Laboratory fume cupboard Workstation^{evo} – The ecological evolution

New, intelligent features and e-loop technology - for your safety

Together always one step ahead

SKAN

Founded in 1968 as a trading company for Scandinavian laboratory equipment, which corresponds to today's SKAN Pure Solutions division, SKAN is now the world market leader in the field of isolator production for aseptic applications.
One of our core competencies is the manufacture of process isolators for pharmaceutical aseptic production. Every third vaccine administered is made in a SKAN isolator.

Even the most complex customer requirements can be met thanks to experts who research innovative solutions for everything related to isolator technology in our in-house laboratories. Our employees perform pioneering work by developing methods for hydrogen peroxide decontamination within the entire process isolator, including the filling line with all its components. The scientific studies have been published in several publications by the Parental Drug Association (PDA) and the International Society for Pharmaceutical Engineering (ISPE) and are internationally recognised and applied master documents.
A comprehensive support program is available to customers so that they can also be looked after in an optimum way during the entire product life cycle. This is ensured by a global service network with in-house and external specialists. In order to guarantee the transfer of knowledge, we provide training for our employees, partners and customers in the SKAN Academy.

Furthermore, we are able to offer integrated overall solutions. The focus is on the horizontal and vertical integration of our systems into building technology and solutions in the area of Data Intelligence as well as VR/AR and Digital Twins.
Currently, we employ around 800 people from over 40 nations. More than half of the employees are based at the headquarters location in Allschwil in Basel-Country, all other employees are distributed across our subsidiaries in Stein (Aargau), Germany, Belgium, Italy, Japan and the USA.

SKAN Pure Solutions

The Pure Solutions division offers workplace solutions in the pure air sector. Regardless of whether it is for decontamination, filtration or protected areas: We have the optimum solution to guarantee the product, user and environmental protection of our customers. With our many years of experience and innovative approaches, we are constantly developing our solutions. In this way, we can ensure that our customers benefit from our products and services
Receive the added value that you need today and in the future. Our offer is unique - it includes applications from a wide variety of segments and is geared towards the individual needs of our customers. This know-how as well as our outstanding
service has made us a leader in the industry.

Laboratory fume cupboard Workstation^{evo}

Requirements

- Personal and environmental protection against chemicals, solvent vapours and active substances
- Low volume of exhaust air, limited ventilation capacity of the building
- Energy-saving & resource-saving
- No deposits in the outgoing air ducts

Solution

The Workstation ^{evo} is a fume cupboard with partial air recirculation and an integrated filter system (activated carbon / HEPA). Thanks to the wide range of filters and e-loop technology, the Workstation ^{evo} offers reliable protection, which is adapted to individual needs. The air consumption is lower than with hardly any other fume cupboard.
The proven partial air recirculation system has been supplemented with useful features that increase work safety. For example, the operator can use the filter type detection to determine whether the filter used is suitable for the application.
Thanks to filter saturation monitoring, the risk of a saturated filter being used is eliminated.
The optionally available electric sliding front glass has a motion sensor. If the system is not used, the front glass closes automatically and the standby mode is activated, which further reduces energy consumption. If the work opening is blocked by equipment or materials, the sliding front glass is not closed.
The materials used and the construction are designed for optimum cleaning.

Characteristics

- Reduction of energy costs
- Approx. 60% less fresh and outgoing air[1]
- Electric sliding front glass with motion sensors for standby mode (option)
- Detection of the filter type
- Permanent monitoring of the filter saturation
- Intuitive operation via touchscreen
- Flow monitoring
- Wide range of filters
- Measuring socket for HEPA filter testing (option)

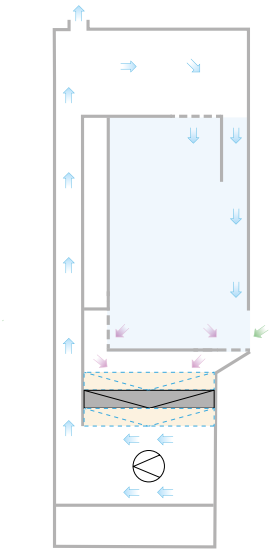
Area of use

- Chemical and pharmaceutical industry
- Research and development
- Environmental / food technology

[1]Compared to an average fume cupboard width 150 cm, 600 m3/h air consumption

Mode of operation

The inflow air is drawn in from the environment, i.e. from the laboratory, through the front opening. The air curtain at the work opening prevents the contaminants from escaping.
The fresh air mixes with the contaminated air from the work zone and is extracted directly to the filters through the 2 air intake grilles on the work surface.
Cleaned and free of contaminants, the entire exhaust air first goes to the internal ventilation and then to the top section of the workstation. The volume flow is divided there: Half is extracted into the outgoing air of the building, the other half is purposefully returned to the work zone.
In normal operation as well as in reduced operation, the exhaust air flow from the work area is permanently filtered. The contaminants are therefore removed effectively directly at the source without contaminating the building exhaust air.



