



inVENTer

Installation instructions

iV-Twin+



Ventilation device
with heat recovery



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Disclaimer

This documentation represents a translation of the original German installation instructions. It must be passed on to the user (tenant, owner, property management, etc.) after completion of the installation.

The contents of this documentation have been checked for conformity with the hardware and software described. Nevertheless, deviations cannot be excluded, so that no guarantee can be given for complete conformity.

This documentation describes the functionality of the standard range.

For reasons of clarity, the documentation does not contain all detailed information on all types of the product and cannot take into account every conceivable case of operation, installation and assembly.

The illustrations in this documentation may differ slightly from the design of the product you have purchased. The function remains the same despite the difference in detail.

This documentation is updated regularly. Necessary corrections and appropriate supplements are always included in subsequent editions. You can also find the latest version at www.inventer.eu/downloads.

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1 User and Safety instructions

Thank you for purchasing this high quality product from inVENTer!

This section provides an overview of the basic safety precautions for safe and proper operation of your ventilation system.

1.1 User information

Safety and warning instructions

The safety and warning instructions in these installation instructions have a uniform structure and are marked with a symbol on the left side of the instruction. A signal word in front of the text also indicates the hazard level. If several hazard levels occur, the safety note for the highest level is always used.

The safety instructions and warnings contain the following information:



SIGNAL WORD: Type and origin of the hazard. Possible consequences of the danger!

- Measures to avoid hazard.

The signal word indicates the severity of the potential hazard unless the preventive measures are taken:



DANGER means: Imminent danger of serious injury or death.



WARNING means: Possible danger of serious injury or death.



CAUTION means: Direct danger or minor/significant injury.



NOTICE Means: Direct or possible risk of property damage due to an adverse event/state.

If you see these signs, follow the measures described to avoid possible danger and damage.

Other symbols used in this documentation

In addition to the safety and warning instructions, the following symbols are used:



A **TIP** symbol indicates practical and useful tips for handling your ventilation device.



Additional **tools and aids** are required.



Red bar over a graphic: Illustration shows the outer wall.



Blue bar over a graphic: Illustration shows the outer wall.



Action required: This prompts the user to perform a specific action.



Check results: Requires user to check results of the action performed.



Action focus: To be taken into account in the corresponding assembly step.

1.2 Safety instructions

The operating instructions are part of your iV-Compact ventilation device and must be available at all times (see www.inventer.eu/downloads).

Before carrying out any work on the system, read this documentation carefully and observe all the instructions for installation, commissioning and maintenance given in this chapter. In addition, observe the safety instructions that precede the instructions described. Failure to observe the safety instructions may result in personal injury and/or damage to property.

These installation instructions only cover the standard variant (referred to as the "Standard variant" in the following text) of the iV-Twin+ ventilation device. Information on the variants can be found in the separate installation instructions for the respective components.

Intended use

The ventilation device is used to ventilate living rooms, rooms similar to living rooms and other areas where people spend their time, e.g. living rooms and bedrooms, offices, basements and attics. It is controlled via a controller of the inVENTer system (also referred to as "controller" in the following text).

General information

- Observe the applicable standards, regulations and directives when carrying out work. In particular, also applicable building regulations, the fire protection ordinance and accident prevention regulations of the employers' liability insurance association.
- Only use the device/system in accordance with the applications described in this documentation and only in conjunction with the components recommended and approved by inVENTer GmbH and specified in this documentation. Modifications or conversions to the unit/system are not permitted.
- Your ventilation device/system is exclusively designed for use in ambient temperatures between -20 and 50°C.
- Faultless and safe operation of the unit/system requires proper transport, storage and assembly as well as careful maintenance.

Installation and assembly



- **CAUTION: The device may only be installed by qualified personnel.**
- Before starting the work, you should have a project that shows the number of ventilation units, the location of the ventilation units, the ventilation principle (cross ventilation, individual room ventilation, exhaust ventilation) and the associated controllers. The exact positioning of the individual units and control units must be checked on site and, if necessary, adapted to the conditions on site with the involvement of the responsible planner or the user. For optimal functioning, it is recommended that the unit be installed at an appropriate location in the upper wall area.



- **WARNING:** For the joint operation of a ventilation unit with fireplaces, securing measures must be taken to prevent the occurrence of negative pressure in the building. The decision as to which measures should be carried out is made by the responsible chimney sweep and/or building planner.



- **NOTICE:** The ventilation unit is not suitable for drying out buildings. Do not operate the device until all construction work has been completed.



- **NOTICE:** Contamination of components by e.g. plaster residues will damage the components! Seal the ventilation unit/air outlets of the ventilation unit dust-tight during the entire construction work. Do not remove any thread locks until final assembly.
- **NOTICE:** Do not install the unit near room air thermostats or in the immediate vicinity/above sensitive pictures or furniture.
- **NOTICE:** The construction of the ventilation unit has a separation of air volume flows in the wall sleeve. During and after installation, make sure that vertical air volume separation is installed at all times!
- **NOTICE:** Observe the specified minimum distances on both sides of the wall and frontally to avoid unintentional mixing of different air volume flows and to ensure access to the device and its components. A minimum distance of 1.2 m must be maintained between adjacent air openings. (📐, page 14 f.).
- **NOTICE:** The wall sleeve must be integrated into the building envelope (airtightness level) in accordance with the current state of the art, taking into account constructional and physical specifications ("RAL installation"). The material for this is to be provided by the customer.
- **NOTICE:** When bringing the wall construction up to the wall sleeve, observe the necessary blocking levels to avoid interrupting the composite thermal insulation system. If uncertain, consult your planner before installation!
- **NOTICE:** Install the wall sleeve with a slope of 1 - 2° to the outer wall to ensure that any condensation that may occur is drained off.
- **NOTICE:** The device must not be used in locations where direct contact with splashing water is possible over a long period of time and/or the device is exposed to direct jets of water. Observe the specifications of VDE 0100 when selecting the installation location.
- **NOTICE:** Store components standing upright outside the wall sleeve and do not throw them to avoid damage and breakage of the components, especially the thermal accumulator.
- **NOTICE:** To prevent algae from settling around the outer closures, the installation instructions must be followed exactly (apply all sealing tapes!). We recommend a biocide pre-setting/water-repellent pre-treatment of the façade surface around the exterior finishes. Ask your planner about this!
- **NOTICE:** When mounting components in (exterior) walls with insulation, use insulation anchors to ensure secure fastening of the components. Insulation anchors are not included in the scope of delivery, they are optionally available!
- **NOTICE:** Use only permanently elastic sealing compound suitable for outdoor use to seal the joints at all outdoor terminations!
- **NOTICE:** The device has plastic surfaces that are sensitive to scratches. Do not touch components with oily and/or dirty hands. Avoid contact with sharp or pointed objects.

Electrical connection of the reversible fan



- **DANGER:** The device may only be installed by qualified personnel.



- **CAUTION:** When using the ventilation device in protection area 1 according to VDE 0100, all plug connections must be positioned in the wall sleeve at the rear of the fan device.



- **NOTICE:** The ventilation device operates with protective extra-low voltage. It must not be connected directly to the 230 V power supply system.
- **NOTICE:** Laying cables whose sheathing under plaster is not plaster-resistant leads to short circuits and cable fires! Lay cables without a plaster-resistant cable sheath in the empty conduit.
- **NOTICE:** The use of a too small cable cross-section leads to a too high voltage drop and/or the contacting is not guaranteed! Use a cable cross-section of at least 0,75 mm² (stranded wire) for the fan BUS. Use wire end ferrules with collars to connect the stranded wires.



- **NOTICE:**When using several ventilation units, controlled via several controllers, you must ensure that the ventilation units are synchronised with each other (see controller installation instructions). All controllers should be connected via a mains fuse in the house distribution board.

If your device has a defect, contact the factory representative responsible for you or our technical service.

Use contrary to the intended purpose leads to the exclusion of any liability claims.

Improper use

Any use that is not mentioned in the chapter Intended use is considered improper use.

Do not install/operate the equipment in areas where the following may enter or occur:

- Environment with high oil or grease content.
- Flammable gases, liquids or vapours.
- Extreme dust exposure.
- Environment temperatures outside -20 – 50 °C
- Obstacles preventing access to or removal of components of the ventilation device.

The ventilation device is not to be used as an opening to the outside and/or for the purpose of smoke discharge/smoke extraction in basements without windows.

Qualified personnel

The device/system may only be set up, operated and cleaned in conjunction with this documentation and the documentation for the controllers.

Assembly, electrical connection and initial commissioning of the device/system may only be carried out by qualified personnel. Qualified personnel in the sense of the safety instructions in this documentation are persons who are authorized to install, commission and label devices, systems and circuits in accordance with safety engineering standards.

Comformity

The ventilation device complies with the technical safety requirements and standards of electrical appliances for domestic use. It is compliant with applicable European Union and United Kingdom directives: The full text of the EU Declaration of Conformity is available at the following Internet address: <https://www.inventer.eu/downloads/>

2 System overview Ventilation device iV-Twin+

The iV-Twin+ ventilation system was developed as a single room unit with heat recovery for separate ventilation of separate rooms or as a supplementary unit to existing ventilation devices. It is designed for the ventilation of living rooms and bedrooms in detached houses and apartment buildings, hotels and guesthouses, rooms in public facilities and workrooms in office buildings.

