

ELS afzuigventilatoren

catalogus

HEG



Ventilation of sanitary rooms and apartment kitchens in accordance with DIN 18017-3.



The mono tube ventilation system ultraSilence® ELS from Helios has impressive benefits for the ventilation of interior bathrooms and WCs in residential units, hotels and other buildings prescribed by DIN 18017-3.

- **Space-saving:**
A central riser duct spanning more than 20 storeys with the smallest possible cross-section saves money and creates usable living space.
- **Cost-effective:**
Low material use and quick and easy installation result in manageable costs and time required.
- **Energy-saving:**
The ultraSilence® ELS devices reduce the need for ventilation heat and therefore contribute to energy-savings when it comes to heat.
- **Simple planning:**
Evidence of DIBt approval renders all further measurements in the construction sign-off superfluous to requirements, providing extra certainty and saving trouble. The effort for planning, rising duct dimensioning, tendering and specifications is reduced to a minimum.
- **Software-assisted:**
The entire planning is done at the click of a button with Helios ELS software. Lists of materials and offers are completed in just a few steps. Simply download it from www.heliosventilatoren.de.



EXTRACT AIR



The beautifully quiet ELS devices are turned on according to demand and guide used air out of the kitchen, bathroom and toilet via a central main line, which may be connected to more than 20 storeys or over 40 individual devices.

56^{on}

OUTSIDE AIR



External air vents quietly feed outdoor air without dust into bedrooms and living rooms. Helios offers elements that can be built into walls and windows, manually controlled or temperature-regulated, with automatic air flow volume adjustment and sound insulation.

61

FIRE SAFETY



When planning and designing ventilation systems, the state fire safety requirements must be observed. A number of different solutions are available to choose from, depending on the structural circumstances.

55^{on}



Revolutionary and intelligent:
ELS-VF types with automatic
humidity control for optimal en-
ergy saving and a comfortable
room climate without mould.
More on page 53.



Barrier-free and automatic.
ELS-VP with PIR sensor for au-
tomatic ventilation as required
when entering the room. Opti-
mum fan control ideal for toilets
and sanitary facilities of hotels,
offices, hostels, etc.
More on page 53.



Unique: Filter change display in-
dicates when filter needs clean-
ing. Permanent, long life, wash-
able filter with large cross sec-
tion area. Saves the purchase of
expensive disposable filters.



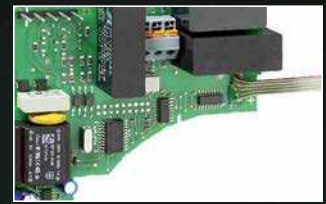
Flexibility without limits: Casing
types ELS-GU and -GUBA for
one/two room ventilation with
connection left, right, to the
bottom or for toilet adaptation.
Discharge spigot to the top,
rotatable to the left, right or to
the back.

The Helios ELS dimension.
Silent. Strong. Slim. Beautiful.





Clever: Airtight back draught shutter in the discharge spigot, can be turned by 90°. Permits casing positioning with discharge to the left, right, to the top or to the back.



Intelligent electronic system for wide variety of operating modes like interval function, overrun timer, humidity controlled operation, automatic PIR sensor etc. Circuit board with pins for electrical connection placed in splash proof casing.



Efficient energy-saving motor. Acoustically tested, long life ball bearings are greased for life (approx. 40 000 hours running). Maintenance free, totally enclosed in an aluminium diecast casing.



Optimal solution for every demand. More than 20 different ELS fan units can be assembled in the standard surface or flush mounted casing without using tools.



product design award
2008



Designpreis Deutschland 2010
NOMINIERT



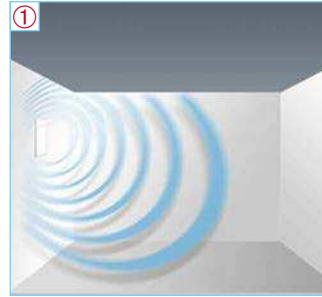
red dot design award winner 2008



Design Center Stuttgart
Silber 2008

ultraSilence
by Helios

- Only 26 dB(A)*. Wonderfully quiet.



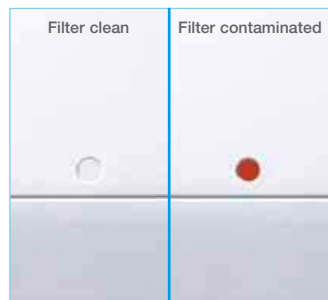
Above all in apartment construction, the ventilation must be virtually silent. This is fully achieved with the single ventilation units ultraSilence® ELS. With 26 dB(A)* for ventilation on the standard ventilation stage ($V=35 \text{ m}^3/\text{h}$) and 35 dB(A)* for $V=60 \text{ m}^3/\text{h}$ and $A_L = 10 \text{ m}^2$, ultraSilence® ELS unbeatably quiet.

The sound levels correspond to DIN 18017-3 as follows and are guaranteed by Helios:
 – sound power level, A-rated (L_{WA}) in dB(A) or
 – sound pressure level, A-rated (L_A) in dB(A) in relation to an absorption surface $A_L = 4 \text{ m}^2$. In relation to $A_L = 10 \text{ m}^2$, so ergethe sound levels are 4 dB(A) lower.

① The sound power level L_{WA} shows the real emitted sound power, independent from the distance and room conditions, and is the sound at source.
 ② The sound pressure level L_A is caused by the source and received by the ear. Depending on absorption, i.e. absorption capacity of the room, the perceived sound varies and is difficult to trace.

* According to DIN 18017-3: 2009-09, section 7.2.4. footnote 5.

- Exclusive. Permanent filter and filter change display.



All ELS fan units have **permanent filters as standard**. This ensures trouble free quiet installation. They prevent the fan and sound insulation from becoming clogged, resulting in satisfied tenants, landlords and owners. The filter change display (red dot) indicates when the filter needs cleaning which prevents a drop in performance. Very practical!

User friendly – the retractable facia with hinge.
 For filter removal flip up facia by hand. To close simply let it retract.

Completely airtight.
 The all round flexible sealing prevents air inlet and dirt deposit along the wall/ceiling surface.

Unique – the permanent filter.
 Large filter cross-section area, with high dirt holding capacity for long cleaning intervals. To clean the filter, simply put it in the dishwasher: This eliminates the regular purchase of expensive disposable filters.

- Excellent design. Good-looking. Slim. Clean.



Perfectly designed and multiple award-winning.
 ultraSilence® ELS fits everywhere: The facia complements every tile, wallpaper or marble- and thus satisfies the highest demands of designers. The minimalist-designed ultra flat facia with classy look covers the fan unit. The air flows in on all sides so that dirt deposits are prevented.

The ultra flat premium design of the facade impresses in every room design with unobtrusive elegance. The extremely slimline flush mounted casing has an installation depth of just 89 mm. That way it integrates completely – also in small rooms, on walls or ceilings. The ideal solution, also in narrow installation shafts.



■ **Lightning fast installation.**



Clever. The airtight back draught shutter, which is integrated in the discharge spigot, can be turned by 90°. This makes a positioning of the casing with discharge to the left, right, top or back possible.



Unlimited possibilities. ELS-GU and -GUBA are the universal casings for one or two room ventilation with connection to the left, right or bottom as well as toilet seat adaptation via flushing pipe. The discharge spigot can be positioned to the top, left, right or to the back. Everything with the same casing!



So very simple – the electric plug connection. For trouble-free connection, removable from its fixture. Cable entry and connector connecting takes place with casing assembly. Insertion of fan unit and facia on final fix.

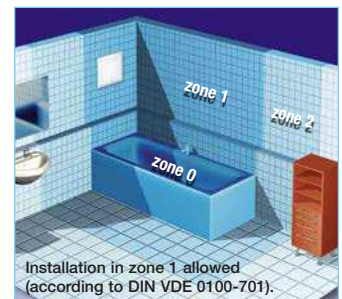
■ **Approved and tested.**



All casings and fan units approved by the DIBt with approval No. Z-51.1-193.

The ultraSilence® ELS units have the approval of the Institute for Bautechnik, Berlin. In addition there are international certificates and conformities with the relevant standards and regulations. There are also the following certificates:

- TÜV approved performance.
- Certificate of the Institute for Acoustics and Building Physics (IAB), Oberursel, for noise transmission regulations in buildings (DIN 4109).
- TÜV approved leakage rate of backdraught shutter.
- External inspection of production by TÜV Bayern-Sachsen.
- Fire protection tests of back draught shutter and casing with fire protection, carried out by the Institute for Material Testing of the Institute for Baustoffe, Mas-sivbau and Brandschutz (IBMB), Braunschweig, swiss fire protection code Z 5491.

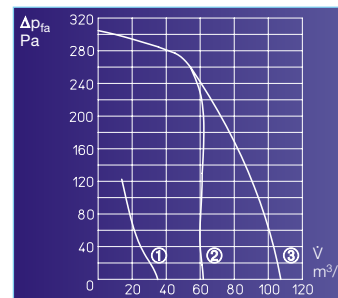


Installation in zone 1 allowed (according to DIN VDE 0100-701).

■ **Various operations.**



ELS units are available in approx. 100 variants and 3 airflows for ventilation of kitchen, bathroom and toilet in the apartment sector. User-friendly controls with overrun timer and interval timer function, automatic motion sensor or humidity controlled operation (in standard and demand-based ventilation) for barrierfree automatic operations are optional units.



- ① Standard ventilation stage $\dot{V} = 35 \text{ m}^3/\text{h}$
- ② Demand-based ventilation stage $\dot{V} = 60 \text{ m}^3/\text{h}$ or standard ventilation stage for ELS-V 100/..
- ③ Demand-based ventilation stage for ELS-V 100/..