Standards

Built and tested according to SN EN 14175-3

Additional products and options

- Filter combinations activated carbon / HEPA H14
- SafeChange filter system
- Installation of the most common media fittings
- Electric sliding front glass
- Motion sensor
- Table top made of glass or plastic
- Sink

e-loop technology

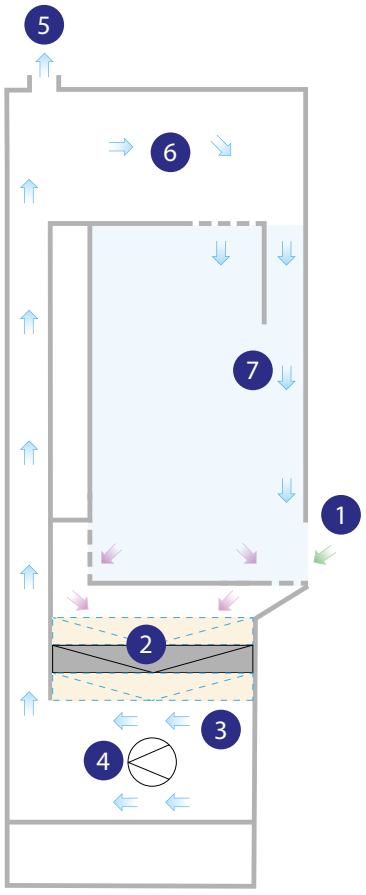
The "e" in e-loop stands both for economic and ecological. The SKAN development combines all technical measures for the cost-saving and resource-saving partial air recirculation principle of the Workstation[evo].
When working, you will not notice any difference in safety and ergonomics compared to conventional fume cupboards. The main differences lie in the unique air flow and the special filter technology.
Compared to conventional fume cupboards, the amount of outgoing air and the energy used are reduced many times over. This expands the use of the building, saves costs and is sustainable.
In addition to simpler requirements for the building infrastructure (possible reduction of the control loops for inflow and exhaust air in the laboratory), investment costs can be reduced thanks to the Workstation [evo]. In addition, less inflow and exhaust air of the room has to be processed, which saves enormous operating costs and resources over long periods of time.

Fresh air supply

The fresh air enters the working chamber through the open front glass. The contaminants that are in the work zone are picked up by the air flow, which is generated by a ventilator negative pressure, and are guided to the filters via the front and rear table extraction. In this way, the contaminants are captured directly at the source, caught in the filters and are retained. The table extractor is very effective, solvent vapours are extracted under the table surface in an optimum way. The filtered outgoing air prevents deposits of contaminants in the ducts of the building ventilation.

Outgoing air volume

Compared to conventional fume cupboards, the Workstation [evo] requires 60% less outgoing air. The outgoing air volume is constant regardless of the sliding front glass position (open / closed). The exhaust air is set to a constant level by using a built-in volume flow controller. Opening or closing the sliding front glass does not affect the room air balance in any way. This means that the laboratory inflow air and exhaust air do not have to be regulated separately, regardless of how many workstations are in operation within a room.



1) Inflow air
2) Filter cartridges
3) Cleaned exhaust air
4) Ventilator
5) Cleaned outgoing air
6) Cleaned recirculation air
7) Front air curtain

Model	Workstation[evo] 120	Workstation[evo] 150	Workstation[evo] 180
Outgoing air volume	200 m³/h	226 m³/h	240 m³/h

Handling & settings

The LCD touchscreen increases the ease of use significantly. Thanks to the clear menu navigation, the most important settings (such as the lighting in the work area) can be quickly changed and read. The Eco Mode further contributes to energy savings.

Operating mode: Glass open, lights on, fan runs at normal speed.

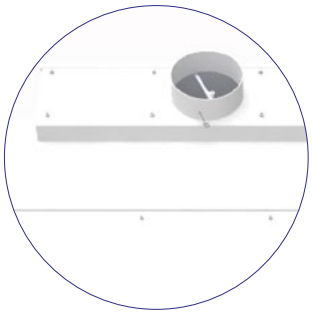
Eco Mode 1 (with optional electric sliding front glass): Glass closed, lights on, fan runs at normal speed.

Eco Mode 2 (with optional electric sliding front glass): Glass closed, light off, fan runs at reduced speed.

