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1. Purpose

This user manual is part of the documentation that must be available under appendix 5 of the machine directive. The purpose of the manual is to give details of the design of the *CamCleaner Concealed* and how it works. New users must be able to work safely with the *CamCleaner Concealed*.

2. CONTENTS

This user manual gives details of the *CamCleaner Ceiling* only and must not be used for any other machine. Besides short explanations of what the machine is used for, the first few sections also give some technical specifications. After these, there are illustrated texts about the various parts that make up the *CamCleaner Concealed*. The user manual also includes details of safety procedures associated with the use of the machine.

3. Version history

Version	Date	Signature	Altered
001	See approval		Initial version

4. Identification plate

All *CamCleaner Concealed* type machines have the plate on their fan box.

5. Guarantees and undertakings

The guarantee relates to full functionality as per the details in this user manual and covers errors in software and hardware for a period of one year from the delivery date.

Should the equipment develop a fault, please contact your distributor.

Distributor of *CamCleaner Concealed*:

Camfil Svenska AB
Industrigatan 3
SE-619 33 TROSA
Tel: +46 (0)156 537 00
Web: www.camfil.com

6. Preface

Thank you for buying an air purifier from Camfil AB.

We hope that you will be delighted with your *CamCleaner Concealed*.

Important!

Before using your *CamCleaner Concealed* air purifier, it is important that you, as the user: read this user manual; read the fan instructions; and, follow the safety instructions in both documents.

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7. Technical specifications

External dimensions, vertical model

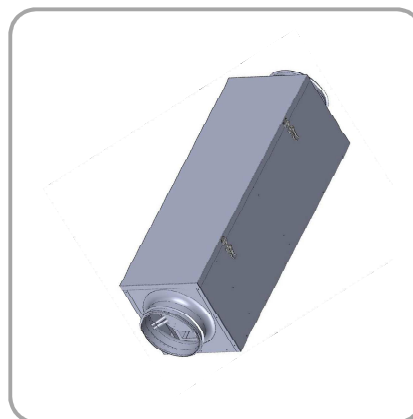
Height: 316 mm

Width: 1052 mm

Depth: 364 mm

Weight: 21, 4 kg (including new filters)

Filter weight: 6, 5 kg (1 pcs XLT and 1 pcs x EPA 11)



7.1 Fan specifications.

Phase		1~
Nominal voltage	VAC	230
Nominal voltage range	VAC	200 .. 240
Frequency	Hz	50/60
Type of data definition		ml
Speed	min ⁻¹	3200
Power input	W	83
Current draw	A	0.75
Min. ambient temperature	°C	-25
Max. ambient temperature	°C	+60

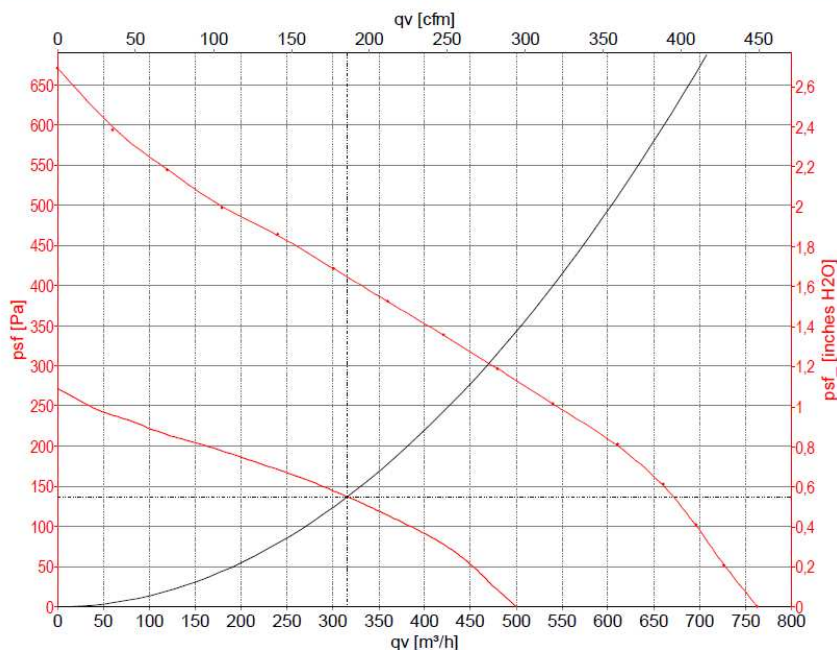
7.2 Air flow, CamCleaner Concealed

0 m³/h – 320m³/h with filters (max. mode with unused filters).

