

FASTER ChemFAST
Laboratory Fume Cupboards



ChemFAST

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BEYOND MINIMUM SAFETY REQUIREMENTS

Faster S.r.l. have designed and manufactured ChemFAST Top and Elite ductless fume cupboards using the latest molecular filtration technology.

This provides a safe working environment together with fume containment for protection from chemicals, vapours and aerosol in the laboratories.

ChemFAST cupboards are available in two different versions:

- **ChemFAST Top** series fume cupboards meet all routine requirements.
- **ChemFAST Elite** series units have additional microprocessor control.

This ensures that all functional and operational parameters are monitored, facilitating the correct operation of the fume cupboards.

ChemFAST fume cupboards are used for the containment and removal of toxic vapours and aerosol, providing operator safety in a wide range of disciplines.



*ChemFAST cabinets are bench top models with epoxy painted **galvanized** steel structure for superior chemical resistance; epoxy painted steel base stand is available as option with foot rest bar.*

CHEMFAST TOP AND ELITE FUME CUPBOARDS USING THE LATEST MOLECULAR FILTRATION TECHNOLOGY

ChemFAST Top is designed to meet all the routine safety requirements encountered by both the operator and the environment through the use of chemical reagents.

Units are equipped with a manual device to set the inlet air velocity when heavy or volatile chemicals are used and are supplied with fluorescent lighting.

ChemFAST Elite is designed with a microprocessor controlled system for a range of data which includes type and code number of the filter being used, installation date, maximum time allowance for filter use and a warning date for its replacement. Built in with five different languages like Italian, English, German, French and Spanish. Audible and visual alarms are also available to protect the operator.

These alarms cover out of range minimum and maximum air velocity, filter saturation, prefilter clogging, anemometer failure, gas detector failure and motorfan malfunctioning.

ChemFAST Elite is equipped with fluorescent lighting as well as optional vacuum tap and power point.

APPLICATIONS

Applications for ChemFAST fume cupboards may be found in many laboratories, including those in clinical diagnostic testing, **biological and medical research, analytical chemistry, Q.C., biotechnology, pharmaceutical industries, food, fine chemical, petrochemical, cosmetic, photographic laboratories and electronic industries.**



ACTIVATED CHARCOAL FILTERS

The filters used in the fume cupboards are manufactured from high grade coconut shell charcoal.

All types of activated charcoal used in these filters are of amorphous structure obtained from the heat controlled oxidation of coconut shells. The cellulose structure of the coconuts provides the highest adsorption efficiency through a large surface area of up to 1050 m²/gm.

FILTER TYPES

a) PRE-FILTERS

High performance pre-filters are designed to remove particulates from the air stream.

The filter material is based on electrets, which are permanently charged di-electrics.

They remove particulates from polluted air by strong electrostatic forces generated by the fibres from which they are made.

The combination of strong electric charges and open structure provides a filter with high efficiency, low airflow resistance and high loading capacity.

Pre-filter efficiency is equal to 75-85% dust weight arrestance (ASHRAE).

b) MAIN FILTERS

Eight types of filter media are available.

Most of these are impregnated activated carbon, to provide a higher filter capacity for lower molecular weight organic compounds and inorganic gases and vapours.

A number of filter efficiency studies have been carried out, and all results using single bed filters show efficiencies very close to 100%.

1. A/C FILTER

The A/C filter is the most widely used filter in the range, and is used primarily for solvent fume removal. It is manufactured from coconut-shell based activated carbon of 4 x 8 USS mesh size and surface area up to 1050 m²/gm.

Filtration is achieved by the physical adsorption of molecules in the pores of the activated carbon by Van der Waals forces.

Primary use: organic odours, hydrocarbons, aromatic solvents, animal odours, excrements, urines, acid odours, cadaverine, putrescine.

Secondary use: oxygenated nitrogen compounds.

2. ACR FILTER

This filter is impregnated with halide salts and is used for the high efficiency removal of iodine and methyl iodine.

It is frequently used for iodination reactions with low-level radioactive iodine and efficiencies in excess of 99,99% have been measured.