Energy costs

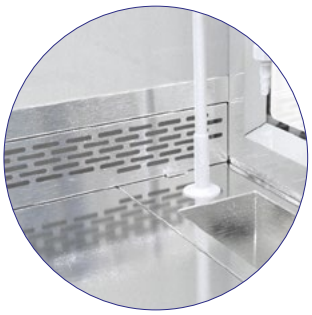
A substantiated calculation of the operating costs shows the extensive savings potential in energy costs. Compared to a conventional laboratory fume cupboard, the annual expenditure is up to 70% lower. In this way, investment costs can be amortised quickly and easily.

Features

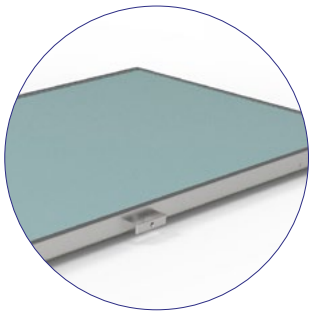


Outgoing air
Up to 60% less outgoing air, saves energy and operating costs.

Electric sliding front glass (option)
With motion sensors for Eco Mode and anti-crush protection.

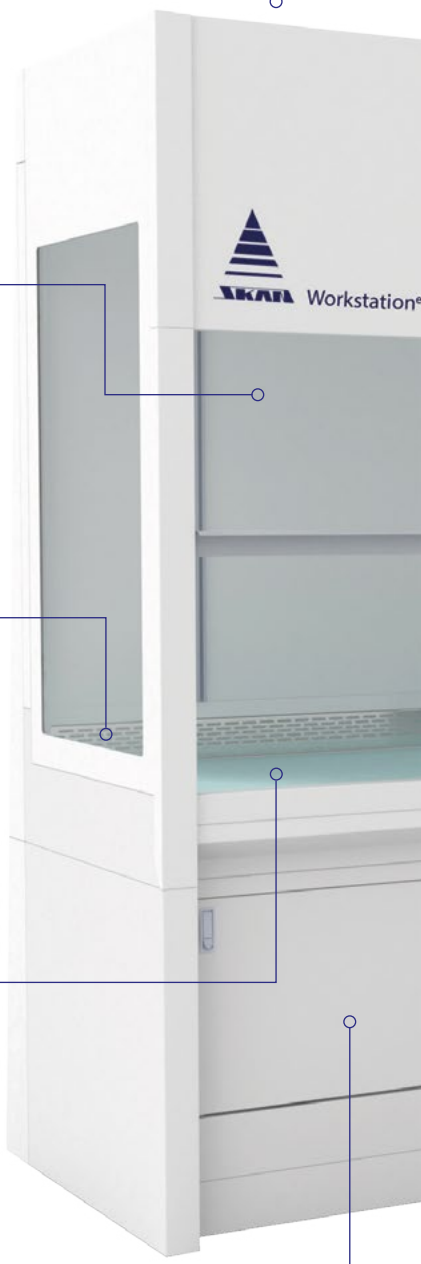


Extraction at the source
Efficient table extraction even of heavy vapours.



Work surface
Depending on the application, made of stainless steel, glass or plastic.

Filter cartridge
A variety of filters and filter combinations are available.



e-loop
For sustainable and cost-saving operation.

Touchscreen
For intuitive and easy operation.

Filter saturation
The degree of saturation of the activated carbon filter is shown on the display.

Filter type
Display of the type of filter used provides additional safety: Is my application compatible with the filter?

Media fittings
For media or additional power connections.

Areas of application

Thanks to the integrated extraction and filter technology, the Workstation^{evo} has a very wide range of uses and the safety when working with active or unknown substances increases significantly. For the correct removal of the contaminants, it is essential to check the work planned in the system carefully and to define the correct filters.

