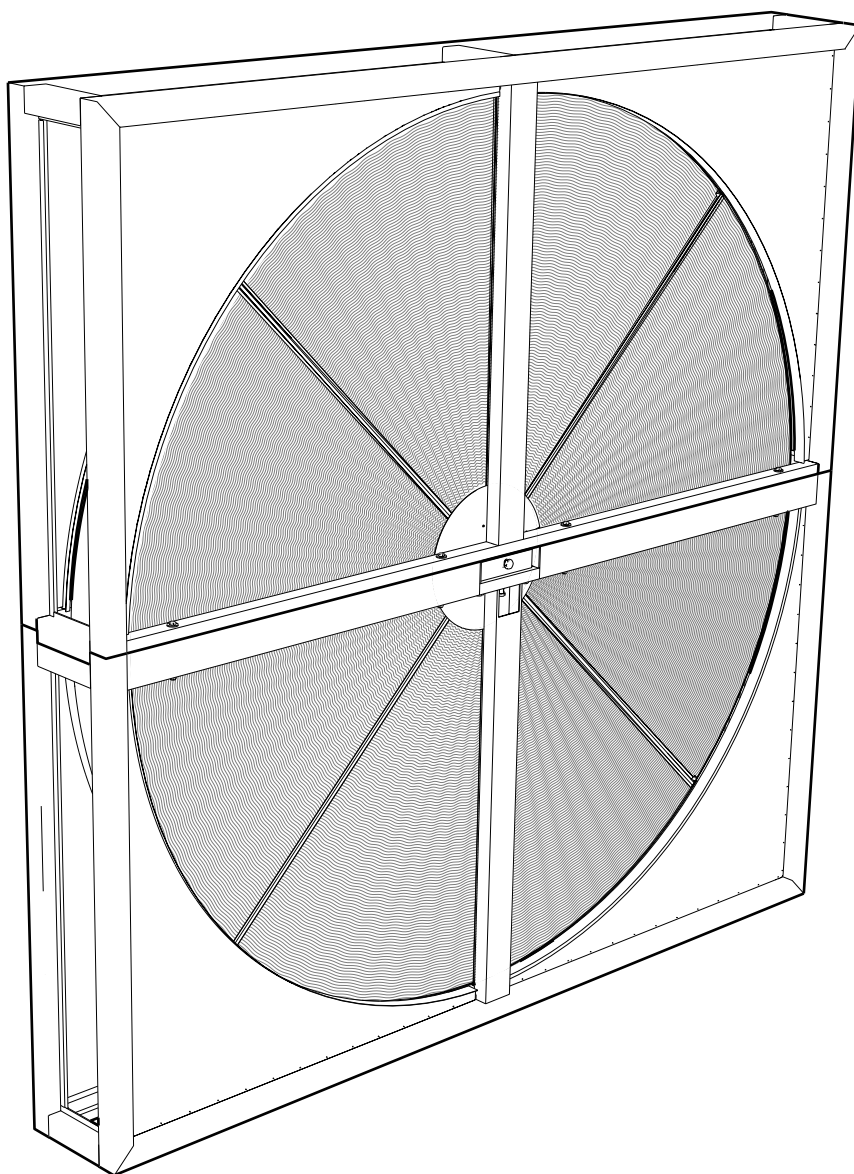


# Installation instruction

## Sectorised heat exchanger



# Contents



*Before installation, read the instructions carefully and make sure you understand the content. Please contact Enventus if you have any questions. Contact information can be found on page 21.*

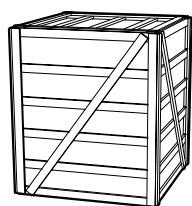
<u>Contents, what is included upon delivery</u>	<u>page 1</u>
<u>Safety, tools and aids</u>	<u>page 2</u>
<u>1. Installation of casing</u>	<u>page 3-5</u>
<u>2. Installation and adjustment of hub and radial walls</u>	<u>page 6-9</u>
<u>3. Installation of rotor segments and periphery plates</u>	<u>page 10-15</u>
<u>4. Installation / adjustment of brush sealing</u>	<u>page 16</u>
<u>5. Installation of drive equipment</u>	<u>page 17-18</u>
<u>6. Installation of horizontal unit</u>	<u>page 19-20</u>
<u>7. Final inspection, contact information</u>	<u>page 21</u>

## What is included upon delivery

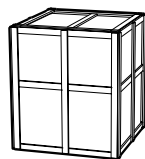


*Check that the consignment matches your order and that the goods have not been damaged during transportation.*

### WHEN ORDERING WITH A CASING

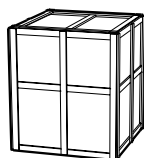


← Casing incl. hub  
← 2 x radial walls  
← Drive equipment (where applicable)



← Rotor segments  
← Remaining radial walls  
← Periphery plates  
← Screw kit  
← Drive equipment (where applicable)

### WHEN ORDERING A LOOSE ROTOR



← Rotor segment  
← Hub  
← Radial walls  
← Periphery plates  
← Screw kit  
← Drive/control equipment (where applicable)

# Safety

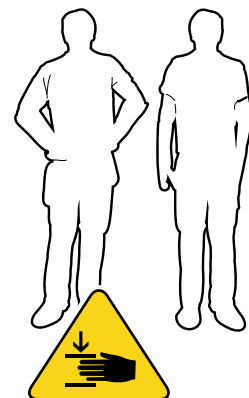
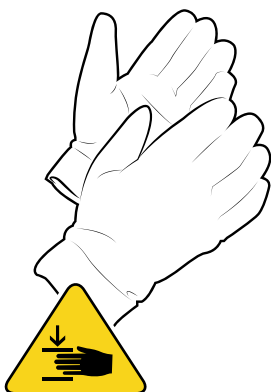
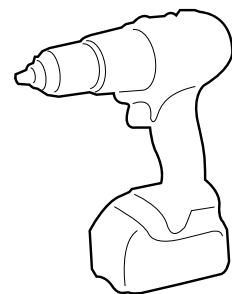
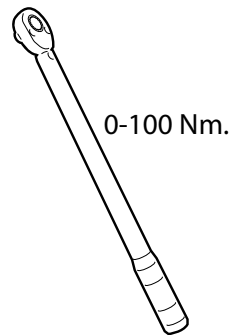
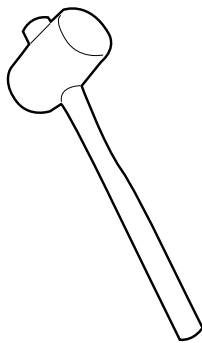


## WARNING RISK OF CRUSHING

*The unit has to be secured in order to prevent accidents.  
See sections 2.1 and 3.3 for examples of how to secure the unit.*

- *Uncontrolled movement of radial walls and segments may cause serious injury.  
Secure radial walls and segments carefully while working.*
- *Installation must be carried out by qualified personnel only.*