As a single room device, the iV-Twin+ does not require paired operation. The creation of a spatial connection through overflow measures is not necessary. The iV-Twin+ can therefore also be used in classic extract air rooms such as kitchens, utility rooms, bathrooms and bedrooms. It is suitable for installation in new buildings as well as for retrofitting in old buildings. The installation is generally carried out in the outer wall.

A lockable inner panel discreetly covers the iV-Twin+ visually from the interior. In the outdoor area, a freely selectable cover conceals the components of the ventilation unit. The air volume flow separators integrated into the inner panel and the outer cover ensure that there is no mixing of different air flows outside the wall sleeve.

The standard length of the separating element is 765mm. The standard length of the wall sleeve is 495 mm. For larger wall thicknesses, a wall sleeve with a length of 745 mm or 495 can be ordered. Both versions can be shortened on site.

The ventilation unit is controlled via one of the following controllers¹⁾ of the inVENTer system:

- sMove
- MZ-Home

Components

- Separating element for the wall sleeve
- Wall sleeve
- External termination
- Pollen and activated carbon filter (optional)
- Inner panel
- Half cylinder heat accumulator (2x)
- Fan unit with dust filter class ISO Coarse ≥ 45% (G3) and reversing fan Mini-Xenion (2x), connecting cable

Models

The ventilation devices of the iV-Twin+ product series differ in their external terminations. This documentation only contains information on the standard version of the ventilation device. Information on the variants can be found in the separate installation instructions for the respective components.

- **Standard variant:** Ventilation device iV-Twin+ with driving rain-proof weather protection hood Flex Twin+, incl. air volume separation (white/grey/antracite/special colour/nord).
- **Corner variant:** Ventilation device iV-Twin+ Corner (hereinafter referred to as the "Corner variant") for integration of the external closure in the window reveal (white/grey/antracite/special colour/ nord)
- **Nordic variant:** Ventilation device iV-Twin+ Nordic (in the further text "Variant Nordic") for integration of the external closure in clinker brick walls (white/grey/antracite/special colour/north).

¹⁾ The installation instructions for the controllers are not part of this documentation.

2.1 Construction

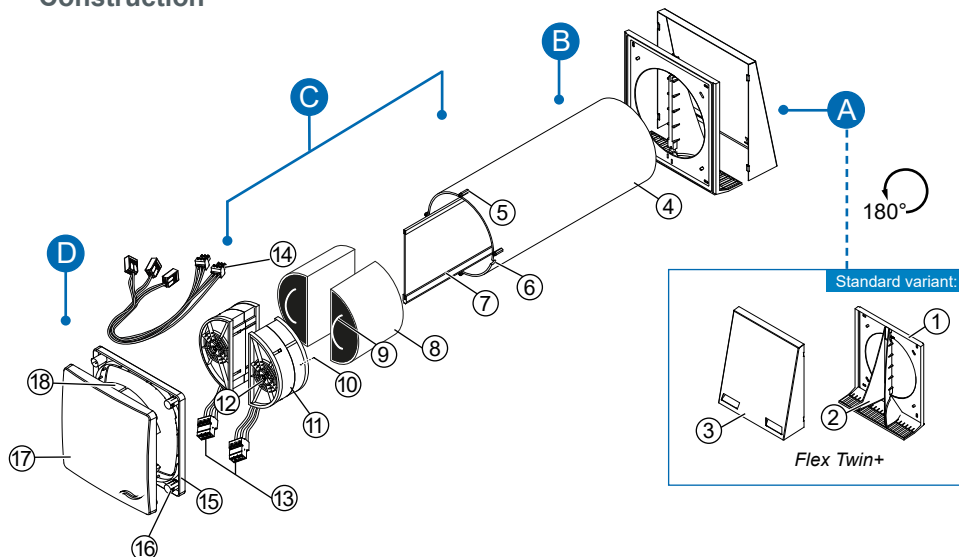


Figure 1: iV-Twin+ ventilation device overview

Components

A External termination¹⁾: Weather protection hood Flex

- 1 Weather protection hood base plate
- 2 Air volume flow separation (pre-assembled)
- 3 Weather protection hood cover

B Wall sleeve

- 4 Wall sleeve R-D200
- 5 Interior cover mounting elements
- 6 Recess fan BUS cable

C Thermal accumulator insert (Thermal accumulator, fan unit)

- 7 Separator R-D200x765
- 8 Half cylinder heat accumulator (2x)
- 9 Thermal accumulator handle
- 10 Dust filter G3 (ISO Coarse $\geq 45\%$) (2x)
- 11 Half-cylinder fan unit with Reversing fan Mini-Xenion (2x)
- 12 Knob fan unit (2x)
- 13 Plug fan Mini-Xenion (2x)
- 14 Connecting cable iV-Twin+

D Flair Twin+ inner panel

- 15 Inner panel base plate
- 16 Spacer (4 x)
- 17 Inner panel cover
- 18 Air volume separation

¹⁾ The description of the components of all other possible external finishes can be found in the separate installation instructions of the respective external finish.

2.2 Functions

Ventilation device iV-Twin+

The iV-Twin+ ventilation device is used to ensure the ventilation of living spaces. In addition, installation in classic extract air rooms is possible. The integrated heat accumulator ensures optimum heat recovery at maximum air volume flow.

As a single room device, the iV-Twin+ combines a supply air and extract air device in one. To ensure that the ventilation system functions correctly and that the pressure stability in the room is guaranteed, the supply air volume must correspond to the exhaust air volume at all times. A separating element vertically divides the wall sleeve into two airtight chambers. Each chamber contains a fan unit and a heat accumulator in half-cylinder geometry.

Due to a high pressure build-up and the active speed control of the motor (integrated wind pressure stabiliser) in the Mini-Xenion reversing fan, the air volume flow in the system is kept almost constant even in the event of pressure fluctuations caused by the weather.

In order to ensure the full functionality of the ventilation unit throughout the year, a temperature monitor is integrated in the Mini-Xenion reversing fan. This measures the temperature of the air flow at the fan. If the temperature at the fan falls below + 5 °C, the reversible fan is automatically switched to extract air mode for 4 cycles. This allows the thermal accumulator to heat up again and prevents cooling of the interior due to cold supply air. During this phase, the operating mode that has been set on the controller is ineffective. Subsequently, the controller switches the ventilation device back to the originally selected mode.

The most important components of the iV system are the ceramic thermal accumulator, the reversing fan, air guiding vanes for straightening the air volume flow, filters for different requirements, a closable inner panel and an outer cover. A control device (controller) completes the system.

The operation of the iV ventilation systems is intuitive with the matching iVENTer controllers. Different operating modes or air volume flows can be set individually. The iV-Twin+ must be equipped with its own sMove or Pure controller. It is also recommended to consider the MZ-Home Controller as a separate zone.

The iV-Twin+ ventilation unit can be installed in area 1 according to VDE 0100. It meets the requirements of protection class IPX4. Please note the different installation situations (chapter 4.8). If installed incorrectly, the requirement will not be met.

In rooms with humidity entry, it is suggested to install a separate hygostat (sMove, Pure) or the humidity sensor (MZ-Home) in the room.

Function of the iV-Twin+ in reverse mode

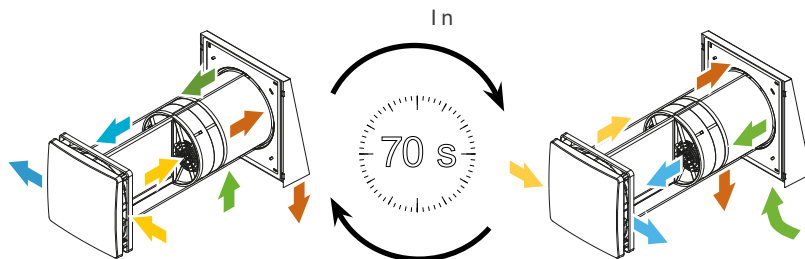
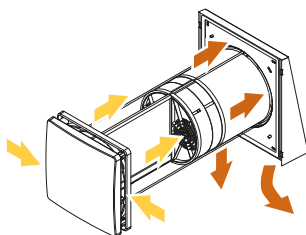


Figure 2: Function of the iV-Twin+ in reverse mode

The ventilation system works according to the principle of regenerative heat recovery. The integrated thermal accumulator is charged with the thermal energy of the room air as it flows externally (extract air).

After 70 seconds, the reversing fan changes the direction of rotation each time. After the direction of rotation has changed, the heat accumulator releases the stored heat energy to the incoming fresh air (supply air). The two fans are each operated as a pair in push-pull mode: One reversing fan conveys supply air into the interior, while the other reversing fan conveys stale exhaust air out of the interior at the same time.

Function of the iV-Twin+ in exhaust air mode



If the ventilation mode is selected on the controller, the iV-Twin+ ventilation unit operates in extract air mode.

Both reversing fans are switched to extract air mode at the same time, i.e. both fans simultaneously convey used extract air from the interior to the outside.


In this operating mode, there is no heat recovery. It is particularly recommended for the rapid removal of moisture and odour load peaks.

Figure 3: Function of the ventilation unit iV-Twin+ in exhaust air mode

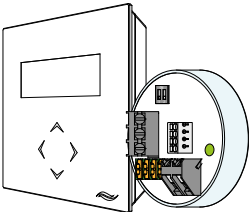
2.3 Control elements

The ventilation device is operated via a controller of the inVENTer system. Depending on the controller different operating modes and functions can be set.

