

Heat Recovery

Home Ventilation with Heat Recovery



# Controlled Systems with

Systems with HR

We need fresh air to be able to live healthy lives. We do not feel well and may even fall ill without it. Fresh air is therefore essential for us - and just as well for our four walls. But how can we make sure that our house is sufficiently ventilated when we're traveling so often? How can we also ensure that our home stays nice and warm, so we feel comfortable and do not waste valuable heating energy? With decentralised domestic ventilation systems with heat recovery from LUNOS that's no problem.

Ventilation systems with heat recovery are particularly efficient and provide fresh air and a pleasant living environment in every room. For supply and exhaust ventilation, all rooms of the apartment or house can be equipped with heat recovery devices. For this purpose LUNOS has developed the e<sup>2</sup> series. The devices are preferably installed in living rooms and bedrooms, whereas the e<sup>90</sup> is employed in exhaust air rooms such as bathrooms and kitchens. Here the brand new Ne<sup>xx</sup>t from LUNOS falls into line. It provides ventilation no longer only for domestic rooms with decentralised systems, but now also hotels, hospitals and schools can be equipped by LUNOS.

You will find all the information you need in this brochure about the technical details and possible applications - and we will be happy to answer any question you may have.



# Home Ventilation



## > Supply & exhaust air with HR













#### e<sup>2</sup>-series

Axial outer wall fans with regene- rative heat recovery for living rooms and bedrooms, combinable with LUNOtherm.

### e<sup>go</sup>

Axial outer wall fan with regenerative heat recovery for functional rooms.

#### Ne<sup>xx</sup>t 🔺

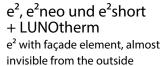
Radial outer wall fan with recuperative heat recovery for living rooms, bedrooms and functional rooms. Wall duct via 160 wall-tube.



regenerative heat recovery for living rooms and bedrooms.

#### 9/MRD

Wall installation housing to hold the 160 wall-tube. H x W x D in mm: 240 x 210 x 500 mm.



## The principle of regenerative heat recovery

The e<sup>go</sup> is the perfect enhancement to the e<sup>2</sup> series in a ventilation system with heat recovery. By reason of the decentralised alignment, the individual ventilation devices can be used exactly where they are required.

Except for the e<sup>2</sup>mini, the e<sup>2</sup> series can also be combined with the LUNOtherm façade element. When using the façade element the outer grille is not required. What remains is a narrow ventilation gap in the reveal or in the lintel.

### The Ne<sup>xx</sup>t with recuperative heat recovery

The Ne<sup>xx</sup>t makes it possible to provide ventilation and air exhaust in large rooms with just one device. Two extremely quiet radial fans achieve up to 110 m<sup>3</sup>/h. You can choose between two versions with enthalpy or crossflow heat exchanger.

#### Living rooms and bedrooms:

The Ne<sup>xx</sup>t and the e<sup>2</sup> series are ideally suited for use in living rooms and bedrooms.

## Bathroom, WC, utility room (UR) and kitchen:

The  $e^{go}$  is used for functional areas such as bathroom, WC, utility room and kitchen. Thanks to the two separate air channels in one unit, a second fan is not required here. The  $e^{go}$  can be operated both in heat recovery operation and in the exhaust air mode (airflow level 45 m<sup>3</sup>/h).



# Home Ventilation with

Ne<sup>xx</sup>t

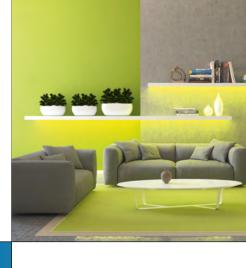
#### > The LUNOS Ne<sup>xx</sup>t - the new diversity in decentralised ventilation

The Ne<sup>xx</sup>t is a decentralised heat recovery unit that is used in kindergartens, schools and offices, hotels and doctors' offices. Of course, the Ne<sup>xx</sup>t is also installed classically in apartments and homes. In areas or high altitudes where wind loads are extreme, the Ne<sup>xx</sup>t is excellently suited, just as well as in areas where high sound insulation is required.

