

- NL** Stationaire unit met elektrostatisch filter
- EN** Stationary unit with electrostatic filter
- DE** Stationäre Anlage mit elektrostatischem Filter
- FR** Unité stationnaire avec filtre électrostatique
- ES** Aspirador estacionario con filtro electrostático
- PO** Módulo de filtragem electrostática
- IT** Unità pensile con filtrazione elettrostatica
- LT** Stacionarus įrenginys su elektrostatiu filtru

SFE-25/50/75 & HFE-25/50



- NL** Gebruikershandleiding
- EN** User manual
- DE** Betriebsanleitung
- FR** Manuel opérateur
- ES** Instrucciones para el uso
- PO** Manual do utilizador
- IT** Manuale d'uso
- LT** Vartotojo instrukcija

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This publication is to be used for the standard model of the product of the type given on the cover page. Thus the manufacturer cannot be held responsible for any damage resulting from the application of this publication to the version actually delivered to you.

This publication has been written with great care. However, the manufacturer cannot be held responsible, either for any errors occurring in this publication or for their consequences.

TAKE YOUR TIME TO CAREFULLY READ AND UNDERSTAND THE MANUAL BEFORE USING THE PRODUCT.
ALWAYS KEEP THE MANUAL WITH THE PRODUCT.

1 PREFACE






Using this manual

This manual is intended to be used as a work of reference for professional, well trained and authorised users to be able to safely install, use, maintain and repair the product mentioned on the cover of this document.

The figures referred to in the text, can be found in the back of this manual.

Pictograms and symbols

The following pictograms and symbols are used on the product and in this manual.

	WARNING Denotes risk of electric shock.
	WARNING! Wait approximately 10 seconds after switching off the motor before dismounting the ionizer and collector. These electrostatic components need approx. 10 seconds to discharge.
	Suggestions and recommendations to simplify carrying out tasks and actions.
	WARNING Procedures, if not carried out with the necessary caution may damage the product or cause personal injury.
	WARNING Fire hazard! Never use the product for extracting and/or filtering inflammable, glowing or burning particles or solids or liquids. Never use the product for extracting and/or filtering of aggressive fumes (such as hydrochloric acid) or sharp particles.

Service and technical support

For information about specific adjustments, maintenance or repair jobs which are not dealt with in this manual, please contact the supplier of the product. He will always be willing to help you. Make sure you have the following specifications at hand:

- product name
- serial number

These data can be found on the identification plate.

2 IDENTIFICATION OF THE PRODUCT

The identification plate (fig. 1) contains the following data:

- A serial number
- B product name
- C power
- D supply voltage and frequency

3 SAFETY INSTRUCTIONS AND WARNINGS

General

The manufacturer does not accept any liability for damage to the product or personal injury caused by non-observance of the safety instructions in this manual, or by negligence during installation, use, maintenance and repair of the product mentioned on the cover of this document and any corresponding accessories.

Specific working conditions or used accessories may require additional safety instructions. Immediately contact your supplier if you detect a potential danger when using the product.

The user of the product is always fully responsible for observing the local safety instructions and regulations. Observe all applicable safety instructions and regulations.

User manual

- Everyone working on or with the product, must be familiar with the contents of this manual and must strictly observe the instructions therein. The management should instruct the personnel in accordance with the manual and observe all instructions and directions given.
- Never change the order of the steps to perform.
- Always keep the manual with the product.

Pictograms and instructions on the product

- The pictograms, warnings and instructions attached to the product are part of the safety features. They must not be covered or removed and must be present and legible during the entire life of the product.
- Immediately replace or repair damaged or illegible pictograms, warnings and instructions.

Users

- The use of this product is exclusively reserved to authorised, trained and qualified users. Temporary personnel and trainees can only use the product under supervision and responsibility of skilled engineers.

Intended use¹

The product has been designed exclusively for extracting and/or filtering harmful fumes and gasses which are released during the most common welding processes and for use in commercial kitchens. Using the product for other purposes is considered contrary to its intended use. The manufacturer accepts no liability for any damage or injury resulting from such use.

The product has been built in accordance with state-of-the-art standards and recognised safety regulations. Only use the product in technically perfect condition with its intended use and the instructions laid down in the user manual.


Safety features

- All safety features must be correctly mounted and can only be removed for maintenance and repair jobs by skilled and authorised service engineers.
- The product must not be used if the safety features are not or only partly present, or defective.
- The safety features should be regularly checked for their proper functioning, and if required, be immediately repaired.

Modifications

- Modification of (parts of) the product is not allowed.