## Tools and aids




# 1. Installation of casing

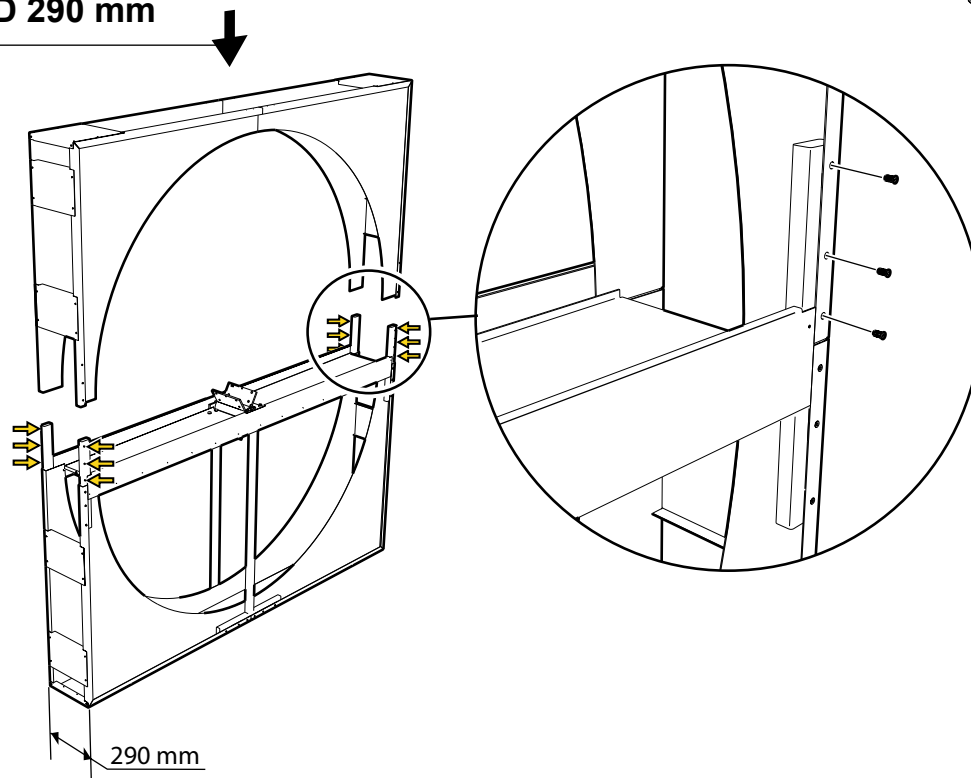
## 1.1 INSTALLATION




*During installation, make sure that the exchanger stands flat so that the rotor is not "at an angle" in the casing.*

