



# ALD-R 160 Outer Wall For renovation and new buildings – sound

# Air Vent optimised and weatherproof

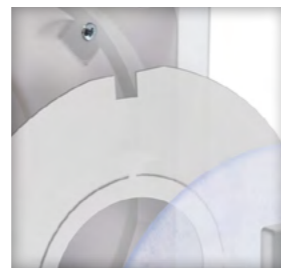


ALD-R 160

## › The outer wall air passage for the 160 series



› Screw-on outer grille with insect screen



› Due to the airflow reduction screen the air volume can be adjusted to individual requirements.

› Polyhedral noise absorber module

› Wind pressure relief to prevent draft

› Flow-optimised inner screen with washable filter

› All 160 single-channel fans can be combined with the new inner screens of the 160 series

## › Technical Data ALD-R 160

Length	500 mm (700mm)	
Ø	160 mm	
V:	at 8 Pa	at 4 Pa
⊗	25 m³/h	18 m³/h
○	20 m³/h	13,5 m³/h
◎	15 m³/h	10 m³/h

### Sound insulation

D <sub>n,W,open</sub>	wall thickness
50 dB	360 mm
53 dB	425 mm
55 dB	500 mm

The sound insulation values apply at the above airflow levels.

The ALD meets high requirements particularly with regard to noise protection and the comfort provided in the living space.

## The ALD-R 160 with weather protection grille for renovation and new buildings

Since its development in 2002, the ALD-R 160 has been one of the best-selling outer wall air vents of LUNOS. Its versatility has been proven in a wide range of applications such as , e.g., in new buildings with the fitting installation block 9/MRD and in many cases of renovation where the ALD was installed subsequently by core drilling.

## Compatibility

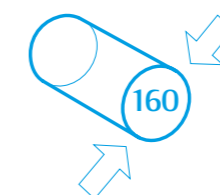
In the development of the ALD-R 160 it was our objective to achieve an even higher versatility with better sound insulation. The ALDs previously available from LUNOS with their various designs forms and airflow levels are now being replaced by an ALD, which is also compatible with the other 160 fans. The basis for these fans is the 160 wall-tube which also enables combination with the LUNOthem façade element.

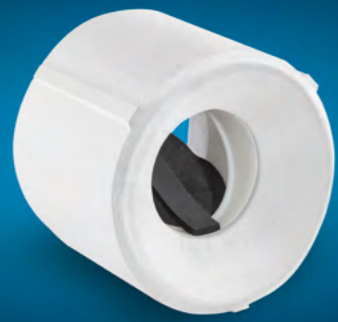
## Improved sound absorbers

To increase the good values for noise protection even further, our engineers experimented with different kinds of sound absorbers. The most efficient option turned out to be a staggered arrangement of polyhedral sound absorber modules. Using these sound absorbers, D<sub>n,W</sub>-values of 50 and 55 dB can be achieved with wall thicknesses of 36 cm and 50 cm.

## One ALD for all areas of application

The ALD-R 160 is equipped for all fields of application. By means of its reduction screen, three airflow levels can be set: 15, 20 and 25 m³/h. The ALD-R 160 is thus able to provide ideal and comfortable ventilation of varying room sizes with different air requirements





# ALD-R 160

Fresh air supply

# Outer Wall Air Vent

in each room



ALD-R 160

Noise protection

### › Pleasant indoor climate in airtight buildings

The basis for a pleasant, healthy room climate is an adequate supply of fresh air without drafts. A cozy, pleasant feeling depends largely on the temperature and humidity content of the room air. The LUNOS ventilation system ensures this comfort by providing constant, intelligent air exchange.

Our houses are leak-proof. Whether modernised or newly built, there is very low leakage in the building envelope. Only with a leak-proof construction form is it possible to build energy-saving buildings such as the low-energy house (LEH) according to the EnEV.

However, a leak-proof building excludes ventilation via air leakage. This means that in about 20% of all redeveloped apartments mould infestation has been registered due to insufficient ventilation, and this figure is rising.

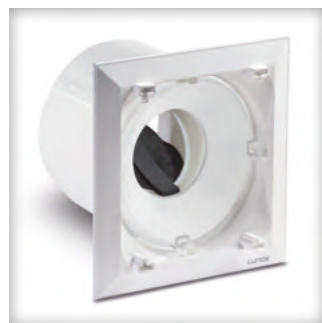
### › Comfort thanks to noise protection

Urban and inter-urban traffic affect our living environment. Streets, railways or airports are built near residential areas in order to ensure convenient transport connections. In addition, the volume of traffic is steadily increasing. To provide a high level of residential comfort, noise protection measures must be integrated in the building, in the walls and windows as well as in the fresh air supply system. In this sector as well, air exchange is achieved without impairment to a pleasant and comfortable room climate by the excellent noise protection measures of the LUNOS ventilation system.