Use general

	WARNING Fire hazard! Never use the product for extracting and/or filtering inflammable, glowing or burning particles or solids or liquids. Never use the product for extracting and/or filtering of aggressive fumes (such as hydrochloric acid) or sharp particles.
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- Inspect the product and check it for damage. Verify the functioning of the safety features.
- Check the working environment. Do not allow unauthorised persons to enter the working environment.
- Use common sense. Stay alert and pay attention to your work. Do not use the product when you are tired or under the influence of drugs, alcohol or medicine.
- Make sure the room is always sufficiently ventilated, particularly in smaller confined areas
- Never install the product in front of entrances and exits which must be used by emergency services.
- Make sure that the workshop contains sufficient approved fire extinguishers.
- Protect the product against water and humidity.
- Do not use the product at a relative humidity

exceeding 80%.

- Do not use the product at temperatures below 5°C or above 45°C.
- Keep the operating controls free from dirt and grease.
- The product is not explosion-proof rated. The motor can cause sparks and should therefore not be used in areas with an explosion risk.
- Never operate the product without filters.
- Do not use the product in areas with high concentrations of dry particulates (dust).

Use of SFE/HFE for welding fume extraction


- The product is suitable for the extraction/filtration of fumes and gasses from or during the following welding processes:
 - MIG/MAG solid wire (GMAW)
 - MIG/MAG flux cored wire (FCAW)
 - stick welding (MMA or SMAW)
 - TIG (GTAW) welding
 - autogeneous welding
 - oil mists
- Health-threatening particles in the air, such as chromium, nickel, beryllium, cadmium, lead, etc., shall not be recycled. The extracted air shall be directed outside the operating area.
- Never use the product for extracting dust particles which are released when welding surfaces treated with primer.
- Never use the product for extracting and/or filtering fumes and gases which are released during the following (welding) processes:
 - arc-air gouging
 - paint mist
 - hot gasses (more than 40°C continuously)
 - aggressive fumes (such as acid fumes)
 - plasma cutting
 - grindings of aluminium or magnesium
 - flame cutting
 - cement, saw dust or woodcuttings, etc.
 - burning cigarettes, cigars, oiled tissues and other flammable or burning particles, objects and acids
 - under all explosive circumstances
(This list is not a limited list)
- The use of this product in areas with heavy oilmist is only possible using the appropriate pre filters.
- Allow 10 seconds between switching-off and dismantling the filter.

Use of SFE for commercial kitchen extraction

- The product is suitable for the filtration of extracted fumes from commercial kitchens.
- The product shall always be used in combination with pre and after filters that are suitable for kitchen extraction.


1. "Intended use" as laid down in EN-292-1 is the use for which the technical product is suited as specified by the manufacturer, inclusive of his directions in the sales brochure. In case of doubt it is the use which can be deducted from the construction, the model and the function of the technical product which is considered normal use. Operating the machine within the limits of its intended use also involves observing the instructions in the user manual.

Service, maintenance and repairs

	This manual clearly makes a distinction between service maintenance and repair jobs which have to be carried out by the user and those which have to be exclusively carried out by well trained and authorised service engineers.
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- Observe the maintenance intervals given in this manual. Overdue maintenance can lead to high costs for repairs and revisions and can render the guarantee null and void.
- Always use tools, parts, materials, lubricants and service techniques that have been approved by the manufacturer. Never use worn tools and ensure that tools are not left behind in or on the product.
- Do not carry out any service, maintenance or repairs on the product before it has been protected against unintended starting.
- Safety features removed for servicing, maintenance or repair shall be re-installed immediately and checked for proper functioning.
- Regularly clean the inside of the housing.
- Clean or replace the filters in time.

4 USED PRODUCTS AND THE ENVIRONMENT

	PACKAGING MATERIAL The purpose of the packaging is to protect the product during transport. It consists of the following substances which can be reused: <ul style="list-style-type: none">- (corrugated) cardboard- polyethene foil- untreated wood Do not dispose of the packaging material in the industrial waste, but ask your municipal sanitation department where to dispose of the material.
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Product

Products which you would like to dispose of may still contain valuable substances and materials. Do not dispose of the product in the industrial waste, but ask your municipal sanitation department about the possibilities for reuse or environmentally safe processing of the material.