Basic controls

Designation	sMove
	
Number of controllable ventilation devices	s4: Max. 2 s8: Max. 4
Multi-zone control	No
Operating concept	• Touch
Operating modes	• Heat recovery • Through-ventilation • OFF (standard version only)
Functions	• Pause-Function (1.....8 h) • Boost-Funktion (15 min)
Fan speed	infinitely adjustable, 4 Output levels, predefined
Unit communication	Cable
External interface	1 potential-free switching contact per control controller: • Pressure switch (NC) • Other sensors (NO)

Multi-zone control

Designation	MZ-Home
	 <p><i>Operating Unit & Clust-Air module</i></p>
Number of controllable ventilation devices	Max. 8 (excl. sensors)
Multi-zone control	max. 4 zones with ax. 2 devices [plus sensors] per zone
Operating concept	<ul style="list-style-type: none"> • Touch • Weekly timer
Operating modes	<ul style="list-style-type: none"> • Heat recovery • Through-ventilation • OFF
Functions	<ul style="list-style-type: none"> • Pause-Function (1.....8 h) (zonal) • Dehumidification with variable air volume flow
Fan speed	4 Output levels, freely selectable
Unit communication	Cable
External interface	1 potential-free switching contact per Clust-Air module (max. 4) <ul style="list-style-type: none"> • Pressure switch (NC/NO) • Other sensors (NO)

For detailed information, see the controller's installation and operating instructions.

3 Preparing for installation

3.1 Installation Position

- The installation location can be derived from the positioning proposal of the ventilation planning. The exact positioning of the individual devices and control units must be checked by the customer and adjusted on site if necessary. **Consult the responsible planner about this!** For optimum function, it is recommended that the ventilation device is installed at an appropriate point in the upper wall area (e.g. 1.80 m UEFF [upper edge of finished floor]).
- Do not place the ventilation unit above radiators, room thermostats, sensitive furniture and/or pictures.
- The device must not be used in locations where direct contact with splashing water is possible over a long period of time and/or the device is exposed to direct jets of water.

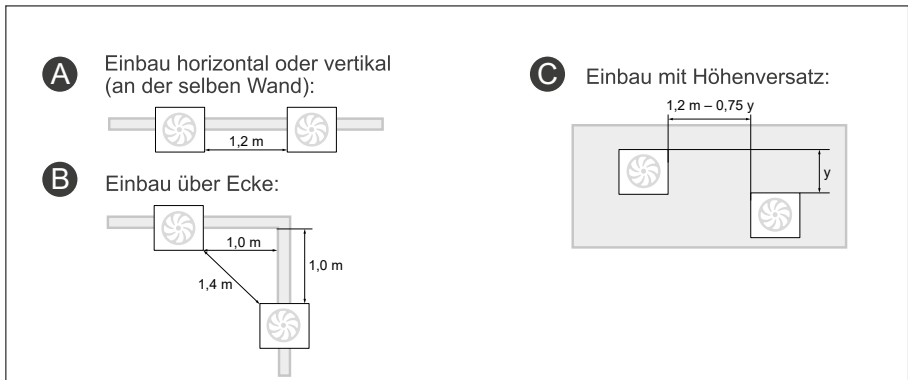
Minimum distances of the wall opening for the ventilation device:

- Minimum distances to components / building elements on the internal and external wall:



NOTICE: Malfunction due to incorrect positioning of the ventilation device.

- Note insulation thickness and possible shutters!
- Do not install near radiators!
- Observe minimum distance of 1.2 m to adjacent air openings!



- 1 between two ventilation units in a room to avoid mixing different air volume flows:
- 2 to adjacent components on the outer wall (observe insulation thickness/roller shutter):
 - upwards: **450 mm** from centre axis wall opening/wall installation system Simplex
 - downwards/sideways: **250 mm** from centre axis wall opening/wall installation system Simplex
- 3 to adjacent building components on the inner wall: 250 mm from opening center.
- 4 to frontally adjacent building components: 300 mm for cleaning work.
- 5 between a weather protection hood and another ventilation system: **1.2 m**

3.2 Position of the wall opening

External termination Ventilation device Variante Standard montieren

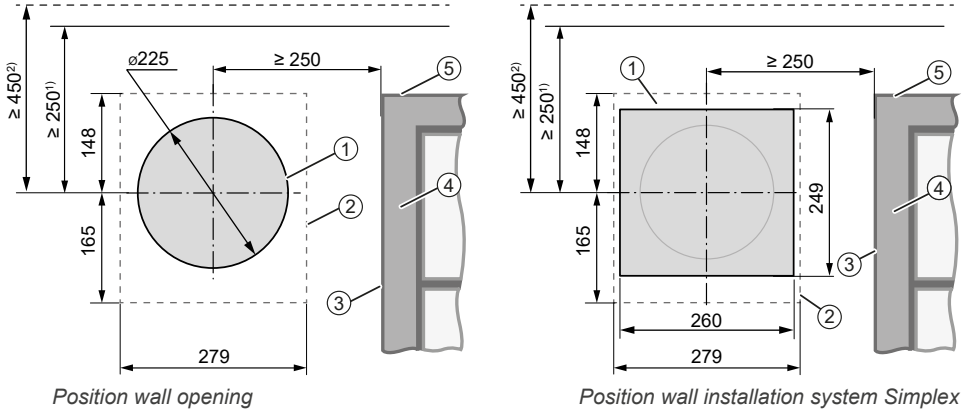


Figure 4: Dimensioned drawing wall opening iV-Twin+ (interior view)

- | | |
|--|---------------------------------------|
| 1 Wall opening (Fig. 4, left)
Wall installation system Simplex
(Fig. 4, right) | 4 Door-/Window frame |
| 2 Contour Weather Protection Hood ³⁾ | 5 Bottom edge of lintel ⁴⁾ |
| 3 Soffit | |

¹⁾ Minimum distance to adjacent components on the inner wall (from centre axis) ³⁾ Fit weather protection hood at lintel level

²⁾ Minimum distance to adjacent building components on the outer wall ⁴⁾ Consider insulation thickness and possible shutters

3.3 Dimensions

Designation	Depth/ Length [mm]	Wide [mm]	High [mm]
Wall thickness ¹⁾	> 270	–	
Wall opening for wall sleeve	Wall thickness ¹⁾	Ø225	
Wall sleeve R-D200x495 (745 / 745)	495 – 745	Ø200	
Weather protection hood Flex Twin+	23 – 88	279	313
Flair Twin+ V-233x233 inner panel	61 ²⁾	233	233

¹⁾ Standard variant: with exterior rendering, insulation, brickwork and interior rendering

²⁾ open

3.4 Sectional drawings ventilation device

For sectional drawings of other variants of your ventilation unit, see the installation instructions for your specific external termination.

Schnittzeichnung Ventilation device iV-Twin+, Standard variant

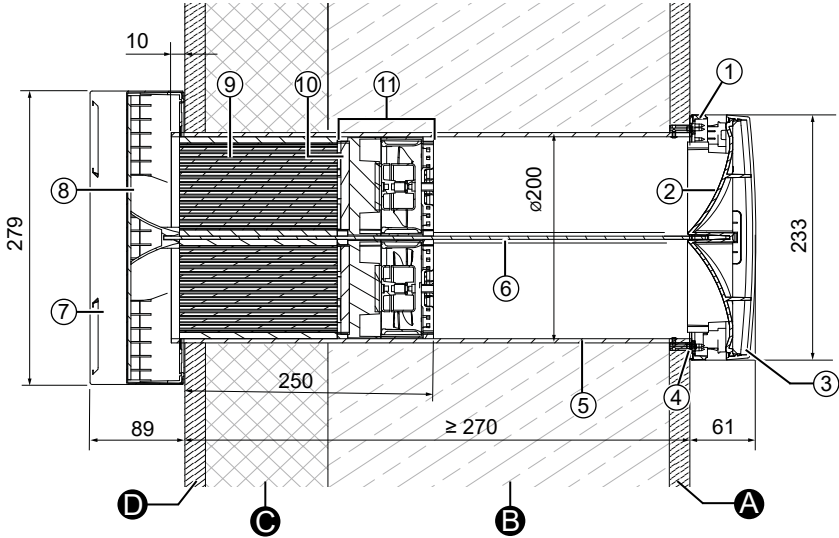


Figure 5: Sectional drawings ventilation device iV-Twin+ (Top view)

A Interior plaster/ interior structure
 B Masonry

C Insulation
 D Exterior plaster

- | | |
|--|--|
| 1 Inner cover base plate | 7 Weather protection hood Flex Twin+ |
| 2 Separating element Flair Twin+ inner cover (pre-assembled) | 8 Separating element weather protection hood Flex Twin+(pre-assembled) |
| 3 Inner cover lid | 9 Half cylinder heat accumulator |
| 4 Separating element Flair Twin+ inner cover (pre-assembled) | 10 Dust filter ISO Coarse ≥ 45% (G3) (Part of the fan unit) |
| 5 Wall sleeve R-D200 | 11 Fan unit half cylinder |
| 6 Separating element for the wall sleeve | |

