

Helios Ventilatoren

INSTALLATION AND OPERATING INSTRUCTIONS



Fan unit
ELS-V..
including fascia

Applies to all ELS flush
and ELS surface mounted
casings



DIE MARKE DER PROFIS

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Correct Disposal of This Product (Waste Electrical & Electronic Equipment)

(Applicable in the European Union and other European countries with separate collection systems)

This marking shown on the product or its Operation and Installation Instruction, indicates that it should not be disposed with other household wastes at the end of its working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate this from other types of wastes and recycle it responsibly to promote the sustainable reuse of material resources.

Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take this item for environmentally safe recycling.

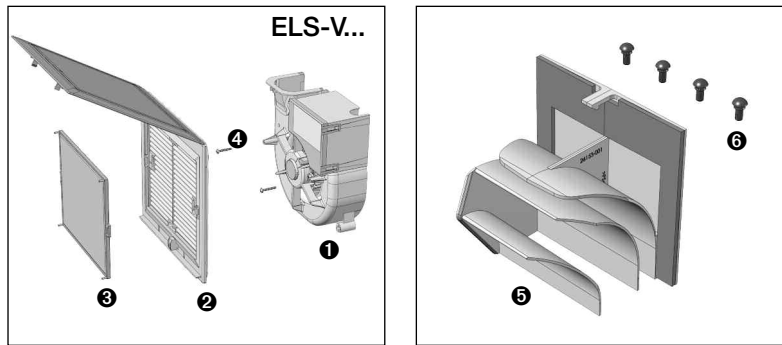
Business users should contact their supplier and check the terms and conditions of the purchase contract.

This product should not be mixed with other commercial wastes for disposal.

CHAPTER 1

ELS-V..
QUICK OVERVIEW

1.0 Overview of types: ELS- fan unit including facia and ELS- accessories



ELS-ARS

Air deflector mechanism for ELS-V... backfitting-set, discharge to the back (Accessories)
Ref.No. 8185

Page 5

1.1 ELS components

- ❶ Fan unit - spiral casing with fan, electronic control board and quick plug connector
- ❷ Grille with hinged facia - with filter adapter and filter change display
- ❸ Permanent filter
- ❹ 2 x screws = 25 mm, 2 x screws = 40 mm
- ❺ ELS-ARS Air deflector mechanism - for discharge to the back
- ❻ Plastic rivets - only required for backfitting of casing ELS-GUBA

1.2 Overview of types/Delivery unit

ELS-V 60	Ref.No. 8131
ELS-V 100	Ref.No. 8132
ELS-V 60/35	Ref.No. 8133
ELS-V 100/60/35	Ref.No. 8136
ELS-VN 60 (with built-in overrun timer)	Ref.No. 8137
ELS-VN 100 (with built-in overrun timer)	Ref.No. 8138
ELS-VN 60/35 (with built-in overrun timer)	Ref.No. 8139
ELS-VN 100/60 (with built-in overrun timer)	Ref.No. 8141
ELS-VNC 60 (with codable overrun and interval timer)	Ref.No. 8143
ELS-VNC 100 (with codable overrun and interval timer)	Ref.No. 8144
ELS-VP 60 (with motion sensor)	Ref.No. 8149
ELS-VP 100 (with motion sensor)	Ref.No. 8150
ELS-VF 60 (with automatic humidity control)	Ref.No. 8161
ELS-VF 60/35 (with automatic humidity control)	Ref.No. 8163
ELS-.... Special design	Ref.No. xxxxx

1.3 Technical data

- Possible air flows: 100/60/35 m³/h
- Protection class: II
- Protection to IP X5
- Suitable for use in zone 1 of bathrooms
- Maintenance-free energy saving motor with ball bearing: 230 V/50 Hz
- Filter change display
- permanent filter: G2

CHAPTER 2

GENERAL INFORMATION

2.0 Important information

To ensure safety and correct operation please read and observe the following instructions carefully before proceeding. **The electrical connection must be fully isolated from the supply up to the final assembly !** Put the installation and operating instructions, as well as accessories for the final assembly, after occurred installation into the ELS- casing and closed the casing with the cover plate to the final assembly. After the final assembly the document must be handed out to the operator (tenant/owner).



2.1 Warning and safety instructions

Accompanying symbol is a safety-relevant prominent warning label. All safety regulations and/or symbols must be absolutely adhered to, so that any danger situation is avoided.

2.2 Warranty – Exclusion of liability

If the preceding instructions are not observed all warranty claims and accommodation treatment are excluded. This also applies to any liability claims extended to the manufacturer.

The use of accessories not offered or recommended by Helios is not permitted. Potential damages are not liable for warranty.

2.3 Certificates

If the product is installed correctly and used to its intended purpose, it conforms to all applicable European Standards at its date of manufacture. Types with 'national technical approvals', DIBt. Certificate number: **Z-51.1-193**. The electronic control is implemented and examined according to the latest regulations in accordance with EMV- Directive.

2.4 Receipt

Please check delivery immediately on receipt for accuracy and damage. If damaged, please notify carrier immediately. In case of delayed notification, any possible claim may be void.

2.5 Storage

When storing for a prolonged time the following steps are to be taken to avoid damaging influences: sealing of bare parts with anti-corrosion agent, protection of motor by dry, air- dustproof packing (plastic bags with drying agent and moisture indicators). The storage place must be water proof, vibration-free and free of temperature variations.

When storing for several years or non rotation of motor an inspection of the bearings with possible relubrication and an electrical inspection to VDE 0701 and VDE 0530 are absolutely necessary before starting operation. When transshipping (especially over longer distances) check if the packing is adequate for method and manner of transportation. Damages due to improper transportation, storage or putting into operation are not liable for warranty.

2.6 Application/Operation

The units (casing and fan) are designed for air extraction from toilets and bathrooms to UK Building Regulations document F and BS 7671 for zones 1, 2, and 3. All ELS- fan units fit unmodified in surface and flush mounted casings. If the unit is to be used in other applications where high humidity, excessive dust, temperature in excess of 40°C or long periods at standstill (not running), please contact your local Helios dealer for advice. This also applies for special technical and electrical applications. The fan may only be used according its intended purpose. The complete fan corresponds to protection IP X5 (jet water-protected), protection class II and is suitable for use in zone 1 of bathrooms.

2.7 Performance

The unit must be installed correctly to achieve the optimum performance. This applies to the installation of the unit, the ducting and the replacement air supply. If installing in a room where the fan can affect a fuel burning device (e.g. a gas boiler) which has a balanced flue, it is the installer's responsibility to ensure that there is sufficient replacement air to prevent fumes being drawn down the flue when the fan is operating at maximum extract rate. Incorrect installation conditions may lead to a reduction in the system performance. Use the largest practical size of ducting with the minimum number of bends to maintain the minimum system resistance. The catalogue noise levels stated are A-rated sound power levels LWA (to DIN 45635 T.1). The A-rated sound pressure level LA depends on the acoustic condition in the room in which it is installed.