5 TECHNICAL SPECIFICATIONS

5.1 Technical specifications SFE 25/50/75

	SFE 25	SFE 50	SFE 75
Power consumption	35 W	40 W	50 W
Max. capacity	2500 m ³ /h	5000 m ³ /h	7500 m ³ /h
Collector surface	14,2 m ²	28,4 m ²	42,6 m ²
Weight	60 kg	100 kg	140 kg
Power supply	Suitable for all standard power supply voltages, single & three phases, 50-60Hz		
Filter efficiency	up to 98%		
Main filter	ioniser + collector		
Pre and after filters	optional (see price list)		
Housing	epoxy-coated steel		
Pressure drop	< 150 Pa	< 175 Pa	< 250 Pa

5.2 Technical specifications HFE 25/50

	HFE 25	HFE 50
Power consumption	750 W (+ 35W)	1500 W (+ 40W)
Max. capacity	2500 m ³ /h	5000 m ³ /h
Collector surface	14,2 m ²	28,4 m ²
Weight	100 kg	195 kg
Power supply	Suitable for all standard power supply voltages, single & three phases, 50-60Hz	
Filter efficiency	up to 98%	
Main filter	ioniser + collector	
Pre and after filters	optional (see price list)	
Housing	epoxy-coated steel	

6 GENERAL DESCRIPTION

6.1 SFE and HFE for welding fume extraction

These electrostatic air cleaners filter fumes, mists, smoke and dust particles from many industrial processes at a high efficiency. Normally these particles remain in the area. Some of these industrial processes are:

- A welding and grinding of metals and synthetic materials
- B milling, rotating and piercing of metals and synthetic materials
- C scouring and polishing of metals and synthetic materials

D filling with powder and/or volatile materials

6.1.1 Modes of extraction of the polluted air

- SFE: extraction arm or ducting system
- HFE: extraction grid

6.2 SFE in kitchen extraction applications

This electrostatic air cleaner can remove, at a high efficiency, small grease particles that pass the grease filters. The SFE is designed to be installed in the extraction ducting of a commercial kitchen downstream of the extraction hood.

6.3 Oil drainer

It is possible to install an oil drainer in applications for welding of oil-treated steel, oil mist extraction or kitchen fume extraction in order to draw off superfluous liquids from the oil collector.

6.4 Operation

The extracted contaminated air passes the pre filter (fig. 2A) that takes out all larger particles. The pre filter also ensures a proper distribution of the airflow.

After that, the air passes the ioniser (fig. 2B and 3B). The contaminations in the air are electrically charged by the high voltage (+10kV). These will then be deposited on the earthed plates (fig. 2C and 3C) by the collector voltage (+5kV).

The after filter (fig. 2D) is the last filtration step and it also spreads the airflow.

There are a main switch (fig. 4A), a high-voltage indicator (fig. 4B) and a reset button (fig. 4C) on the control panel. Please contact your dealer if the high-voltage indicator is not working. Regularly check the functioning of the indicator when using the product, since it indicates that the electrostatic filter is properly charged.

When the product produces a crackling sound, then it could be that the collector and/or ioniser are too dirty and that both need to be cleaned. Switch off the product with the main switch (fig. 4A). Wait for at least 10 seconds prior to opening the door that contains the filtration section. Subsequently, clean the collector and ionisation sections using Plymovent EFC while adhering to the instructions on the EFC packaging. Check for touching collector lamellas. Consult your supplier if the lamellas are bent!

After closing the door of the housing switch on the unit by turning the main switch (fig. 4A) and press the reset button (fig. 4C).

The distinguishing characteristics of the modular mounting of the ionising and collector sections are the very high separation efficiency (up to 98% of particles larger than 0.1 μm), its low air resistance and the user-

friendliness while servicing the separate modules.

Repairs shall only be carried out by Plymovent or Plymovent authorised staff. Maintenance contracts are possible.

7 INSTALLATION

7.1 Installation SFE

Check that the suspension construction is adequate prior to installing the product. Mount the SFE unit in the ducting system. It can be supported by a suspension bracket (fig 5A) as well as suspension by screw rods attached to the top of the SFE unit (fig. 5B). It is necessary to drill holes on the upper side for this purpose. It is also possible to place the unit on the ground providing sufficient space is allowed to use the drain plug.

Please consult the electrical diagram (separate leaflet, enclosed) when connecting the air cleaner to the mains. Use suitable rubber or neoprene cable with at least 4x1,5 mm² wire area. Beware of possible differences in the mains power supply.

The air cleaner can be stacked to a maximum of 4 units; the perforations and protrusions on the housing can be used for this purpose.

7.2 Installation HFE

Check that the suspension construction is adequate prior to installing the product. Use the profiles (fig. 6E) when mounting the product and attach the connection rings (fig. 6B), the lock rings (fig. 6C) and the sliding nuts (fig. 6D) (all supplied with the product) to the profiles. Use a suitable suspension chain (fig. 6A) in this way of mounting. You can also use the profiles (fig. 6J) together with screw rods M8 of suitable length. These should be mounted as illustrated. The following parts are used in this case: screw rod M8 (fig. 6F), self-locking nut (fig. 6G), lock ring (fig. 6H) and sliding nut (fig. 6I).

