

# ADRIATIC d

Installation - Commissioning - Maintenance

10/10/2023  
Art. 942428079

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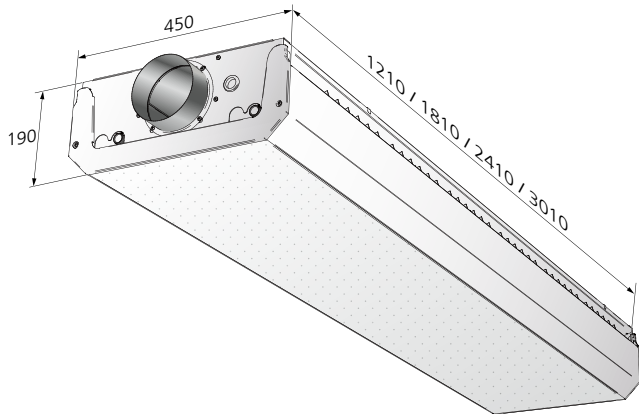
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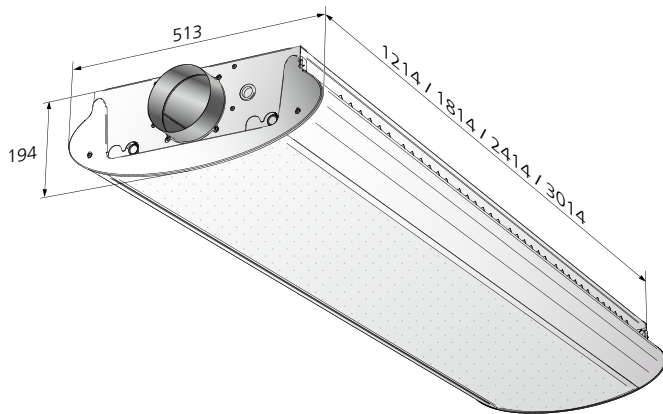
The document was originally written in Swedish

# Dimensions

## ADRIATICd Prisma



## ADRIATICd Ellips



# Weight

### Weight - ADRIATIC with Prisma design section

| Length<br>(m) | Dry weight*<br>(kg) | Weight, filled with water* (kg) |                    |
|---------------|---------------------|---------------------------------|--------------------|
|               |                     | A: Cooling                      | B: Cooling/Heating |
| 1.2           | 19.8                | 20.8                            | 21.0               |
| 1.8           | 28.4                | 29.9                            | 30.3               |
| 2.4           | 36.7                | 38.8                            | 39.3               |
| 3.0           | 44.4                | 47.0                            | 47.7               |

### Weight - ADRIATIC with Ellips design section

| Length<br>(m) | Dry weight*<br>(kg) | Weight, filled with water* (kg) |                    |
|---------------|---------------------|---------------------------------|--------------------|
|               |                     | A: Cooling                      | B: Cooling/Heating |
| 1.2           | 20.2                | 21.0                            | 21.2               |
| 1.8           | 28.8                | 30.3                            | 30.7               |
| 2.4           | 37.4                | 39.5                            | 40.0               |
| 3.0           | 45.4                | 48.0                            | 48.7               |

\* excl. controller (VAV = 0.723 kg, WISE = 0.598 kg), valves, actuators and sensors.

# Installation

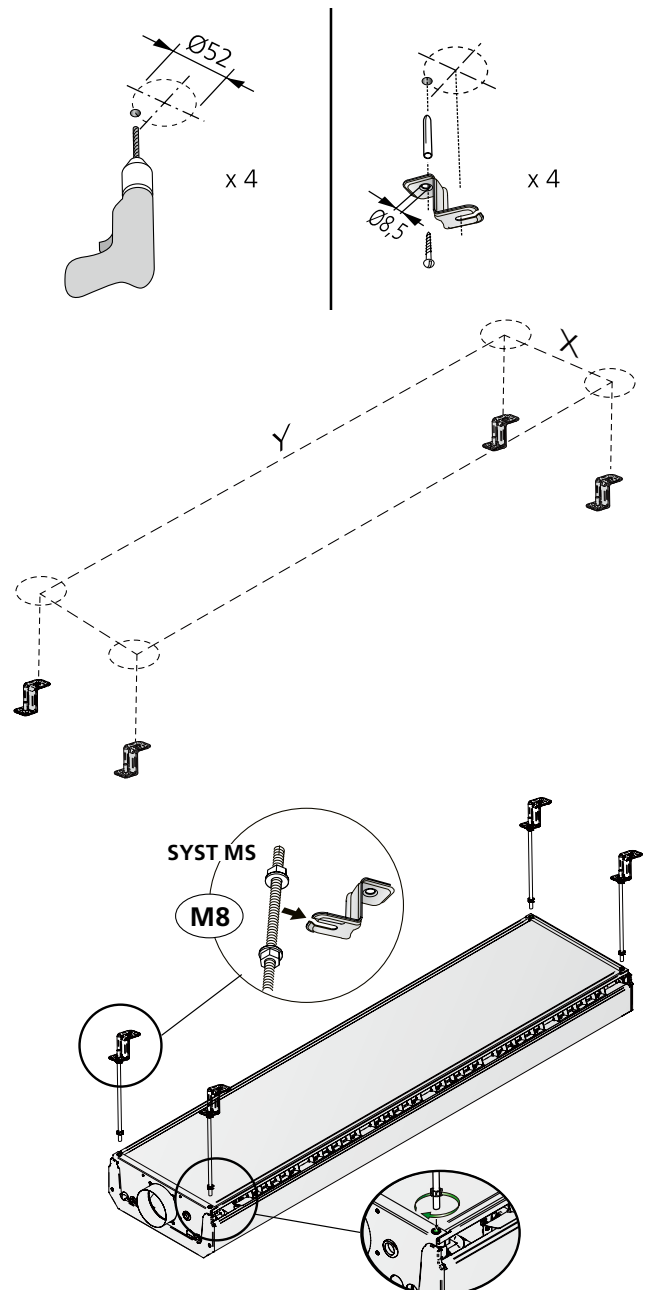
## Suspended installation

The product is mounted on the ceiling using standard suspension bracket SYST MS-M8.

### c-c dimensions

The c-c dimensions are the same for ADRIATIC with both design module Prisma and design module Ellips. The examples to the right show Prisma.

