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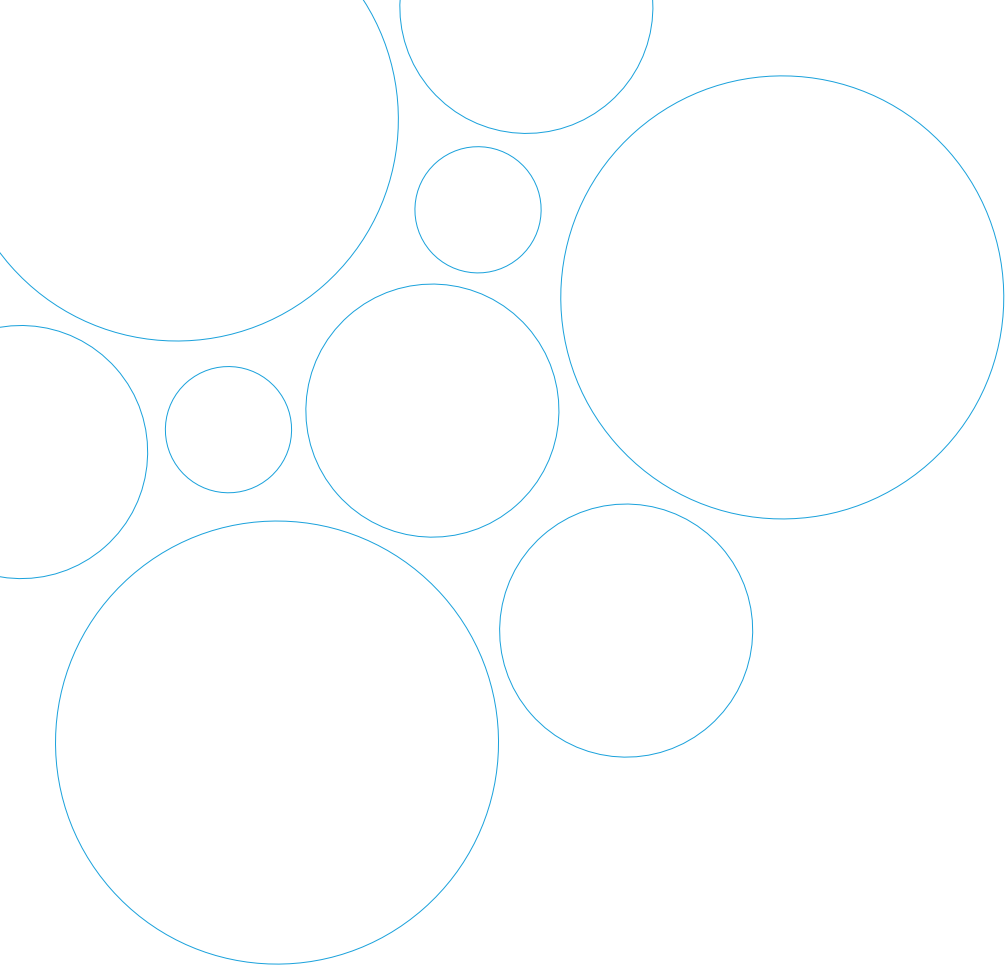
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our company

CRUMA was founded in 1974 to deal in the design, manufacturing and sale of fume hoods, laminar flow cabinets, powder weighing stations and vented storage cabinets. All of our products have been designed to protect laboratory workers and preserve the environment. They are made under the strictest international standards and in line with **the Quality Management System EN ISO 9001:2000.**

Over 30 years of experience and the same three principles that led to its creation: quality products, constant innovation and the flexible, customised service required by our customers.

To make direct contact with our customers even easier, CRUMA has a Customer Service department; a flexible, effective after-sales Technical Service and a simple, dynamic Web site aimed at the domestic and international market.

Visit www.cruma.es or call **+34 93 370 61 62** and you will discover a simple, practical way of placing orders, solving doubts or requesting further information.

mission

Providing laboratory **worker protection** and **protecting the environment** by promoting the innovation and development of new products, establishing a human, dynamic and quality working environment so that we, our customers and our suppliers can coexist in a positive, encouraging environment.

vision

It is our desire to make CRUMA the best company for every customer, supplier and worker in which to grow, train, work and develop to ensure CRUMA becomes an example and leader in laboratory worker protection and environmental preservation.

values

The values considered and declared by CRUMA in all points of development of its corporate project are specified at www.cruma.es

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

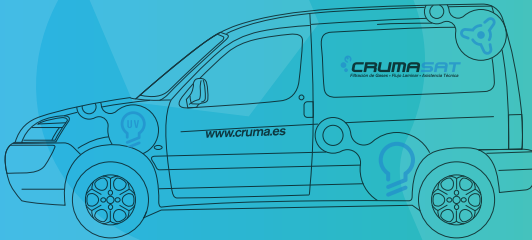
A. Canals
Managing Director

customer service

Customised, fast, flexible and effective customer service throughout the pre-sale, sale and after-sale process.