Please consult the electrical diagram (separate leaflet, enclosed) when connecting the air cleaner to the mains. Use suitable rubber or neoprene cable with at least 4 x 1,5 mm² wire area. Beware of possible differences in the mains power supply. The position of the contact bridges may need to be changed as well as the connections inside the motor compartment. When connecting, pay attention to the direction of rotation of the motor!

Ensure at all times that the setting of the thermal relay corresponds with the nominal current rating of the motor for the applicable power mains. This rating is given on the motor identification plate.

8 DIMENSIONS

8.1 Dimensions SFE 25/50/75

See fig. 7.

8.2 Dimensions HFE 25/50

See fig. 8.

9 MAINTENANCE

If you observe the necessary caution and carry out the simple maintenance and cleaning described below at regular intervals, then any problems will mostly be detected and corrected before they result in a total breakdown of the product.

The indicated maintenance intervals can vary depending on the specific working and local conditions.


Action	Every 2 weeks to 2 months (depending on the degree of pollution)	Every 3 months	Every 6 months	Every 12 months
Clean the outside of the product with a mild detergent.			X ^[1]	
Check the door sealing material.				X ^[1]
Clean the inside of the product and remove dust/grease from the filter compartment.		X ^[1]		
Clean the pre filter, ioniser, collector and the after filter and check for damages; see section 9.2.	X ^[1]			

9.2 Cleaning the pre filter, ioniser, collector and the after filter

Clean or replace the filters:

- when damaged
- when the ioniser and/or collector starts to make a crackling sound (indicator starts blinking or stops being lit)
- when the extraction capacity becomes inadequate


It is a matter of experience to determine when the product needs to be cleaned, since the nature and the degree of pollution depend strongly on the particular situation, humidity, intensity of use, etc. Nevertheless, the filters should be cleaned regularly (every 2 weeks up to 2 months).


	WARNING Polluted filters often contain dust and dirt particles that could be a health hazard when inhaled. When replacing the filter, always wear a reliable and approved facemask.
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9.2.1 Removing the filters

- Switch off the unit by turning the main switch (fig. 4A).
- Loosen the star knobs and open the door.

It is therefore recommended that the product is thoroughly inspected annually in addition to the indicated periodic maintenance. Please contact your supplier for this purpose.

	WARNING Overdue maintenance can cause fire.
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	WARNING Always switch OFF the machine and remove the mains plug from the wall socket before carrying out the activities below. First read the maintenance regulations at the beginning of this manual.
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9.1 Periodic maintenance

The maintenance activities in the table below indicated by [1] can be carried out by the user; other activities are strictly reserved for qualified personnel.


- Remove the pre filter, ioniser, collector and the after filter (in this sequence).

9.2.2 Cleaning the pre and after filters

- Clean the pre and after filters in hot water (approx. 60°C) added with a detergent for domestic use. This treatment can be repeated several times. Cleaning with a high-pressure spraying pistol is also possible.
- Allow for complete drying after cleaning.

9.2.3 Cleaning of the ioniser and collector

- Clean the ioniser and collector in hot water (approx. 60°C) to which a 2% Plymovent EFC solution has been added. Cleaning using a high-pressure spraying pistol is also possible.

	Plymovent EFC is a detergent specially developed for cleaning electrostatic filter cells. It is available from your supplier. Always follow the instructions on the packaging.
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- Check the ioniser during washing for broken ionisation wires. These broken wires can simply be replaced.
- Check the collector during washing for bent

lamellas. These can be carefully straightened with a screwdriver. Lamellas in contact with each other can cause short-circuiting.


- Allow for complete drying after cleaning.

9.2.4 Mounting the filters


- Mount the filters, removed earlier, in reverse order.

	Note the correct position of the ioniser and collector. For this purpose, both filters have arrows indicating the direction of the airflow. Pay due attention to the position of the contact pin and contact spring.
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qualified service engineer.

	WARNING First check whether the error is of a mechanical or electrical nature. The electric system can only be serviced or repaired by qualified and authorised service engineers.
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Always switch OFF the machine and disconnect the mains before carrying out any repairs. First read the repair instructions at the beginning of this manual.