As standard the system deliver 320 m³/h with new filters

Data in operating point

qv	m ³ /h	316
psf	Pa	137
pf	Pa	148
rpm	1/min	2140
Pe	W	28
SFP	kW/(m ³ /s)	0,319
η e	%	46,4
η se	%	42,9
I	A	0,223
LwA(A,in)	dBA	57,3
LwA(A,out)	dBA	60,3
rho	kg/m ³	1,15
U control	V	6,7



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8. Use

The *CamCleaner Concealed* is used to clean air by mechanically filtering through highly efficient filters.

The system is developed for expert users as installation companies and not for consumer use.

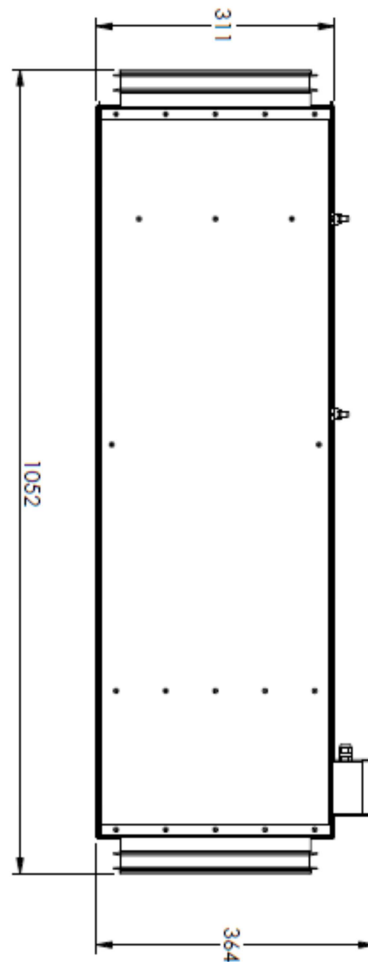
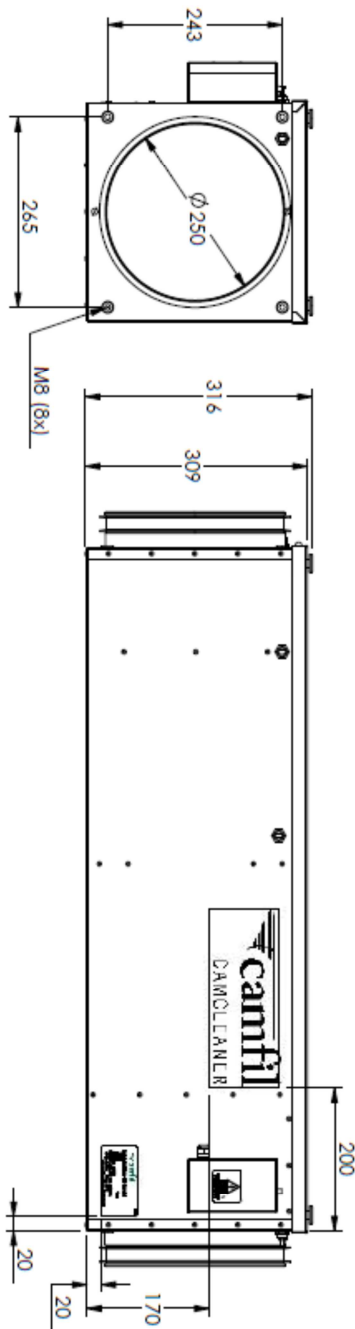
8.1. Wall and ceiling mounting

If the *CamCleaner Concealed* is to be mounted in a ceiling or on a wall, the following points must be borne in mind:

1. Ceiling mounting – the unit must be so mounted that there is no risk of trucks (and similar) colliding with it.
2. The ceiling or wall must be able to take a load of 88 kg.
3. Always install with safety switch, to disconnect the power supply during services or maintenance.
4. Only fixed mounting is permitted.
5. The CamCleaner Ceiling must be mounted for filter replacement from the side and not upside down.
6. Mounting devices must be able to take a load of at least 88 kg

8.2. Mounting drawing

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9. Safety instructions

Read the user manual and follow the instructions given therein.

For installation, servicing, maintenance or filter replacement, the machine's power supply must be disconnected.

NB! Pull out the electrical connector! Or use the safety switch.

