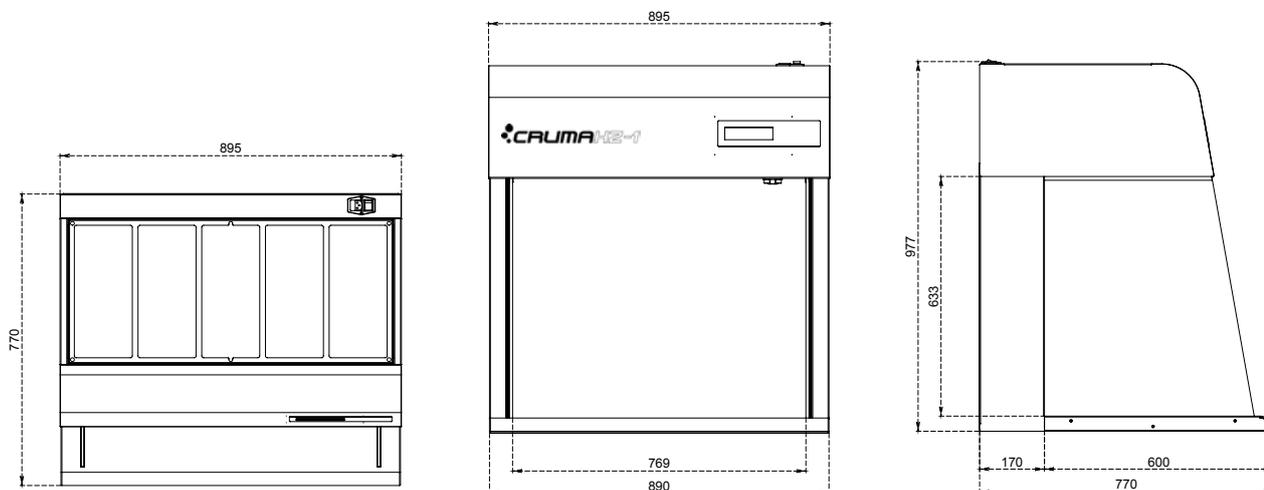
External			Internal		
Width	Depth	Height	Width	Depth	Height
895	770	977	769	600	633

Filters with microchip and USB connection, *intelligent filtering*

Information storage and interaction with the alarm system.



SIZES (mm)



HORIZONTAL LAMINAR FLOW FOR SAMPLE PROTECTION

CRUMA HZ-2



The new **Cruma HZ-2** is our bigger horizontal laminar flow cabinet Class ISO 5 (former class 100) ideal for works that should ensure the protection of the products against external and cross-contamination.

The unique mounting system of the sidewalls, positioned inside the perimeter of the filter, prevents contaminants from entering into the work area through the same filter frame thanks to the Venturi-effect.

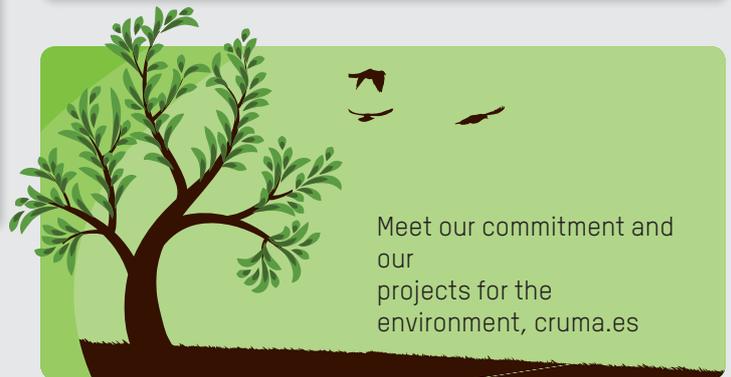


TECHNICAL FEATURES

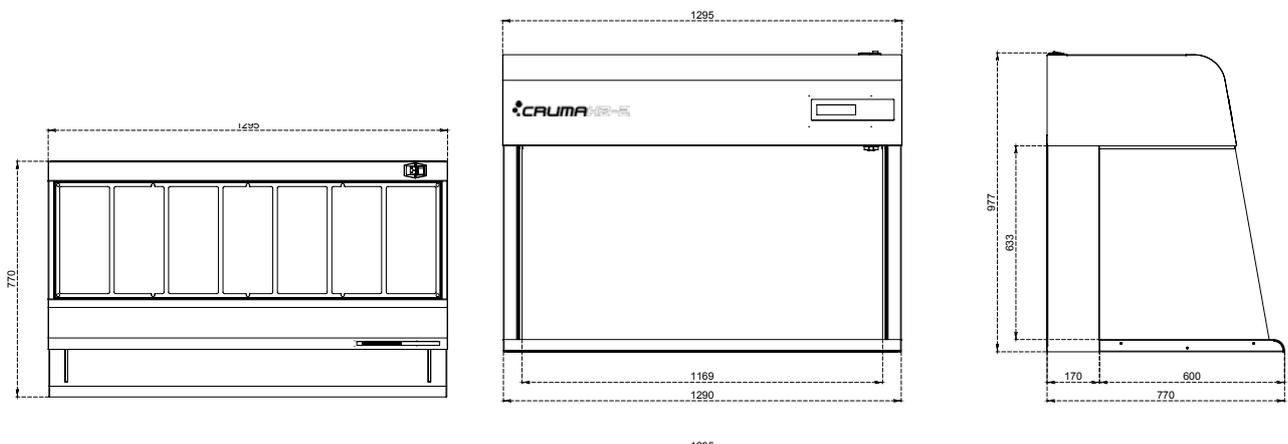
Number of filters	1	
Number of IP44 fans	2	
Average face velocity	0,40 m/s	
Total electrical power consumption	414 W	
Voltage-Frequency	110-220 V / 50-60 Hz	
LED light intensity	2 x 18W/900 Lux	
Noise level	45 dB	
Packaging: 100% recycled wooden box with international phytosanitary certificate	Volume	0,54 m ³
	Weight	102 Kg

SIZES (MM)

External			Internal		
Width	Depth	Height	Width	Depth	Height
1295	770	977	1169	600	633



SIZES (mm)



CRUMA FL-1



Cruma breaks with the tradition of removable laminar flow cabinets offering the new **Cruma FL-1**, an innovative cabin whole body.

Furthermore, the new cabin **Cruma FL-1** combines a striking and unique exterior design with the best technology and internal development. However, to meet the operator in his everyday work and protect it in their work caring for the environment.