NOTE

References to the ducting system at ventilation systems with common exhaust air duct.

The ventilation system is to be performed according to DIN 18017, T.3. The exhaust air ducts consist of the connecting duct for the fans and the common exhaust air duct (main line). The duct section above the uppermost fan connection is called exhaust air duct and is to be led above roof. Exhaust air ducts must be airtight, stable and with more than two floors from fire-firm material class A according to DIN 4102. The ducting and thermal insulation installed so that no condensate damages can occur. Access openings with tight seals are to be attached in sufficient number in such a way that the exhaust air ducts can be easily cleaned. Threaded access openings are not permissible.

The main line (main riser) is to be led straight, vertical and in continuous cross section. If the main line does not run possibly perpendicularly, the calculational proof is to be given that the requirements are fulfilled according to DIN 18017, T.3, section 3.1.3.. With calculation of the main line it is to be presupposed that all fans are operated at the same time with full capacity. Air dampers are not allowed. The diameter of the main line can be determined with the dimensioning pattern (of Helios main catalogue). Besides, it is to be noted that with a length of the extract air duct over 1,5 m and a storey height over 2,75 m increased pressure losses develop, which must be compensated by bigger cross section of the main line. For dimensioning the Helios ELS software can be used. Available via the Helios website: www.heliosventilatoren.de. Maximum of two fan units per floor may be connected to a single main riser. The exhaust of other rooms of a flat may not occur via the same fan about which bathroom and toilet are ventilated. Consider minimum bending radius of connecting duct $R = DN$. Execution and installation of the ventilating system must correspond to the noise transmission regulations in buildings (DIN 4109).

NOTE **2.8 General information**

Intake air duct: Every room which must be ventilated must have an intake air opening (which cannot be closed) of 150 cm² free cross section.

WARNING **2.9 Safety**

All servicing and installations may only be carried out by a certified electrician.

- The fans may be operated only with the rated voltage indicated on the type plate.
- Technical data on type plate are to be adhered to without fail.
- The degree of protection given on the type plate is only valid with designed installation in accordance with these installation and operating instructions and with closed facia.

WARNING **2.10 Electrical connection**

All work must be carried out with the equipment fully isolated from the power supply. The electrical connection are to be carried out in accordance with the relevant wiring diagram and are only to be done by a certified electrician.

Please read and observe the consider yellow sticker in the casing !

All relevant safety regulation, national standards and norms are to be adhered to. An appliance is required for isolation from the supply with a minimum of 3 mm contact opening of each pole.

The rated voltage and frequency must correspond with the data on the type plate. Carry out the insertion of mains supply cable in such a way that no ingress of moisture is made possible along the cable. Never leading cable over sharp edges. The equipment corresponds to protection IPX5 (jet water-protected). In addition, they correspond to the safety class II.

The electrical connection takes place at the connecting terminals in the casing. The fan type and the casing assigned wiring diagram is to be considered. In windowless areas a control is recommended parallel to the light (exceptions: ELS-VF, ELS-VP).

The electrical connection must be fully isolated from the supply up to the final assembly !

2.11 Spare parts**Permanent filter (spare part) ELF-ELS**

Spare filter, contents: 2 pcs, washable

Ref.No. 8190

Spare filter for second room plenum box ELS-ZS

contents: 5 pcs.

Ref.No. 0557

NOTE 

Spare filters can be also ordered via Internet under www.ersatzluftfilter.de

2.12 Certification

Approved by the DIBt (German Institute for Bautechnik) with approval No.: **Z-51.1-193**

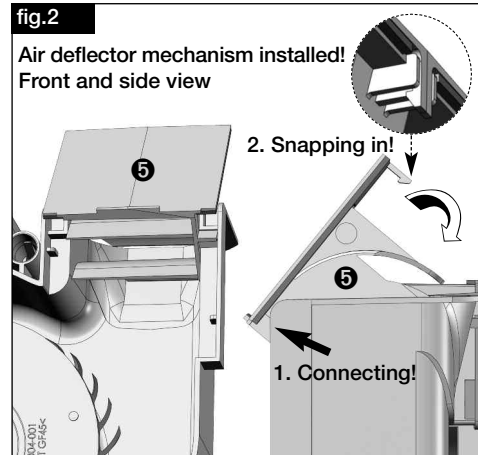
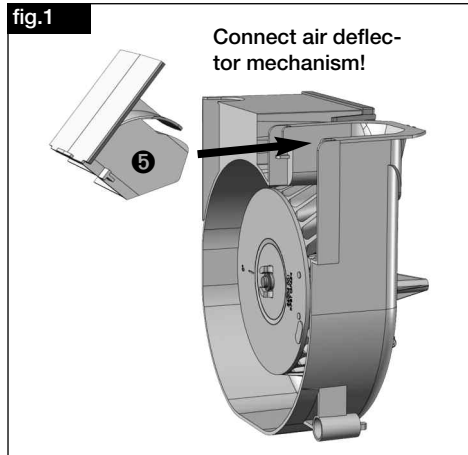
CHAPTER 3

INSTALLING THE FAN UNIT

3.0 Installing the fan unit

Leave the fan in its box until installation. Check that the fan is in good condition and has not been damaged in transit. If the flush/surface mounted casing is distorted or dented by improper installation or should the fan unit fall to the ground or be damaged in another way is an installation to be omitted, since a perfect function is no longer guaranteed. Install the fan unit after all building work has finished in order to avoid damage and contamination.

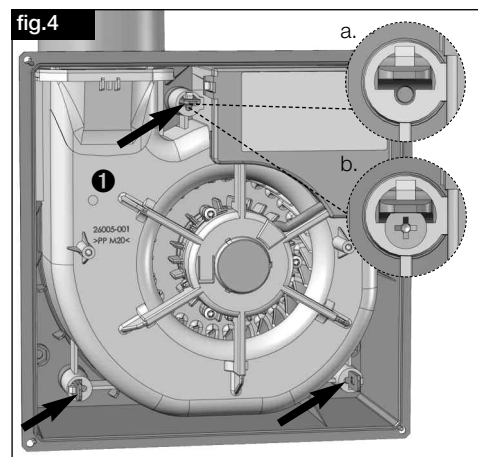
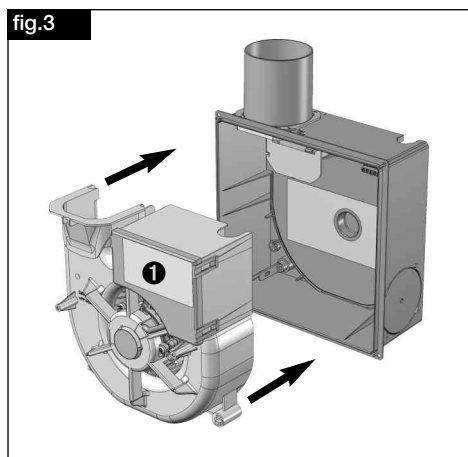
3.1 Preparation of fan unit ELS-V.. + ELS-ARS, for discharge to the back (optional)