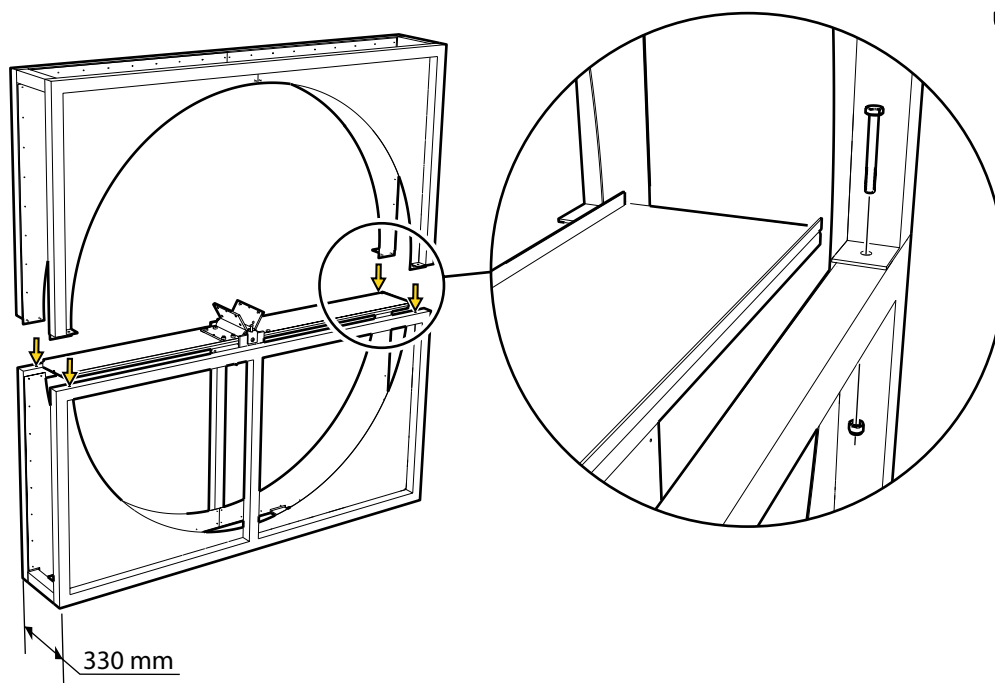
**CSD 290 mm**

 X 12



**CSD 330 mm**

 X 4

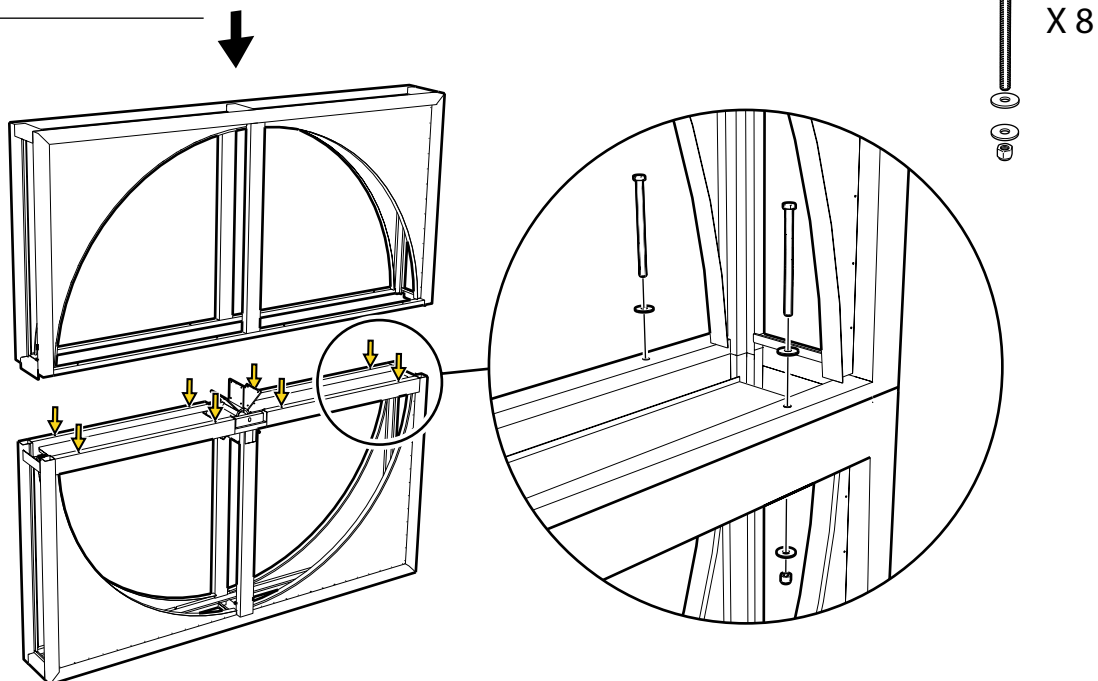




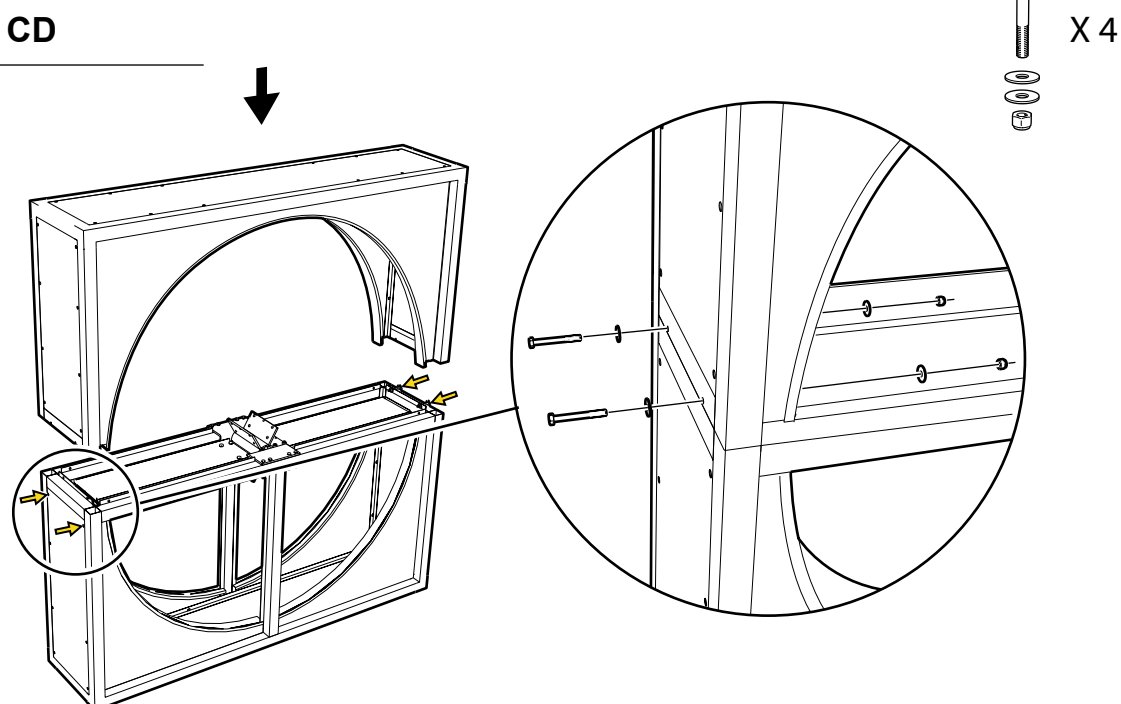
Make sure that no load is transferred from the connecting ducts if these are connected directly to the casing of the heat exchanger.

Casing models **D/DS** and **CD** are supplied with a fitted brush sealing. The upper and lower brush sealing sections must be assembled. See section 1.2.

**D/DS**



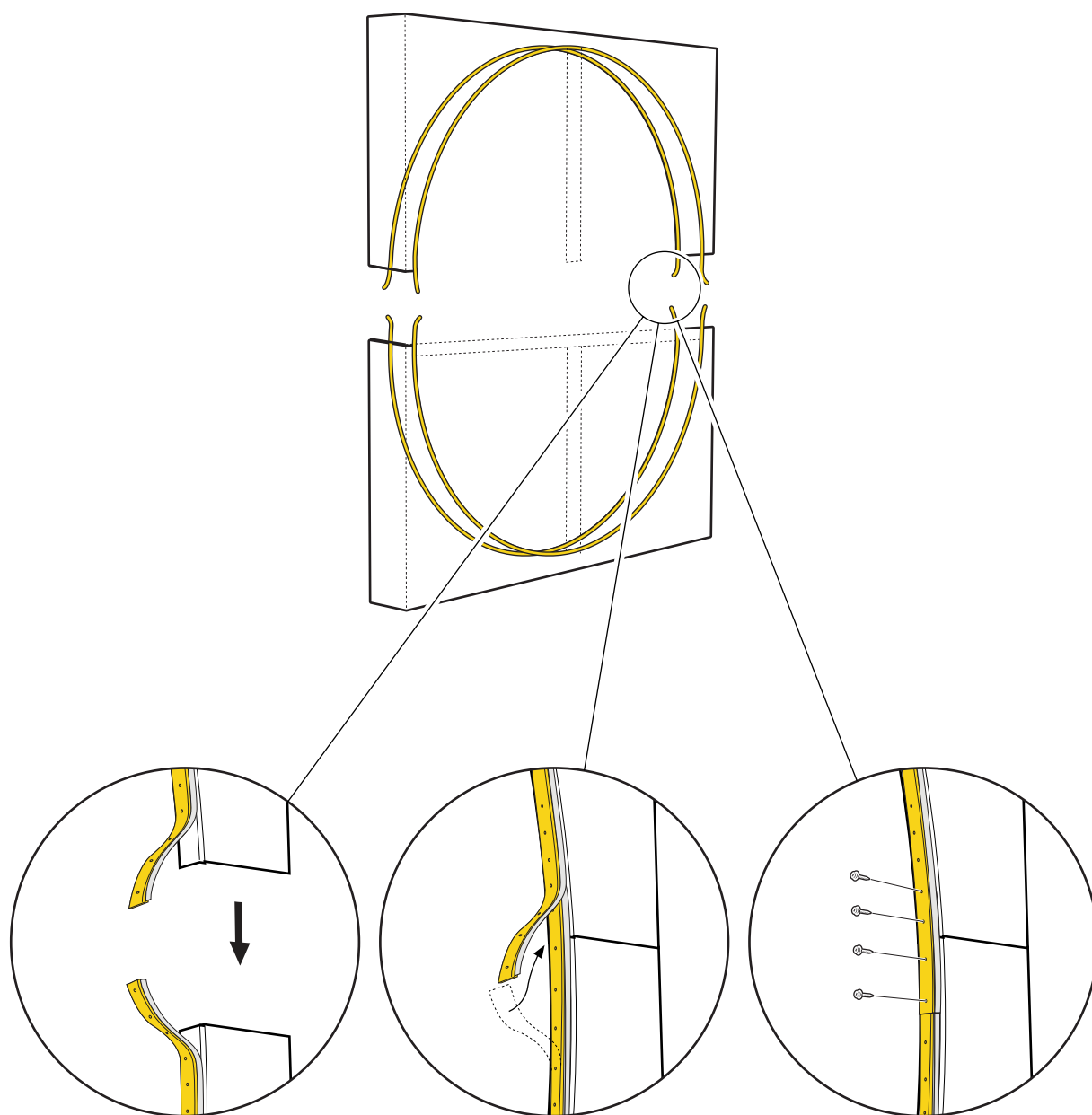
**CD**



## 1.2 JOINING OF BRUSH SEALING FOR MODELS D/DS AND CD

---


- Overlap the ends of the brush sealing.
- Join the upper and lower brush sealing with screws.