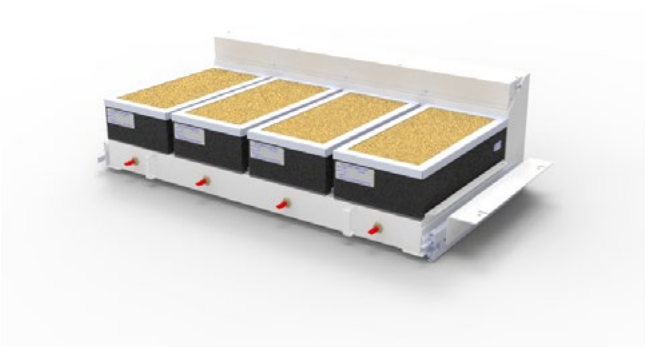
Application	Suitability Workstation^{evo}	Recommendation
Analytical (organic) chemistry	Suitable	Workstation^{evo} Filter recommendation: Activated carbon
Weighing tasks with active substances (Micro and semi-micro range	Suitable	Workstation^{evo} Filter recommendation: HEPA, activated carbon, SafeChange
Clinical research	Suitable	Workstation^{evo} Filter recommendation: Activated carbon
Chemical-preparative synthesis	Suitable	Workstation^{evo} Filter recommendation: Activated carbon
Odour-intensive substances	Suitable	Workstation^{evo} Filter recommendation: Activated carbon
Small preparative amounts of toxic substances (e.g. chlorine)	Suitable	Workstation^{evo} Filter recommendation: Activated carbon
Pathological applications	Suitable	Workstation^{evo} Filter recommendation: Activated carbon
Radioactive substances (depending on the type of isotope, type of radiation, dose)	Conditionally suitable	Special fume cupboard with activated carbon and fine dust filter required
Preparative synthesis, pilot laboratory	Conditionally suitable	Special fume cupboard
Acid or corrosive gases	Conditionally suitable	Closed system
Hydrogen	Not permitted	Hydrogenation laboratory
Release of large amounts of heat (for example in the case of the fuming of strong mineral acids)	Not suitable	Special fume cupboard / fume hood
Hydrofluoric acid, perchloric acid	Not suitable	Special fume cupboard
Large amounts of highly toxic chemicals (e.g. hydrocyanic acid)	Not suitable	Special fume cupboard
Large amounts of mineral acids, ammonia, etc.	Not suitable	Special fume cupboard
Personal and product protection when handling microorganisms	Not permitted	Microbiological safety cabinet

Filters and filter combinations

The Workstation^{evo} achieves its uniqueness not least through the use of filters and filter combinations.
SKAN Pure Solutions works closely with the filter manufacturers.
We will be pleased to advise you regarding the correct composition of your filter package; special mixtures of activated carbon filters are also possible. The regular replacement of the filters is also guaranteed by us.

Activated carbon filter

Solvent vapours and odours are effectively retained at the source. Activated carbon filters are available as standard for the following applications: general organic compounds, acids, aldehydes. The activated carbon mixture can also be adapted to your individual requirements.

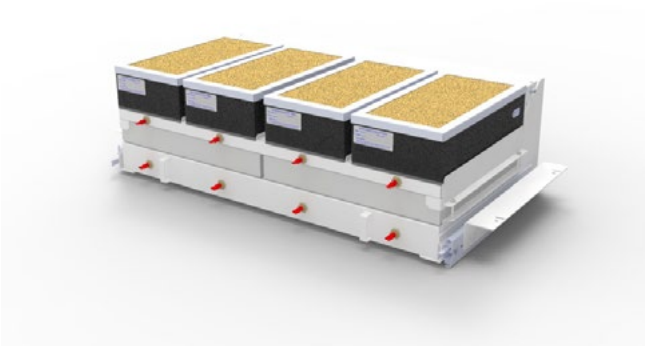


HEPA-Filter

The particulate filters hold back particles from the air effectively. You can choose between H13 (degree of separation 99.95%) and H14 (degree of separation 99.995%) filters.

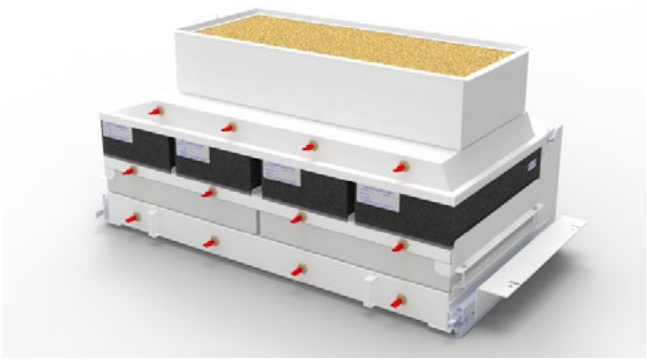
HEPA & activated carbon filter combination

The combination of activated carbon and HEPA filter offers double safety.



SafeChange filter combination

The maximum in safety. The activated carbon filter is embedded between 2 HEPA filter stages.

