Fume cupboards

A safe choice
Labflex offers functional, high-quality fume cupboards which protect the user and increase safety in the laboratory. Labflex is Scandinavia’s largest manufacturer of fume cupboards for the pharmaceutical and biotech industry as well as for universities and hospital laboratories. Over the past 50 years, Labflex has supplied fume cupboards for local and international customers. Labflex has built vast knowledge concerning the development and use of fume cupboards in industrial, educational and research environments.

The users and the type of work in the laboratories vary, and only rarely are wishes and requirements similar. Labflex’s strength is that we can meet all the needs of a laboratory. Labflex has a wide range of standard fume cupboards and can supply specific, tailor-made fume cupboard and ventilated solutions for the laboratory. Fume cupboards from Labflex can meet all types of complex user, energy and safety requirements.

Labflex offers unique fume cupboard and laboratory knowhow in design, construction, user behaviour, energy consumption, ventilation, safety and work environment. Labflex’ solutions are future-proof regardless of whether you want a standard fume cupboard or a customer-adapted specialty product.

Needs analysis

Labflex’ appliance and ventilation solutions are based on a thorough and initial needs and work environment analysis. Placement requirements, usage behaviour and dimensioning requirements are part of the analysis and form the basis for the design of the right solution. Depending on the ventilation needs Labflex can supply laboratory solutions with fume cupboards in which control systems, sensors, alarm, automatic window control are integrated among other things. The solution can be combined with or without a damper solution, process ventilation with replacement air as well as signal boxes, etc. Labflex only wants to give the customer the best possible help, making sure the final delivery lives up to the customer’s expectations.

»Pathology & GMO-laboratories«
Labflex fume cupboards – in general

Labflex is among the very few European manufacturers of fume cupboards who can deliver products with variable or constant airflow and with integrated operating system solutions. With its wide and well-documented product range Labflex can deliver fume cupboards for all types of laboratories – from analysis to GMO laboratories.

The product range covers a wide spectrum of standard models to complicated and large walk-in fume cupboards as well as specially developed pathology fume cupboards. Isotope or perchloric acid fume cupboards are also part of the standard product range from Labflex.

High competence level

In construction and functionality a Labflex fume cupboard is influenced by the company’s wide spectrum of competences. Labflex’ consultants as well as the development and production team possess a wide professional and practical experience. The teams consist of people with a professional background as architects, engineers, constructors, machine technicians, electricians and ventilation technicians.

It requires careful insight into norms, regulations and trends to develop and manufacture fume cupboards correctly and optimally. This knowhow is deeply anchored at Labflex and thereby ensures that the customer always gets the best sparring and advice. At the same time it is a guarantee that the customer gets an optimum and future-proof solution.

The development of fume cupboards at Labflex is managed by flexibility combined with many years of experience and an in-depth product engineering knowhow. Labflex remembers the fact that the fume cupboard must be adapted to the laboratory’s existing and future use as well as the need for adaption to various furniture systems. Adaptation to the specific user needs and behaviour, the given building conditions and the current legal requirements ensure a long product life.

All Labflex fume cupboards can be integrated in both new and existing furniture systems.

»Fleksibility«

Special fume cupboard solutions

If there is a need for a customer adapted solution, then Labflex will solve it using own engineers and architects. Concept development and special customer solutions are some of Labflex’ core competences.

The isotope fume cupboards are special Labflex constructions with an all-welded stainless steel insert which gives a safe work environment. The tabletop is integrated in the insert and is supplied with beaded edges, and the insert has polished, rounded corners without weld joints, which makes it easier to clean and ensures optimum hygienic conditions. The fume cupboard is constructed in accordance with rules for isotope laboratories and is approved by Radiation Hygienic Institute according to Class B and C. The fume cupboards also meet the requirements from the National Board of Health’s notice on the use of open radioactive sources at hospitals, laboratories, etc.

The perchloric acid fume cupboards are designed to work with perchloric acid. It combines all the advantages from internal coating with polypropylene, resistant to acid, with a wash-down system and an effective, but at the same time turbulence-
Intelligent fume cupboards

free exhaust system. The all-welded polypropylene insert ensures an optimum work environment.

Space automatic solutions

Space automatic control is part of Labflex’ arrangement and ventilation solutions for laboratories as an integrated part of the fume cupboard solution. These solutions have been developed and optimised over the years through collaboration between Labflex and competent subsuppliers. We supply both standard and customer adapted control.