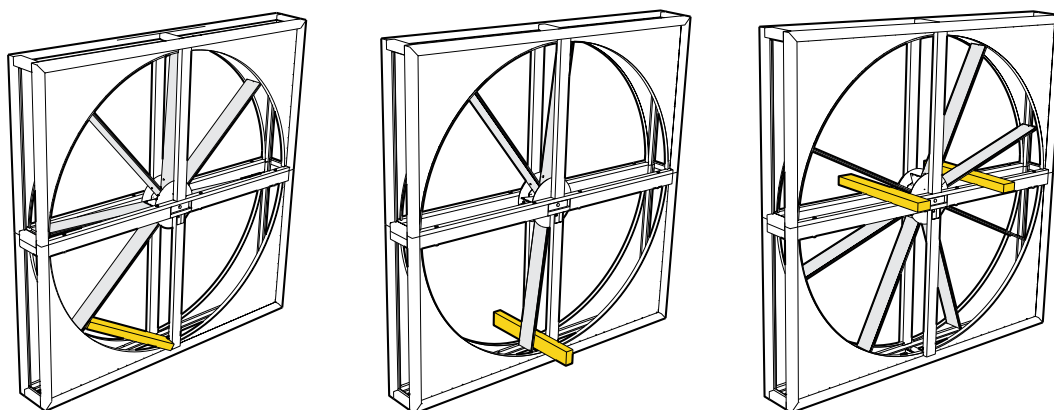


## 2. Installation and adjustment of hub and radial walls


### 2.1 SAFETY


*Uncontrolled movement of radial walls may cause serious injury. Secure the radial walls carefully while working. Boards can be used to secure them.*

 *The radial walls do not need to be secured during horizontal installation.*

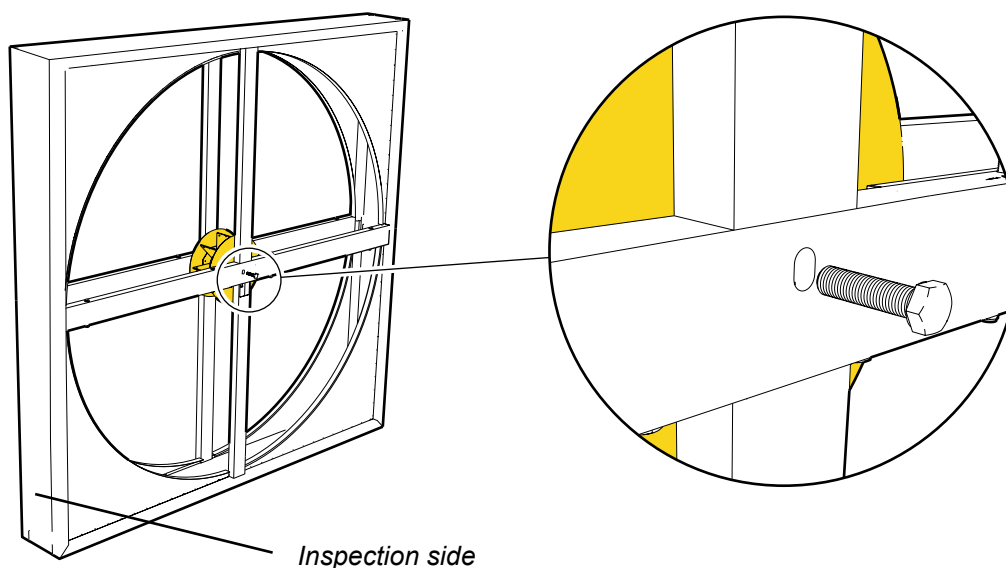
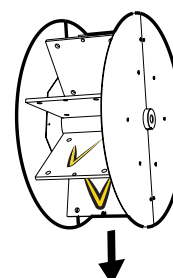


### 2.2 INSTALLATION OF HUB

 *The hub is already installed and adjusted when casing is supplied by Enventus. In this case, continue to section 2.7.*

 *The suspension will vary depending on the manufacturer*

- Position the hub in the casing. Make sure that the "V" marker on the wing of the hub, which points vertically down, is visible from the inspection side.
- Tighten the mounting screw for the hub.



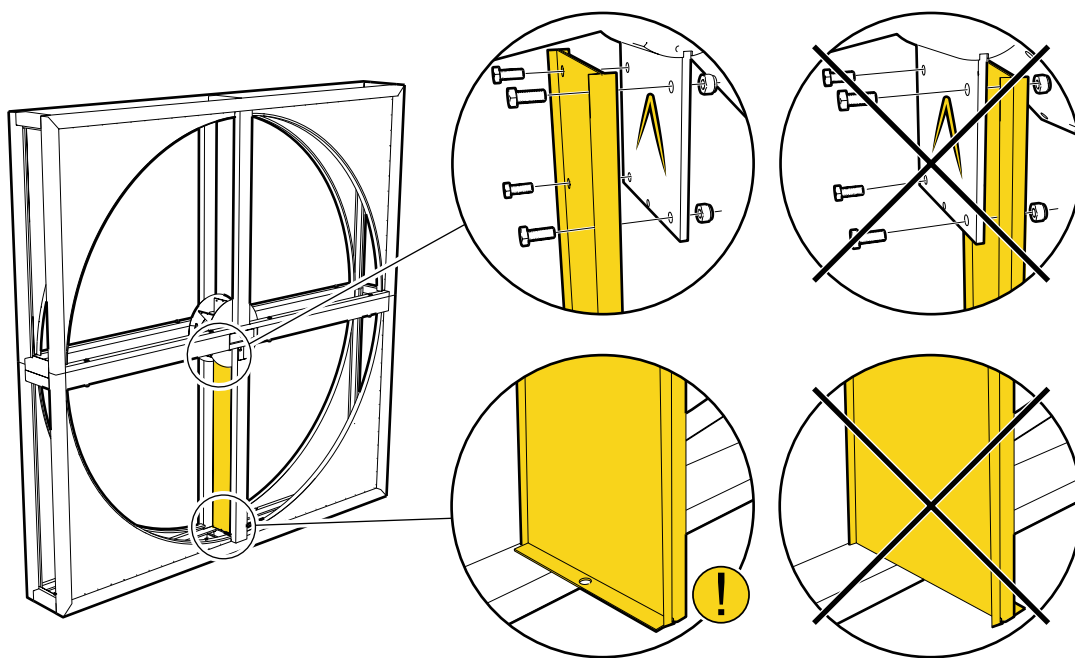


## 2.3 INSTALLATION, RADIAL WALL 1

- Rotate the hub so that a wing of the hub is directed vertically down. The "V" marker on the wing of the hub facing down must be visible from the inspection side.
- Install the radial wall against the surface marked "V".