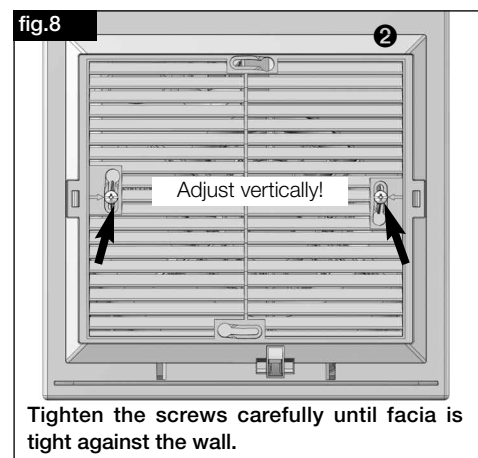
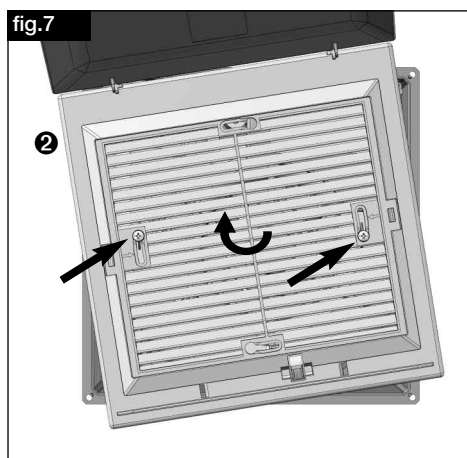
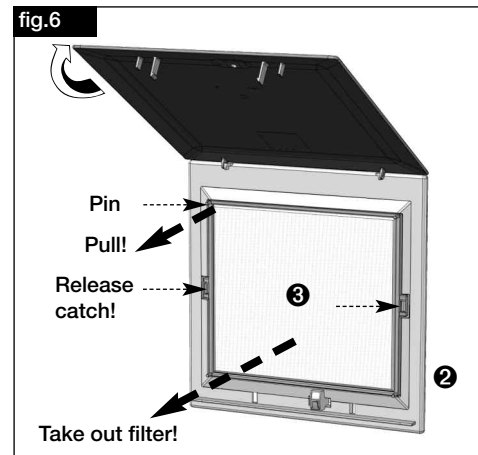
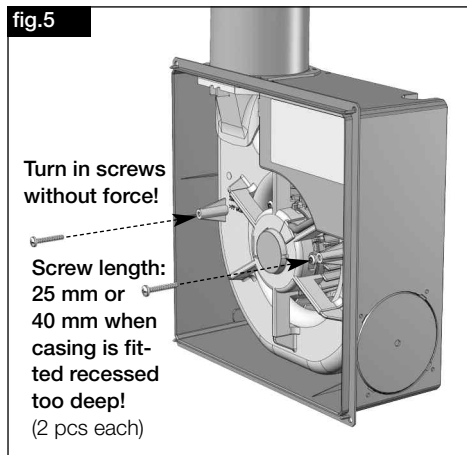
WARNING ⚠

Please proceed with the following assembly steps:

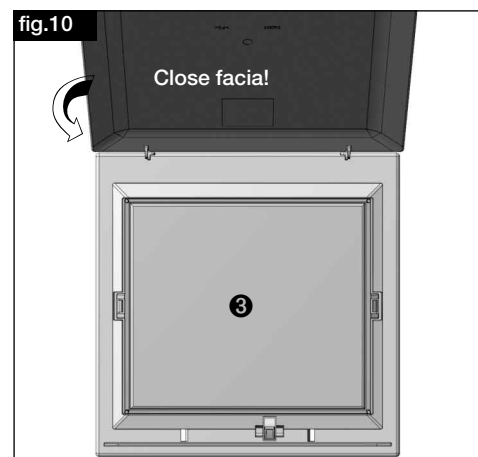
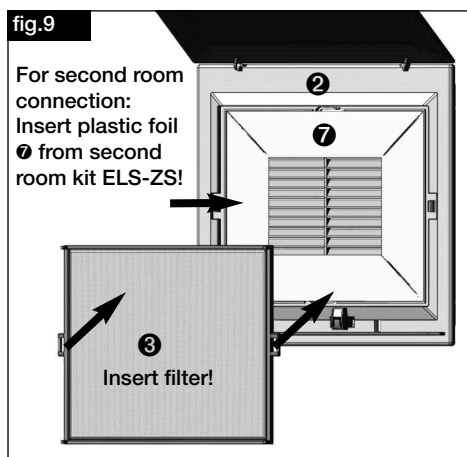
1. Isolate the unit fully from the mains electric supply.
2. Check that the terminals of the electrical connection are wired tightly in the casing and the connector cable is kept safe correctly.
3. Check the electrical connection on correspondence with the intended fan unit ❶ by comparison of the marked wiring diagram (yellow sticker in the casing).
4. Check the correct installation of the casing and adjust if necessary (see installation and operation instructions "casings").
5. Remove possibly existing contaminations (plaster, cement, dust etc.).
6. Check that the electrical supply conforms with the electrical data on the rating plate (voltage and frequency).
7. Hold fan unit ❶ with both hands at the spiral casing and insert it in such a way in the casing that the air outlet of the spiral casing is in line with the outlet of the casing.
8. Push fan unit carefully with both hands as far as it will go and it snaps in with a firm push in the casing (see fig. 4/a).
9. If installed under the ceiling secure the 3 safety catches with countersunk screws (40 mm, not provided by Helios) (see fig.4/b).
10. After fan installation press lightly against the corner where the electrical partition is to ensure that it is fully engaged.



3.2 Installing the fascia



Tighten the screws carefully until fascia is tight against the wall.



ATTENTION

A start-up without filters is not permissible, since otherwise the unit and the entire duct gets dirty. The function of the backdraught shutter can be impaired by contamination. This is to be prevented by regular cleaning. Units damaged through the filter not prevent or not cleaned invalidates the warranty.

NOTE

Note for the end user

Contamination at the fascia can be removed by wiping off with warm soapy water. If required the entire fascia can be removed. Therefore open the hinged fascia and loosen the metal screws (fig. 5, 6).

Before isolate the unit fully from the mains electric supply.

