CRUMA

Laboratory equipment made in Barcelona

Personal safety and environmental protection

CERTIFIED ISO 9001

www.cruma.es

45 ANNIVERSARY 1974 - 2019

PERSONAL SAFETY AND ENVIRONMENTAL PROTECTION

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Personal safety and environmental protection

CRUMA
Laboratory equipment **made in Barcelona**

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: 2015.

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.

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: 2015 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

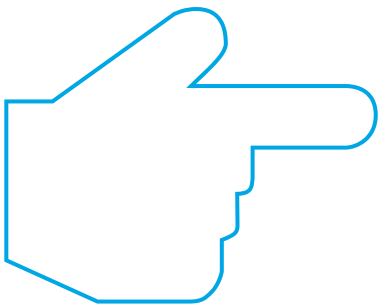
The Cruma FILTRATION FUME HOODS

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, 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

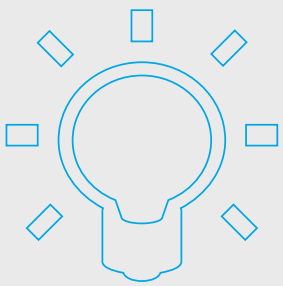
–The air that is sucked in is not expelled but recirculated back into the lab after the contaminating substances have been removed. This means that it is not necessary to increase the use of the air-conditioning or heating systems to compensate for the air removed.

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 demand. 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.



CRUMALAB

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

CRUMASAT

CRUMA HELPDESK TEAM ENSURES ANNUAL MONITORING, IT INCLUDES:

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

9. FILTER CHANGE

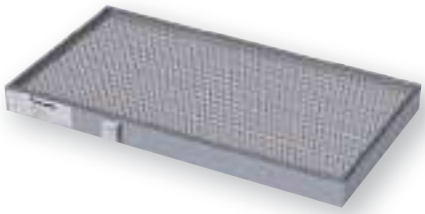
Likewise, and to serve as a guideline, Cruma can also provide a **list of adsorbable chemical products***, categorized according to the appropriate type of active carbon filter to be used, indicating:

- **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 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.):



Filters with microchip and USB connection,
intelligent filtering
Information storage and interaction with the alarm system.

MODULAR FILTRATION COLUMN FOR GASES AND PARTICLES (according to NFX 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	

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 KI, 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 µm (a maximum particle penetration). 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*

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

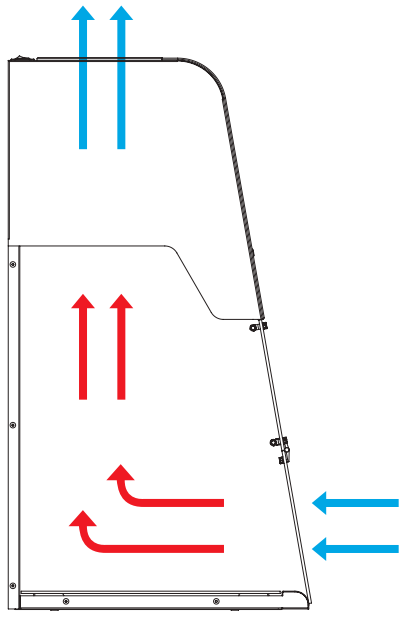
- √ Open door warning
- √ Open door in off mode warning
- √ 60h of filter use warning
- √ Next validation warning
- √ Few hours of filter life warning
- √ Countdown timer warning
- √ Expired filter alarm (by hours)
- √ Expired filter alarm (by date)
- √ Temperature alarm
- √ Equipment without filter 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	LED Tube high light intensity and low power consumption - 15 Watts / 1500 Lm
Temperature sensor	Continuous monitoring of the temperature inside the cabinet
Sampling system to analize 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
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 inox steel
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		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: H2S04, HCl, HN03, as well as for volatile sulphur compounds such as H2S, S03, 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 KI, 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 **NH_3/amines** are similar.
Type D	**HEPA Filter** (High Efficiency Particulate Air) **H-14** (standard EN-1822:2010) for filtering particles of dust and fumes.

DUCTLESS FUME HOOD. PLUG&PLAY RANGE

CRUMA G-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.

TECHNICAL FEATURES

Number of filtration columns		1
Number of filters		1 to 3
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 cabinet		0,32 m^3
Renewals inside the cabinet / min		8,13
Total electrical power consumption		60 ±3 W
Voltage-Frequency		110-220 V / 50-60 Hz
LED light intensity		1275 lux
Noise level		54 ±3 dB
Packaging: 100% recycled wooden box with international phytosanitary certificate	Volume	0,80 m^3
	Weight	95 Kg

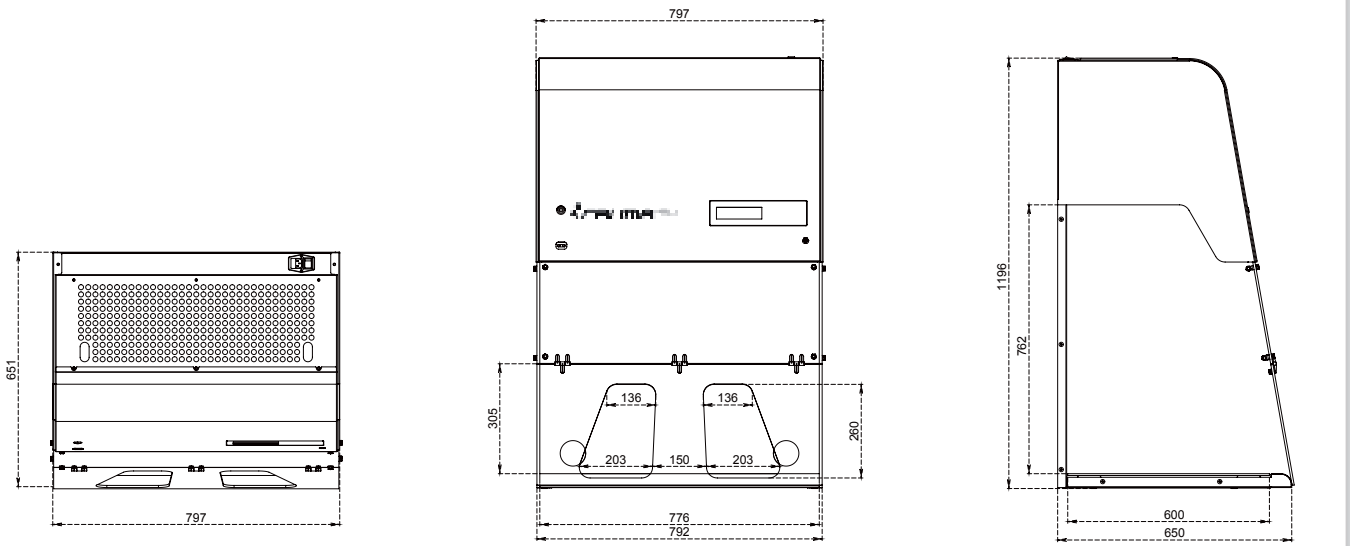
SIZES (mm)

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

Do you need help or *technical assistance?*

Contact your distributor or call us if you have any questions or need technical support, spare parts, maintenance service... +34 93 370 61 62

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.

TECHNICAL FEATURES

Number of filtration columns		1
Number of filters		1 to 3
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 cabinet		0,40 m^3
Renewals inside the cabinet / min		6,47
Total electrical power consumption		65 ±3 W
Voltage-Frequency		110-220 V / 50-60 Hz
LED light intensity		1100 lux
Noise level		54 ±3 dB
Packaging: 100% recycled wooden box with international phytosanitary certificate	Volume	0,80 m^3
	Weight	110 Kg

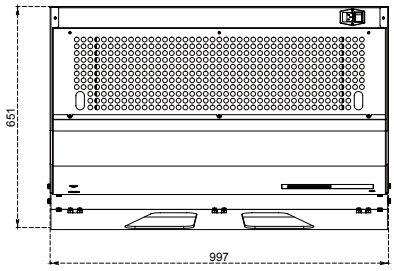
SIZES (mm)

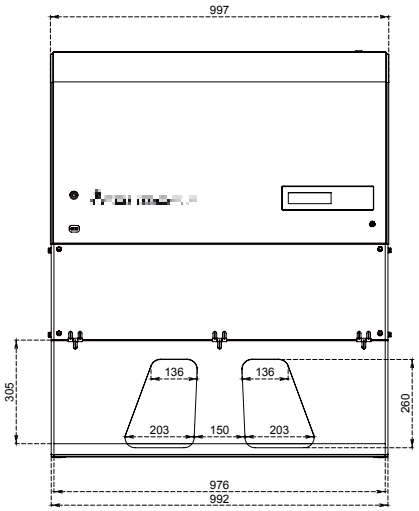
External Dimensions			Internal Dimensions		
Width	Depth	Height	Width	Depth	Height
997	**650**	**1195**	**976**	**600**	**762**

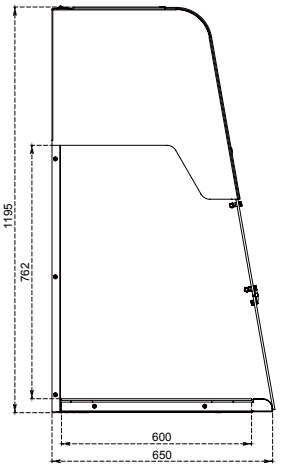
Filters with microchip and USB connection,
intelligent filtering

Information storage and interaction with the alarm system.

SIZES (mm)







DUCTLESS FUME HOOD. PLUG&PLAY RANGE

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.

TECHNICAL FEATURES

Number of filtration columns		2
Number of filters		2 to 6
Number of IP44 fans		2
Average volume of treated air		270 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		90 ±3 W
Voltage-Frequency		110-220 V / 50-60 Hz
LED light intensity		1200 lux
Noise level		55 ±3 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**

Do you have any *questions* or need *technical assistance?*

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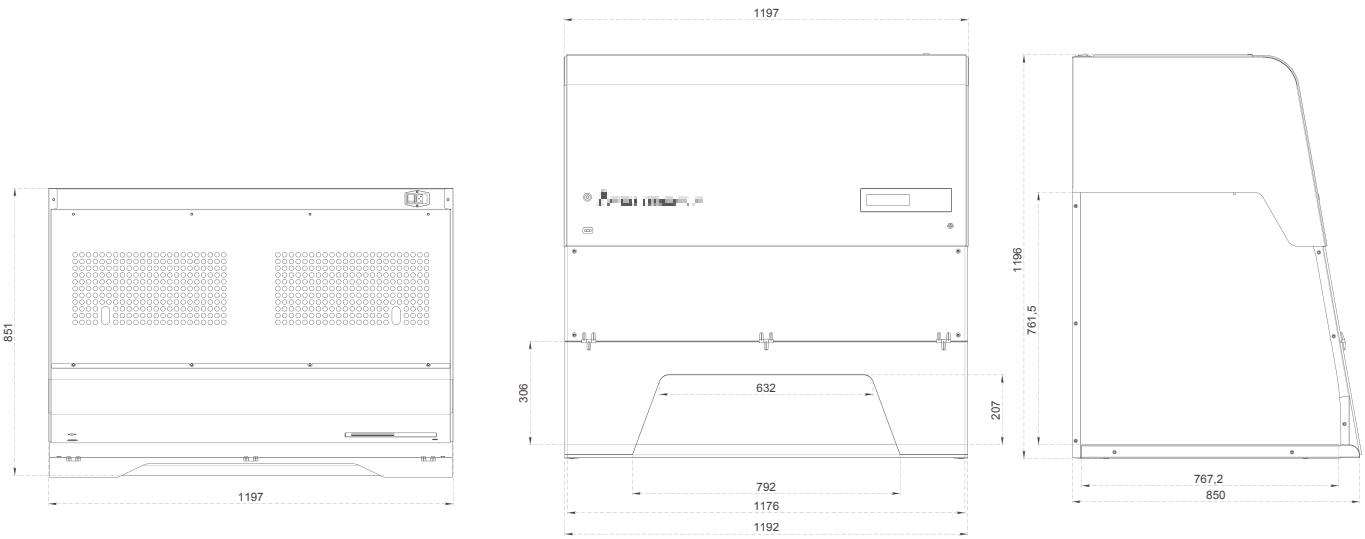
SIZES (mm)



DUCTLESS DUCTLESS FUME HOOD. PLUG&PLAY RANGE

CRUMA G-4

7 YEARS GUARANTEE / ANOS GARANTIA

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.