*The bent front edge of the radial walls must always face away from the wing of the hub on which the radial wall is installed. Make sure that all radial walls are installed in the same direction.*

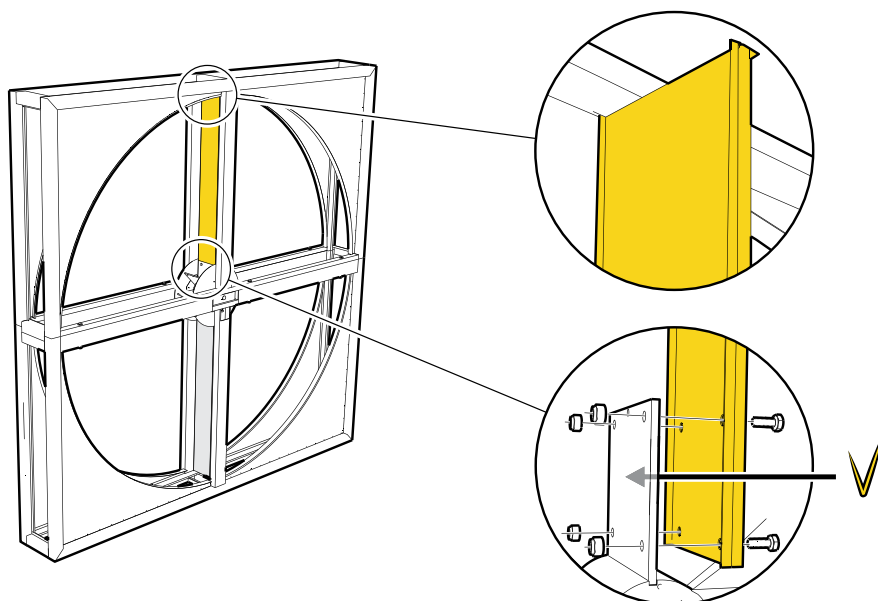


## 2.4 INSTALLATION OF RADIAL WALL 2

- Install radial wall 2 against the surface marked "V" on the corresponding wing of the hub.



*Make sure that the bent front edge of the radial wall is facing away from the wing of the hub on which the radial wall is installed.*

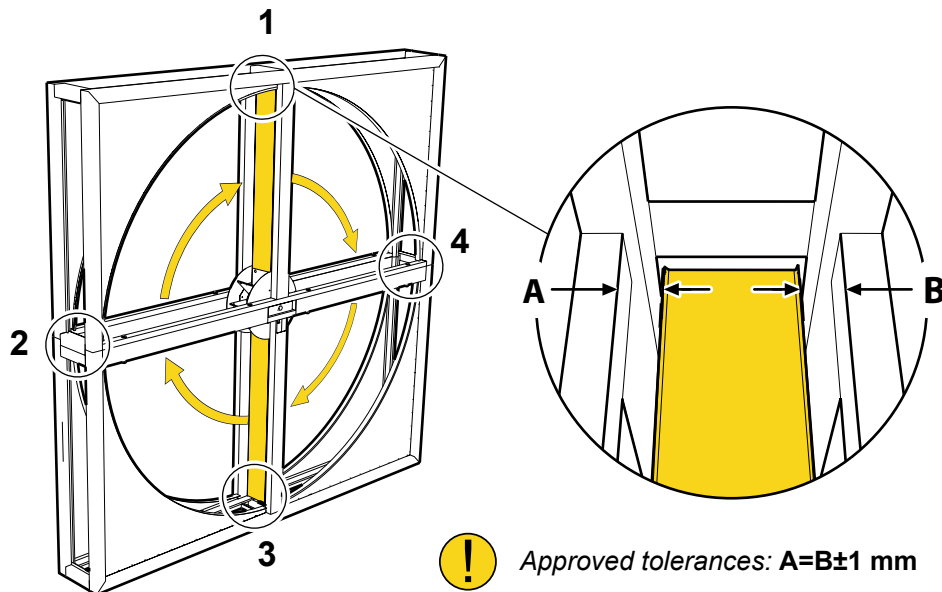




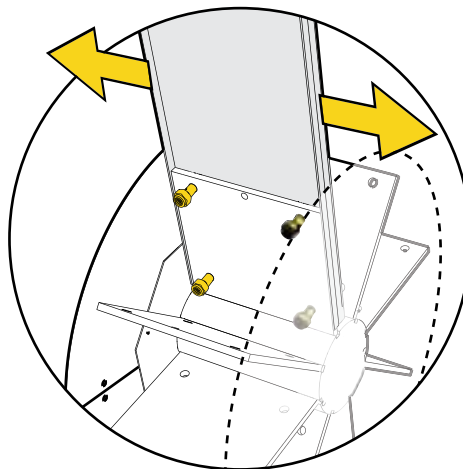
## 2.5 MEASUREMENT

*The hub with radial walls must be aligned both vertically and horizontally with the casing. If measurement indicates that there are discrepancies, the radial walls, and possibly also the hub, will need to be adjusted.*

- Start measuring at the upper radial wall.
- Measure the distances **A** and **B** between the radial walls and the casing at points **1**, **2**, **3** and **4**.
- Measure similar points on the next radial wall.
- Check that values **A** and **B** are the same for both radial walls at all points and that these values match approved tolerances.



- If the tolerance is not achieved, undo the screw at the wing of the hub and adjust the radial wall horizontally.



- If the tolerance is still not achieved, see section 2.6
- If the tolerance is achieved, see section 2.7

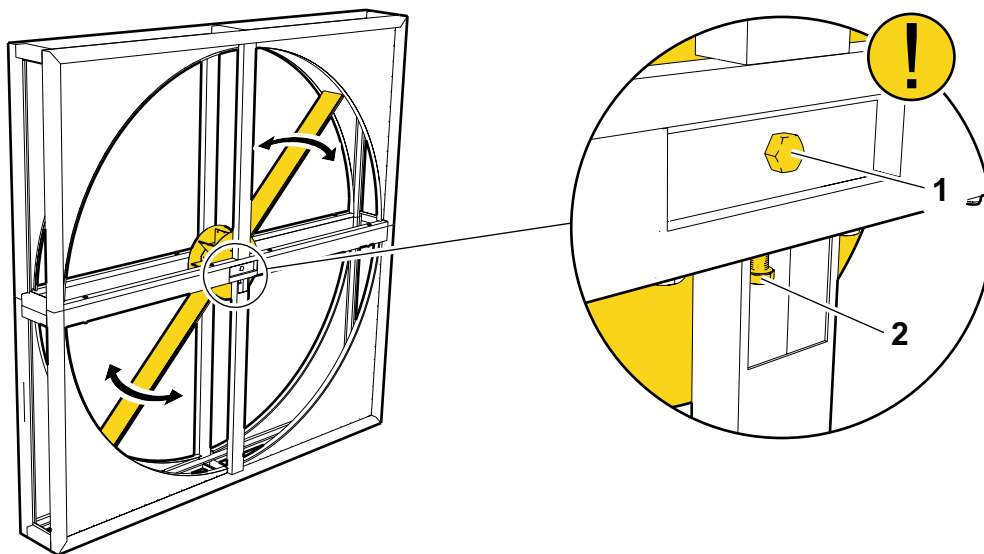
## 2.6 ADJUSTMENT OF HUB

---

- Undo the mounting screws (1) for the hub.
- Tighten the adjustment screw (2) until approved tolerances are achieved.
- Measure.