Note
Further information about ELS types for barrier-free automatic operation

- with humidity control
- or PIR detector

see page 53

- **The Energy Saving Ordinance (EnEV 2016) demands the implementation of the low-energy house standard. The altered construction method and the resulting tight building shell place particular significance on the ventilation heat.**

According to the previous design, the ventilation technology is responsible for just 25% of the total energy consumption for heating. Given the sealed thermal building shell, these days this proportion is at least 50% in a modern residential building. Building planning in accordance with EnEV 2016 requires a comparison of a planned residential building with a reference building. A demand-based exhaust air system is standard for a reference residential building in accordance with EnEV 2016. Controlled apartment ventilation using a demand-based exhaust air system has reduced the minimum air exchange for window ventilation from 0,7 h⁻¹ or 0.6 h⁻¹ (with / without leak test) to 0.4 h⁻¹.

The use of Helios VF-AL systems technology can drop the creditable air exchange to as low as 0.35 h⁻¹. This reduction of the minimum air exchange generally lowers primary energy consumption by around 10%. Therefore the requirements for satisfying the KfW requirements (KfW efficient buildings) are significantly easier to fulfill.

- **Helios VF-AL systems technology with moisture-based ventilation control is an optimal solution for the current standard, including in when it comes to pricing.**

It is coordinated over the entire apartment and works according to the principle of vacuum air ventilation.

Exhaust air is taken from the rooms with contaminated air (bathroom, WC, kitchen). Fresh outside air flows through pressure-controlled incoming outside air elements into living rooms and bedrooms

- **Energy-efficiency and demand-optimised control functions are integrated in ELS appliances.**

Sophisticated technology enables demand-based and efficient ventilation according to the property-specific and room-specific tasks.

- **Barrier-free automatic operation** controlled by built-in presence sensors or moisture-controlled function. See adjacent and the right-hand side.

- **What is optimal and when?**

- **Demand-based ventilation with overrun**

Typical use: Ventilation of indoor bathrooms and WCs (overrun prescribed by DIN 18017) with normal frequency of use, e.g. in residential areas.

Applicable devices: Types ELS-VN, ELS-VNC or standard devices with separate overrun switches.

Control: Manual, possibly parallel with light.

- **Demand-based ventilation without overrun**

Typical use: Ventilation of kitchens and rooms with windows. High frequency of use in apartment buildings, hotels, retirement homes and many more.

Applicable devices: All standard ELS-V types

Control: Manual, via conventional installation switches or automatically using a timer.

- **Demand-based ventilation with overrun, presence-controlled or moisture-controlled**

Typical use: For barrier-free automatic operation in bathrooms, toilets and kitchens, as well as rooms with windows.

- **The system components**

- **ELS-VF**

Moisture-controlled exhaust air fan in the bathroom with intelligent moisture progression control to remove excessively high humidity in the air.

The type of increase in moisture is permanently checked by a microprocessor. The ventilation is demand-based and combined with a flow-controlled ELS in the toilet or kitchen.

- **Incoming outside air elements**

Incoming outside air elements for the reliable and efficient supply of incoming air. Types ALEF or ZL are built into window frames or walls.

Exhaust air systems without suitable incoming outside air elements are not suitable for function and do not comply with the state of the art.



- **Applicable devices:**

ELS types ELS-VF and ELS-VP

- **Function / control:**

Automatic, presence-controlled or moisture-controlled ventilation not activated by a switch. See the right hand side for a detailed description.

- **Interval ventilation**

Use: Ventilation of bathrooms and WCs (including interior bathrooms and WCs) with periodical low usage frequency, e.g. in hotel rooms, holiday apartments, student residences.

The adjustable interval and operating times ensure periodic and efficient room ventilation when the rooms are empty. Musty rooms and moisture damage are prevented.

Applicable devices: ELS VNC or standard types in combination with accessory ZNI.

Function: Automatic operation according to defined settings if room is not used. When manually operated (possibly switched in parallel to the light), overrun takes place according to the selected settings.

- **Time-controlled ventilation**

Use: Ventilation of toilets, showers, bathrooms, including rooms in office and administrative buildings, retirement homes, hospitals, etc.

Control: Interval-based or depending on use, i.e. at certain times of day.

- **Standard and demand-based ventilation:**

Ventilation of showers, bathrooms, WCs with high air contamination (e.g. in restaurants, offices).

The continuous, low-noise standard ventilation operation to combat smells and excess moisture. When the room is in use, the system manually switches to high-performance (demand-based level). This is automatically possible during certain times of day using a timer

Applicable devices: All types with 2 or 3 power settings.

Switching: Required for manual DSEL 2 or DSEL 3 operation. We recommend appropriate components for automatic operation.

■ **The top solution for barrier-free automatic operation: Integrated PIR sensor**

Optimal fan control in toilets and sanitary facilities with industrial and private use for example, in hostels, hotels, offices, etc.

- Helios offers the ideal solution: ELS-VP is fitted with a PIR as standard; the fan starts automatically when a person enters the room. The electrical connection is direct to the power supply without need for a switch.

- ELS-VP with motion sensor ventilates automatically as required when entering the room.

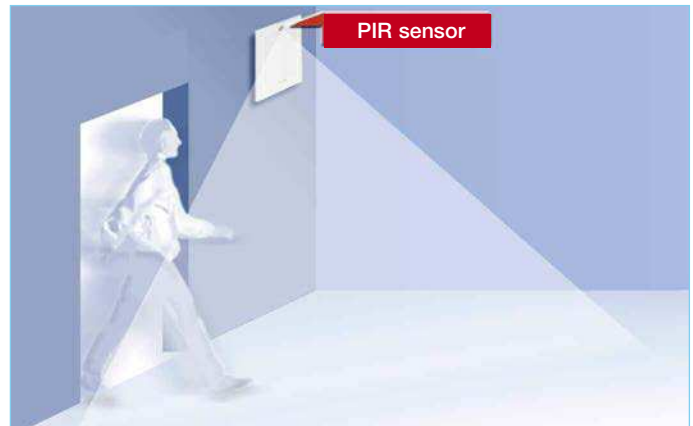
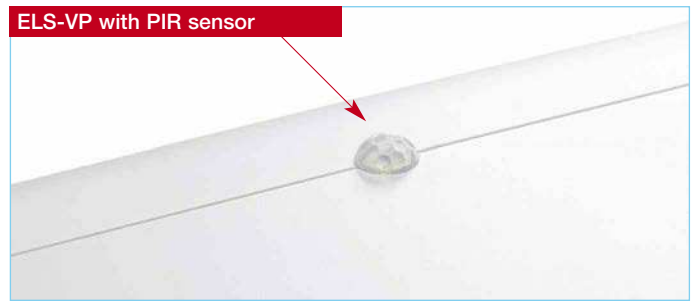
- An integrated PIR sensor registers the presence of people and switches on the unit. The unit operates for 15 minutes. If a movement in the room is detected within that time, the operation time is extended respectively.

- When leaving the room, there is a run-on time of 15 minutes.

- Ideally the fan should be fitted so the movement in the room is always detected, so position is important and the PIR sensor should not be hindered by obstructions.

Typical use: Barrier-free, automatic ventilation without using a switch.

Control: PIR controlled.



■ **ELS-VF automatic moisture progression system is far superior to conventional humidity switches and prevents the build-up of damp on the walls, ceiling and equipment. It guarantees a healthy climate without mould and bad smells with minimal energy consumption.**

■ **Advanced electronics**

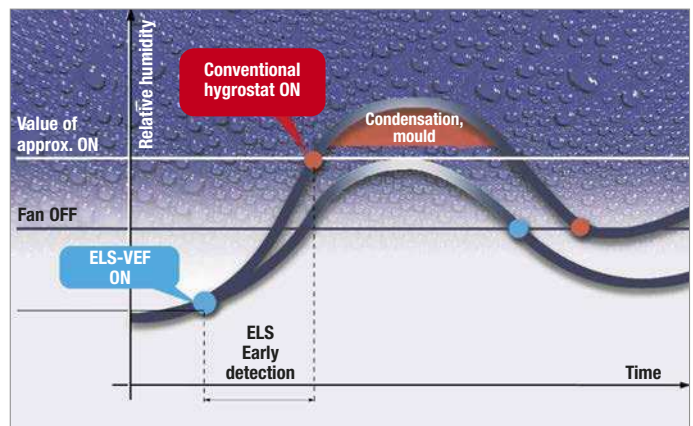
ELS-VFs are equipped with fully-automatic, moisture-dependent controls. The microprocessor-controlled electronics detect two forms of moisture increase:

- Given a normal increase in moisture over time (e.g. washing, drying, temperature drops), the fan switches on when the defined setpoint is reached and runs until the moisture in the room air has dropped by approximately 10%, but at least for the duration of the defined overrun.
- In the case of a rapid increase in moisture (e.g. due to showering, bathing), the ventilator turns on before the defined limit value is reached to get rid of the excess moisture in the room as effectively and quickly as possible. This prevents mirrors or walls from suffering from moisture and damp damage and the comfortable range in the room (40-70%

relative humidity) is quickly re-stored. As soon as the relative humidity has fallen by 10%, but not before the end of the pre-set overrun time, the fan turns off.

- In the case of extended, excessive moisture increases (e.g. storms in summer, damp washing in the room) if air circulation is insufficient as the intake air openings are too small or closed, the fan turns off automatically after two hours of continuous operation. In these cases, the control has identified that further ventilation will not lower the humidity. Depending on the further moisture progression, the fan will start automatically within the next 2 to 6 hours to once again reduce humidity by around 10%. This control behaviour is repeated until humidity has fallen to the desired level.

The moisture progression system automatically adjusts itself to achieve optimal humidity reduction while expending the minimum amount of energy.