Through the optional use of a F9 filter, the Ne<sup>xx</sup>t exceeds all standards of hygiene requirements many times over. With a heat recovery rate of up to 90 % and a heat transfer either through an enthalpy heat exchanger or a cross-flow heat exchanger, the Ne<sup>xx</sup>t has something to offer. A completely new operating concept completes this multi-talented unit. The control system behind an elegant panel ensures that clear but subtle feedback is provided by backlighting. As standard, the Ne<sup>xx</sup>t is controlled via humidity and temperature sensors. It is available in a surface-mounted and flush-mounted version. In the surface-mounted version, the installation housing has a stylish design frame which makes it also visually appealing. The 160 wall-tube is used for the outside passage.



# Heat Recovery in the decentralised system



QUIET	> Low noise level & maximum passive sound protection The radial ec motors of the Ne <sup>xx</sup> t are convincing all along the line. Thereby, the Ne <sup>xx</sup> t is currently one of the quietest units in its class. The intelligent design achieves a standard sound level difference of 54 dB, making the Ne <sup>xx</sup> t even suitable for use in the vicinity of airports.
ECO-FRIENDLY	> Efficiency Thanks to its very low power consumption, the Ne <sup>xx</sup> t is very energy-efficient, thus making an active contribution to environmental protection. The highly efficient ec technology enables a low consump- tion of electricity.
INNOVATIVE	<ul> <li>&gt; Heat recovery &amp; control technology</li> <li>The key component of the Ne<sup>xx</sup>t is the built-in device with heat exchanger, which is available in two versions:</li> <li>Ne<sup>xx</sup>t-E: The new enthalpy heat exchanger, based on a crossflow heat exchanger, provides a rate of up to 83% heat recovery. In addition, the mode of operation of the heat exchanger ensures largely icing-free operation.</li> <li>Ne<sup>xx</sup>t-K: Crossflow heat exchanger with heat recovery levels of up to 80 %</li> <li>The integrated control provides for perfect interaction of the various components. Equipped with humidity-temperature sensors, even the standard version of the automatic control ensures efficient ventilation with humidity protection. With the optional FM.EO module, the Ne<sup>xx</sup>t can be integrated into the bidirectional radio technology.</li> </ul>
SLIM	> LUNOS design line The Ne <sup>xx</sup> t adds the waveform to the current design language of LUNOS products while maintaining its basic principles and recognition value. With an inner screen size of 510 x 510 mm, the fan thus remains a stylish element of home technology. The front screen also contains the plainly designed control panel. The total depth of 240 mm can be lowered up to 67 mm into the outer wall.
COMPATIBLE	> LUNOS compatibility By using the 160 LUNOS standard wall-tube as wall duct, the Ne <sup>xx</sup> t is compatible with the fans of the 160 series. A two-way outer hood is used for the outer covering.
UNIVERSAL	> The Ne <sup>xx</sup> t-housings can be used universally Developed for the outer wall, the fan can be installed in the surface-mounted or flush-mounted version. The flush-mounted version requires a wall thickness of at least 240 mm. A stylish design frame is avail- able for the surface-mounted version.





# Ne<sup>xx</sup>t The modular system

Ne<sup>xx</sup>t modular system

#### > Functions

In all versions of the built-in device, the Ne<sup>xx</sup>t is equipped as standard with humidity-temperature sensors both on the supply air and the exhaust air side. Thereby, the rooms are always ventilated automatically and in accordance with the respective requirements, so that manual intervention is not necessary. There is a slot for the radio module FM-EO available on the control board.