TECHNICAL FEATURES

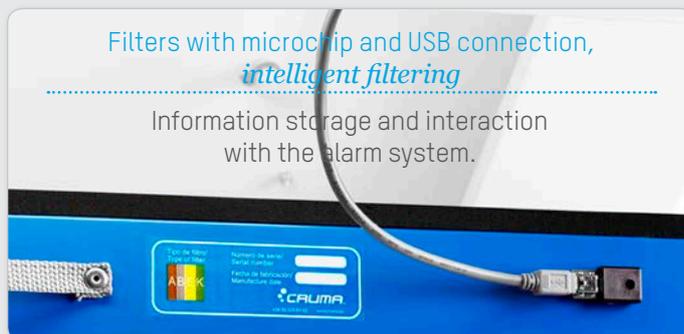
Number of filters	1
Number of IP44 fans	1
Average face velocity	0,40 m/s
Total electrical power consumption	226 W
Voltage-Frequency	110-220 V / 50-60 Hz
LED light intensity	900 Lux
UV germicidal lamp	15W
Noise level	50 dB
Packaging: 100% recycled wooden box with international phytosanitary certificate	Volume 0,74 m ³ Weight 112 Kg

SIZES (MM)

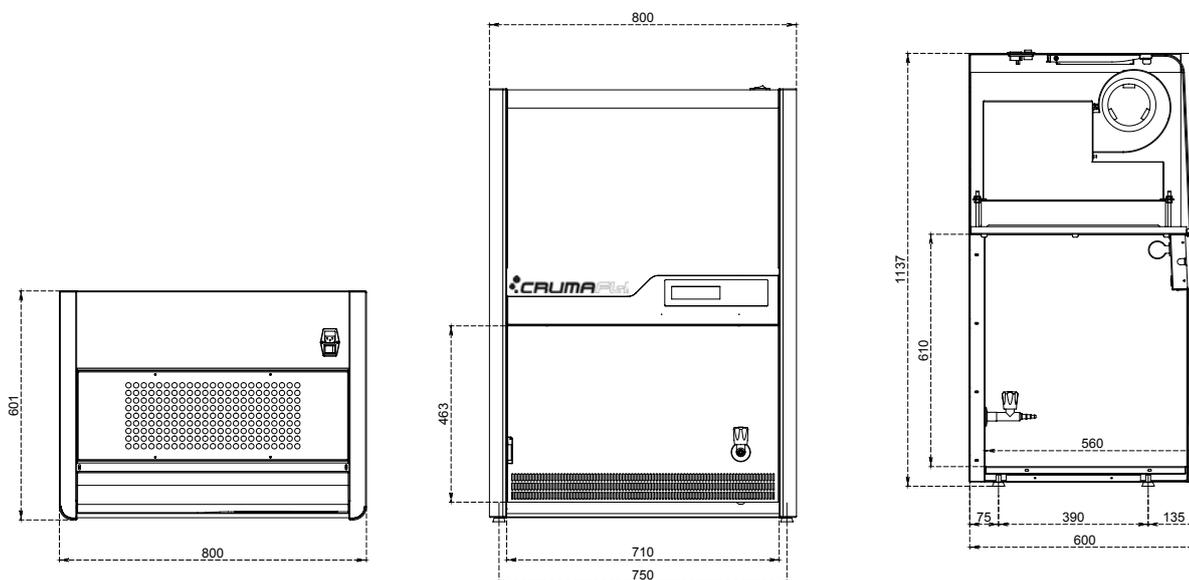
External			Internal		
Width	Depth	Height	Width	Depth	Height
800	600	1137	710	556	610

Filters with microchip and USB connection, *intelligent filtering*

Information storage and interaction with the alarm system.



SIZES (mm)



VERTICAL LAMINAR FLOW FOR SAMPLE PROTECTION

CRUMA FL-2



Cruma breaks with the tradition of removable laminar flow cabinets offering the new **Cruma FL-2**, an innovative cabin whole body.

Furthermore, the new cabin **Cruma FL-2** combines a striking and unique exterior design with the best technology and internal development. However, to meet the operator in his everyday work and protect it in their work caring for the environment.

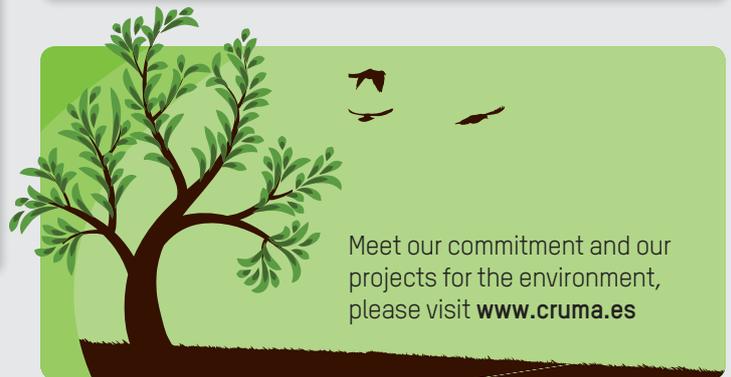


TECHNICAL FEATURES

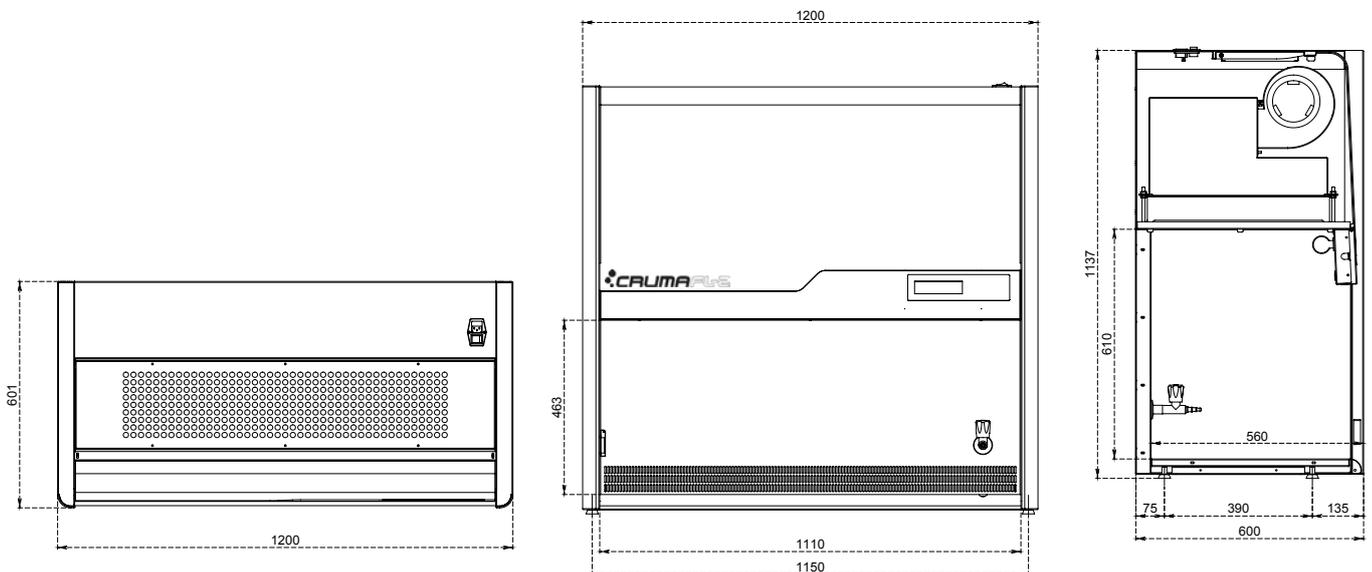
Number of filters	1
Number of IP44 fans	1
Average face velocity	0,40 m/s
Total electrical power consumption	226 W
Voltage-Frequency	110-220 V / 50-60 Hz
LED light intensity	900 Lux
UV germicidal lamp	15W
Noise level	50 dB
Packaging: 100% recycled wooden box with international phytosanitary certificate	Volume 0,95 m ³ Weight 142 Kg

