

Always Safe

Fume Cupboards



Vinitex Laboratory Systems



Where vapours, gasses or dangerous mixtures or concentrations occur, the health of people should be guaranteed.

The construction and airflow of an active fume cupboard should be able to prevent:

- the ex-filtration of toxic, harmful and chemical gases out of the fume cupboard, into the working area
- the accumulation of a potential explosive atmosphere inside the fume cupboard that may lead to an explosion.
- scattering of abrasive or glass substances

Our new developed **VINITEX Always Safe** fume cupboard programme guarantees safety and ensures a smooth operation (EN 14175). The new series is an innovating answer to all requirements and desires of the user. Due to our **professional knowledge**, the **latest techniques** and an optical **attractive design**, the new A.S. series can be seen as a **high-quality Vinitex product**.

New developments

The new A.S. series is provided with several new techniques that guarantee an optimal protection and perfect operation of the fume cupboard:

- The **opening-profile** can be fully lowered onto the work surface, which protects the user for scattering glass-splinters and dangerous liquids.
- By using the horizontal sashes, the vertical sash can be closed during manipulations which provides a better protection of the user.
- An (un)safe work-situation is continuously monitored by the standard build-in **airflow-control**.
- The ventilation- and light-switch are standard build into the airflow-control mounted at a safe location outside the workspace.
- Lab fittings can be connected directly at the back of the fume cupboard.
- Services are placed on the back-wall of the cabinet, to create a large **work surface**
- The standard explosion-hatch on the ceiling of the cabinet provides, in case of an explosion, the required pressure release.
- Optional: an integrated fire resistant under-bench cabinet, for the **safe storage** of dangerous substances directly at the workplace.



A.S. Standard Fume Cupboard



Photo: Fume cupboard with a fire resistant safety cabinet

The **standard** fume cupboard type A.S. can be adapted for general usage (**EN 14175 approved**) in industrial laboratories, hospitals, universities, research and testing institutions, monitoring stations, etc.

The fume cupboard can be delivered in **1200, 1500** and **1800** mm width and is standard provided with the complete new developed **Vinitex airflow-control**.

The service fittings are in accordance with individual specifications and several work surface materials and accessory options are offered to fulfil all personal wishes.

Hydrofluoric acid fume cupboard, Type AS-HF

When intensive usage of hydrofluoric acid inside the fume cupboard is needed, the corrosive action of this chemical has to be noted when choosing the materials.

Therefore Vinitex has developed a special Hydrofluoric acid fume cupboard where the laminated glass sashes and baffles are replaced by clear acrylic and the interior and work surface are covered with hardened white PVC.

Function description

The Fume cupboard will be solidly mounted and should be connected to an exhaust system.

The air inside the fume cupboard will be extracted through a baffle at the back.

Due to the construction, the required airflow will arise inside the fume cupboard.

The new flow-efficient handgrip profile assures this airflow even with closed sashes.

This way the incoming air will be equally divided over the work surface.



photo 1:
(above)
Standard under cabinet

photo 2:
Lye and acid
under cabinet.

DIN **CE** **NEN**

Type	AS 12	AS 15	AS 18
Measurements WxDxH (mm)	1200 x 935 x 2750	1500 x 935 x 2750	1800 x 935 x 2750
Max. Opening of the sash (mm)	1800 (from the floor)	1800 (from the floor)	1800 (from the floor)
Safe sash opening from work-top (mm)	500	500	500
Weight kg	200	250	300
Main Supply	230 V / 50 Hz	230 V / 50 Hz	230 V / 50 Hz
Lights (W)	2 x 38	2 x 38	2 x 38
Light strength	>400 Lux	>400 Lux	>400 Lux
Sound volume	<50 d B/A	<50 d B/A	<50 d B/A
Pressure loss with nom. F- volume P1	40	40	40
Nom. F- volume m3/h V=0,3 m/sec	600	760	930
Airflow-control min. Alarm rate	560	720	890
Airflow-control max. Alarm rate	640	800	970



A.S. Drive-in Fume cupboard



A.S. Drive-in Fume cupboard

The drive-in fume cupboard is particularly suitable for the installation of **tall apparatus**. The drive-in cabinet has no work surface and is placed directly on the laboratory floor.