CRUMASAT



range of services

technical support service*

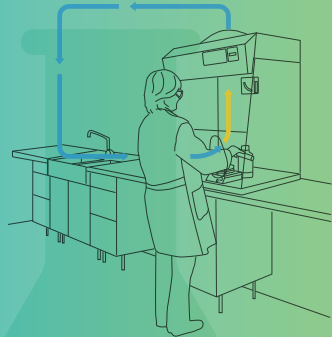
- Equipment overhaul and validation
- Preventative/corrective maintenance
- Advice on equipment assembly and handling
- Maintenance contracts

* Overseas by distributors

testing laboratories

- Equipment validation
- Filter saturation tests
- R&D&I tests
- External tests and trials

CRUMALAB



distribution

CRUMA sells its products directly and through an extensive network of distributors in over 65 countries, 35% of production being exported.

our customers

Public and private centres:

- Universities
- Research and technology centres
- Hospitals
- Analysis laboratories
- Quality control laboratories
- Secondary schools

Industries:

- Chemical
- Food and drink
- Pharmaceutical
- Agricultural
- Cosmetics
- Metallurgy

All companies or institutions with a laboratory in which there is a chemical risk can benefit from the protection and security of CRUMA equipment.



reinforced safety, continuous innovation

The word safety can be used when a laboratory of recognised prestige strictly supervises and analyses the performance and effectiveness of a product.

As to CRUMA fume filtering hoods, all the inspections carried out by the technicians of our internal laboratory have been later verified and approved by the "LGAI" (Laboratori General d'Assaigs i Investigacions – General Testing and Research Laboratory), an organization attached to the Department of Industry and Energy of the Generalitat of Catalonia (at present Applus+).

A double quality control to ensure maximum filtration power of toxic substances. These stringent, efficient analyses guarantee optimum operation for many years.

* Test report available on request

maximum features

In order to create top quality products that fully meet the needs of its customers, CRUMA is compliant with the requirements and recommendations of domestic and international standards in terms of design, construction, operating and maintenance of fume filtering hoods and laminar flow cabinets, as well as those dealing in the control and establishing of categories and characteristics regarding the filters used in our hoods and cabinets. CRUMA products are also compliant with standards relating to mechanical and electrical safety, as included in the provisions established by the European Directives mentioned in the "CE Declaration of Conformity" (available on request).

Some of the requirements included in the main international standards and applicable to CRUMA hoods are:

- Reduction of the toxicity of filtered gases to below the threshold limit values of US and French regulations.
- Incorporation of an anemometer for continuous control of face air speed and inside the fume hood.
- Incorporation of a digital timer with audible and visual indications warning every 60 hours of the need to check the filter saturation level.
- Incorporation of a device to verify filter saturation level using colorimetric reactive tubes.
- Inclusion of a manual with useful information on chemicals, operating instructions, applications, assembly instructions, recommendations and limitations of use, etc.





maximum quality

The stringent Quality Management System described in the **EN ISO 9001:2000** Standard is implemented throughout the manufacturing process and distribution of all CRUMA products, which are made only from the highest quality materials:

- Structure made from 2-mm steel plates with antiacid, polymerised epoxy coating.
- Side panels and front doors of transparent, 8-mm thick polymethyl methacrylate, highly resistant to fire and acids.
- Low-noise centrifugal fans (50 dB) placed after the filter to prevent corrosion.
- Fully programmable electronic circuit that can be customised upon request.
- Packed in easily recyclable boxes made of fumigated plywood from regenerated forests

the CRUMA filtration system

customised filters for every application

Gases, acids, fumes, solvents or particles. There is a filter for every type of application. Consult our Customer Service department on **+34 93 370 61 62** or ask for the CRUMA questionnaire for further information

how are gases filtered?

The molecules of the gas to be filtered are removed from the gaseous effluent by retention in a solid medium. This separation phenomenon is known as **“adsorption”** and is used to filter the gases inside the fume hood. The process uses activated carbon filters impregnated with different substances depending on the molecules to be adsorbed.

There are 2 adsorption mechanisms: **“chemisorption”**, which retains molecules by chemical bonding with the carbon surface, and **“physisorption”**, which involves an electrical interaction (Van der Waals' forces) between the molecule and the adsorbent. Although chemisorption ensures bonds that are 20 times stronger, both mechanisms are equally important in the global adsorption process.



activated carbon filtration

Activated carbon filters are used for gas adsorption due to their proven hardness and high resistance to attrition as well as their very high specific areas that range from 800 to 2000 m²/g. For specific applications, CRUMA uses carbon filters impregnated with several chemicals that are applied to the microporous structure of the carbon surface. The reason for this is that some gases are strongly adsorbed in the carbon structure, whereas others need to react with the impregnant to be neutralised or converted into other adsorbable forms

On filtering solids, the solid particles are eliminated from a gaseous effluent, whereas aerosol filtration allows for the droplets or small particles formed by liquid molecules to be eliminated from gaseous current.

