

S-B

lab furniture + fume cupboards

Fume Cupboards



Laboratory Furniture & Fume Cupboards



THE QUEEN'S AWARDS
FOR ENTERPRISE
INTERNATIONAL TRADE

Ecoline – New Generation high performance, high efficiency, low energy Fume Cupboards.

An environmentally friendly fume cupboard which pays the highest regard to operator protection, through intelligent, ergonomic design and construction.



Vertical and horizontal combination sashes

Vacuum pumps available

Independent Type Testing and Certification to BSEN14175 (also tested and compliant with ANSI ASHRAE 110) proves that the Ecoline Fume Cupboard achieves excellent containment of fumes at a face velocity of 0.3m/sec, which in turn provides the best possible operational efficiency measured through Containment Factor calculation. (tested and certified down to 0.2m/sec).

This means that energy savings of up to 40% can be achieved compared to traditional norms without compromise to the primary function of operator protection.

Note - where a client has a preference for a higher face velocity, this can be accommodated without detriment to primary function.

A further 20% energy saving can be achieved if the operational sash height is lowered from the 500mm norm to 400mm (supplied at 500mm unless otherwise requested).

The solid wall design and unique side aerofoil provides up to 22%* greater internal operating space within the same external foot print when compared to traditional hollow walled fume cupboards.

The Ecoline range includes standard modular external widths of 1200mm (1166mm internal), 1500mm (1466mm internal) and 1800mm (1766mm internal). The range includes walk in units and special application units which can be supplied with water wash, scrubber systems and fire suppression systems.

The Ecoline is manufactured and installed in compliance with BS EN 14175-2:2003, General Purpose Fume Cupboards.

*Based on the 1200mm model.



Water wash and scrubber systems

Development

Research, development and testing has proven that the highest containment standards for operator protection and the most efficient containment factors can be achieved by significant reductions in the amount of heated and conditioned air consumed, when compared to traditional fume cupboard designs.

We have been manufacturing and installing fume cupboards and laboratory furniture for over 40 years. Our Manchester offices, showrooms and production plant are always open to visitors. Demonstrations can be arranged and third party reference and site visits can be organised.

Bespoke Design

The Ecoline range is such that 90% of all general fume cupboard applications can be facilitated from one of our pre-engineered, tried and tested standard modules. Where there are very particular applications and clients have a very specific requirement, S+B engineers are well versed in developing solutions for particular client needs.

Design Support

Even the best designed fume cupboards cannot operate fully effectively or replicate test room results in on site conditions unless those conditions are properly designed to facilitate fume cupboards. Poorly designed laboratories and air handling systems, excessive cross drafts and lack of correct operational procedures can detrimentally affect the ability of any fume cupboard to operate effectively.

S+B can work with the client project team to ensure an operationally effective and attractive laboratory environment.

Note - A fume cupboard is not a total containment cabinet and should never be used for any application which requires guaranteed 100% containment at all times.



Bench top fume cupboards



The key principle design and build criteria for Ecoline fume cupboards are as follows –

- **Operator protection** – a fume cupboard is not furniture. This is safety equipment and the Ecoline has been designed to achieve the best possible capture, containment and purge of all fumes in operational conditions.
- **Durability and life cycle value** – materials and construction methods used are designed to provide excellent chemical resistance and flame spread retardancy in order to optimise the life expectancy in the widest cross section of laboratory applications.
- **Ease of maintenance** – the ergonomic design minimises safety hazard to maintenance staff and eliminates those associated with traditional designs such as having to enter the chamber to repair service connections and fumes accumulating in service voids.
- **Cost of maintenance** – the Ecoline design eliminates the common breakdowns associated with traditional designs such as sash key stop failure, corrosion of service connections and liner fastenings.
- **Running cost** – the design achieves the best possible containment factor without compromise to operator safety.

- **First cost** – many fume cupboards are tax payer funded and even when that is not the case, first cost is very important. The ergonomic design eliminates unnecessary and often problematic components which not only reduces maintenance costs, but also reduces first cost.
- **Aesthetics** – whilst not at the core of safety equipment design, a fume cupboard is often installed in a lab with furniture. The ability to have an interior with a fully integrated design is very important to many lab users to aid with motivation and in presenting a positive image to assist with recruitment and promoting services.

Features and Options

Bypass/non-bypass – the Ecoline is fitted with an upper slot/by pass which helps reduce excessive face velocities occurring when the sash is partially or fully lowered and which helps stabilise turbulence within the chamber. This slot can be closed on request to optimise fume extraction turn down rates and to provide additional energy saving when used with VAV systems.

Integral light – an energy efficient LED light is supplied to provide standard lux levels of over 500. The light is low maintenance and is housed externally to the fume/vapour trail to avoid corrosion to the fitment and connections. The light illuminates the working area through a toughened glass panel housed and sealed in the chamber roof. Spark proof and flame proof lighting can be supplied if required (along with electrical socket outlets).

Services – a full range of electrical, wet, natural and special gas remote control fittings are provided. The standard detail is to house the controls below the worktop sill level in order to keep the chamber entrance areas free of obstruction, minimise turbulence at the face and thus enhance containment/protection in operational conditions.

This detail also keeps service connections out of the fume/vapour trail and prevents corrosion which can occur as a result. This reduces maintenance costs, prevents hazardous fume leaching into and accumulating in service voids and negates the requirement for service engineers to enter the fume chamber, remove internal access panels and being exposed to fumes housed in the void.

