

Energy Efficient Corrosive Resistant Fans For Laboratory Fume Extraction Systems

Chemical and corrosion resistant fans for use in fume extraction systems that are designed to be sustainable, energy efficient and minimise the CO2 emissions associated with laboratory operational energy consumption.



Sustainable Laboratory Fume Extraction

Laboratory areas are defined as highly serviced spaces where physical, biological, or chemical processing or testing is carried out. Such areas will have inherently high energy demands including ventilation, air handling, and containment or fume extraction. To achieve a good or outstanding BREEAM status a laboratory should incorporate highly sustainable features, low energy design strategies and contribute to a building's overall sustainability objectives.



Energy efficient measures implemented must result in a reduction in the total energy consumption of the laboratory, by at least 2%.”

Noted in BREEAM Ene.07 assessment criteria

Understanding BREEAM

BREEAM, which stands for “**Building Research Establishment Environmental Assessment Method**” is a voluntary building certification scheme that many UK local authorities, new buildings, and universities have incorporated into their planning process as a mandatory requirement for sustainable building management. It is used to measure the environmental performance of new and existing buildings, and is now considered best practice in achieving sustainability.

BREEAM awards credits for different environmental features which are combined to achieve an overall score. BREEAM compliant buildings are certified on a five-point scale of pass, good, very good, excellent and outstanding.

Scope 2 Carbon Emissions

Scope 2 carbon emissions relate predominantly to the building and its infrastructure, the daily business activities, and the operational processes of the building.

The energy efficiency of these activities, processes and equipment has a large impact on the potential to reduce scope 2 carbon emissions. Scope 2 refers to activities where energy is purchased, and consumed, for example in running fans and motors in HVAC, fume extraction systems, or laboratory activities.

BREEAM Ene.07

Under the BREEAM assessed category energy, Ene.07 focuses specifically on energy efficient laboratories. For suitable laboratories, up to 4 credits are available for best practice energy efficient measures. The energy efficiency measures implemented must result in a reduction in the total energy consumption of the laboratory of at least 2% to be considered effective.

Through the BREEAM assessment process, manufacturers performance data showing energy consumption or motor efficiency are classed as significant contributions towards the design and implementation of energy efficient laboratories that contribute to reducing the overall energy consumption by at least 2%.

Assessed Laboratories

Reducing operational energy consumption can be an important part of a laboratories carbon reduction strategy and will make a significant contribution to a sites overall net zero and sustainability goals.

Under BREEAM assessments in this category, laboratories, teaching and other laboratory workshops with a limited amount of fume cupboards or other containment devices, or those with no energy intensive process equipment specified, are excluded unless the design team can provide evidence that their consumption is at least 50% higher than a typical office due to the laboratory process-related activities.

Reducing energy use and carbon reduction techniques are well credited within the energy category of BREEAM assessments where credits are earned through implementing solutions that improve a buildings operational energy use. For more information on air handling unit retrofits visit our website.

Laboratory Types

Different types of laboratories have different requirements for HVAC. This can lead to enormous variations in energy requirements.

Wet Laboratories

Chemicals, drugs and other materials are tested and analysed.

HVAC: Direct ventilation & LEV systems.

Dry Laboratories

Engineering or analytical for electronics or large instruments.

HVAC: Dust, temp & humidity control.

Microbiological Labs

Infectious agents for microbiological and clinical tests.

HVAC: Containment, positive pressure.

In Vivo Laboratories

Complex highly controlled environments for care and maintenance of flora and fauna.

HVAC: Tight environmental containment

Clean Rooms

Controlled environments to prevent contamination for accurate research.

HVAC: Temperature, humidity & air quality control.

Teaching Laboratories

Unique to academic buildings.

HVAC: Air quality, HVAC & fume cupboards.

Reduce Fume Extraction Energy Consumption

High BREEAM ratings for refurbishments in research or laboratory settings are complicated but are required to achieve sustainability goals. Educational laboratories are one of the largest energy consuming sectors in the UK, consuming between four to six times more energy per square metre than standard offices or commercial buildings.

Energy

Credit Contributions*

Ene.07. Energy Efficient Laboratories



Reducing energy consumption in laboratories is a significant method of reducing overall energy use that is addressed in the BREEAM energy category **Ene.07**.

Lower Operational Energy Costs

Much of the operational energy use within laboratories is associated with the high rates of ventilation required to maintain air quality in air handling units, or to maintain face velocity in individual, manifold or local exhaust fume extraction systems.

