Airone XP Ducted Fume Cupboard

Manufactured in the UK

www.safelab.co.uk

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The Airone XP ducted fume cupboard is a high specification double walled fume cupboard, available with either air bypass or energy saving VAV (Variable Air Volume) technology.

For buildings where BREEAM conformance is required, we are able to manufacture the Airone XP in low flow configuration to achieve the desired containment factor specification. In 2017 the Airone XP range was re-designed and **tested to comply to BS EN** 14175 requirements for robustness and containment, making it one of the market leading fume cabinets of its type.

Build quality is of the highest standard, with extruded aluminium aerofoils, a stainless steel sill and a counter-weighted smooth action laminated glass sash.

The VAV model automatically minimises the amount of indoor (conditioned) air being pulled through the cupboard and expelled outside as the sash is raised and lowered, whilst maintaining full operator protection. The reduction in heating or air conditioning required by the building yields substantial energy savings.

In the air bypass model a constant volume of air is pulled through the cupboard under all operating conditions.

A special low flow configuration maintains operator protection at reduced face velocities down to 0.3m/s, helping to fulfil the low energy requirements of BREEAM accredited new buildings.

The XP range is available in a choice of sizes and can be bench mounted, free standing or supplied as a walk-in unit. An extensive list of options allows services and materials to be tailored to each customers individual needs.

Key Points

- Designed to comply with BS:EN14175
- Doubled walled construction
- Air bypass system or variable air volume (VAV) system
- Easily tailored to meet your requirements
- BREEAM compliant

General Product Information

- Epoxy coated mild steel construction (RAL7035)
- Aluminium extrusions
- Digital control system
- Counterweighted front sliding sash
- Available in various widths and a walk-in option

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Fume Cupboard Innovation Since 1984

A. Digital Control System: on screen display for safe and alarm conditions with audible alarm and LED indication. Displays face velocity in m/s with pushbutton calibration and configuration

B. Liner and Baffles: trespa as standard with polypropylene, cast epoxy and stainless steel also available

C. Remote Hand Wheels: control all internal services via remote hand wheels easily accessible on the front of the fume cupboard

D. Sliding Front Sash: counterweighted sliding glass sash for smooth operation and optimum energy consumption. Optional PIR sensor and automatic close available

E. Worktop: comes in cast epoxy as standard with options of a small round drip cup, large oval drip cup or a sink. Also available in ceramic, polypropylene or stainless steel.

F. Services: required services are installed in a removable service panel inside the cupboard

G. Lighting: comes with two internal IP20 rated LED lights

H. Maintenance Access: hinged top panel to allow easy access.

I. Vented Storage Cabinet: optional mild steel vented storage cabinets available (optional 90 minute fire rated upgrade available)

J. Stand: heavy duty epoxy coated mild steel

K. Fire Suppression: available as an option

L. BMS Integration: optional BACnet or Modbus data modules. Output can be configured as volt free or volumetric as required.

Optional 90 minute fire rated cabinet

The XP range is highly customisable so please contact us to discuss your requirements

All of our fume cupboards comply with current BREEAM requirements.

COSHH Regulation Nine stipulates that this type of equipment should be tested and calibrated at intervals no greater than 14 months to ensure continued safe operation.. Each Safelab fume cupboard comes with our standard 12 months warranty.