TECHNICAL FEATURES

Number of filtration columns		2
Number of filters		2 to 6
Number of IP44 fans		2
Average volume of treated air		385 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		115 ±3 W
Voltage-Frequency		110-220 V / 50-60 Hz
LED light intensity		1800 lux
Noise level		55 ±3 dB
Packaging: 100% recycled wooden box with international phytosanitary certificate	Volume	1,66 m^3
	Weight	160 Kg

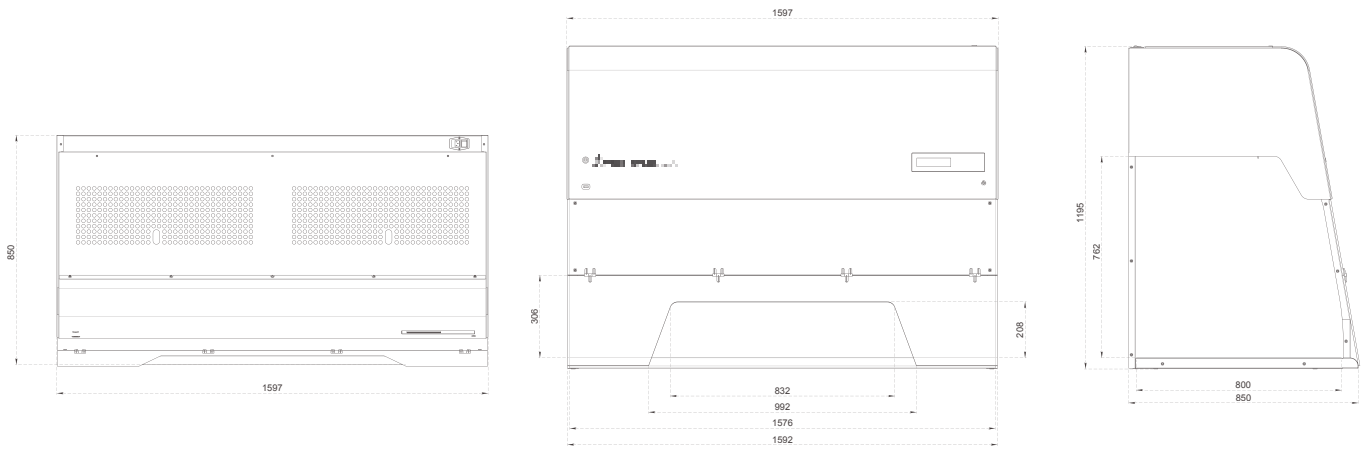
SIZES (MM)

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)



DUCTLESS FUME HOOD. PLUG&PLAY RANGE

CRUMA G-5

7 YEARS GUARANTEE / 7 ANOS GARANTIA

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.

TECHNICAL FEATURES

Number of filtration columns		2
Number of filters		2 to 6
Number of IP44 fans		2
Average volume of treated air		464 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		115 ±3 W
Voltage-Frequency		110-220 V / 50-60 Hz
LED light intensity		1600 lux
Noise level		55 ±3 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**

Do you need help or *technical assistance?*

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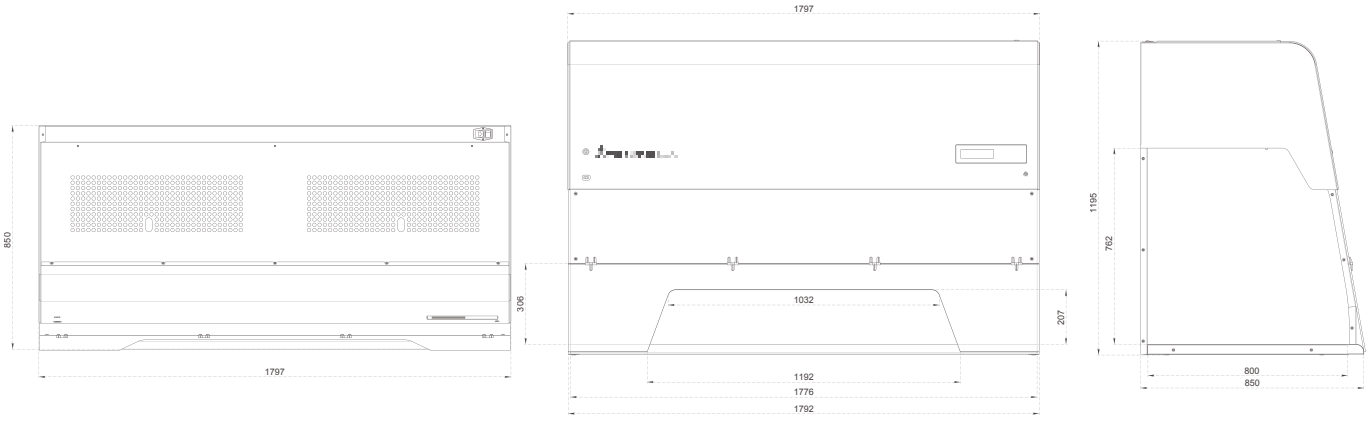
SIZES (mm)



We recognise our responsability
and dependence towards a healthy environment and,
therefore, we destinate more than 7% of our annual budget in
innovating and developing new products for the lab operator

our 7% 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

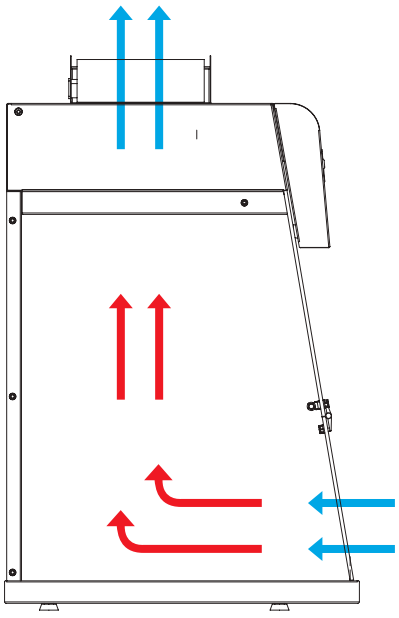
- √ Open door warning
- √ Open door in off mode warning
- √ 60h of filter use warning
- √ Next validation warning
- √ Few hours of filter life warning
- √ Countdown timer warning
- √ Expired filter alarm (by hours)
- √ Expired filter alarm (by date)
- √ Temperature alarm
- √ Equipment without filter 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 USB connection that identifies the type of filter installed, the expiry date and the serial no.
Illumination	LED Tube high light intensity and low power consumption - 16 Watts / 1500 Lm
Sampling system to analize 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
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 inox steel
Transparent rear back pannel	Transparent polymethylmethacrylate rear pannel 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	

 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: H2S04, HCl, HN03, as well as for volatile sulphur compounds such as H2S, S03, 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 KI, 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 **NH_3/amines** are similar.
Type D	**HEPA Filter** (High Efficiency Particulate Air) **H-14** (standard EN-1822:2010) for filtering particles of dust and fumes.

DUCTLESS FUME HOOD. CLASSIC RANGE

CRUMA 670

7 YEARS GUARANTEE / 7 ANOS GARANTIA

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		108 m^3/h
Average face velocity		0,50 m/s
Internal volume of the cabinet		0,181 m^3
Renewals inside the cabinet / min		9,94
Total electrical power consumption		56 ±3 W
Voltage-Frequency		110-230 V - 50-60 Hz
LED light intensity		15W / 1300 lux
Noise level		57±3 dB
Packaging: 100% recycled wooden box with international phytosanitary certificate	Volume	0,33 m^3
	Weight	58 Kg

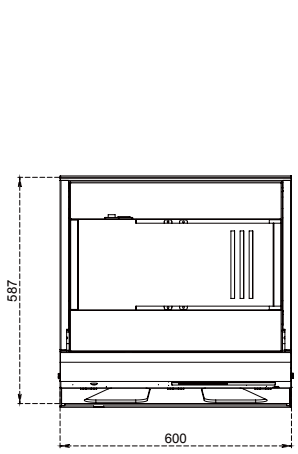
SIZES (MM)

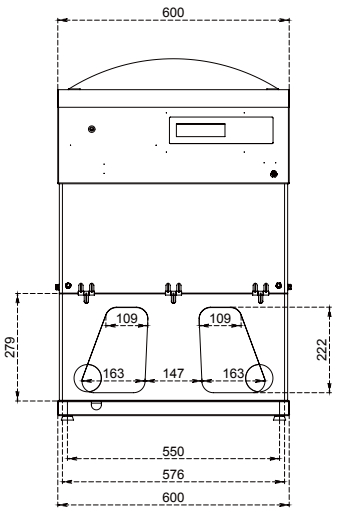
External			Internal		
Width	Depth	Height	Width	Depth	Height
600	**600**	**937**	**576**	**563**	**630**

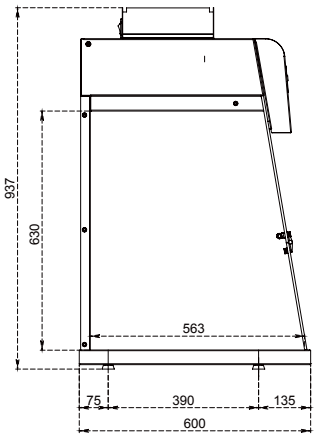
Filters with microchip and USB connection,
intelligent filtering

Information storage and interaction with the alarm system.

SIZES (mm)







DUCTLESS FUME HOOD. CLASSIC RANGE

CRUMA 870

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		160 m^3/h
Average face velocity		0,50 m/s
Internal volume of the cabinet		0,287 m^3
Renewals inside the cabinet / min		9,25
Total electrical power consumption		57±3 W
Voltage-Frequency		110-230 V - 50-60 Hz
LED light intensity		15W /1100 lux
Noise level		57±3 dB
Packaging: 100% recycled wooden box with international phytosanitary certificate	Volume	0,43 m^3
	Weight	77 Kg

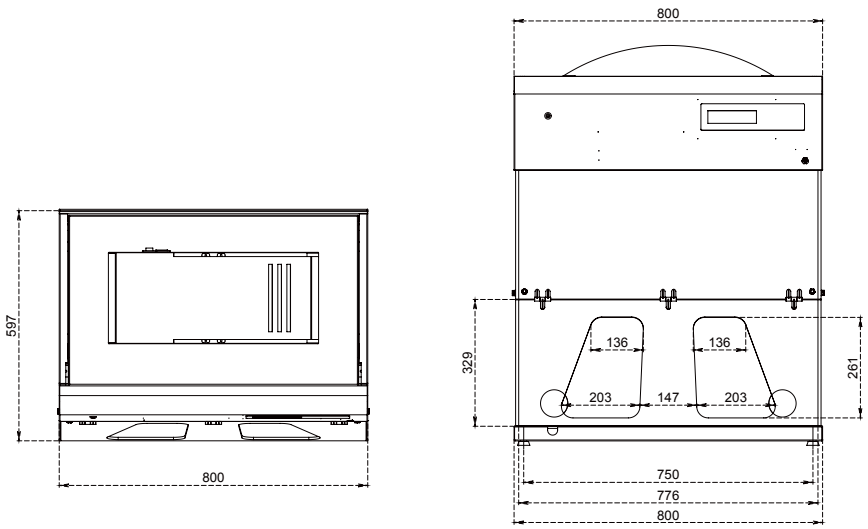
SIZES (MM)

External			Internal		
Width	Depth	Height	Width	Depth	Height
800	**600**	**1037**	**776**	**563**	**730**