Lower Environmental Impact

Many UK companies are working in accordance with the greenhouse gas protocol (GHG) and recording their scope 2 carbon emissions. A 20% reduction in energy consumption has a significant impact on a helping a business to achieve its future net zero goals by reducing carbon emissions.

Lower Carbon Emissions

Electric motors account for approximately 45% of all global electricity usage and 75% of all industrial electricity usage. Efficiency is especially important in today's climate, for reducing CO2 emissions but also for reducing the cost of the motor over its lifecycle.

Simple Retrofits

Retrofitting an existing fume extraction system with more energy efficient fans is made simple. EC fans are manufactured in the exact same size as their AC counterparts with a full range of datasheets to accurately match the required operating duty of the system.

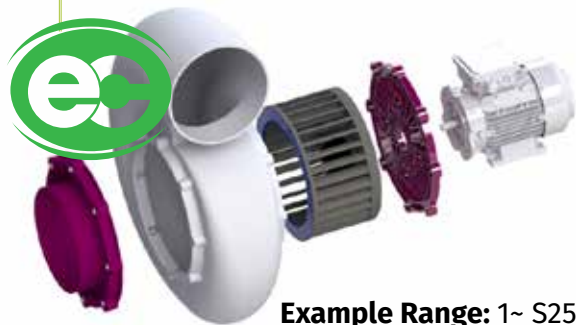
A Fundamental Part of Extraction Systems

With over 30 years of air movement experience, Axair supports a large network of UK fume cupboard manufacturers and those within the environmental corrosive fume market with our range of industrial fans. Our 1 or 3~ corrosion resistant fans are supplied with metal or outdoor polypropylene pedestals and are specified to match the exact requirements of the applications operating and performance duty.

In 2020 we extended our warehouse to enable us to increase our stock holding of our most popular industrial fans for the corrosive fume market. Customers benefit from unrivalled customer service and short lead times. Learn more at www.axair-fans.co.uk.

Extract & Resist Corrosive Fumes In Laboratory Extraction

- ✓ Lower operational energy costs
- ✓ Lower environmental impact
- ✓ Lower carbon emissions
- ✓ Simple fume fan retrofits
- ✓ IE5 ultra premium efficiency motors
- ✓ Short lead times from stock
- ✓ Customised builds available
- ✓ 1 & 3~ versions
- ✓ Industry size spiggots
- ✓ Trusted by industry professionals
- ✓ Fan integration experts
- ✓ Lightweight & transportable
- ✓ Full range of datasheets
- ✓ EC range (SEC)
- ✓ Medium pressure range (S)
- ✓ High airflow range (S)
- ✓ High pressure range (ST)
- ✓ Low airflow range (ST)
- ✓ ATEX zone 2 versions
- ✓ Various handings & orientations
- ✓ Metal or outdoor pedestals
- ✓ Specified by consultants