To act effectively in both cases, CRUMA hoods include absolute HEPA filters.

HEPA filtration

HEPA filters are the most important component in laminar flow cabinets (LFC) with a wide range of applications in fields such as micro-electronics, scientific research and healthcare. Also known as "absolute" filters, they were developed during World War II to remove radioactive particles from the air in the nuclear industry. Since then, they have undergone continual advances to satisfy the ever-increasing demand for smaller particles.

The HEPA (High Efficiency Particulate Air) filters used by CRUMA are class H-14 (the highest efficiency for this type of filters in accordance with the EN-1822 standard) filters and their efficiency is 99.995% at the air flow rate through the filter set. This means that the efficiency will be 99.995% for the particle size at which the filter has the minimum power of retention, and it will be higher for other particle sizes, both larger and smaller. Because of their extremely high efficiency they are also known as **absolute** filters.

HEPA filters are made from microfibre glass paper pleated or folded using a special technique to ensure an extremely high separation efficiency.

Filter test

Fan

Filter

Pre-filter

Anemometer

In compliance with the standards:
EN-1822, EN-779 and EN-141

the CRUMA filtration system

CRUMA activated carbon filters

All the activated carbon filters of CRUMA fume hoods have been impregnated, manufactured and tested according to the requirements of the EN-141 standard. They are designed to adsorb the products shown below:

Type A: ideal for organic vapours like ketones, ethers, alcohols, xylenes, aromatic hydrocarbons and halocarbons, etc. It may also be used for inorganic acids, provided they are in low proportion, as the activated carbon is not impregnated and any excess of acid could damage it.

Type BE: ideal for inorganic acids like H_2SO_4 , HCl , HNO_3 as well as volatile sulphur compounds such as H_2S , SO_3 , etc. It can be used with organic vapours, as the activated carbon has metallic compound and neutralising salt impregnations. It is also recommendable for filtering organic and inorganic compounds, provided that they are in similar proportions.

Type F: ideal for formaldehyde and derivatives as well as organic compounds. The carbon is impregnated with Cu and should never be used with inorganic acids.

Type K: ideal for NH_3 and amines and good for organic compounds. Impregnated with metallic salt complexes.

Tip M: specific for Hg (mercury). It should be fitted with a HEPA filter for solids.

Type ABEK: mixed type to be used when the proportions of organic, inorganic and NH_3 / amines are similar.

	G	GS
Produced gases	GASES - VAPOURS	GASES - VAPOURS SOLIDS - AEROSOLS
Organics	A	AD
Inorganic acids	BE	BED
Formaldehyde	F	FD
NH ₃ and amines	K	KD
Hg (mercury)		MD
Organic / inorganic / NH ₃ / amines	ABEK	ABEKD

Type **G** fume hoods are those that set up a filtering medium formed by one sole activated carbon filter and are used for filtering gases. **GS**-type fume hoods are equipped with a filtering medium formed by a double carbon/HEPA filter and are used for filtering gases and particles.

All CRUMA fume hoods are fitted with a class G4 synthetic biofibre **pre-filter** (according to the EN-779 standard) for the retention of atmospheric dust.

The designation **D** indicates that an absolute class H14 (according to the EN-1822 standard) **HEPA** filter is fitted as a pre-filter below the activated carbon filter required for applications that generate solids and/or aerosols.

ductless fume hoods

In order to eliminate contaminating gases and/or solid particles/aerosols from the work area in a simple, economic and efficient manner, protecting both the operator and the environment, the best possible choices are CRUMA ductless fume hoods.

CRUMA fume hoods and cabinets conform to the following standards:

AFNOR NF X 15-211 (Class II)

BS 7258

CSA Z 316.5

EN- 1822

EN-779

EN- 141

UNE EN ISO 9001:2000

Control panel

Filter test

Illumination

Anemometer

YEARS GUARANTEE
3
AÑOS GARANTÍA

Ergonomic openings

Openings for the input of services

Safety working surface

Liquid retention tray



CRUMA 670

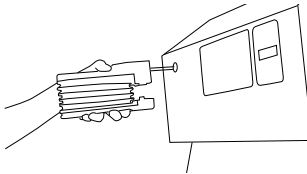


Membrane keypad

technical specifications

Fumes and gases, volatile or heavy. CRUMA fume hoods are specific to the application requirement, all hoods have the following common specifications as standard:

- Lighting
- Fluid retention tray (2-litre capacity)
- Safety glass work surface
- Anemometer
- Alarm in case of fan failure
- Door open alarm
- System to detect the filter saturation
- **3-year guarantee**