Do you have any *questions* or need *technical assistance?*

Contact your distributor or call us if you have any questions or need technical support, spare parts, maintenance service... **+34 93 370 61 62**

SIZES (mm)



DUCTLESS FUME HOOD. CLASSIC RANGE

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		160 m^3/h
Average face velocity		0,50 m/s
Internal volume of the cabinet		0,361 m^3
Renewals inside the cabinet / min		7,35
Total electrical power consumption		60 ±3 W
Voltage-Frequency		110-230 V - 50-60 Hz
LED light intensity		15W / 1100 lux
Noise level		57 ±3 dB
Packaging: 100% recycled wooden box with international phytosanitary certificate	Volume	0,52 m^3
	Weight	90 Kg

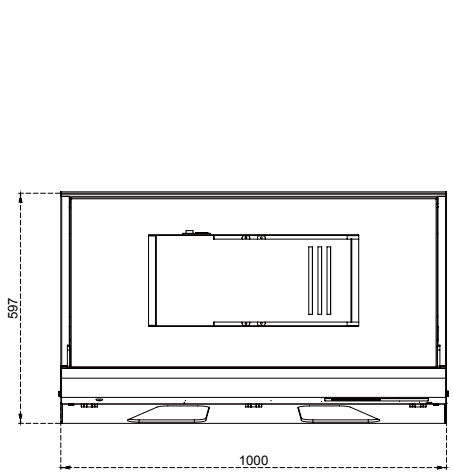
SIZES (MM)

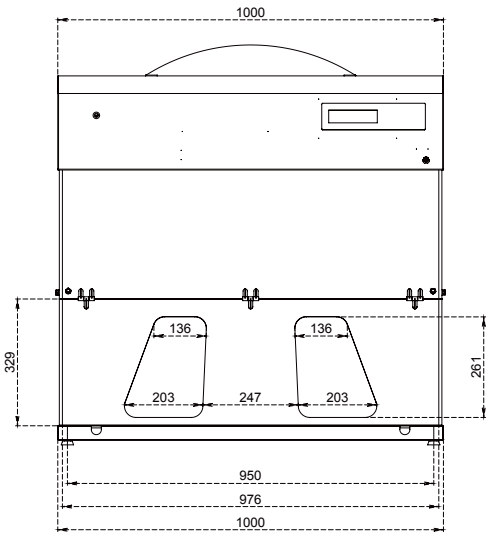
External			Internal		
Width	Depth	Height	Width	Depth	Height
1000	**600**	**1037**	**976**	**563**	**730**

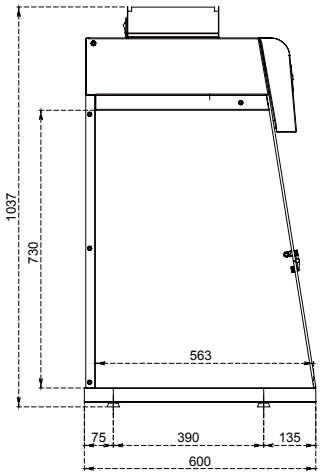
Filters with microchip and USB connection,
intelligent filtering

Information storage and interaction with the alarm system.

SIZES (mm)







DUCTLESS FUME HOOD. CLASSIC RANGE

CRUMA 1010

Perfect for applications 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		160 m^3/h
Average face velocity		0,50 m/s
Internal volume of the cabinet		0,458 m^3
Renewals inside the cabinet / min		5,8
Total electrical power consumption		59 ±3 W
Voltage-Frequency		110-230 V - 50-60 Hz
LED light intensity		15W / 825 lux
Noise level		57 ±3 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**	**1237**	**976**	**563**	**930**

Do you need help or *technical assistance?*

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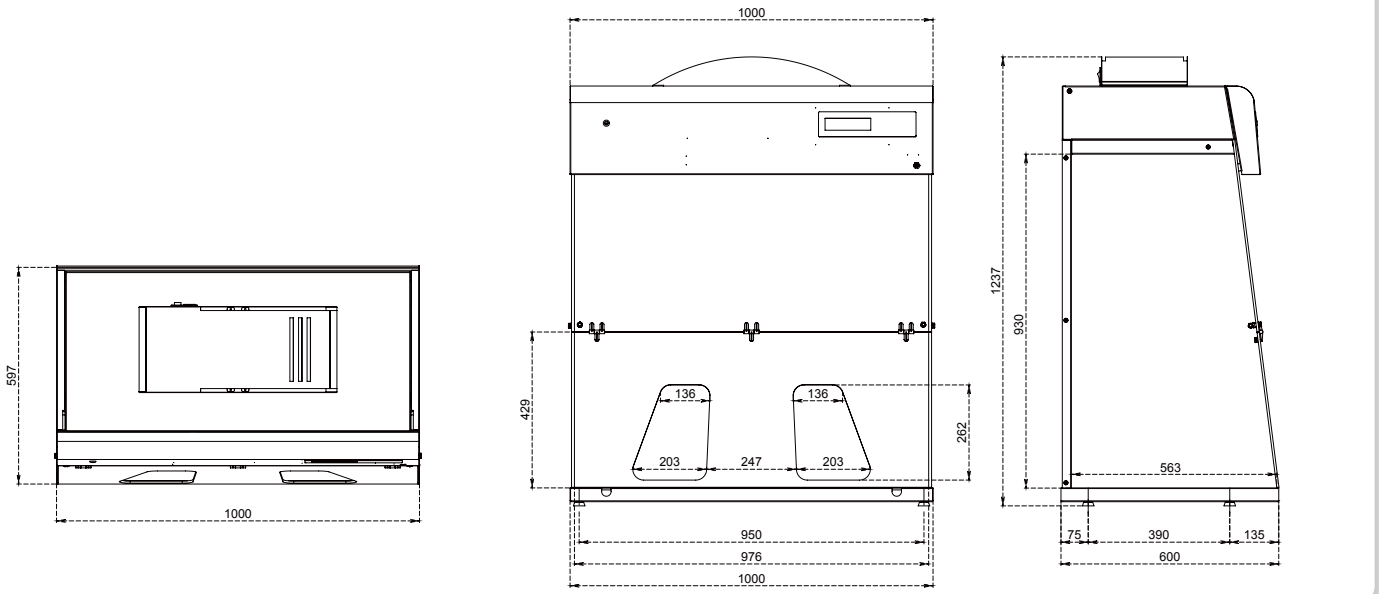
SIZES (mm)



DUCTLESS FUME HOOD. CLASSIC RANGE

CRUMA 1200

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 cabinet		0,632 m^3
Renewals inside the cabinet / min		4,2
Total electrical power consumption		58 ±3 W
Voltage-Frequency		110-230 V - 50-60 Hz
LED light intensity		15W / 800 lux
Noise level		57 ±3 dB
Packaging: 100% recycled wooden box with international phytosanitary certificate	Volume	0,65 m^3
	Weight	118 Kg

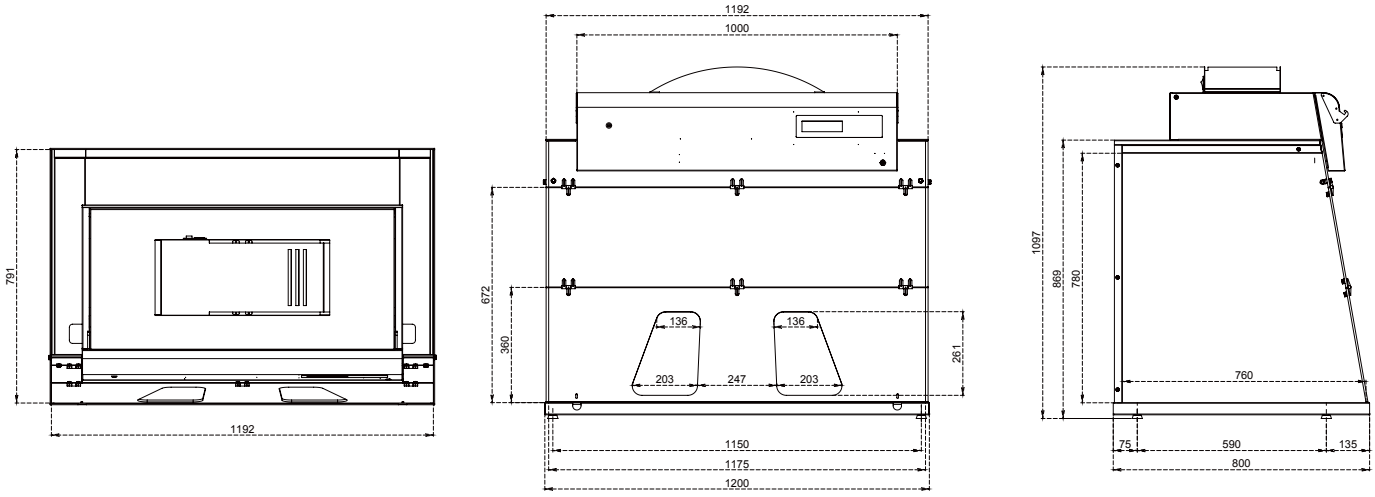
SIZES (mm)

External			Internal		
Width	Depth	Height	Width	Depth	Height
1200	**800**	**1097**	**1175**	**760**	**780**

Filters with microchip and USB connection,
intelligent filtering

Information storage and interaction with the alarm system.

SIZES (mm)



DUCTLESS FUME HOOD. CLASSIC RANGE

CRUMA ECO²

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		160 m^3/h
Average face velocity		0,50 m/s
Internal volume of the cabinet		0,287 m^3
Renewals inside the cabinet / min		9,25
Total electrical power consumption		60 ±3 W
Voltage-Frequency		110-220 V - 50-60 Hz
Light intensity		1100 lux
Noise level		57 ±3 dB
Packaging: 100% recycled wooden box with international phytosanitary certificate	Volume	0,42 m^3
	Weight	66 Kg

SIZES (MM)

External			Internal		
Width	Depth	Height	Width	Depth	Height
798	**600**	**1012**	**778**	**569**	**760**

Do you have any *questions* or need *technical assistance?*

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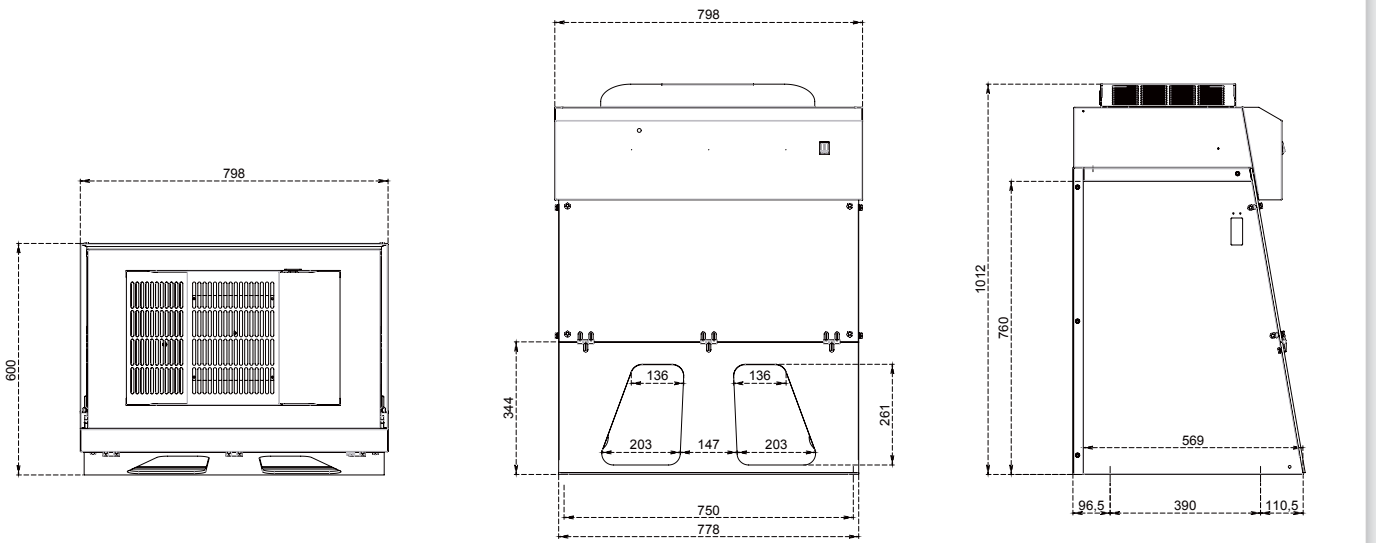
SIZES (mm)



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

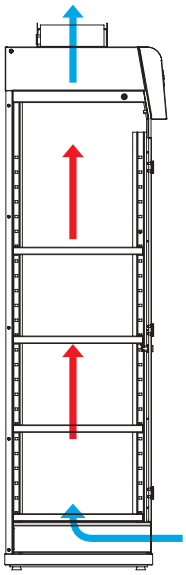
New alarms and scheduled warnings

- √ 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 Cl_2, HCl, HNO_3, etc. and volatile sulphur compounds (H_2S, H_2SO_4 and SOx, etc.). Activated carbon impregnated with metal compounds and neutralising salts.
- √ **Type F:** specific to formaldehyde and derivatives.
- √ **Type K**: optimal for amines and NH_3
- √ **Type ABEK**: optimal to use when the proportions between organic, inorganic and NH_3 and amines are similar.