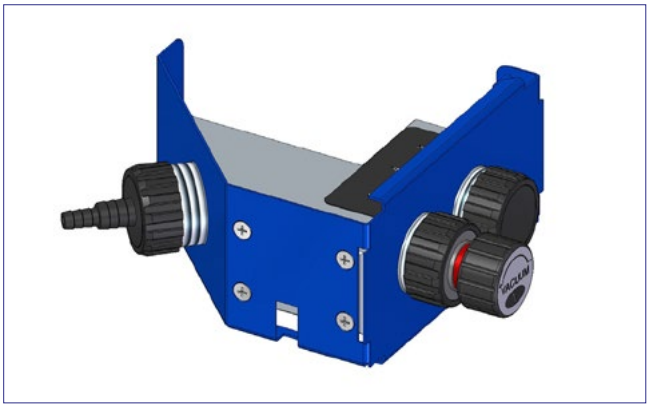


Accessories and options

It has always been a strong point of SKAN Pure Solutions to equip and adapt the systems, be it laboratory fume cupboards or safety workbenches, according to the specific requirements of the user.
The accessories for the Workstation^{evo} offer a wide range of options.

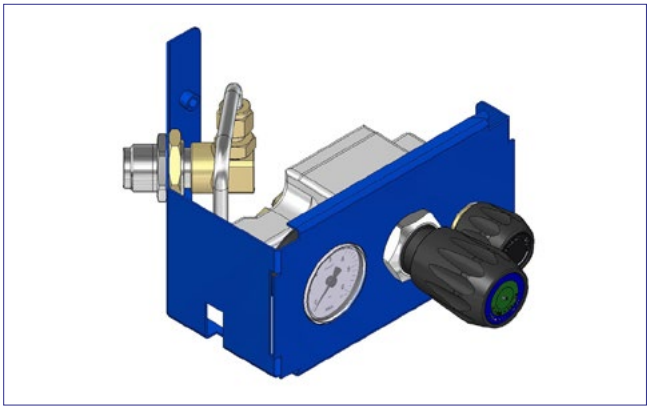
Media fittings

Fittings that can be used for a wide variety of media: Nitrogen, oxygen, vacuum, compressed air, etc.



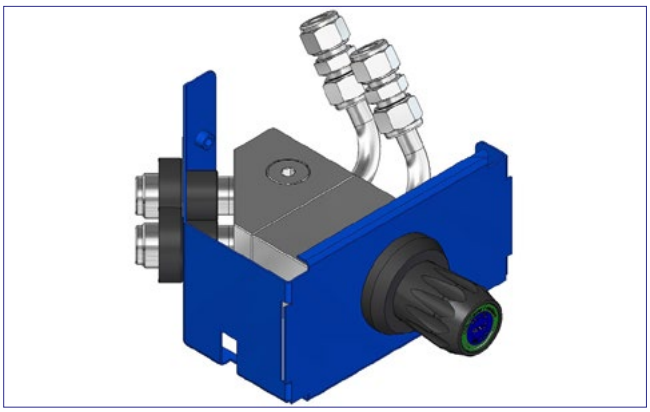
Precision fittings

Precision fittings for the following media are available for use in the Workstation^{evo}: Nitrogen, argon, helium, compressed air, carbon dioxide, oxygen.
The fittings are available for control ranges from: 0…2.5 bar, 0…6 bar, 0…10 bar.



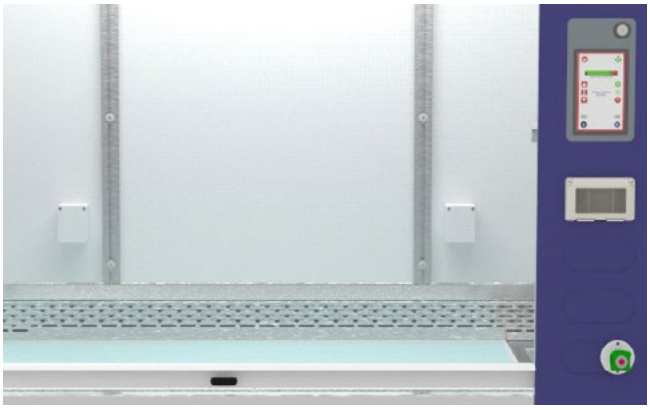
Cooling water regulator

With double function: Switching the cooling water on and off / dosing the cooling water flow.



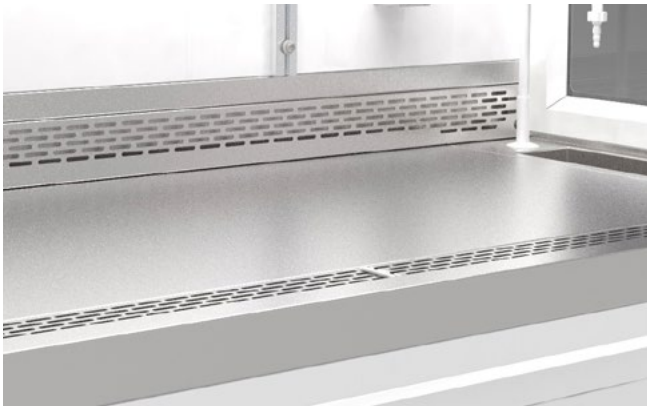
Sockets

In addition to the external sockets on the control panel, there is also the option of equipping the interior with sockets. This simplifies the placement of equipment in the work area.