*The suspension will vary depending on the manufacturer.*



## 2.7 INSTALLATION, OTHER RADIAL WALLS

---

- Install other radial walls as stated in sections 2.3, 2.4 and 2.5



*Measure, and make sure that all radial walls installed achieve approved tolerances.*



### **WARNING RISK OF CRUSHING**

*The radial walls have to be secured in order to prevent accidents.  
See section 2.1.*

# 3. Installation of rotor segment and periphery plates

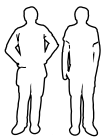
## 3.1 SAFETY



### WARNING RISK OF CRUSHING

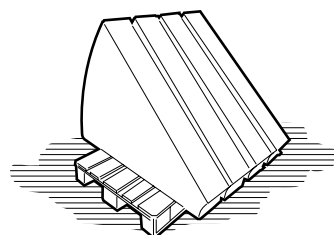
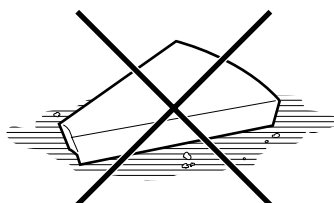
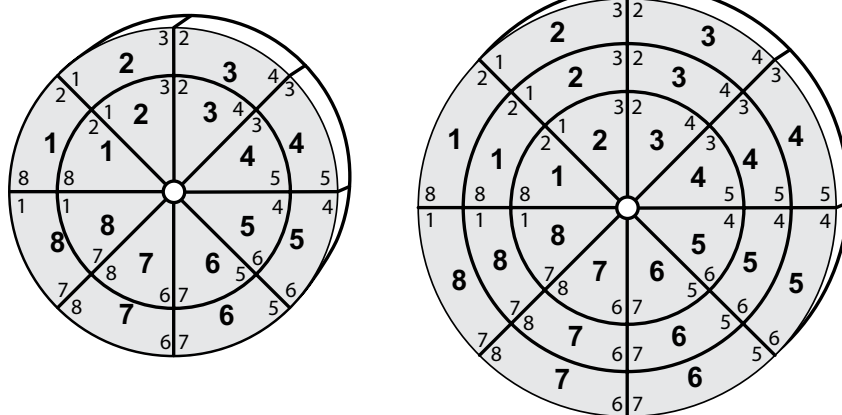
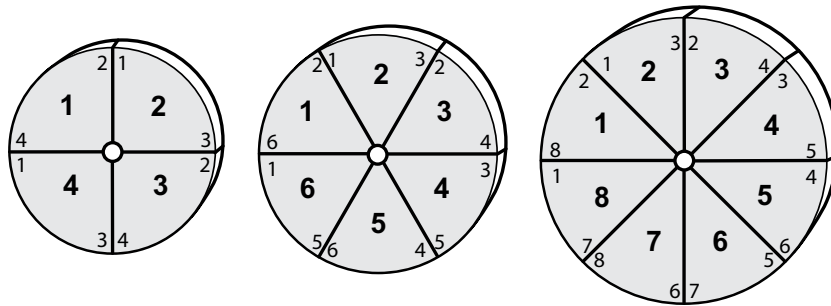
Radial walls and segments have to be secured in order to prevent accidents. See sections 2.7 and 3.3

- Uncontrolled movement of radial walls and segments may cause serious injury. Secure the radial walls and segments carefully while working.
- Use a rope or strap with a pulley for controlled rotation.
- At least two workers are required when installing segments.




## 3.2 LABELLING OF SEGMENTS

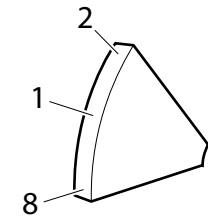
The segments are labelled with their own individual numbers in the centre of the peripheral area, and there is a number at each outer edge of the peripheral area which indicates the segment against which this outer edge must be installed.



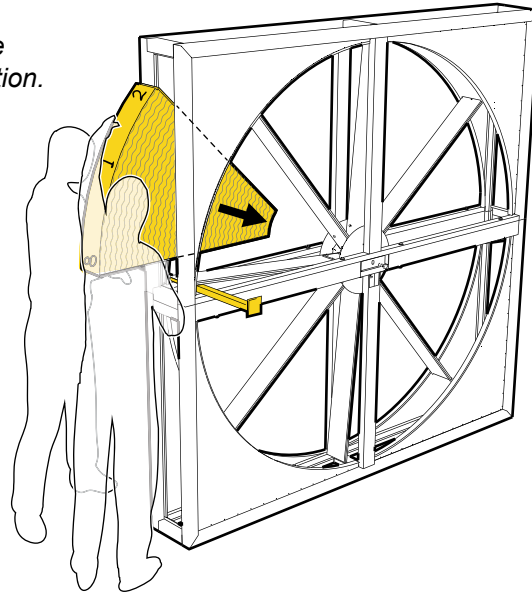
### 3.3 INSTALLATION, SEGMENT 1

- Secure the structure.
- Check the number. For labelling, see section 3.2
- Position segment 1.

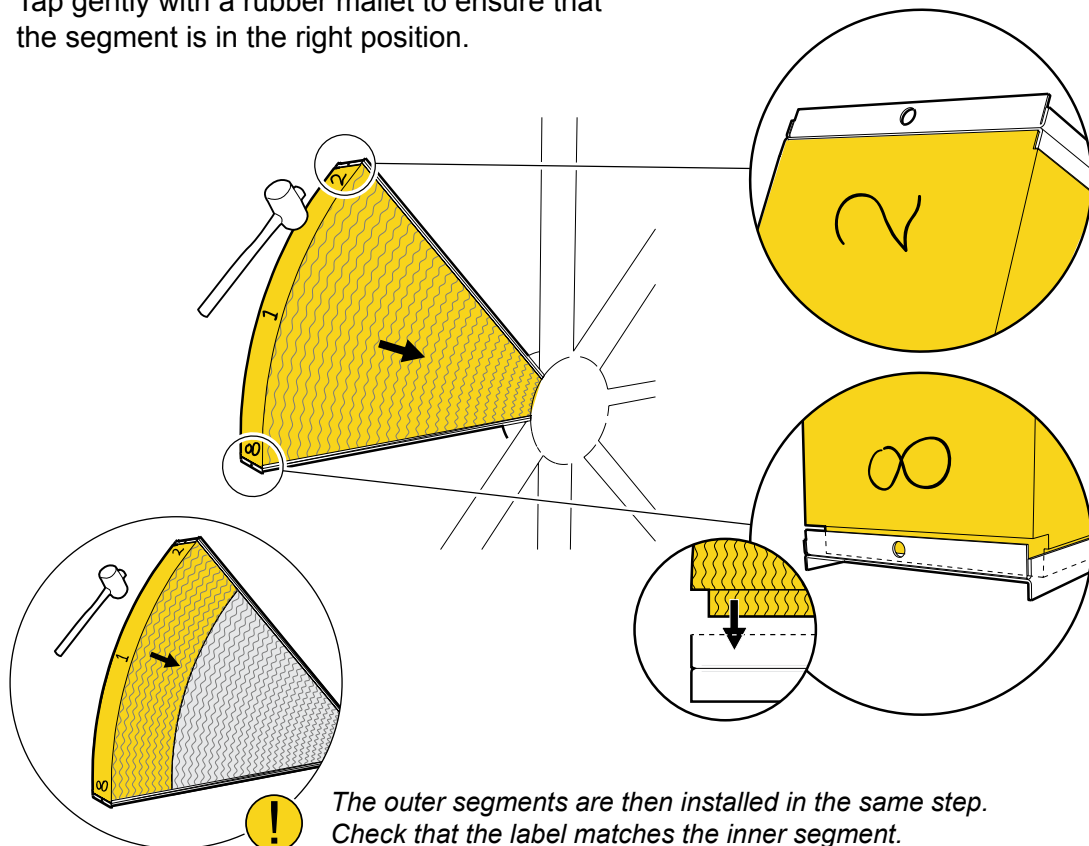
 *The radial walls do not need to be secured during horizontal installation.*