The machine is not to be regarded as de-energised until 5 minutes after disconnection from the power supply.

Rotating parts do not stop immediately once power has been cut or the machine has been switched off. Allow 5 minutes to elapse before handling the cabinet.

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1. In its standard version, the *CamCleaner Concealed* must only be used for handling dry non-explosive materials. If the air purifier is used for purposes other than those set out in the user manual, or is handled otherwise than set out therein, Camfil AB can accept no liability whatsoever for the consequences of said use/handling.
2. NB! Fixed installation may only be carried out by a professional who has appropriate qualifications for the assignment and who takes responsibility for the installation.
3. The machine must not be used in ATEX classified areas or where, at any time, there may be explosive gases.
4. Electrical connection may only be carried out by an appropriately qualified electrician. Wall outlets must also be installed by an appropriately qualified electrician.
5. Accessories, filters, spare parts, etc. used with the *CamCleaner Concealed* must be approved by Camfil Svenska AB. Guarantee undertakings cease to apply if the foregoing is not respected. Please contact Camfil Svenska AB for the correct accessories.
6. Do not cover inlets or outlets.
7. Inserting objects through inlets or outlets is forbidden.
8. The *CamCleaner Concealed* must not be used in environments where burning/smouldering objects can get into the machine.
9. The *CamCleaner Concealed* must be used indoors only.
10. The *CamCleaner Concealed* must be used in the -25°C – 60°C temperature range only.
11. The *CamCleaner Concealed* must not be drenched with water. The highest permitted humidity is 85% if carbon filter is used.
12. The *CamCleaner Concealed* must not be used for point extraction or dust separation. It must also not be used in environments where dust explosions may occur.
13. Your *CamCleaner Concealed* is equipped with "automatic start". This means that, on power restoration after a power disruption, the fan automatically returns to its speed before the disruption.
14. Follow the filter handling and replacement instructions very carefully. Incorrect handling can damage the filter medium. In turn, this can mean that the promised filter class will not be achieved.

15. Take great care when handling used filters. Incorrect handling can result in ill health or sickness. Follow the instructions for filter replacement.
16. When replacing filters with the machine raised from the floor, it is recommended that the lock which cover and air tightened the filters should be secured with wire.

10. Design

The *CamCleaner Concealed* is a self-standing one-section design. The section houses the filters, fan section and all the electrical connections.

The machine is entirely constructed of galvanized steel. Thus, it is environment friendly and readily recyclable

10.1. Constituent standard components

In its standard version, the air purifier is supplied with the following components:

- One *CamCleaner Concealed* unit with 2pcs of circular take-off (Ø 250 mm). These have rubber gaskets and can be connected to Spiro type circular ducts.
- One protective Lock for filter replacement
- Filters for the chosen purpose.
- User manual.
- Fan instructions (from the fan supplier).

If anything is missing, or if you require further information about accessories, please contact Camfil Svenska AB.