Work surfaces

Made of stainless steel, glass or plastic according to your requirements. The side glass panels are available as PET or glass versions.



Electric sliding front glass

Infrared crush protection / anti-pinch protection is integrated in the electric sliding front glass with built-in motion sensor for standby mode.

Standards test according to SN EN 14175

The Workstation^{evo} is built following the SN EN 14175 standard. This standard defines uniform criteria for testing the performance of fume cupboards. A fume cupboard should therefore meet the following basic criteria:

- Contaminants should not get into the room from the fume cupboard (retention capacity)
- Contaminants should be removed efficiently in order to avoid a dangerous atmosphere in the fume cupboard (air exchange capacity)
- The user is to be protected from splashes and splinters by the front glass.

In terms of energy savings, the Workstation^{evo} is far ahead of the standard requirements.

Conttest from SKAN - the practical containment test for laboratory fume cupboards.

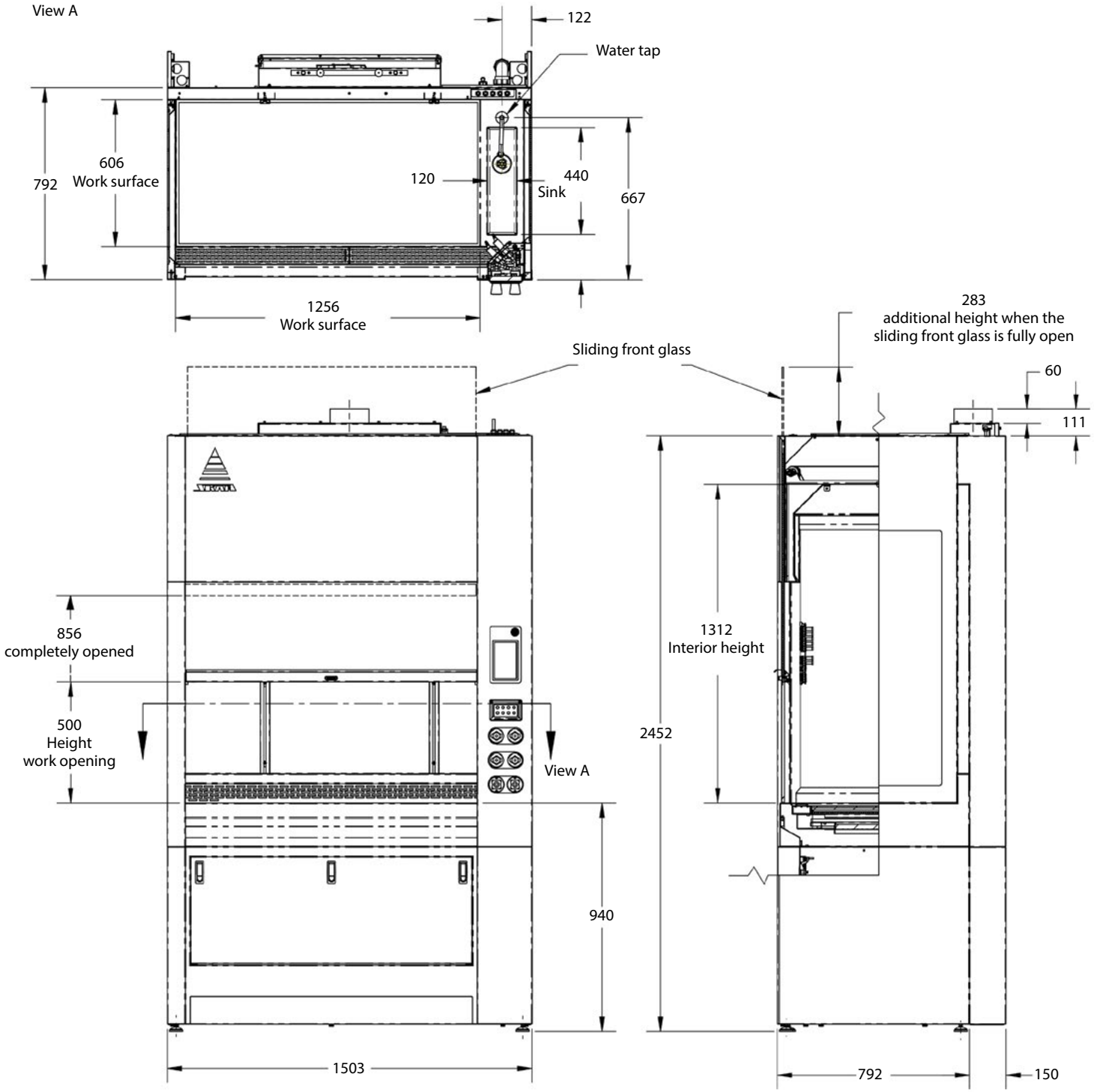
The Conttest as a containment test determines the amount of contaminants that are released in a semi-open system. This creates trust in the work safety of your fume cupboard.
The test compares the air concentration of a substance inside the fume cupboard with the outside concentration directly at the work place of the operator. The difference between these two values is called the "Containment value".
Malfunctions can be localised with a field of 12 high-precision sensors (e.g. ventilation and control technology, filter function) In a unique way, the test setup dynamically simulates the body of a user with typical movements. In this way, a correct statement about the work safety of the fume cupboard can be provided. Possible fixtures and equipment within the fume cupboard are taken into account.
The innovative containment test from SKAN has been completely redeveloped and is therefore difficult to compare with existing test procedures.