3.5 Dimensional drawings of the components

Flair Twin+ inner cover

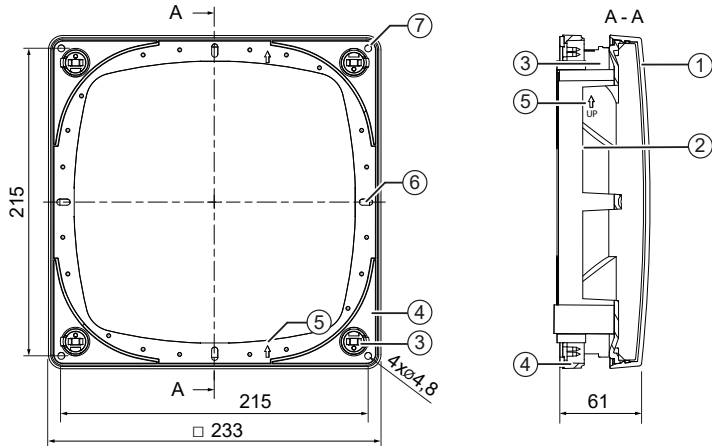


Figure 6: Dimensional drawing Flair Twin+ V-233x233 inner cover

- | | |
|--------------------------------------|--|
| 1 Inner cover lid | 5 Marking arrow |
| 2 Separating element (pre-assembled) | 6 Interior wall fixing borehole |
| 3 Spacer (4 x) | 7 optional: Fixing hole outer wall \varnothing 6 mm, min 40 mm deep (4x) |
| 4 Inner cover base plate | |

Weather protection hood Flex Twin+

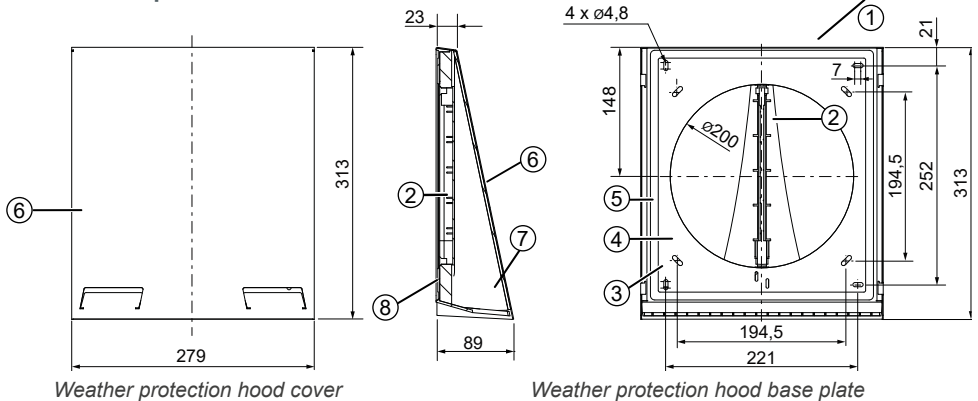


Figure 7: Dimensional drawing weather protection hood Flex Twin+

- | | |
|---|---------------------------------|
| 1 Weather protection hood base plate | 5 Sealing strip guide |
| 2 Separating element (pre-assembled) | 6 Weather protection hood cover |
| 3 Fixing hole outer wall (4 x)
\varnothing 8 mm, min. 50 mm deep (4 x) | 7 Protective grid |
| 4 Simplex mounting hole (4 x) | 8 Drip edge top |

4 Installation and assembly



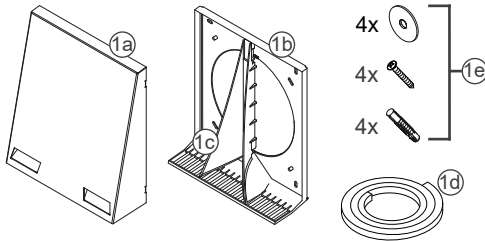
Read this chapter carefully before installation to avoid installation errors. The installation and connection of the ventilation device must be carried out by qualified personnel.

4.1 Check the scope of supply

Check the delivery for completeness and transport damage upon receipt, using the delivery note. Report missing items immediately.

These assembly instructions describe the standard version of the product.

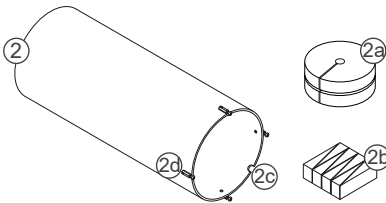
The scope of delivery of the wall sleeves for integrating the Connect controller platform, as well as the interior termination system variants, can be found in the separately available installation instructions for the respective system component.



1 Weather protection hood (WSH)

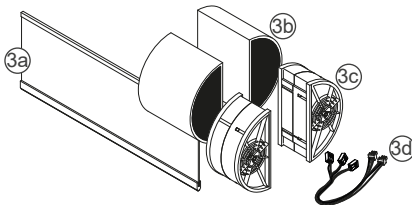
- 1 a: Cover WSH¹⁾ Flex-Twin+
- 1 b: Baseplate WSH¹⁾ Flex-Twin+
- 1 c: Separating element Flex Twin+(pre-assembled)
- 1 d: Sealing strip guide
- 1 e: Interior wall mounting material

The Flex-Twin+ weather protection hood is available in different colours and materials (stainless steel / aluminium [with increased salt resistance]), must be ordered according to the desired colour and texture.



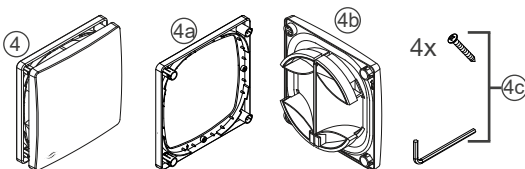
2 Wall sleeve R-D200

- 2 a: Styrofoam discs
- 2 b: Mounting wedges set
- 2 c: Recess for fan cable
- 2 d: Interior wall mounting material



3 Thermal accumulator iV-Twin+

- 3 a: Separating element
- 3 b: Half cylinder heat accumulator
- 3 c: Half cylinder fan unit
- 3 d: Connecting cable iV-Twin+



4 Inner cover Flair iV-Twin+

- 4 a: Inner cover base plate
- 4 b: Inner cover lid with divider (pre-assembled)
- 4 c: Interior wall mounting material

¹⁾ WSH: Weather protection hood

4.2 Create wall opening



CAUTION:

Falling masonry when creating the wall opening

can lead to physical injuries and /or damage to property!

- Install protection against falling masonry on building exterior.
- Remove objects from the immediate vicinity of the building's exterior.

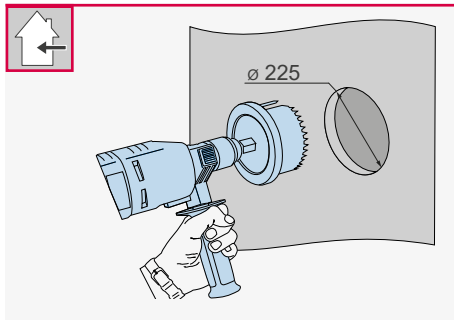
In new buildings/constructions we recommend the use of the optional Simplex D200 wall mounting system, D230 wall block, or Woodplex for timber post and beam construction.

Observe the minimum distances and the installation position of the ventilation device. If uncertain, consult your planner before installation!

Create the wall opening through core drilling



Drill with core drill attachment or milling drill \varnothing 225 mm,



Requirements:

- The masonry must be dry and in a load-bearing condition.
- No load-bearing elements in the position of the drill hole.

► Insert wall sleeve with a slope of 1 - 2° to the outer



The wall sleeve must have a slope of 1 - 2° to the exterior wall side. Alternatively the drilling can be carried through with a slope.

⇒ The wall opening for the ventilation device has been created.

4.3 Laying cables to the wall opening of the ventilation device



CAUTION:

Exposed electrical components.

Electric shock and injury due to live components (16 V DC)!

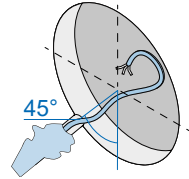
- Installation and connection must only be carried out by qualified and trained personnel.

Once the wall opening has been created, the cables necessary for operating the ventilation system are laid to the wall opening for the ventilation device. They connect the valve gate of the ventilation device with the control components and thus establish the signal transmission and/or voltage transmission between controller and Mini-Xenion reversing fan.



NOTICE: Cables to the wall opening of the ventilation device not laid. No connection of the reversible fan possible!

Routing of the cables to the wall opening of the ventilation device must be done in this installation step. Laying the connection cables between the sMove/ Pure/ MZ-Home controllers and the Mini-Xenion reversing fan is not part of this documentation. For more information, see the installation instructions of each controller.



Cable to the ventilation device wall opening

The following cables, depending on the control device, are laid to the wall opening for the ventilation device:

	Use	Cable type	Cable origin
sMove	Operating voltage fan and device communication	Stranded cable 6 – 16 V DC, e.g.: LiYY 3x0.75 mm ²	sMove operating device
MZ-Home			Clust-Air module CAM17 in the ventilation zone

Principle diagrams for cable laying


The corresponding connection diagrams and assembly steps for installing the controller are not part of this documentation! They can be found in the installation instructions of the respective control unit (Pure, sMove, MZ-Home).