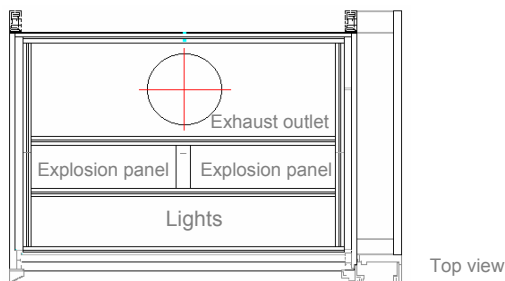
Equipment and apparatus can therefore be rolled into the cabinet. The services can be controlled with the **vertical control panel**.

The vertical sash exists out of one large window, which provides optimal user protection against glass-splinters and spattering dangerous substances.

During manipulations inside the fume cupboard, the vertical sash can be kept closed at all time, because of the usage of the **horizontal sashes**.



Standard provided with a PP drip-cup and fittings at the back-wall.



Top view

A.S. Walk-in fume cupboard

The Walk-in fume cupboard is the answer in those situations where more working height is needed than in the standard fume cupboard. The walk-in fume cupboard is provided with a **lowered work surface**.

The front is provided with one vertical and two horizontal sashes. During manipulations inside the fume cupboard, the vertical sash can be fully lowered onto the worktop. The horizontal sashes allow a perfect operation and guarantee optimal protection of the user.

The handgrip of the fume cupboard is constructed out of an aerodynamic profile, which can be fully lowered onto the worktop. This way the incoming air will be equally divided over the work surface.



A.S. Walk-in fume cupboard



A.S. Instruction fume cupboard

In situations in which a fume cupboard with sashes on both sides is required, for example between the lecturing area and the classroom, the instruction fume cupboard offers the ideal solution.

The fume cupboard is equipped with independent operating sashes on the front and the back of the work chamber. The fittings can be mounted at both front and/or rear side of the fume cupboard.

Normally the outlet (worktop mounted) will have one front control fitting. However there is a possibility for two fittings (one on each side).

In order to ensure safe ventilation, the sashes should be kept closed on one side at all times.

Another possibility is to provide the cupboard with one sash and one fixed window.



A.S. Instruction fume cupboard

A.S. Bench-top fume cupboard

This fume cupboard can be placed on a bench. With a depth of 750 mm, the cupboard can be perfectly placed on a Vinitex or existing laboratory bench.

The upper part of the cupboard resembles the design and operation of a standard A.S. fume cupboard.

The bench-mounted fume cupboard is ideal for light chemical activities in a laboratory, placed on existing furniture or in case of a lack of space.

The fume cupboard can be delivered in **900, 1200, 1500 en 1800mm** width and is standard provided with a completely new developed **Vinitex airflow-control**.





A.S. Radio-Isotope fume cupboard



Vinitex Fume cupboard placed directly next to a filter cupboard.

Filter cupboard

In case the extracted air of the fume cupboard should be purified of radio-active particles, Vinitex can deliver the suitable filter cupboard. This filter cupboard will be delivered with an absolute filter and the requisite indicators and pressure gauges. In a matching storage cupboard, the filter cabinet can be placed, for example, right next to the fume cupboard.

A.S. Destruction fume cupboard

The destruction fume cupboard is specially designed for working with volatile perchloric acid.

The destruction fume cupboard is **chemical** and **internal heat** resistant. The standard A.S. series exterior will be provided with a **complete perchloride cabin** interior. The cabin is constructed out of hard, seamless PP fitted with a sprinkler system, enamelled laminated glass and a work surface made of laminated glass which is held above the base cupboard by means of PP strips.

The destruction fume cupboard is standard provided with a built-in mist eliminator with an absorption of 99,9% in case of a drip size greater than 45 micron.