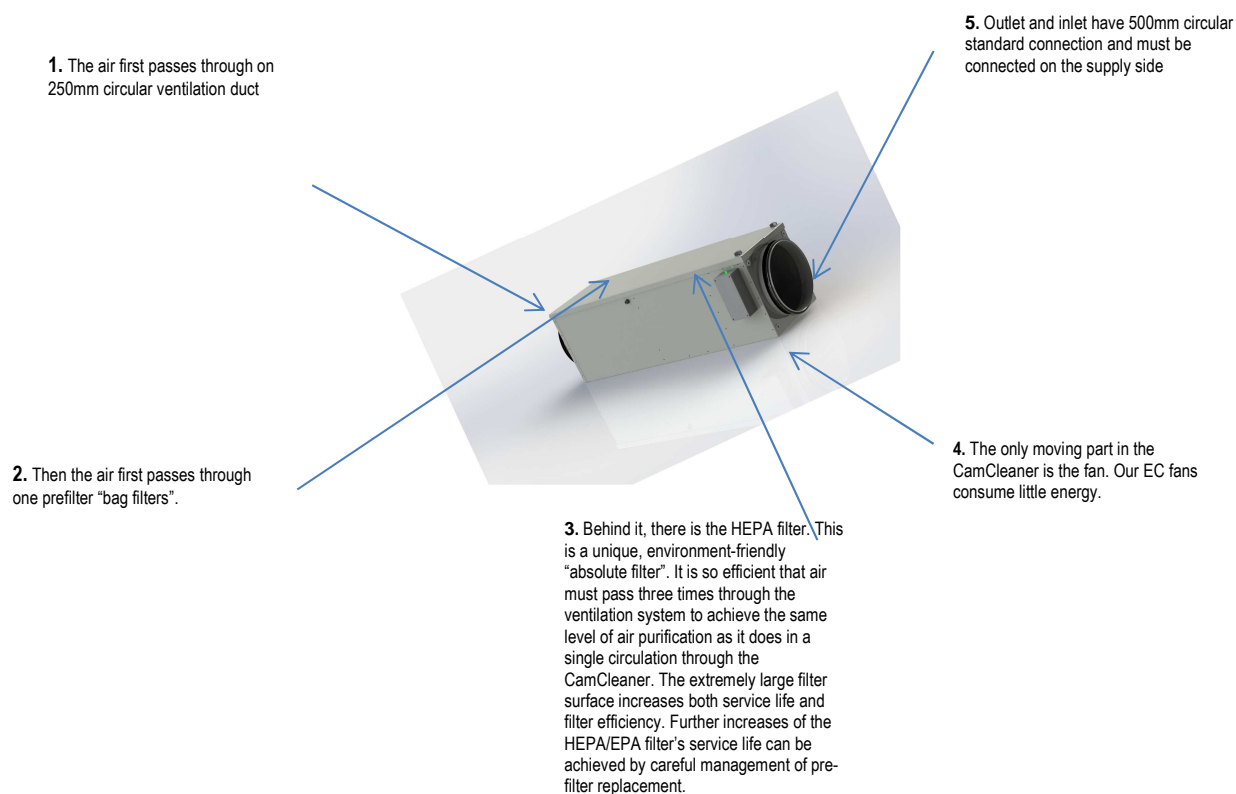
11. Transport and unpackaging

When the *CamCleaner Concealed* is to be installed, remove the packaging carefully. If sharp objects are used for unpackaging, take care of the machine's cables and metal finish.

Take especial care when handling the filters. See the filter replacement section.

Check that the product has not been damaged during transport. Report any transport damage to the carrier. Check also that the delivery is complete.

10.2. Air flow details



12. Taking into operation

First, read the entire user manual.

Connect the plug into the power supply or connect to installed safety switch.

Only appropriately qualified electricians may carry out work on or in this.

As standard the system have fixed speed!

You must be able to turn of the power supply without touching the unit.

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12.1. Positioning

The *CamCleaner Concealed* must always be positioned and used indoors only.

Air outlets and intakes must not be obstructed during use. Before it is taken into operation, ensure that there is sufficient space (50 cm) around outlet and inlet.

12.2. System integration

When connecting ventilation ducts to the *CamCleaner Concealed*, these items must be secured to support their own weight.

There is not recommended to connect more than 8 meters of 250mm circular ventilation ducts on outlet and inlet of the unit.