The Ne<sup>xx</sup>t can be integrated into a bidirectional wireless net- work via the radio module and thus receive information from external sensors. In addition, a WiFi module will be available by which the Ne<sup>xx</sup>t can be remotely controlled via WLAN. The control, which is integrated into the inner screen, is equipped with the following functions:

- Airflow levels adjustable: Ne<sup>xx</sup>t-E and Ne<sup>xx</sup>t-K with 15-110 m<sup>3</sup>/h
- Automatic: Activation of the humidity-temperature control
- Summer mode: The fan is switched to pure supply air or exhaust air operation.
- Anti-freeze function: The airflow volume is reduced to prevent the housing unit from cooling down.
- Filter change indicator
- · Filters meet the highest quality standards: M5 filters, F7 filters or F9 filters are available

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Characteristics	Ne <sup>xx</sup> t-E	Ne <sup>xx</sup> t-K	
Average thermal efficiency level*	73 %	62 %	
Air flow	15-110 m³/h	15-110 m³/h	
Power consumption**	22 Watt	22 Watt	
Supply voltage	200-240 V / 50/60 Hz 115 V / 60 Hz US version (available on request)	200-240 V / 50/60 Hz 115 V / 60 Hz US version (available on request)	
Sound power level**	40 dB(A)	40 dB(A)	
Core hole drilling	162 mm		
Minimum wall thickness (surface mounting/flush mounting)	110 mm/280 mm		
Depth in wall installation	172 mm housing + 105 mm flap closure in wall duct		
Cutout installation housing	min. 482 mm x 482 mm		
Dimensions of the unit	480 mm x 480 mm x 170 mm		
Size of the inner screen	510 mm x 510 mm x 66 mm		
Size of the outer hood	235 mm x 205 mm x 72 mm		
Energy efficiency class	А		

\* according to EN 13141-8

\*\* at 70 % of the maximum airflow volume, according to ErP Directive, EU Regulation 1254/2014, measured with M5 filters.

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# for the perfect fan



## > Configuration Ne<sup>xx</sup>t

The modular system of the Ne<sup>xx</sup>t enables easy combination of the various components with the built-in devices. Five components are required to complete one fan. **One** product needs to be chosen for each component, so that the selection is complete:

Built-in device	Housing	Wall-tube + adapter*	Inner screen	External closure
Built-in device NXT-E	Built-in housing without surface mounting set: 3/NXT	500 mm length: 9/R 160-500 Adapter 2/AD 160	With membrane keyboard: 9/NXT-IBF	Two-way outer screen: 1/EGA or Two-way outer hood: White 1/HWE-2 Anthracite 1/HAZ-2
Built-in device NXT-K	or Built-in housing with surface mounting set: J/NXT + J/NXT-AP	or 700 mm length: 9/R 160-700 Adapter 2/AD 160		

\* An adapter is required per each 10 cm wall-tube or part thereof



## **Electric flap closure**

The electric flap closure 9/KVEN-2 for the Ne<sup>xx</sup>t based on the 160 wall-tube is available as an option. It opens or closes the wall duct automatically when the unit is switched on or off.



# Home Ventilation with e<sup>2</sup>neo

e<sup>2</sup>neo

### > The e<sup>2</sup>neo - the reference in reverse technology

LUNOS works according to the principle of continuous improvement - this is how the  $e^2$  was revolutionised: the  $e^2$ neo works from an extremely quiet operation of 5 m<sup>3</sup>/h. This was made possible by an advanced motor with a significantly reduced operating noise, which can be controlled even more finely.

Therefore, the  $e^2$ neo is not only quieter than the successful  $e^2$  generation, but also more efficient. The approved and reliable effectiveness of the  $e^2$  has, of course, been retained.





# Heat Recovery from the e<sup>2</sup> series



## Reverse technology: The heat recovery of the e<sup>2</sup> series for residential rooms

All fans of the e<sup>2</sup> series work according to the method of regenerative heat exchange. In reversing operation, a storage element charges up with thermal energy similar to a rechargeable battery and transfers the heat to the incoming outside air.

 $e^2$  fans are preferably used in living rooms. There are always two devices running in paired operation, so that an even number of fans needs to be installed for the  $e^2$ s to function properly.