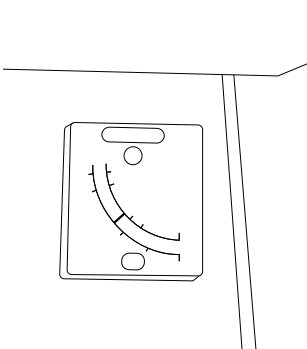


filter saturation test

CRUMA fume hoods are fitted with a filter verification alarm that **informs users every 60 hours that filter saturation should be checked**. To make this check, a kit can be used that is made up of a suction pump and colorimetric reactive tubes that detect different molecules and molecule groups.

air speed test on face anemometer*

An anemometer is a device that, once installed, will provide a continuous reading of the air speed on the face of your fume hood.



Under normal operating conditions, the average face speed corresponds to the value around which the pendular blade swings and must be around **0.5 m/s** (+/- 20%). On all accounts, the average reading must be in the white part of the scale. Higher speeds (upper yellow area) would mean short contact times between the gaseous molecules and the activated carbon, which would decrease the retention effectiveness, whereas lower speeds (bottom yellow area) jeopardise the containing of gaseous agents inside the hood and lead to the risk of leakage.

* Not included in the CRUMA 800 model



CRUMA 1200

	G	GS	
Average volume of treated air/hour (m ³ /h)	175	170	
Average face speed of air (m/s)	0,50	0,50	
Internal hood volume (m ³)	0,692	0,692	
Average air renewals in the hood/min	4,2	4,1	
Total electricity consumption	95W	95W	
Voltage frequency	220V-50Hz	220V-50Hz	
Illumination: Philips PLL kit	36W	36W	
Noise level	48dB	48dB	
Average assembly time	20-30 min.	20-30 min.	
Standard EC wiring and earthing	YES	YES	
Size	length	width	height
in mm (interior/exterior)	1175/1200	760/800	775/1100
in inches (interior/exterior)	46.3/47.2	29.9/31.5	30.5/43.3

CRUMA 1010

	G	GS	
Average volume of treated air/hour (m ³ /h)	175	170	
Average face speed of air (m/s)	0,50	0,50	
Internal hood volume (m ³)	0,458	0,458	
Average air renewals in the hood/min	6,4	6,2	
Total electricity consumption	95W	95W	
Voltage frequency	220V-50Hz	220V-50Hz	
Illumination: Philips PLL kit	36W	36W	
Noise level	48dB	48dB	
Average assembly time	20-30 min.	20-30 min.	
Standard EC wiring and earthing	YES	YES	
Size	length	width	height
in mm (interior/exterior)	975/1000	560/600	940/1225
in inches (interior/exterior)	38.4/39.4	22.0/23.6	37.0/48.2

range of ductless fume hoods



CRUMA 990

G **GS**

Average volume of treated air/hour (m ³ /h)	175	170	
Average face speed of air (m/s)	0,50	0,50	
Internal hood volume (m ³)	0,361	0,361	
Average air renewals in the hood/min	8,1	7,8	
Total electricity consumption	95W	95W	
Voltage frequency	220V-50Hz	220V-50Hz	
Illumination: Philips PLL kit	36W	36W	
Noise level	48dB	48dB	
Average assembly time	20-30 min.	20-30 min.	
Standard EC wiring and earthing	YES	YES	
Size	length	width	height
in mm (interior/exterior)	975/1000	560/600	740/1030
in inches (interior/exterior)	38,4/39,4	22,0/23,6	29,1/40,6



CRUMA 870

G **GS**

Average volume of treated air/hour (m ³ /h)	175	170	
Average face speed of air (m/s)	0,50	0,50	
Internal hood volume (m ³)	0,287	0,287	
Average air renewals in the hood/min	10,2	9,9	
Total electricity consumption	95W	95W	
Voltage frequency	220V-50Hz	220V-50Hz	
Illumination: Philips PLL kit	36W	36W	
Noise level	48dB	48dB	
Average assembly time	20-30 min.	20-30 min.	
Standard EC wiring and earthing	YES	YES	
Size	length	width	height
in mm (interior/exterior)	775/800	560/600	740/1030
in inches (interior/exterior)	30,5/31,5	22,0/23,6	29,1/40,6

range of ductless fume hoods



CRUMA 670

CRUMA 650

	CRUMA 670			CRUMA 650		
	G	GS		G	GS	
Average volume of treated air/hour (m ³ /h)	155	150		155	150	
Average face speed of air (m/s)	0,50	0,50		0,50	0,50	
Internal hood volume (m ³)	0,181	0,181		0,128	0,128	
Average air renewals in the hood/min	14,3	13,8		20,2	19,5	
Total electricity consumption	79W	79W		79W	79W	
Voltage frequency	220V-50Hz	220V-50Hz		220V-50Hz	220V-50Hz	
Illumination: Philips PLL kit	24W	24W		24W	24W	
Noise level	48dB	48dB		48dB	48dB	
Average assembly time	20-30 min.	20-30 min.		20-30 min.	20-30 min.	
Standard EC wiring and earthing	YES	YES		YES	YES	
Size	length	width	height	length	width	height
in mm (interior/exterior)	575/600	560/600	630/930	575/600	560/600	445/730
in inches (interior/exterior)	22.6/23.6	22.0/23.6	24.8/36.6	22.6/23.6	22.0/23.6	17.5/28.7