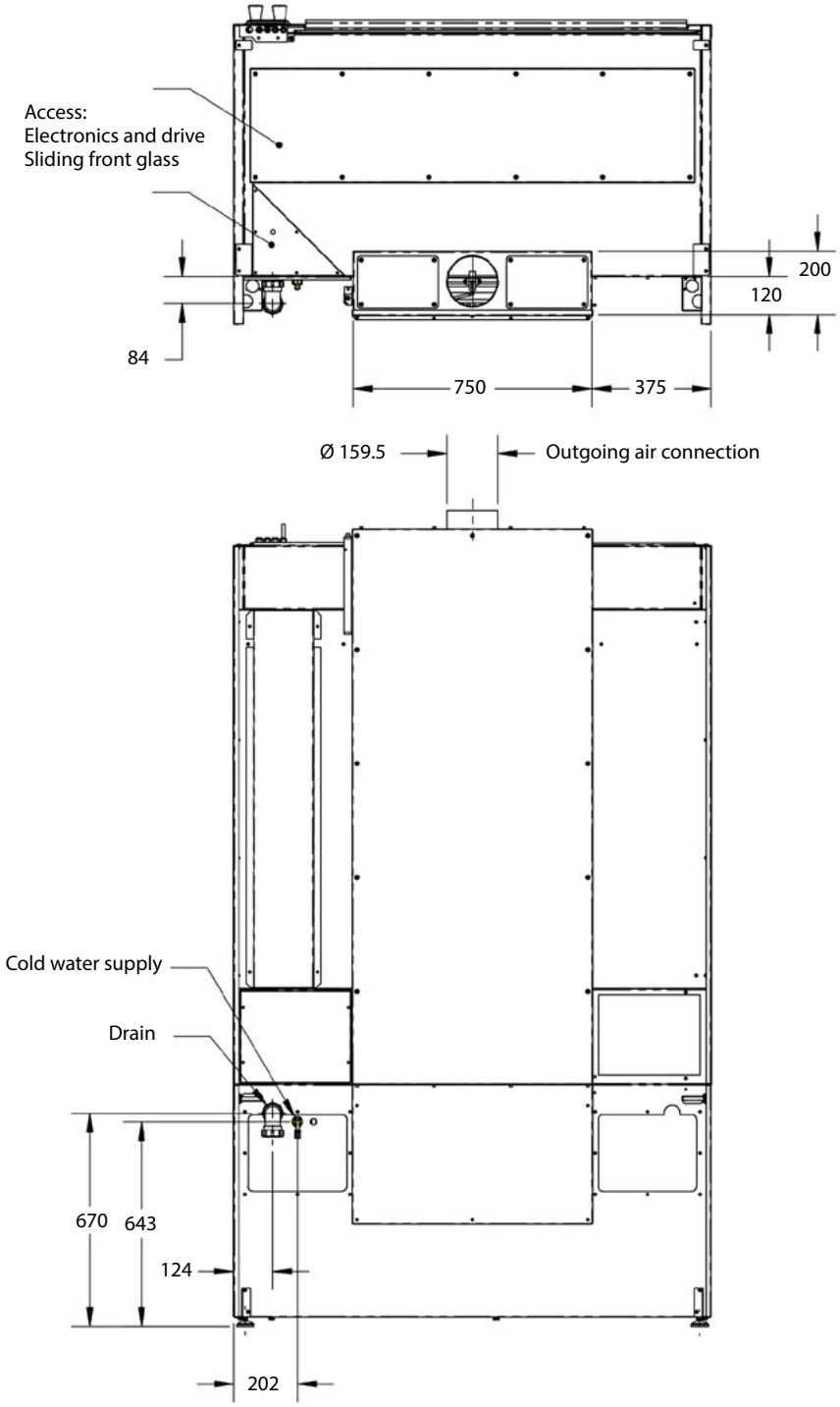
Technical data

Type	Workstation^{evo} 120	Workstation^{evo} 150	Workstation^{evo} 180
Overall width:	1203 mm	1503 mm	1803 mm
Overall depth without fittings	942 mm	942 mm	942 mm
Overall height without outgoing air nozzles	2452 mm	2452 mm	2452 mm
Overall height with outgoing air nozzles	2563 mm	2563 mm	2563 mm
Overall height with the front glass open	2735 mm	2735 mm	2735 mm
Width work zone	1132 mm	1432 mm	1732 mm
Depth work zone	606 mm	606 mm	606 mm
Height work zone	1312 mm	1312 mm	1312 mm
Work table height	940 mm	940 mm	940 mm
Weight	approx. 580 kg	approx. 724 kg	approx. 869 kg
Total air volume	389 m^3/h +/- 5 %	440 m^3/h +/- 5 %	578 m^3/h +/- 5 %
Outgoing air volume	200 m^3/h +/- 5 %	226 m^3/h +/- 5 %	240 m^3/h +/- 5 %
Recirculation air volume	189 m^3/h +/- 5 %	214 m^3/h +/- 5 %	338 m^3/h +/- 5 %
Outgoing air nozzles	NW 160	NW 160	NW 160
Energy consumption (operating mode)	0.23 kW	0.25 kW	0.27 kW
Packaging dimensions (WxHxD)	1360 x 2080 x 1140 mm + 1360 x 1070 x 1090 mm	1660 x 2080 x 1140 mm + 1660 x 1070 x 1090 mm	1960 x 2080 x 1140 mm + 1960 x 1070 x 1090 mm

Drawings / Layouts

For the Workstation^{evo} 150, with sink (option). All figures in mm




Access:
Electronics and drive
Sliding front glass
200
120
84
750
375
Ø 159.5
Outgoing air connection
Cold water supply
Drain
670
643
124
202

Installation

Information for the assembly of the Workstation^{evo}

In order to ensure a smooth process, the most important points regarding the assembly are listed below. This information is intended to support the ventilation technician, the plumber and the electrician in their work. Of course, this information does not replace a personal conversation and precise clarifications beforehand. Please contact us if you have any questions.

Instructions for delivery

We assume that the system components can be delivered without further dismantling and without special tools.
The requirements are:

- Lift size: min. 220 x 100 x 200 cm (Workstation^{evo} 180)
- Door width: > 90 cm
- Ceiling height: 280 cm
- Caution in the case of hanging lighting or exhaust ducts

Weight of the largest part:

- Workstation^{evo} 120: approx. 209 kg
- Workstation^{evo} 150: approx. 254 kg
- Workstation^{evo} 180: approx. 280 kg

Ventilation connections and regulation of the outgoing air in the building system are carried out on site. Media connections are also to be carried out on site.

Ventilation technology

Outgoing air connection:

- WSevo 120: Connection NW 160, extraction up to 200 m^3/h
- WSevo 150: Connection NW 160, extraction up to 226 m^3/h
- WSevo 180: Connection NW 160, extraction up to 240 m^3/h

Minimum network negative pressure:

- -40 Pa

The connection must be equipped with an adjustable flap or a volume regulator to regulate the amount of outgoing air; the flap and bends must be installed at a distance of at least 40 cm from the outgoing air connection of the system so as not to disturb the outgoing air flow monitoring.
Connection with hose or cuff, flexible (min. calculate 30 mm flexible height).

Plumbing and media

Waste water connection:

- See drawings / layouts

In the rear lower part of the system, Geberit sliding connection for pipe 54 x 3.

Water, special gases, vacuum:

- R3/8 internal thread cyl.

Supply from the ceiling, preferred connection on site.
Delivery of media couplings by SKAN.

Electrical systems

Connection:

- 1 socket type CEE with 230 V, 50 Hz, 1-phase, fused with 16A. Within a radius of 2 m around the system.

Power rating:

- Approx. 0.15 kW
  For ventilation, light and monitoring (without socket blocks).

Conttest
The practical containment test for laboratory fume cupboards. Provides an accurate statement regarding the work safety of the fume cupboard.

SKAN Academy
Expand your experience with certified training courses for isolator technology and laboratory equipment.

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