INSTRUCTIONS FOR USE

PARAGON

20261105
Art. 942428111

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The document refers to product version "e".

Symbol key

Symbols on the machine

This product complies with applicable EU directives

CE

Symbols in this user manual

Warning/Caution!





The document was originally written in Swedish

Swegon

Application area

The product is a comfort module designed for indoor climate. It is designed to provide ventilation, cooling and heating within the space.

The product may not be used for anything other than its intended use.

General



Read through the entire instructions for use before you install/use the product and save the instructions for future reference. It is not permissible to make changes or modify this product other than those specified in this document.

The packaging contains

1 x PARAGON

1 x Instructions for use

Protective equipment



Always use appropriate personal protective equipment for the work in question, in the form of gloves, respirators, protective glasses and helmets during handling, installation, cleaning and service/maintenance.

Electrical safety

Permitted voltage, see Electrical data.



It is not permissible to insert foreign objects into the product's contactor connections or ventilation openings; risk for short circuiting.

24 V isolation transformer to be connected should comply with the provisions of IEC 61558-1. Cable sizing must be carried out for cabling between the product and the power supply source.

Disconnect the power supply when working on products that are not required to run.

Always follow the local/national rules for who shall be permitted to carry out this type of electrical installation.

Handling

Always use appropriate transport and lifting devices when the product is to be handled to reduce ergonomic loads.

The product must be handled with care.

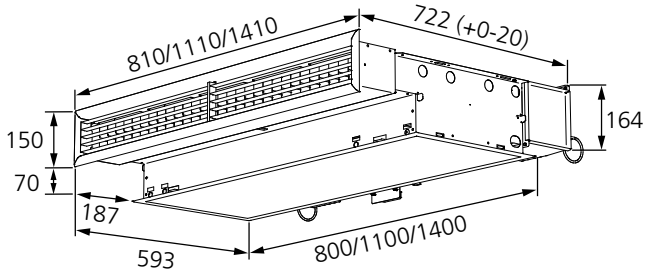
Installation

- Moist, cold and aggressive environments must be avoided.
- Assemble the product according to this instruction and applicable industry regulations.
- Install the product for easy access during service/ maintenance.
- Avoid installing the product near a heat source.
- Check to make sure that the product does not have any visible defects.
- Check that the product is properly secured after it has been installed.
- Secure cables with cable ties.
- Check that all cables are properly secured in place after installation.

Dimensions and weights

PARAGON 800

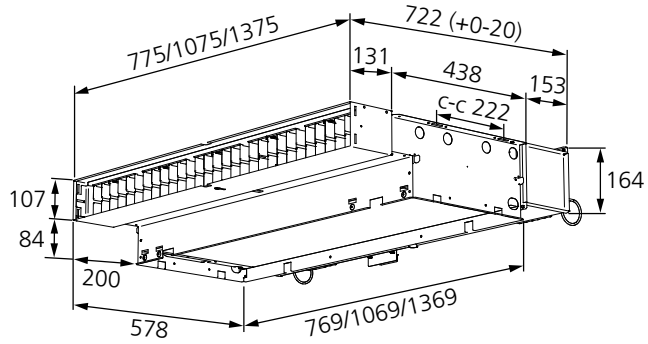
Length (mm)	Type	Dim. (Ø)	Dry weight* (kg)		Water volume (l)	
			Without grille	With grille	Cooling	Heating
800 R	A	125	15.0	17.7	1.4	
800 L	A	125	15.0	17.7	1.4	
800 R	B	125	15.0	17.7	1.4	0.4
800 L	B	125	15.0	17.7	1.4	0.4
800 R	X	125	15.0	17.7	1.4	
800 L	X	125	15.0	17.7	1.4	



Dimensions with grille.

PARAGON 1100

Length (mm)	Type	Dim. (Ø)	Dry weight* (kg)		Water volume (l)	
			Without grille	With grille	Cooling	Heating
1100 R	A	125	20.0	23.4	1.9	
1100 L	A	125	20.0	23.4	1.9	
1100 R	B	125	20.0	23.4	1.9	0.5
1100 L	B	125	20.0	23.4	1.9	0.5
1100 R	X	125	20.0	23.4	1.9	
1100 L	X	125	20.0	23.4	1.9	



Dimensions without grille.

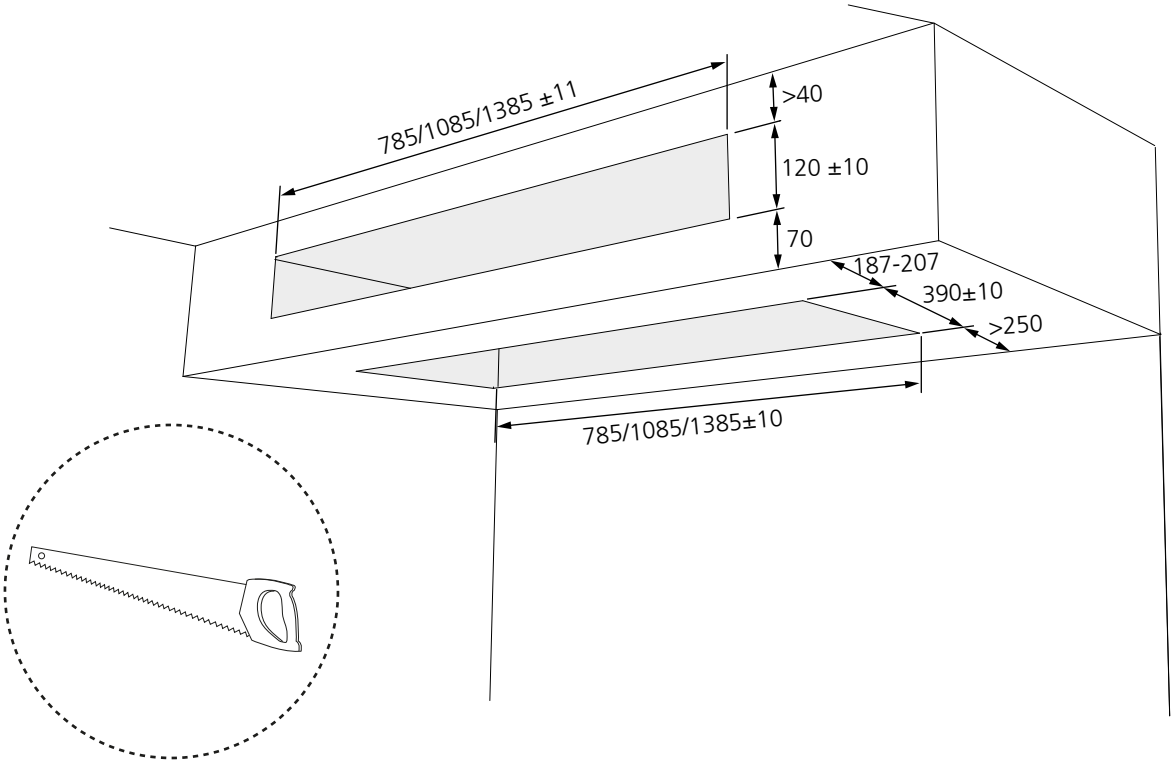
PARAGON 1400

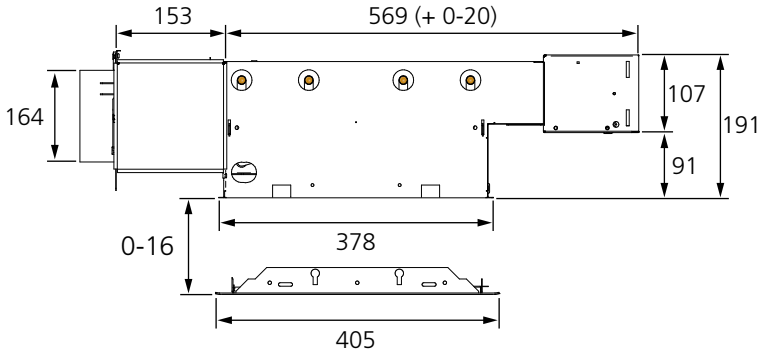
Length (mm)	Type	Dim. (Ø)	Dry weight* (kg)		Water volume (l)	
			Without grille	With grille	Cooling	Heating
1400 R	A	125	23.2	27.6	2.5	
1400 L	A	125	23.2	27.6	2.5	
1400 R	B	125	23.2	27.6	2.5	0.7
1400 L	B	125	23.2	27.6	2.5	0.6
1400 R	X	125	23.2	27.6	2.5	
1400 L	X	125	23.2	27.6	2.5	

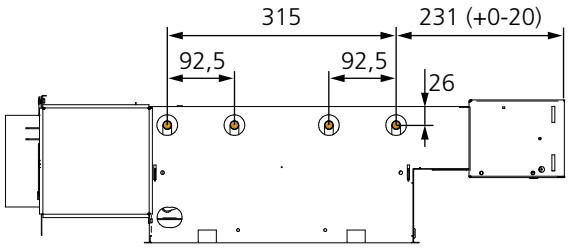
*Add 0.7 kg for control equipment.