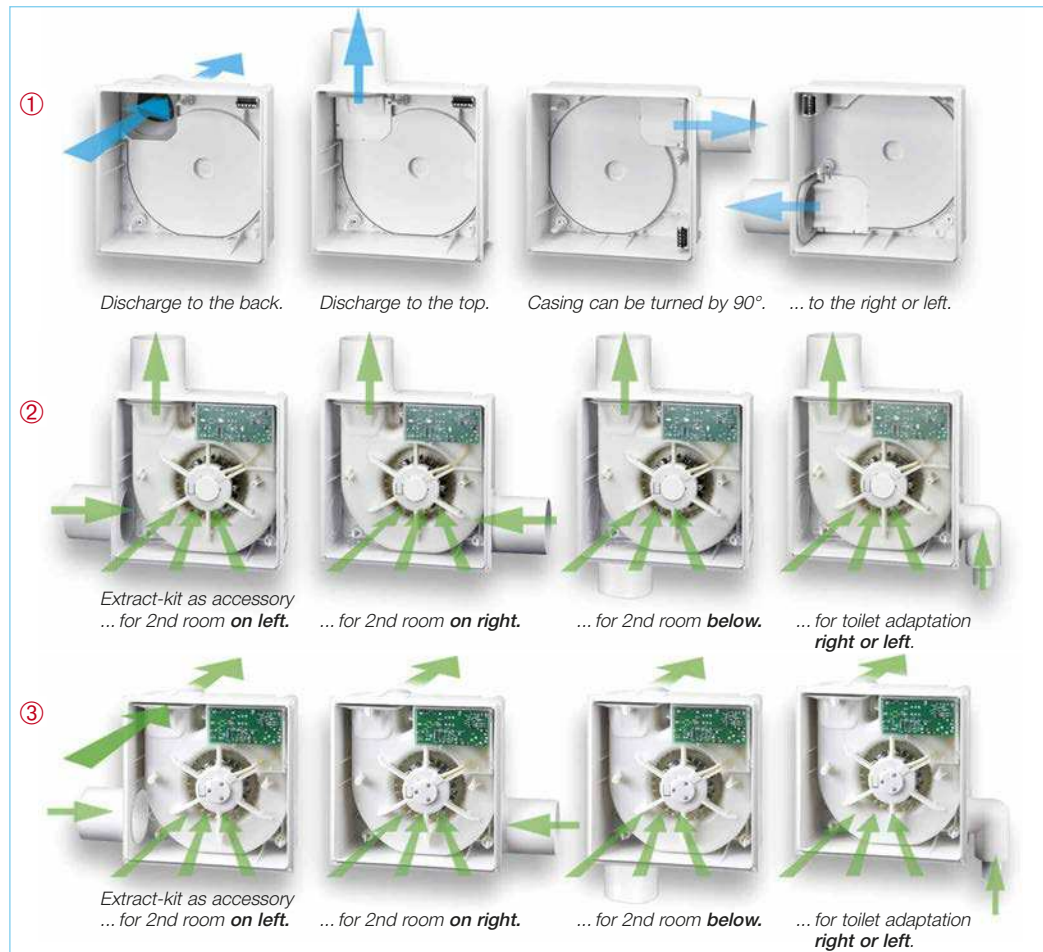


- **Typical use:** For ventilation of humidity polluted rooms (e.g. bathroom, kitchen).
- **Control:** Barrier-free automatic operation, on the humidity levels.
- Supply air is necessary so that humid air can be extracted by the fan.

- The flush mounted casings ELS-GU and -GUBA are totally adaptable in terms of installation position and range of use.
- The standard flush mounted casing ELS-GU and -GUBA, the flush mounted casing with fire protection shutter, is the ideal solution for many different applications.
- Whether for one and two room ventilation or for toilet seat adaptation via flushing pipe. The flush mounted installation is suitable for wall, shaft, plasterboard or ceiling.
- The discharge spigot can be positioned alternatively to the back or on top, also the casing, can be turned by 90° to the left or to the right. Simple and without tools.
- One casing type for every installation form and every ventilation demand. This is not only practical at the building site but also makes stock keeping extremely economical.

See accompanying examples:

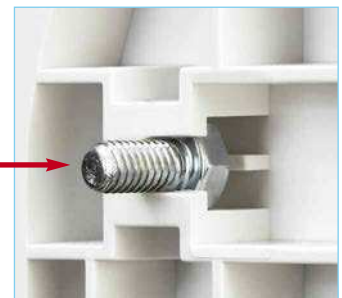
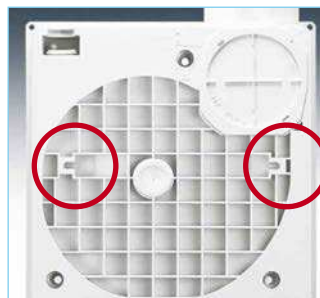
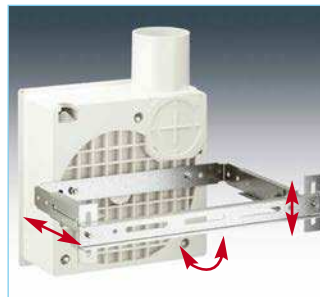
- ① One room ventilation
Extraction via facia
- ② Two room ventilation or toilet seat adaptation via flushing pipe
Discharge to the top
- ③ Two room ventilation or toilet seat adaptation via flushing pipe
Discharge to the back



- During the construction of the mono tube ventilation system from Helios professionals were at work. This can be seen above all in many clever assembly details.

■ Trouble-free quick installation

- The universal mounting bracket ELS-MHU brings the necessary flexibility with installation in shafts and false ceilings.
- All flush mounted casings can be easily positioned vertically, in height or perpendicular in a few minutes. ELS-MHU is suitable for the installation of flush mounted casings with and without fire protection encasement.
- On the rear of the casing types ELS-GU and -GUBA embedded turn lock slots for hexagon or square head screws take up the mounting holder which is vertically adjustable as well as in height and depth. Alternatively there are two predetermined breaking points for direct screw connection with elements by customer.
- For plasterboard system integration, the ELS-MB forms the ideal combination with system elements.



■ Plasterboard adapter ELS-VA

- Simplifies the installation of casing -GU, -GUBA in covered shafts and plasterboards. Make penetration. Mark the square opening with press pins at casing and cut it out. Connect flexible duct with discharge spigot. Make electrical connection. Insert casing with plasterboard adapter room-sided and screw in place. Everything fits in a few minutes!



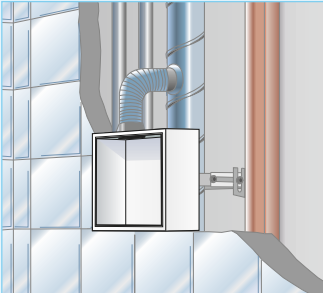
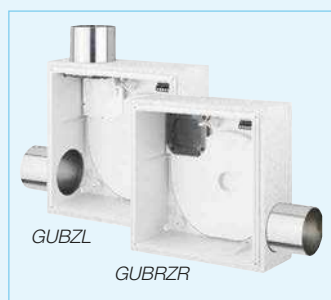
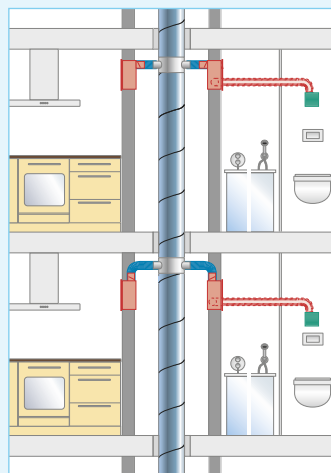
Information about fire protection in buildings

Planning and execution of ventilation systems has to comply with national fire protection requirements. Usually buildings with more than two storeys are subject to such requirements.

In order to prevent fires from spreading to other fire zones, the following solutions can be used for the installation of mono tube ventilation systems depending on structural circumstances:

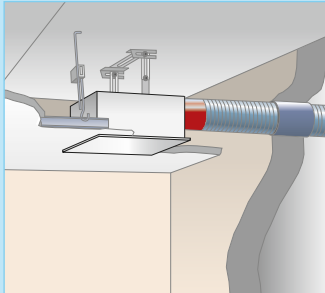
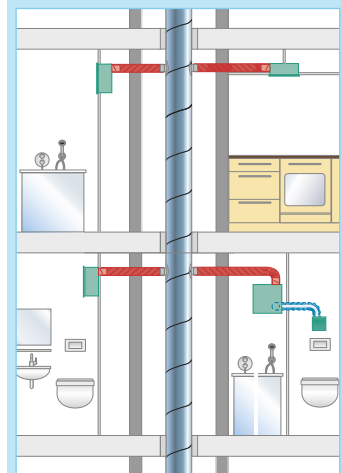
Flush mounted installation in fire resistant shaft (F90) or L90-ventilation duct.

Applicable casings: Every ELS-GUB casing with fire protection encasement and back draught shutter K90-18017. Steel flexpipe connection for second room connection only.

Flush- or surface mounted installation outside of fire resistant shafts (F90) or L90 ventilation ducts

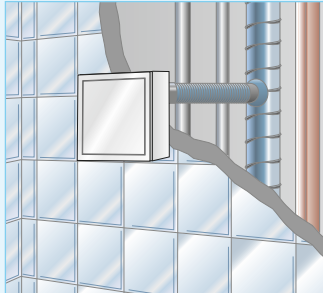
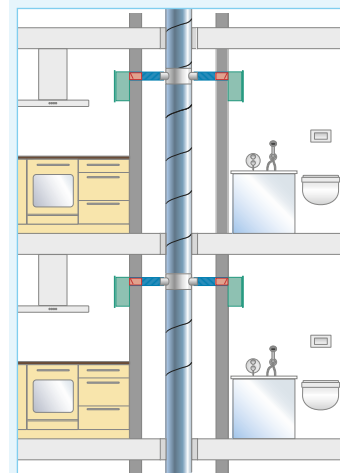
Applicable casings: -GUBA (flush) or -GAPB (surface) with fire protection encasement and back draught shutter K90-18017. Steel flexpipe connection to the main riser.