QUIET	> Modern ec technology and motor control The ec motor of the e <sup>2</sup> neo has been tuned even more finely to reverse technology requirements. The result is an even more precise control of the ventilation stages and an optimised change of air direction. The revised fan blades enable even lower running noises.
ECO-FRIENDLY	> Efficiency With the lower power consumption of its ec motor, the e <sup>2</sup> neo has a particularly high efficiency thus ensuring significant energy savings in the heat supply. The e <sup>2</sup> neo thus achieves energy efficiency class A+ according to the ERP directive.
INNOVATIVE	> Heat recovery The compact heat store made of a ceramic composite material provides a heat provision level of more than 80 %.
SLIM	> Small dimensions In its volume flow class, the e <sup>2</sup> neo is one of the world's smallest decentralised home ventilation fans with heat recovery. The small, flat inner screens have approximately the size of a CD.
COMPATIBLE	> Compatibility with other devices If a LUNOS ventilation system has already been installed, an existing fan of the 160 series can be replaced by the e <sup>2</sup> neo. This is possible by the use of the same wall duct.
UNIVERSAL	> Versatile installation options All fans of the e <sup>2</sup> series can be used in new buildings as well as in modernisation work. In new buildings

All fans of the e<sup>2</sup> series can be used in new buildings as well as in modernisation work. In new buildings they are placed between the bricks by use of a wall installation housing. In modernisation work they are installed by means of a 162 mm core hole drilling. The wall must be at least 280 mm thick.





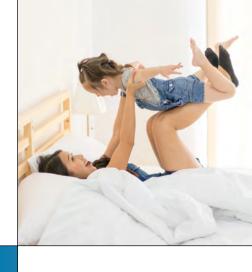


# Home Ventilation with e<sup>2</sup>, e<sup>2</sup>short & e<sup>2</sup>mini

e<sup>2</sup>, e<sup>2</sup>short & e<sup>2</sup>mini



# Heat Recovery from the e<sup>2</sup> series



## > The classics of the e<sup>2</sup> series, three fans for all application purposes

No fan has characterised decentralised ventilation with heat recovery as strongly as the LUNOS  $e^2$ . It is universally applicable and can be used even for high sound protection requirements. The  $e^2$ short and  $e^2$ mini were developed for an even more flexible

application range of the  $e^2$  series. Thanks to these two fans even very narrow walls can be equipped with efficient ventilation devices.

QUIET	> Low noise level thanks to ec technology Highly efficient motors with the state-of-the-art ec-technology combined with flow-optimised and specially balanced fans have eliminated nearly all running noises. The result is a low self-noise level.
ECO-FRIENDLY	> Efficiency Due to their very low power consumption, e <sup>2</sup> , e <sup>2</sup> short and e <sup>2</sup> mini are particularly energy-efficient. The units thus achieve very good energy efficiency classes.
INNOVATIVE	> Heat recovery The units of the e <sup>2</sup> series have a very low energy consumption. Using state-of-the-art production methods, LUNOS succeeded in developing a compact heat store of a ceramic composite material, which provides a heat recovery rate of up to 90 %.
SLIM	> Small dimensions The e <sup>2</sup> mini belongs to the smallest decentralised fans in the field of home ventilation with heat recovery. Like the e <sup>2</sup> neo, the 160 fans e <sup>2</sup> and e <sup>2</sup> short are extremely compact in their volume flow class and convince by their small dimensions.
COMPATIBLE	> Compatibility with other devices If a LUNOS ventilation system has already been installed, an existing fan of the 160 series can be replaced by the fans e <sup>2</sup> and e <sup>2</sup> short. This is possible by the use of the same wall duct.
UNIVERSAL	> Versatile installation options

In new buildings as well as modernisation work, all fans of the e<sup>2</sup> series can be used. In new buildings they are placed between the bricks by use of a wall installation housing. In modernisation work they are installed by means of a 162 mm or 100 mm (e<sup>2</sup>mini) core hole drilling.

e <sup>2</sup>	Home Ventil	ation with Technical data
Technical data		
	> Characteristics	e <sup>2</sup> neo A+
QUIET	Measuring surface sound pressure level* (sound power level)**	From 11 dB (38 dB)
ECO-FRIENDLY	Power consumption	From 0,3 W
INNOVATIVE	Average thermal efficiency level	Heat provision level according to scavenging air procedure: 82.6 %
SLIM	Dimensions	Fan size: Ø 154 x 243 mm
COMPATIBLE	Compatibility with other devices	All 160 systems incl. LUNOtherm and outer hoods as external closure
UNIVERSAL	Versatile installation options	Usable in new buildings and modernisation work, wall thickness from 280 mm

Definitions for sound:

\* Measuring surface sound pressure level: indicates how high the sound pressure level is on a measurement surface (hemisphere) around the inner screen of a fan in 1 m distance. The higher the value, the louder is the unit. This value cannot be measured directly, it is a calculated value. \*\* Sound power level: At 70 % of the maximum airflow according to (EU 1253/1254/2014). The sound power level indicates the "loudness" of a device and is independent on the distance.