	A number of problems in the checklist below can also be caused by defects in the connected equipment. This manual only deals with problems and solutions directly related to the machine itself.
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10 TROUBLESHOOTING

If the machine does not function (correctly), consult the checklist below to see if you may remedy the error yourself (*). Should this not be possible consult a

10.1 SFE malfunctioning

Problem	Possible cause	Solution
Extraction capacity insufficient.	Filters clogged or saturated (*).	Clean the filters. See chapter 9.
	False air is being sucked (*).	Check or replace the sealing material.
Dust or smoke from the outlet grid and/or indicator blinks or is not lit.	Ioniser and/or collector are saturated or mounted incorrectly (*) causing short-circuiting.	Clean the filters and mount correctly. See chapter 9.
	No power on filtercell(s).	Press the "reset" button.
	Poor contacts in the ioniser and/or collector.	Check and repair.
	High-voltage transformer defective.	Replace the high-voltage transformer.
	High-voltage PC board defective.	Replace the high-voltage PC board.
	Short-circuit in the ioniser and/or collector (caused by bent lamellas).	Check and repair. See chapter 9.
Machine makes a crackling sound (= short-circuit).	Ioniser and/or collector incorrectly mounted.	Mount correctly.
	Ioniser and/or collector heavily polluted.	Clean the filters. See chapter 9.
	Ioniser and/or collector not totally dry.	Allow thorough drying after cleaning. See chapter 9.
	Bent collector lamellas.	Repair. See chapter 9.
	Bent or broken ionisation wires.	Replace. See chapter 9.
	Metal particles in ioniser and/or collector.	Clean the filters. See chapter 9.

10.2 HFE malfunctioning

Problem	Possible cause	Solution
Motor does not start.	No mains voltage.	Check the mains voltage.
	Loose contacts.	Repair the contacts.
	Main switch defective.	Repair or replace the main switch.
	Blown fuse.	Replace the fuse.
	Faulty transformer.	Repair or replace the transformer.
	Faulty relay.	Replace the relay.

Problem	Possible cause	Solution
Motor makes a humming sound, but does not function.	Motor uses 2 phases (this only applies to 3-phase motors).	Repair the phase connection.
	Motor capacitor defective or not connected (this only applies to 1-phase motors)	Repair, replace or connect capacitor.
Motor stops automatically.	Wrong direction of motor rotation.	Change direction of rotation.
	Motor defective.	Repair or replace motor.
Extraction capacity insufficient.	Inverted direction of rotation of the motor.	Change the direction of rotation.
	Extraction fan polluted.	Clean the extraction fan.
	Filters clogged or saturated (*).	Clean the filters. See chapter 9.
	False air is being sucked (*).	Check or replace the sealing material.
Dust or smoke from the outlet grid and/or indicator blinks or is not lit.	Ioniser and/or collector are saturated or mounted incorrectly (*) causing short-circuiting.	Clean the filters and mount correctly. See chapter 9.
	No power on filtercell(s).	Press the "reset" button.
	Poor contacts in the ioniser and/or collector.	Check and repair.
	High-voltage transformer defective.	Replace the high-voltage transformer.
	High-voltage PC board defective.	Replace the high-voltage PC board.
	Short-circuit in the ioniser and/or collector (caused by bent lamellas).	Check and repair. See chapter 9.
Machine makes a crackling sound (= short-circuit).	Ioniser and/or collector incorrectly mounted.	Mount correctly.
	Ioniser and/or collector heavily polluted.	Clean the filters. See chapter 9.
	Ioniser and/or collector not totally dry.	Allow thorough drying after cleaning. See chapter 9.
	Bent collector lamellas.	Repair. See chapter 9.
	Bent or broken ionisation wires.	Replace. See chapter 9.
	Metal particles in ioniser and/or collector.	Clean the filters. See chapter 9.

11 ORDERING SPARE PARTS

For spare parts available for the machine consult the supplied exploded view.

- Address your order to your supplier and always state the data below:
 - product name, supply voltage and serial number (see the identification plate)
 - article number of the particular part
 - description
 - quantity

CE DECLARATIONS

SFE 25/50/75:

MANUFACTURER'S DECLARATION (Directive 98/37/EEC, Annex II, sub B)

Plymovent, Alkmaar, the Netherlands herewith declares that the following machinery components are intended to be assembled with other machinery components to constitute machinery, which shall not be put into service until the entire installation has been declared in conformity with the provisions of the EC Council Directive and/or the local Directives on Machinery and the instructions of the manual of the machinery components: SFE 25/50/75.

Applied harmonized standards, in particular:

- EN 292-1
- EN 292-2
- EN 294
- EN 349
- EN 60335-1
- EN 60335-2
- EN 55014
- EN 61000

Remark:

Taking the machine in question into operation is only allowed after determination that the entire installation, of which the machinery component(s) in question form(s) part, is in compliance with the Directive 98/37/EEC and with the local Directives. These Directives specially guarantee the user's safety by means of, among other things, electrical emergency stops, fuses, earth wires and touch prevention for running and charged components. The installation manufacturer is responsible for taking the entire system into operation.