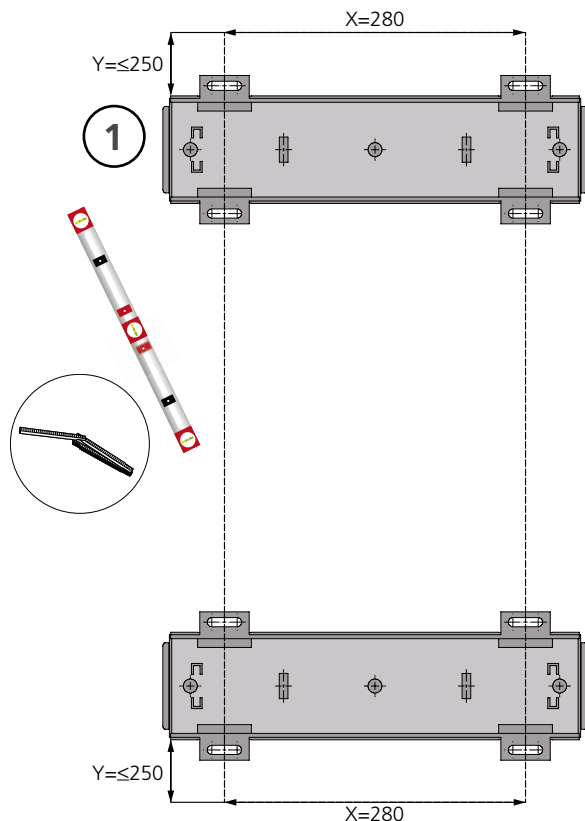
| Unit<br>(m) | Suspended installation     |                           |
|-------------|----------------------------|---------------------------|
|             | c-c (mm)<br>X - Short side | c-c (mm)<br>Y - Long side |
| 1.2         | 392                        | 1173                      |
| 1.8         | 392                        | 1773                      |
| 2.4         | 392                        | 2373                      |
| 3.0         | 392                        | 2973                      |



## Surface mounted installation

Surface-mounting the product on the ceiling using suspension bracket ADRIATIC d-T-MD-4S.

- Carefully measure where the bracket is to be placed so that all the brackets are in a perfectly straight line in relation to each other according to the c-c dimensions in the table above. The bracket's distance to the edge of the short side may not exceed 250 mm, in order for the safety cord to be able to be anchored.
- Install the suspension bracket ADRIATIC d-T-MD-4S in the ceiling. Use two brackets per product for lengths 1.2 and 1.8. For lengths 2.4 and 3.0, use three brackets. Anchor the safety cord under the suspension bracket when installing the bracket. Use a suitable screw for the ceiling in question.
- When all the brackets have been screwed into place with four screws each, fold out the moving sections at either end of the bracket to the out position.
- Anchor the enclosed safety cord in the bracket and in the corner of the product.
- Then move the product straight up against the bracket.
- Lock the product in the bracket by pressing the folded out sections on the ends of the bracket in towards the product on both sides.
- Repeat this procedure for all the brackets.

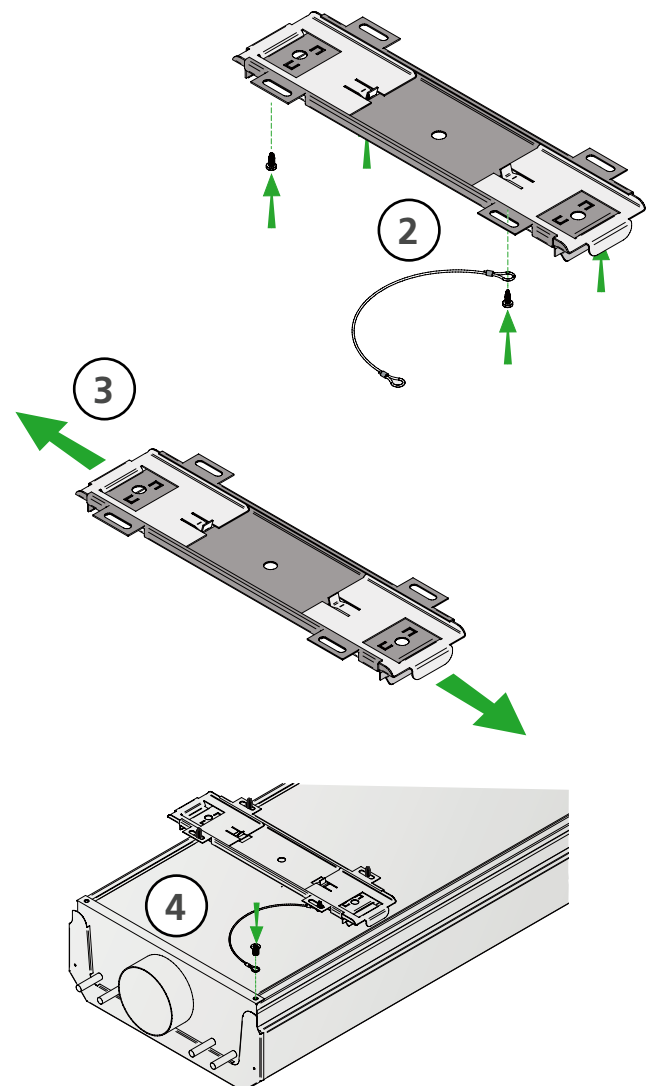
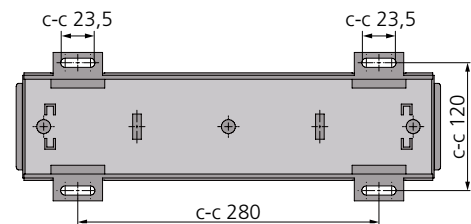


## Installation

The c-c dimensions are the same for ADRIATIC VAV with both design module Prisma and design module Ellips. The examples to the right show Prisma.

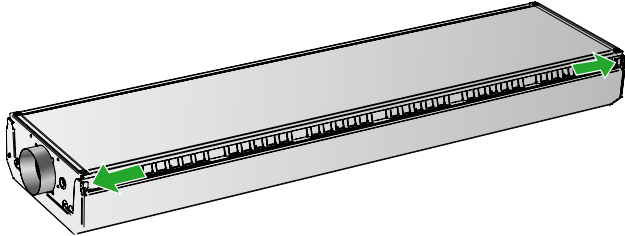
| Unit<br>(m) | Surface mounted installation |          |             |
|-------------|------------------------------|----------|-------------|
|             | Number of<br>brackets        | c-c (mm) | Max. (mm) * |
| 1.2         | 2                            | 280      | 250         |
| 1.8         | 2                            | 280      | 250         |
| 2.4         | 3                            | 280      | 250         |
| 3.0         | 3                            | 280      | 250         |

\* Max. distance from the end of the product.