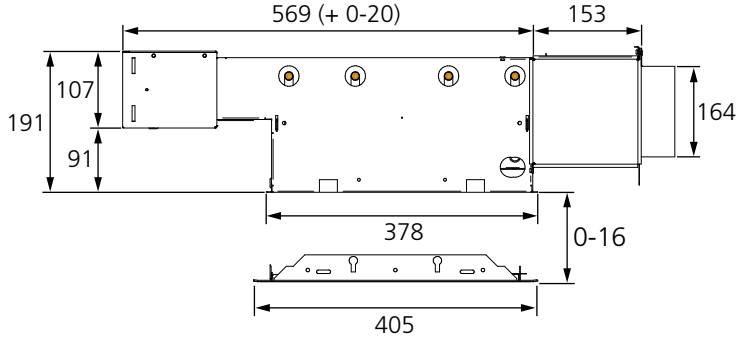
Installation

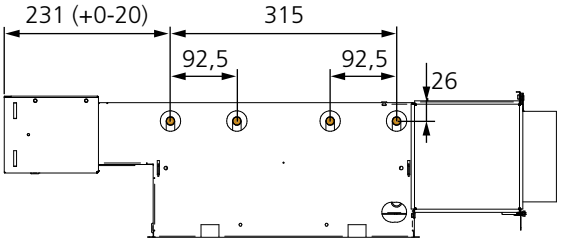
Cutout dimensions





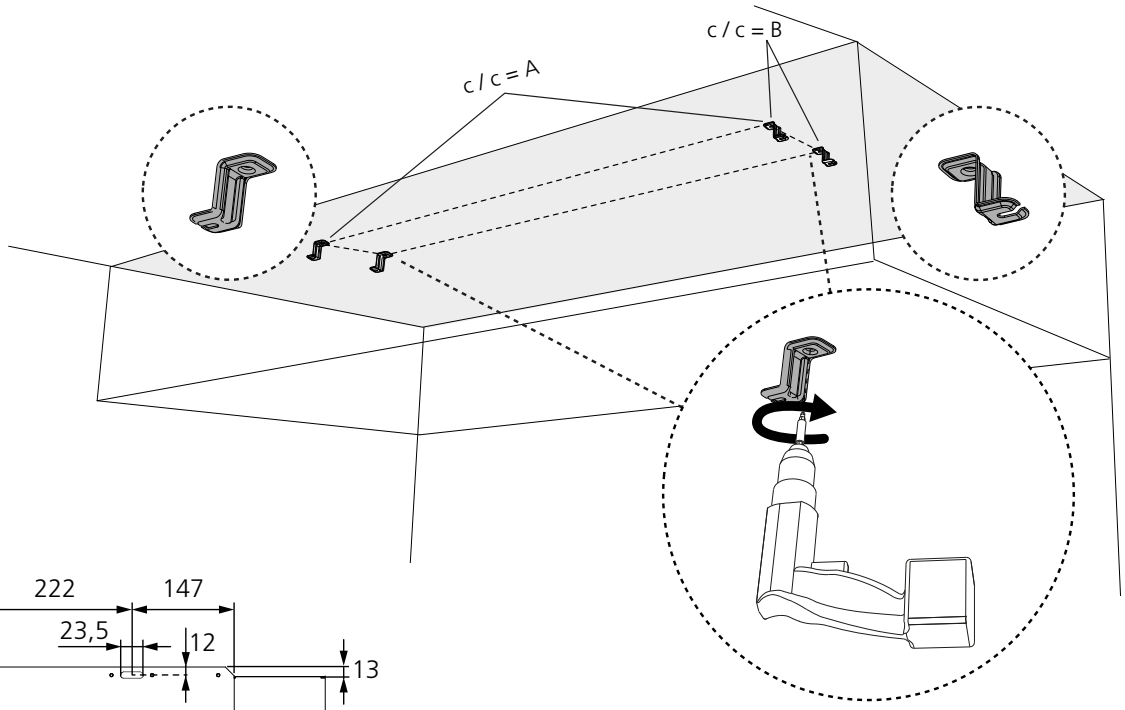


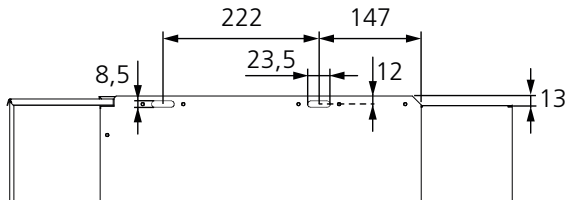




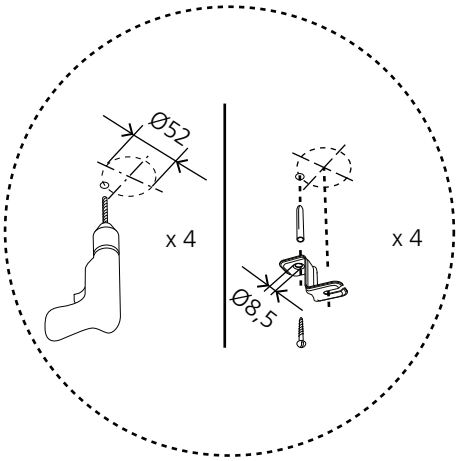
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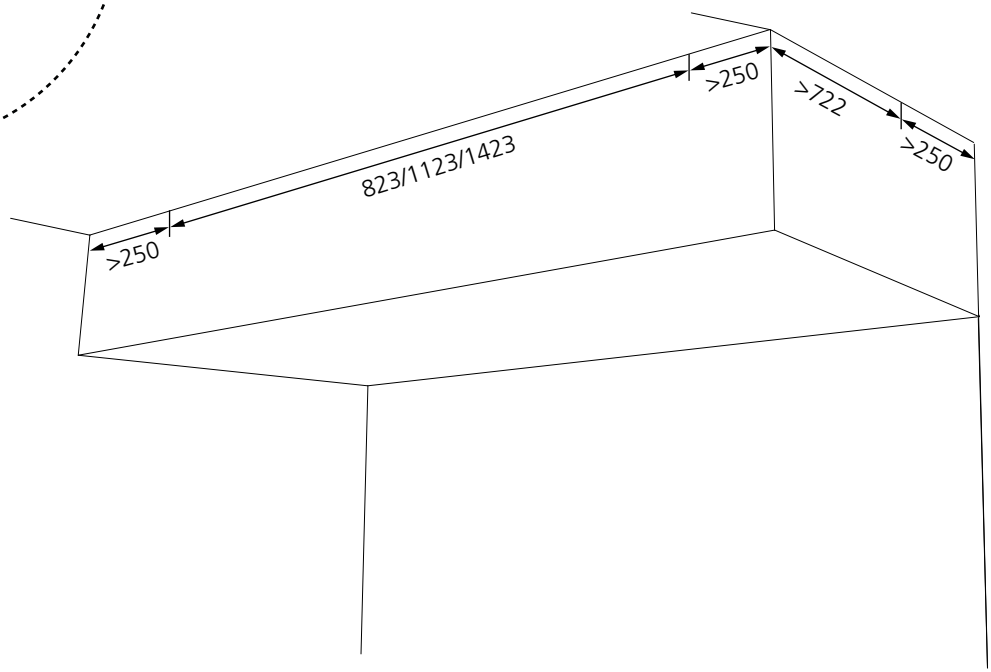
Suspension