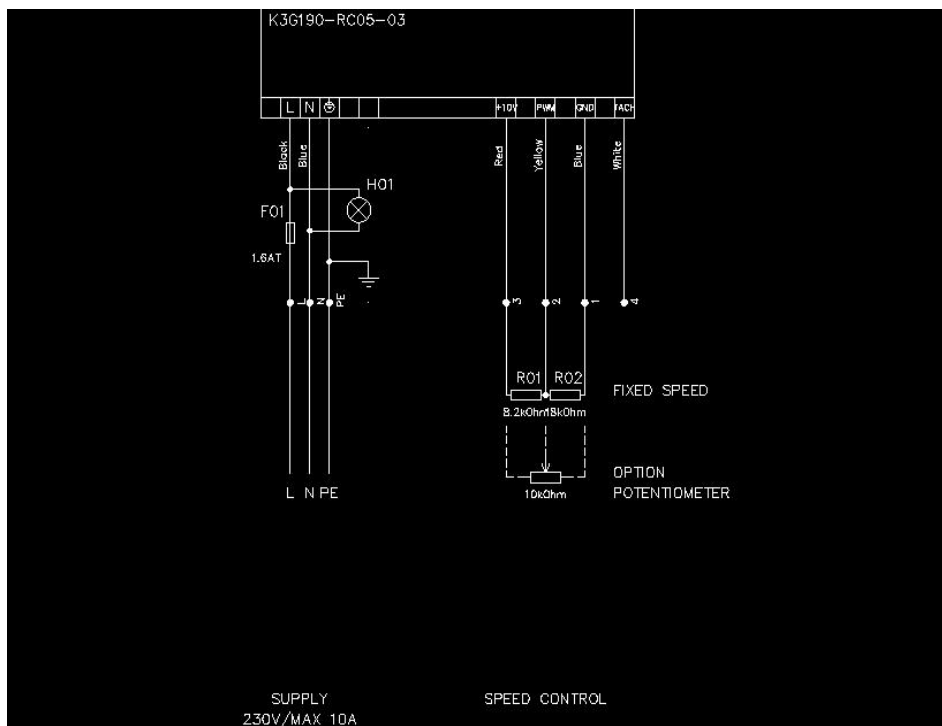
12.3. Electrical connection

Electrical connection must be carried out by an appropriately qualified electrician. All routing of cables, etc. must be carried out in accordance with the relevant regulations. The *CamCleaner Concealed* is factory supplied ready for plugging in. Any intervention in the machine's internal electrical systems must only be carried out by appropriately qualified persons using Camfil Svenska AB supplied equipment.

The *CamCleaner Concealed* must only be connected to the network voltage that is stated on the machine plate (identification plate).

12.4. Connection diagram, terminal block, 1-phase EC fan

Below, there is a circuit diagram for connections between fan, junction box and often used accessories. NB! Only appropriately qualified electricians may carry out work on or in this.



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Electrical connection box with operating lamp.



Fuse holder.