Example Range: 1~ S25



Example Range: 3~ EC S15 & Inverter



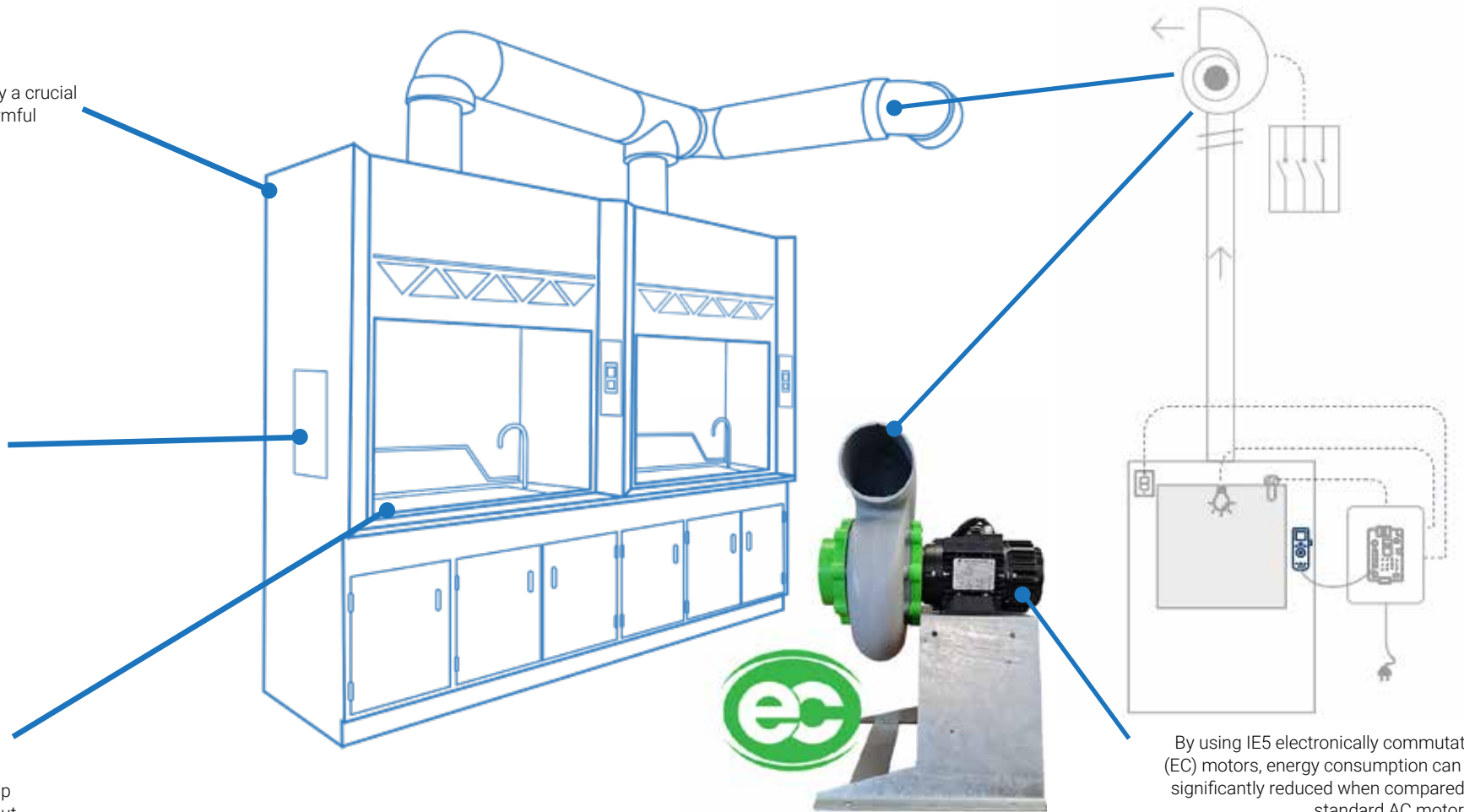
Energy Efficient Laboratory Fume Cupboards

As the market demands more sustainable and energy efficient fume extraction systems, the introduction of our EC range of fans allows fume cupboard manufacturers to reduce their fan energy consumption by up to 20% without affecting performance, ultimately enhancing the energy efficiency of the entire fume extraction system.

Fume cupboards are an important laboratory ventilation system and play a crucial role in protecting occupants from harmful chemicals and substances.

In BREEAM assessments, fume cupboards are evaluated based on their performance in controlling airflows and preventing the escape of hazardous substances.

Delivering a consistent and optimal airflow means better fume cupboard performance. Save up to 20% of energy consumption without affecting performance with EC fans.



An efficient exhaust fan is key to providing an effective fume cupboard that protects laboratory workers and technicians from exposure to toxic chemicals. The IP55 polypropylene range of EC fans and motors are available in a variety of sizes in both single and three phase variants covering airflows from 20-9000m³/hr and pressures to 1500Pa.

Where laboratories use an individual or manifold fume extraction system, whether recirculating with a fan installed in the cupboard, or exhausted into atmosphere, efficiency should be a part of the selection process for the manufacturer of these units. This means balancing energy consumption with overall fan performance to ensure that the fume cupboard performs as expected in all conditions. Our team can ensure a fan is selected that can perform as required.

By using IE5 electronically commutated (EC) motors, energy consumption can be significantly reduced when compared to standard AC motors*.

*Electric motors account for approximately 45% of all global electricity usage and 75% of all industrial electricity usage.

Fume Extraction Projects

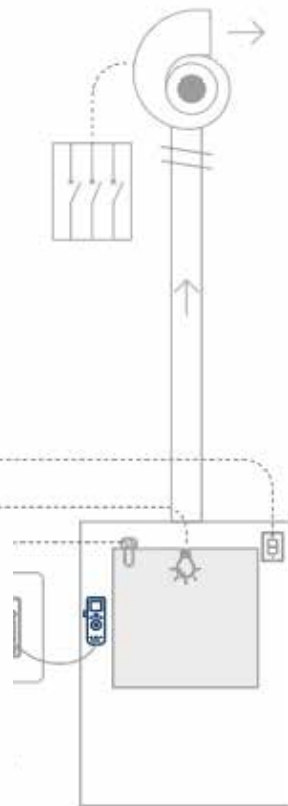
We've been working with corrosive air applications for over 30 years. We understand the key ventilation issues in the industrial fume extraction market and we're here to support you when you need us. Our market leading range of polypropylene chemical resistant fans can be used in all fume extraction systems including individual fume cupboards, manifold set ups and local exhaust ventilation.