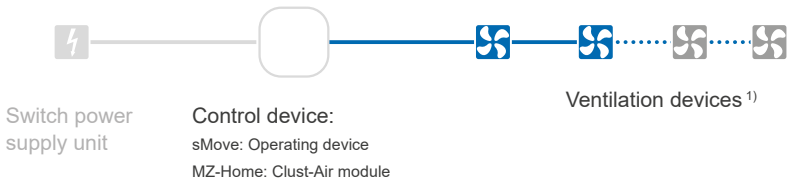
sMove and MZ-Home controllers



6 – 16 V DC,
~~230 V AC~~

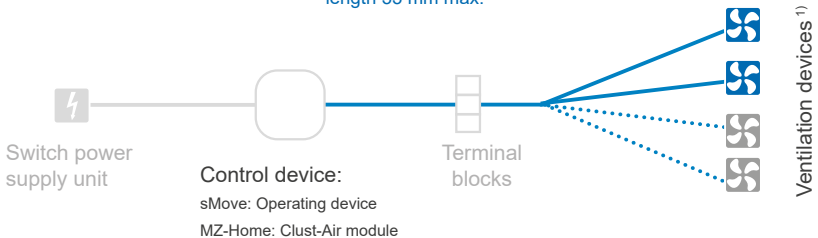
One after the other:

Cable Type LiYY, 3-wire, wire cross-section 0.75 mm²
length see  controller



Star shaped:

Cable Type LiYY, 3-wire, wire
cross-section 0.75 mm²
length 33 mm max.

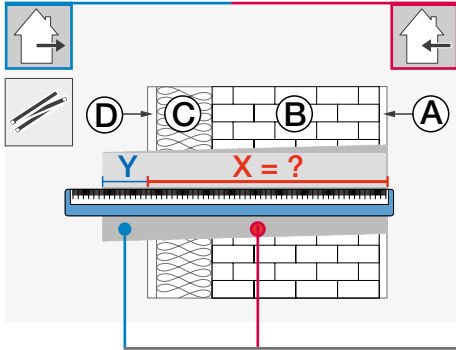


¹⁾ 4 ventilation devices only possible with sMove s8

4.4 Installing the wall sleeve



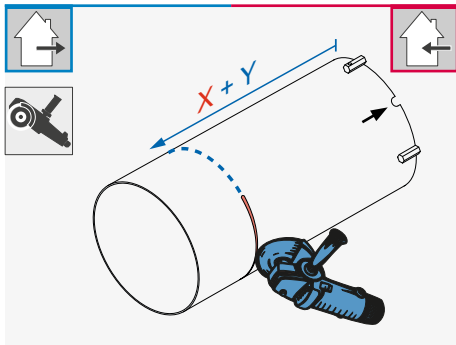
Measuring tape, angle grinder, spirit level, non-pressing 2K polyurethane foam, cutter, mounting wedge set and styrofoam discs.




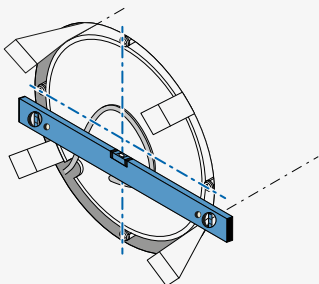
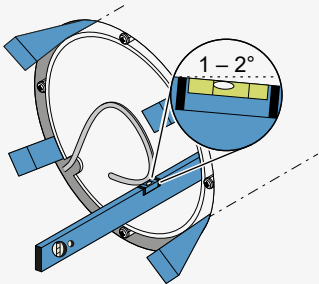
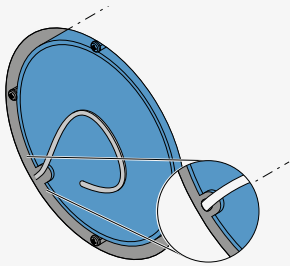
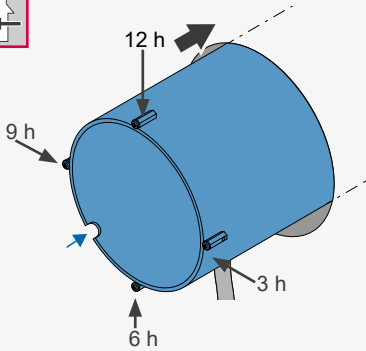
Requirements:

- The wall opening \varnothing 225 mm is finished.
- The fan BUS is laid.
- Determine the exact thickness X:
 D = Exterior rendering, incl. other superstructures if applicable.
 C = Insulation, if necessary incl. air gap (optional)
 B = Masonry, incl. relining if necessary.
 A = Interior plaster.
 Y = Protrusion of the wall sleeve in the outer area (depending on the installation situation exterior rendering or masonry)


		X in [mm] =	Y in [mm] =
External termination	Inner panel	Flex Twin+	
	Standard variant:	A + B + C + D	10
Corner		A + B	10 (for installation directly on the masonry)
		A + B	UBP + 10 (for installation with sub-structure panel UBP)
Nordic	double-skin Masonry (clinker)	A + B	C + D - 200 (min. 30 mm)
	single-skin Masonry (ETICS)	A + B	C + D - 95 (min. 30 mm)



- Cut the wall sleeve to the **determined dimension X** + a **protrusion of Y** on the exterior wall.
Be careful not to cut away the cut-out for the fan connecting cable.

- File the edges.



- ▶ Remove the styrofoam discs from the wall sleeve.
- ▶ Insert the wall sleeve into the wall opening so it is flush with the interior wall.
Note the thickness of the plaster.

 The recess for the connection cables is located on the interior wall side and near the cables laid to the wall opening.

- ▶ Guide all connecting cables through the cut-out in the wall sleeve.



NOTICE: Anaccumulation of condensation-water in the wallsleeve.

Damage to the exterior wall and masonry and the building structure!

- Insert wall sleeve with a slope of 1 - 2° to the outer wall.

- ▶ Attach the wall sleeve inside and outside with the mounting wedges so that there is a slope of 1 – 2° to the exterior wall.

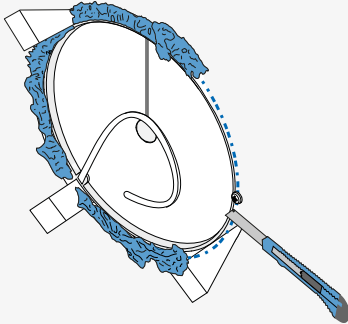
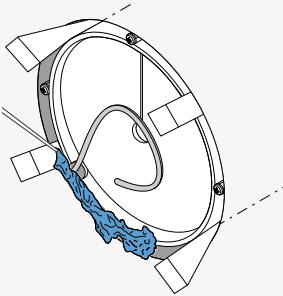
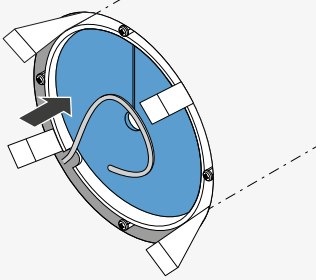
- ▶ Check the angle of the wall sleeve using a spirit level.



NOTICE: Contamination of components by e.g. plaster residues will damage the components of the wall sleeve!

- Before foaming the free space between the wall sleeve and the masonry, insert the Styrofoam discs.
- Do not remove the thread locks of the fastening elements until the inner panel is fitted.

- ▶ Align the two lateral fastening elements of the wall sleeve horizontally.



- ▶ Insert the styrofoam discs into the wall sleeve from the inside and outside.



NOTICE: Interruption of the thermal insulation composite system.

Damage to the building structure!

- During installation, replace the wall structure as far as the wall sleeve and if necessary guide the housing (flush-mounted inner covers) towards it.
- Observe the necessary barrier levels.

- ▶ Foam-seal the gap between the wall sleeve and masonry all the way around with non-pressing 2K polyurethane foam.

- ▶ Cut off the excess, hardened assembly foam and protruding assembly wedges as follows:

- Flush with the inner wall
- Flush with the outer wall



Make sure not to damage the connecting cable on the interior wall.

⇒ The wall sleeve set is installed.

4.5 Installing the external termination Standard variant

The assembly of any exterior termination variants is not part of this documentation!
It can be found in the installation instructions of the respective external closure.



NOTICE

Installing on an unfinished exterior wall

leads to damage to the exterior wall!

- Only install the external termination once the exterior wall is finished and fully dried .



NOTICE

Penetration of condensation water and/or algae accumulation around the weather protection hood

leads to damage to the masonry/external wall and/or discolouration of the façade!

- Secure all sealing tapes on the weather protection hood circumferentially before installing the external termination.
- Before installation, carry out a biocidal pre-treatment/ water-repellent pre-treatment of the surface around the external termination (consult your planner regarding this!)

Installing the external weather protection hood



Spirit level, pencil, power drill with \varnothing 8mm drill bit, cordless screwdriver, wall anchors (wallplugs for insulation for insulated exterior walls), permanently elastic external sealant, sealing tape, screws

Requirements:

- The exterior wall is completed and even.
- The wall sleeve set is installed.

► Remove the styrofoam disc on the outside wall side from the wall sleeve.

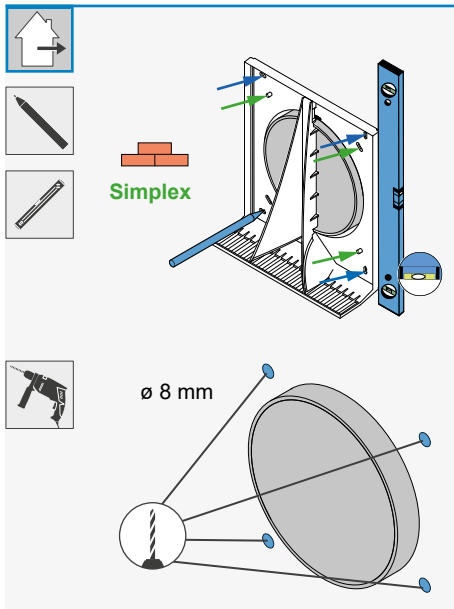
► Slide the base plate onto the projecting wall sleeve.