Primary use: radioactive iodine.

Secondary use: hydrocarbons.

3. FORM FILTER

This filter is impregnated with an oxidizing agent to oxidise formaldehyde to form salts.

It is widely used in hospital pathology and cytology laboratories.

Primary use: formaldehyde.

Secondary use: organic emissions, hydrocarbons, aromatic solvents, acid gases.

4. SULF FILTER

Primary use: acid odours, putrescine, cadaverine, acid gases, hydrogen sulphide, methyl mercaptan, sulphur compounds, sulphur dioxide, R.H.>85%.

5. UR FILTER

Primary use: acid odours, putrescine, cadaverine, acid gases, hydrogen sulphide, methyl mercaptan, sulphur compounds, sulphur dioxide, nitrogen oxygenated compounds.

Secondary use: organic emissions, hydrocarbons, aromatic solvents, hydrocyanic acid, R.H. <85%.

6. CYAN FILTER

Primary use: hydrocyanic acid.

Secondary use: organic emissions, hydrocarbons, aromatic solvents.

7. MER FILTER

Primary use: mercury vapours

Secondary use: organic emissions, hydrocarbons.

8. AM FILTER

Primary use: ammonia and its derivatives

Secondary use: organic emissions, hydrocarbons, aromatic solvents, alkaline odours, excrement, urines animal odour.

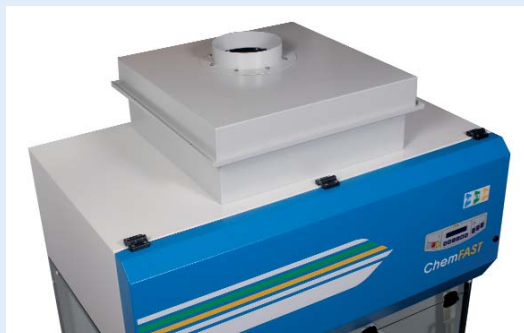
9. HEPA FILTER

Primary use: powder and particulate.

ADDITIONAL ACTIVATED CHARCOAL FILTERS

ChemFAST unit may be optionally fitted with additional charcoal filter whenever the application requires for simultaneous use of different kind of solvents which can not be retained by

standard charcoal filter. The additional filter is located into an external housing made in epoxy painted steel which can be fitted with or without spigot for external ducting.



Additional filter housing with spigot for external ducting



Additional filter housing re-circulating type

FILTRATION

A wide range of filters is available, from activated charcoal adsorbing filters to chemical adsorbing filters for specific applications such as the use of formalin, gluteraldehyde or radioactive iodine labelled compounds and for others applications.

The ChemFAST 06 unit incorporates a carbon filter which weighs approximately 13-21,5 Kg, the ChemFAST 09 unit incorpo-

rates two carbon filters with a total weight of approximately 18-28,8 Kg and the ChemFAST 12 unit incorporates two carbon filters with a total weight of about 26-43 Kg.

ChemFAST 15 incorporates three carbon filters with a total weight of about 35-58 Kg.

Life time of the carbon filters is proportional to the overall weight of the charcoal fitted inside the filter.

Faster ChemFast series is outfit with the biggest filters available in the market to house a large quantity of carbons thus expanding the filter life time.

Each fume cupboard is equipped with disposable type prefilters, with an efficiency of 75%-85% dust weight arrestance (ASHRAE) to protect the main activated charcoal filter.

OPTIONAL

ChemFAST cabinet may be optionally fitted with water tap and drain system.

Work surface and all drain connections are made in AISI 304L stainless steel.

Water tap can be positioned on the right or on the left hand side.

The unit fitted with optional water tap is completed with an epoxy painted base stand mounted on castors with two hinged doors and handles.

Amenities for connection to the water building management system is not provided with the kit.





SAFETY GLASS FRONTAL SCREEN

Upwards opening hinged safety glass front window, designed for easy introduction of instruments into the work chamber and for easy access for cleaning and maintenance. Safety glass side walls.