Special installation situation

– Casing recessed too deep in the wall

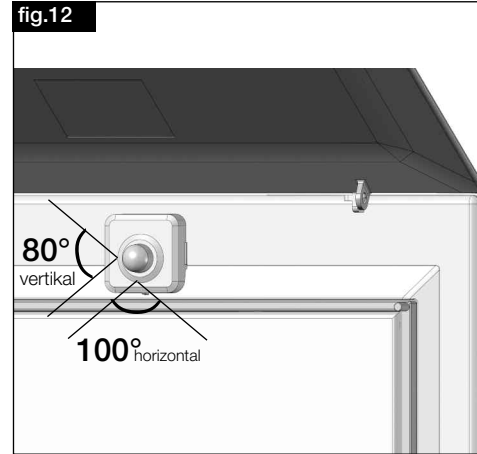
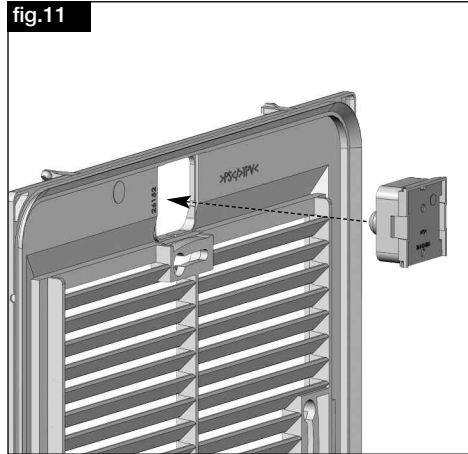
If the casing has been fitted recessed too deep into the wall use the longer plastic screws (enclosed with the fascia, contents: 2 pcs, 25 mm and 40 mm).

3.3 Installing the motion sensor ELS-VP..(optional)

After assembly of the fan unit in the flush /surface mounted casing the sensor hanging on the cable must be engaged in the intended opening on the back of the fascia frame (see fig. 11/12).

The correct position of the sensor is guaranteed by a guide. Before attaching the fascia frame check the sensor cable is not caught or stretched).

Then mount fascia frame and screw tightly.



NOTE

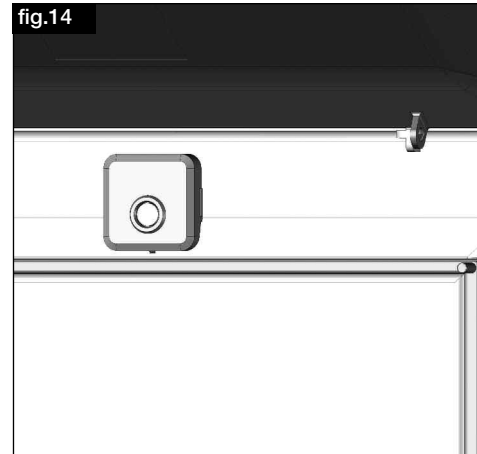
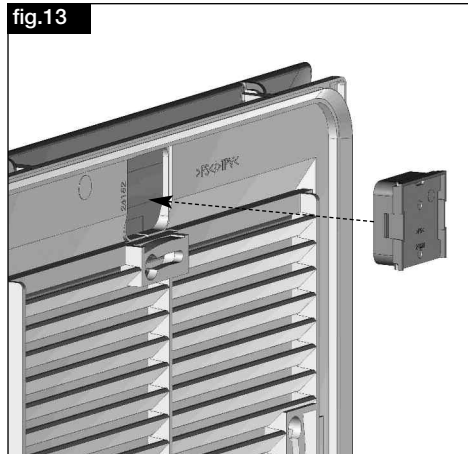
- Do not allow the fascia frame with fitted sensor to hang freely on the sensor cable since otherwise sensor and control can be damaged.
- The sensor contains a very sensitive electronic component and must not be opened or damaged.

3.4 Installing the humidity sensor ELS-VF.. (optional)

After assembly of the fan unit in the flush /surface mounted casing the humidity sensor hanging on the cable must be engaged in the intended opening on the back of the fascia frame (see fig. 13/14).

The correct position of the sensor is guaranteed by a guide. Before attaching the fascia frame check the sensor cable is not caught or stretched).

Then mount fascia frame and screw tightly.



NOTE

- Do not allow the fascia frame with fitted sensor to hang freely on the sensor cable since otherwise sensor and control can be damaged.
- The sensor contains a very sensitive electronic component and must not be opened or damaged.

CHAPTER 4

MAINTENANCE

BRANDSCHUTZ

WARNING

NOTE

NOTE

4.0 Service information

Polluted and humid air can impair the permanent functional reliability. A periodical operational check of the backdraught shutter is recommended.

With devices with fire protection cut-off device the appropriate points of the associated approval are to be considered.

All work must be carried out with the equipment fully isolated from the power supply. The electrical connection are to be carried out in accordance with the relevant wiring diagram and are only to be done by a certified electrician.

With devices with built-in overrun timer and delayed start these start after switch-on delayed and then keep running after switching-off according to the run on time.

4.1 Permanent filter

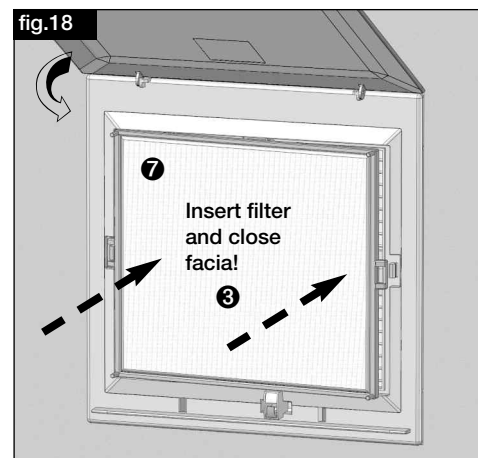
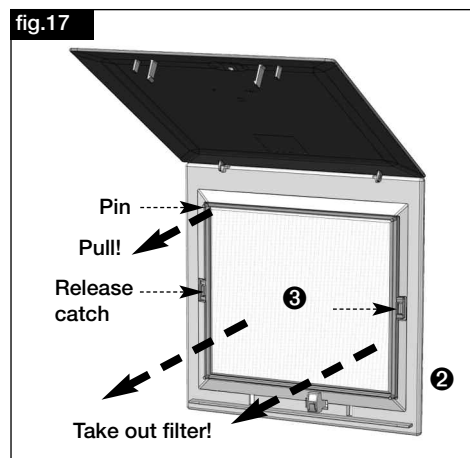
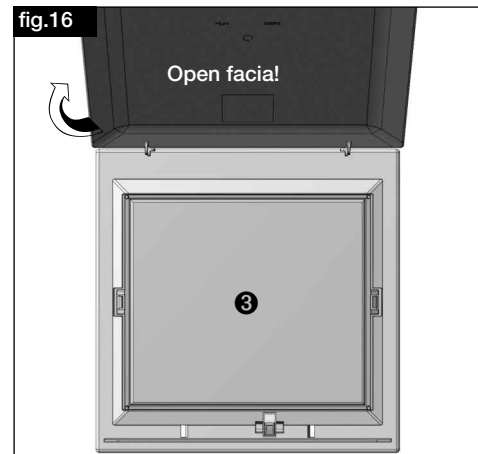
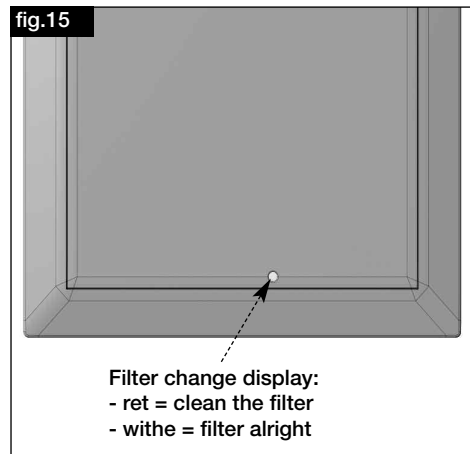
The fan has an extremely extensive permanent filter with high dirt absorption capacity for long cleaning intervals. The installer has must inform the operator that the permanent air filter must be subjected to an inspection and cleaned in frequently (e.g. half-yearly, dependent on the pollution degree). A dirty filter reduces the fan's performance or can lead the fan to overheat and thus to breakdown invalidating the warranty. The air filter can be cleaned with warm water or in the dishwasher till 60 °C (140°F). Allow to dry before running the fan. In case of damage the permanent air filter has to be replaced by a new air filter.