Alkmaar, 1st March 2005



Ing. C.J.M. Knijn

HFE 25/50:

EC-DECLARATION OF CONFORMITY FOR MACHINERY (Directive 98/37/EEC, Annex II, sub A)

Plymovent, Alkmaar, the Netherlands

herewith declares that the following products: HFE 25/50

are in compliance with the Directives:

- 93/68/EEC
- EMC 89/336/EEC
- 73/23/EEC

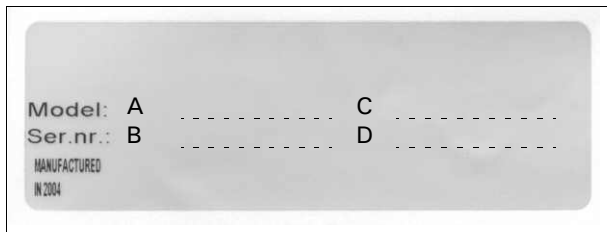
the following harmonized standards have been applied:

- EN 60335-1
- EN 60335-2
- EN 292-1
- EN 292-2
- EN 294
- EN 55014
- EN 61000

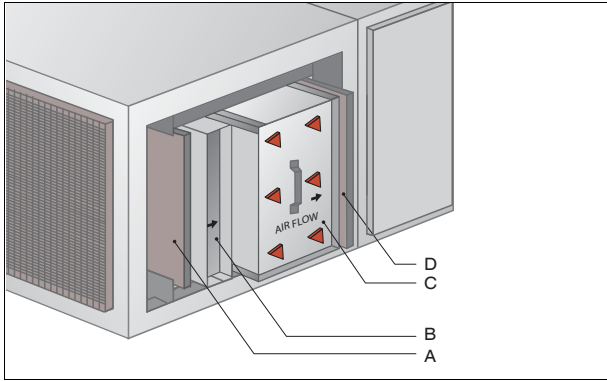
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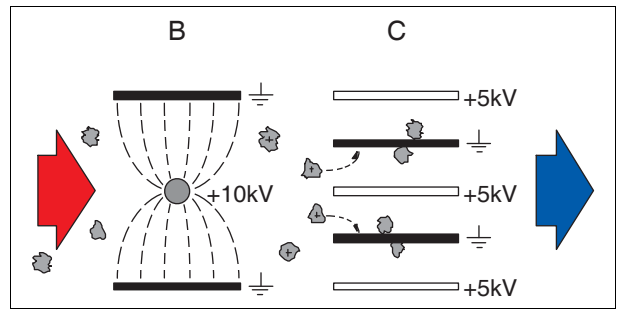
Ing. C.J.M. Knijn