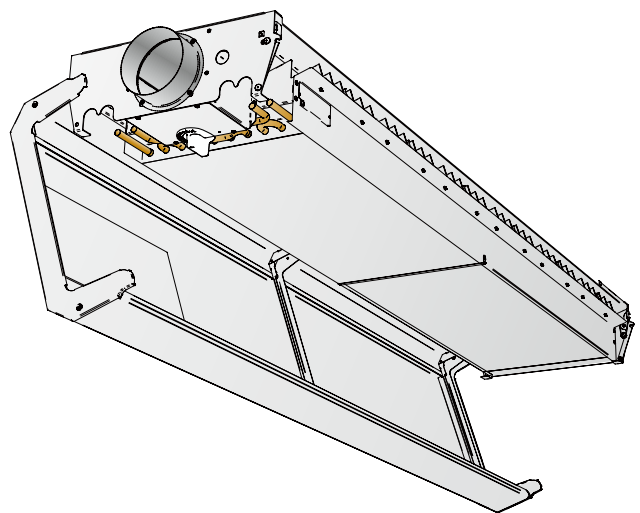
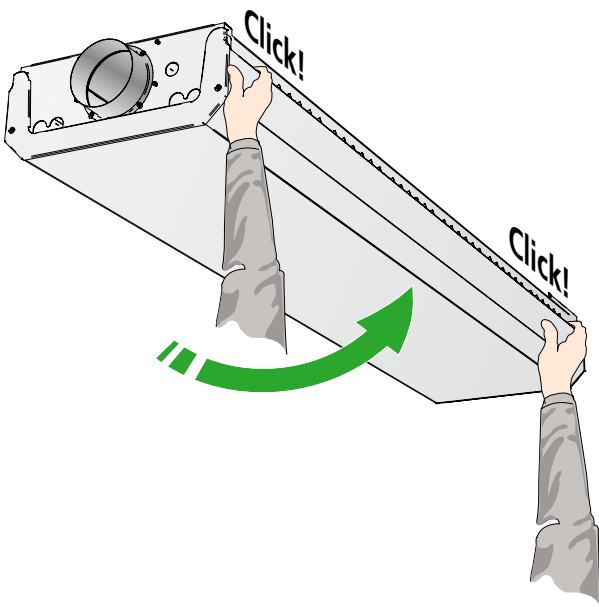
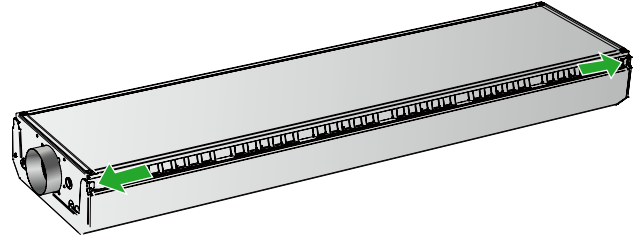
## Secure design module

When fastening the design module from an open position, raise the design section until you hear a click, at which point it is secured in the base module.



## Fold down design module

The unit is equipped with a pushbutton at either end of one of the long sides, for simple lowering of the design section and access to e.g. control equipment. When lowering, one long side is opened and the design section is suspended from the opposite long side.



## Water connection

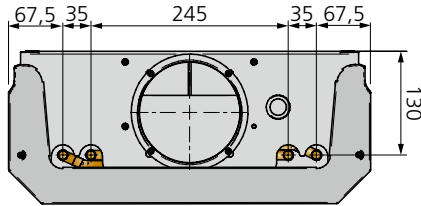
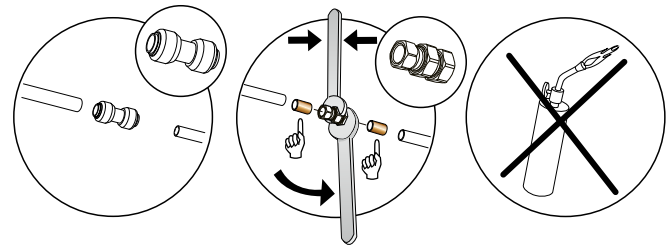


Figure 15. Dimensions ADRIATIC Prisma, end view, water connection



### N.B!

Use support sleeves inside the pipes together with compression ring couplings.

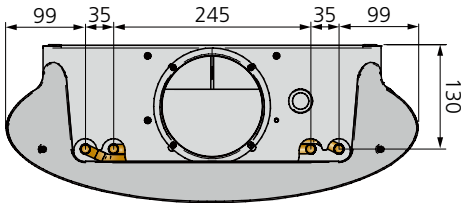


Figure 16. Dimensions ADRIATIC Ellips, end view, water connection

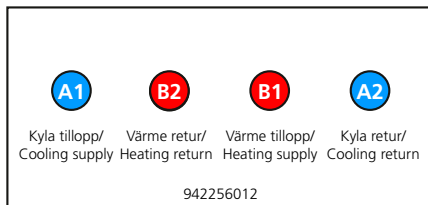


Figure 17. Water connection

A1 = Supply cooling water  $\varnothing 12 \times 1.0$  mm (Cu)  
 A2 = Return cooling water  $\varnothing 12 \times 1.0$  mm (Cu)  
 B1 = Supply heating water  $\varnothing 12 \times 1.0$  mm (Cu)  
 B2 = Return heating water  $\varnothing 12 \times 1.0$  mm (Cu)

### Connecting water

The water pipes are placed as standard on the same side as the air connection on one of the product's short sides.

Connect the water pipes using push-on couplings or compression ring couplings when the product is ordered without valves. Note that compression ring couplings require support sleeves inside the pipes.

Do not use solder couplings to connect the water pipes. High temperatures can damage the unit's existing soldered joints.

Flexible connecting hoses for water are available for flat-end pipes and valves, and can be ordered separately.

### 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 for the pre-pressure in the expansion vessel to be dimensioned according to EN-12828 for both the heating and cooling systems and for regular checks to be 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.

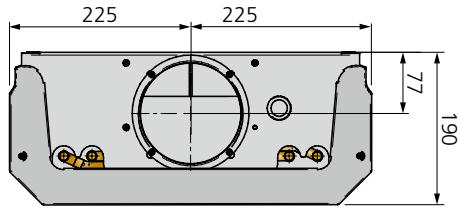
### Connection sizes

| Model                          | Length   | Factory-fitted     | Connection | Coupling type          | Connection  | Coupling type          |
|--------------------------------|----------|--------------------|------------|------------------------|-------------|------------------------|
| A, B, Cooling, Cooling/Heating | 1.2; 1.8 | Actuator and valve | Return     | DN15, male thread      | Supply pipe | Plain pipe 12 x 1.0 mm |
| A, B, Cooling, Cooling/Heating | 2.4; 3.0 | Actuator and valve | Return     | DN15, male thread      | Supply pipe | Plain pipe 12 x 1.0 mm |
| A, B, Cooling, Cooling/Heating | 1.2; 1.8 | -                  | Return     | Plain pipe 12 x 1.0 mm | Supply pipe | Plain pipe 12 x 1.0 mm |
| A, B, Cooling, Cooling/Heating | 2.4; 3.0 | -                  | Return     | Plain pipe 12 x 1.0 mm | Supply pipe | Plain pipe 12 x 1.0 mm |

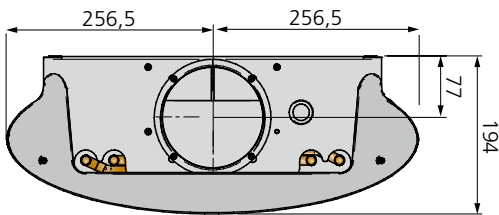
## Air connection

### To connect the air

ADRIATIC comes with air connection on one short side. The sleeve is connected to the primary air duct.