*Label, segment 1.*

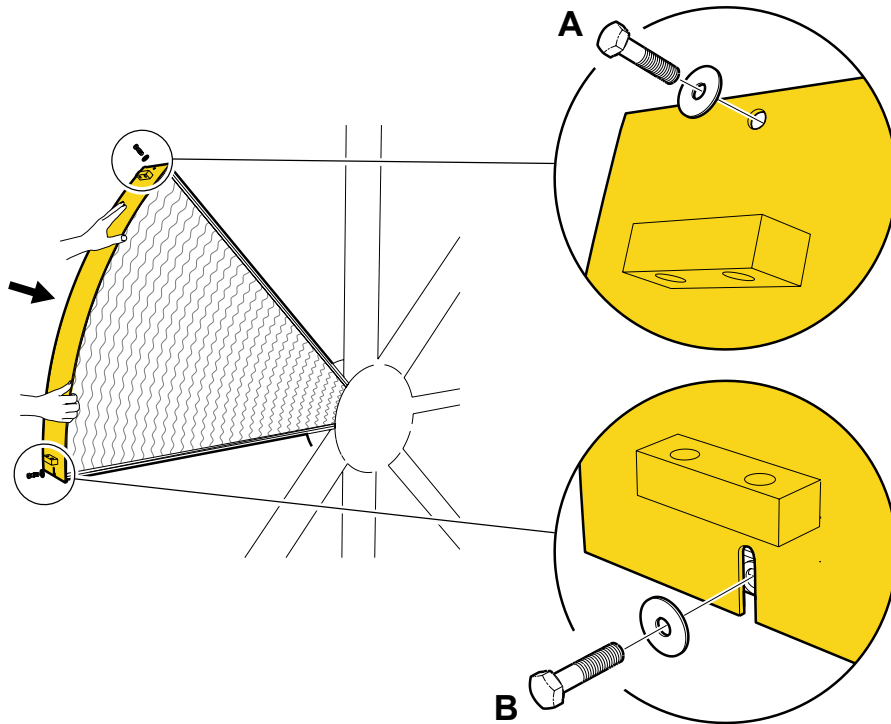



- Make sure that the upper and lower edges of the segment are located within the bent edges of the radial walls.
- Tap gently with a rubber mallet to ensure that the segment is in the right position.



### 3.4 INSTALLATION, FIRST PERIPHERY PLATE

- Position the first periphery plate. The side with a hole must face up. See figure **A**.
- Insert a bolt in the hole at the top edge of the periphery plate. See figure **A**. Do not tighten.
- Insert a bolt in the groove at the lower edge of the periphery plate. See figure **B**. Tighten the bolt. 



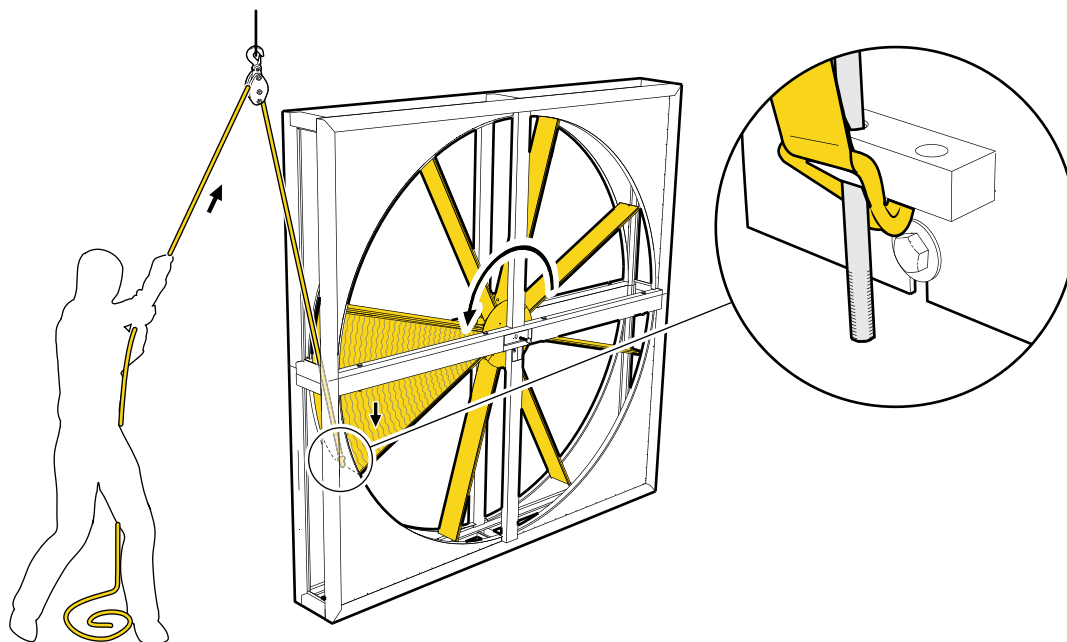
 *The bolts are tightened when the adjacent periphery plate has been installed.*