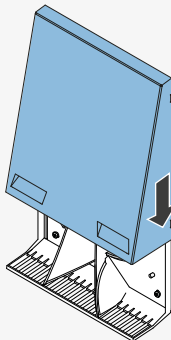
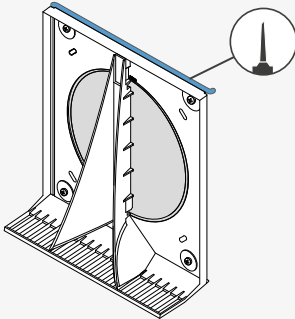
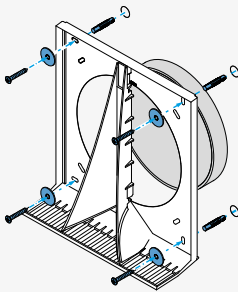
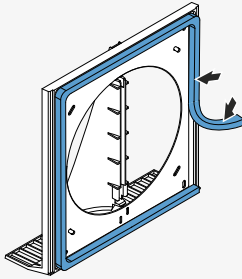
 The protective grille is directed towards the floor.

► Level the base plate inner panel with a spirit level.

► Mark the four drill holes:
Outer holes (blue arrow) Masonry.
Inner holes (green arrow) Simplex.

► Drill the four holes \varnothing 8 mm,
min 50 mm deep





TIP: Do not apply the sealing tape until immediately before installing the base plate. This prevents the sealing tape from swelling too much and makes installation easier.

- ▶ Attach the sealing tape, 9 mm, outside wall side and circumferentially along the guide on the base plate.



! Do not seal the fixing holes!

- ▶ Insert the wall anchors into the boreholes.
- ▶ Screw the base plate weather protection hood into the wall anchors with 4 screws.



TIP: Use insulation dowels for fastening when attaching the base plate to external walls with insulation or when using the wall installation block/wall installation system Simplex. These are not included in the scope of supply, they are available as an option.



NOTICE: By wrong sealing of the joint between the base plate and the outer wall the cover cannot be put on.

- Seal only the upper joint between the base plate and the outer wall.

- ▶ Seal only the upper joint between the base plate and the outer wall.

- ▶ Place the panel on the four spacers.

- ▶ Engage the panel downwards



! The guides on the cover hook behind the base plate.

- ⇒ The weather protection hood Flex Twin+ is installed.

4.6 Inserting separating element

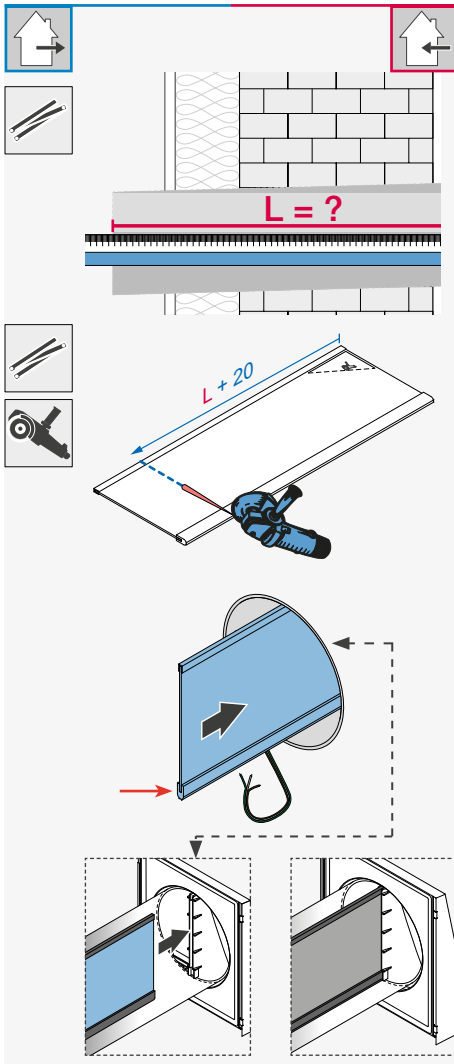


NOTICE: IF the separating element is not positioned in the wall sleeve or is positioned incorrectly, there is a possibility of mixing different air volume flows!

- A separating element vertically divides the wall sleeve into two airtight chambers.
- Push the separating element into the separating bar of the weather protection hood!



Measuring tape, blade knife



Requirements:

- The weather protection hood is installed.
- ▶ Remove the styrofoam discs from the wall sleeve.

- ▶ Shorten the partition element to the length of the wall sleeve + 20 mm.



NOTICE: Wrong/ No positioning of the separator element leads to mixing of different air volume flows in the system!

- Position the wider sealing lip (red arrow) on the separating element at the bottom of the wall sleeve.
- Push the separating element completely into the wall sleeve and the separating insert of the weather protection hood!

- ▶ Slide the power supply unit in the mounting socket.



! Push the separating element into the weather protection hood.



! The partition element has an inner wall projection of about 10 mm.

- ⇨ The separator is pushed in.

4.7 Insert the heat accumulator, shorten the fan BUS, strip the insulation and connect it to the iV-Twin+ connection cable.



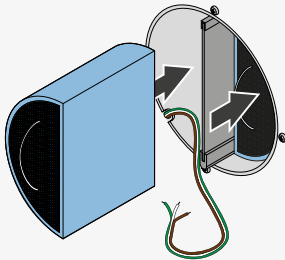
NOTICE

Do not store/stack the thermal accumulator insert outside the wall sleeve as doing so will damage the thermal accumulator's ceramic.

- Insert the thermal accumulator immediately after removing it from the packaging.



Side cutters, stripping tool, connection cable (scope of delivery)



Requirements:

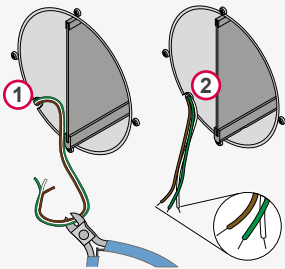
- The weather protection hood is installed.
- The separator is pushed in.

- ▶ Slide the thermal accumulator half cylinders each to the right and left of the separating element from the interior as far as they will go in the direction of the weather protection hood.



- The handles face the interior.
- The connecting cables protrude into the interior.

⇒ The thermal accumulator insert has been installed.

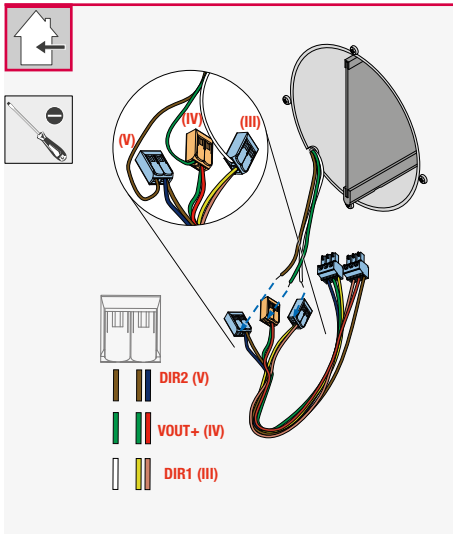


- ▶ **1** Shorten the fan BUS, 3-wire, to your determined wall thickness minus 260mm, but at least to 150mm.
- ▶ **2** Strip approx. 7 mm of insulation from the cables on the fan BUS.
- ▶ Connect the fan BUS with the iV-Twin+ connection cable.



NOTICE:

- Ensure the correct sequence of the wire colours so that the fans start.



- Attach the three fan BUS cables in the free pole of the corresponding connection terminal according to the following table (do not use wire end ferrules):

Fan BUS (cable coming from the controller)			Connecting cable		
Terminal block	Definition	Colour	Terminal block	Definition	Colour
DIR1 (III)	Signal direction 1	White	DIR1 (III)	Signal direction 1	Yellow / Pink
VOUT+ (IV)	Operating voltage	Green	VOUT+ (IV)	Operating voltage	Green / Rot
DIR2 (V)	Signal direction 2	Brown	DIR2 (V)	Signal direction 2	Brown / Blue

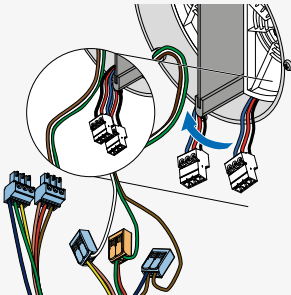
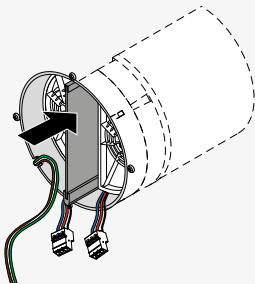
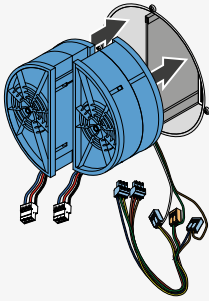
⇒ The iV-Twin+ connection cable is connected to the fan BUS.