SIZES (MM)

External			Internal		
Width	Depth	Height	Width	Depth	Height
1200	600	1137	1110	556	610



SIZES (mm)



PCR CABINET

PCR Model



MAIN FEATURES

- ✓ 3 UV germicidal lamps (15W)
- ✓ 4mm tempered glass front
- ✓ Automatic shutdown of the UV lamps by opening
- ✓ accidental door
- ✓ Multifunction digital timer
- ✓ As easy as out of the box and work

USES

Recombinant DNA technology.

The new **Cruma PCR CABINET** has been specifically designed for DNA carry-over blocking by using PCR technique (Polymerase Chain Reaction).

The **three UV tubes** and the inclusion of a timer allow the total sterilization of the material inside the chamber as well as of the whole working surface preventing possible cross-contamination of DNA and ARN samples, that can determine false positive test results.

The 4mm tempered glass works as a filter to UV radiation therefore protecting the operator and the environment. In case of accidental front door opening, UV lamps are automatically disconnected to guarantee total protection of the operator.

Cruma has designed an innovative cabinet different from the ones on the market which represent a new concept for lab equipment.

The new **Cruma PCR cabinet** combines the comfort of a working area with a environment friendly design.

It is made one body and plug & play operation, so start working with it, it's a matter of minutes.



TECHNICAL FEATURES

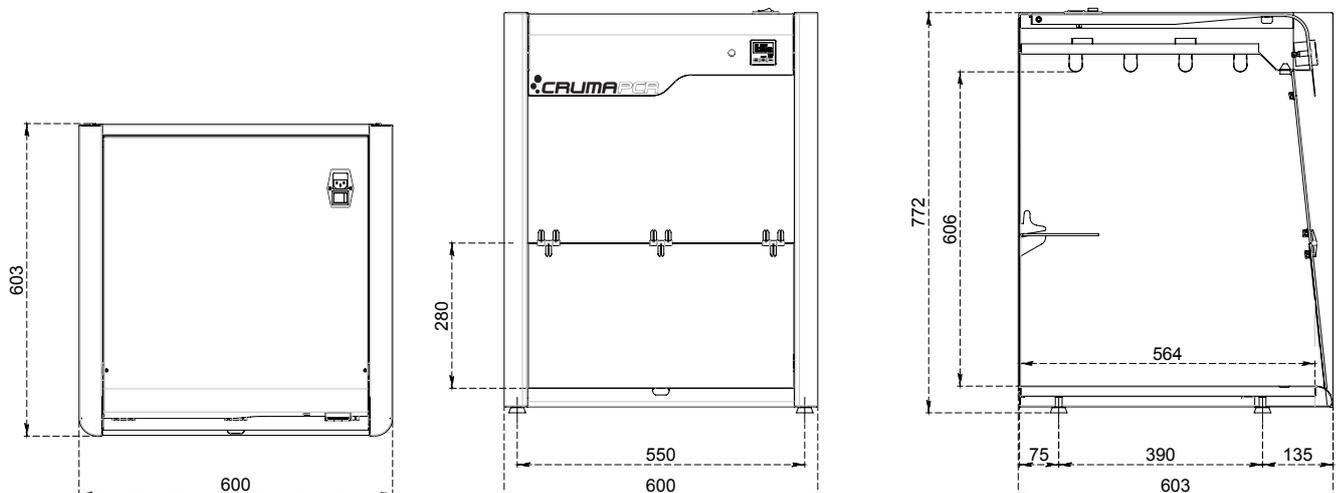
Total electrical power consumption	63 W	
Voltage-Frequency	110-220 V / 50-60 Hz	
UV lamp	3 x 15W	
LED light intensity	18W / 900 Lux	
Front opening height	235 mm	
Packaging: 100% recycled wooden box with international phytosanitary certificate	Volume	0,4 m ³
	Weight	60 Kg

SIZES (MM)

External			Internal		
Width	Depth	Height	Width	Depth	Height
600	603	772	550	600	606



SIZES (mm)





Biosafety cabinets

CLASS II TYPE A2

Bio-1, Bio-2, Bio-3 & VirusFree Models



BIO-1



BIO-2



BIO-3



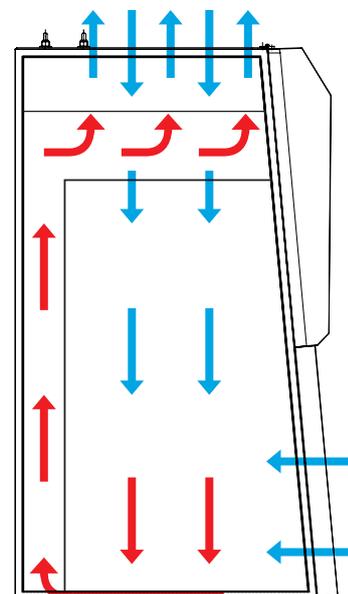
VIRUSFREE

TECHNICAL FEATURES

- ✓ Fully EN12469 certified by TÜV Hamburg
- ✓ State of the art microprocessor control system
- ✓ Large digital display, high resolution
- ✓ Air and aerosol-tight sliding sash, electrically operated by finger touch
- ✓ Alarms for low airflow and wrong front window position
- ✓ Sloped front and back wall for the most comfortable access
- ✓ Front access for filter maintenance and service
- ✓ C-shaped support stand for the easiest one man installation procedure
- ✓ Easy retrofit option kits

USES

- ✓ Manipulation of microorganisms, bacteria, fungi, viruses and parasites
- ✓ Risk categories 1, 2 and 3.
- ✓ Isolation and sample culture
- ✓ Quantification methods
- ✓ Microscopy techniques and sample preparation - Identification and classification of microorganisms
- ✓ Genetic Manipulation



The last generation microbiological safety cabinets **CRUMA BIO CLASS II Type A2** with digital functions.