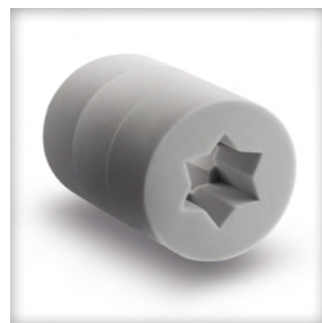
#### Calculation of the resultant sound reduction index of a composite outer wall pursuant to DIN 4109:

The outer wall is considered for the noise-related calculation. The building groups of outer wall, window and outer wall air vent are added up with regard to their area percentages and noise insulation features and form the resultant noise insulation index for the outer wall.

The calculation software is integrated in the LUNOS design tool and available under [www.lunos.de](http://www.lunos.de). It enables fast calculation of the rooms in question.



› The wind pressure relief prevents draft



› The integrated sound absorber keeps traffic noise outside



› The modern design of the inner screen, optional glass screen 9/IBG



› Washable filter



› Various outer grilles and outer hoods selectable



# RA 15-60 – Radial Fan

The combination of pressure consistency

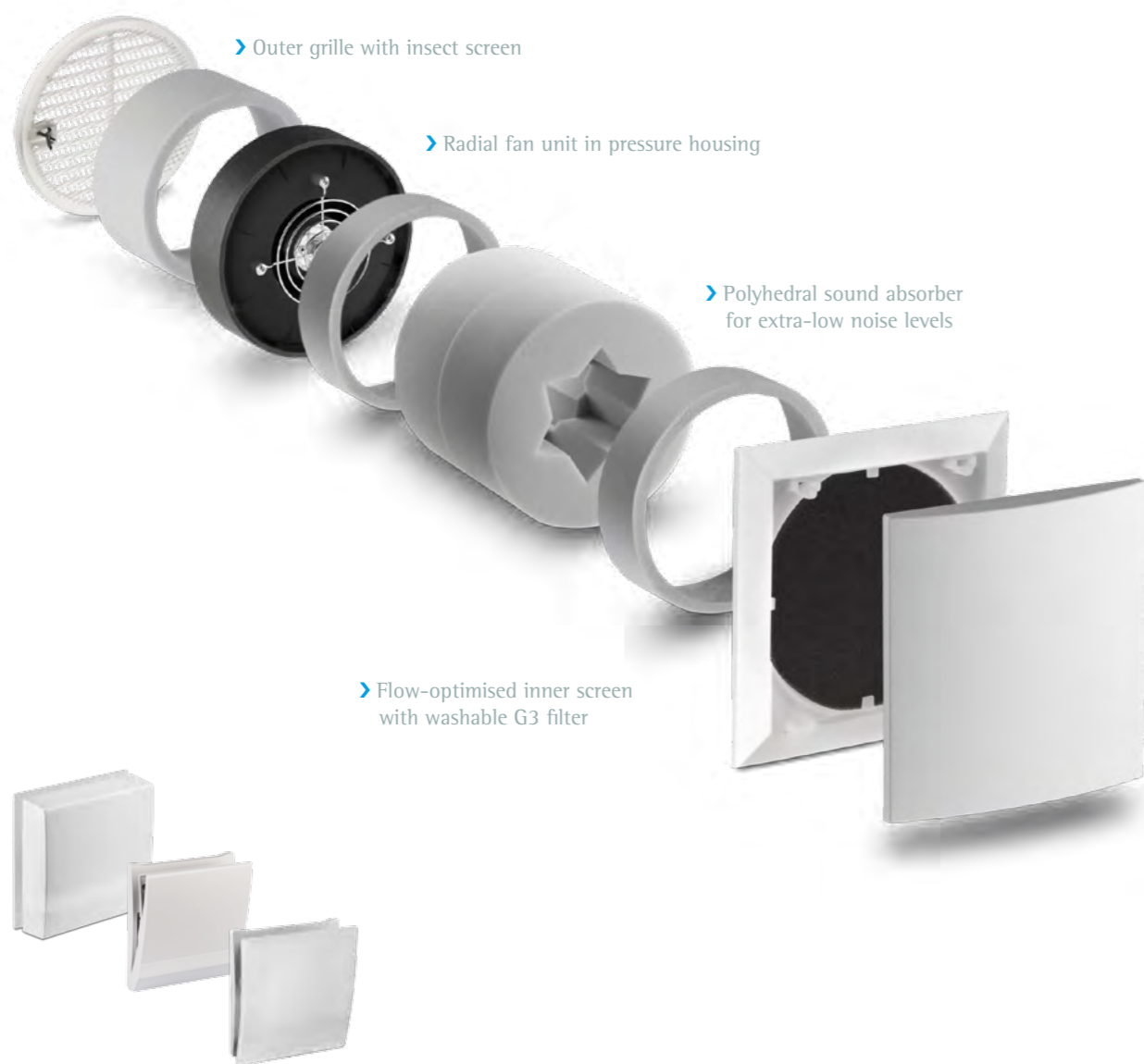
# of the 160 series

and renovation-friendliness



RA 15-60

## › The radial fan of the 160 series: RA 15-60



› Outer grille with insect screen

› Radial fan unit in pressure housing

› Polyhedral sound absorber for extra-low noise levels

› Flow-optimised inner screen with washable G3 filter

› All 160 single-channel fans can be combined with the new inner screens of the 160 series

## › Technical Data RA 15-60

Airflow level	15/30/45/60 m <sup>3</sup> /h
Power consumption	0,6/1,7/3,5/7,2 W, free blowing
Motor type	ec motor for connection to 12 V control
Supply voltage	12 V DC SELV
Sound power level	19,5/31,5/36,0/40,5 dB, free blowing
Standard sound level difference	up to 46 dB
Fan insert (including sound insulation)	Ø 153 mm
Minimum wall thickness (reduced noise protection)	170 mm
Core hole drilling	Ø 162 mm
Size of inner screen or sound insulation hood 9/IBS:	□ 180 x 35 mm
Outer grille	Ø 180 mm, LUNOtherm, or outer hood
Protection class	IP20

## Exhaust air system or hybrid ventilation system: The RA 15-60 is suitable for many purposes

The radial fan for exhaust air rooms is an essential part of the growing 160 family. Like the AB 30/60, it is an exhaust air unit with an ec motor, which can also be combined with the LUNOtherm façade element or the outer hood.

By reason of the same design structure, the fans e<sup>2</sup>, RA 15-60 and AB 30/60 are particularly suitable for hybrid ventilation, which combines ventilation with heat recovery and the exhaust air technology in a cost- and energy-efficient manner.

## Lowest noise: Quiet with a high pressure build-up

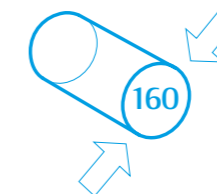