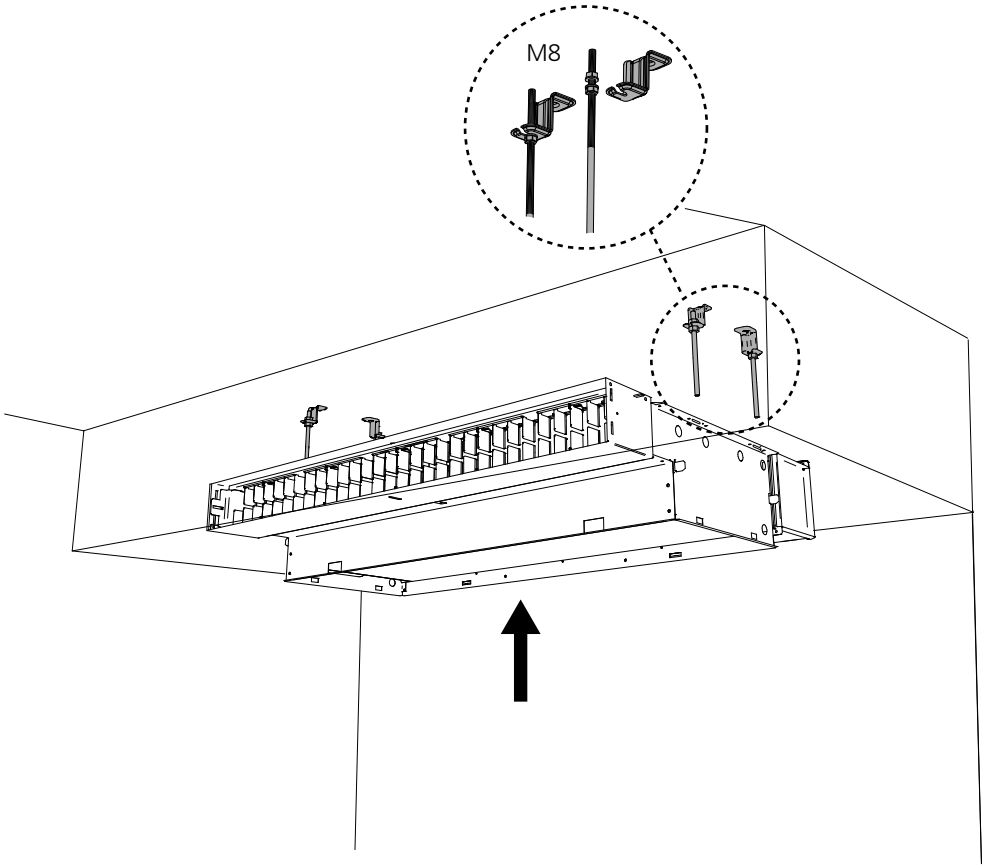


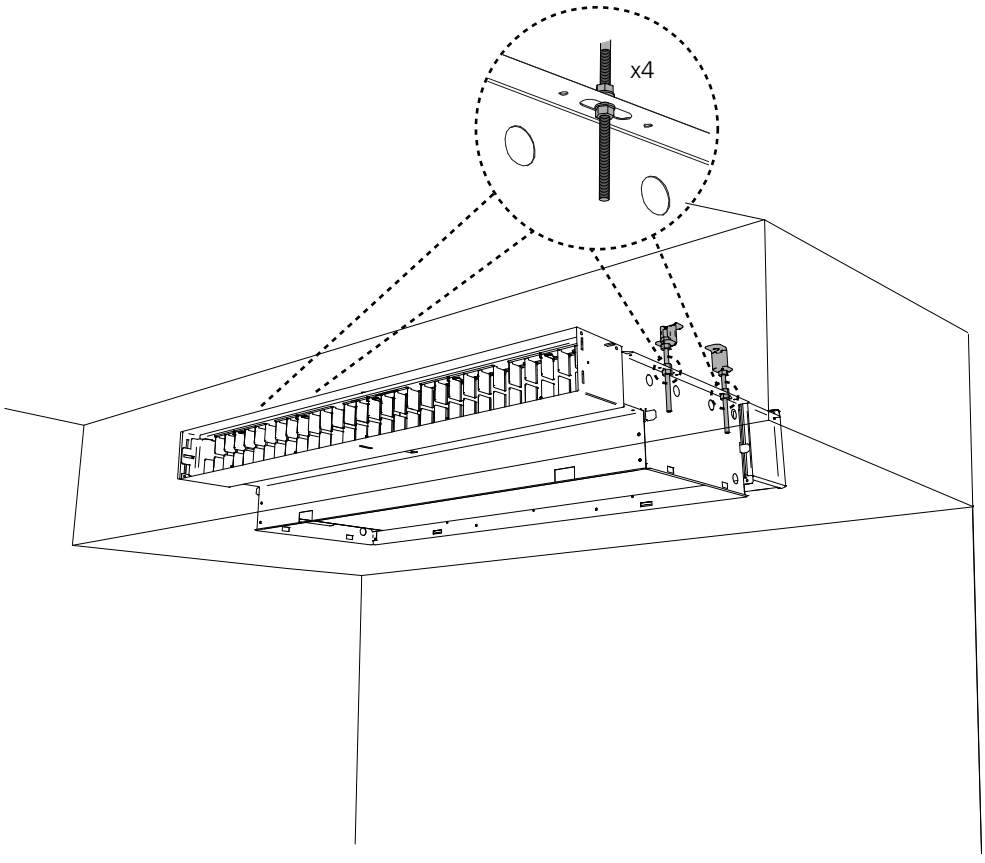


Length	A	B
800	778	222
1100	1078	222
1400	1378	222



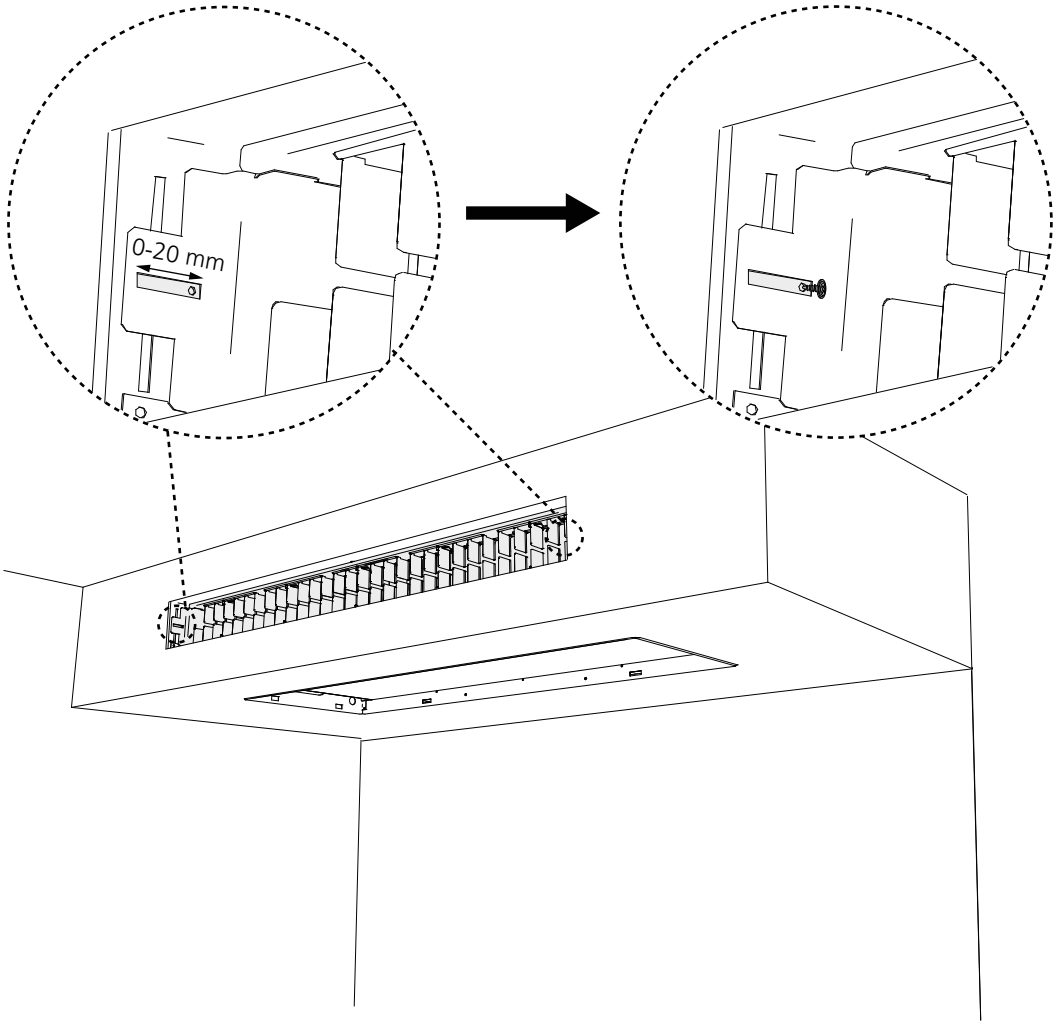




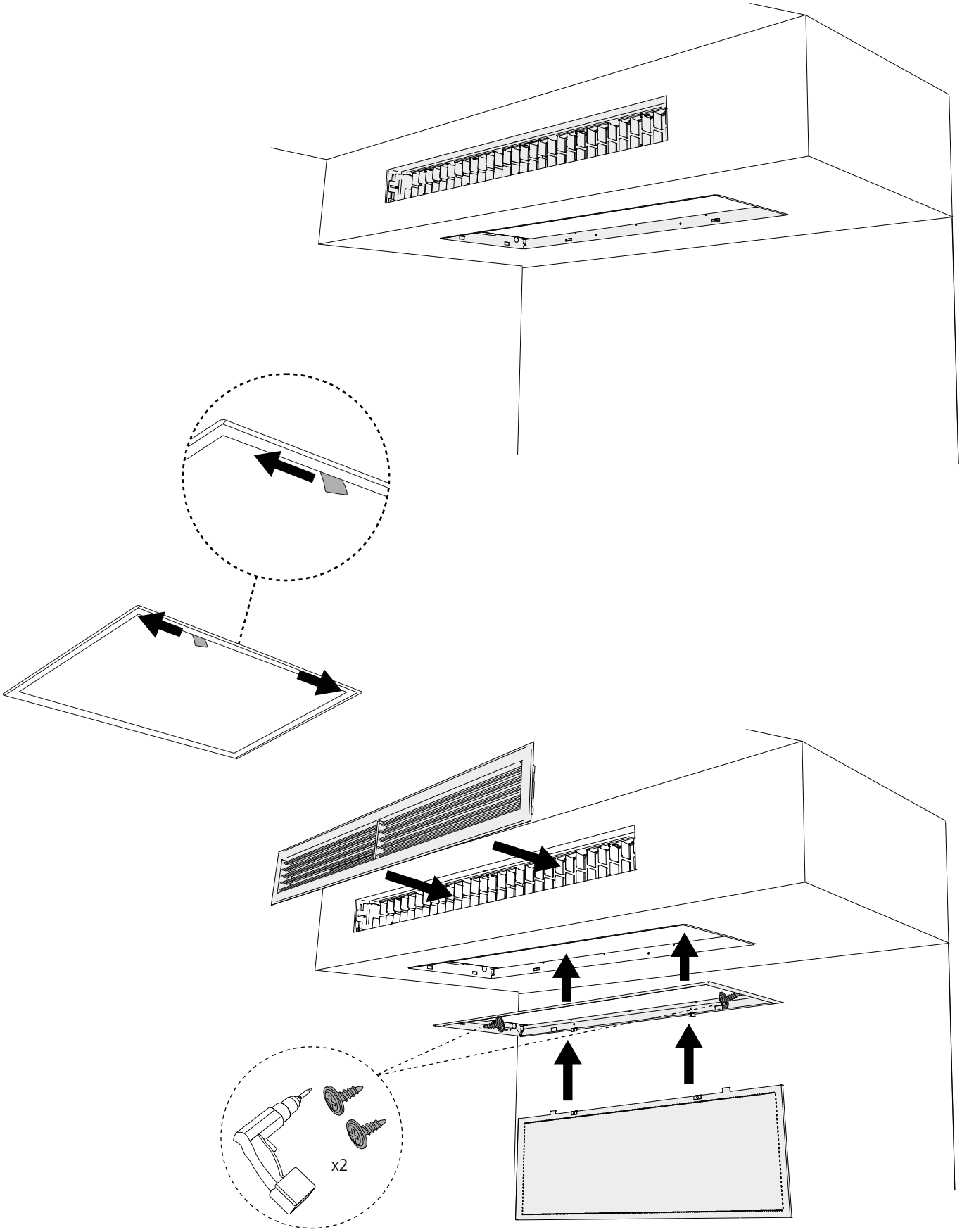


Swegon reserves the right to alter specifications.

Adjustment of grille coupling



Grille installation



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Water connections

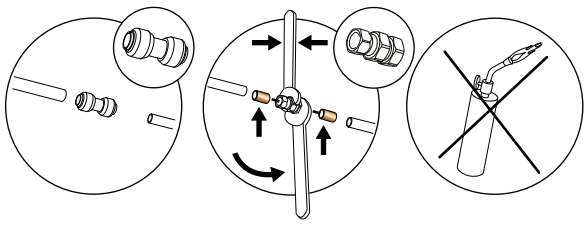
Connection dimensions

Standard design with factory fitted valves:

Length (mm)	Cooling, return	Heating, return
800, 1100, 1400	DN15 external thread	DN15 external thread

Standard design without factory fitted valves:

Length (mm)	Cooling, supply and return	Heating, supply and return
800, 1100, 1400	Plain pipe	Plain pipe
	(Cu) Ø 12 x 1.0 mm	(Cu) Ø 12 x 1.0 mm

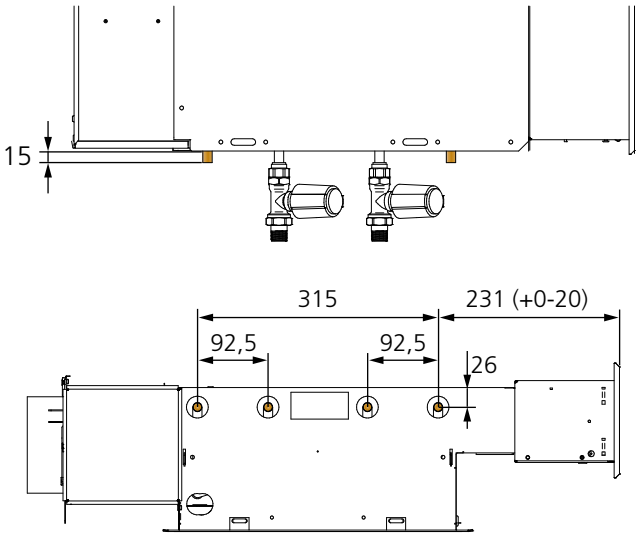