optional equipment

Movilair

To locate the unit in the laboratory or move to another location: CRUMA fume hoods are easily relocated anywhere due to the safe, practical MOVILAIR **portable trolley**, which also allows you to work seated. As easy as plugging the fume hood into a new electrical outlet.

Designed along the same lines as CRUMA fume hoods, MOVILAIR trolleys consist of:

- A structure made from a 2-mm steel plate with antiacid polymerised epoxy coating.
- A tray inside the trolley divides the useful space into two, forming a practical shelf and allowing work while seated.
- Transparent polymethyl methacrylate, 8-mm walls, highly resistant to acids, fire and knocks.
- Transport trolley with 4 wheels (200 kg max.), 2 of them with a locking device to ensure stability .



fume hood for education

Not only laboratories, hospitals or pharmacies but also colleges, universities and other educational centres are taking advantage of the modern CRUMA approach to practical rather than theoretical teaching. CRUMA offers a **specially designed fume hood**, which includes all the safety and protection systems required for professional applications. In addition, this fume hood is fitted with a 15-mm thick transparent polymethyl methacrylate rear wall that allows teachers and students to see how the work is carried out inside the hood from any angle.

CRUMA modular units

All CRUMA fume hoods are work spaces that can be customised to most requirements. They can be joined to form **multiple units** of different sizes without using internal separators.

Request the optional joining frame.



ECO² fume hood

ECO² is the new fume hood model that CRUMA has developed in line with our customers' suggestions.

Created in response to a demanding market that requires new products without waiving on features, functionality and quality, our R&D&I department has developed this model based on two main premises: Economy and Ecology. Hence its name. A product that respects our environment and the most demanding customers. ECO² has been created within this area of action.

ECO² has been subjected to the same tests and safety controls as the other products, responding to the levels of demand required by our customers and already offered by all Cruma products.

Applications

Handling of chemical reagents and compounds at room or moderate temperature in all kinds of laboratories:

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

Standard equipment

- Anemometer
- Filter saturation detection system
- 3-year guarantee

Optional equipment

- Illumination
- Liquid retention tray and safety working surface
- Movilair. Support with wheels.
- Fume hood for education: with transparent rear wall and side panels
- Modular CRUMA: possibility of connecting two, three or more fume hoods with no internal divisions
- Filter testing kit: to check filter saturation status at any time
- 125 V-60 Hz



CRUMA ECO² GS



CRUMA ECO² G with optional acrylics

CRUMA ECO²	G	GS	
Volume of treated air/hour (m³/h)	175	170	
Average face speed of air (m/s)	0,50	0,50	
Internal hood volume (m³)	0,287	0,287	
Air renewals in the hood per min	10,2	9	
Total electricity consumption	90W	90W	
Voltage frequency	220 V-50 Hz	220 V-50 Hz	
Illumination (optional): Philips PLL kit	36W	36W	
Noise level	50dB	50 dB	
Average assembly time	20-30 min	20-30 min	
Standard EC wiring and earthing	YES	YES	
Size G	Length	Depth	Height
in mm (interior/exterior)	770/780	560/600	760/950
in inches (interior/exterior)	30.3/30.7	22.0/23.6	29.9/37.4
Size GS	Length	Depth	Height
in mm (interior/exterior)	770/780	560/600	760/1010
in inches (interior/exterior)	30.3/30.7	22.0/23.6	29.9/39.8

ductless powder weighing stations

Because of their special handling characteristics, all CRUMA **negative pressure** powder-weighing stations are fitted with a high-efficiency **HEPA** filter. Apart from accurate ventilation and optimum visibility, this powder-weighing station is specially designed to guarantee the comfort and safety of the user while handling products in its interior.

This version is applicable to the whole range of CRUMA fume hoods with filters. This enables CRUMA to offer the powder-weighing station that best suits customer-specific needs.