The cabinet design ensures complete integrity by close control of the airflow. Incoming air is filtered through the first HEPA filter and down through the work area in a laminar flow pattern. The descending air creates a protective barrier preventing any outside air entering the cabinet. The airflow is then re-directed from the base of the cabinet into a plenum where 30% is expelled through a second HEPA filter and 70%, along with 30% new make up air, is re-circulated back into the cabinet through the first HEPA filter.

MAIN SPECIFICATIONS

- ✓ Microprocessor controlled motor blower, with volumetric sensor for exhausted air flow monitoring
- ✓ State of the art Microprocessor control system offering:
 - Large screen monitor
 - Automatic control of preset airflow volumes
 - Sliding sash window with smart control
 - Permanent monitoring of HEPA filters life span
 - Alarms. Multilevel alarms, with redundancy functions - Permanent display of working conditions
 - Highest air flow stability both in case of transitional disturbances or to progressive filter clogging
 - Semi-automatic fumigation cycle (EN12297 tested and certified)
 - Continuous monitoring of front barrier air flow for the highest operator safety
 - Low barrier alarm
 - Power failure alarm
- ✓ Volt-free contact for remote monitoring of exhaust fan
- ✓ Automatic reset of initial conditions in case of powerfailure
- ✓ C-shaped support stand for the easiest one man installation procedure

MAIN STRUCTURE

External metal parts	1.2 mm galvanized steel, coated with antiacid polymer powder resin thermo-hardened at 200 °C
Internal metal parts	Stainless Steel internal surfaces with 2B finishing (including spillage tray). Solid work surface in 3 sections and special designed front grill at the air barrier that cannot be obstructed by the operator's arms
Front door	Electrically operated from control panel sliding multilayer safety glass window

ACCORDING TO STANDARDS

Cabinet	CEN-12469
Filters	EN-779:1996 (HEPA & ULPA Filters) EN-1822:1998 (HEPA & ULPA Filters)
Quality	UNE EN ISO 9001:2008



KEYBOARD MEMBRANE

Membrane keyboard commands for opening and closing the front window, activation of service outlets, electrical socket, gas solenoid valve, lighting and predisposed key to activate the connector kit germicidal lamp under the condition of complete closure of front of the machine, given the presence of the relevant position sensors.

All available accessories can be mounted without any structural modification of the cabin.

Provision for possible expulsion for channel adapters or additional filters.

CRUMABIO-1



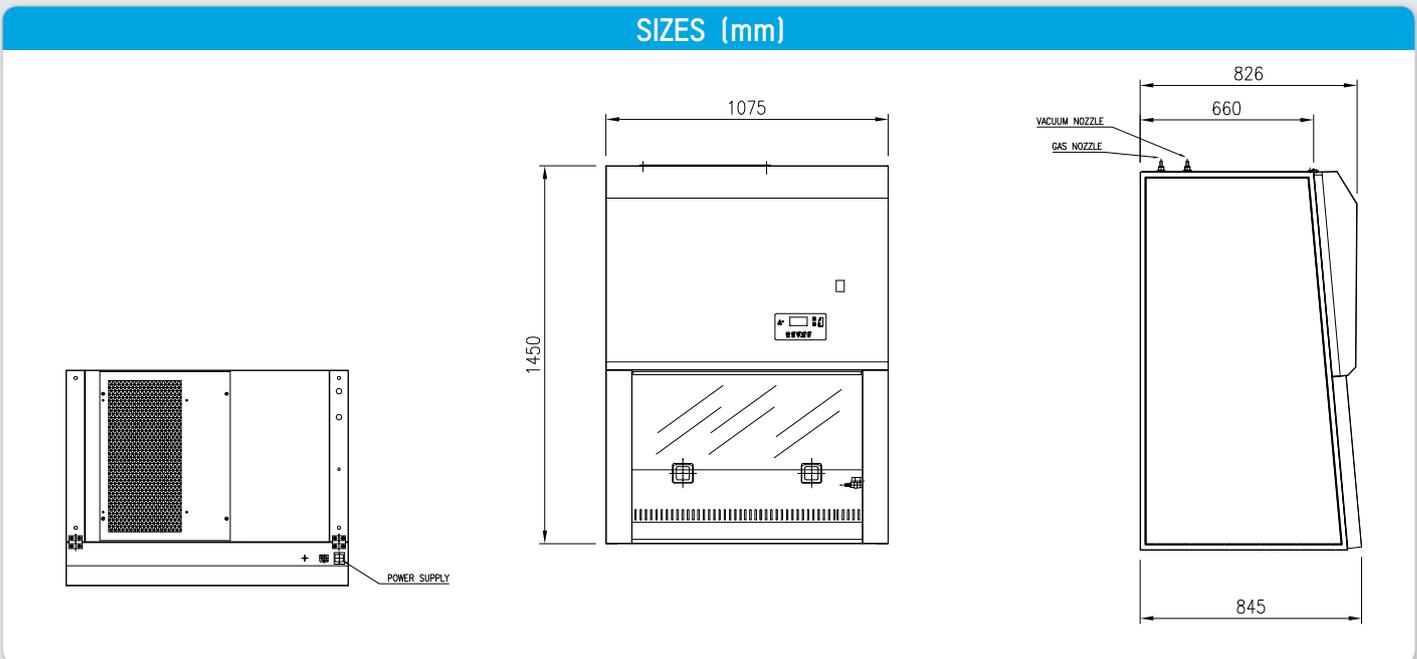
The last generation microbiological safety cabinets **CRUMA BIO CLASS II Type A2** with digital functions.

The cabinet design ensures complete integrity by close control of the airflow. Incoming air is filtered through the first HEPA filter and down through the work area in a laminar flow pattern. The descending air creates a protective barrier preventing any outside air entering the cabinet. The airflow is then re-directed from the base of the cabinet into a plenum where 30% is expelled through a second HEPA filter and 70%, along with 30% new make up air, is re-circulated back into the cabinet through the first HEPA filter.



TECHNICAL FEATURES		
Number of filters HEPA-H14		2
Number of IP44 fans		1
Average volume of treated air		±350 m ³ /h
Average face velocity		0.50 m/s
Total electrical power consumption		260 W
Voltage-Frequency		110-230 V / 50-60 Hz
Fluorescent Lamp / Light intensity		36 W / 900 Lux
Noise level		49 dB
Packaging: Cartoon box	Volumen	2 m ³
	Peso	250 Kg

SIZES (MM)					
External			Internal		
Width	Depth	Height	Width	Depth	Height
1074	840	1450	924	600	700



CRUMABIO-2



The last generation microbiological safety cabinets **CRUMA BIO CLASS II Type A2** with digital functions.

The cabinet design ensures complete integrity by close control of the airflow. Incoming air is filtered through the first HEPA filter and down through the work area in a laminar flow pattern. The descending air creates a protective barrier preventing any outside air entering the cabinet. The airflow is then re-directed from the base of the cabinet into a plenum where 30% is expelled through a second HEPA filter and 70%, along with 30% new make up air, is re-circulated back into the cabinet through the first HEPA filter.