Dimensions ADRIATIC Prisma, end view, air connection



Dimensions ADRIATIC Ellips, end view, air connection

## Air

### Connection dimensions

| Unit            | Air connection, diameter |
|-----------------|--------------------------|
| (m)             | Ø                        |
| 1.2 1.8 2.4 3.0 | 125                      |

## Control equipment

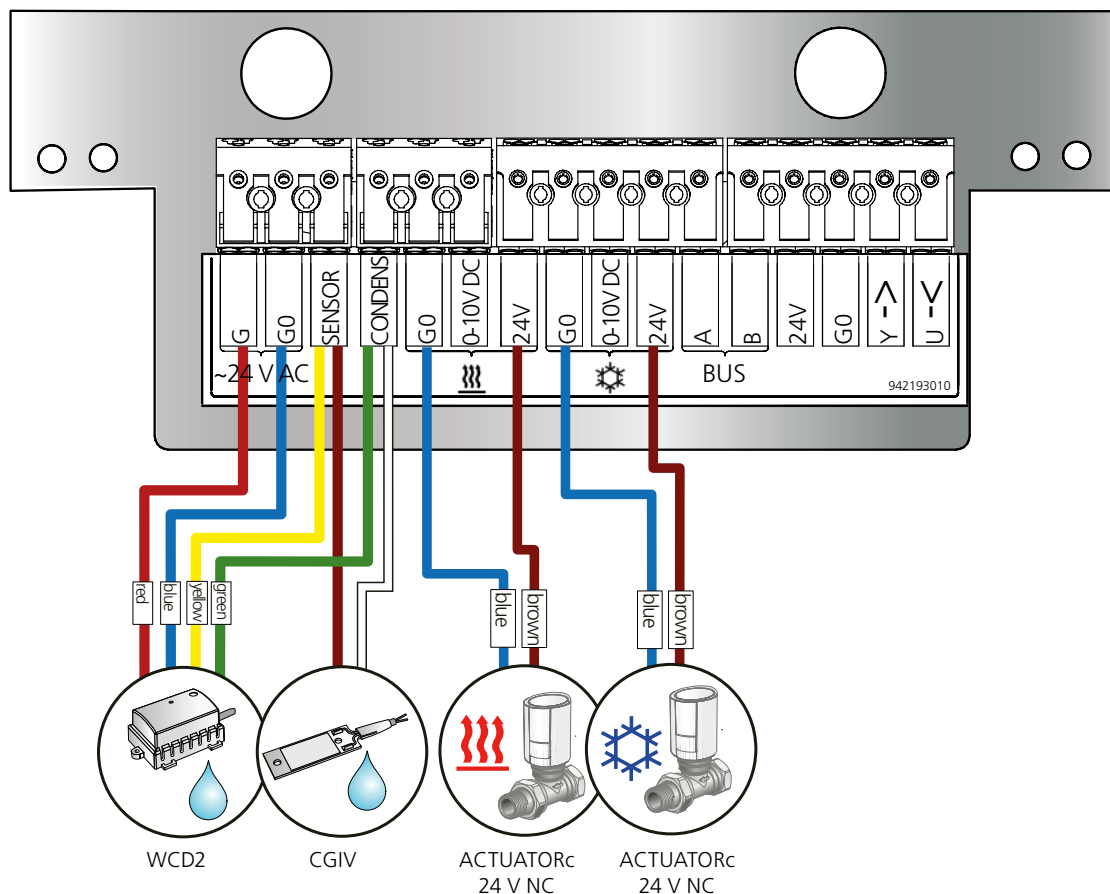
See under the "Accessories" section to supplement the product with various control equipment.

ADRIATIC can also be ordered as VAV and DCV products, see ADRIATIC VAV and WISE Adriatic.

# Wiring diagram

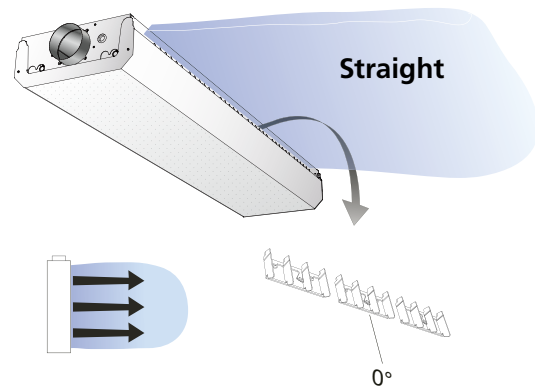
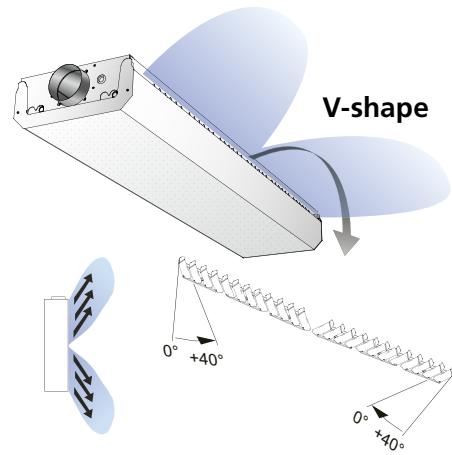
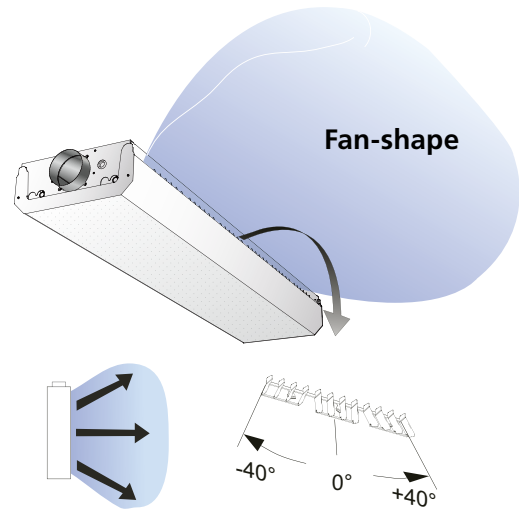
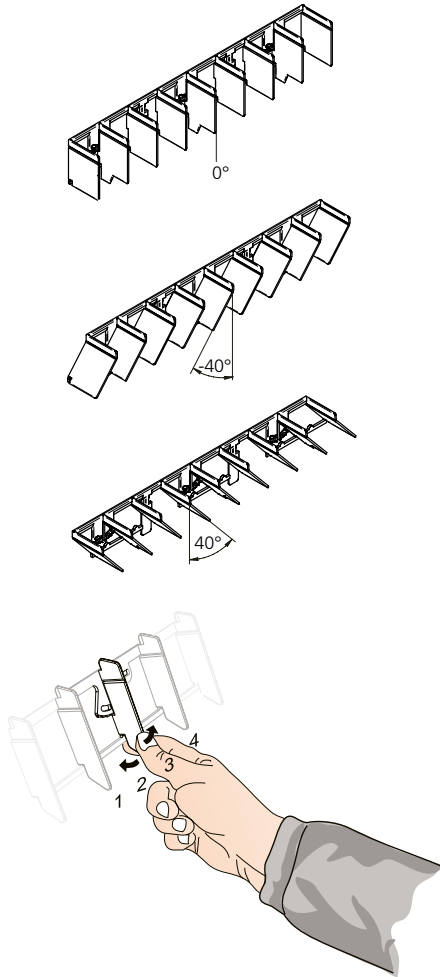
## Control plate for connecting the accessories