Applications

- Drugstore laboratories
- Preparation of reagents
- Handling powder
- Weighing rooms

Technical specifications

- Illumination
- Liquid retention tray
- Safety working surface
- Anemometer
- Accidental fan stoppage alarm
- Door open alarm
- And, of course, a **3-year guarantee**

horizontal ductless fume hood



*With optional work surface

By adapting ourselves to the constant needs of our clients, we have **re-designed the horizontal flow, ductless fume hood AIRNET**, original from CRUMA. With capacity for one **activated carbon gas adsorption filter** and/or one **HEPA (H-14)** filter for retaining aerosols and particles, it is the perfect solution for those processes performed at low temperatures, offering the advantage that it may be located on already existing working surfaces (for covering sinks, adapted working tables, etc.). Therefore, the working surface is offered as an option available to meet the need of each client. It also incorporates a saturation detection system of the filtering medium for knowing at any time the filter saturation condition.

Two different orifice options and the possibility of combining one or more fume hoods offer the advantage of **creating a customised CRUMA fume hood according to your needs.**

CRUMA 800

	G	GS	
Average volume of treated air/hour (m ³ /h)	175	170	
Average face speed of air (m/s)	0,50	0,50	
Internal hood volume (m ³)	0,275/0,290	0,275/0,290	
Average air renewals in the hood/min	10,4	10,1	
Total electrical power consumption	79W	79W	
Voltage frequency	220V-50Hz	220V-50Hz	
Illumination: Philips PLL kit	24W	24W	
Noise level	48dB	48dB	
Average assembly time	20-30 min.	20-30 min.	
Standard EC wiring and earthing	YES	YES	
Size	length	width	height
in mm (interior/exterior)	777/793	575/753	650/1000
in inches (interior/exterior)	30.6/31.2	22.6/29.6	25.6/39.4

Applications

- Pathologic Anatomy, Histology and Cytology Wards, etc.
- Routine test laboratories
- Dust handling
- Materials cleaning

Technical specifications

- Lighting
- Working surface with fluid-retaining tray (optional)
- Accidental fan stoppage alarm
- Filtering medium saturation detection system
- And, of course, **3-year guarantee**

vertical laminar flow cabinets

vertical laminar flow: sterile area

To ensure the reliability of any tests, it is of vital importance that work performed inside the hood is not contaminated. CRUMA Vertical Laminar Flow Cabinets for Class ISO 5 (former Class 100) clean rooms create this sterile environment by basing their construction on the following special features:

- Polymer coating to protect metal parts against corrosion.
- Side and front walls formed by 8-mm thick transparent acrylic panels.
- Working surface of white safety glass.
- Silent radial centrifugal fan.
- Operation guaranteed for more than 50,000 hours.
- In compliance with current legislation, fitted with gas, electricity and vacuum connections.

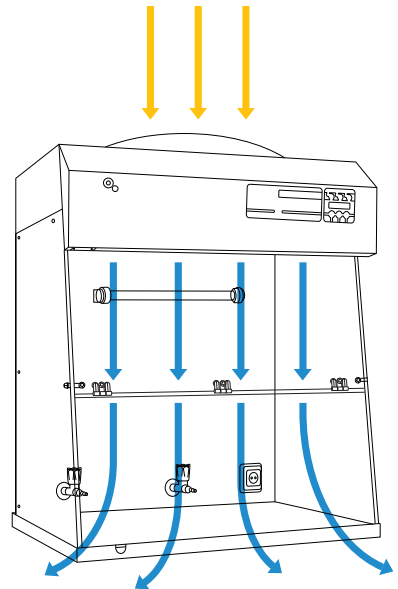
The filtration system incorporates a replaceable filter that is fire-proof, water-repellent and has been given a bactericide and fungicide treatment in compliance with the current requirements of the European standards EN-1822 and DIN 24184. The filter is an absolute **HEPA** (High Efficiency Particulate Air) class H14 filter, with a minimum efficiency of 99.995%.

To retain atmospheric dust particles, models 870 FL and 670 FL sterile cabinets are fitted with a class G4 synthetic biofibre prefilter (as per EN-779 standard).

In compliance with the standards:

US St 209 (Class 100)

ISO 14644 (Class 5)



air purity classes

The classification of air purity defining how clean it is in terms of the number of particles of a given size per unit of volume found in it has been developed and included in several international standards. The US Federal Standard 209 was the first, followed by others such as the Australian Standard AS1386 and the British Standard BS5295 up to the appearance of the most recent in 1999, for national and European application, EN ISO 14644-1, which establishes the following categories:

Clasificación	0,1 µm	0,2 µm	0,3 µm	0,5 µm	1 µm	5 µm
Clase ISO 1	10	2	0	0	0	0
Clase ISO 2	100	24	10	4	0	0
Clase ISO 3	1.000	237	102	35	8	0
Clase ISO 4	10.000	2.370	1.020	352	83	0
Clase ISO 5	100.000	23.700	10.200	3.520	832	29
Clase ISO 6	1.000.000	237.000	102.000	35.200	8.320	293
Clase ISO 7	10.000.000	2.370.000	1.020.000	352.000	83.200	2.930
Clase ISO 8	100.000.000	23.700.000	10.200.000	3.520.000	832.000	29.300
Clase ISO 9	1.000.000.000	237.000.000	102.000.000	35.200.000	8.320.000	293.000

This table shows the maximum concentration per m³ of particles of the same size or larger than that given in the heading of each column.