Technical Data

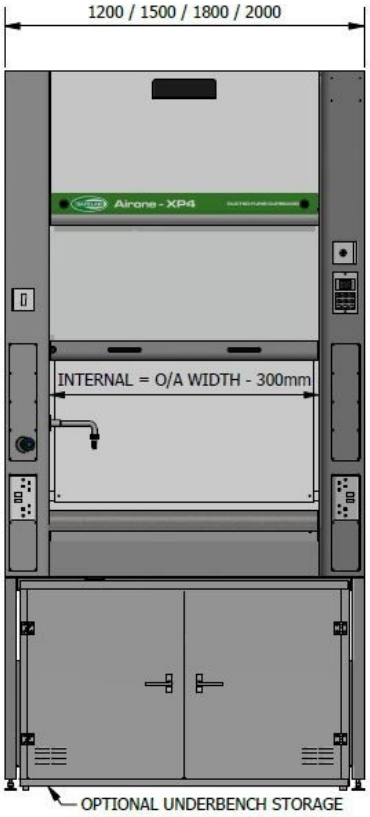
Fume Cupboard Innovation Since 1984

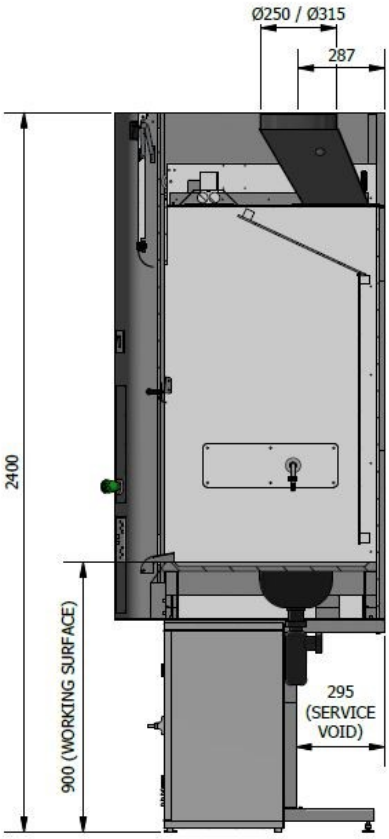
Min Working Height:	**44mm***
Max Working Height:	**500mm***
Max Override Height:	**844mm****
Useable Internal Height:	**980mm*****
Power Supply:	**230v 50Hz**
Main Construction:	**Mild Steel**
Stand:	**Mild Steel**
Duct Spigot	**PVC**

*from front sill to sash

**achieved by overriding the sash stop to access upper sections of fume cupboard for maintenance. Be aware sash protrudes the top of the fume cupboard by 110mm at max override height.

***from worktop to lowest point of top baffle





	1200XP (W x D x H)	1500XP (W x D x H)	1800XP (W x D x H)	2000XP (W x D x H)
External	1200 x 900 x 2400mm	1500 x 900 x 2400mm	1800 x 900 x 2400mm	2000 x 900 x 2400mm
Internal	900 x 645 x 1200mm	1200 x 645 x 1200mm	1500 x 645 x 1200mm	1700 x 645 x 1200mm
Air Volume @ 0.5m/s	810m³/hr	1080m³/hr	1350m³/hr	1530m³/hr
Lighting	2 x 8W 2ft LED	2 x 8W 2ft LED	2 x 17W 4ft LED	2 x 17W 4ft LED
Duct Spigot	250mm diameter	315mm diameter	315mm diameter	315mm diameter
Storage Cabinet	1 x 1100mm	1 x 500mm and 1 x 900mm	1 x 500mm and 1 x 1100mm	2 x 900mm

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Airone XP Walk-In

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The Airone XP range is also available as a walk-in option

Min Working Height:	**130mm***
Max Working Height:	**500mm***
Max Override Height:	**1480mm****
Useable Internal Height:	**1825mm*****
Power Supply:	**230v 50Hz**
Main Construction:	**Mild Steel**
Stand:	**Mild Steel**
Duct Spigot	**PVC**

*from floor to sash

**achieved by overriding the sash stop to access upper sections of fume cupboard for maintenance. Be aware sash protrudes the top of the fume cupboard by 126mm at max override height.

***from floor to lowest point of top baffle

	1200XP (W x D x H)	1500XP (W x D x H)	1800XP (W x D x H)	2000XP (W x D x H)
External	1200 x 900 x 2400mm	1500 x 900 x 2400mm	1800 x 900 x 2400mm	2000 x 900 x 2400mm
Internal	900 x 609 x 2060mm	1200 x 609 x 2060mm	1500 x 609 x 2060mm	1700 x 609 x 2060mm
Air Volume @ 0.5m/s	810m³/hr	1080m³/hr	1350m³/hr	1530m³/hr
Lighting	2 x 8W 2ft LED	2 x 8W 2ft LED	2 x 17W 4ft LED	2 x 17W 4ft LED
Duct Spigot	250mm diameter	315mm diameter	315mm diameter	315mm diameter

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Fume Cupboard Innovation Since 1984

The Airone XP range is available as a constant air volume (CAV) or variable air volume (VAV) fume cupboard. A ducted fume cupboard will be connected to a duct system with an extract fan that pulls air from the room, into the cupboard (creating directional airflow) with contaminated air being exhausted into the atmosphere. The “pull” at the cupboard opening is termed “face velocity”. Correct face velocity is critical to the protection of the worker; too little flow allows currents and disturbances in the laboratory air to overpower the cupboard and draw contaminants into the room. Too much flow can result in turbulence that can also lead to contaminants escaping the cupboard.