We supply technical IT and product specific operating systems, and all product solutions are explicitly developed for implementation in laboratories. The operating systems make the fume cupboard intelligent and ensure a safer work environment, and at the same time it optimises energy consumption.

Space turbulence - an important focus area

At Labflex we have constant focus on turbulence both in and around the fume cupboard. Labflex’ fume cupboards are designed to handle the turbulence in and in front of the fume cupboard, and to minimise it in relation to approved levels. Aerodynamic structures in Labflex’ fume cupboard design ensure a smooth and uniform airflow. Custom-designed Labflex components in the fume cupboard reduce the turbulence.

The entire width of the fume cupboard is ventilated through three strategically placed slits in the double back wall. Thereby, Labflex design of the fume cupboard creates a balanced ventilation environment and optimum space ventilation.

Air speed in the fume cupboard

The air speed in a fume cupboard can be regulated according to the user’s wishes. In most cases, Labflex recommends setting the fume cupboard to an air speed between 0.3 m/s and 0.5 m/s depending on the use situation and safety needs. The norm in Denmark is 0.5 m/s. Labflex’ consultants can advise you on this.

Labflex’ fume cupboards are constructed so they adapt the air speed with an automatic control system depending on the height of the window and the use of the fume cupboard. If required, the fume cupboard can be set so the air speed is always 0.5 m/s when the window is open, and 0.3 m/s when the sash window is closed.

It is important to emphasise that the air speed is always adapted to the customer’s requirements in recommended air speed intervals.

Fast air regulation in the fume cupboard

The Labflex control system is intelligent and decodes the user’s behaviour, i.e. the air volume is regulated automatically depending on the window height. So, if the sash window is closed the air volume will automatically be reduced. The actual air volume is regulated and adapted to a new window level within 1 second. The short reaction time increases safety in and around the fume cupboard.

»Safe work environment«
Window with automatic closure

Labflex has several types of window control, including the product EnergySaver. EnergySaver is an energy-efficient function. The product can be installed on new and existing fume cupboards. The product is aimed at the environmentally and cost-conscious user.

The primary function in the EnergySaver product is to ensure that the fume cupboard’s sash window closes automatically when the fume cupboard is not in use. Thus reducing and optimising the energy consumption while the safety remains intact.

The EnergySaver control is integrated with the general fume cupboard automatic control, meaning the automatic window closure and air control are regulated simultaneously. The automatic window closure in EnergySaver can be programmed to adapt the intervals to the specific work and user pattern in the laboratory. The user defines the time intervals. The closure can also be activated at certain times of day — e.g. after working hours. EnergySaver considers the test equipment in the fume cupboard through an advanced and sensitive technique. The system is developed to register any resistance in the sash window from test equipment (flasks, etc.) and the automatic closure is stopped. Thus, test setups and equipment will not be destroyed if it sticks out of the fume cupboard.

Not many investments have as short a payback time as EnergySaver. Under normal user conditions the payback time on an investment in EnergySaver will not exceed 2 years.

»Energy and environmentally correct solutions«

Sustainable materials

All materials used in the fume cupboard are carefully selected in order to ensure optimal safety and sustainability. In order to ensure a satisfactory environmental policy Labflex has chosen to make high demands on the materials used in products and ventilation solutions. Labflex chooses its sub-suppliers carefully and emphasises environmental and quality certification.

Fume cupboard ergonomics

Ergonomics is an important priority area for Labflex and contributes to the complete user satisfaction.

Examples of energy-efficient installations

- The laboratory’s fume cupboard is equipped with the automatic window closing system, EnergySaver, which closes the window on the fume cupboard when the fume cupboard is not in use.
- The fume cupboard is equipped with a control panel with a person sensor which, when the fume cupboard is not in use, sends a signal to the automatic window closing system, EnergySaver, to close the window.
- The laboratory’s point suction is equipped with an ON/OFF damper which automatically closes down outside normal working hours.
- The laboratory is also equipped with a CO2/temperature sensor. The sensor reduces the air change in the laboratory outside normal working hours.
- It is possible to install night lowering or turn off the fume cupboard completely outside normal working hours.
Ergonomically correct and easy to clean

solution. Today ergonomics is also about adapting the furniture solution to concrete work and user needs. Laboratories are dynamic environments where procedures and needs change. Labflex' flexible fume cupboard solutions can be adapted to new, concrete needs and ensure efficient systems.

Fume cupboards are available with integrated height adjustable inserts, work tables and walk-in structure in various heights, depths and widths. Labflex sloping window design optimises the work position. This flexibility means that the fume cupboard can be adapted to even the most complex ergonomic requirements. The sloping front design on the fume cupboard also ensures that the work position is the most comfortable and least straining for the body. The fume cupboards are also constructed to be moved and adapted to any new workflows.