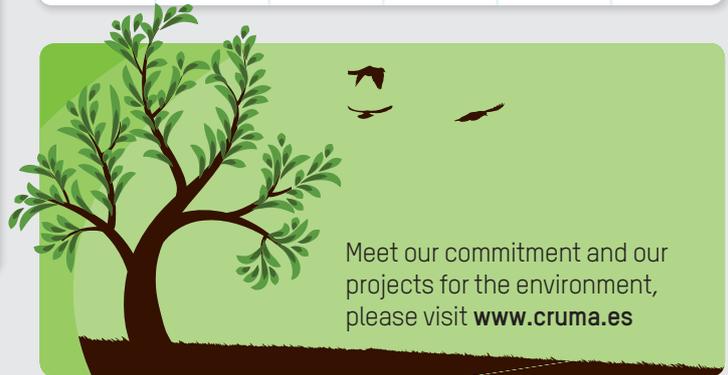


TECHNICAL FEATURES

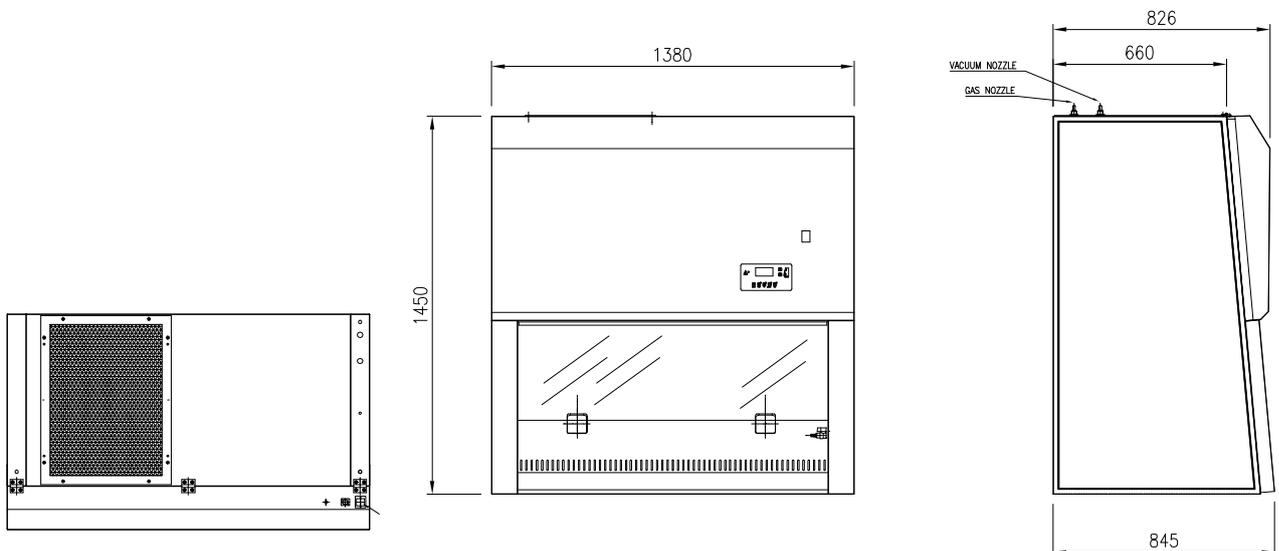
Number of filters HEPA-H14	2	
Number of IP44 fans	1	
Average volume of treated air	±400 m ³ /h	
Average face velocity	0.50 m/s	
Total electrical power consumption	360 W	
Voltage-Frequency	110-230 V / 50-60 Hz	
Fluorescent Lamp / Light intensity	2x30W / 1200 Lux	
Noise level	50 dB	
Packaging: Cartoon box	Volume	2,39 m ³
	Weight	280 Kg

SIZES (MM)

External			Internal		
Width	Depth	Height	Width	Depth	Height
1380	840	1450	1230	600	700



SIZES (mm)