Note that compression ring couplings require support sleeves inside the pipes.

Connecting the water

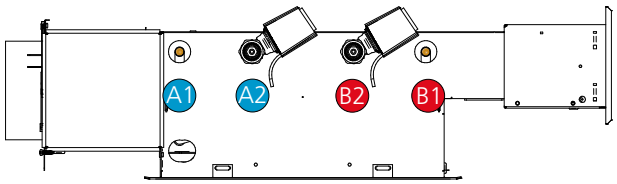
Connect the water pipes using push-on couplings or compression ring couplings

Please note that compression ring couplings require support sleeves to be fitted inside the pipes. Do not use soldered fittings when connecting the water pipes. High temperatures may damage the product's existing soldered joints.

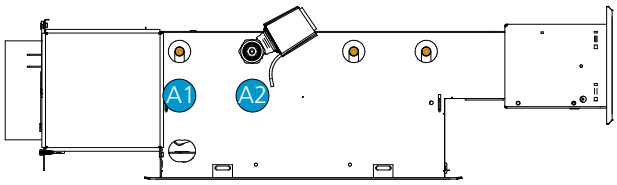


Water connection on right side (R)

Cooling and heating R, all sizes.



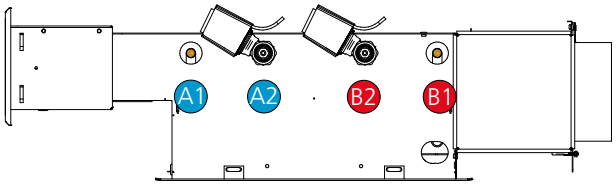
Cooling R, all sizes.



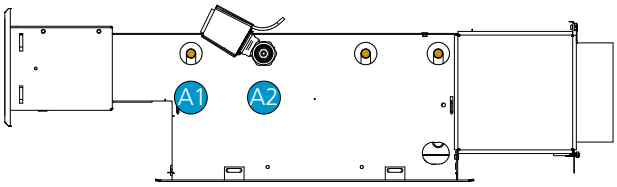
Water connection on right side.
A1 = Cooling water, supply
A2 = Cooling water, return
B1 = Heating water, supply
B2 = Heating water, return

Water connection on left side (L)

Cooling and heating L, all sizes.