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 expulsed 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 expulsed 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.

VENTED STORAGE CUPBOARD

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.

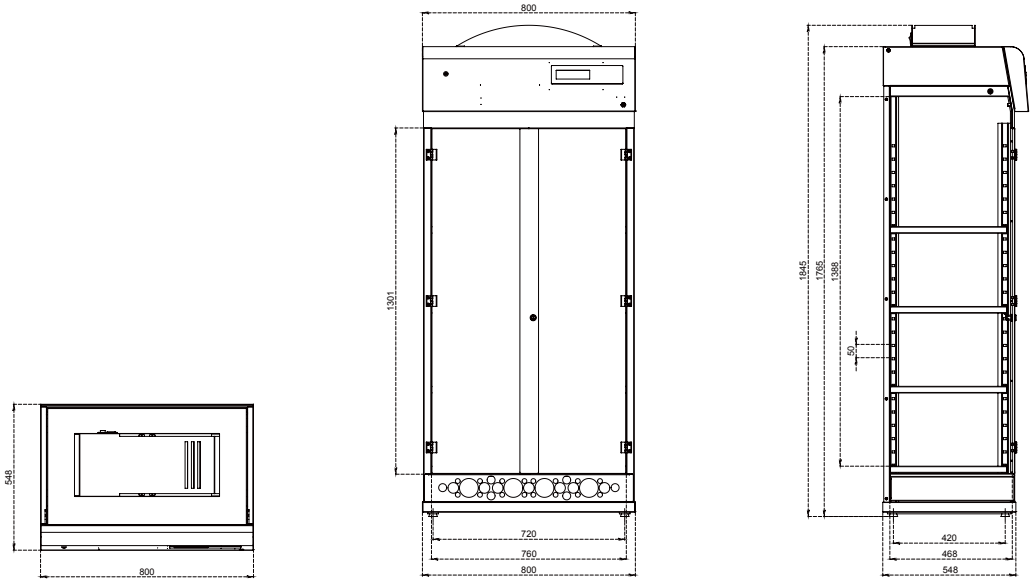
TECHNICAL FEATURES

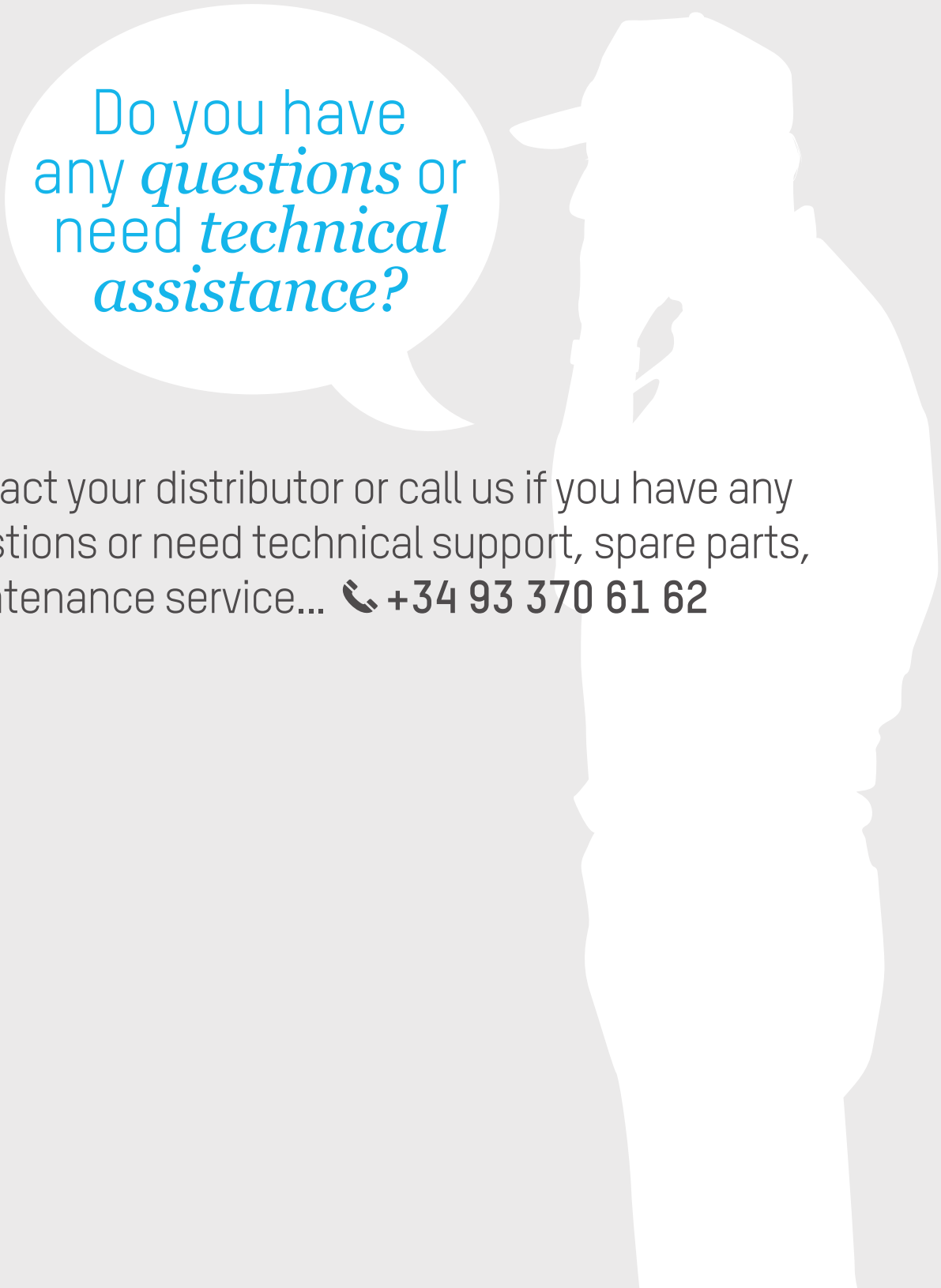
Number of filtration columns		1
Number of filters		1 to 2
Number of IP44 fans		1
Average volume of treated air		60 m^3/h
Average face velocity		0,50 m/s
Internal volume of the cupboard		0,567 m^3
Renewals inside the cabinet / min		4,6
Total electrical power consumption Voltage-		67 ±3 W
Frequency		110-220 V - 50-60 Hz
LED		700 lux
Noise level		53 ±3 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)





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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
- √ Flters with electronic chip
- √ Internal temperature sensor

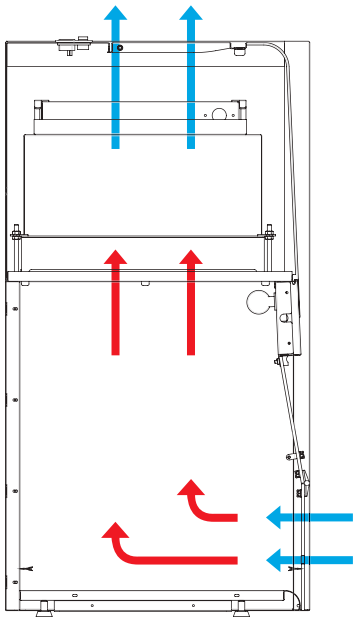
New alarms and scheduled warnings

- √ 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
- √ Reserarch 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	LED Tube high light intensity and low power consumption - 10 W - 800 Lm
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	

OPTIONAL EQUIPMENT

Movilair	Stand with wheels and internal tray in Epoxy coated steel
Tubular steel stand	Support stand in Epoxy coated steel
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%)

POWDER WEIGHING CABINETS

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		160 m^3/h
Average face velocity		0,35 m/s
Internal volume of the cabinet		0,236 m^3
Renewals inside the cabinet / min		9,6
Total electrical power consumption		50 ±3 W
Voltage-Frequency		110-220 V / 50-60 Hz
LED light intensity		1400 lux
Noise level		55 ±3 dB
Packaging: 100% recycled wooden box with international phytosanitary certificate	Volume	0,74 m^3
	Weight	112 Kg

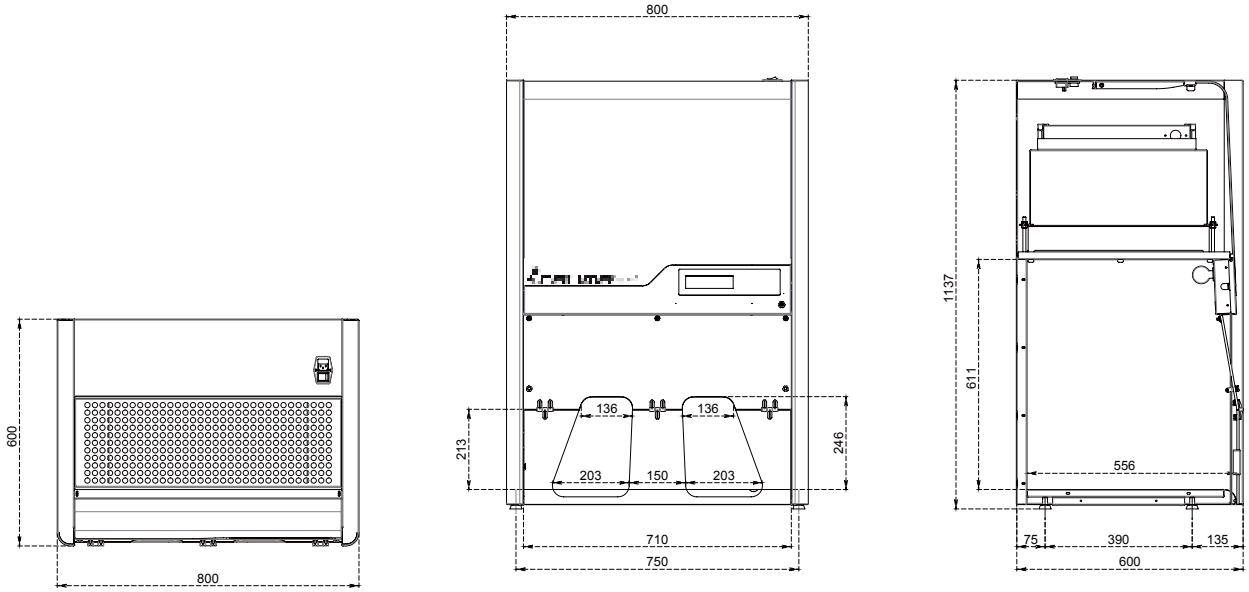
SIZES (MM)

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)