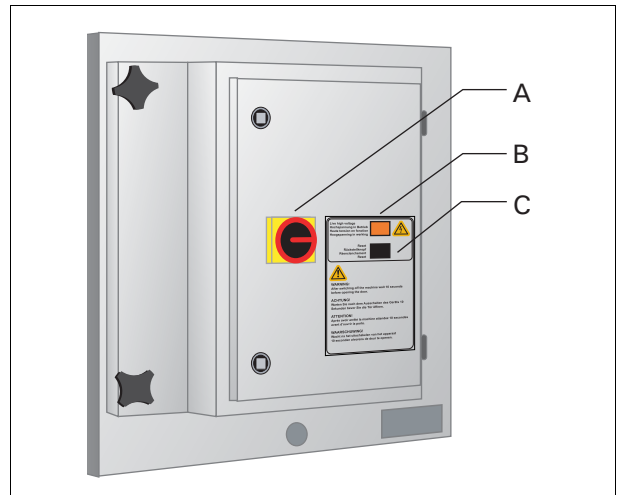
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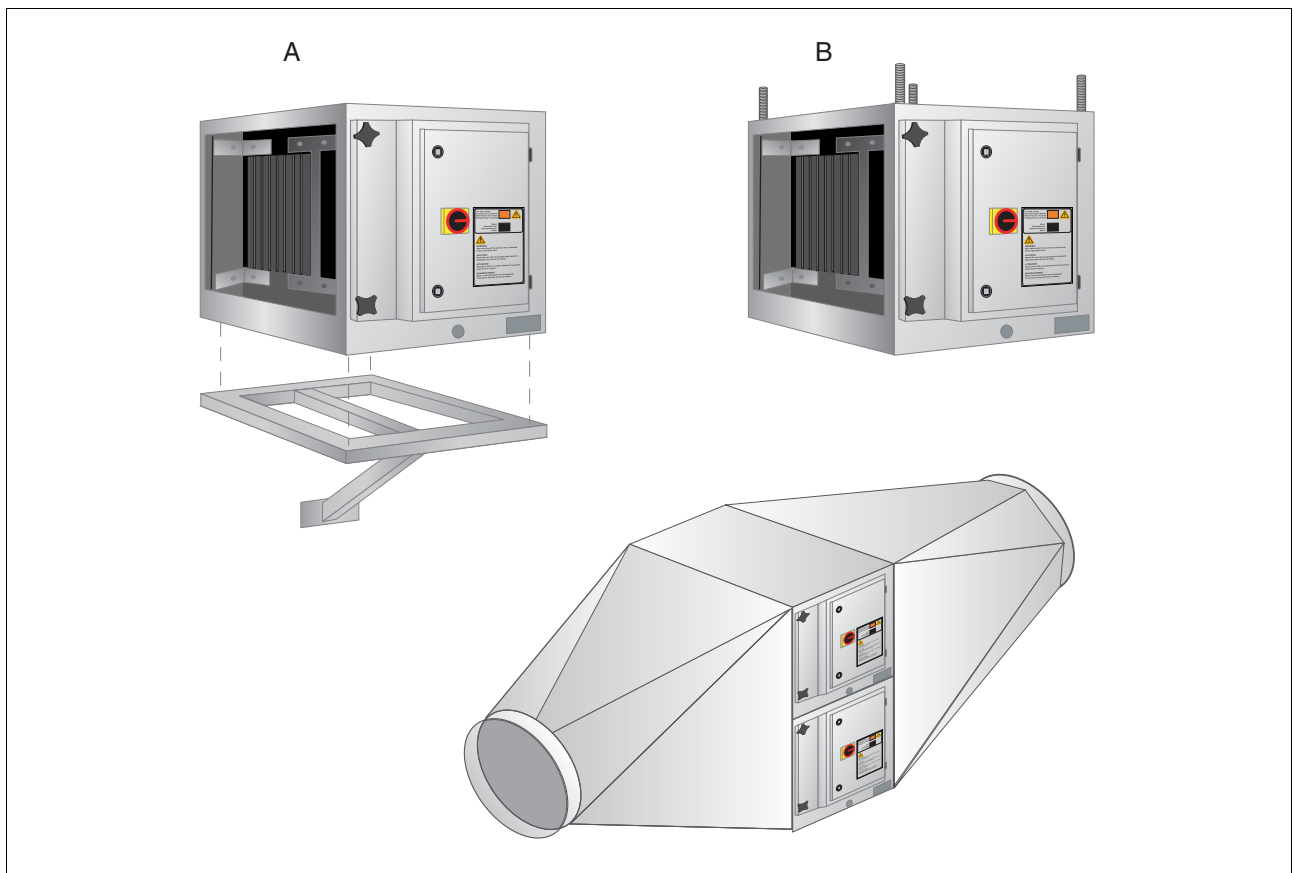
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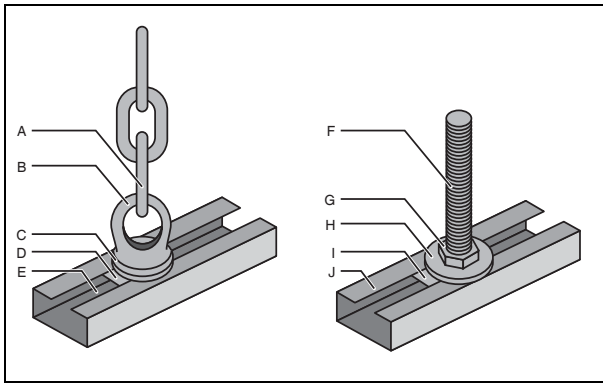
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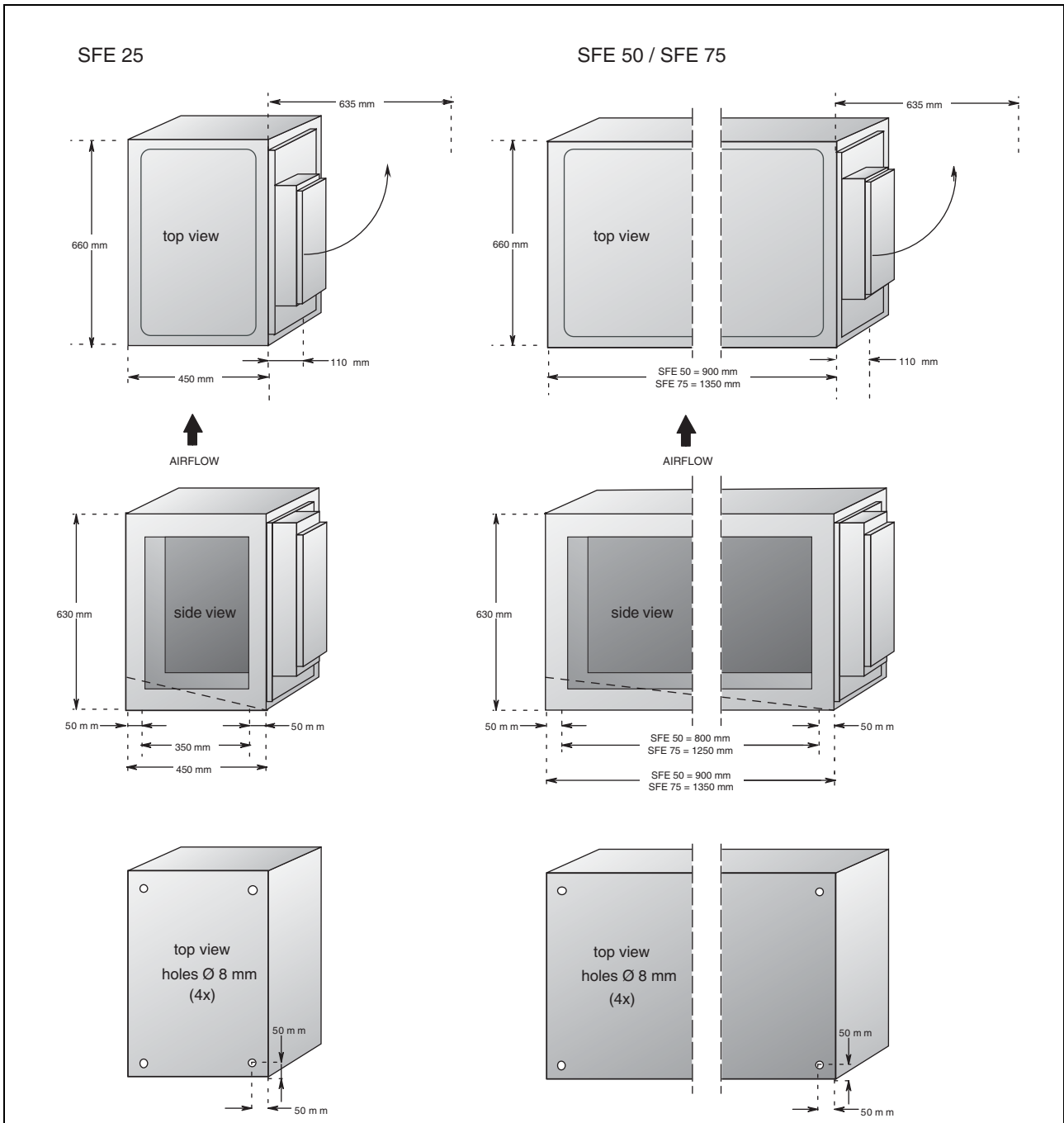