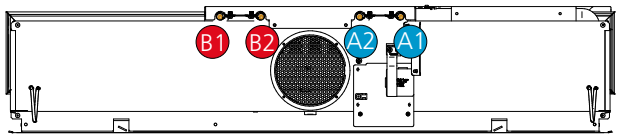


Cooling L, all sizes.



Water connection on left side
A1 = Cooling water, supply
A2 = Cooling water, return
B1 = Heating water, supply
B2 = Heating water, return

Water connection on back side (WB)



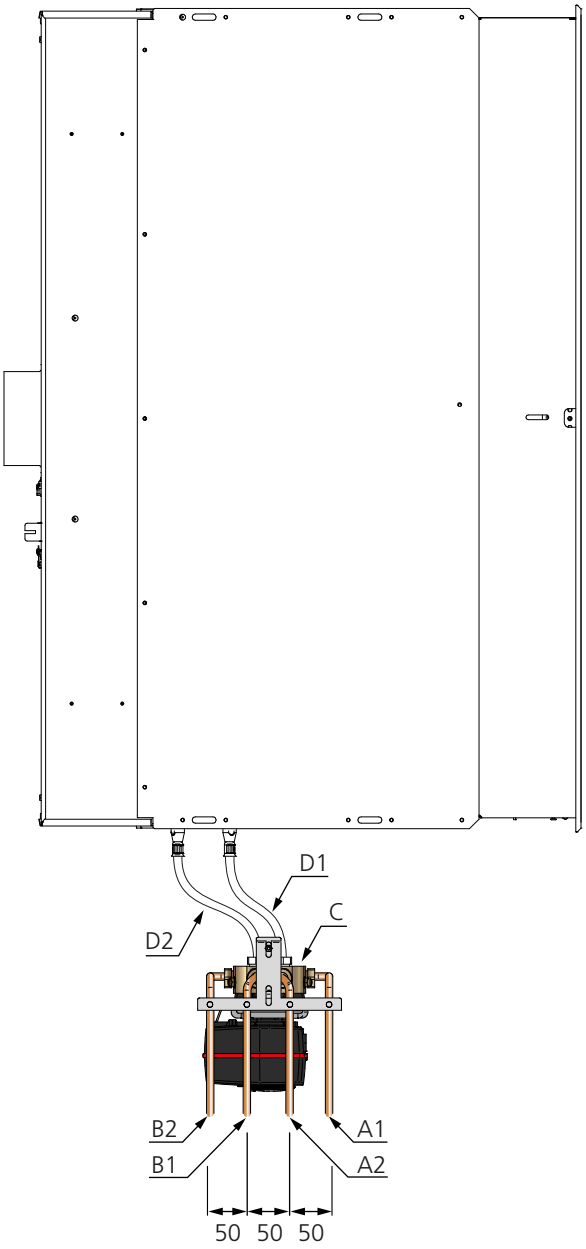
Water connection on back side.
A1 = Cooling water, supply
A2 = Cooling water, return
B1 = Heating water, supply
B2 = Heating water, return

Water quality

Swegon recommends water quality according to VDI 2035-2 for both the heating and cooling systems. In order to maintain the oxygen content in the water below the levels (<0.1 mg/l) prescribed in VDI 2035-2, it is recommended to install a vacuum degasser, particularly in the cooling system where it's more challenging to dissolved gas. It is also important that the prepressure in the expansion vessel is dimensioned according to EN-12828 for both the heating and cooling systems and that regular checks are made of the pre-pressure. The cooling and heating systems must be designed to prevent oxygen from entering the system, this is particularly important to consider when selecting flex hose, pipes and expansion vessels. When the system is filled with fresh water, it has an oxygen content of approximately 8 mg/l, however, this oxygen is consumed quickly through corrosion processes and within a few days the oxygen in the water should be consumed. Nevertheless, it is important to avoid filling the system with fresh water unnecessarily.

Automatic deaerators are often installed to facilitate filling of the system. It is recommended that the automatic deaerators are turned off once the system has been fully vented to avoid these drawing in air in the system if the pre-pressure in the expansion vessel should drop.

Water connection, CCO valve



Water connection, CCO valve.
A1 = Cooling water, supply
A2 = Cooling water, return
B1 = Heating water, supply
B2 = Heating water, return
C = CCO valve
D = Flexible hose

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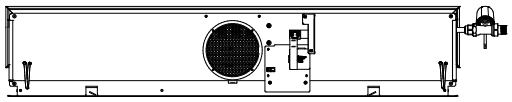
Air connection

All designs have an air connection Ø125.

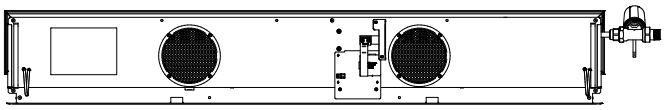
The standard design has the air connection centered on the back of the product for easy access from both ends and back.

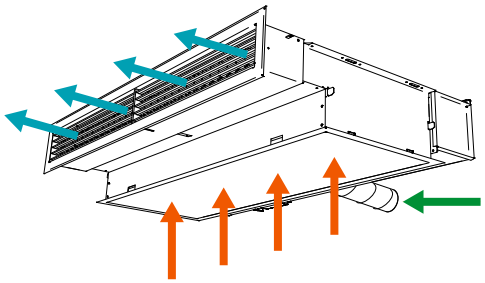
The suite variant, which is only available in length 1400 mm, has two parallel air connections on the back (2x Ø125

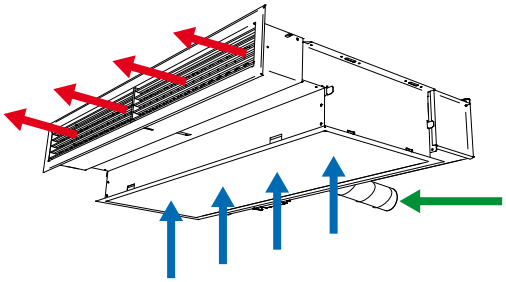
Standard design, view from the back:



Suite design, view from the back:





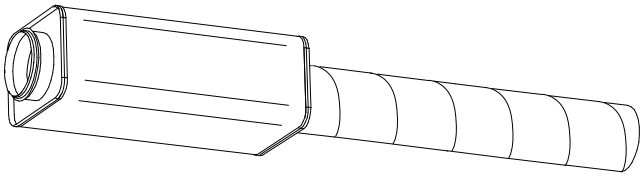


Connection dimensions

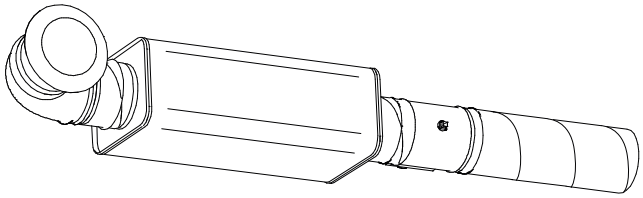
Design	Length (mm)	Air connection	
		1 x Ø125	2 x Ø125
1: Standard	800, 1100, 1400	Yes	No
2: Suite	1400	No	Yes