Applications:

- Clinical tests
- Laboratories for the dairy, meat and food industries in general
- Pharmaceutical and research laboratories
- Transfer of drugs in pharmacy service
- Haematology
- Microscopic analysis
- Manufacture and assembly of electronic devices
- Tissue culture
- Filling of antibiotics and injectable drugs (except cytostatic)

range of vertical laminar flow cabinets



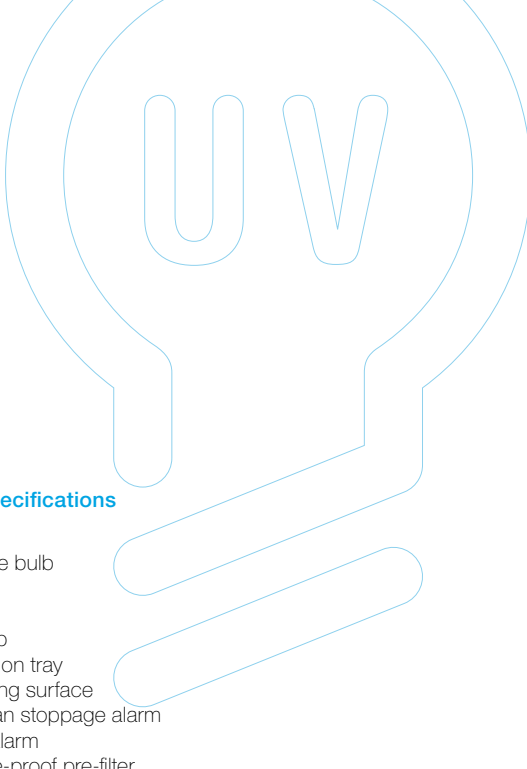
CRUMA 870 FL

Maximum volume of treated air per hour (m ³ /h)	810		
Average face speed of air (m/s)	0,40		
Internal hood volume (m ³)	0,287		
Total electricity consumption	258W		
Voltage frequency	220V-50Hz		
Illumination: Philips PLL kit	36W		
UV Germicide Bulb	15W		
Noise level	52dB		
Average assembly time	20-30 min.		
Standard EC wiring and earthing	YES		
Size	length	width	height
in mm (interior/exterior)	775/800	560/600	740/1125
in inches (interior/exterior)	30.5/31.5	22.0/23.6	29.1/44.3



CRUMA 670 FL

	155		
	0,40		
	0,181		
	99W		
	220V-50Hz		
	24W		
	15W		
	48dB		
	20-30 min.		
	YES		
Size	length	width	height
in mm (interior/exterior)	575/600	560/600	630/930
in inches (interior/exterior)	22.6/23.6	22.0/23.6	24.8/36.6



Technical specifications

- Illumination
- UV germicide bulb
- Vacuum tap
- Gas tap
- Electricity tap
- Liquid retention tray
- Safety working surface
- Accidental fan stoppage alarm
- Door open alarm
- Class G4 fire-proof pre-filter
- And, of course, a **3-year guarantee**

decontamination guarantee

CRUMA 870 FL and 670 FL sterile cabinets are delivered with a 15 W UV germicide lamp designed to decontaminate the hood 15 minutes before use. In spite of their low electrical output, the lamps are an artificial source of ultraviolet radiation ensuring accurate germicide power: 225 microwatts per cm^2 at 0.50 m.

Care should always be taken never to expose eyes or any other unprotected part of the body to UV rays. For this reason, even though the transparent methacrylate walls and front door of CRUMA sterile cabinets block these rays, no work should ever be carried out when the germicide lamp is turned on.

optional equipment

Just like all other CRUMA fume hoods, Vertical Laminar Flow cabinets can be mounted on the **portable MOVILAIR trolley** and are fully **guaranteed for 3 years** against any manufacturing defects, except for consumables such as the filters.



CRUMA 870 FL with MOVILAIR TROLLEY (optional)

vented storage cabinets

characteristics

Chemical product storage cabinets with ventilation and filtration system based on the technology used in CRUMA fume hoods. **The CRUMA 2005 and CRUMA 2010 cabinets** allow for liquid reagents to be stored, eliminating flammable, corrosive or toxic fumes through adsorption into an activated carbon filter and without the need for exterior connection. All in compliance* with the domestic and international requirements and recommendations: AFNOR NF X 15-211 (Class II), BS 7258, CSAZ 316.5, EN 1822, EN 141, EN ISO 9001:2000.