GUBA
The casing ELS-GUBA can be installed in any position (vertical, horizontal) or turned by 90° to the left or right by changing discharge spigot position. Also a discharge to the rear, second room connection or toilet seat adaptation is possible by means of accessories kit.

Surface mounted installation on walls of fire resistant shafts (F90) or L90 ventilation ducts.

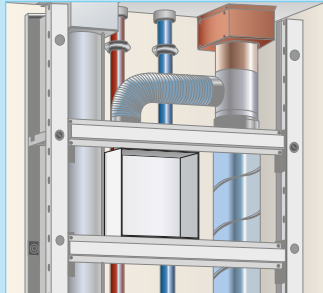
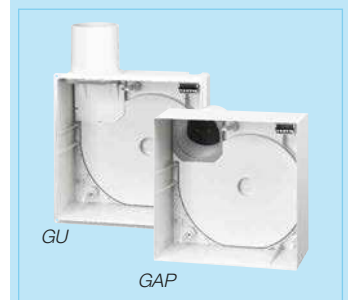
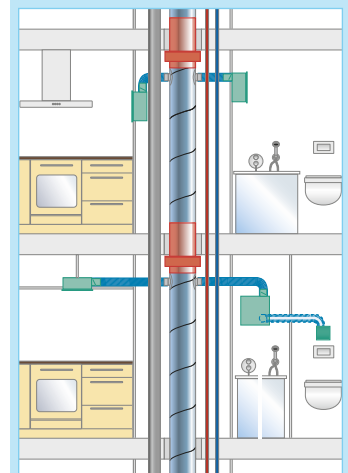
Applicable casings: ELS-GAPB casing with fire protection encasement and back draught shutter K90-18017.

GAPB
The casing ELS-GAPB can be mounted by turning the discharge spigot around 360°, so that the air discharge can be positioned on top left or right and below left or right.

Fire protection solution with fire damper ELS-D







Applicable casings: Universal casing without fire protection ELS-GU for flush mounted or ELS-GAP for surface mounted installation.






Flush mounted casing ELS-GU
ELS-GU can be used like type -GUBA and shown in detail on the page 54 in universal variety.

Surface mounted installation ELS-GAP
Installation and positioning like ELS-GAPB, see left.

■ ELS casings without fire protection, for flush and surface mounted installation

| with / without fire protection | Casing | Type / Specification | Application | Accessory ¹⁾ | Discharge lateral, to the top, left or right | Discharge to the back using accessory ²⁾ | One room ventilation | Two room ventilation using accessory ²⁾ |
|--|--|---|--|-------------------------|--|---|--|--|
|  <p>For buildings with up to 2 floors without fire protection.</p>  <p>If fire dampers are used then more than 20 floors</p> |   | <p>Flush mounted casing without fire protection, with airtight backdraught shutter. Spigot lateral, to the top (as supplied), rotatable to the left or right. Changeable by means of an accessory set ELS-ARS for discharge to the back in any position. Quick plug connector for electrical connection which is removable. Made from polymer (white), fire class B 2. Reinsertable cover plate. Spigot diameter 80 mm. Generally approved by the DIBt with approval no. Z-51.1-193.</p> <p>Type ELS-GU Ref. no. 8111</p> | <p>For ventilation of kitchen*, bathroom or toilet, by means of accessory set also for two room ventilation of bathroom and toilet*. Flush mounted installation in wall, ceiling or shafts. Connection of up to 3 casings per floor is possible. For connection to main duct up to 2 floors without fire protection requirement. With fire protection by the use of fire damper in main duct for more than 20 floors is possible.</p> | • | <p>ELS-ARS Ref. no. 8185</p> | • | <p>ELS-ZS ²⁾ Ref. no. 8186</p> | |
| |   | <p>Surface mounted casing without fire protection, with airtight backdraught shutter installed in the discharge spigot, for any mounting position and rotatable by 90°. With quick plug connector for electrical connection. With quick plug connector for electrical connection 2. Discharge spigot diameter 80 mm. Generally approved by the DIBt with approval no. Z-51.1-193.</p> <p>Type ELS-GAP Ref. no. 8127</p> | <p>For ventilation of kitchen*, bathroom or toilet. Surface mounted installation in wall or ceiling. Connection of up to 3 casings per floor possible. For connection to main duct up to 2 floors without fire protection requirement. With fire protection by the use of fire damper in main duct for more than 20 floors is possible.</p> | — | • | • | — | |











■ ELS casings with fire protection shutter, for flush and surface mounted installation

| Fire protection | Casings | Type / Specification | Application | Accessory ¹⁾ | Discharge lateral, to the top, left or right | Discharge to the back using accessory ²⁾ | One room ventilation | Two room ventilation using accessory ²⁾ |
|---|---|--|--|-------------------------|--|---|--|--|
|  <p>for positioning outside of F90 ventilation shaft</p> |   | <p>Flush mounted polymer casing with fire protection shutter K 90, metal discharge spigot with automatic backdraught shutter and shut-off with release of fusible link. Discharge spigot lateral to the top (as supplied), rotatable to the left or right. Changeable by means of an accessory set for discharge to the back in any position. Reinsertable cover plate. Spigot diameter 80 mm. Generally approved by the DIBt with approval no. Z-51.1-193.</p> <p>Type ELS-GUBA Ref. no. 8114</p> | <p>For ventilation of kitchens*, bathroom or toilet. By means of accessory set ELS-ZS also for two room ventilation of bathroom and toilet*. Flush mounted installation in ceiling or wall, as well as outside of K 90-shafts suitably fire rated. Connection of up to 3 casings per floor on more than 20 floors possible.</p> | • | <p>ELS-ARS Ref. no. 8185</p> | • | <p>ELS-ZS ²⁾ Ref. no. 8186</p> | |
| |   | <p>Surface mounted casing with fire protection shutter K 90, metal discharge spigot with automatic backdraught shutter and shut-off with release of fusible link. For any mounting position and rotatable by 90°. With quick plug connector for electrical connection. Made from polymer (white), fire class B 2. Discharge spigot diameter 80 mm. Generally approved by the DIBt with approval no. Z-51.1-193.</p> <p>Type ELS-GAPB Ref. no. 8128</p> | <p>For ventilation of kitchens*, bathroom or toilet. Surface mounted wall or ceiling installation. Connection of up to 3 casings per floor on more than 20 floors possible.</p> | — | • | • | — | |



* For kitchens and two room ventilation of bathroom and toilet use of fan unit with 100 m³/h recommended.



²⁾ Consisting of second room plenum box and spigot for second room connection, see page 60.

¹⁾ Details and specifications to ELS-accessories see page 60.

| ■ ELS flush mounted casings with fire protection encasement, for one room ventilation | | | | Discharge lateral, to the top, left or right | Discharge to the back | One room ventilation | Extraction unit for 2 rooms (Accessories ¹⁾) |
|---|---|---|--|--|-----------------------|----------------------|--|
| Fire protection | Casings | Type / Specification | Application | | | | |
|  <p>Casing installation in F90 ventilation shaft</p> |  | <p>Flush mounted casing with fire protection encasement K 90, Metal discharge spigot with automatic backdraught shutter and shut-off with release of fusible link. Discharge spigot lateral to the top (as delivered), turnable to the left or right. Quick plug connector for electrical connection removable. Reinsertable cover for protection when plastering. Spigot diameter 80 mm. Generally app. by the DIBt with approval no. Z-51.1-193.</p> <p>Type ELS-GUB Ref. no. 8112</p> | <p>For ventilation of kitchen*, bathroom or toilet. wall, ceiling or F90 qualified shafts suitably fire rated. Connection of up to 3 casings per floor on more than 20 floors possible.</p>  | • | — | • | — |
| |  | <p>As ELS-GUB, however discharge spigot to the back, rotatable by 90° in any position. For the shortest connection to the main line. Generally approved by the DIBt with approval no. Z-51.1-193.</p> <p>Type ELS-GUBR Ref. no. 8113</p> | <p>As Type ELS-GUB.</p> | — | • | • | — |
| ■ ELS flush mounted casings with fire protection encasement, for two room ventilation | | | | | | | |
|  <p>Casing installation in F90 ventilation shaft</p> |  | <p>Flush mounted casing with fire protection encasement K 90 and spigot for second room on the left. Metal discharge spigot with automatic backdraught shutter and shut-off with release of fusible link. Discharge spigot for main room above (as delivered), laterally rotatable to the left or right. Quick plug connector for electrical connection removable. Reinsertable cover plate. Spigot diameter 80 mm. Generally approved by the DIBt with approval no. Z-51.1-193.</p> <p>Type ELS-GUBZL Ref. no. 8115</p> | <p>Two room ventilation of bathroom and toilet*. Installation in wall, ceiling and F90 shafts suitably fire rated. Connection of up to 3 casings per floor on more than 20 floors possible.</p>  | • | — | — | ELS-ZS Ref. no. 8186 |
| |  | <p>As ELS-GUBZL, however spigot for second room on the right. Generally approved by the DIBt with approval no. Z-51.1-193.</p> <p>Type ELS-GUBZR Ref. no. 8117</p> | <p>As Type ELS-GUBZL.</p> | • | — | — | ELS-ZS Ref. no. 8186 |
| |  | <p>As ELS-GUBZL, however discharge spigot to the back and rotatable by 90° into any position. Generally approved by the DIBt with approval no. Z-51.1-193.</p> <p>Type ELS-GUBRZL Ref. no. 8116</p> | <p>As Type ELS-GUBZL.</p> | — | • | — | ELS-ZS Ref. no. 8186 |
| |  | <p>As ELS-GUBZR, however discharge spigot to the back and rotatable by 90° into any position.</p> <p>Type ELS-GUBRZR Ref. no. 8118</p> | <p>As Type ELS-GUBZL.</p> | — | • | — | ELS-ZS Ref. no. 8186 |