4.8 Insert Xenion reversible fan, connect and check functions

The mounting of the conversier fans varies depending on the place of use:

- Use in protection zone 2 and higher (standard)
- Use in protection zone 1 (IPX4)

Use in protection zone 2 and higher (standard)



Requirements:

- Die Thermal accumulator sind in die Wall sleeve eingeschoben.
- The iV-Twin+ connection cable is connected to the fan BUS.

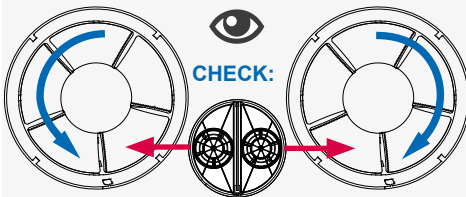
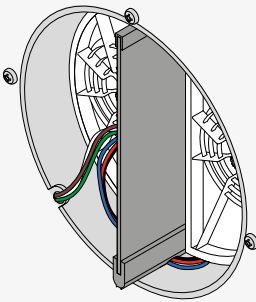
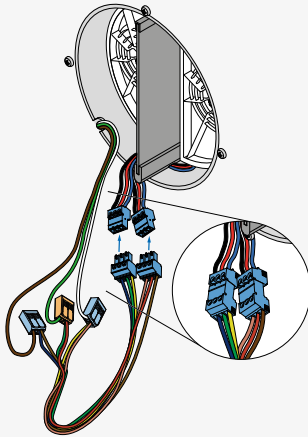
- ▶ Slide the heat storage half cylinders each to the right and left of the separating element from the interior as far as they will go in the direction of the weather protection hood.

- 👁️ ! • The filters are directed towards the heat accumulator.
- 👁️ ! • The finger guards face towards the interior.
- 👁️ ! • The plug-in connections can be reached.

- ▶ Push both fan units up to the heat accumulators respectively.

⇒ Both fan units are mounted.

- ▶ Pass one of the cables on the fan under the sealing lip so that all cables are on the side with the fan BUS.



NOTICE:

Incorrect electrical connection will damage the fan motor!

- Always connect the ventilation device to the mains supply via a controller.

- ▶ Insert the plugs of the cables on the fan into the sockets of the iV-Twin+ connection cable.



TIP: The plugs are not assigned to the sockets and can be plugged together as desired.

- ▶ Place the cable in the wall sleeve.

⇒ The fan units are connected to the controller

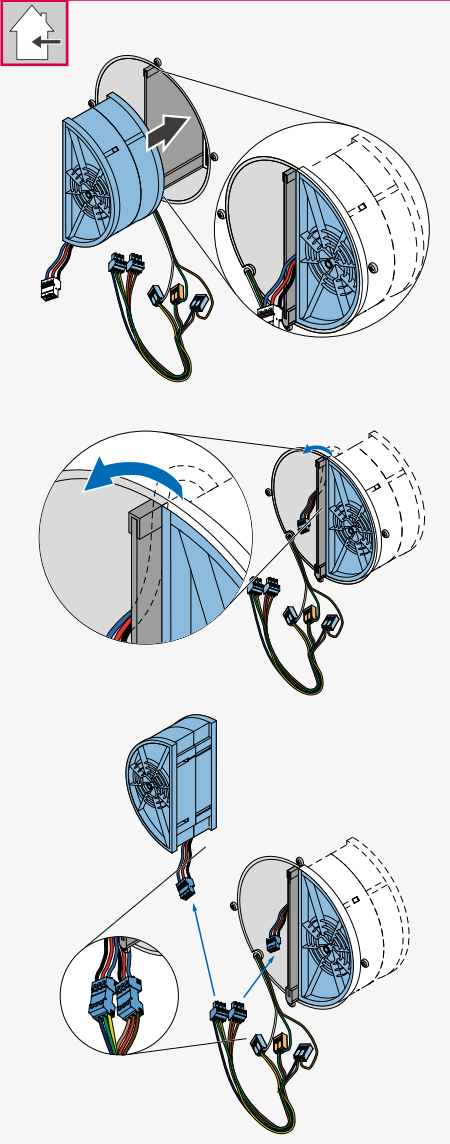
- ▶ Check that the fans start up and move. In heat recovery mode, the fans move in opposite directions.

Use in protection zone 1 (IPX4)



CAUTION: Incorrect positioning of the cables and plug connections leads to personal injury and/or short-circuiting of the fans!

- Position all plug connections behind the fan unit to ensure IPX4 protection requirements.



Requirements:

- The thermal accumulator are positioned in the wall sleeve.
 - The iV-Twin+ connection cable is connected to the fan BUS.
- ▶ Insert a fan unit into the side of the wall sleeve where the fan BUS is not located.
- 👁️ ! • The filter is directed towards the heat accumulator.
 - 👁️ ! • The finger guard faces the interior.
 - 👁️ ! • The fan unit is only pushed in so far that it is flush with the inner wall.
 - 👁️ ! • The plug-in connections can be reached.
- ▶ Guide the cable with the plug connection over the upper sealing lip to the side with the fan BUS. To do this, press the separating element slightly downwards.



NOTICE:

Incorrect electrical connection will damage the fan motor!

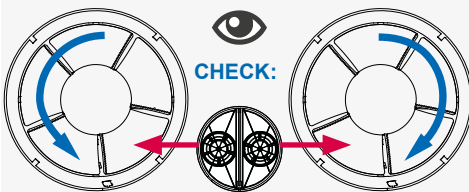
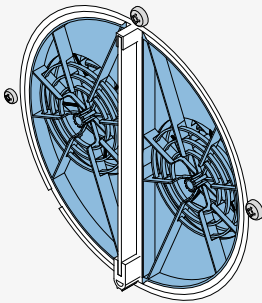
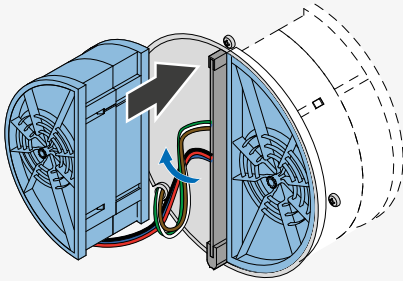
- Always connect the ventilation device to the mains supply via a controller.

- ▶ Insert the plug of the cable on the fan into a socket of the iV-Twin+ connection cable.
- ▶ Insert the plug of the cable on the fan of the second fan unit into the second socket of the iV-Twin+ connection cable.



TIP:

The plugs are not assigned to the sockets and can be plugged together as desired.



► The cables and plug connections are pushed into the wall sleeve and thus placed between the heat storage unit and the fan unit.

► Slide the second fan unit into the still free side of the wall sleeve (the side where the fan BUS is located).

- 👁️ ! • The filter is directed towards the heat accumulator.
- 👁️ ! • The finger guard faces the interior.
- 👁️ ! • The fan unit is only pushed in so far that it is flush with the inner wall (no cable visible).

⇒ The fan is connected to the controller.

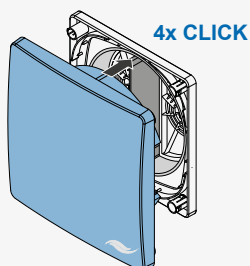
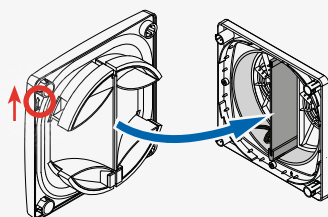
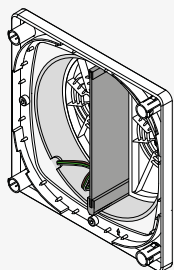
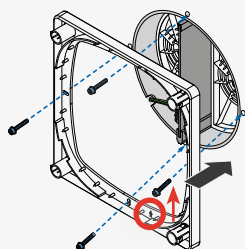
► Check that the fans start up and move. In heat recovery mode, the fans move in opposite directions.

4.9 Fitting the inner panel

The installation of the inner panel is illustrated using the example of the fan units used in protection zone 2 and higher. If the fan units are installed for use in protection zone 1 (close flush with the wall sleeve), the inner cover is installed in the same way.



Spirit level, pencil, screwdriver



Requirements:

- The thermal accumulator insert has been installed.
- The reversing fans are connected.

- ▶ Remove the thread locks from the fastening elements of the wall sleeve.
- ▶ Place the base plate inner panel centric to the wall sleeve on the inner wall.
 - 👁️ • The position arrow on the base plate points upwards.

- ▶ Screw the base plate weather protection hood into the wall anchors with 4 screws.



- ▶ Place the panel on the four spacers.

- 👁️ • The position arrows on the back of the inner panel cover point upwards.
- 👁️ • **Check:** The inVENTer logo is located at the bottom right.
- 👁️ • The separating element is inserted into the receptacle of the inner panel.

⇒ The inner panel is fitted.