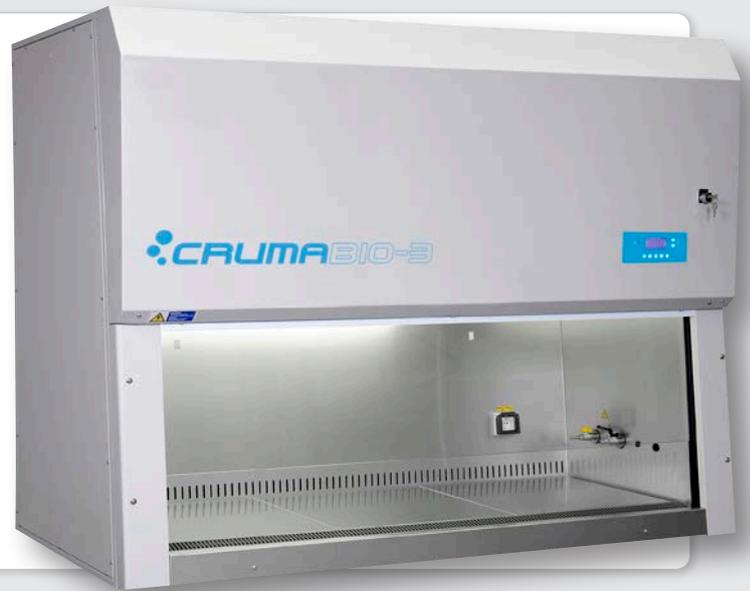


CRUMABIO-3



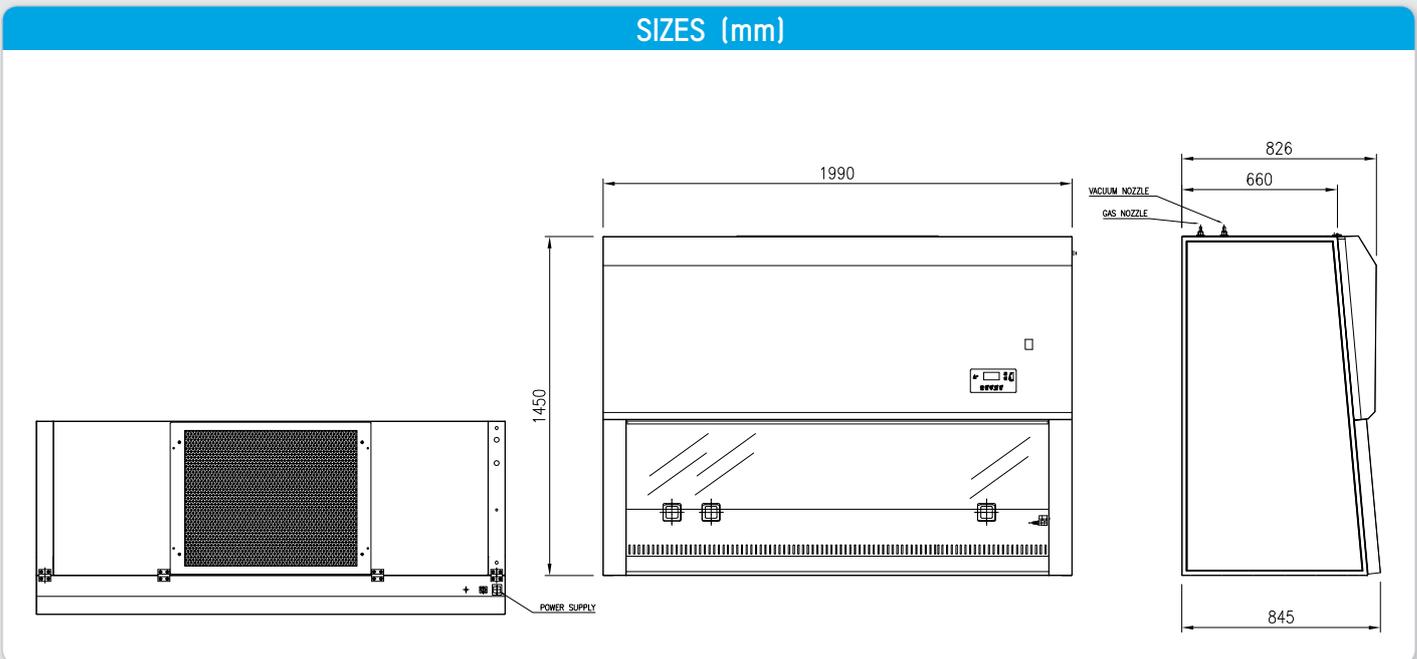
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TECHNICAL FEATURES		
Number of filters HEPA-H14		2
Number of IP44 fans		1
Average volume of treated air		±600 m ³ /h
Average face velocity		0.50 m/s
Total electrical power consumption		650 W
Voltage-Frequency		110-230 V / 50-60 Hz
Fluorescent Lamp / Light intensity		2x30W / 1200 Lux
Noise level		58 dB
Packaging: Cartoon box	Volume	3,47 m ³
	Weight	390 Kg

SIZES (MM)					
External			Internal		
Width	Depth	Height	Width	Depth	Height
1990	840	1450	1530	600	700



CRUMA VIRUS-3



The recent emergence of Ebola virus in West Africa risks to be a growing worldwide threat!

Despite years of research on Ebola virus it is still not possible to deliver vaccines or treatments to the at-risk population or medical aid teams. Therefore there is currently no prophylaxis or treatment for Ebola virus infection. This is the reason why the World Health Organization classifies Ebola virus as a pathogen of Risk Group Level 4. A Risk Group Level 4 pathogen must be manipulated, according to WHO, in a Containment Level 4 environment, wearing specific protective clothing and working with a Microbiological Safety Cabinet of Class III.

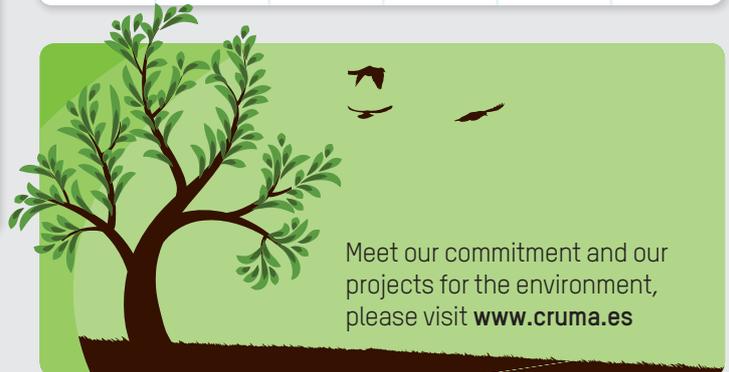


TECHNICAL FEATURES

Order number	LT20000
N° of glove ports	2
Exhaust air flow rate (m3/h)	> 180 m3/h
Internal Differential pressure (Pa)	< -220
Weight (kg)	210
Power Supply	220/240V 50Hz
Power (W)	500 W
Noise level	< 58dB(A)
Lighting lux	>1000

SIZES (MM)

External			Internal		
Width	Depth	Height	Width	Depth	Height
2105	822	1300	1200	660	700



MAIN FEATURES

Controls comfortably located at eye level	Volt-free contact for remote monitoring of exhaust fan.
Fan speed and aeraulic controlled by Microprocessor	Automatic reset of initial conditions in case of power failure
Three operating modes: normal, stand-by, calibration	C-shaped support stand for easy one man installation procedure
High speed rinse at start up	Anti blow back valve (optional) for ducted configuration
Self calibration and internal Watch-dog cycle before "SAFE" condition is reached	Magnehelic Gauge for internal chamber pressure constant monitoring
Visual display of "SAFE" conditions and "UNSAFE" conditions (LED and bar graph)	One (1) Electrical Socket as standard option
Elapsed time meter	UV-Light installed on top (standard option)
Microprocessor control with following specifications: <ul style="list-style-type: none"> - Multilevel alarms, with redundancy functions. - Permanent display of working conditions. - High air flow stability both in case of transitional disturbances or to progressive filter clogging - Power failure alarm 	

CRUMACYTO-2



CRUMA CYTO-3 cabinet has been especially designed for the preparation of cytostatic drugs as well as for the handling of biological agents risk group 1, 2 and 3. In this cabinet there is a third additional filtration stage located underneath the work surface. Moreover, the “Bag in and Bag out” patented filter changing protocol provides totally sealed contaminated areas, isolating the external environment during the replacement of this third filtration stage.

In this way the service technician does not come into physical contact with the contaminated filter or with areas of high potential risk of contamination.



TECHNICAL FEATURES		
Number of filters HEPA-H14		2
Number of IP44 fans		1
Average volume of treated air		±450 m ³ /h
Average face velocity		0.50 m/s
Total electrical power consumption		650 W
Voltage-Frequency		110-230 V / 50-60 Hz
Fluorescent Lamp / Light intensity		2x30W / 1200 Lux
Noise level		58 dB
Packaging: 100% recycled wooden box with international phytosanitary certificate	Volume	3,47 m ³
	Weight	350 Kg

SIZES (MM)						
	External			Internal		
	Width	Depth	Height	Width	Depth	Height
	1380	800	2220	1230	600	720