POWDER WEIGHING CABINETS

CRUMA P-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		160 m^3/h
Average face velocity		0,35 m/s
Internal volume of the cabinet		0,376 m^3
Renewals inside the cabinet / min		8,3
Total electrical power consumption		50 ±3 W
Voltage-Frequency		110-220 V - 50-60 Hz
LED light intensity		1200 lux
Noise level		55 ±3 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

Do you need help or *technical assistance?*

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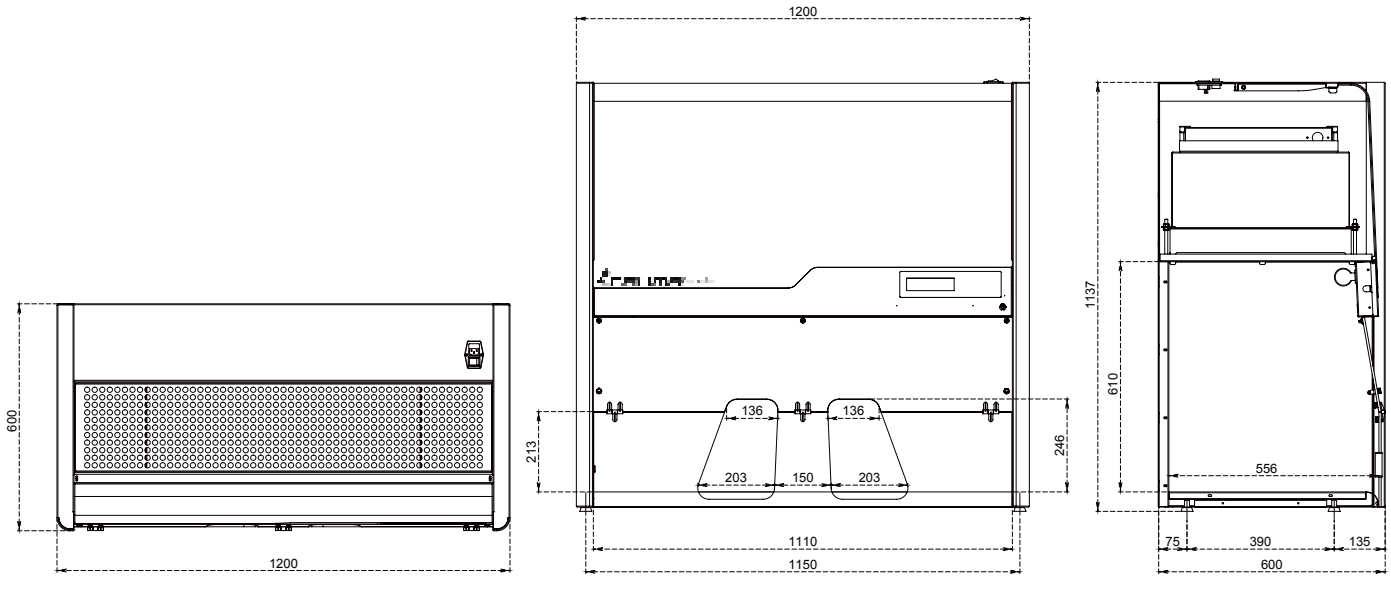
SIZES (mm)



Precision weighing CABINET

NEW FROM FEBRUARY 2020

Model **W-2**

W-2

SAFETY FOR WORKING WITH HIGHLY-ACTIVE SUBSTANCES

- √ Safe and reliable contaminant capture that guarantees maximum personnel protection with minimum noise level and energy consumption.
- √ Aileron-shaped armrest for total comfortable operation .
- √ 2 internal electrical sockets that allow clean connections for the different devices used during weighing operations.
- √ Granite work surface positioned on 6 silent blocks that dampens and completely isolates from vibrations when using very sensitive microbalances of up to 0.000001 grams.
- √ LED lighting that offers a light intensity greater than 900 lux.
- √ Waste disposal system integrated in the work surface to store and dispose easily and safely of waste.

ERGONOMICS AND COMFORT FOR LABORATORY USES

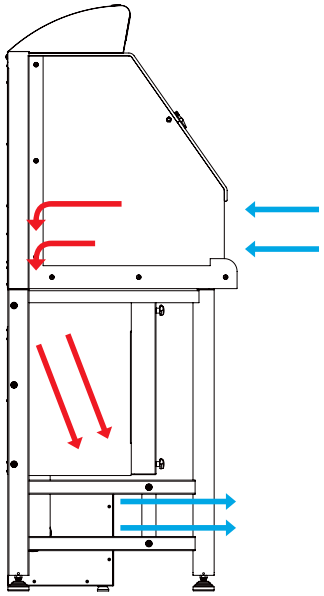
The multiple warnings and alarms of the integrated control panel allow the user to work in total safety and fully concentrated on his work; at the same time, the wing-shaped profile of the front edge of the table performs two functions: it diffuses the air in a perfectly uniform way and allows the arms to be supported with total comfort. The aspiration of toxic substances is carried out through suction openings made with a special design and located on the rear panel, which prevent dangerous substances from leaving the device and endangering the user. In addition, its flat and homogeneous shape meets the most stringent requirements in terms of hygiene, decontamination and cleaning.

The large digital screen offers 2 levels of user that make the configuration of the cabinet very practical and safe. Likewise it is provided with a waste disposal system integrated directly into the work surface, which allows waste materials to be disposed very safely.

The **BagIn & BagOut** system for the change of the clogged filter ensures total safety and protection during the filter change operation, avoiding any possible accident or contamination of the technical personnel. **Cruma W-2 is the ideal cabinet for your ultra-precision weighing operations: Safe, ergonomic and comfortable.**

APPLICATIONS

- √ Density Measurement
- √ Sample preparation
- √ Emissions test: gravimetric determination of suspended particles
- √ Non-Volatile Residue Test – Gravimetric Determination of NVR Content
- √ Dosing
- √ Moisture Content Determination
- √ Precise Residue Testing- Accurate Standard Preparation
- √ Formulation Development and Production of precise formulations
- √ CHNSO Elemental Analysis - Sample Preparation
- √ Trace Metal Analysis: Sample and Standard Preparation



Cruma presents its new cabinet for **ultra-precision weighing** with total protection for the worker and the environment during the handling of substances developed in research laboratories.

Working with extremely toxic substances is no longer a problem for the laboratory personnel thanks to the **filtering system*** of highest safety as well as the filter change of our new **Cruma W-2** cabinet.

Sensitive microbalances require a protected and vibration-free environment against air currents. **Cruma W-2** guarantees a precise and safe work environment when dealing with highly- active substances, while providing excellent ergonomics and comfort. The work surface is isolated from any vibration thanks to its **anti-vibration system*** that allows calibrating with accuracy and speed any balance of up to 6 digits. Its ergonomic design and functionality meet the most stringent quality and safety standards.

STANDARD EQUIPMENT

Electronic circuit with Large format LCD screen	2 levels of safety : level 1 user and level 2 advanced
Electronic system for control and filter replacemen	The filters have a microchip with mini USB connection which identifies the type of filter installed, the expiry date and the serial number
LED lighting	2 96-LED plates with high light intensity and low electrical consumption - 15 Watts / 1200 Lm
Digital timer with sound warning	Chronometer Stopwatch for control and notification of the work done in the cabinet
Clock and calendar	Date and time display
Granite working surface	30 mm thick granite working surface positioned on 6 silent blocks that isolate the balance from any vibration
HEPA filter	High Efficiency Particulate Air H-14
Electrical socket	2 internal sockets for connecting measuring equipment/balance
Warranty	7 years

IN CONFORMITY WITH

Cabinets	**UNE-EN 14175**
Filters	UNE-EN 779:2013 (HEPA & ULPA Filters) UNE-EN 1822:2010 (HEPA & ULPA Filters)
Quality	UNE EN ISO 9001:2015

STRUCTURE

Metallic part	1.2mm galvanized steel, coated with antiacid polymer powder resin thermo-hardened at 200 ºC
Transparent panels	Transparent polymethylmethacrylate 8mm thick – PPMA- (light transmission of 93%)

PRECISION WEIGHING CABINET

CRUMA W-2

PRECISION AND SECURITY IN THE INVESTIGATION

Cruma presents its new cabinet for **ultra-precision weighing** with total protection for the worker and the environment during the handling of substances developed in research laboratories.

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TECHNICAL SPECIFICATIONS

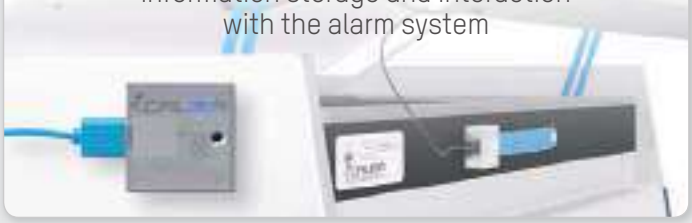
Number of HEPA H-14 filtration columns		1
Number of IP44 fans		1
Average face velocity		0,30 m/s
Average volume of treated air		208 m^3/h
Total electrical power consumption		90 W
Voltage-Frequency		110-220 V / 50-60 Hz
LED light intensity		700 lux
Noise level		56 ±3 dB
Packaging: 100% recycled wooden box International phytosanitary certificate	Volume	1,50 m^3
	Gross weight	193 Kg / Net 153 Kg

SIZES (mm)

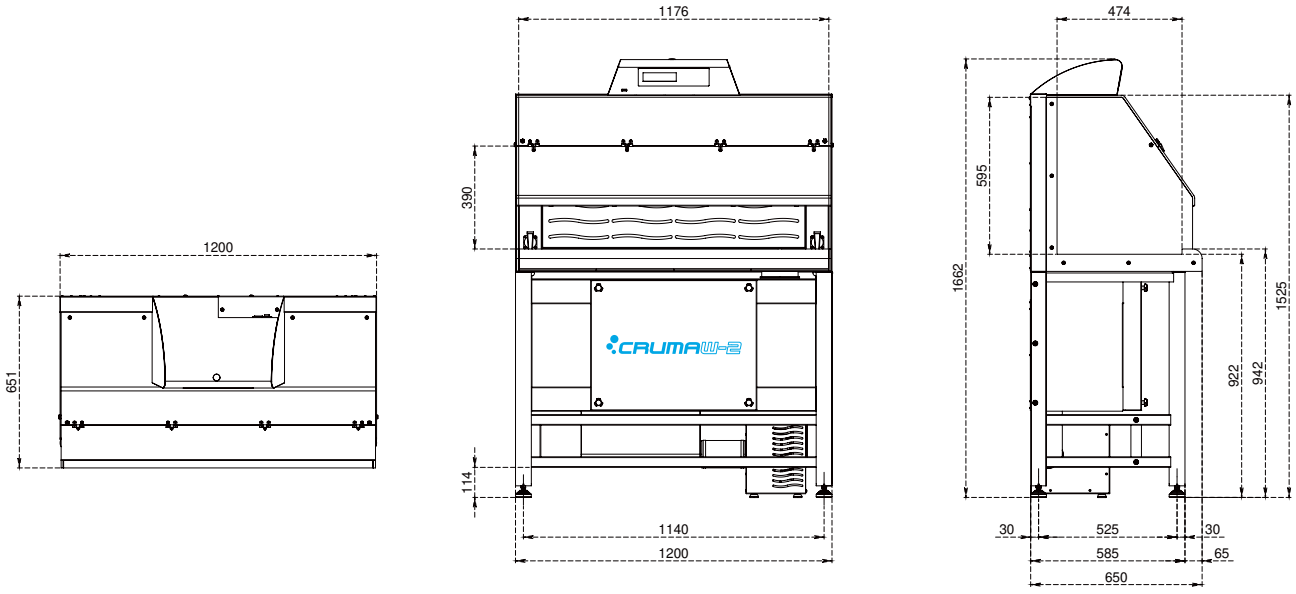
External			Internal		
Width	Depth	Hight	Width	Depth	Hight
1200	651	1664	1184	486	595