5 Technical Data

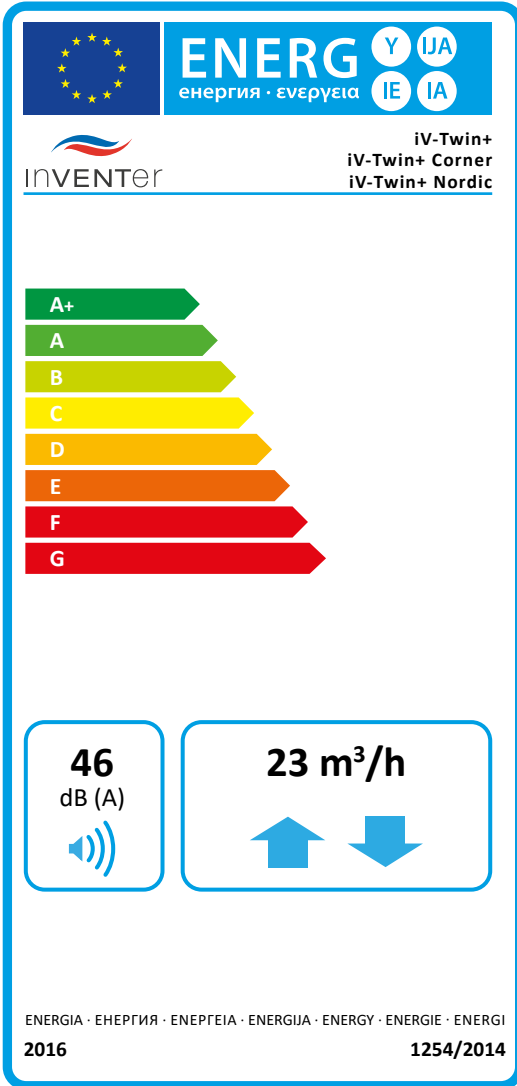
5.1 General specifications

Feature	Value
Operating range [°C]	-20 – 50
Extract air/outdoor air	Without aggressive gases, dust and oils
Flow rate in reversed mode [m³/h]	5 – 23
Extract airflow [m³/h] (EN 13141-8)	10 – 45
Sound pressure level, distance 2 m [dB (A)]	14 – 38
Standard sound level difference [dB]	Standard variant: 45 – 56
Thermal efficiency of heat recovery (η_w)	0.94
Input voltage [V DC]	6 – 16
Power consumption [W]	0.5 – 3
Volume flow-related electr. Specific fan power input [W/(m³/h)]	0.18
Protection class (EN 61140)	III
Protection class (EN 60529)	IPX4
Standard filter class ISO 16890 EN 779: 2012	ISO Coarse 45% G3
Frost protection	Automatic by reversing operation (down to -20 °C)
Comformity	 
Energy efficiency class (SEC class)	A+ / A

5.2 Specifications according to ErP Directive, Regulation 1254/2014

On the energy label you will find the following information from the product data sheet:


- Energy efficiency class (SEC class)
- Sound power level L_{wa}
- Maximum air flow (supply air)




Demand controlled	Manually controlled
Pure with sensor sMove with sensor MZ-Home	Pure without sensor sMove without sensor

5.3 Specifications according to ErP Directive, Regulation 1254/2014

iV-Twin+ ventilation device, demand controlled

 iV-Twin+ product data sheet according to VO 1254/2014 EU dated 11 July 2014			
Pt.	Description	Values	
a	Supplier	inVENTer GmbH	
b	Model identifier	iV-Twin+ iV-Twin+ Corner iV-Twin+ Nordic	
c	EC class / Specific Energy Consumption (SEC) [kWh/(m ² a)]	cold	-90.439
		average	A+ -44.95
		warm	-18.89
d	Ventilation type	BVU	
e	Type of drive	2	
f	Type of heat recovery system	regenerative	
g	Degree of temperature change η_t [%]	94	
h	Maximum air flow rate [m ³ /h]	23	
i	Electrical input power (incl. control) [W]	3	
j	Sound power level L _{wa} [dB (A)]	46	
k	Reference air flow [m ³ /h]	16.1	
l	Reference pressure difference [Pa]	0	
m	SEL [W/m ³ /h]	0.18	
n	Control factor	0.65	
o	Internal and external transfer [%]	1.8	
p	Mixing quota [%]	0.6	
q	Position and description of the indicator for filter change	Control device	
r	Instructions regarding controllable supply and extract air grilles on the façade (uni-directional ventilation devices only)	none	
s	Internet address	www.inventer.eu	
t	Sensitivity to pressure changes [%]	44.5	
u	Airtightness between interior and exterior [m ³ /h]	3.2	
v	Annual power consumption [kWh/(m ² a)]	1.05	
w	Annual savings Heating energy [kWh/(m ² a)]	cold	93.06
		average	47.57
		warm	21.51

Manually controlled

 iV-Twin+ product data sheet according to VO 1254/2014 EU dated 11 July 2014			
Pt.	Description	Values	
a	Supplier	inVENTer GmbH	
b	Model identifier	iV-Twin+ iV-Twin+ Corner iV-Twin+ Nordic	
c	EC class / Specific Energy Consumption (SEC) [kWh/(m ² a)]	cold	-85.346
		average	A -40.596
		warm	-14.96
d	Ventilation type	BVU	
e	Type of drive	2	
f	Type of heat recovery system	regenerative	
g	Degree of temperature change η_t [%]	94	
h	Maximum air flow rate [m ³ /h]	23	
i	Electrical input power (incl. control) [W]	3	
j	Sound power level L _{wa} [dB (A)]	46	
k	Reference air flow [m ³ /h]	16.1	
l	Reference pressure difference [Pa]	0	
m	SEL [W/m ³ /h]	0.18	
n	Control factor	1	
o	Internal and external transfer [%]	1.8	
p	Mixing quota [%]	0.6	
q	Position and description of the indicator for filter change	Control device	
r	Instructions regarding controllable supply and extract air grilles on the façade (uni-directional ventilation devices only)	none	
s	Internet address	www.inventer.eu	
t	Sensitivity to pressure changes [%]	44.5	
u	Airtightness between interior and exterior [m ³ /h]	3.2	
v	Annual power consumption [kWh/(m ² a)]	2.48	
w	Annual savings Heating energy [kWh/(m ² a)]	cold	91.55
		average	46.80
		warm	21.16

6 Scope of supply

Standard components

All standard components are also available as spare parts. Further accessories and spare parts can be found in the separate accessories overview. Contact your local distributor to order components for your ventilation system.

Component	Product Number
iV-Twin+	1001-0203
iV-Twin+ Corner	1001-0238
iV-Twin+ Nordic	1001-0232
External termination: Weather protection hood incl. sealing tapes	
Weather protection Compact, white – RAL 9016	1508-0113 1508-0149 ¹⁾
Weather protection Compact, grey – RAL 9006	1508-0114 1508-0147 ¹⁾
Weather protection Compact, grey – RAL 7011	1508-0115
Weather protection Compact, anthracite – RAL 7016	1508-0128 1508-0148 ¹⁾
Weather protection Compact, anthracite – RAL 7016	1508-0116 1508-0155 ¹⁾
Wall sleeve with Styrofoam discs and mounting wedges	
Wall sleeve R-D200x495	1506-0070
Wall sleeve R-D200x745	1506-0071
Thermal accumulator insert	
Thermal accumulator insert iV-Twin+ [incl. Separating element 765 mm]	1507-0023
Inner panel	
Flair Twin+ V-233x233 inner panel, white	1505-0040

¹⁾ Variant special: consisting of aluminium, with increased salt resistance

7 Troubleshooting

Troubleshooting

Fault	Possible cause	Remedy
Fan failure	No electrical power.	Check fuse.
	Installation error.	Check wiring for correct polarity. Check all connectors for correct fit. Check the use of wire ferrules.
	Fan defective.	Replace fan.
	Controller/power supply defective.	Switching controller/ power supply.
Fan does not switch off.	Faulty controller.	Replace controller.
Low flow rate	Panel closed.	Open panel.
	Dust filter heavily soiled	Clean/replace dust filter.
	Pollen filter/activated carbon filter used.	Pollen or activated charcoal filter reduces the air volume flow. Only use filters during load periods. Replace the filter if it is heavily soiled.
	The rotational speed of the fan is too low.	Increase the output level.
	Thermal accumulator soiled.	Clean thermal accumulator.
Noises	Foreign body in the fan	Remove foreign body from the fan. Clean the ventilation device.
	Thermal accumulator is not correctly positioned in the wall sleeve.	Slide the thermal accumulator out of the wall sleeve. Insert it again. Slide the thermal accumulator into the wall sleeve as far as the end-stop tape.
	The rotational speed of the fan is very high.	Set a lower output level on the controller.
Supply air is cold	Installation error.	Check the connector plug on the controller. The connector plug must be sitting firmly in the connector housing.

8 Warranty and guarantee

Warranty

The warranty covers all defects that were present at the time of purchase. Observe the intended use in order to maintain the warranty claim.

Outside Germany, the national warranty regulations of the country in which the system is sold apply. Contact the dealer of your home country.

Guarantee:

inVENTer GmbH gives a 5-year guarantee on all electronic components and the wall sleeve, as well as a 30-year guarantee on the ceramics of the thermal heat accumulator. This covers premature product wear.

Warranty and guarantee claim

For information on the guarantee provisions, see www.inventer.eu/garantie/guarantee. In the event of a warranty or guarantee claim, contact the dealer or factory representative responsible for you.

In any case, send the complete unit back to the manufacturer.

The warranty claim is an additional offer by the manufacturer and does not affect applicable law in any way.

9 Service

Complaints

Check the delivery for completeness and transport damage upon receipt, using the delivery note. Report any missing items immediately, or at the latest within 14 days, to your supplier, dealer or factory representative.

Accessories and spare parts

To order components for your ventilation unit, contact your dealer or factory representative.

Technical customer service:

For technical advice, please contact our technical service staff:

+49 (0) 36427 211-333 // service@inventer.de

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