The control plate is placed on the coil adjoining the water pipe and air duct, and is easily accessible when lowering the face plate/design module.



# Commissioning

## ADC





### K-factor setting

The k-factor can easily be set or adjusted with the help of the knob, which is located on the underside of the product and which is accessible when the design section is opened.

**Example: To achieve the required flow of 30 l/s at 100 Pa, k-factor 3 is required**

- A:** Find the product's length from the left-hand side of the k-factor table.
- B:** Read the required k-factor on the row in question.
- C:** Follow the vertical row and read the number of degrees at the bottom.
- D:** Loosen the screw located in the knob's groove, turn the knob until the marking "D" reaches the required number of degrees.
- E:** In the example from the table for an ADRIATIC d with length 1.8, k-factor 2, turn the knob to 62°.

### K-factor table

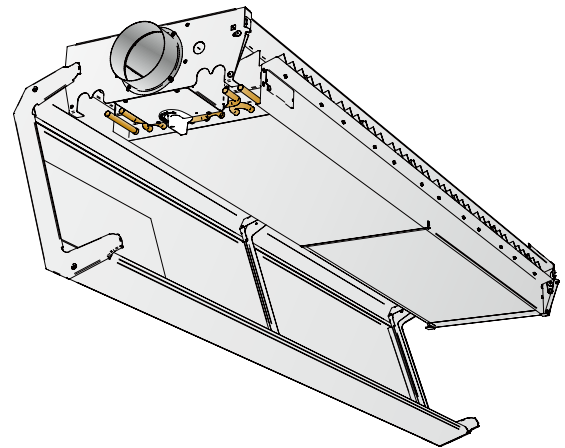
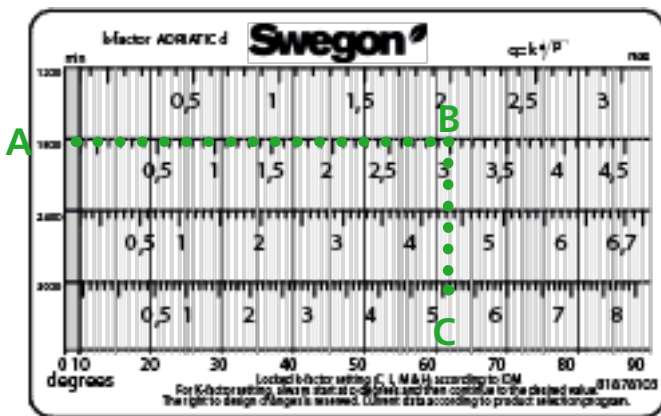


Figure 13. The knob is located on the base module.

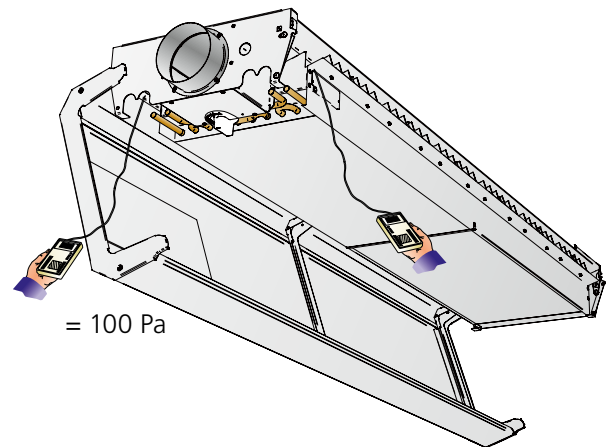
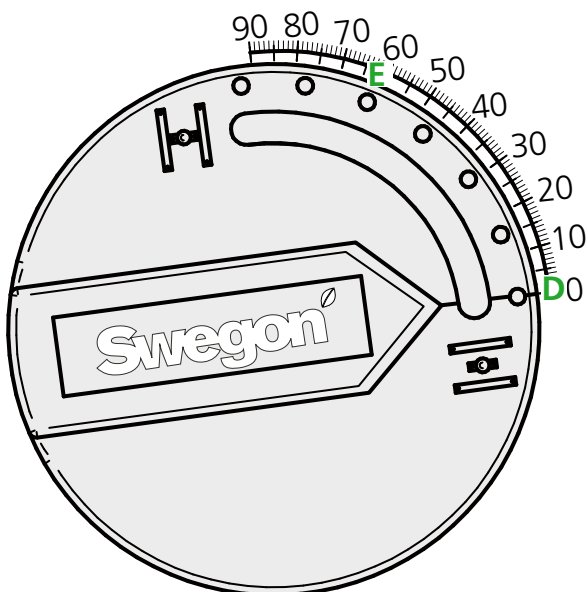


Figure 14. Measuring tubes can be found on the product's two long sides.