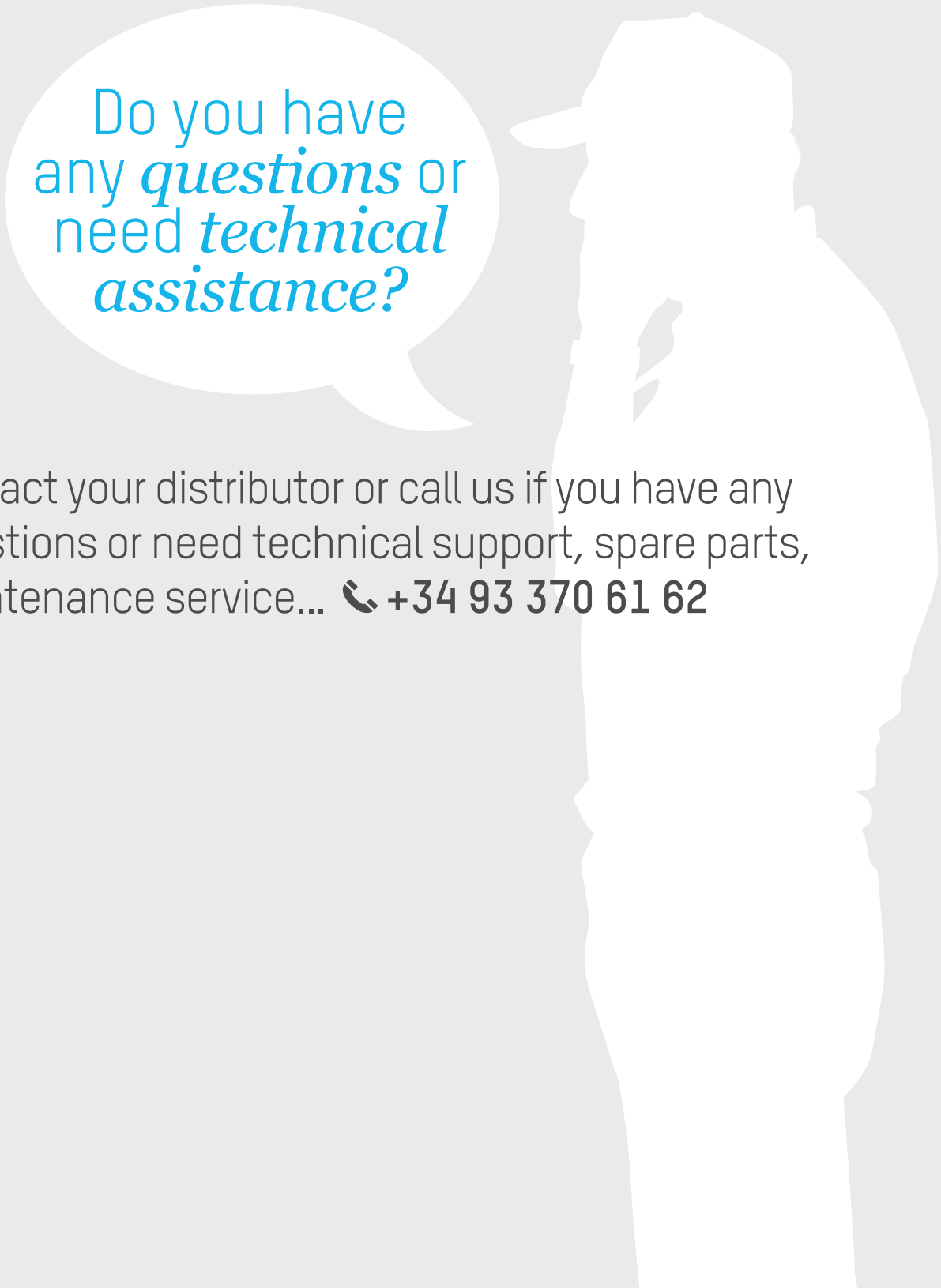
Filter provided with microchip and USB,
connection smart filtering

Information storage and interaction
with the alarm system



SIZES (mm)





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Laminar flow CABINETS

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

670FL 870FL HZ-1 HZ-2

***Assembled** models*
FL-1 & FL-2

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

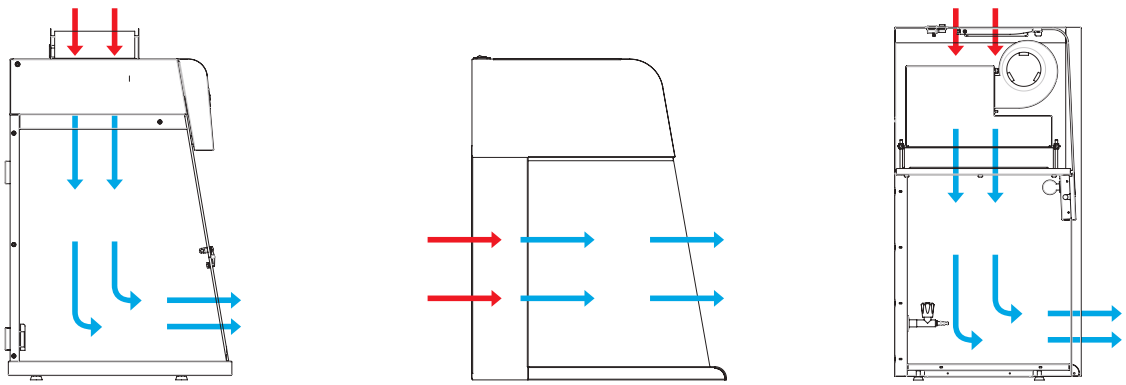
- √ Initial cycle flow adequacy and final purge cycle
- √ Fault LED
- √ Control of air flow through Microprocessor
- √ HEPA filters with electronic chip
- √ LED illumination

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.

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	LED high light intensity and low consumption: 15W - 1500 Lm for CRUMA 670FL, 870FL, HZ-1 & HZ-2 10 W - 800 Lm for CRUMA FL1 & FL2
UV Lamp	15W UV light for CRUMA 670FL, 870FL, FL1 & FL2
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 for HZ1 & HZ2
Gas tap	Gast tap for CRUMA 670FL, 870FL
Vacuum tap	Vacuum tap for CRUMA 670FL, 870FL.
Electric socket	Electric socket for CRUMA 670FL & 870FL
Steel work surface	Spill retention tray (2-10 liters) with working surface in white tempered glass for CRUMA 670FL, 870FL, FL-1 & FL-2
G4 prefilter	Pre-filtering class G4 biofibre synthetic blanket
Warranty	7 years

OPTIONAL EQUIPMENT

UV light for HZ-1 & HZ-2
Double electric socket for CRUMA 670FL. 870FL, FL1 & FL2
Vacuum tap for CRUMA FL1&FL2
Stand with wheels Movilair for 670FL, 870FL & FL1
Tubular stand for CRUMA 670FL, 870FL, HZ1, HZ2, FL1 & FL2

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%)

VERTICAL LAMINAR FLOW FOR SAMPLE PROTECTION

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.

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 7 year guarantee.

TECHNICAL FEATURES

Number of filters		1
Number of IP44 fans		1
Average face velocity		0,35 m/s
Total electrical power consumption		55 ±3 W
Voltage-Frequency		110-220 V / 50-60 Hz
LED light intensity		1500 lux
UV germicidal lamp		15W
Noise level		57 ±3 dB
Packaging: 100% recycled wooden box with international phytosanitary certificate	Volume	0,28 m^3
	Weight	65 Kg

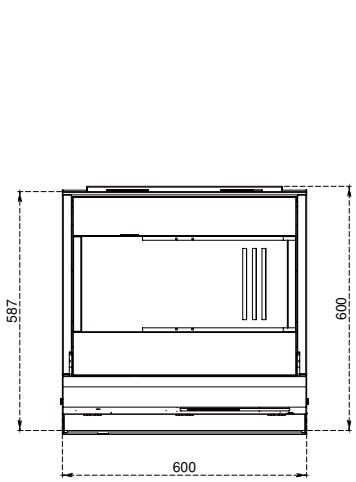
SIZES (MM)

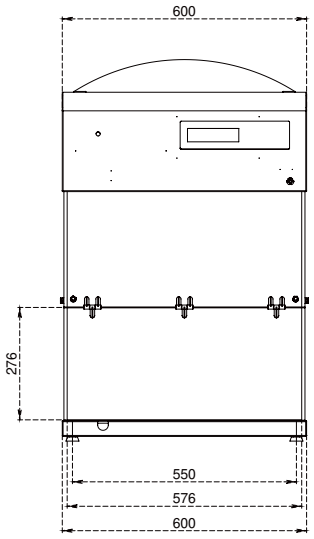
External			Internal		
Width	Depth	Height	Width	Depth	Height
600	**600**	**930**	**575**	**560**	**630**

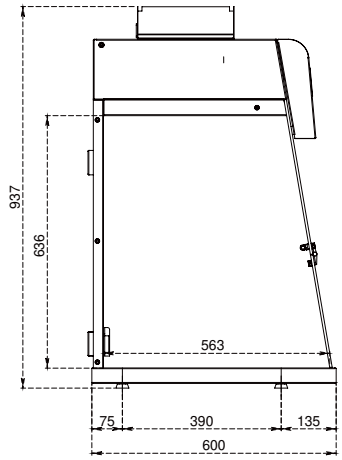
Filters with microchip and USB connection,
intelligent filtering

Information storage and interaction with the alarm system.

SIZES (mm)







VERTICAL LAMINAR FLOW FOR SAMPLE PROTECTION

CRUMA 870 FL

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.

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 7 year guarantee.

TECHNICAL FEATURES

Number of filters		1
Number of IP44 fans		1
Average face velocity		0,35 m/s
Total electrical power consumption		100 ±3 W
Voltage-Frequency		110-220 V / 50-60 Hz
LED light intensity		925 lux
UV germicidal lamp		15W
Noise level		57 ±3 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

Do you have any *questions* or need *technical assistance?*

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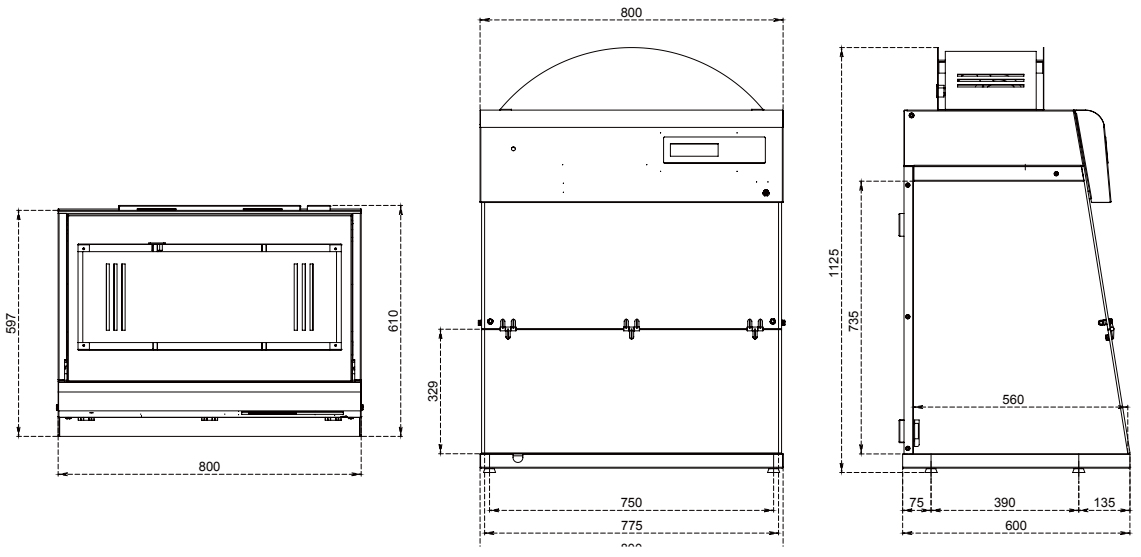
SIZES (mm)