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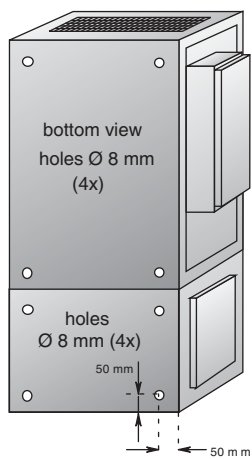
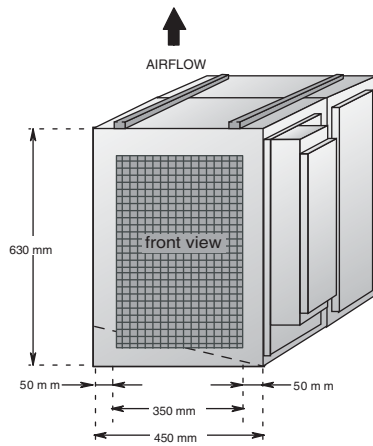
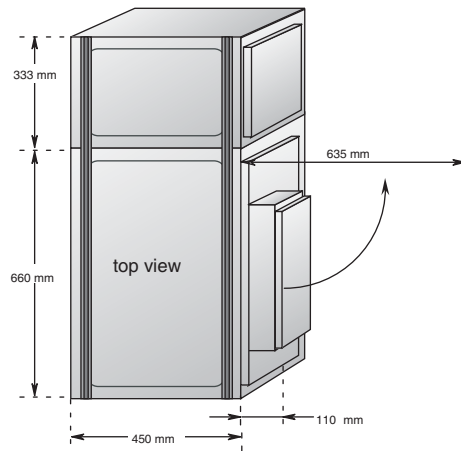


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HFE 25



HFE 50