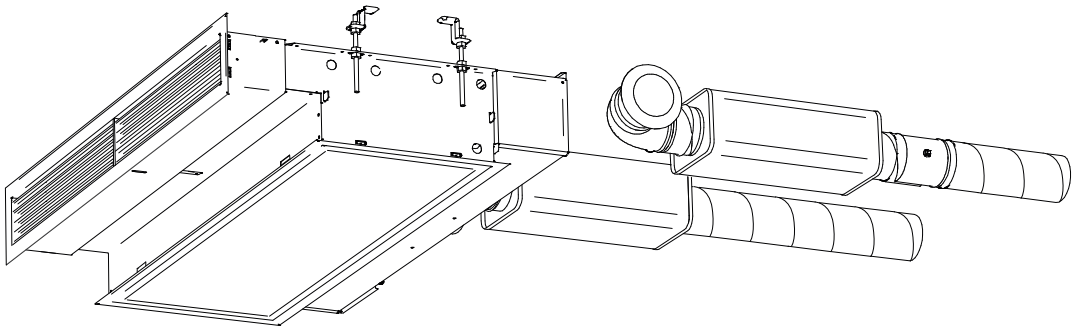
Supply- and extract air

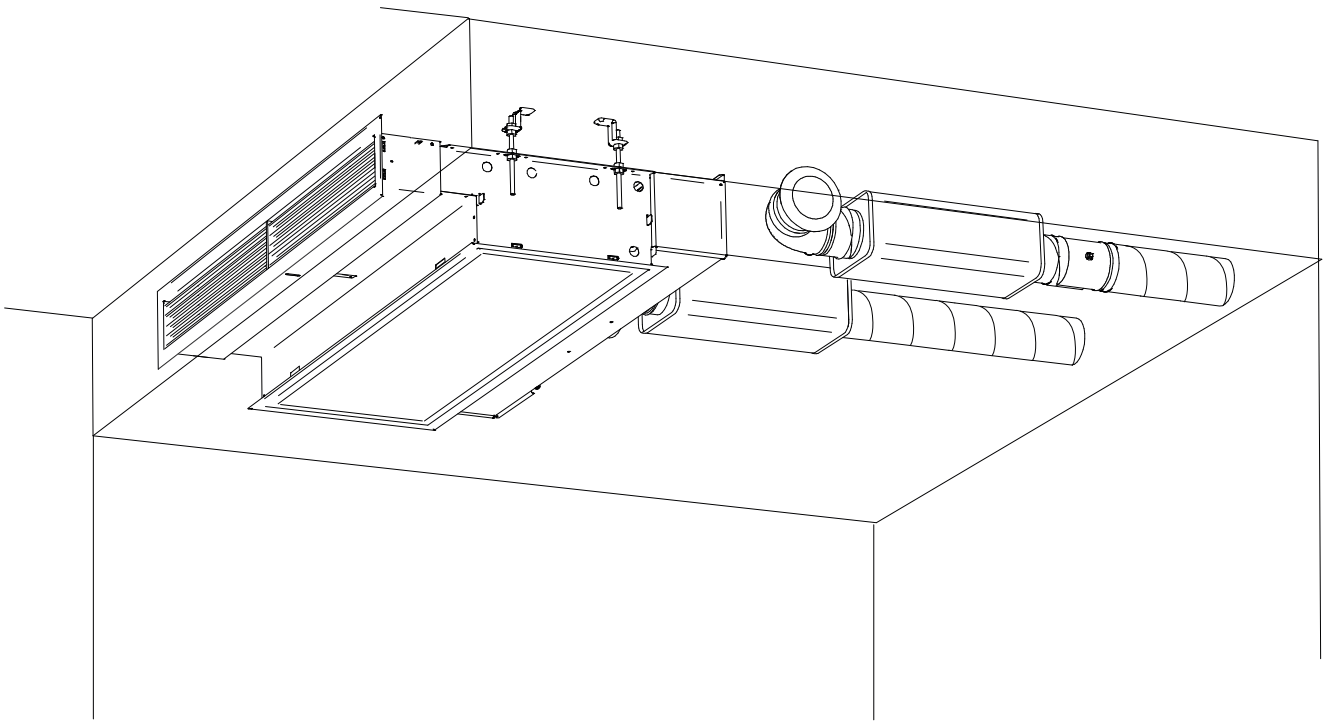
Supply air kit



Extract air kit



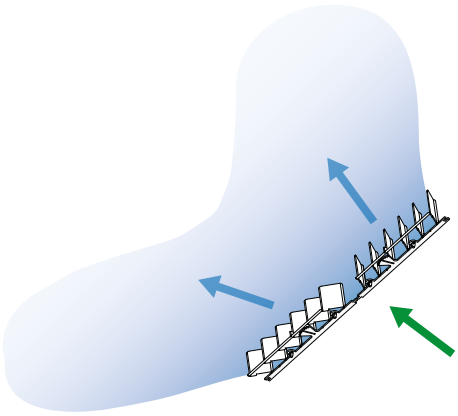




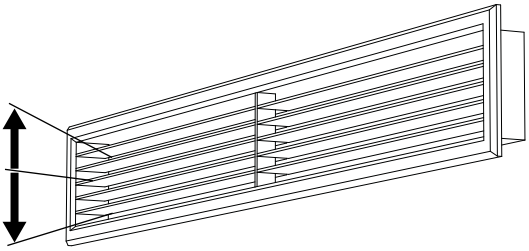
Swegon reserves the right to alter specifications.

Commissioning

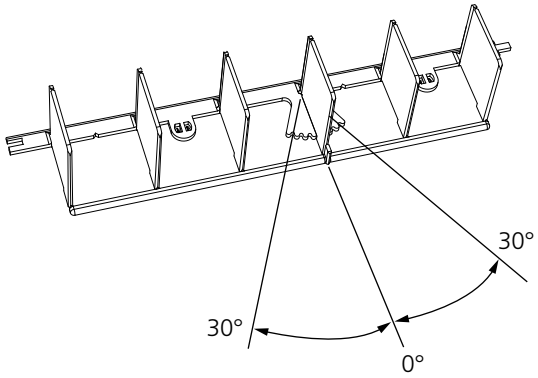
Air distribution



Horizontal air distribution with ADC



Vertical air distribution with adjustable lamellas in the supply air grille.



ADC.

K-factor setting

PARAGON is equipped with a manual control on the back for setting the desired k-factor.

Control measurement of the airflow

Step 1

Connect the pressure tubes to the measuring instrument to measure the duct pressure.

Step 2

Slide the manual control to the desired k-factor. In the example, the k-factor is 3.

Step 3

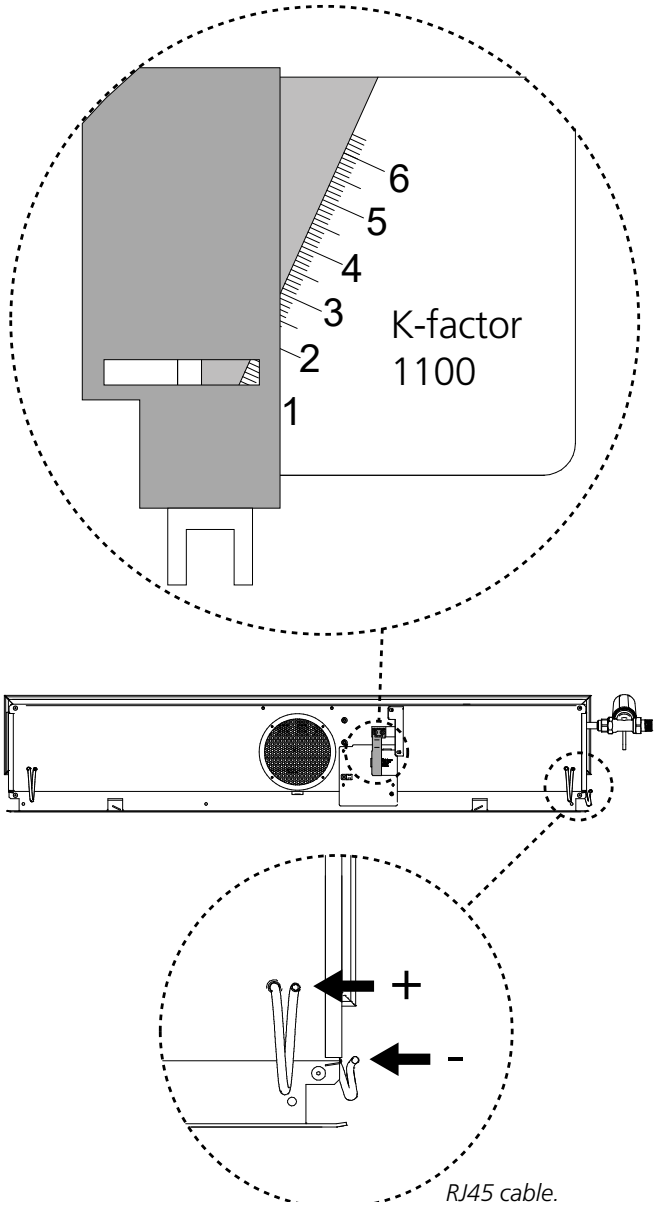
Use the measured pressure and the K-factor to calculate the airflow (l/s) using the formula:

$$q = k \cdot \sqrt{p}$$

$$q = 3 \cdot \sqrt{100}$$

$$q = 30\ l/s$$

Example showing the K-factor is 3.