Traditionally all ducted fume cupboards were designed using a bypass CAV system but with energy consumption and ongoing running costs becoming a large factor in laboratory design, fume cupboards had to change. This change came in the form of variable air volume (VAV) systems which can offer greater savings in these areas but which option is suitable for your needs will depend on your lab setting. A lab with a single fume cupboard will more than likely be better off best served by a CAV fume cupboard running at a low face velocity.

CAV

Designed using the “traditional” bypass system which incorporates openings above the sash, a constant air volume fume cupboard (CAV) provides a constant flow of air, whether the cupboard is in use or if the sash is open or closed. The face velocity will stay more or less constant but the exhaust rate and therefore energy usage stays constant.

VAV

In contract, a non-bypass VAV system reduces the volume of air taken from the fume cupboard when it’s not being used and the sash is closed. This results in much better energy consumption compared to a CAV system, reducing carbon emissions and potentially saving money. VAV systems are also available with automatic front sash closure systems helping to save even more energy consumption.

The average fume cupboard exhausts around 750 to 1000 cubic feet of conditioned air per minute placing a significant burden on the laboratories HVAC system and operational costs. A VAV system can reduce this burden considerably. Although VAV cupboards are more complex than traditional CAV cupboards, and correspondingly have a higher initial cost they can provide considerable energy savings by reducing the volume of conditioned air exhausted from the laboratory. Since most fume cupboards are operated the entire time a laboratory is open, this can quickly add up to a significant cost saving.

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Type Testing

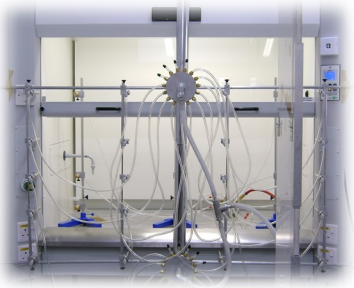
The Airone XP has been designed and built to comply to the British and European Standard BS EN 14175 for fume cupboards and independently **Type Tested to BS EN 14175 Part 3.**

There are 3 tests that take place during the type test to measure a fume cupboards ability to contain fumes. Due to its ability to be measured at parts per billion levels, all 3 tests use Sulphur Hexafluoride (SF6) as a tracer gas.

1. Inner Plane: the tracer gas is released at one point inside the fume cupboard and various positions across the plane of the sash are measured to determine how much, or if any, gas “escapes”. On-site inner plane testing can also be carried out to confirm that the fume cupboard is not affected by lab conditions.

2. Outer Plane: during this test the tracer gas is released at 3 positions across the entire width of the fume cupboard. The average from a grid of test points outside the plane of the sash is then taken while the sash is lowered and raised to help simulate operation of the cupboard.

3. Robustness of Containment: this test is carried out to see how the cupboard performs if someone were to walk past while in operation. The same release and sampling points are used as the Outer Plane test but a moving panel is introduced across the face. We have found this test is an excellent way of benchmarking our fume cupboards against others, as this will always show some escape of tracer gas whereas a well-designed cupboard will normally give a zero reading for the inner and outer plane tests.