HORIZONTAL LAMINAR FLOW FOR SAMPLE PROTECTION

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		0,35 m/s
Total electrical power consumption		90 ±3 W
Voltage-Frequency		110-220 V / 50-60 Hz
LED light intensity		1600 lux
Noise level		55 ±3 dB
Packaging: 100% recycled wooden box with international phytosanitary certificate	Volume	0,38 m^3
	Weight	80 Kg

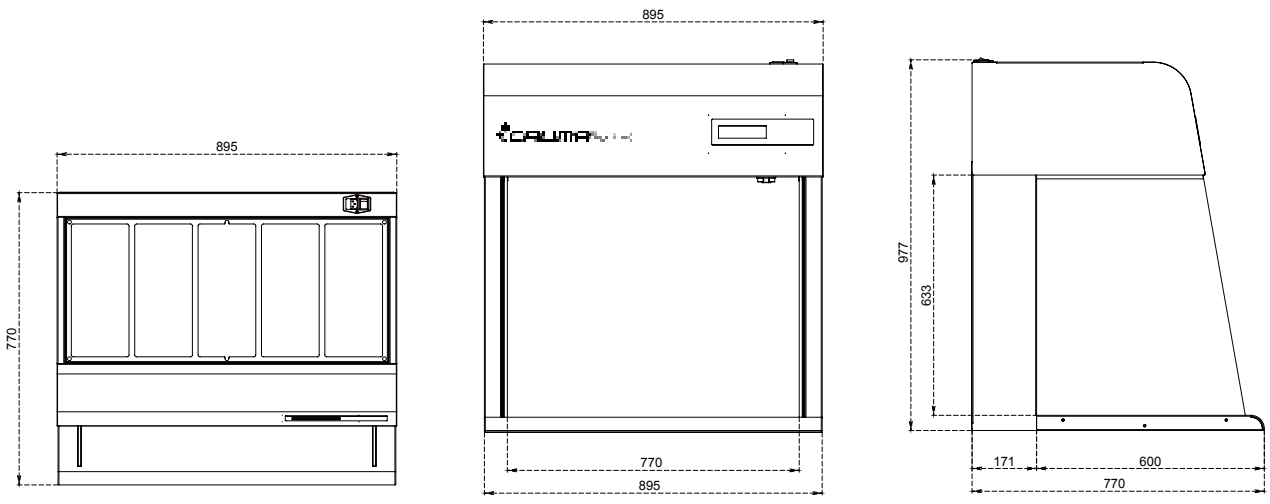
SIZES (MM)

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		0,35 m/s
Total electrical power consumption		140 ±3 W
Voltage-Frequency		110-220 V / 50-60 Hz
LED light intensity		1370 lux
Noise level		55 ±3 dB
Packaging: 100% recycled wooden box with international phytosanitary certificate	Volume	0,54 m^3
	Weight	102 Kg

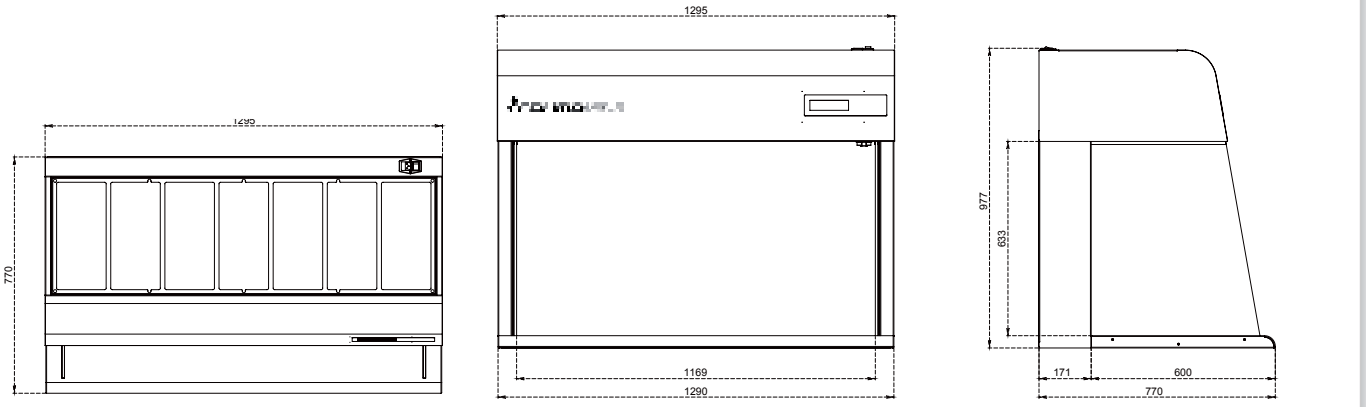
SIZES (MM)

External			Internal		
Width	Depth	Height	Width	Depth	Height
1290	**770**	**977**	**1169**	**600**	**633**

We recognise our responsability and dependence towards a healthy environment and, therefore, we destinate more than 7% of our annual budget in innovating and developing new products for the lab operator

our 7% engagement

SIZES (mm)



VERTICAL LAMINAR FLOW FOR SAMPLE PROTECTION

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		0,35 m/s
Total electrical power consumption		60 ±3 W
Voltage-Frequency		110-220 V / 50-60 Hz
LED light intensity		1500 lux
UV germicidal lamp		15W
Noise level		54 ±3 dB
Packaging: 100% recycled wooden box with international phytosanitary certificate	Volume	0,74 m³
	Weight	112 Kg

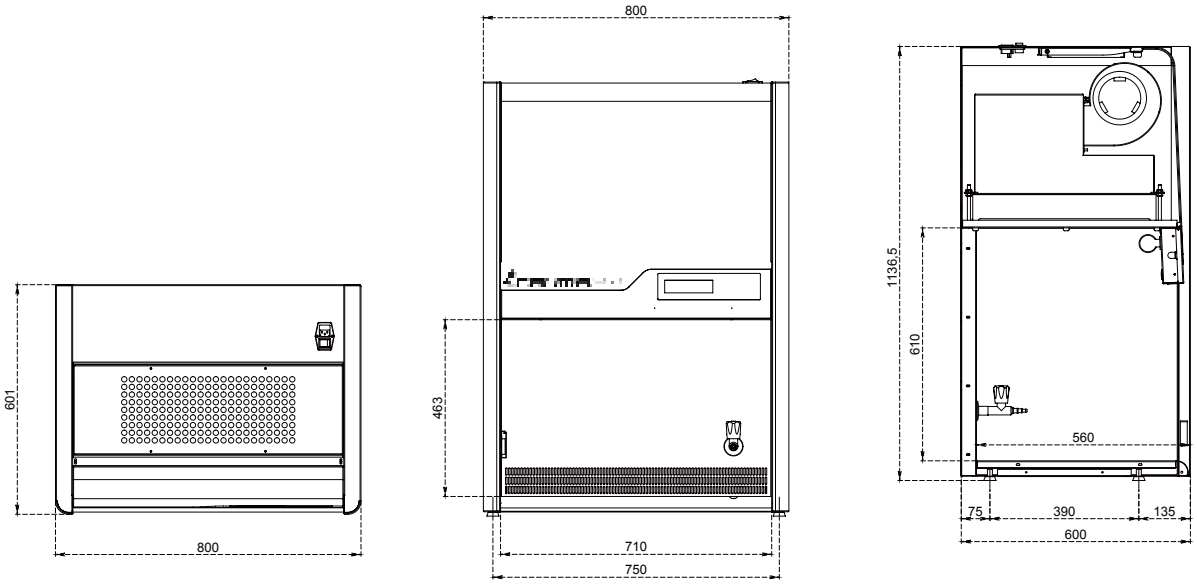
SIZES (MM)

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		0,35 m/s
Total electrical power consumption		65 ±3 W
Voltage-Frequency		110-220 V / 50-60 Hz
LED light intensity		1180 ±3 lux
UV germicidal lamp		15W
Noise level		54 ±3 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**	**1136,5**	**1110**	**560**	**610**

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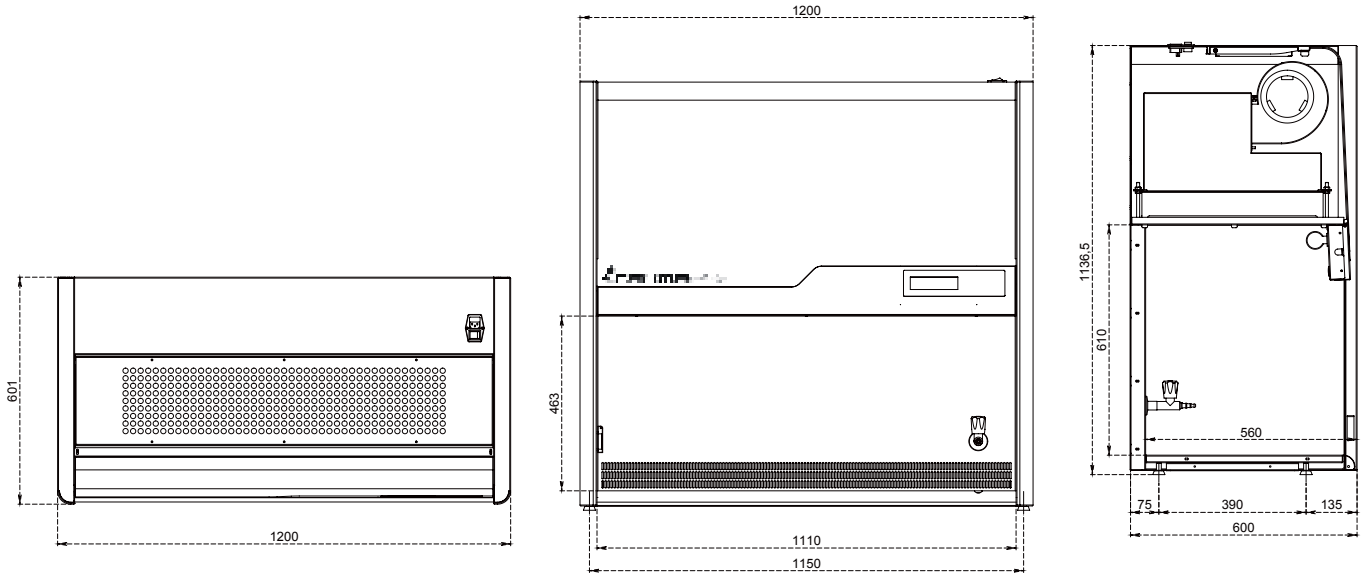
SIZES (mm)



PCR CABINET

PCR Model

PCR

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.