FEATURES	
Biosafety cabinet for handling cytostatic drugs	Hermetic sliding front window controlled by control panel
EN-12469 and DIN 12980 certification by TÜV NORD	Multilayer 6mm safety glass
Three stages of H14 class High Efficiency Particulate Air filters with 99.995% efficiency for .3 micron particles (most penetrating particle diameter) (EN 1822-1 and EN 13091:1999 tested and certified)	Comfortable 200 mm front opening
Tertiary filter change through the “bag in- bag out technology”. Avoids physical contact with the third stage of filtration during filter replacement.	Easy to install retrofit options through lateral sides
Integrated technology to eliminate surface noise propagation	Sloped back side of the working chamber for the best down flow distribution
State of the art Microprocessor control system offering:	Front barrier air speed ≥0.5m/sec
High resolution digital screen	Light intensity on work surface >1200 lux
Automatic control of preset airflow volumes	Noise level < 55 dB
Sliding sash window with smart control	Easily installed exhaust duct (optional)
Permanent monitoring of HEPA filters life span	Safety key to avoid unwanted operation
Permanent display of working conditions	Self calibration cycle performed when cabinet is switched on
Maintains air flow stability in the case of progressive filter clogging	Interconnected UV and fluorescent lights
Low barrier alarm	Stainless steel worktop with 2B finish (including spillage tray)
Power failure alarm	In case of power failure, the cabinet is re-set to original working conditions

CRUMACYTO-3



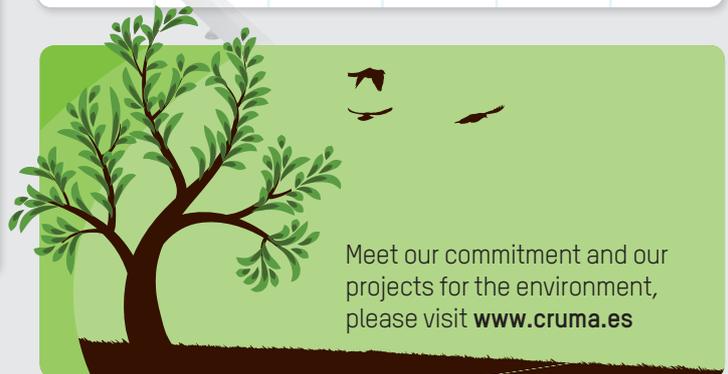
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In this way the service technician does not come into physical contact with the contaminated filter or with areas of high potential risk of contamination.



TECHNICAL FEATURES		
Number of filters HEPA-H14		2
Number of IP44 fans		1
Average volume of treated air		±680 m ³ /h
Average face velocity		0.50 m/s
Total electrical power consumption		650 W
Voltage-Frequency		110-230 V / 50-60 Hz
Fluorescent Lamp / Light intensity		2x30W / 1200 Lux
Noise level		58 dB
Packaging: 100% recycled wooden box with international phytosanitary certificate	Volume	3,47 m ³
	Weight	540 Kg

SIZES (MM)						
	External			Internal		
	Width	Depth	Height	Width	Depth	Height
	1990	800	2130	1830	600	720



FEATURES	
Biosafety cabinet for handling cytostatic drugs	Hermetic sliding front window controlled by control panel
EN-12469 and DIN 12980 certification by TÜV NORD	Multilayer 6mm safety glass
Three stages of H14 class High Efficiency Particulate Air filters with 99.995% efficiency for .3 micron particles (most penetrating particle diameter) (EN 1822-1 and EN 13091:1999 tested and certified)	Comfortable 200 mm front opening
Tertiary filter change through the “bag in- bag out technology”. Avoids physical contact with the third stage of filtration during filter replacement.	Easy to install retrofit options through lateral sides
Integrated technology to eliminate surface noise propagation	Sloped back side of the working chamber for the best down flow distribution
State of the art Microprocessor control system offering:	Front barrier air speed ≥0.5mt/sec
High resolution digital screen	Light intensity on work surface >1200 lux
Automatic control of preset airflow volumes	Noise level < 55 dB
Sliding sash window with smart control	Easily installed exhaust duct (optional)
Permanent monitoring of HEPA filters life span	Safety key to avoid unwanted operation
Permanent display of working conditions	Self calibration cycle performed when cabinet is switched on
Maintains air flow stability in the case of progressive filter clogging	Interconnected UV and fluorescent lights
Low barrier alarm	Stainless steel worktop with 2B finish (including spillage tray)
Power failure alarm	In case of power failure, the cabinet is re-set to original working conditions



CO₂ INCUBATOR

CO₂ Incubator



INCUBATOR

NEW FEATURES

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

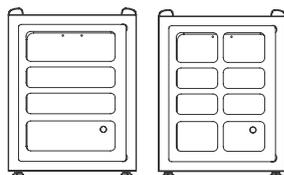
- ✓ Programmable audio-visual alarm, warning "parameter out of range". Autoreset after chamber condition recovery.
- ✓ Large 2 x 24 message centre, with alpha numeric display for setup and status information
- ✓ Temperature display in steps of 0.1°C
- ✓ Mode key to enter programmable parameters
- ✓ Scroll keys for selection of the parameters
- ✓ CO₂ display in steps 2 of 0.1%



In case of specific application requirements your CO₂ Incubator can be conveniently customized



✓ The diagram shows the Multi-position Shelf Rack Set, allowing the use of 8 shelves (maximum capacity)



✓ The unit can be ordered with an inner glass door, which in turn can be fitted with 4/8 smaller doors system providing easier access to single sections of the chamber

USES

All types of crops.

BEST IN ITS CLASS: CULTURING ENVIRONMENT GUARANTEED

The accurate and precise temperature is maintained by means of 4 independently controlled and validated "Direct Heating" elements, located on all 6 sides of the chamber, able to measure and control temperature down to 0.1 degree of the set value. Precise CO₂ percentage is maintained by a state-of-the-art IR sensor and controller system, that is independent from the humidity of the culturing environment.

Humidity is passively maintained at 95% , thanks to a 2.5 litres stainless steel humidity tray, heated by the base heater. Finally, the unit has a built-in "on-demand" decontamination cycle programme, for absolute safety.

The new **CO₂ Incubator** “Direct Heat” equipped with an “on-demand” decontamination cycle, is designed to provide a stable and convenient environment for Cell and Tissue culture, taking into consideration the most stringent needs of the cell biologists, for both continuous and batch cultures.

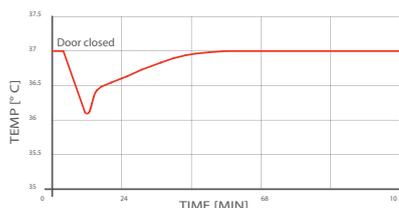
CO₂ Incubator maintains an accurate CO₂ gas percentage, uniform temperature and a consistently high level of humidity providing a stable culturing environment, even for most critical applications like IVF and Hybridoma cultures

COMFORT FOR YOUR CULTURES IS GUARANTEED...