Spare air filters can be ordered in specialized trade or via internet under www.ersatzluftfilter.de

- Filter change display

Via the red inspection dot the filter change display in the front signals the degree of pollution of the permanent filter and the associated reduction in performance (see fig. 15).

- Filter change



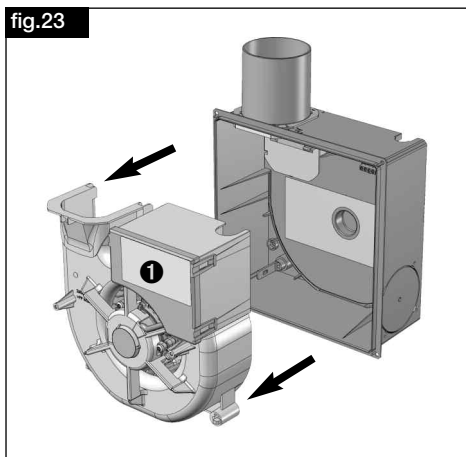
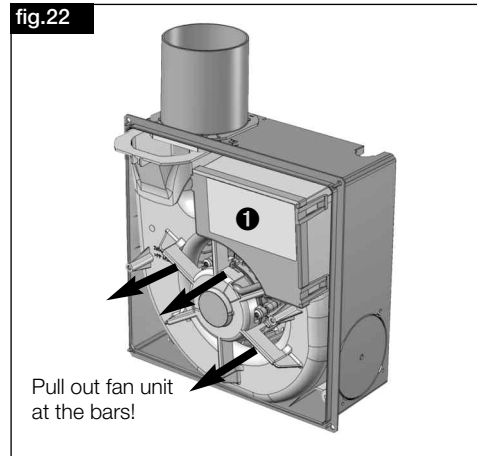
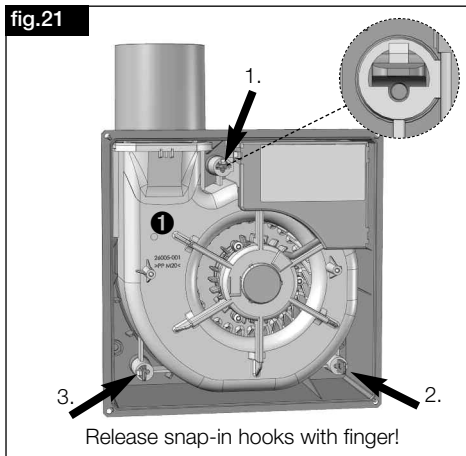
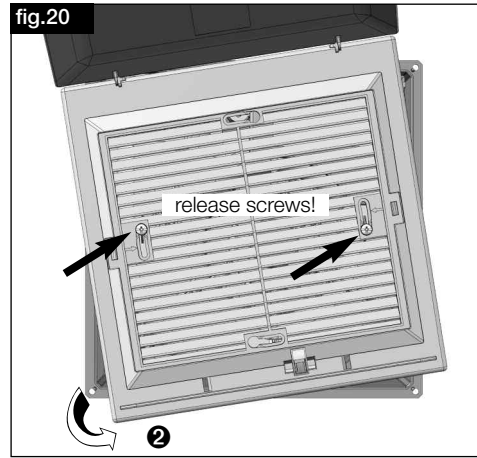
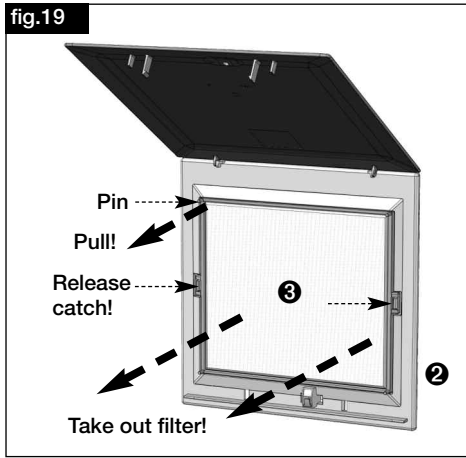
A start-up without filters is not allowed, since otherwise the unit and the entire duct get dirty. The function of the backdraught shutter can be impaired by contamination. This is to be prevented by regular cleaning. Units damaged through the filter not prevent or not cleaned invalidates the warranty.

7 Insert plastic foil for second room connection below the filter **3**.

4.2 Dismantling of fan unit

WARNING ⚠

All work must be carried out with the equipment fully isolated from the power supply.



NOTE ⓘ

4.3 Note for the end user

Contamination at the fascia can be removed by wiping off with warm soapy water. If required the entire fascia can be removed. Therefore open the hinged fascia and loosen the metal screws.

WARNING ⚠

Before isolate the unit fully from the mains electric supply !

CHAPTER 5

ELECTRONICS

WARNING

- 5.0 Open the terminal box
The terminal box can be opened only with removed fan unit **!**

All work must be carried out with the equipment fully isolated from the power supply. The electrical connection are to be carried out in accordance with the relevant wiring diagram and are only to be done by a certified electrician.

Please read and observe the yellow sticker in the casing !