RECOMBINANT DNA TECHNOLOGY

CRUMA PCR

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		21 ±3 W
Voltage-Frequency		110-220 V / 50-60 Hz
UV lamp		3 x 15W
LED light intensity		1950 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

Do you have any *questions* or need *technical assistance?*

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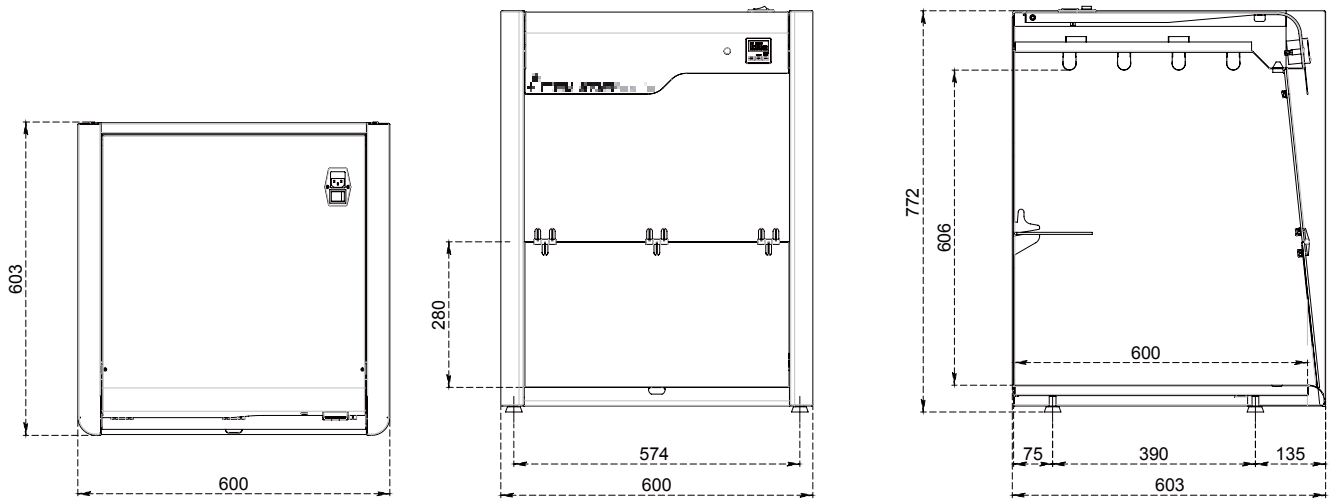
SIZES (mm)



Biosafety cabinets
CLASS II TYPE A2

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


BIO-1


BIO-2


VIRUSFREE

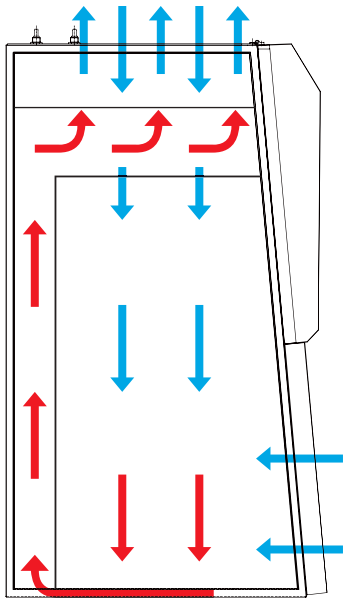

CYTO-2&3

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 9001:2015

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.

BIOSAFETY CABINET

CRUMA BIO-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.

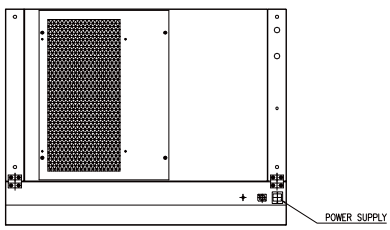
TECHNICAL FEATURES

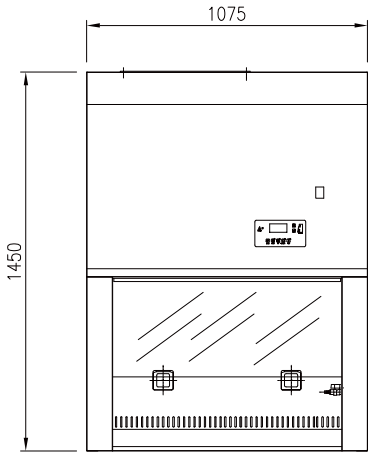
Number of filters HEPA-H14		2
Number of IP44 fans		1
Average volume of treated air		±350 m^3/h
Average face velocity		0.50 m/s
Total electrical power consumption		260 W
Voltage-Frequency		110-230 V / 50-60 Hz
Fluorescent Lamp / Light intensity		36 W / 900 Lm
Noise level		49 dB
Packaging: Cartoon box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

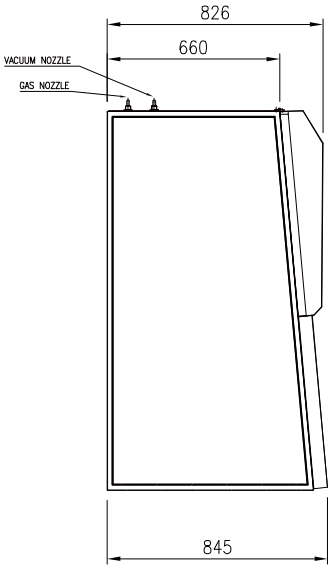
SIZES (MM)

External			Internal		
Width	Depth	Height	Width	Depth	Height
1074	840	1450	924	600	700

SIZES (mm)







BIOSAFETY CABINET

CRUMA BIO-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 Lm
Noise level		50 dB
Packaging: Cartoon box	Volume	2,39 m^3
	Weight	280 Kg

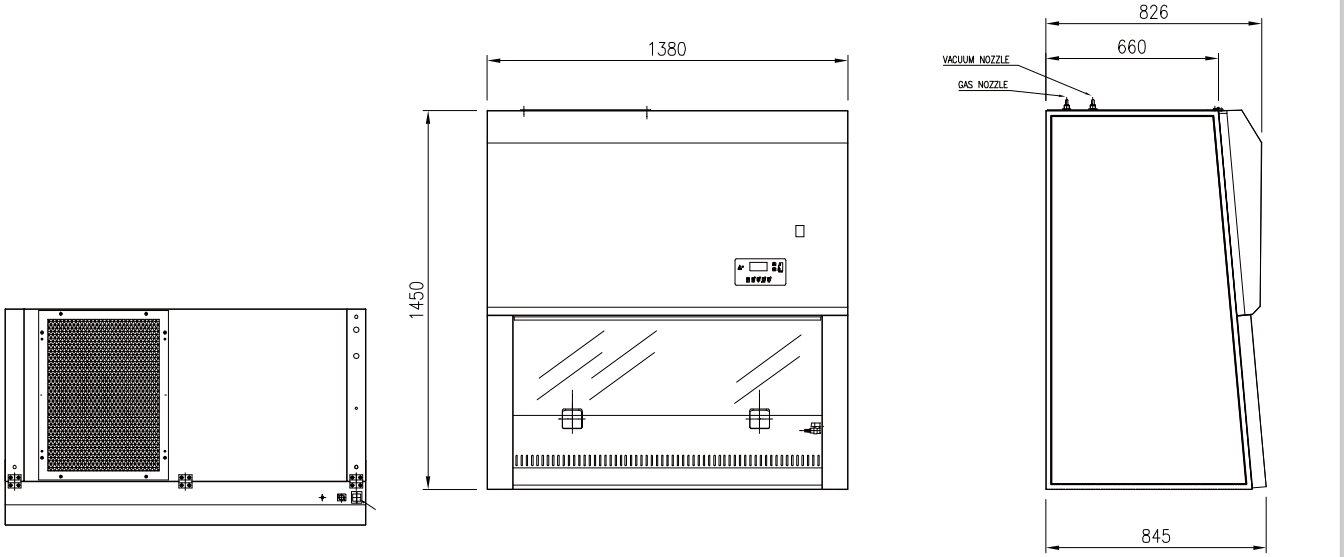
SIZES (MM)

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

Do you need help or *technical assistance?*

Contact your distributor or call us if you have any questions or need technical support, spare parts, maintenance service... **+34 93 370 61 62**

SIZES (mm)



BIOSAFETY CABINET

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 Lm	>1000

SIZES (MM)

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

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MAIN FEATURES

- Controls comfortably located at eye level
- Fan speed and aeraulic controlled by Microprocessor
- Three operating modes: normal, stand-by, calibration
- High speed rinse at start up
- Self calibration and internal Watch-dog cycle before "SAFE" condition is reached
- Visual display of "SAFE" conditions and "UNSAFE" conditions (LED and bar graph)
- Elapsed time meter
- Microprocessor control with following specifications:
  - 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
- Volt-free contact for remote monitoring of exhaust fan.
- Automatic reset of initial conditions in case of power failure
- C-shaped support stand for easy one man installation procedure
- Anti blow back valve (optional) for ducted configuration
- Magnehelic Gauge for internal chamber pressure constant monitoring
- One (1) Electrical Socket as standard option
- UV-Light installed on top (standard option)

BIOSAFETY CABINET - CYTOSTATIC

CRUMA CYTO-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		230V/50Hz or 220-230V/60Hz
Light intensity		2x30W / ≥1200 Lm
Noise level		≤ 55 dB
Packaging: 100% recycled wooden box with international phytosanitary certificate	Volume	3,47 m^3
	Weight	340 Kg

SIZES (MM)

External			Internal		
Width	Depth	Height	Width	Depth	Height
1380	840	2220	1230	600	700

FEATURES

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

BIOSAFETY CABINET - CYTOSTATIC

CRUMA CYTO-3

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		±680 m^3/h
Average face velocity		0.50 m/s
Total electrical power consumption		650 W
Voltage-Frequency		230V/50Hz or 220-230V/60Hz
Light intensity		2x30W / ≥1200 Lm
Noise level		≤ 57dB
Packaging: 100% recycled wooden box with international phytosanitary certificate	Volume	3,47 m^3
	Weight	450 Kg

SIZES (MM)

External			Internal		
Width	Depth	Height	Width	Depth	Height
1990	**840**	**2220**	**1830**	**600**	**700**

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FEATURES

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- Front barrier air speed ≥0.5mt/sec
- Light intensity on work surface ≥1200 lux
- Noise level ≤57dB
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- Self calibration cycle performed when cabinet is switched on
- Interconnected UV and fluorescent lights
- Stainless steel worktop with 2B finish (including spillage tray)
- In case of power failure, the cabinet is re-set to original working conditions

CO_2 INCUBATOR

CO_2 Incubator

INCUBATOR

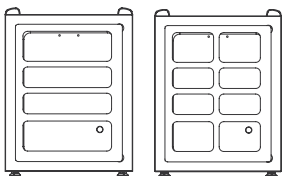
NEW FEATURES

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
- √ CO_2 display in steps 2 of 0.1%

In case of specific application requirements your CO_2 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 C02 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 **CO_2 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.

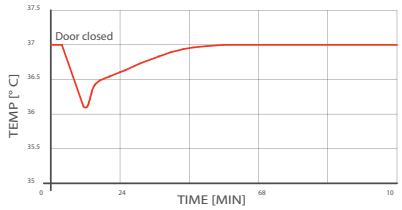
CO_2 Incubator maintains an accurate C02 gas percentage, uniform temperature and a consistently high level of humidity providing a stable culturing environment, even for most critical applications like IVF and Hybridoma cultures

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

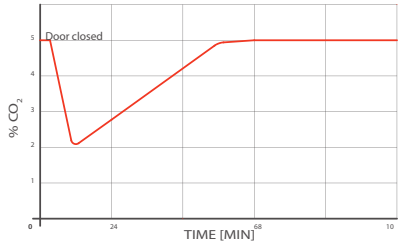


El gráfico muestra los datos reales proporcionados por el sensor de la cámara. Los resultados típicos en condiciones ambientales normales.

Precise control and recovery of set CO_2 percentage

The CO_2 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 CO_2. Mixing of air with inlet CO_2 gas is gently achieved, thanks to the complete absence of a forced air fan circulation system, enhancing a fast recovery of set CO_2 percentage within 5 minutes, following a 15 seconds long door opening (see Graph)

CO_2 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 CO_2 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 S@feGrow CO_2 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 CO_2 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 CO_2 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.

INCUBADOR CO_2

CRUMA CO_2

The new **CO_2 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.

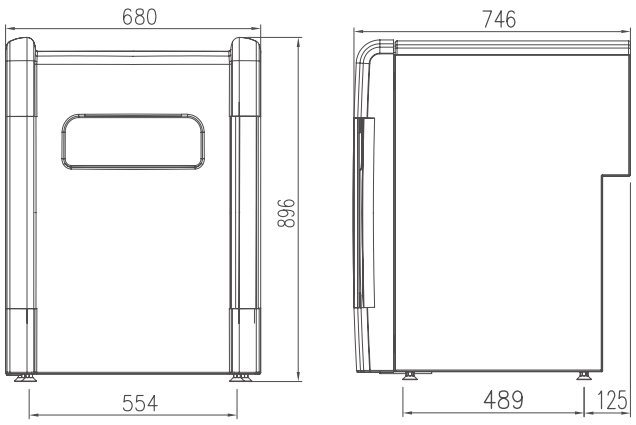
TECHNICAL FEATURES

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 CO2 zeroing. Measurement is independent from chamber humidity level
CO_2 Range	0.5 to 20 % CO2, 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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CERTIFIED ISO 9001