Precise control and recovery of set temperature

The accurate and precise temperature is maintained by means of a 4 sections independently controlled and validated Direct Heater system. A total of 73 meters of heating elements ensure even heating of all internal surfaces (chamber, front frame and door inner side); on top of this, a seven RT curve matched thermistors control system can measure and control temperature within to 0.1°C of the set value. Over-temperature protection is independent of the controls and inhibits all heaters when the temperature raises by 1 degree above the programmed value. The recovery of set temperature, after 15 seconds door opening, occurs within 5 minutes, thus protecting cultures against thermal shocks (see Graph)

Temperature recovery after 15 sec. door opening

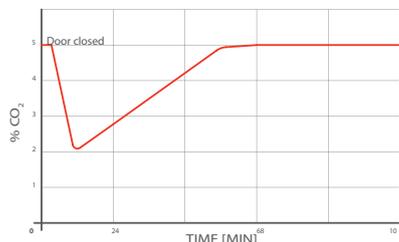


El gráfico muestra los datos reales proporcionados por el sensor de la cámara. Los resultados típicos en condiciones ambientales normales.

Precise control and recovery of set CO₂ percentage

The CO₂ percentage is maintained within the chamber, thanks to a state-of-the-art controller, with a solid state infrared sensor with atmospheric auto zeroing of CO₂. Mixing of air with inlet CO₂ gas is gently achieved, thanks to the complete absence of a forced air fan circulation system, enhancing a fast recovery of set CO₂ percentage within 5 minutes, following a 15 seconds long door opening (see Graph)

CO₂ Recovery after 15 sec. door opening



The graph shows data from the sensor inside the chamber. Standard results in normal working conditions.

Fully automatic 12 hours decontamination cycle

A fully tested “on demand” automatic decontamination cycle, heating up to 125°C, is a standard feature assuring your peace of mind when you start your culturing cycle. The beauty of the system is that there is no need to remove any parts or fixtures whatsoever. The total decontamination cycle is run overnight, with a 1.5-2.5 hour temperature ramp up time, a 4 hour exposure time and a 5-7 hour temperature ramp down time, totalling between 11-12 hours in average, depending upon the room temperature.

At the end of the cycle, normal control of the CO₂ is automatically resumed, and the only action to be performed is the addition of sterile water into the humidity tray before start up.

High temperature uniformity during decontamination cycle

Uniform heating to 125 °C for 4 hours, ensures a reduction in bacterial load equal to 12* log, applied for substantially the same surgical instruments (* Bacillus subtilis var. Niger ATCC # 9372).

A NUMBER OF FEATURES DESIGNED TO EASE YOUR WORK

The direct heated, single door, magnetic closure SafeGrow CO₂ incubator (Italian design) assures to the users an easy and quick access, without any loss of operational stability and performance.

Choosing the double door design, with fully sealed inner glass door and outer heated door, the CO₂ incubator can be equipped with an optional 4 or 8 inner glass door system to give you unmatched choice.



Left opening door option, factory installed, allows for optimal placement of the CO₂ incubator in an expensive and crowded lab space.

Optional multi-position shelf rack set, allows up to 8 shelves to be used, optimizing the area available for culture vessels.

Solid shelves are supplied as standard to provide even surface for the culture vessels however, at no extra cost, the traditional perforated shelves can be supplied.

Fanless construction, with gentlest possible air movement by thermal convection, ensures low contamination risk, simplifies cleaning and decontamination and allows for long life of incubator components.

Seamless, electro-polished, Stainless Steel 304 internal chamber (with fully rounded corners and no internal projections or holes) makes it easy to clean, corrosion resistant and minimize contamination risk.

Large 27.5 mm access port allows user to supply power to small instruments placed on the interior, or allows any other utilities access to the incubator chamber.

CRUMACO₂

The new CO₂ Incubator “Direct Heat” equipped with an “on-demand” decontamination cycle, is designed to provide a stable and convenient environment for Cell and Tissue culture, taking into consideration the most stringent needs of the cell biologists, for both continuous and batch cultures.



TECHNICAL FEATURES

Temperature Control	Direct heat, 6 sides, 4 independently controlled heaters, 73 meters of heating elements
Temperature range	10-50° C in 0.1 increments (minimum setting: ambient + 1° C)
Temperature measurement	Seven RT curve matched thermistors
Temperature Control	+/- 0,1°C
Temperature Precisión	+/- 0,1°C
Temperature Uniformity	Better than ± 0.3° C
Temperature recovery	About 5 minutes following a 15 seconds door opening
Over Temperature Protection	Independent, inhibits all heaters above 1.0° C over set temp. value (in the unlikely event of a control system failure)

CO ₂	
Sensor	Solid State IR Sensor, automatic atmospheric CO ₂ zeroing. Measurement is independent from chamber humidity level
CO ₂ Range	0.5 to 20 % CO ₂ , in steps of 0.1%
CO ₂ Range	+/- 0,1%
Uniformity	Better than ± 0.1 % CO ₂
Accuracy	± 0.2% at 5% CO ₂ set point
Recovery rate	About 5 minutes following a 15 seconds door opening

RELATIVE HUMIDITY SYSTEM	
Reservoir	2.5 litres, 304 Stainless Steel electro-polished humidity tray
RH level	Minimum 95%

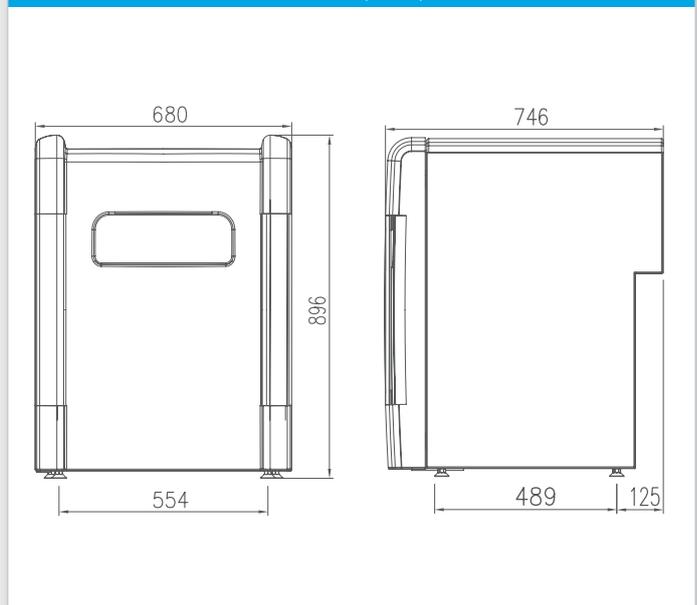
DECONTAMINATION CYCLE	
Decontamination cycle type	Fully automatic, 125° C cycle, Validated
Temperature ramp up time	1,5- 2,5 hours
Exposure time	4 hours
Temperature ramp down time	5-7 hours
Total cycle time	10,5 - 13,5 hours

SIZES (MM)

External			Internal		
Width	Depth	Height	Width	Depth	Height
680	746	896	530	500	690



SIZES (mm)



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