13. Measuring points for Pa or filter efficiency tests.

Filter efficiency

A = Before filter

B = After Pre filter

C = After HEPA filter

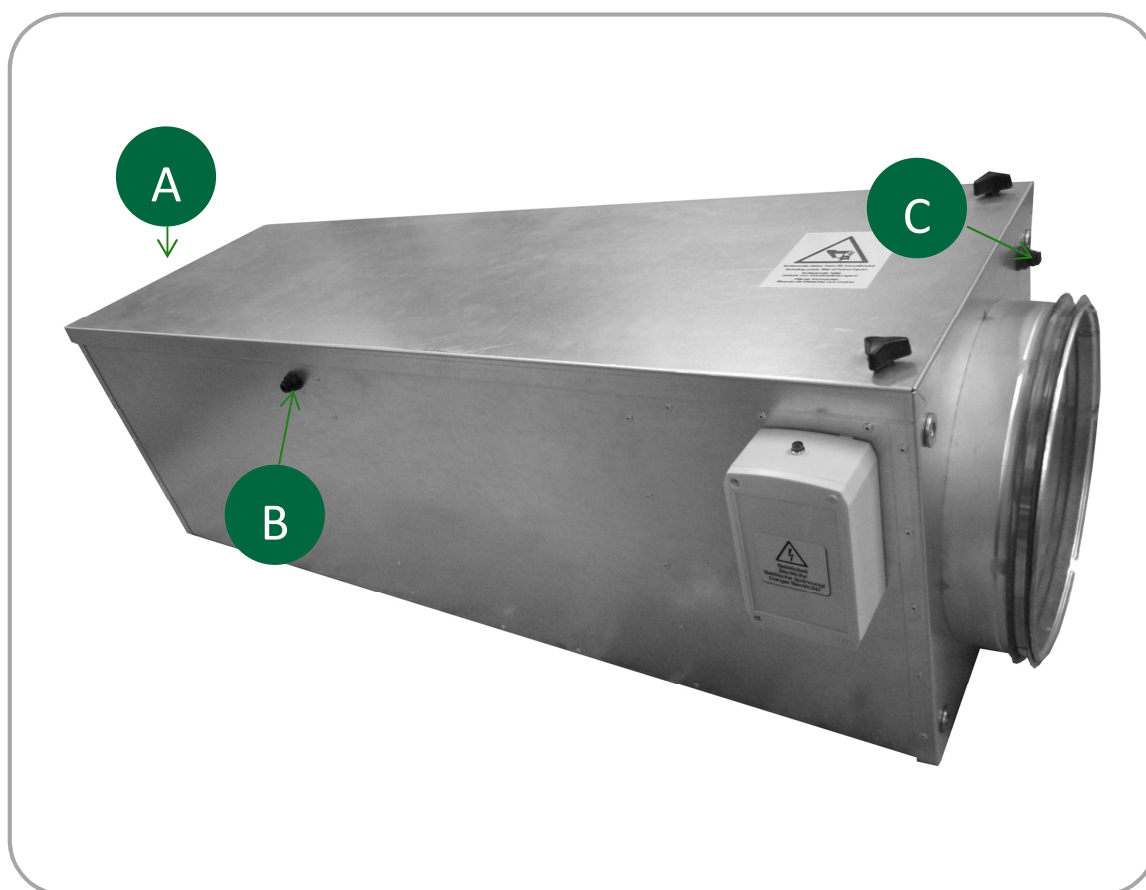
Pressure drop

A+B = Pre filter

B+C = HEPA filter

A+C = Pressure both filters

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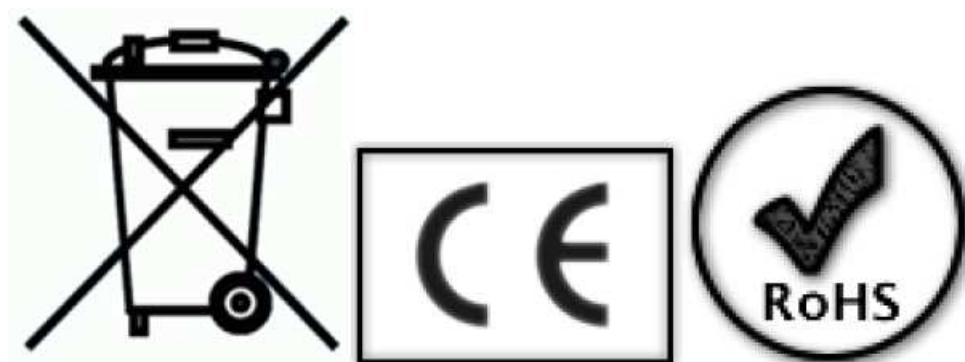
14. *CamCleaner Concealed* and the environment

The *CamCleaner Concealed* air purifier is made from lead-free components. It can be recycled, used models must always be sent to a recycling station for correct recycling and/or disposal of parts and components.

14.1. *CamCleaner Concealed* filters and the environment

Note that filters must not be disposed of along with ordinary household waste. Scrapped filters must always be correctly taken care of and handled safely. Recycling or disposal must always be carried out at an approved waste facility. If you have any questions about this, please contact your local authority or distributor for advice on correct care.

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15. Maintenance

If necessary, the *CamCleaner Concealed* can be cleaned using a mild cleaning agent.

Before cleaning, always switch off the machine and pull out the electrical connector!

16. Instructions for replacing *CamCleaner Concealed* filters

WARNING! When handling used filters, personal protective equipment such as protective gloves and masks must be used. To choose the correct type of respiratory protection, consult either the safety representative/officer at the workplace or the manufacturer of the respiratory protection.

Used filters may contain harmful substances and particles. With incorrect handling, these can escape to the environment and present risks of sickness and ill health.

Filters should be replaced on a continuous basis. As regards frequency of filter replacement, see Camfil AB's recommendations.

16.1. Filter replacement

Always use protective gloves and respiratory protection when handling used filters! Risk of ill health and sickness.

1. Switch off the *CamCleaner Concealed* by turning the safety switch or electrical connector. Make sure that the green operating led is off.

2. Undo the two knobs from the top cover and remove it. *NB! Hold the top cover firmly. Alternatively, secure it during removal.*



3. Grip the upper edge of the bag filter frame pull it towards you. And put the filter into a plastic bag.



4. Release the screw (counter clock wise) which keeps the HEPA filter in place.



5. Take a firm grip the sling which is around the HEPA filter and pull it towards you.



6. Lift the filter carefully out. Scrapped filters must be taken care of as per the previously explained instructions. Do the steps 1-6 in reverse order.



Take a new HEPA filter out of its box. *NB! Do not touch the filter's surface. Hold the frame only!*

Do the steps 1- 8 in reverse order.

17. IP classification

The *CamCleaner Concealed* is supplied with an IP 44 classification.

The IP code is defined as per international standard IEC 60529.

IP classifications define how much dust and water a product tolerates while maintaining full functionality and safety.

Important information

In accordance with the casing's stated protection classification, the machine must not be placed in water or exposed to liquid chemicals. Similarly, the machine must not be placed in extremely high or low temperatures.

The guarantee does not cover problems arising through carelessness/negligence.

Remember that the classification covers the machine only and not the filters. For information about filters, contact your local Camfil office.

18. EU provisions governing the product

This product complies with EU standards as per the "machine directive" (2006/42/EC), the "low voltage" directive (2006/95/EC) and the "EMC directive" (2004/108/EC).