### Knob



$$p_i = \left(\frac{q}{k}\right)^2 \text{ [Pa]}$$

$$q = k \cdot \sqrt{p_i} \text{ [l/s]}$$

$$\frac{q}{\sqrt{p_i}} = k$$

$p_i$  [Pa]  
 $q$  [l/s]  
 $k = k\text{-factor}$

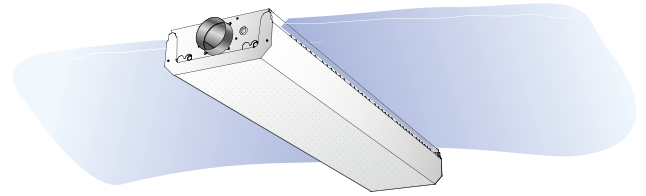
## Symmetric flow

With a symmetric flow, the adjustment rod must be installed as shown in the diagram to the right.

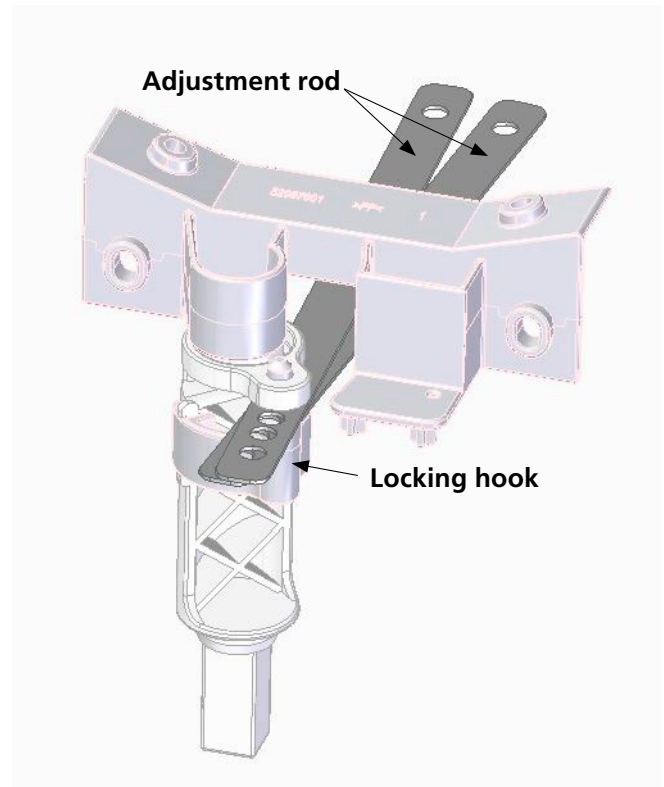
The locking hook must be placed in hole H on the adjustment rod (the hole nearest the product/slots).

(It doesn't matter which adjustment rod is placed above the other one.)

The locking hook moves up and down, and it is important for it to click properly into place during installation.



Adjustment rod with position indication C, L, M, H



Setting with symmetric flow

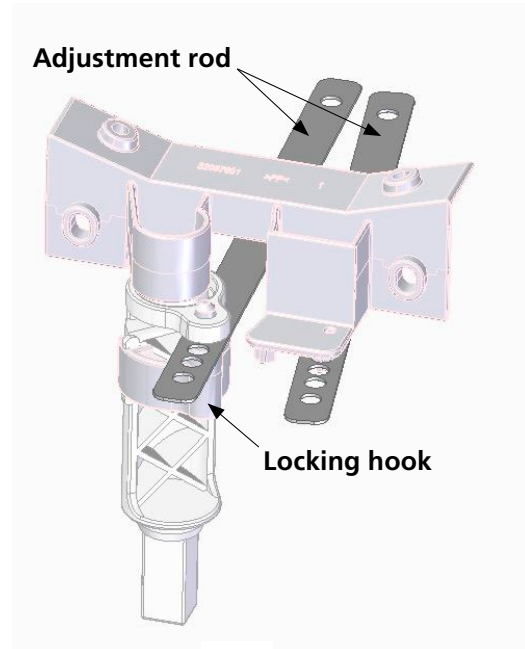
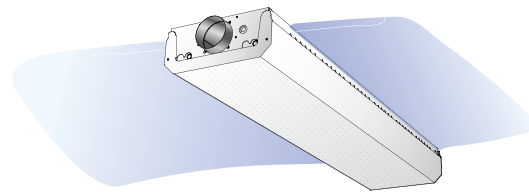
### Asymmetric flow, installation

Asymmetric flow means different flows on the product's sides.

One of the sides' adjustment rods is then placed on an unloading shelf. The other adjustment rod remains on the locking hook/knob.

With an asymmetric flow, place the adjustment rod on the unloading holder.

- Right-hand adjustment rod on right-hand locking point (star) on the unloading shelf (at locked airflow on side 2).
- Left-hand adjustment rod on left-hand locking point (star) on the unloading shelf (at locked airflow on side 4).
- Depending on what flow the locked side is to have, select the k-factor via the table below. Based on the table, place the adjustment rod as shown in the diagram to the right, with the airflow positions C, L, M and H.



#### K-factor table at one locked side

| Length<br>(m) | Airflow position |      |      |      |
|---------------|------------------|------|------|------|
|               | C                | L    | M    | H    |
| 1.2           | 0                | 0.38 | 1.09 | 1.50 |
| 1.8           | 0                | 0.59 | 1.63 | 2.25 |
| 2.4           | 0                | 0.85 | 2.35 | 3.35 |
| 3.0           | 0                | 0.88 | 2.77 | 4.00 |

### Asymmetric flow, example 1

The product (Adriatic d 1.8) must have airflow 20 l/s at 100 Pa, as well as 30% of the airflow on side 2 and 70% of the airflow on side 4.

#### Calculation:

Calculate the total k-factor for the entire product with the formula  $q/\sqrt{p} = k \cdot 20/\sqrt{100}$ , which gives a total k-factor of 2.

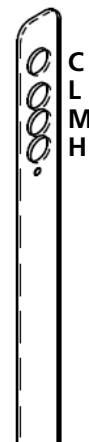
The k-factor on side 2 is 30% of the total k-factor  $2 \cdot 0.3 = 0.6$ .

This means that the k-factor on side 4 is  $(2 - 0.6) = 1.4$ .

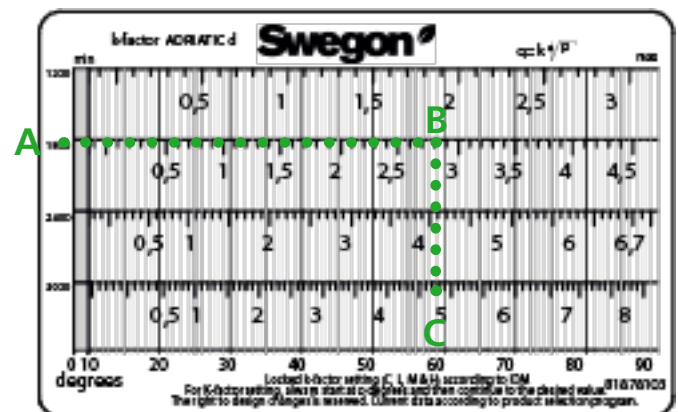
From the table above, side 2 is most suitable for locking on L. This is because k-factor 0.49 is closer to L than k-factor 1.41 is to L, M or H (side 4). Airflow position L has a k-factor of 0.59.