For walk in fume cupboards and or units with low level or removable worktops, service controls can be housed vertically through the inclusion of a secondary outer wall to create the necessary housing required for this type of fume cupboard.

Liners – the standard chemically resistant, space and cost efficient solid outer wall eliminates the requirement for a secondary internal liner for most general applications. This reduces first and maintenance costs and also makes maintenance work much easier and safer.

For special applications where there are very high heat loads, radio-active work, Kjeldahl work and processes involving chemicals like hydrofluoric acid, a range of suitable liners are available and include Trespa, Cast Epoxy, Toughened Glass, 316 grade SS and Polypropylene.





Bench top fume cupboards

Features and Options continued

Worktops - The Ecoline Fume Cupboard comes with a variety of worktop types which can include drip cups and or sinks. The range includes Trespa Toplab Base, Trespa Toplab Plus, Cast Epoxy, Ceramic, 316 grade Stainless Steel, Polypropylene and Toughened Glass. Worktops can be dished to contain spillage and some materials can be formed with the liners to create a one piece fully sealed interior to the chamber. Worktops are usually supplied fixed at a nominal standing height of 900mm, but can also be pull out and provided at different heights.

Alarms - a variety of different alarm systems are available. The standard includes audio and visual on/off controls, air high/low warnings, sash high warning.

Sash - the standard vertical action sash is 6mm toughened glass and rides in channels supported on twin SS cables which are fully counterbalanced. Horizontal and combination sashes are available as are side access/pass through ports which can be supplied with application specific valves where required. The sash design includes a fail-safe in the unlikely event of twin cable failure, which ensures that the sash would lock in position if such an incident was to occur. Polycarbonate sashes are available for HF work.

Sash Stop - a unique low maintenance sash stop is provided to ensure the correct operational sash height is being applied. Although the sash stop can easily be overridden to facilitate chamber loading and set up, the stop automatically re engages when the sash is lowered. This eliminates the very common and unsafe practice of operators failing to re-engage other sash stop mechanisms.

Auto Sash Closure - Auto Sash Closures can be provided which enhances safety and saves energy in that the sash is kept in a closed position when the fume cupboard is unattended. Presence sensors are used to ensure the sash remains in the closed position when the fume cupboard is unattended. Obstruction sensors prevent the sash closing and causing damage if there are materials and or equipment located in the plane of the sash movement.

VAV - lower face velocities and sash heights can reduce or completely eliminate the need for complex, expensive, high maintenance VAV systems, but where multiple fume cupboards are being used and high levels of energy is being consumed, the Ecoline can be successfully integrated with such installations, air handling and building management control systems.

Fire Suppression System - available in dry powder, CO2 or AFF Foam. Detection tubing is located at high level behind the back baffle. In the event of fire, this triggers a pneumatic valve which opens and discharges the extinguishant into the chamber.

Water wash/scrubbers - integral water wash systems can be provided to prevent build-up of chemical droplets such as perchlorates. Full fume scrubber systems can be supplied either integrally to the fume cupboard or between the unit and fume extraction discharge. Scrubber systems are used where there is a requirement to decontaminate fumes prior to discharge to atmosphere.

Vacuum Pumps - Vacuum pumps can be fitted and controlled by a separate dedicated fused spur.



Walk-in fume cupboards with pull out trolleys

Clients

We work extensively with architects, project managers, M&E consultants, energy consultants, safety advisors, quantity surveyors, main contractors, mechanical contractors and of course end users.

Here is a small cross section of the many thousands of fume cupboard users we have provided for over the years.

Universities – UCL, Imperial College, Oxford, Cambridge, Exeter, Bath, Bristol, Cardiff, Bangor UEA, Aston, Birmingham, Leicester, Nottingham, Open, Surrey, Manchester, Liverpool, Lancaster, Durham, Newcastle, Glasgow, Strathclyde, Edinburgh, Dundee, Aberdeen and indeed many others.

Healthcare / Hospitals – MRI, Guys Tower, Park Hospital, London Clinic, Christies, Welsh Blood Transfusion Service, Queens Medical Centre, Sutton Hospital, Institute of Child Health, Liverpool School of Tropical Medicine.

R&D and Pharmaceuticals – Inveresk Research, Astra Zeneca, Glaxo Smith Kline Beecham, Merk Sharp & Dohme, Bristol Myers Squibb, Convatec, Cytotec, ICI, Avecia, Dow Corning, Novartis.

Food – Food Research Association, Hazlewood Foods, Princess Drinks, Danisco, Cerestar, Nestle, Proctor and Gamble, Boddingtons, RHM.



Glass sided fume cupboards for improved operational visibility



Unique ergonomic sash stop. Unique side stile with entrainment slots

BREEAM Compliance

Credits through compliance with Assessment Criteria 2 and 3 as outlined in ENE 07 Energy Efficient Laboratory Systems and compliance with Assessment Criteria 17 and 18 as outlined in HEA 02 Indoor Air Quality.



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S+B Full Product Range

Lab Furniture & Storage Cabinetry

S+B have over 40 years experience in the design, manufacture and installation of high specification modular, bespoke lab furniture and storage cabinetry for pharmaceutical R&D, healthcare, higher education, food & beverages, utilities and industry.

Contact us for a no obligation/no cost initial design and costing consultancy.



High Spec Exemplaire
C Frame laboratory
benching system

High Spec Exemplaire
Column laboratory
benching system

State of the art
Modulaire laboratory
benching system

Utilaire budget
laboratory
benching system



British made

Designed and manufactured at our factory in Manchester.



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