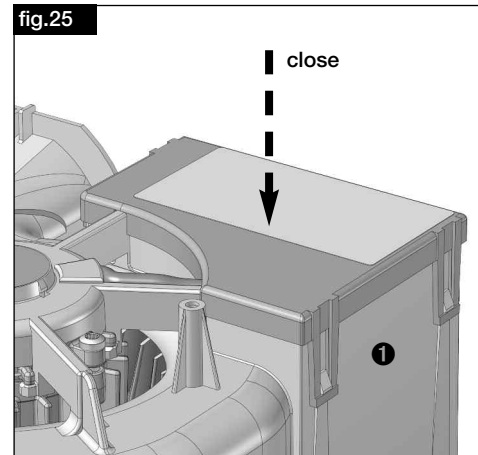
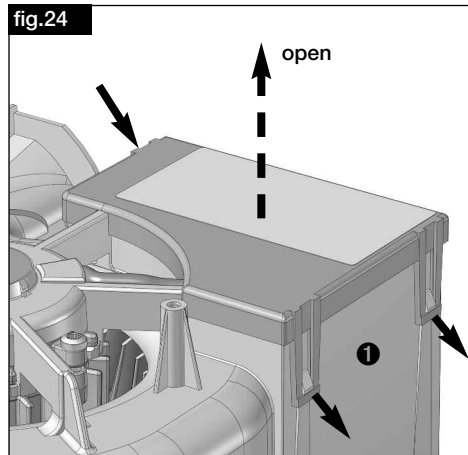
All relevant safety regulation, national standards and norms are to be adhered to.

IMPORTANT NOTE

Open the terminal box

Do not bend open snap-in hooks by force since otherwise danger of breakage!

The terminal box cannot be opened with installed fan unit **!**



5.1 Electronic control board

The electronic control board allows various operations, such as interval-, overrun-, humidity controlled- and motion controlled operation.

The control board sits in a splash-proof casing and carries the connector pins for the electrical connection with the casing.

5.2 Fan unit ELS-V..

Feature: Ventilation by on/off switch e.g. in combination with light switch or multi-level with step switch.

5.3 Fan unit ELS-VN.. with added built-in overrun timer

Feature: Built-in overrun timer with pre-set delayed start of approx. 45 seconds and 3 permanently defined run on time periods of 6, 15 and 21 minutes, divided into 3 sections on a rotary adjuster. The time periods can be set in which one sets the arrow to the respective sector markings I, II or III (see Fig. 27). Therefore use a screw driver with a width of max. 2 mm.

NOTE

The setting must take place before the assembly of the fan unit!

The activation of the delayed start is made by switching on, e.g. in combination with the light switch. The activation of the overrun time is made by turning off.

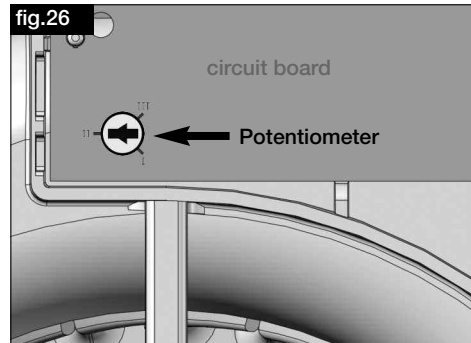


fig.27

Sectore split-up on potentiometer

Sector I = 6 minutes
 Sector II = 15 minutes (factory setting)
 Sector III = 21 minutes

⚠ Deviate from these times are not adjustable!

5.4 Fan unit ELS-VNC.. with added adjustable overrun and interval operation

Feature: Built-in adjustable overrun and interval timer. Delayed start 0 or circa 45 seconds selectable, run on time circa 6-, 10-, 15-, 21 minutes and intervals circa 4-, 8-, 12-, 24 hours selectable. Setting and/or changing of factory setting (6 minutes) via DIP-switch on control board (see Fig. 28 and 29).

NOTE

The setting must take place before the assembly of the fan unit!

Operation with push-button switch only in combination with delayed start of 0 seconds possible.

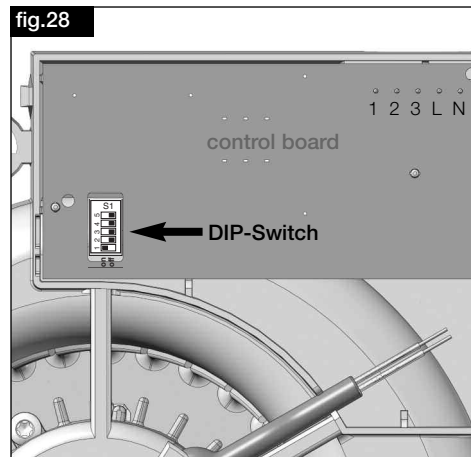


fig.29

		DIP-Schalter / Switch / Commutateur					
		1	2	3	4	5	
	Einschaltverzögerung / Delayed start / Démarrage temporisé	0 sec	off	—	—	—	
		45 sec	on	—	—	—	
	Nachlauf / Einschaltzeit / Run on time / Running time	6 min	—	off	off	—	
		10 min	—	off	on	—	
	Temporisation / Durée de fonctionnement	15 min	—	on	off	—	
		21 min	—	on	on	—	
	Intervallzeit, Einschaltdauer= Nachlaufzeit / Interval time Running time = Run on time / Durée intervalle Durée de fonctionnement = Temporisation	0 Std	230V - auf Deaktivierungs-Eingang *				
		4 Std	—	—	—	off	off
		8 Std	—	—	—	off	on
		12 Std	—	—	—	on	off
		24 Std	—	—	—	on	on

* 230V - auf Deaktivierungs-Eingang

Operating mode

The electronic control is implemented and examined according to the latest regulations in accordance with EMV- Directive. Following features are implemented

1. Delayed start

After switching on the fan the operation starts first after the delay time. Thus a room can be entered for a short time e.g. during combined on/off switching with the light without the fan being started for ventilation. Factory setting circa 45 sec..

2. Overrun operation

The fan keeps running after switching off during the adjusted time and switches off thereafter automatically. Factory setting circa 6 min..

3. Interval operation

The fan can be put into operation automatically in adjustable intervals. After the adjusted run on time it switches off automatically. The interval time starts after the last switch off process, also with manual operation in the meantime. Factory setting circa 4 hours.

4. Changing the factory setting

Change the factory setting before the assembly of the fan unit. An already installed fan unit is to be taken out of casing (see point 4.2), the terminal box cover must be removed (see point 5.0).

5. Automatic operation

The automatic function can be switched off on terminal "deactivation" (see wiring diagram overview) by 230 V.

5.5 Fan unit ELS-VP.. .. with built-in motion sensor

Feature: These sensors detect movement within its range. If a person enters one of the sectors, a switching signal originates in the sensor, which induces the control to put the fan into operation. If no more movement is registered after the activation the switching signal drops out immediately again. Through this the preset run on time is started in the control (factory setting: approx. circa 6 min.). This run on time is restarted every time if the sensor can register a movement during the expiration of the run on time.

5.6 Fan unit ELS-VF.. with added built-in electronic dynamic humidity control

Feature: With built-in electronic dynamic humidity control. The fan starts automatically when the limit value of 70 % relative humidity respectively a fast increase of humidity is achieved. With types with 2 speeds always the higher speed. After the normal humidity is achieved the fan stops again. Regardless of the humidity control, the fan can be activated with an external switch (possibly connected with light) with ca. 45 seconds delayed start and 15 minutes overrun.