The Vinitex Radio-Isotope fume cupboard, available in two models, is suitable for activities involving the use of **radio-active** substances.

Radio-Isotope laboratories categories C en D, Type AS-RC

For work in a laboratory with the categories C and D this fume cupboard is covered up at 3 sides to create a deep seamless work chamber. All gaps between the worktop and the air space below are fully cement filled all round for absolute protection of RI leakage. Optional: a 25mm thick leaden shield placed under the work surface, which also surrounds the drainage sink.

Radio-Isotope laboratories Category B, Type AS-RB

This type of fume cupboard is suitable for the Radio-Isotope laboratory category B. The fume cupboard is provided with a PVC cabin. A leaden shield with a thickness of 25mm is positioned under the work surface. This shield also surrounds the drainage sink. Extra support is added to the work surface by using a steel frame. This way the entire unit can withstand a total of 1500 kg.



PP cabin with a glass work surface.

Kjeldahl fume cupboard

When working with **sulphuric acid** according to Kjeldahl, we advise the application of the above-mentioned AS-PK fume cupboard. When High concentrations are used a PVC cabin is preferred.



Airflow-Control system



The A.S. fume cupboards are standard provided with the completely new developed Vinitex airflow-control system.

The airflow-control guarantees a problem-free air-technical function, while it continuously checks the exhausted air-rate. In case of a failure an optical and acoustic signal will be given. By constantly monitoring the current situation, the safety of the laboratory worker will be guaranteed.

The airflow-control measures the specific pressure differences between the air exhaust and the laboratory room. By selecting certain limit values for the pressure difference, the “switch” moments for the red and yellow control lights can be defined.

Vinitex airflow-control offers

- ◆ Day / night switch
- ◆ Relay exit for external failure-mention.
- ◆ Automatic switch on battery with optical signal, in case of an electricity failure.
- ◆ Potential-free exit for special functions.

Work surface

The work surface of the fume cupboard is standard fitted with **chemical resistant tiles** and the cement used is acid-proof.

It is possible to provide the fume cupboard with other worktop materials like:

- ◆ Stoneware (steinzeug) according to DIN 12916, RAL 7035 (light grey)
- ◆ Solid melamine (Trespa Athlon) or equivalent material
- ◆ Stainless steel.
- ◆ Polypropylene thickness 5 mm placed on 25 mm chipboard RAL 7035 (light grey)
- ◆ Hard PVC, thickness 5 mm, colour white

All tops are provided with raised edges.



Drip cup

A stoneware drip cup is a standard fitting in the right corner of the work surface.

Measurements:

Drip cup: 285 x 130 x 125 mm

Interior: 250 x 95 x 112 mm

The drip cup is provided with a PE connector 1½” G outside.



Service Fittings

For the several different fittings we handle a colour-code according to DIN 12920. The code handles coloured operating-organs, which indicates the main groups. The subdividing which specifies the medium is a coloured-ring with a coloured button / text symbol.

Sash operation

For an optimal safe operation of the fume cupboard, we advise you to take notice of the following recommendations.

The operational sash opening of the vertical sash is max. 500mm.

However, we advise you to keep the vertical sash completely closed during manipulations inside the cupboard and to work through the horizontal sashes.

This way we guarantee an optimal protection against possible explosions or glass-splinters.

After finishing the manipulations, all sashes should be closed.

The vertical sash is only allowed open during the construction of the formation.

Reduced height fume cupboard

Should the room height be insufficient, it is possible to reduce the height of a fume cupboard to a minimum of 2500 mm. The height of the sash remains the same.

Electra

The Electra duct can be provided with several different options.

The standard and walk-in fume cupboard both have the Electra duct under the work surface and the drive-in fume cupboard on the right side. The Electra duct is splash-proof and made out of an aluminium profile with steal-plate top, which are connected through a special coverage. (Tüv tested)

Equipment cupboards

For the formation of measure-equipment, recorders, etc. meant for the registration of the equipment inside the cupboard, we offer a special equipment cupboard. The equipment cupboard can be placed right next to or between two fume cupboards and is available in 600, 900 and 1200 mm width.