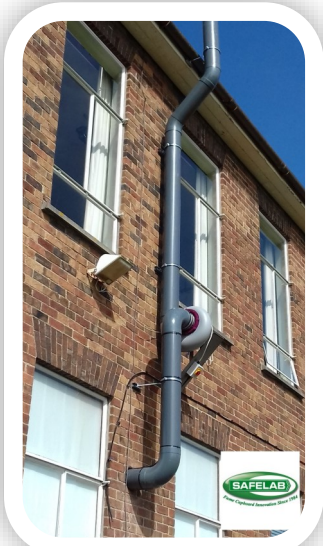


Extract Duct

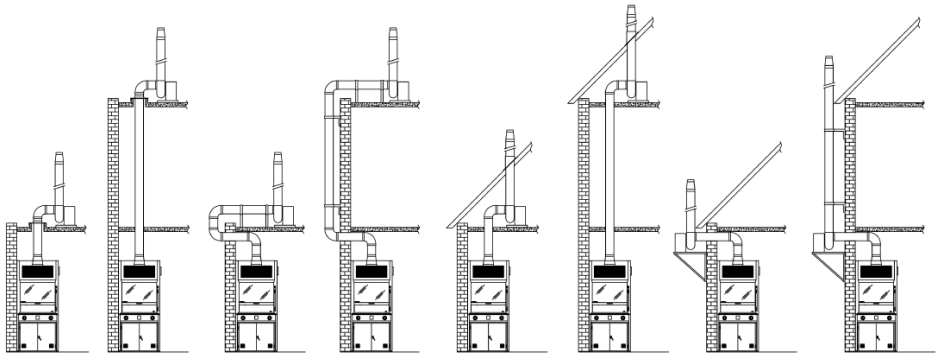
The **Airone XP Ducted Fume Cupboard range** must be attached to an extract system with a suitably sized fan to cope with the pressure loss in the system to remove the harmful fumes / irritants to the atmosphere. We have decades worth of experience in the supply and installation of these systems whether on new build projects or into existing buildings.

Working closely with architects, building contractors and end users we ensure the installation goes as smoothly as possible. Over the years we have developed ways to improve the service we provide, whether that's by developing standardised roof boxes to help with weatherproofing or supplying fans with a pre-built stack to site to be craned onto the roof and put into it's final position we are always looking for ways to innovate.

We control our fans with an inverter meaning the speed of the fan increases and decreases as required. This is a more energy efficient and therefore cheaper alternative to the antiquated way of using a damper within the duct.



Typical Duct Extract Routes



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About Us

With over 30 years experience, Safelab is recognised as one of the UK's leading fume cupboard manufacturers. Safelab's roots are firmly in the South West of England and, having moved to a larger purpose built facility in Weston-super-Mare in 2015, we have increased our capacity to design and manufacture high quality BS EN compliant products. Our dedicated team of service engineers, based around the UK, carry out our installation and commissioning, and conduct routine testing and servicing of Safelab and other manufacturers' fume cupboards to ensure they continue to be safe to use.

We manufacture a range of fume cupboards for a variety of applications, from the Airone 1000RS mobile filtered fume cupboard, ideal for use in schools, to the Airone XP ducted unit for pharmaceutical and industrial use.

To complement our core range of fume cupboards we manufacture and install forensic drying cabinets and chemical storage cabinets, as well as supplying laminar flow cabinets and microbiological safety cabinets (Class I & II).

All products manufactured and supplied by Safelab Systems comply with relevant current British and European Standards.

We are also proud to be a registered ISO9001:2015 company for the design, manufacture, supply, installation and servicing of standard and bespoke fume cupboards, extract systems and associated clean air equipment.

Servicing and Maintenance

It is a **legal** requirement that all fume cupboards are subjected to a **Thorough Examination and Test** at least once every 14 months. We can conduct the required compliance testing on any make and model of fume cupboard, whether ducted or filtered. Each member of our service and maintenance team undergoes extensive training, including **COSHH Local Exhaust Ventilation P601**, which means that in choosing Safelab you entrust your fume cupboard testing to a *competent person*, as legislation demands. Our testing protocols conform to BS 7989:2001, BS EN14175:2003, COSHH REG9 , HSG258, and CLEAPSS G9 for Schools, and our engineers, all of whom are DBS (formerly CRB) checked, are located in all regions of the UK. We operate a strong health and safety culture and are proud to have achieved accreditation with Reset, Constructionline, Safecontractor, CHAS, Human Focus (Skanska) and Building with Confidence.

Our fume cupboard thorough examination and test includes:

- Checking and advising on possible containment interference factors
- Carrying out a visible inspection and check operation of the fume cupboard
- Checking the operation and condition of fume cupboard services
- Carrying out qualitative (smoke test) and quantitative (anemometer) airflow assessments
- Checking operation and condition of external fans where applicable
- Checking the condition of ductwork where applicable.

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