* For kitchens and two room ventilation of bathroom and toilet use of fan unit with 100 m³/h recommended. ¹⁾ Details and specifications to ELS-accessories see page 60. The check valve for fire protection casings fulfills the requirements of a cold smoke shutter.

| 60 m³/h | | 60 m³/h air flow volume For bathrooms or toilets | | Accessories | | | |
|---|---|---|---|--|---|---|--|
| Type | Description | Application | DSEL 2 No. 1306 Speed and operating switch | ZT No. 1277 Time-variable overrun timer | ZNE No. 0342 ZNI No. 0343 Overrun timer | ZV No. 1279 Electronic overrun timer | |
| ELS-V 60 Ref. no. 8131  | Fan unit with 60 m³/h air flow volume . Delivered complete with flat facia (alpine white) and ultraSilence® technology. With permanent filter and filter control as standard. Integrated quick plug connector for electrical connection. Insulation class II, protection to IP 55, for installation in zone 1 of bathrooms. Maintenance free, energy saving ball bearing motor 230 V~, 50 Hz, 18 W. Sound power 39 dB(A) ¹⁾ , sound pressure 35 dB(A)* ¹⁾ . General technical approval no. Z-51.1-193. | For ventilation of shower, bathroom or toilet. Control manually via the light switch. The overrun which is necessary in windowless rooms is to be provided by means of an overrun timer (accessories). | — | • | • | • | |
| ELS-VN 60 Ref. no. 8137 | As ELS-V 60, but with integrated overrun timer , run on time approx. 6, 15, 21 min. (adjustable), delayed start approx. 45 sec. (non-adjustable). | For ventilation of rooms as previously mentioned. With overrun function for windowless rooms. Control via the light switch. | — | — | — | — | |
| ELS-VNC 60 Ref. no. 8143 | As ELS-V 60, but with adjustable overrun timer and interval operation . Delayed start 0 or 45 sec., run on time 6, 10, 15 or 21 min. and interval time 4, 8, 12 or 24 hours adjustable. | Automatic, periodical ventilation of rooms with low user frequency (hotel, holiday homes). Individually adjustable run over times increase the comfort in the private area. | — | — | — | — | |
| ELS-VP 60 Ref. no. 8149 | As ELS-V 60, but with integrated motion sensor for automatic ventilation when entering the room. Run on time approx. 15 min. Electrical connection is direct to the power supply without need for a switch. | Automatic, PIR controlled ventilation without the need of a switch. Automatically switches on with room occupancy. See page 53 for details. | — | — | — | — | |
| ELS-VF 60 Ref. no. 8161 | As ELS-V 60, but with electronic humidity sensor . Automatic ventilation when set humidity set point is reached, switches off automatically after humidity reduction of approx. 10%. In case of manual operation, delayed start 0 or 45 sec., run on time 6, 10, 15 or 21 min. adjustable. | Ideally for the prevention of damage to the building due to humidity and mould in small, high humidity rooms. Automatically switches on with raised humidity. See page 53 for details. | — | — | — | — | |
| 60/35 m³/h | | 2 speeds 60/35 m³/h For bathrooms or toilets | | | | | |
| ELS-V 60/35 Ref. no. 8133  | Fan unit with 2 speeds (60/35 m³/h) for standard and demand-based ventilation . Delivered complete with flat facia (alpine white) and ultraSilence® technology. With permanent filter and dirty filter indicator as standard. Integrated quick plug connector for electrical connection. 230 V~, 50 Hz, 18/9 W. Sound power 39/30 dB(A) ¹⁾ , sound pressure 35/26 dB(A)* ¹⁾ . Otherwise as ELS-V 60. | For ventilation of small rooms (shower, bathroom, toilet) with high polluted air. The low speed can be connected for continuous trickle operation. The high speed is then controlled manually via the light switch. Manual control of both speed steps with switch DSEL 2 possible. Run on time by using available accessory. | • | • | — | • | |
| ELS-VN 60/35 Ref. no. 8139 | As ELS-V 60/35, but with integrated overrun timer , run on time approx. 6, 15, 21 min. (adjustable), delayed start approx. 45 sec. (non-adjustable). | As ELS-V 60/35. The built-in overrun timer causes extended operation on high performance level after manual switching off. | • | — | — | — | |
| ELS-VF 60/35 Ref. no. 8163 | As ELS-V 60/35, but with electronic humidity sensor . Standard ventilation at continuous operation. Automatic ventilation when set humidity set point is reached, switches off automatically after humidity reduction of approx. 10%. In case of manual operation, delayed start 0 or 45 sec., run on time 6, 10, 15 or 21 min. adjustable. | Ideal for preventing humidity damage. See page 53 for details. The small step can be used for continuous operation. Large step is automatically activated depending on humidity. Manual control of both steps possible with DSEL 2 switch. | • | — | — | — | |

| 100 m³/h | | 100 m³/h air flow volume For bathrooms <u>and</u> toilets or kitchens | | Accessories | | | |
|--|--|--|--|---|---|--|--|
| Type | Description | Application | DSEL 2 No. 1306 Speed and operating switch | ZT No. 1277 Time-variable overrun timer | ZNE No. 0342 ZNI No. 0343 overrun timer | ZV No. 1279 Electronic overrun timer | |
| ELS-V 100 Ref. no. 8132  | Fan unit with 100 m³/h air flow volume . Delivered complete with flat facia (alpine white) and ultraSilence® technology. With permanent filter and filter control as standard. Integrated quick plug connector for electrical connection. Insulation class II, protection to IP 55, for installation in zone 1 of bathrooms. Maintenance free, energy saving ball bearing motor 230 V~, 50 Hz, 29 W. Sound power 51 dB(A) ¹⁾ , sound pressure 47 dB(A) ^{*1)} . General technical approval no, Z-51.1-193. | Simultaneous ventilation of bathroom and toilet (flush mounted). Ventilation of domestic kitchens. Overrun function possible with accessories. | — | • | • | • | |
| ELS-VN 100 Ref. no. 8138 | As ELS-V 100, but with integrated overrun timer , run on time approx. 6, 15, 21 min. (adjustable), delayed start approx. 45 sec. (non-adjustable). | Simultaneous ventilation of bathroom and toilet (overrun required by DIN). Ventilation of domestic kitchens. | — | — | — | — | |
| ELS-VNC 100 Ref. no. 8144 | As ELS-V 100, but with adjustable overrun timer and interval operation . Delayed start 0 or 45 sec., run on time 6, 10, 15 or 21 min. and interval time 4, 8, 12 or 24 hours adjustable. | Automatic, periodic ventilation of rooms (also covers two-room ventilation) with irregular use, such as e.g. in hotels, holiday homes. Comfort solution in private sector. | — | — | — | — | |
| ELS-VP 100 Ref. no. 8150 | As ELS-V 100, but with integrated motion sensor for automatic ventilation when entering the room. Run on time approx. 15 min. Electrical connection is direct to the power supply without need for a switch. | Automatic, presence-controlled ventilation without switch operation. Barrier-free with automatic function. See page 53 for details. | — | — | — | — | |
| | | | | | | | |
| 100/60/35 m³/h | | 2, 3 speeds 100/60 m³/h, 100/60/35 m³/h For bathrooms <u>and</u> toilets or kitchens | | | | | |
| ELS-VN 100/60 No. 8141  | Fan unit with 2 speeds (100/60 m³/h) for standard and demand-based ventilation and integrated overrun timer . Run on time approx. 6, 15, 21 min. (adjustable), Delayed start approx. 45 sec. (non-adjustable). Delivered complete with flat facia (alpine white) and ultraSilence® technology. With permanent filter and dirty filter indicator as standard. 230 V~, 50 Hz, 29/18 W. Sound power 51/39 dB(A) ¹⁾ , sound pressure 47/35 dB(A) ^{*1)} . Otherwise as ELS-V 100. | Simultaneous ventilation of bathroom and toilet (flush mounted). Ventilation of domestic kitchens. With near-silent standard ventilation stage. The small performance step can be used for continuous operation. The demand-based ventilation is activated manually by light switch. Manual control of both steps with DSEL 2 switch (accessories). | • | — | — | — | |
| ELS-V 100/60/35 No. 8136 | As ELS-V 100, but with 3 speeds (100/60/35 m³/h) for demand-based and standard ventilation . 230 V~, 50 Hz, 29/18/9 W. Sound power 51/39/30 dB(A) ¹⁾ , sound pressure 47/35/26 dB(A) ^{*1)} . | Medium or small performance step can be used for continuous operation and switched with DSEL 2. Manual 3-step control with DSEL 3. | • or DSEL 3 Ref. no. 1611 | • | — | • | |
| ELS-VF 100/60/35 No. 8166 | Fan unit with 3 speeds (100/60/35 m³/h) for demand-based and standard ventilation and with electronic humidity sensor . 230 V~, 50 Hz, 29/18/9 W. Sound power 51/39/30 dB(A) ¹⁾ , sound pressure 47/35/26 dB(A) ^{*1)} . Otherwise as ELS-VF 60/35. | Ideal for preventing humidity damage. See page 53 for details. The small or medium step can be switched with DSEL 2 for continuous operation. Large step is automatically activated depending on humidity. Manual 3-step control with DSEL 3. | • or DSEL 3 Ref. no. 1611 | — | — | — | |

* at A_L = 10 m² equivalent absorption surface in combination with casing type ELS-GU, side discharge. Information according to DIN 18017-3:2009-09, section 7.2.4. footnote 5.