Connected fume cupboards

In case extra width cupboards are preferred, all fume cupboard types can be connected. The fume cupboards will be placed directly next to each other and provided with a separation opening. This separation opening can be constructed with a sliding acrylic panel.



Accessories

In addition to the standard equipment the fume cupboards can be provided with the following accessories.

- ◆ Several different work surfaces (look at work surface)
- ◆ Explosion protection accessories
- ◆ 380V, 42 volt wall sockets
- ◆ Seating arrangements
- ◆ Additional support rods for handing equipment in the fume cupboard.
- ◆ Access opening for cables in the side panel.
- ◆ Furring of space above the fume cupboard



Fume cupboard Control System

To simplify controlling the fume cupboards, Vinitex offers the possibility to provide the A.S. fume cupboards with a control system. This special system offers:

- **Central control of the functions**
- **Advanced air-control**
- **Energy reduction (cost reduction)**



A short impression of the possibilities:

- View of all fume cupboards on one PC
- Central control of the lights
- Central Sash-control per fume cupboard.
- Movement-sensor for automatic closure of the sash after the laboratory worker has walked away from the fume cupboard.
- infrared-closing protection on the sash
- Volume stream control LC-100 (Constant volume stream)
- Operation of the fume cupboards from another location by using internet
- Night operation: low volume stream, lights out. (central on- and of- switch)
- Close down night operation: Due to a special switch you can close down the night operation.
- Gas alarm: Automatic closure of the sash and the valves.
- Fire alarm: Automatic closure of the sash and the valves.
- Supplementary air: Air that is brought into the room, 0,5 - 0,8 x times the abstracted amount.
- Frequency transformation: This controls the number of revolutions of the ventilator what is necessary for the air that has to be exhausted, calculated by the group-controller.
- Group-controller GZA, Microprocessor: Calculates, through signals of the other microprocessors, the amount of air that has to be abstracted and blown-in and gives signals to the frequency transformation and supplementary air valve.
- Average pay-back period of the investment (6 cabinets): 1 year.



Positioning of the fume cupboard

When positioning fume cupboards in explosion safe rooms, special **protection classes** should be noticed and followed.

To guarantee a perfect air-technical operation of the fume cupboard, the position in the laboratory room should be considered in advance.

Fume cupboard are not allowed:

- ◆ Close to doors (distance 1,5 m)
- ◆ Close to extreme air-flows (draught)
- ◆ Under air make up or exhaust (air-conditioning)
- ◆ In conflict with space regulations or emergency exits.

In order to determine the **correct position**, our employees can advise you.

Exhaust installations

One of the most important factors for a perfect function of a fume cupboard is a good exhaust system with the right exhaust capacity. The materials, duct diameters, positioning and the dimensions of the exhaust system need to be carefully selected.

Vinitex, as a specialist in the production of PVC centrifugal fans and exhaust ducts, has the right combination available.

After all, it is better to give the responsibility for the fume cupboard combined with the exhaust system to one organisation.

We are pleased to offer our service in this specialised area.



Maintenance and Service

Although Vinitex fume cupboards require little maintenance, depending on the intensive use of the fume cupboard, we recommend the following maintenance operations:

Clean the interior and the partitions regularly with detergent.

Concentrated chemicals should be removed as soon as possible to prevent damage on the worktop.

Use of organic solvents should be avoided looking at your own health protection.

Visible damages can be fixed by service employees.

Clean the cupboard before working with it. (chemical radiation)

Horizontal and vertical sashes should be oiled and checked at least ones a year with silicone oil.

Keep the glass of the lights clear. Replacement of lights should only be done by a professional..

The face velocity can be measured with an anemometer. Another possibility is to measure the pressure difference with a service-module.

The services should be regularly checked on leakage and damages.

The electro installation is in accordance with NEN 1010. Test the installation and function regularly.



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