# Heat Recovery of the e<sup>2</sup> series



e <sup>2</sup> A	e <sup>2</sup> short A	e <sup>2</sup> mini A
From 17 dB	From 17 dB	From 18 dB
(40 dB)	(40 dB)	(40 dB)
From 1,4 W	From 1,0 W	From 0,6 W
Heat provision level	Heat provision level	Heat provision level
according to scavenging air	according to scavenging air	according to scavenging air
procedure: 90.6 %	procedure: 82.7 %	procedure: 74.4 %
Fan size:	Fan size:	Fan size:
Ø 154 x 243 mm	Ø 154 x 168 mm	Ø 98 x 160 mm
All 160 systems incl.	All 160 systems incl.	Compatible with wall-tubes
LUNOtherm and outer	LUNOtherm and outer	with an inside diameter of
hoods as external closure	hoods as external closure	100 mm
Usable in new buildings and modernisation work, wall thickness from 280 mm	Usable in new buildings and modernisation work, wall thickness from 200 mm	Usable in new buildings and modernisation work, wall thickness from 167 mm to max. 300 mm



ego

# Home Ventilation with

> The e<sup>go</sup> - reverse technology for exhaust air rooms

LUNOS developed the e<sup>go</sup> for optimum ventilation with heat recovery in bathrooms, WCs and kitchens.

Paired operation is not required, because in an e<sup>go</sup> two small fans provide air supply and exhaust air with heat recovery at the same time.





> On the façade side combinable with the new two-way outer hoods



# Heat Recovery in functional rooms



## Function of the reversing technology in exhaust air rooms

Like the e<sup>2</sup> series, the e<sup>go</sup> uses the principle of regenerative heat exchange. However, the e<sup>go</sup> uses two fans operating in opposite direction so that supply and exhaust air are moved at the same time. A second device is not required for operation.

Additionally, the system can be switched to an exhaust mode in which an airflow level of  $45 \text{ m}^3/\text{h}$  is removed to quickly allow fresh air to flow into a room.

QUIET	> Low noise level thanks to ec technology Highly efficient ec motors with flow-optimised fans ensure low running noises. This results in low sound values. Indication of the enveloping surface sound pressure level* (sound power level).**	From 17 dB (47 dB)
ECO-FRIENDLY	> Efficiency The very low power consumption ensures high energy-efficiency. The e <sup>go</sup> thus achieves the energy efficiency class B.	From 1,0 W
INNOVATIVE	> Heat recovery The compact heat store made of a ceramic composite material with an extraordinary honeycomb structure provides a high thermal effi- ciency.	Heat provision level according to scavenging air procedure: 81.4 %
SLIM	> Small dimensions The e <sup>go</sup> belongs to the worldwide smallest fans in home ventilation with heat recovery in the class of two-way devices.	Fan size: Ø 154 x 300 mm
COMPATIBLE	<ul> <li>Compatibility with other devices</li> <li>If a LUNOS ventilation system has already been installed, an existing fan of the 160 series can optionally be replaced by the e<sup>go</sup>.</li> <li>Versetile installation entions</li> </ul>	Only when using e <sup>90</sup> inner screens and two-way outer screens
UNIVERSAL	> Versatile installation options The e <sup>9°</sup> can be used in new buildings as well as in modernisation work. In new buildings it is placed between the bricks using a wall installation housing. In modernisation work it is installed by means of a 162 mm core hole drilling - minimum wall thickness: 300 mm.	Usable in new buildings and modernisation work, wall thickness from 300 mm

**Definitions for sound:** 

- \* Measuring surface sound pressure level: indicates how high the sound pressure level is on a measurement surface (hemisphere) around the inner screen of a fan in 1 m distance. The higher the value, the louder is the unit. This value cannot be measured directly, it is a calculated value.
- \*\* Sound power level: At 70 % of the maximum airflow according to (EU 1253/1254/2014). The sound power level indicates the "loudness" of a device and is independent of the distance.