To then set the knob to the correct angle, i.e. side 4, the k-factor table is required.

Side 4 must have k-factor  $2 - 0.59 = 1.41$ . In the k-factor table, the k-factor is shown for the entire product. To obtain the angle, multiply the k-factor for side 4 by 2 ( $1.41 \times 2 = 2.82$ ). Then follow A to 2.82 and go down to C. This gives an angle of 59°.



Adjustment rod with position indication C, L, M, H



### Asymmetric flow, example 2

The product 1 (Adriatic d 1.8) must have airflow 30 l/s at 80 Pa, as well as 30% of the airflow on side 2 and 70% of the airflow on side 4.

**Calculation:**

Calculate the total k-factor for the entire product with the formula  $q/\sqrt{p} = k \cdot 30/\sqrt{80}$ , which gives a total k-factor of 3.35.

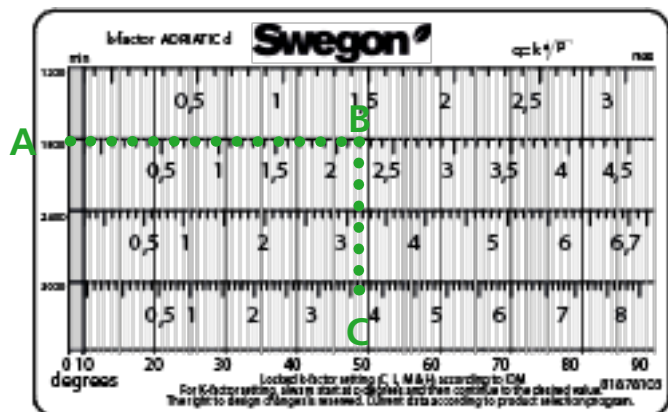
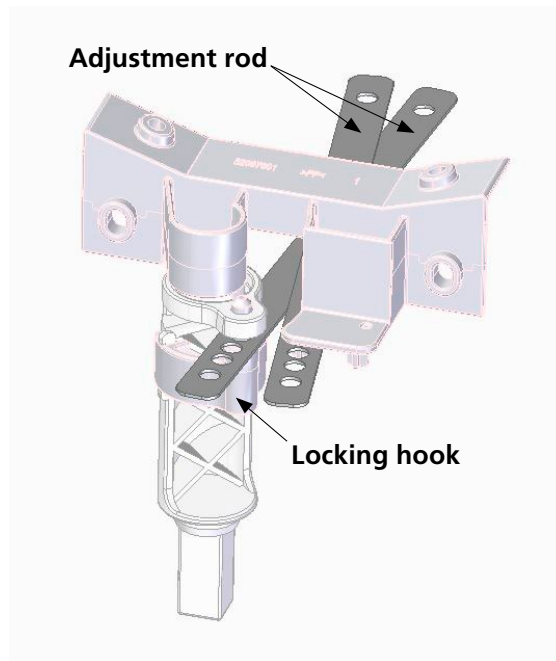
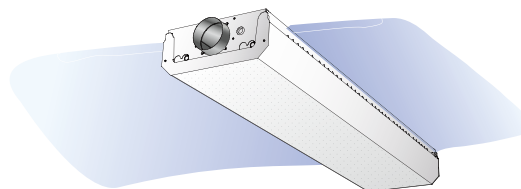
The k-factor on side 2 is 30% of the total k-factor  $3.35 \cdot 0.3 = 1.0$ .

This gives a k-factor on side 4 of  $(3.35 - 1.0) \cdot 2.35$

From the table on the previous page, side 4 is most suitable for locking on H. This is because k-factor 2.35 is closer to H than k-factor 1.0 is to L, M or H (side 2). Airflow position H has a k-factor of 2.25.

To then set the knob to the correct angle, i.e. side 2, the k-factor table is required.

Side 2 must have k-factor  $3.35 - 2.25 = 1.1$ . In the k-factor table on the previous page, the k-factor is shown for the entire product. To obtain the angle, multiply the side 2 k-factor by x2 ( $1.1 \cdot 2 = 2.2$ ). Then follow A to 2.2 and go down to C. This gives an angle of 49°.



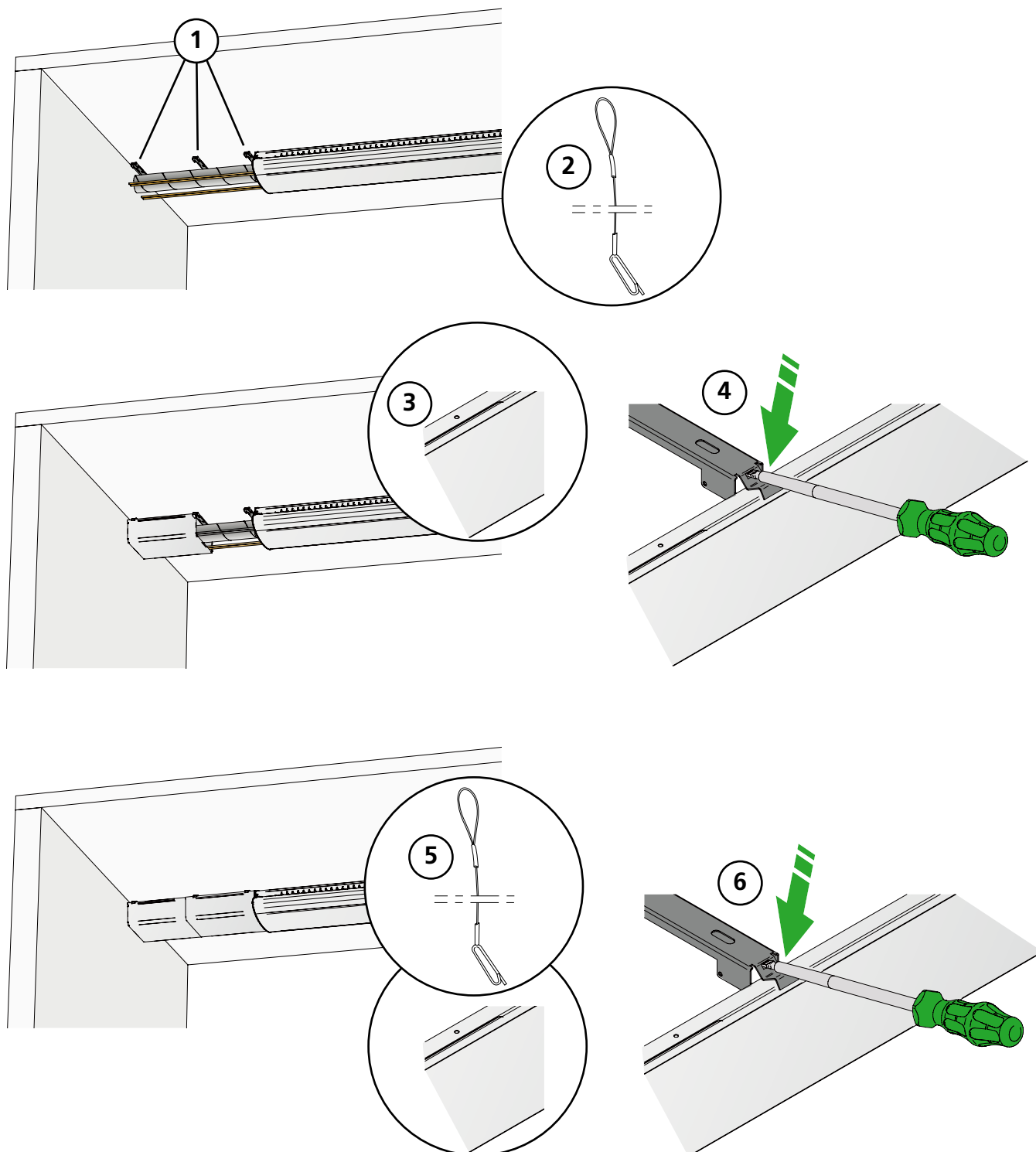
Adjustment rod with position indication C, L, M, H