WORK SURFACE

ChemFAST cabinet is supplied with acid resistant PVC work surface with special design to drive the liquids spilt to the corners of the surface. (AISI 304 stainless steel available as option).

CONSTRUCTION

ChemFAST series have a cold rolled epoxy painted **galvanized body** for superior resistant againsts chemical solvents aggression.

BUILT IN SAFETY

All electronic components, switches, lighting and motor fan have been selected and installed fully isolated from air contaminated with solvents and therefore meet the most stringent electrical safety requirements.





REPLACEMENT FILTER

Easy charcoal filter replacement from the front.



KEYBOARD

- Microprocessor controlled monitoring system (only for Elite model)
- Highly effective protection from toxic vapours
- High filtration efficiency
- Large adsorption capacity
- Filter monitoring system (standard only for Elite model)
- Ductless (in any case the cabinet is fitted with a 200 mm collar for optional ducting connection)

BACK SIDE HOLE

ChemFAST Unit is fitted with an hole on the back side panel with rubber cover to plug external devices.

DESIGN FEATURES

Each ChemFAST cupboard contains an IP54 centrifugal motorfan, capable of maintaining a constant airflow by compensating for the clogging of the pre-filters, which occurs during normal operation.

The **ChemFASTTop** series is equipped with a manual device for adjusting the air velocity to obtain the appropriate air velocity for each specific contaminant used.

The **ChemFAST Elite** series is equipped with a microprocessor based monitoring system.

Each unit has a liquid crystal display to show the face speed and a digital setting system to select the most suitable velocity for each specific contaminant used. (only for Elite model).

TECHNICAL SPECIFICATIONS

Description	Unit	ChemFast 06	ChemFast 09	ChemFast 12	ChemFast 15
Useful dimension (wxdxh)	mm	533x600x660	823x600x660	1123x600x660	1438x600x660
Overall dimension (wxdxh)	mm	595x760x1120	885x760x1120	1185x760x1120	1500x760x1120
Exhaust duct	∅	200	200	200	200
Working aperture	mm	200	200	200	200
Max front aperture	mm	455	455	455	455
Weight (approx.) w/o filter	kg	70	85	100	115
Filter					
Pre-filter (particulate)		1	2	2	2
Main filter (charcoal)		1	2	2	3
Total weight of A/C filter		See the filter table	See the filter table	See the filter table	See the filter table
Electrical					
Supply	V/Hz	220-240/50-60	220-240/50-60	220-240/50-60	220-240/50-60
Power	W	88	122	207	210
Lighting	Watt	2x15	2x18	2x30	2x36
AirFlow					
Vol/air treated	m ³ /h	300	400	600	700
Average face speed	m/sec	>0,6	>0,6	>0,6	>0,6
Controls					
Version Top		<ul style="list-style-type: none"> • Power on/off • Light on/off • Variable speed air regulation • Hour-counter • Stand-by green light 			
Version Elite		<ul style="list-style-type: none"> • Power on/off • Light on/off • Microprocessor monitoring system checking airflow, pre-filter and filter efficiency • Variable speed air regulation • Audible and visual alarms alert the operator to low/high airflow, fan failure, filter and pre-filter condition, black-out, gas detector and anemometer failure. 			
Construction					
Head section		Epoxy coated zinc plated steel	Epoxy coated zinc plated steel	Epoxy coated zinc plated steel	Epoxy coated zinc plated steel
Base section		Anodized aluminium	Anodized aluminium	Anodized aluminium	Anodized aluminium
Spill tray		PVC Acid and solvents resistant	PVC Acid and solvents resistant	PVC Acid and solvents resistant	PVC Acid and solvents resistant
Fan Motor		Centrifugal IP54	Centrifugal IP54	Centrifugal IP54	Centrifugal IP54



Striving everyday to improve our environmental performance, Faster developed environmental procedures are founded on three guiding principles:

- Protect the Environment for present and future generations manufacturing low energy consumption equipments
- Reduce risks and improve efficiencies
- Introduce improved technology and processes



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