# LUNOS Ventilation

**Gesture control** 

#### > LUNOS controls

#### **Gesture control**



**Smart Comfort** 



#### **Universal control**



Ventilation by one gesture - the new gesture control provides fresh air with the familiar LUNOS equipment standards, such as humidity-temperature control, frost protection and automatic operation as well as various comfort functions. The LUNOS 5/GS has a touch-sensitive panel, which can also be activated - contactlessly - by different gestures. Below the touch unit, there are 60 RGB LEDs, which provide feedback during operation and signal activated functions and states in an easily understandable way. Universal controls, Ne<sup>xx</sup>t and/or Silvento devices can optionally be connected to the two outputs of the gesture control. These two control paths or channels can be controlled separately so that two different fan types can easily be controlled independently of each other. This means that the entire ventilation system of a residential unit can be operated via one control.

Ventilation at the touch of a button - exactly as needed. The Smart Comfort Control is particularly easy to operate. The different ventilation modes can now be set directly at the touch of a button. This includes, of course, the humidity-temperature mode recommended for continuous operation. In this ventilation mode, the ventilation system works particularly efficiently and keeps the room climate at an optimum level. The Smart Comfort can control all 12-volt fans from LUNOS.

- Humidity temperature sensor and filter change indicator
- Automatic humidity control, intensive ventilation, night-time reduction and summer ventilation can be selected
- Functions for moisture and frost protection

With the Universal Control 5/UNI-FT, everything can be controlled automatically. It is equipped as standard with humidity temperature control and a delay timer module and can also be switched to summer mode. The universal control is a multifunctional 12 volt control that can be operated with a simple two-pole series switch.

- Humidity temperature control and filter change indicator
- Integrated delay time with interval operation
- Radio module connectable

#### > The Touch Air Comfort (TAC)



This control is the multi-talent from LUNOS. Both the 12 V fans of the 160 series and the Silvento ec can be connected directly. Alternatively, almost any number of fans can be connected via universal controls, which can be operated via the TAC. Additionally, LUNOS 230 V fans can also be easily connected using the additional module 5/ACM.

The TAC can be configured for various fan scenarios. It proves to be an energy-efficient combination artist: Either different fans, the 230 V module 5/ACM for Silvento AC or individual universal controls are connected to the three outlets of the control.

# Control Systems



#### Radio Products & assessories

#### > Bidirectional radio technology



#### Remote control RC-EO

The RC-EO remote control is maintenance-free, shock-resistant and splash-proof, making it suitable for all areas of everyday life. Connected to the UPM-EO module, all connected 230 V devices can be controlled by radio command.





The flush-mounted module UPM-EO is a receiver for radio signals. In particular, during refurbishment manual operation of the fan can be enabled retroactively without the need for complex cable laying.





## This external sensor can be installed almost anywhere and does not require any additional power sup-

External humidity and temperature sensor SFT-EO

ply. As an indoor and outdoor sensor, the intelligent controller adjusts the ventilation according to the measured values.

#### Radio module for the universal control UNI-EO

The radio module for the universal control enables communication of the universal control unit 5/UNI-FT with the coupled LUNOS wireless components. This includes the processing of received sensor values and switching commands, as well as the transmission of system states.



#### Radio module for Silvento ec and Ne<sup>xx</sup>t FM-EO

In connection with e<sup>2</sup> fans at a universal control with UNI-EO module, sensor values can be exchanged and the ventilation operation of the systems can be coordinated.