Following features are implemented:

1. Delayed start

After switching on, the fan starts operating after the set delay time. Thus a room can be entered for a short time e.g. during combined on/off switching with the light without the fan being started. Factory setting ca. 45 seconds.

2. Overrun operation

The fan keeps running after switching off during the set time and turns off thereafter automatically. Factory setting ca. 15 minutes.

3. Electronic dynamic humidity control

Microprocessor controlled electronics detect two different types of increase in humidity in the room air. It differentiates between a normal and fast increase of humidity.

– High humidity (**normal, slow increase of humidity**)

With normal increase of the humidity (e.g. caused by washing, drying of textiles, decrease of temperature) the fan starts automatically when the limiting value of 70 % relative humidity is achieved. The unit operates until the relative humidity is lowered by about 10 %, at least however for 15 minutes.

– Event control (**fast increase of humidity**)

With fast increase of the humidity (e.g. caused from showering, bathing) the fan starts before the usual limiting value of 70 % relative humidity is achieved, to remove the excessive moisture in the room as effectively and quickly as possible. That's how steamed up mirrors and walls are avoided. The comfortable zone in the room (40-70 % rel. humidity) is quickly restored. As soon as the relative humidity is lowered by about 10 %, at the earliest however after 15 minutes, the fan turns off automatically.

4. Runtime limitation

With longer excessive moisture production (if intake air already has over 70 % relative humidity – thunderstorm in summer, wet laundry in the room) or with inadequate air change by too small dimensioned or closed intake air openings, the fan turns off automatically after 7 hours of operation. After a rest period of 9 hours each time, the fan is periodically switched on for 10 minutes, until the humidity is lowered by about 10 %.

5. Special function: Automatic deactivating of electronic dynamic humidity control

The electronic dynamic humidity control can be deactivated see wiring diagram SS-881, 882 and 883 (except unit with 3 speeds).

6. Initial start-up

If the required air humidity is not available with initial start-up, the fan unit can be tested as follows:

If a wet cloth is held under the facia, the humidity sensor detects a rapid rise in humidity and turns on the fan for about 30 seconds.

With these functions of the humidity control a synergy between the minimum energy consumption and optimum humidity removal is achieved. Wet surfaces by condensation and the associated risk of the mold growth as well as unpleasant odors are avoided to a large extent.

5.7 Malfunctions

The electronic control is executed and tested thoroughly according to the latest regulations (DIN, EMV). If malfunctions should appear nevertheless, proceed as follows:

- Verify the electrical connection

- Disconnect the unit from the mains electricity supply. Then reconnect again.

- It is to be guaranteed that sufficient supply air can flow into the room, which is to be ventilated. If the malfunction cannot be repaired by these measures, please consult Helios the customer service.

Carry out by no means repair attempts in the terminal box!

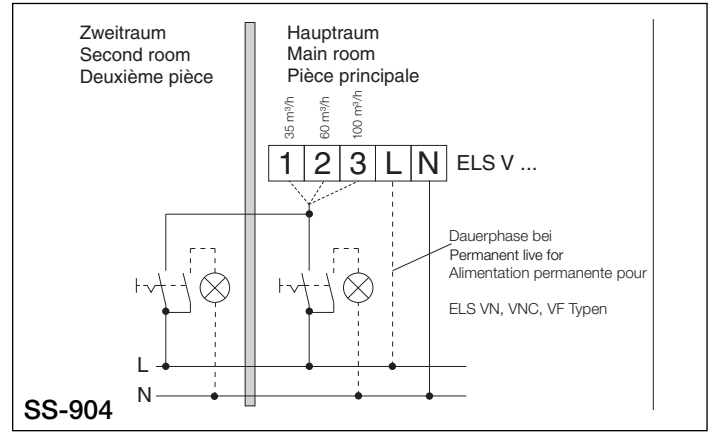
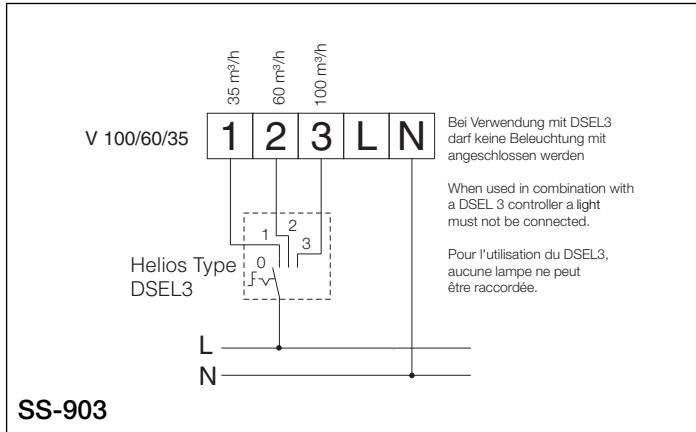
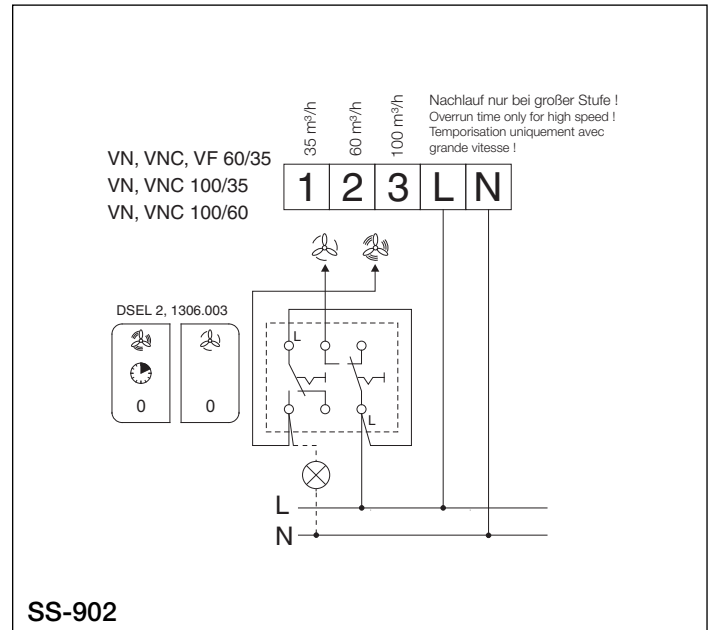
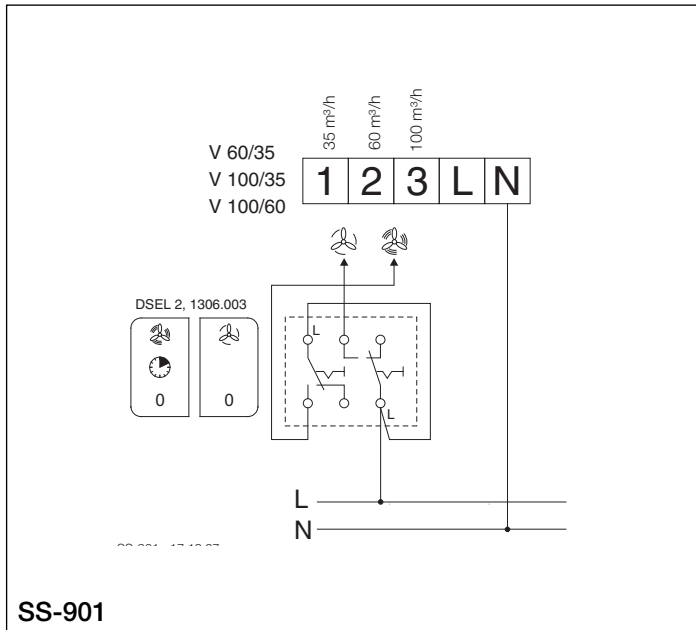
NOTE 