¹⁾ Noise data for surface installation see table on page 64.

Adaption kit for rear discharge

Type ELS-ARS Ref. no. 8185

For discharge to the rear with all flush mounted casings ELS-GU and -GUBA without fire protection encasement. Simply fit the ARS diverter on the discharge side of the fan unit to ensure a proper air guide.

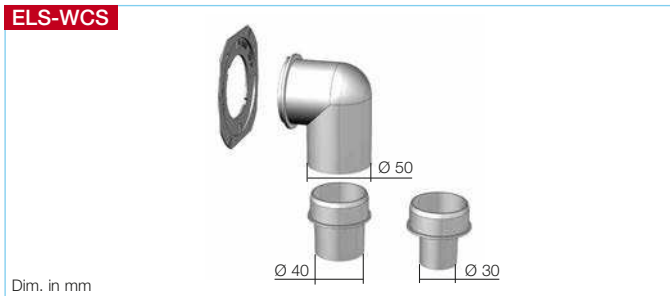


Toilet extraction kit

Type ELS-WCS Ref. no. 8191

WC-Kit for connection of toilet seat extraction system in combination with room ventilation; for casing types ELS-GU, -GUBA.

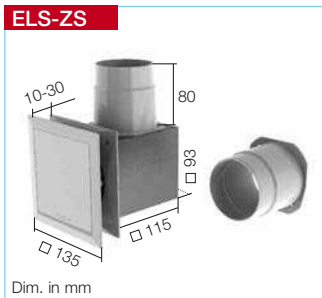
The connection between casing and flushing tank tube is carried out with customary plastic tubes. Scope of delivery: Cap, bend 90°, two-step spigot Ø 40 and 30 mm.



Second room kit

Type ELS-ZS Ref. no. 8186

Inlet air plenum box for flush mounted installation for connection with all casings for second room connection ELS-GU. Design awarded facia in white, with covered front and air inlet on all sides. Integrated, easy accessible air filter. Including second room spigot for casing ELS-GU and -GUBA.



ELS-ZAS



Second room spigot

Type ELS-ZAS Ref. no. 8184

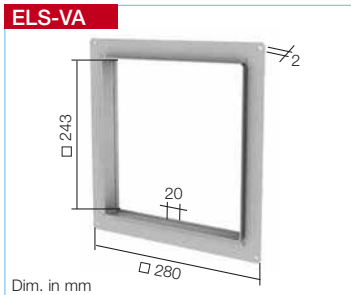
Insert spigot for casing types ELS-GU and -GUBA. For connection of second room ventilation on site. nom. diameter 75/80 mm.

Plasterboard adapter

Type ELS-VA Ref. no. 8189

Makes room-sided casing insertion and installation for flush mounted ELS casings in covered shafts and plasterboards possible.

The adapter is bolted with the casing and its frame is fastened with screws to the plasterboard.

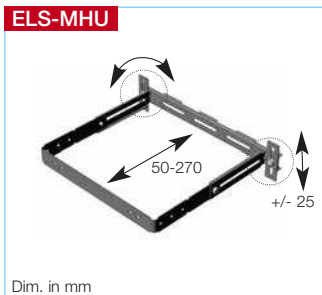


Universal mounting bracket

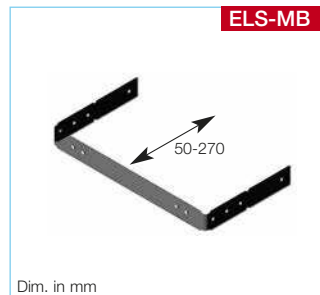
Type ELS-MHU Ref. no. 8187

Principally for flush mounted casing installation in shafts, especially with casings with fire protection encasement.

For fixing on ceilings or walls. Adjustable vertically, in height and perpendicular. Suitable for all flush mounted casings.



ELS-MB



Mounting holder

Type ELS-MB Ref. no. 8188

For integration of flush mounted casings in plasterboard systems in connection with system elements of plasterboard supplier.

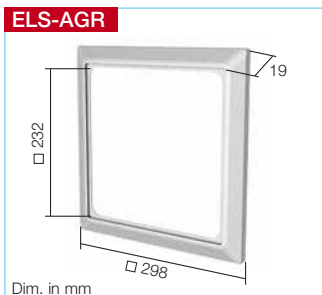
The mounting holder is simply fixed with hexagon or square head screws to the embedded turn lock slots on the back side of the ELS casing.

Spacer frame

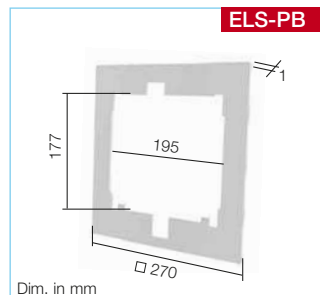
Type ELS-AGR Ref. no. 8193

Covers up to 15 mm of flush-mounted casing, which was not installed level with the plaster or tiles.

The spacer frame is simply fixed between the wall/ceiling and ELS inner facia.



ELS-PB



Plasterboard cover

Type ELS-PB Ref. no. 8194

To cover gaps of unclean plastered, tiled or oversized casing openings, which are not completely covered by the ELS facia.

The plasterboard cover is simply fixed between wall/ceiling and ELS inner facia.

Fire protection

The transfer of fire and smoke to other floor levels must be prevented when buildings are higher than two storeys with certified fire protection elements, classification K 90-18017.

The following options and the options described in detail on page 55 can be used here according to structural circumstances.

- Casing ELS-GUB, with fire protection cladding
In fire-resistant shaft (F90) or L90 ventilation duct.
- Casing ELS-GUBA, -GAPB with fire protection shutter for casing positioning outside of fire resistant shaft (F90) or L90 ventilation duct. Connection to main duct with flexible steel duct.

- Fire damper ELS-D
For installation in ventilation main duct Approved for use in ventilation shafts and within mixed service shafts (even with flammable services), only needs to be covered with a 12.5 mm plaster-board. All ELS fans, connected with flexible aluminium ducting do not need any fire protection classifications.

ELS-D Z-41.3-368



Fire damper ELS-D

When using this barrier, all other component parts do not need any fire protection classification. The universal applicable casing types ELS-GU (flush) and GAP (surface) can be connected.

The low cost and assembly-friendly flexible aluminium ducting can be used for the connections. See page 522 for detailed information.

| ND mm main duct | 100 | 125 | 140 | 160 | 180 | 200 |
|-----------------|-----------|------|------|------|------|------|
| Type | ELS-D 100 | 125 | 140 | 160 | 180 | 200 |
| Ref. no. | 0270 | 0185 | 0186 | 0187 | 0188 | 0271 |

Intake air elements

- Installation in wall openings

ZL



Universally applicable supply air units and thermostatic supply valves for the demand-based intake air volume control. See intake air element product page for detailed description.

| | ø 80 | | ø 100 | | ø 160 | |
|--|----------|---------|----------|---------|----------|------|
| Type | Ref. no. | Type | Ref. no. | Type | Ref. no. | |
| Supply air unit – Automatically temperature controlled incl. thermostatic supply valve, attenuator and external grille | | | | | | |
| ZLA 80 | 0214 | ZLA 100 | 0215 | ZLA 160 | | 0216 |
| Supply air element – Manually adjustable in four steps incl. valve plate with pull cord, attenuator and external grille | | | | | | |
| | | ZLE 100 | 0079 | | | |
| Thermostatic supply valve – For installation in existing ventilation openings | | | | | | |
| ZTV 80 | 0078 | ZTV 100 | 0073 | ZTV 160 | | 0074 |

- Installation in window frames

ALEF



Intake air element with air flow controller and limiter. See intake air element product page for detailed description. Ideally suited for retrofitting and new construction.

| V | | | | |
|---|-----------------|----------|------------------|----------|
| m³/h | Type | Ref. no. | Type | Ref. no. |
| Intake air element for installation in window frames – with air flow controller and limiter | | | | |
| 30 | ALEF 30 | 2100 | ALEFS 30 | 2102 |
| 45 | ALEF 45 | 2101 | ALEFS 45 | 2103 |
| Intake air element for installation in window frames – humidity controlled, with air flow controller and limiter | | | | |
| 7/40 | ALEF Hygro 6/45 | 2056 | ALEFS Hygro 6/45 | 2057 |

Overflow

LTG



Door grilles

Discreet, screened door transfer grille made from impact resistant polymer, for door installation. See ventilation grille product page for detailed description.

Type LTGW Ref. no. 0246
Made from white polymer.

Type LTGB Ref. no. 0247
Made from brown polymer.

Spare filters

ELF



Spare air filter

Filter mats made from regenerable synthetic fibre, class G2.

Type ELF/ELS Ref. no. 8190
Permanent filter for fan units ELS-V, dishwasher-safe, contents = 2 pcs.

Type ELF-ZS Ref. no. 0557
For second room plenum box ELS-ZS, contents = 5 pcs.