Radial fans are already well known from the exhaust series of LUNOS. By using the 160 tube the benefits of the two types are linked: the silent and pressure-consistent operation of the radial fan combined with the renovation-friendly installation dimensions of the tube fan. Additionally, the aerodynamically optimised fan impeller in combination with the polyhedral sound absorbers of the RA 15-60 provide extra-low noise levels as well as optimum sound insulation from the outside.

## State-of-the-art motor technology

The radial ec motor in conjunction with the pressure housing provide the RA 15-60 with an excellent good pressure curve. The airflow level can be set to three or four steps depending on the control program (15, 30, 45 and 60 m<sup>3</sup> / h).

## Best performance for the environment

Thanks to its low power consumption the RA 15-60, too, is extremely energy-efficient, thus making an active contribution to environmental protection.



\* Sound power level: The sound power level indicates the "loudness" of a device and is independent of the distance.



Silvento V

# Exhaust Air Fans

Silvento AC:

fan insert and clamp-in fan



Silvento KL

## > Silvento V 30/60

The fan insert can be combined with a Silvento housing of your choice.

### Step switching

- Nominal and/or base load operation possible
- Airflow levels switchable to 30/60 m<sup>3</sup>/h
- 230 V AC 50 Hz
- Power consumption from 5.2 and 10.9 W, free blowing
- Sound power level\* 24 und 35 dB(A), free blowing
- Filter change indicator in the front screen
- Regenerative filter as standard



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## > Silvento KL 30/60

This one-room flush-mounted fan is suitable for quick installation in sanitary modules, light-weight walls and suspended ceilings. The clamping length can be up to 42 mm, higher clamping lengths on demand.

### Step switching

- Nominal and/or base load operation possible
- Airflow levels switchable to 30/60 m<sup>3</sup>/h
- 230 V AC 50 Hz
- Power consumption from 5.2 and 10.9 W, free blowing
- Sound power level\* 24 und 35 dB(A), free blowing
- Filter change indicator in the front screen
- Regenerative filter as standard
- also as replacement for the fan type Skalar-VG in the existing wall installation housings 3/LS or 3/LB (the required exhaust seal is supplied with the unit)



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\* Sound power level: The sound power level indicates the "loudness" of a device and is independent of the distance.