#### > Smart ventilation with LUNOS and homee

#### homee



homee is a modular Smarthome center that enables the linking of various trades and technologies. The user is provided with a clearly structured and easy-to-use interface in the form of an app for iOS and Android or as a WebApp. The center is the white "Brain-Cube", which already has a WLAN interface as standard both providing the connection to the Internet and implementing communication with WLAN-capable Smarthome devices. The EnOcean Cube is required to integrate and control LUNOS specific radio modules in homee. LUNOS and homee make proper ventilation not only easy, but also smart. www.hom.ee

#### > Accessories for Touch Air Comfort (TAC)



#### CO<sub>2</sub> -Module

Permanent measurements of the  $CO_2$ -values enable the TAC to control the fans according to the air quality. The control range is adjustable, which allows fine-tuning towards various room conditions. The  $CO_2$  program can be set concurrently with the humidity-temperature program. The automatic function will then react to the requirement that occurs first. Designation: SCO2-TAC



# Accessories 160 screens,

Accessories

## > The new comfort inner screens for the 160 series



#### Comfort inner screen

Thanks to the new design the direct noise input to the residents is reduced - the result is a more comfortable ambiance. The glass version of the new screen also stands out by its elegant design.

Plastic design Designation: 9/IBK (H x W x D) 191 x 180 x 60 mm



#### Glass design Designation: 9/IBG (H x W x D)) 197 x 185 x 66 mm



## > Inner screens for the 160 series



#### Standard inner screen Designation: 9/IBE (I

9/IBE (H x W x D) 180 x 180 x 35 mm



#### Noise protection inner screen

Sound insulation hood 9/IBS: increase of the standard sound level difference by up to 9 dB, reduction of self-noise, including washable filters of filter classes G2 and G3 1 pc each.

Designation: 9/IBS

(H x W x D) 250 x 250 x 78 mm

# outer grilles and wall ducts



### > Outer grilles and screens for 160 systems



#### Plastic grille Ø 180 mm for wall-tubes Ø 160 mm

NEW with façade protection ring, claw fixing and insect screen Designation: 1/BE 180 sanded Designation: 1/WE 180 white Designation: 1/AZ 180 anthracite



#### Outer hood aluminium

(H x B x T) 235 x 205 x 72 mm for wall-tubes Ø 160 mm, insect screen, with sound insulation, to screw on. Increase of standardised sound level difference by up to 6 dB. Designation: 1/HWE white powder-coated Designation: 1/HAZ anthracite powder-coated



# Two-way outer screen, plastic for wall-tubes Ø 160 mm, insect screen,

with sound insulation, to screw on. Designation: 1/EGA(H x W x D) 217 x 257 x 63 mm



### Two-way outer hood, aluminium

(H x W x D) 235 x 205 x 72 mm for wall-tubes Ø 160 mm, insect screen, with sound insulation, to screw on. Increase of standardised sound level difference by up to 6 dB. Designation: 1/HWE-2 white powder-coated Designation: 1/HAZ-2 anthracite powder-coated



## LUNOtherm Façade Elements

#### LUNOtherm-S

(H x W x D): 930 x 700 x 60 mm Suitable for installation in a building supervisory authority approved ETICS. Assembly with over-insulation or under-insulation possible.

#### LUNOtherm A, A FS, B and B FS

Variant diversity available with insulating thickness of 60–300 mm LUNOtherm A or B W x H: 80 x 490 mm/ 1000 x 500 mm Application in non-combustible ETICS

#### LUNOtherm A FS or B FS

W x H: 980 x 505 mm/ 1000 x 515 mm For mounting below the window. Application in non-combustible ETICS

## > Wall installation housing for the 160 series

#### 9/MRD



Wall installation housing made of EPS with a slope towards the outside. Suitable for all devices of the 160 series. Can also be used with LUNO-therm. Steplessly shortenable. Designation: 9/MRD  $(H \times W \times D)$  240 x 210 x 500 mm

#### > Wall-tubes for the 160 series

#### Wall-tube



for all devices of the 160 series (can also be used with LUNOtherm) Designation: 9/R 160-500 (Ø x L) 160 x 500 mm Designation: 9/R 160-700 (Ø x L) 160 x 700 mm



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