Information Page

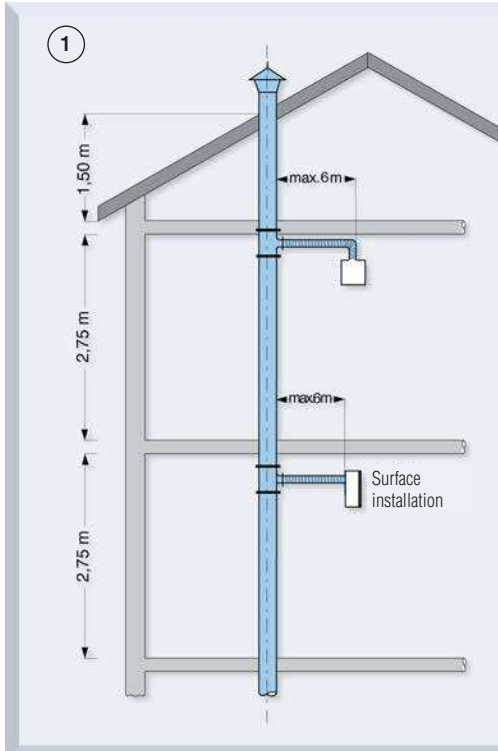
Dimensions, detailed technical information as well as further sizes:

| | |
|---|--------|
| Ventilation grilles | 487 on |
| Intake air elements | 512 on |
| Fire protection elements for use in multi-storey construction with more than 2 full storeys | 516 on |
| Controllers and switches | 525 on |

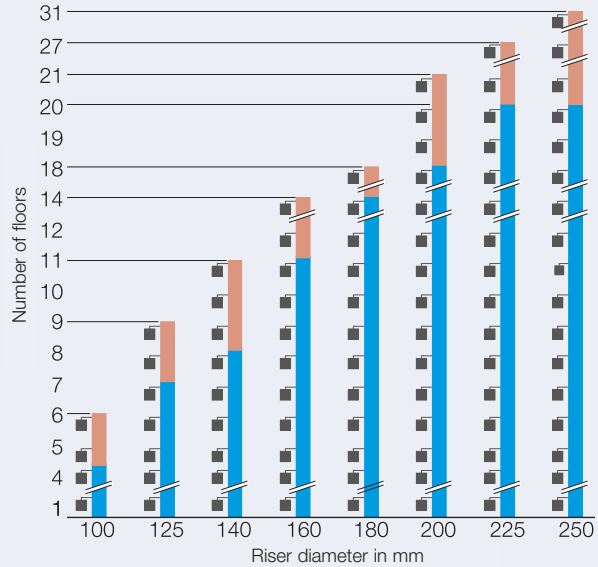
The regulations in DIN 18017-3 have been integrated in the diagrams below for simple determination.

60 m³/h Bathrooms or toilets

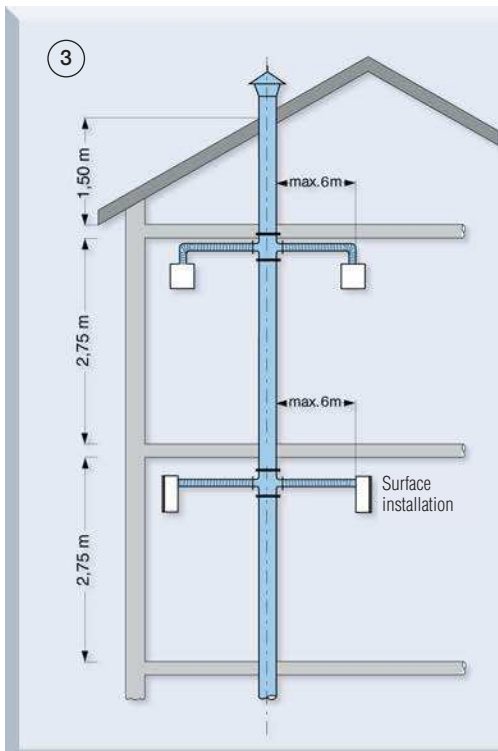
1 unit per floor



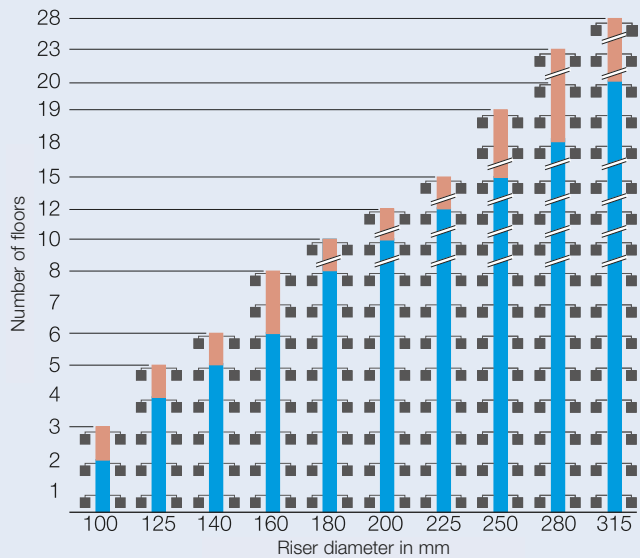
Installation of 1 unit per floor
with 60 m³/h planned air flow volume and
operation of all units at the same time.



2 units per floor



Installation of 2 units per floor
with 60 m³/h planned air flow volume and
operation of all units at the same time.



Assuming a room height of 2.75 m, a straight ducting without bends, a ducting length of max. 1.5 m from last unit to air extract above the roof as well as max. 60 Pa between ventilated room and exhaust opening, the required main riser diameter can be read from the diagram above.
They are valid for a planned air flow volume of 60 or 100 m³/h per unit and operation of all units at the same time.

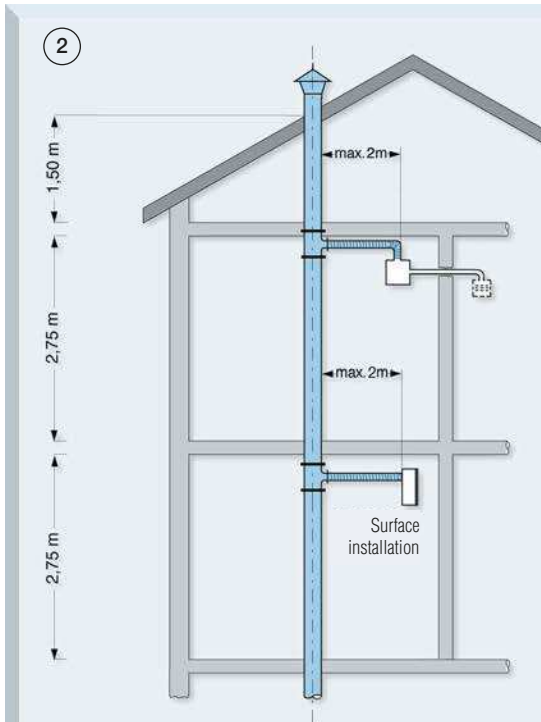
Standard and individual plans can be created easily and quickly with the Helios ELS software. Graphic representation, dimensioning of the main duct with or without warpage become child's play. Cost allocation and materials list are automatically created and printed. Information on the planning and design can be found in DIN 18017-3 and the approval documents and test certificates. We will be happy to send approval documents and test certificates upon request. Approval no. Z-51.1-193.

System dimensioning for these floor heights is not recommended.
Preferred system dimensioning in blue area (comfort zone).

Without reliable supply air backflow through intake air inflow elements ALEF and ZL, the exhaust air systems are not functional and do not comply with engineering rules.

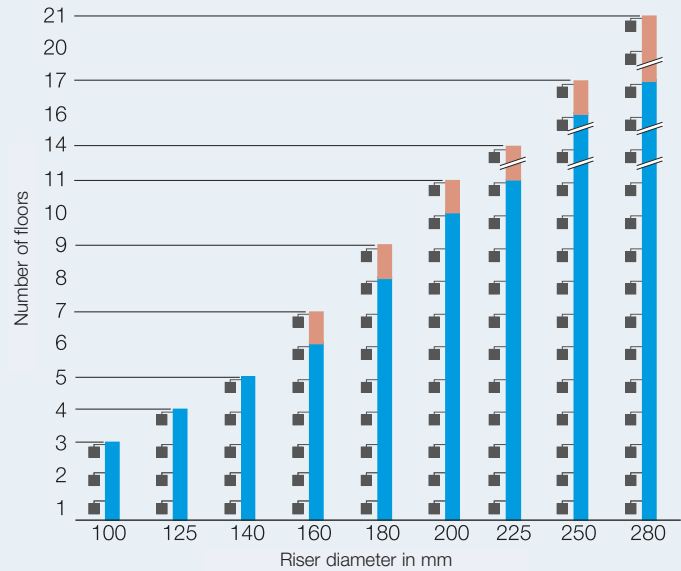
100 m³/h Kitchens and two room ventilation

1 unit per floor (possibly with two room connection)

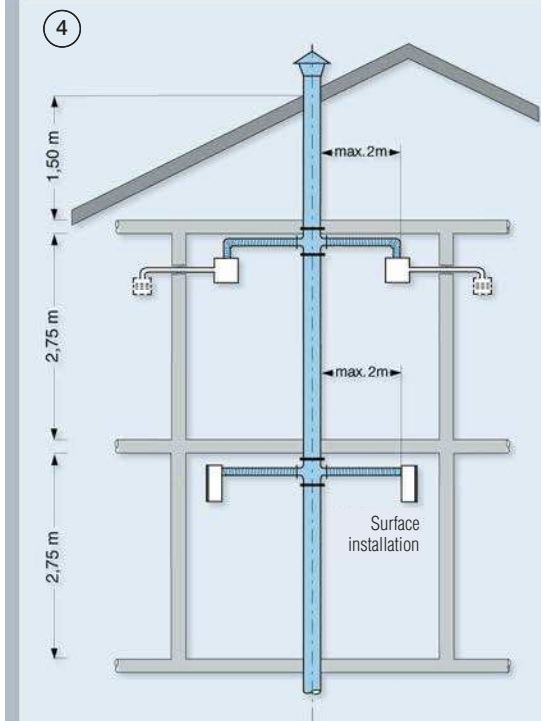


Installation of 1 unit per floor

with 100 m³/h planned air flow volume and operation of all units at the same time. (Volume e.g. kitchen = 100 m³/h. For two room ventilation with 1 unit = Bathroom 60 m³/h, toilet 40 m³/h).