# Benefits and Regulated Home Ventilation

# Costs enjoys many advantages



## › Cost Estimates

### Living space ca. 70 - 90 m<sup>2</sup>

Sample calculation

#### Exhaust air system

- e.g. with
- Silvento KL-EC with 5/EC-FK
  - Silvento KL-EC with 5/EC-ZI or KL 30/60
  - ALD-R 160
  - Switch

Material price from 900 € plus VAT

#### Hybrid System

- e.g. with
- e<sup>2</sup>neo, e<sup>2</sup>, e<sup>2</sup>kurz or e<sup>2</sup>mini with heat recover
  - Silvento KL-EC with 5/EC-ZI, KL 30/60 (Strangentlüftung?) or RA 15-60 (outer wall)
  - Universal control
  - Switch

Material price from 2.300 € plus VAT

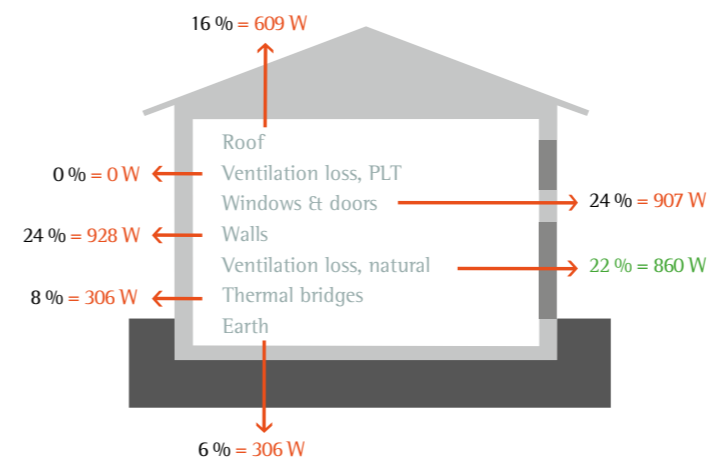
#### System with heat recovery

- e.g. with
- e<sup>2</sup>neo, e<sup>2</sup>, e<sup>2</sup>kurz or e<sup>2</sup>mini with heat recover
  - e<sup>90</sup> with heat recovery
  - Universal control
  - Switch

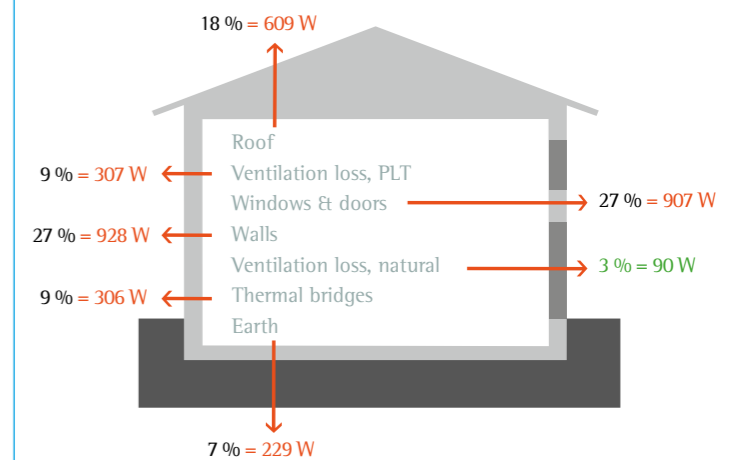
Material price from 2.300 € plus VAT

## › Comparison of unregulated ventilation with a model of heat recovery in a detached house

Heating load and ventilation heat loss in unregulated ventilation



Heating load and ventilation heat loss when using the e<sup>2</sup> with heat recovery



### Result of the calculation:

By using the e<sup>2</sup> in combination with the exhaust fan RA 15-60, the heating load is reduced by 15%. The ventilation heat loss is reduced to 43% (57% savings). The heating load calculation is usually performed by a specialist planner, who can calculate how much the owner can save per year based on the percentage savings.

#### Parameter of the sample calculation:

ventilated living space: 124,90 m<sup>2</sup>, ventilated room volume: 312,25 m<sup>3</sup>, average room height: 2,50 m, standard indoor and outdoor temperature:  $\Theta_i = 20^\circ\text{C}$  and  $\Theta_a = -12^\circ\text{C}$ , new building detached house, KFW70 standard, assumed heat passage coefficient (U- value): outer wall U= 0,16 W/m<sup>2</sup>K, window U= 1,10 W/m<sup>2</sup>K, roof U= 0,20 W/m<sup>2</sup>K, base plate U= 0,23 W/m<sup>2</sup>K