Light in the fume cupboards is an important part of creating good ergonomic working conditions. The light level follows the instructions in DS-EN 14175 according to the type certification part 3.

Reduced noise

Labflex standard fume cupboard is one of the products on the market which generates the least amount of noise. The noise level is below 40 DB with the sash window open 500mm and an air speed of 0.5 m/s. The construction and design of the fume cupboard help ensure this low noise level and create an optimum work environment, even if the laboratory has many fume cupboards.

Easy to clean

Labflex' fume cupboards are designed to be easy to clean. The design and construction make it possible to clean both internal and external surfaces easily and effectively. The back plates inside the fume cupboard are detachable, and slits and corners are avoided. Furthermore, emphasis has been put on making sure the materials on the surfaces are easy to clean. Labflex emphasises hygiene optimisation for the benefit of a safe work environment.

Certification of fume cupboards – i.a. EN14175

As one of the few European fume cupboard manufacturers Labflex complies with the EN14175 norm, including the required type approval of fume cupboards (FCS/EN/78/2005 & FCS/EN/79/2005). Labflex helps set the bar in connection with documentation and guarantee for fume cupboard safety.

In the material selection and in the internal work processes Labflex has related to and worked according to the norm EN14175 part 2. The requirements in part 2 are normative for product specification, product documentation, component allocation and production performance, including requirements for the manufacturer's procedures related to fume cupboards.

Labflex quality assurance updates work and procedure descriptions continuously, optimising safety, handing over and traceability.

Labflex standard fume cupboards are also tested in accordance with DS 457, NTVVS095, ANSI / ASHRAE 110-1995, BS 7258 and DIN 12924. Thereby, the fume cupboards comply with applicable norms in Denmark, Europe and USA. Furthermore, Labflex complies with the CE marking. With the above certifications, markings and defined processes the safety in fume cupboards from Labflex is optimal.
Quality made in Denmark

Labflex’ fume cupboards are developed in collaboration with professional users, are tested thoroughly and certified. Through determined development Labflex has built an extensive product range which ensures that the fume cupboard products combine functionality, design and flexibility, and the individual products can be equipped with the right media and equipment. Function and design are important parts of the product. All Labflex’ fume cupboards are made from high-quality materials which can handle many years of strain and wear. All shapes and materials in the fume cupboard have been carefully constructed and tested to ensure the right effect and optimum safety.

Labflex fume cupboard solutions are manufactured and assembled at the group’s own factories in Denmark. The factories’ regional placement ensures that the customer gets a uniform and high quality as well as high supply security, reorder guarantee and fast service. The production can be changed over quickly and simply to new materials and varying range sizes. This flexibility adds extra value for the customer.

Production at Labflex is carried out according to structured procedures inspired by the principles in ISO9001, and over the past few years Labflex has achieved supplier approvals from large international customers.

»Type approved EN 14175«

Quality assurance of fume cupboards

Labflex own fume cupboard production ensures an effective entry and exit control of materials and products. The fume cupboards are tested and checked before dispatch from the factory. In connection with the extensive checks performed on the fume cupboards before they leave the production, a density and pressure test is performed on all the plumbing among other things. The final check and tests are performed at the customer’s site after setup and installation before operation. After the fume cupboard has been setup and connected it is checked by a Labflex installation worker and a project manager before final handing-over to the customer.

Piping and fittings in the fume cupboard

All of Labflex’ piping in fume cupboards and ventilated products are available with flexible hose systems and quick connect solutions. It is among the safest solutions on the market and at the same time it creates the most flexibility for the users. If the customer wants copper pipes for the individual media then naturally that is also possible. If other accessories are requested like e.g. fittings, then Labflex can deliver in accordance with the specific customer requests.

Service of fume cupboards

Service of a fume cupboard is important in order to ensure that the required safety standard is maintained and to optimise the life of the product. The construction of Labflex’ fume cupboards takes this into account, meaning the fume cupboard’s technology and automatic controls are easily accessible. As one of the few in the business Labflex offers service of fume cupboards performed by in-house trained service team where knowledge and perspective are combined.
Labour Camp

Pressure loss in fume cupboards

<table>
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<tr>
<th>Work opening Meter</th>
<th>1200 mm m²</th>
<th>1500 mm m²</th>
<th>1800 mm m²</th>
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Calculated air volume in fume cupboards. The air speed in the work opening is 0.5 m/sec.