# Installation of casing (accessory)

## Connection to wall

The connection casing is mounted in the extended section of the climate beam and beyond to a wall designed for concealing pipe and duct connections

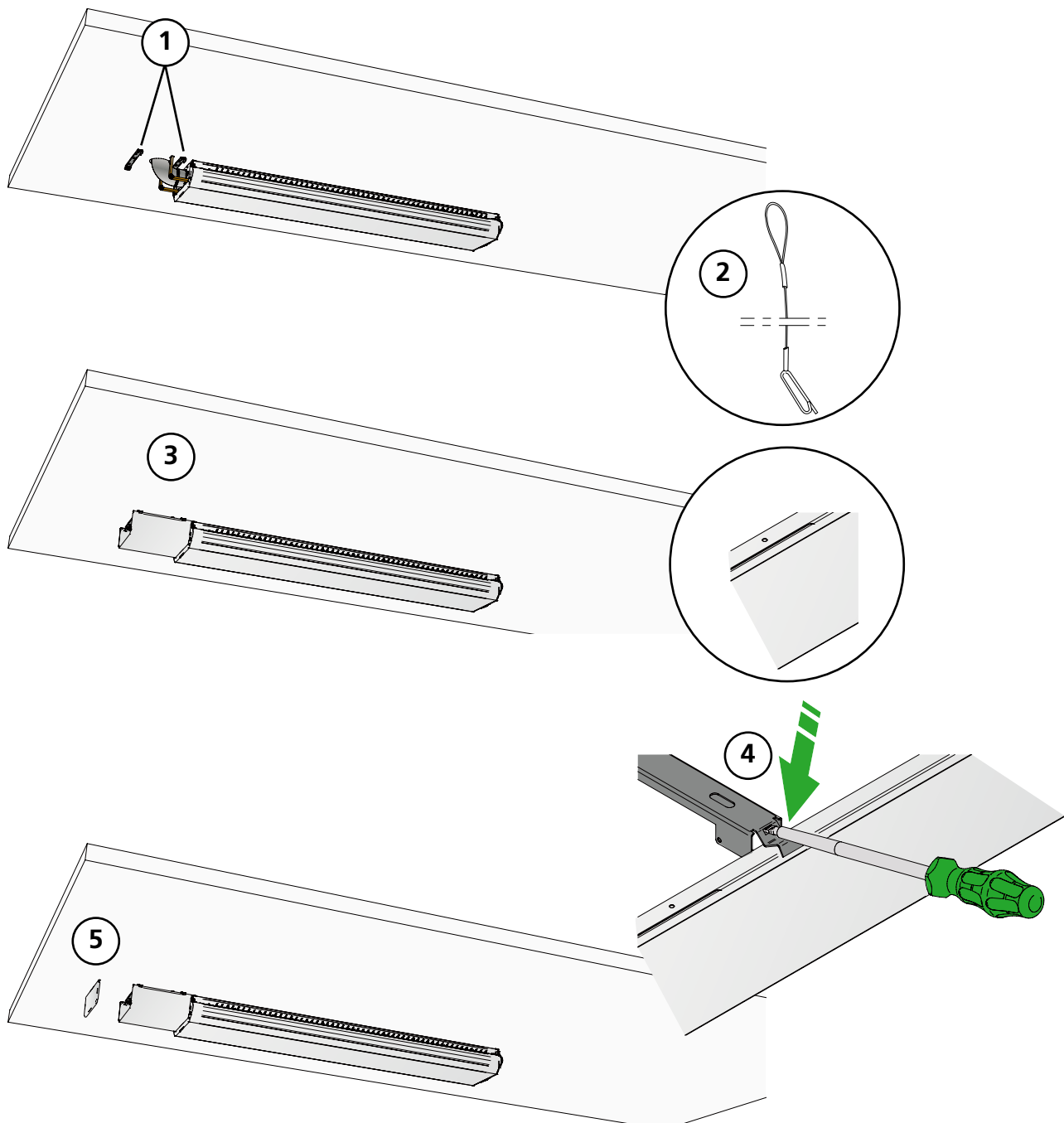
1. Install the enclosed ceiling brackets.
2. Two ceiling brackets for short casings and three ceiling brackets for casings measuring more than 1 m.
3. Install the enclosed safety cords in all ceiling brackets.
4. Anchor the casing nearest the wall in the safety cord in the intended hole.
5. Cover the remaining opening with the cover by first anchoring the safety cord in the intended hole.
6. Lock the casing in place by folding down the ceiling bracket's locking hooks on both sides. Use a screwdriver.



## Connection to ceiling

The connection casing is mounted in the extended section of the climate beam and beyond to the ceiling designed for concealing pipe and duct connections

1. Install the enclosed ceiling brackets. Two ceiling brackets for short casings and three ceiling brackets for casings measuring more than 1 m.
2. Install the enclosed safety cords in all ceiling brackets.
3. Anchor the casing in the safety cord in the intended hole.
4. Lock the casing in place by folding down the ceiling bracket's locking hooks on both sides. Use a screwdriver.
5. Install the end connection panel



# Maintenance