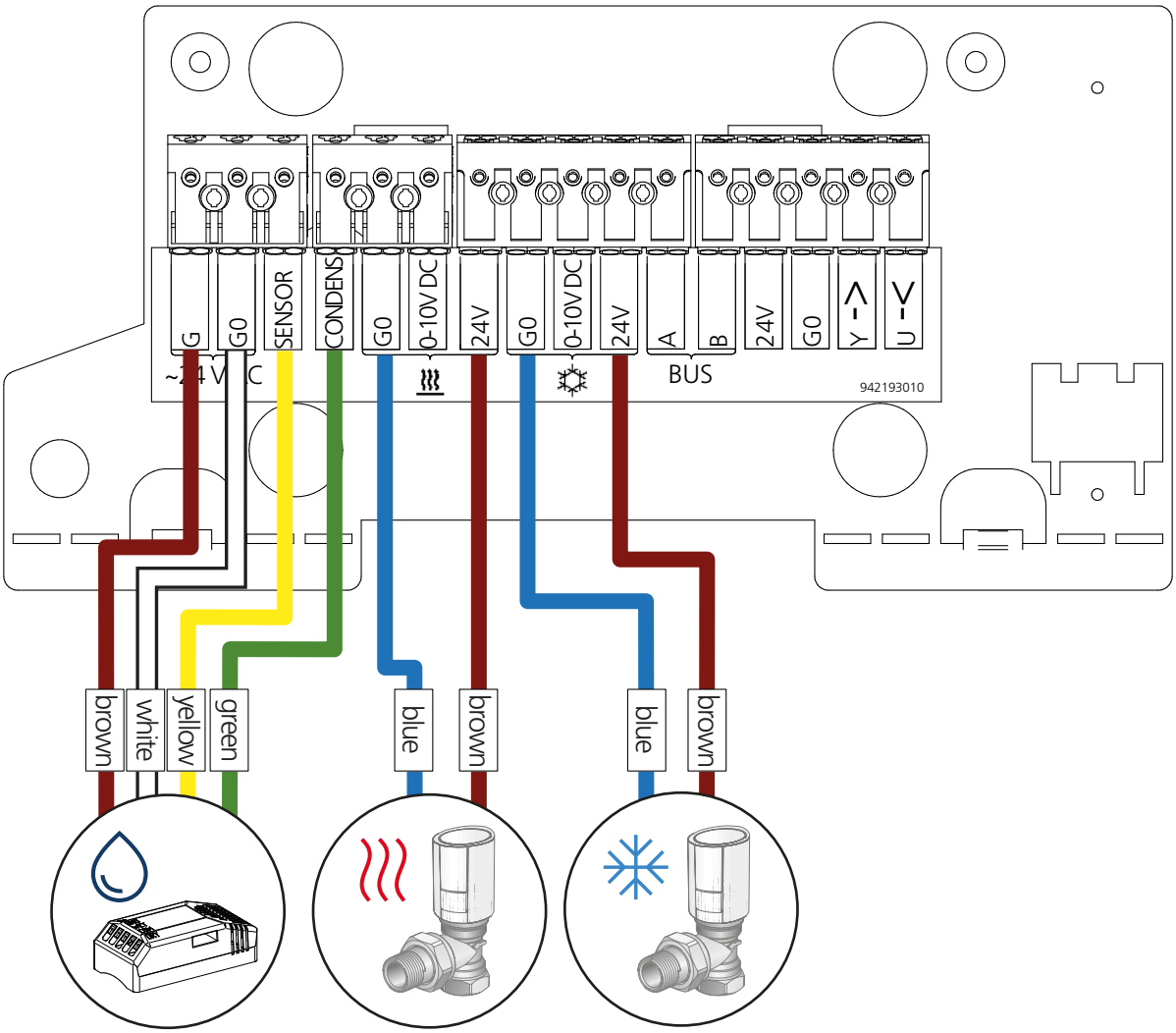
RJ45 cable.

Swegon reserves the right to alter specifications.

Wiring diagram

Wiring diagram for PARAGON ordered with accessories

When PARAGON is ordered with accessories, the product is delivered with a terminal block. Accessories are connected to the terminal block according to the instructions below. When PARAGON is ordered without accessories, the product is delivered without a terminal block.



Electrical data

Power supply	24V AC +-15 % 50-60Hz 24V DC +-25 %	
Power consumption	VA unit	W / unit
Inrush current 10 ms/20 ms	72	36
Operation	4.5	3

Handling

Cleaning

Ideally the product should be cleaned twice a year by vacuuming the coil to remove loose dust.

In fibre dense environments as hotels and ward rooms a first vacuuming after three months is recommended and thereafter an interval of 1-2 times a year. This is due to the fact that new textiles often lose a lot of fibres in the beginning of their life cycle.

A simple visual inspection of connections is recommended when cleaning.

On painted surfaces such as grills: Avoid aggressive cleaning agents which may harm the surface. Normally a mild soap or alcohol solution is fully adequate. See *Maintenance*.

Service/maintenance

- In connection with a service, mandatory ventilation inspection or cleaning of the ventilation system, check that the general condition of the products looks ok. Pay particular attention to the suspension, cables and that they sit firmly in place.
- It is not permissible to open or repair electrical components.
- If you suspect that the product or a component is defective, please contact Swegon.
- A defective product or component must be replaced by an original spare part from Swegon.

Disposal

Help protect the environment by handling packaging materials responsibly and using products in compliance with applicable environmental regulations.

Product warranty

The product warranty or service agreement will not be in effect/will not be extended if: (1) The product is repaired, modified or changed, unless such repair, modification or change has been approved by Swegon AB; or (2) the serial number on the product has been made illegible or is missing.

Recommendation for electrical installations

- Swegon recommends that all electrical installations are carried out by a qualified electrician.
- Swegon recommends that a 24 V power supply is connected with a 1.5 mm² copper cable to minimise the risk of voltage drops in the case of long cable runs.
- Swegon recommends the use of Swegon-labelled transformers for the power supply of Swegon products.

Voltage drop table at different loads (amperes) with a 1.5 mm² cable

Metres (m)	Current/Amperes					
	1	2	3	4	5	6
10	0.24	0.48	0.72	0.96	1.20	1.44
20	0.48	0.96	1.44	1.91	2.39	2.87
30	0.72	1.44	2.15	2.87	3.59	4.31
40	0.96	1.91	2.87	3.83	4.78	5.74
50	1.20	2.39	3.59	4.78	5.98	7.18
60	1.44	2.87	4.31	5.74	7.18	8.61
70	1.67	3.35	5.02	6.70	8.37	10.05
80	1.91	3.83	5.74	7.65	9.57	11.48
150	3.59	7.18	10.76	14.35	17.94	21.53
160	3.83	7.65	11.48	15.31	19.13	22.96

The largest permitted voltage drop is 3.6 V.

Description of problem:
Swegon's electrical units and machines are designed to work within specific voltage intervals. If the voltage drops below the nominal value, this can lead to impaired performance or even damage to the equipment.

Voltage drops also entail increased resistance in cables and components, which generates heat. This heat represents a loss of electrical energy. Depending on the voltage drop, the energy losses can be significant.

A general guideline for a 24 V system is that a 15% voltage drop is acceptable (3.6 volts).

How is the voltage drop in the cable calculated:
Resistance (R) = (Resistivity (p) x Length (L)) / Area (a).

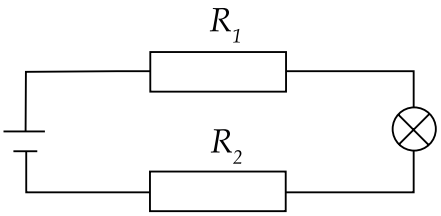
Voltage drop in wire (UL) = Resistance (R) x current (I)

$$R_1 = \frac{p \cdot L}{a}$$

$$R_2 = \frac{p \cdot L}{a}$$

$$R = R_1 + R_2$$

$$UL = R \cdot I$$



For example, the resistivity for copper is 0.0175 ohm mm²/m at 15°C. Bear in mind that the resistance increases by 0.4% per degree Celsius.