*Totally or partially, depending on standard

Applications

Storage of chemical products under incompatibility criteria. Filters available:

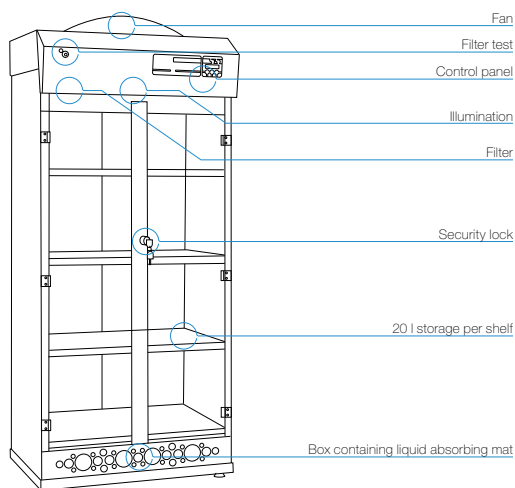
- **Type A:** ideal for organic compounds such as ketones, alcohols, ethers, organic acids, aromatic and halogenated Hydrocarbons, xylenes, etc.
- **Type BE:** ideal for inorganic acids and volatile sulphur compounds such as H_2SO_4 , HCl, HNO_3 , H_2S , SO_3 , NO_2 , Cl_2 , etc.
- **Type F:** specifically for formalin, formaldehyde, acetaldehyde and by-products
- **Type K:** specifically for basic inorganic fumes such as ammonia (NH_3), amines and caustic fumes

Technical specifications

- Security lock
- Illumination
- Removable retention tray
- Inert absorbent mat
- Fan stoppage alarm
- Filter saturation detection system
- 2 or 4 shelves (depending on model)
- 3-year guarantee

Optional equipment

- Filter testing kit
To check filter saturation status at any time
- Additional shelves
- Spare absorbent mats
- 125 V-60 Hz





CRUMA 2005 G

Average volume of treated air per hour (m ³ /h)	160
Average face speed of air (m/s)	0,67
Internal hood volume (m ³)	0,224
Storage capacity (litres)	Up to 40*
Average air renewals in cabinet/min	11
Total electricity consumption (W)	95
Voltage frequency (V-Hz)	220-50
Illumination: Philips PLL kit (W)	36
Noise level (dB)	48
Standard EC wiring and earthing	YES

Size	length	width	height
in mm (interior/exterior)	465/500	795/800	605/1050
in inches (interior/exterior)	18.3/19.7	31.3/31.3	23.8/41.3

* 25 kg max. storage capacity per tray

CRUMA 2010 G

Average volume of treated air per hour (m ³ /h)	160
Average face speed of air (m/s)	0,67
Internal hood volume (m ³)	0,567
Storage capacity (litres)	Up to 100*
Average air renewals in cabinet/min	4,6
Total electricity consumption (W)	95
Voltage frequency (V-Hz)	220-50
Illumination: Philips PLL kit (W)	36
Noise level (dB)	48
Standard EC wiring and earthing	YES

Size	length	width	height
in mm (interior/exterior)	465/500	795/800	1535/1835
in inches (interior/exterior)	18.3/19.7	31.3/31.5	60.4/72.2

standards

Below is a list of the standards on which CRUMA bases the manufacturing of its products:

AFNOR NF X 15-211 (1996):	Laboratory facilities. Enclosures for toxics using recirculating air filtration. General, classification, provisions.
CSA Z 316.5-94:	Fume hoods and associated exhaust systems.
AS 2243.9-1991:	Recirculating fume hoods.
BS 7258-1 (1994):	Laboratory fume hoods. Specifications for safety and performance.
BS 7258-2 (1994):	Laboratory fume hoods. Recommendations for the exchange of information and recommendations for installation.
BS 7258-3 (1994):	Laboratory fume hoods. Recommendations for selection, use and maintenance.
BS 7258-4 (1994):	Laboratory fume hoods. Methods for determining parameters.
BS 7989 (2001):	Specifications for recirculatory filtration fume cupboards.
EN-779 (1996):	Particulate air filters for general ventilation.
EN-1822-1 (1999):	Absolute filters (HEPA and ULPA). Classification, general marking testing principles.
EN-1822-2 (1999):	Absolute filters (HEPA and ULPA). Production of aerosols, measuring appliances, particle counting statistics.
EN-141 (2001):	Respiratory protection equipment. Gas filters and combined filters. Requirements, testing, marking.
EN-61000-6 (2002):	Electromagnetic compatibility. Generic standards.
EN-ISO-14644-1 (2000):	Clean rooms and associated controlled environments. Air cleanliness classification.
EN-ISO-14644-2 (2001):	Clean rooms and associated controlled environments. Specifications for testing and monitoring to prove continued compliance with ISO 14644-1.
EN-ISO-14644-4 (2001):	Clean rooms and associated controlled environments. Design, construction and start-up.
US Federal Standard 209 E (1992):	Clean room and work station requirements. Controlled environments.
EN-779 (1996):	Particulate air filters for general ventilation.