Note that correct observance of the installation and safety instructions is a precondition for the compliance of all the operating properties.

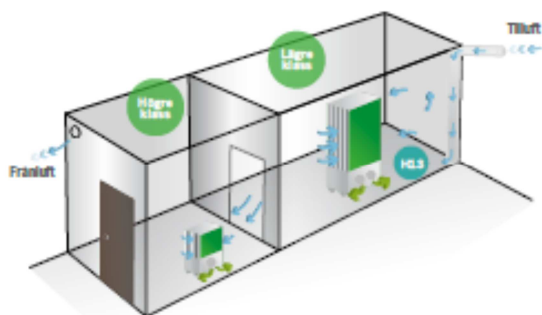
For more details of technical specifications, the standards that have been complied with and Camfil's patents, please contact Camfil Svenska AB.

camfil
FAPAR

EG-forord om Overensstemmelse/ Declaration of conformity

Enligt According to:	Machine Directive MD 2006/42/EC Electro Magnetic Compatibility EMC 2004/108/EC Low Voltage Directive LVD 2006/95/EC
Tillverkare: Manufacturer:	Camfil Svenska AB
Adress: Address:	Industriplats 3 619 33 Treva
Maskin: Machine:	CamCleaner Concealed
Normer/standarder Conforming to the following standards:	ISO EN ISO 12100-2010, ISO EN 60 204-1
Tid Date:	2012 11 27 Per Eriksson Produktutveckling

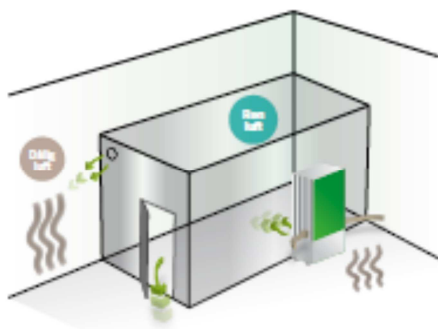
19. CamCleaner system



Two air purifiers work together in a cleaning system.

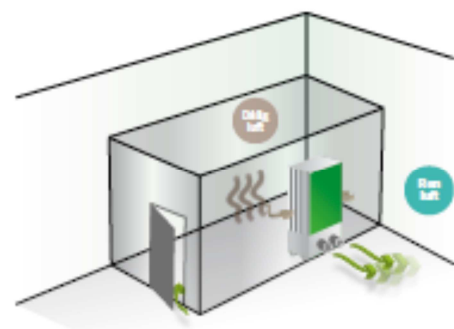
In compartment 1, the incoming air creates overpressure. This means that the air, after it has passed through the air purifier, is transported to compartment 2. There, the air is sucked through another CamCleaner, which further raises the air quality. You can also use various effective filters in the air purifiers to control the air quality. In this instance, a class H13 filter is used in compartment 1, where the contaminated incoming air enters. This method is used in premises used for production, in air locks as well as in other environments.

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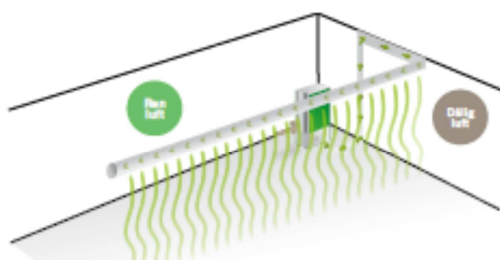
Over pressure.

Exactly as in the example above, overpressure is created when the air is purified and enters the compartment. By doing this, a thoroughly controlled indoor environment is achieved in the space in question. This is useful in processes such as those involving installation, food, electronic installation, and other sensitive production units.



Under pressure.

In this example, the air is sucked from the compartment and purified before it is discharged into the room. CamCleaner also makes it possible to clean the air many times before allowing it to be released, in order to achieve increased control over the air quality. Under pressure is used, for example, on building sites, and in industries and places where a small dirty production area in large premises



Cleaning zone in open premises.