WARNING 

5.7 Wiring diagram overview for ELS V.. fan series. Tick appropriate!

<p>V 60 SS-869</p> <p>2 60 m³/h</p>	<p>V 100 SS-870</p> <p>3 100 m³/h</p>	<p>V 60/35 SS-871</p> <p>2 60 m³/h 1 35 m³/h</p> <p>a) inverse voltage</p>	<p>V 100/35 SS-872</p> <p>3 100 m³/h 1 35 m³/h</p> <p>a) inverse voltage</p>	<p>V 100/60 SS-873</p> <p>3 100 m³/h 2 60 m³/h</p> <p>a) inverse voltage</p>
<p>V 100/60/35 SS-874</p> <p>3 100 m³/h a) inverse voltage 2 60 m³/h 1 35 m³/h</p>	<p>VN 60 SS-875</p> <p>2 60 m³/h</p>	<p>VN 100 SS-876</p> <p>3 100 m³/h</p>	<p>VN 60/35 SS-877</p> <p>2 60 m³/h 1 35 m³/h</p> <p>a) inverse voltage</p>	<p>VN 100/35 SS-878</p> <p>3 100 m³/h 1 35 m³/h</p> <p>a) inverse voltage</p>
<p>VN 100/60 SS-879</p> <p>3 100 m³/h 2 60 m³/h</p> <p>a) inverse voltage</p>	<p>VN 100/60/35 SS-880</p> <p>3 100 m³/h 2 60 m³/h 1 35 m³/h a) inverse voltage</p>	<p>VNC 60 SS-881 VF 60</p> <p>2 60 m³/h</p> <p>b) manual on c) disable automatic</p>	<p>VNC 100 SS-882 VF 100</p> <p>3 100 m³/h</p> <p>b) manual on c) disable automatic</p>	<p>VNC 60/35 SS-883 VF 60/35</p> <p>2 60 m³/h 1 35 m³/h</p> <p>a) inverse voltage b) manual on c) disable automatic</p>
<p>VNC 100/35 SS-884 VF 100/35</p> <p>3 100 m³/h 1 35 m³/h</p> <p>a) inverse voltage b) manual on c) disable automatic</p>	<p>VNC 100/60 SS-885 VF 100/60</p> <p>3 100 m³/h 2 60 m³/h</p> <p>a) inverse voltage b) manual on c) disable automatic</p>	<p>VNC 100/60/35 SS-886 VF 100/60/35</p> <p>3 100 m³/h 2 60 m³/h 1 35 m³/h</p> <p>a) inverse voltage b) manual on</p>	<p>VP 60, 100 SS-887 VPC 60, 100</p> <p>d) Raumbelichtung</p>	<p>VP 60/35 SS-888 VP 100/35</p> <p>1 35 m³/h</p> <p>„P“ function on highest fan stage a) inverse voltage b) manual on d) ambient light</p>
<p>VP 100/60 SS-889</p> <p>2 60 m³/h</p> <p>„P“ function on highest fan stage a) inverse voltage b) manual on d) ambient light</p>	<p>VP 100/60/35 SS-959</p> <p>1 35 m³/h 2 60 m³/h</p> <p>„P“ Funktion auf großer Stufe a) Rückspg. ! siehe MBV b) manuell Ein d) Raumbelichtung</p>	<p>Footnotes:</p> <p>a) During parallel connection of the terminal 1-2-3 an inverse voltage rests respectively against the other not switched terminal. Connect room lighting only via two-pole switch.</p> <p>b) Subordinated to the automatic operation (type VN, VNC, VF, VP) the respective available speed step can be switched on manually.</p> <p>c) With the VNC-types the interval function, with the VF-types the humidity automation, can be deactivated (3-speed type excluded).</p> <p>d) Fan independent controlling of the room lighting</p>		

5.8 Wiring diagram overview for ELS V.. and various connection examples

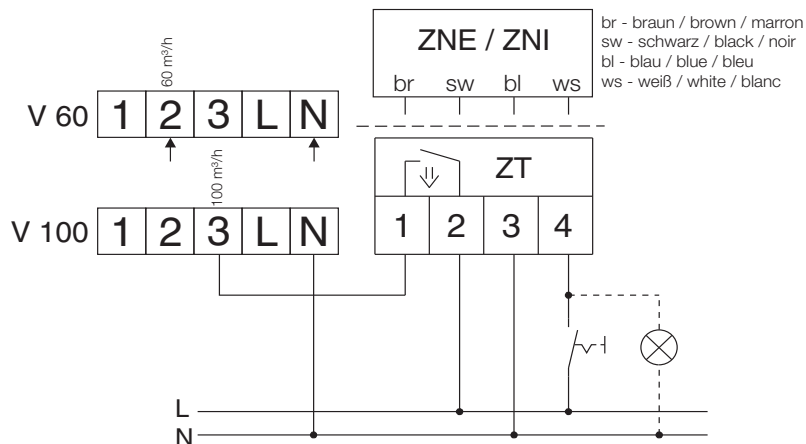


Vorsicht !! Attention !!

Externer ZNE/ZNI dürfen nur bei eintourigen V-Ventilatoreinsätzen V 60 und V 100 eingesetzt werden. Beim Einsatz des ZNE/ZNI/ZT mit mehreren Lüftern, muß pro Lüfter ein separater ZNE/ZNI/ZT eingesetzt werden. Direkte Parallelschaltung von mehreren Lüftern ist nicht erlaubt.

External ZNE/ZNI timer may only be connected on ELS-V fans V 60 and V 100 with one speed. If used in combination with a number of fans, each fan needs its own ZNE/ZNI/ZT timer. The wiring of ELS-V fans in parallel is not permitted.

Pour tous types ELS-V à une vitesse un temporisateur extérieur ZNE/ZNI peut être connecté à un V 60 et V 100. Il est nécessaire d'installer un temporisateur ZNE/ZNI/ZT pour chaque ventilateur utilisé. Le branchement en parallèle de plusieurs ventilateurs est interdit.





DIE MARKE DER PROFIS

Return as a reference at the equipment! Document no. 19102.002/12.11

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