Examples of voltage drops in cables:

Input data	Value	Unit
Supply voltage	24	Volts
Current (load)	1.25	Amperes
Cable area	1.5	mm
Cable length (phase + neutral wire)	50	m

Voltage drop	1.5	Volts

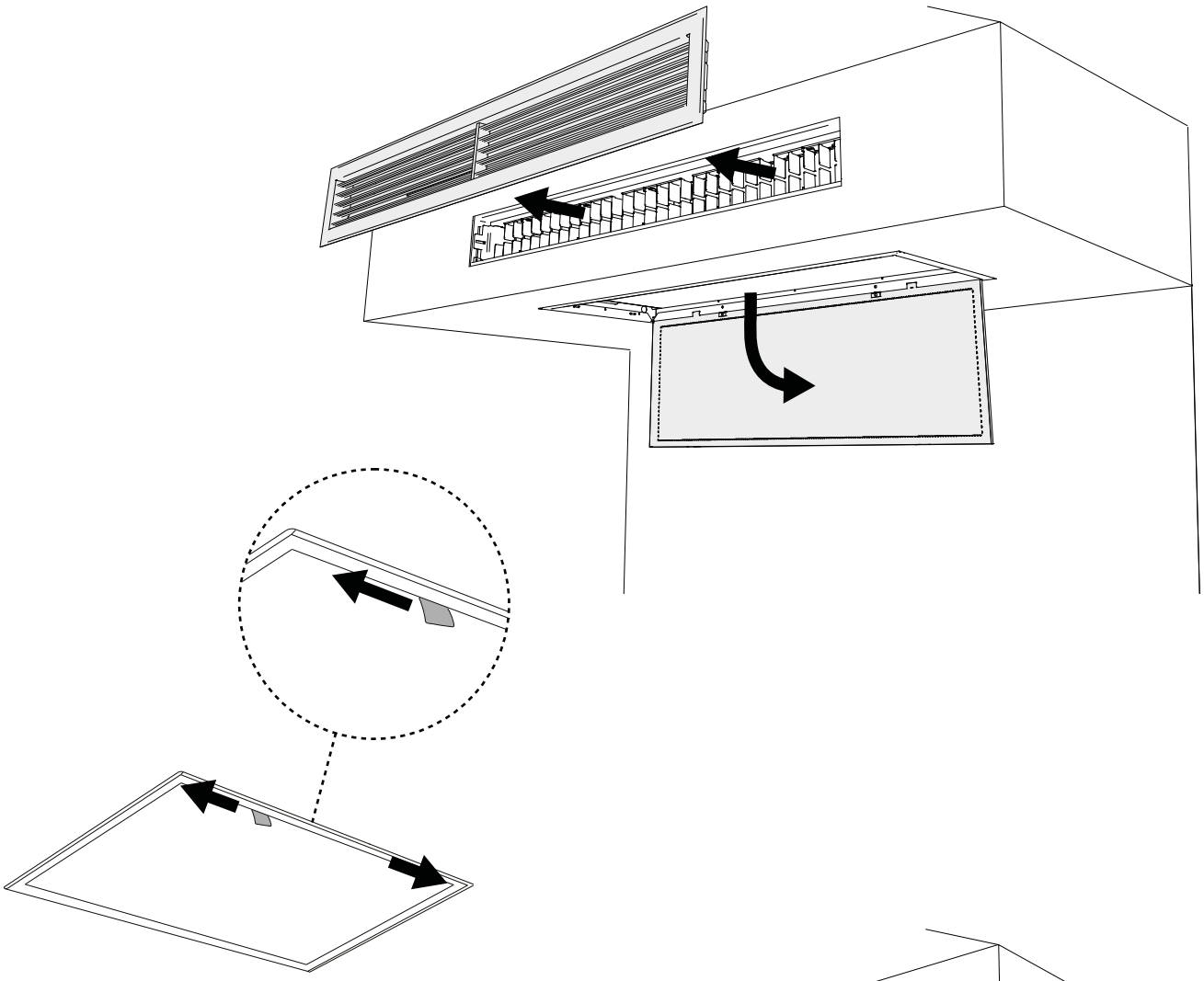
Example 1 at 22°C.

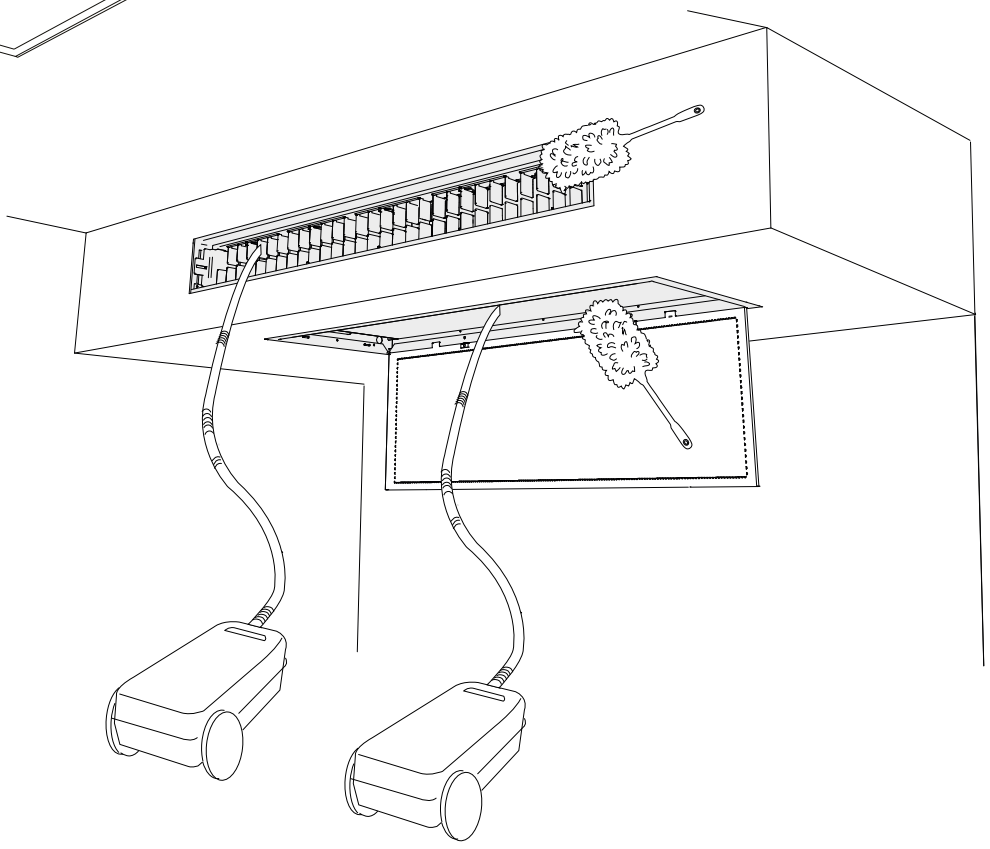
Input data	Value	Unit
Supply voltage	24	Volts
Current (load)	1.25	Amperes
Cable area	1.5	mm
Cable length (phase + neutral wire)	200	m

Voltage drop	6	Volts

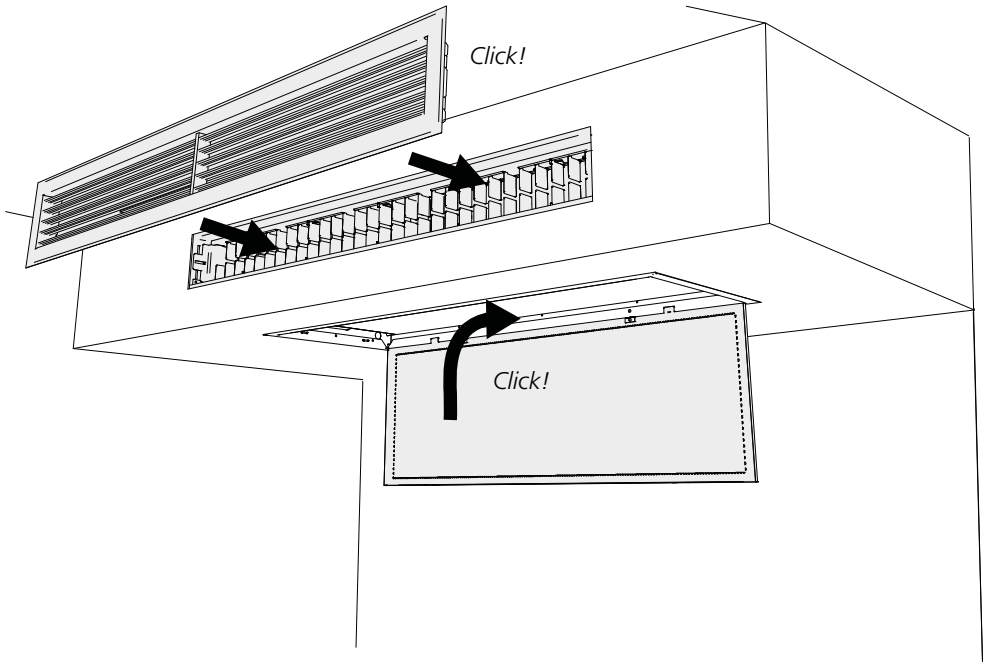
Example 2 at 22°C.

Maintenance





Swegon reserves the right to alter specifications.


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