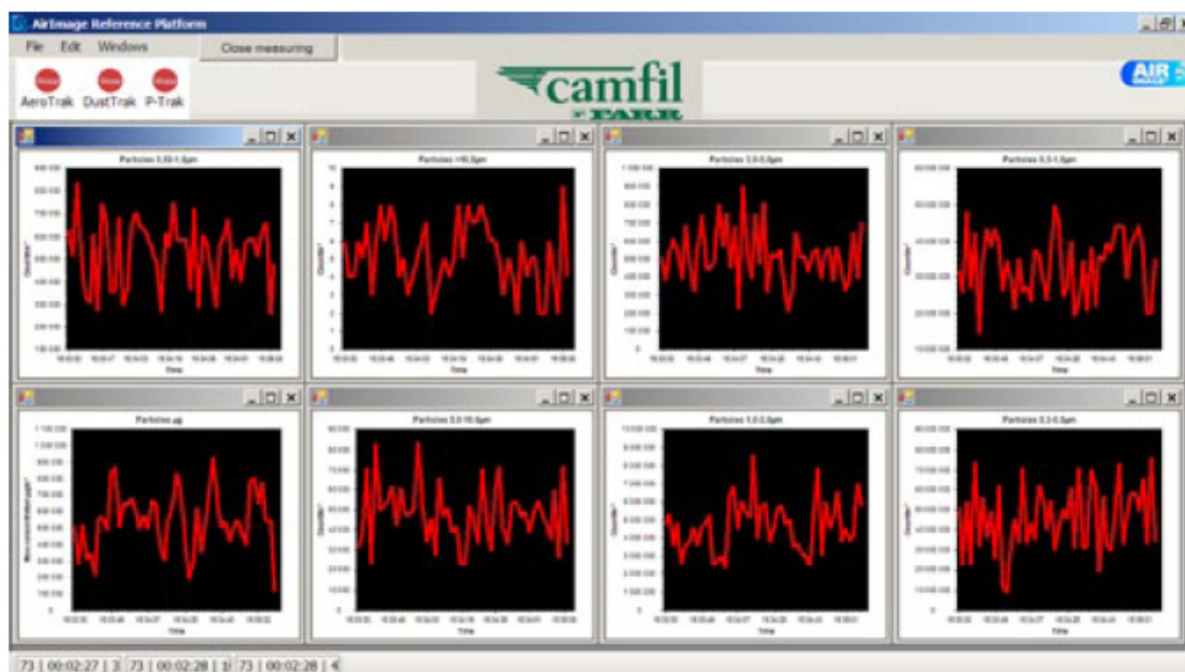
In this example, the air is purified in the CamCleaner unit's HEPA filter. Then it passes through the pipe along the ceiling, where air is discharged from the holes along the wall. The purified air thus creates a sort of curtain that divides the room into two zones; one with higher quality air and one with lower quality air.

Camfil IAQ Analysis – monitors and measures your air quality in real time.

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IAQ stands for Indoor Air Quality and is a measurement of the quality of indoor air. As an additional option for your CamCleaner system, you can choose Camfil IAQ Analysis which provides a direct picture of the air quality in your rooms. We monitor the air quality, and all measurements are saved in an IAQ database which contains millions of measurement values and benchmarks for the indoor environment and air quality. As a customer, you have the option of viewing the analysis in real time at the time of measuring, and all measurements taken can easily be compared with each other. With the aid of a calibrated particle counter, the quantity of particles in the air can be examined. By subscribing to this service,

you will, as a customer, always have a particle counter in place connected to a computer which monitors the indoor environment. When an abnormal particle distribution is identified, or in cases of other suspected problems, we perform an analysis with a scanning electron microscope (SEM) with associated X-ray analysis system (EDAX). As required, the quantity, weight and structure of the particles are analyzed as well as the chemical composition of the air and element content. We have more than 10 year's experience of this. We also work together with many of the world's leading laboratories for further analyses. Our IAQ reports are based according to the following standards for air classification: SS EN, SS EN ISO and IEST.



Indoor Air Quality Analysis. Measurement of different particle sizes in real-time.

CAMFIL FARR

– the world's largest and leading manufacturer of filters and clean air solutions

There is a good chance that, at this very moment, you are breathing clean air that has passed through a filter manufactured by us. Our products can be found everywhere from offices, clean rooms for sensitive electronics production and mines to factories, hospitals and nuclear power stations. Camfil Farr is a global company with 29 subsidiaries, 23 production plants and an extensive network of agents in Europe, the Americas and the Asia-Pacific region.

CamCleaner

CamCleaner is synonymous with high efficiency purification, energy savings and almost silent operation. Unlike all other air purifiers on the market, our HEPA filters offer a degree of purification that can eliminate the tiniest and most difficult to remove particles. CamCleaner is also entirely unique in that it can suck in air from two directions. This makes it possible to have different cleaning zones and thereby considerably increase the efficiency of air purification.