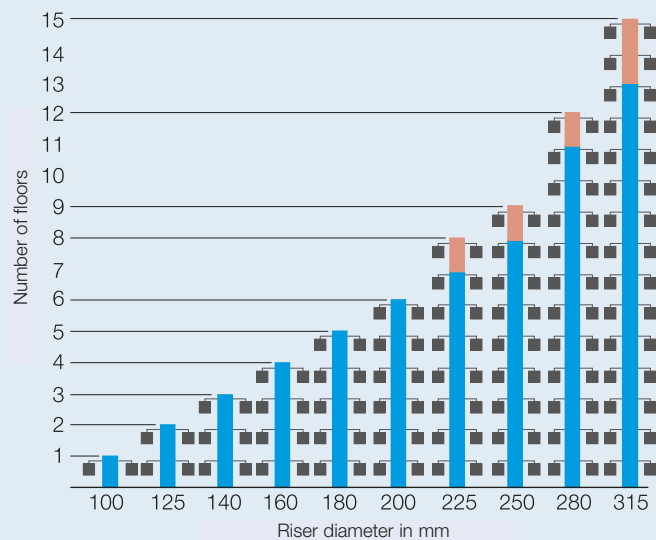


2 units per floor (possibly with two room connection)



Installation of 2 units per floor

with 100 m³/h planned air flow volume and operation of all units at the same time. (Volume e.g. kitchen = 100 m³/h. For two room ventilation with 1 unit = Bathroom 60 m³/h, toilet 40 m³/h).



Example 1:

Type of room: Bathroom/Toilet

$\dot{V} = 60 \text{ m}^3/\text{h}$

Units per floor: 1

Floor levels: 9

Main riser diameter: ?

According to diagram ①

Main riser diameter: 125 mm

Example 2:

Type of room: Bathroom and separate toilet with 1 unit
or kitchen ventilation

$\dot{V} = 100 \text{ m}^3/\text{h}$ (Bathroom 60 m³/h and toilet 40 m³/h)

Units per floor: 2

Floor levels: 6

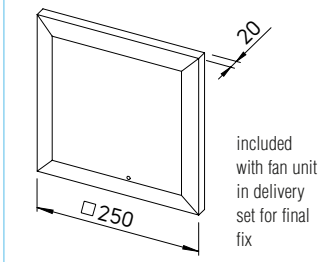
Main riser diameter: ?

According to diagram ④

Main riser diameter: 200 mm

ELS inner facia and flush mounted casing

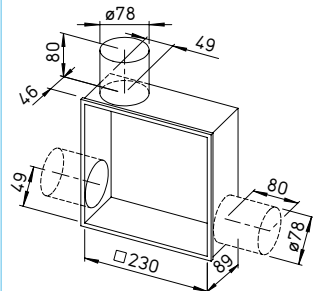
ultraSilence® ELS inner facia



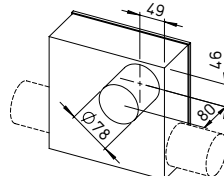
All dimensions in mm

ELS-GU Flush casing w/o fire protection

With optional spigot for second room (using accessory kit ELS-ZS)

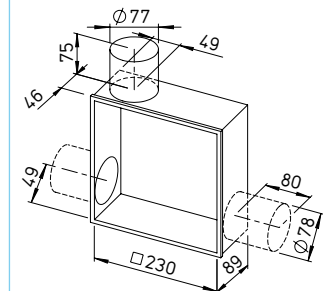


With optional discharge to the rear (using accessory kit ELS-ARS)

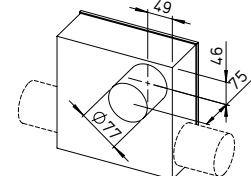


ELS-GUBA Flush casing with fire protection

With optional spigot for second room (using accessory kit ELS-ZS)

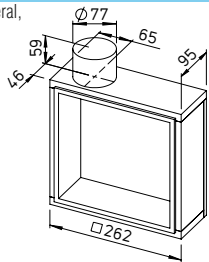


With optional discharge to the rear (using accessory kit ELS-ARS)



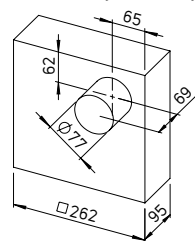
ELS-GUB

Discharge lateral, to the top, rotatable to the left or right



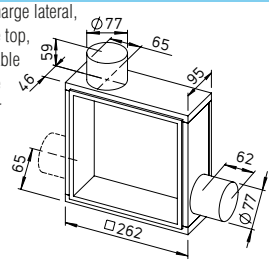
ELS-GUBR

Discharge to the rear, rotatable by 90° into any position



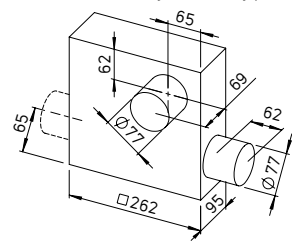
ELS-GUBZL / R

Discharge lateral, to the top, rotatable to the left or right



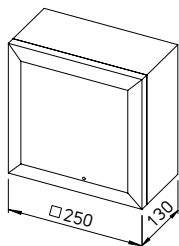
ELS-GUBRZL / R

Discharge to the rear, rotatable by 90° into any position

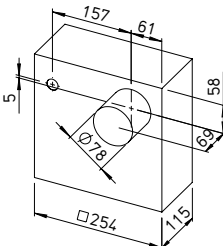


Surface mounted unit and surface mounted casing

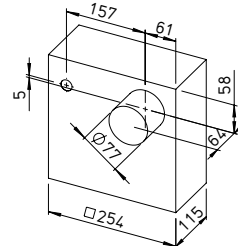
ultraSilence® ELS surface mounted unit



ELS-GAP Surface casing w/o fire protection



ELS-GAPB Surface casing with fire protection



| Technical data | Fan unit | | | | | | | | | | | | | |
|---|---------------------|-----------|---------------|---------|---------------|---------|-----------|---------------|-----------|-----------|---------------|----------|-----------|------------|
| | ELS | -V 60 | -VN 60 | -VNC 60 | -VP 60 | -VF 60 | -V 60/35 | -VN 60/35 | -VF 60/35 | -V 100 | -VN 100 | -VNC 100 | -VP 100 | -VN 100/60 |
| Ref. no. | 8131 | 8137 | 8143 | 8149 | 8161 | 8133 | 8139 | 8163 | 8132 | 8138 | 8144 | 8150 | 8141 | 8136 |
| Run on time, approx. min. | — | 6, 15, 21 | 6, 10, 15, 21 | 15 | 6, 10, 15, 21 | — | 6, 15, 21 | 6, 10, 15, 21 | — | 6, 15, 21 | 6, 10, 15, 21 | 15 | 6, 15, 21 | — |
| Interval operation, hrs. | — | — | 4, 8, 12, 24 | — | — | — | — | — | — | — | 4, 8, 12, 24 | — | — | — |
| Air flow volume approx. m³/h | 60 | 60 | 60 | 60 | 60 | 60/35 | 60/35 | 60/35 | 100 | 100 | 100 | 100 | 100/60 | 100/60/35 |
| Power consumption approx. Watt | 18 | 18 | 18 | 18 | 18 | 18/9 | 18/9 | 18/9 | 29 | 29 | 29 | 29 | 29/18 | 29/18/9 |
| Sound pressure level approx. dB(A) at 10 m² equivalent absorption surface | flush ¹⁾ | 35 | 35 | 35 | 35 | 35 | 35/26 | 35/26 | 47 | 47 | 47 | 47 | 47/35 | 47/35/26 |
| | surface | 39 | 39 | 39 | 39 | 39 | 39/30 | 39/30 | 51 | 51 | 51 | 51 | 51/39 | 51/39/30 |
| Sound power level L _{wa} approx. dB(A) | flush ¹⁾ | 39 | 39 | 39 | 39 | 39 | 39/30 | 39/30 | 51 | 51 | 51 | 51 | 51/39 | 51/39/30 |
| | surface | 43 | 43 | 43 | 43 | 43 | 43/34 | 43/34 | 55 | 55 | 55 | 55 | 55/43 | 55/43/34 |
| Electric. connection: 230 V~, 50 Hz | NYM-0 | NYM-0 | NYM-0 | NYM-0 | NYM-0 | NYM-0 | NYM-0 | NYM-0 | NYM-0 | NYM-0 | NYM-0 | NYM-0 | NYM-0 | NYM-0 |
| Electrical power supply in mm² | 2 x 1,5 | 3 x 1,5 | 3 x 1,5 | 2 x 1,5 | 3 x 1,5 | 3 x 1,5 | 4 x 1,5 | 4 x 1,5 | 2 x 1,5 | 3 x 1,5 | 3 x 1,5 | 2 x 1,5 | 4 x 1,5 | 4 x 1,5 |
| Protection class II without PE | — | — | 4 x 1,5* | — | 4 x 1,5* | — | — | 5 x 1,5* | — | — | — | — | — | — |
| Wiring diagram no. | SS-869 | SS-875 | SS-881 | SS-887 | SS-881 | SS-871 | SS-877 | SS-883 | SS-870 | SS-876 | SS-882 | SS-887 | SS-879 | SS-874 |

All power and noise data according to DIN 24163, DIN 24166, DIN 45635, DIN 44974.

¹⁾ in combination with casing type ELS-GU, discharge lateral.

* for deactivation of automatic function.