Individual Fume Extraction Systems

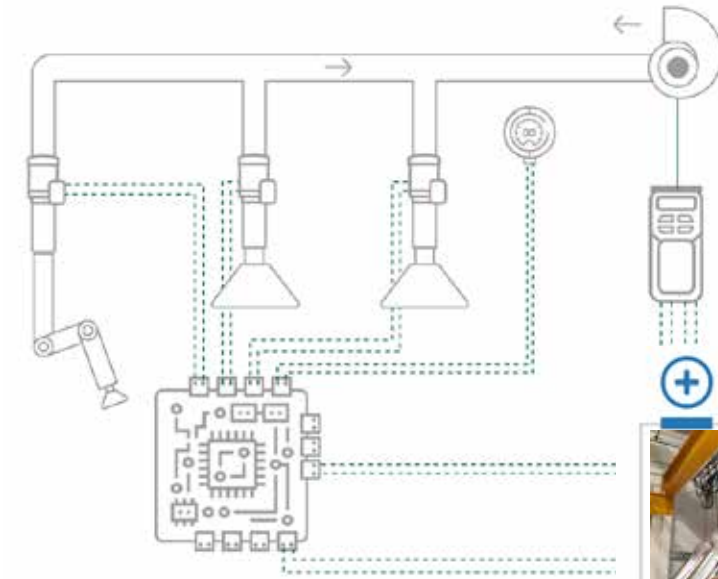
In smaller laboratories, such as teaching labs in schools and universities, it is commonplace to use individual fume cupboards. These are designed to capture and remove any airborne hazardous substances generated to reduce the risk of exposure to a safe level. These include harmful gases, vapours, aerosols and particulates.

Fans for fume cupboard extraction systems need to be able to handle the corrosive air without risk to its operation while maintaining the face velocity required to effectively exhaust consistently.

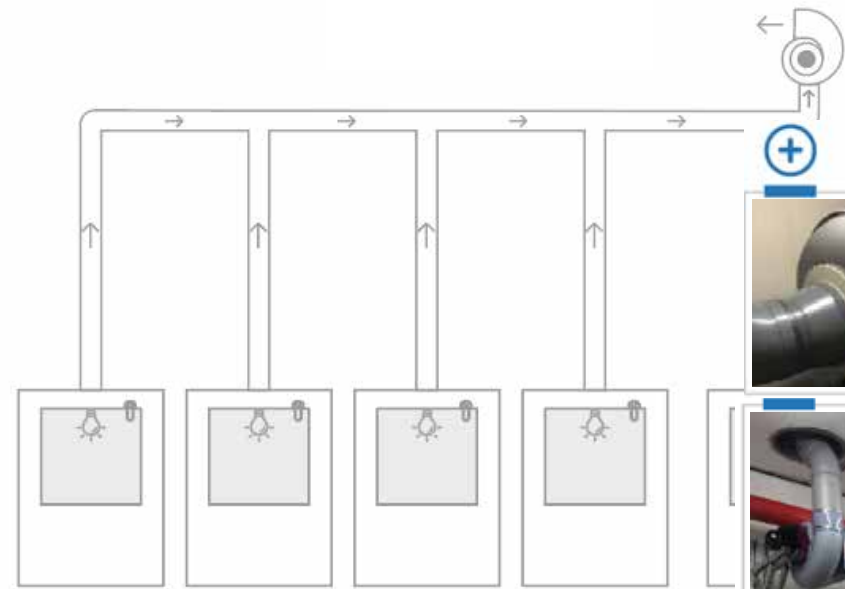
Our thermal plastic fans are corrosion, chlorine, UV & humidity resistant for low life cycle cost and enhanced durability.



Local Exhaust Ventilation & Extract Arms



Manifold Fume Extraction System





Contact Us

Talk to our team of specialist engineers to discuss how the use of energy efficient fume extraction fans can help to improve your scope 2 emissions or contribute to improving your laboratories credit contributions towards a good to outstanding BREEAM rating. Talk to us using our live website chat or by using the details below:

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