### 3.5 INSTALLATION, SEGMENT 2

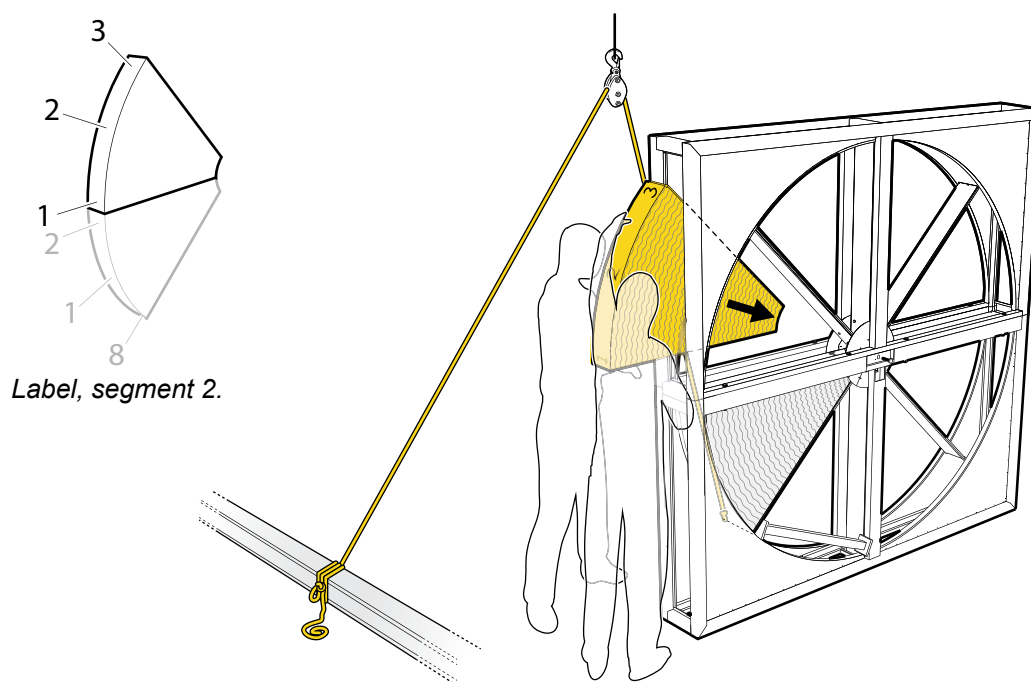
- Rotate the hub, radial walls and segment in order to facilitate the positioning of segment 2.




*Use a pulley with a rope or strap for controlled rotation.*

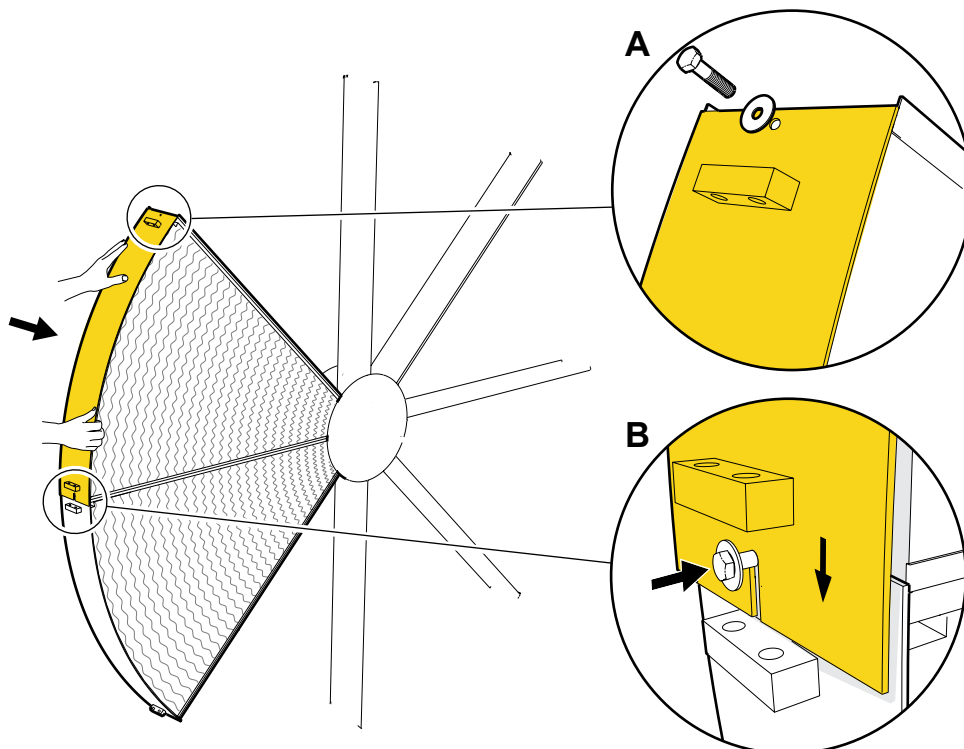


- Position segment 2 as described previously. See section 3.3.

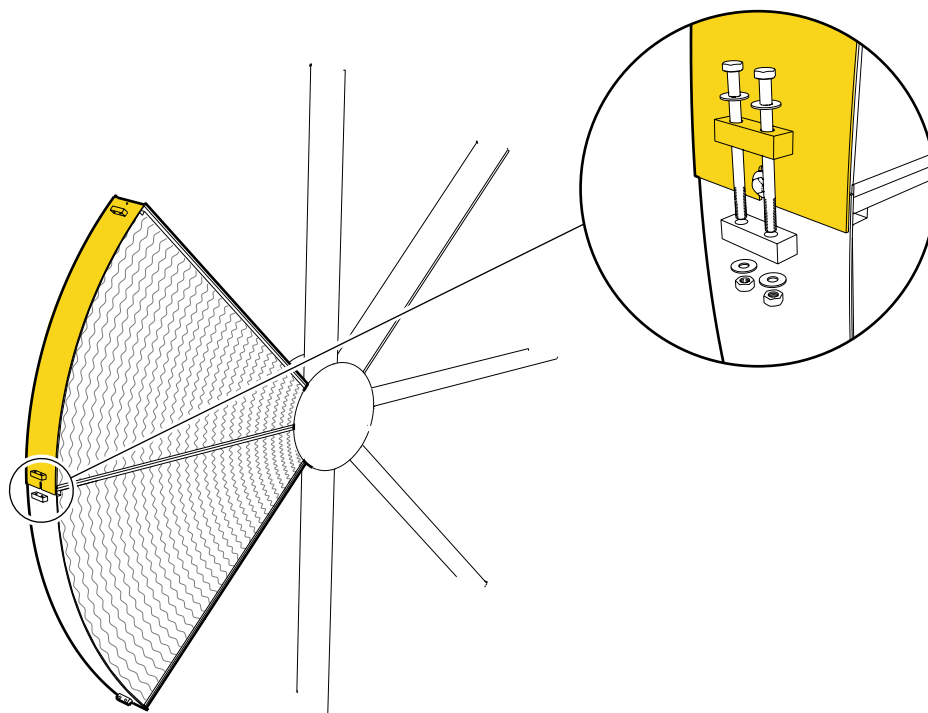


### 3.6 INSTALLATION, SECOND PERIPHERY PLATE

- Position the second periphery plate. The side with a hole must face up. See figure A.
- Insert a bolt in the hole at the top edge of the periphery plate. See figure A. Do not tighten.
- The lower edge of the second periphery plate must overlap the first periphery plate and be secured using the bolt installed previously. See figure B.
- Tighten the bolt at the overlap. See figure B. 



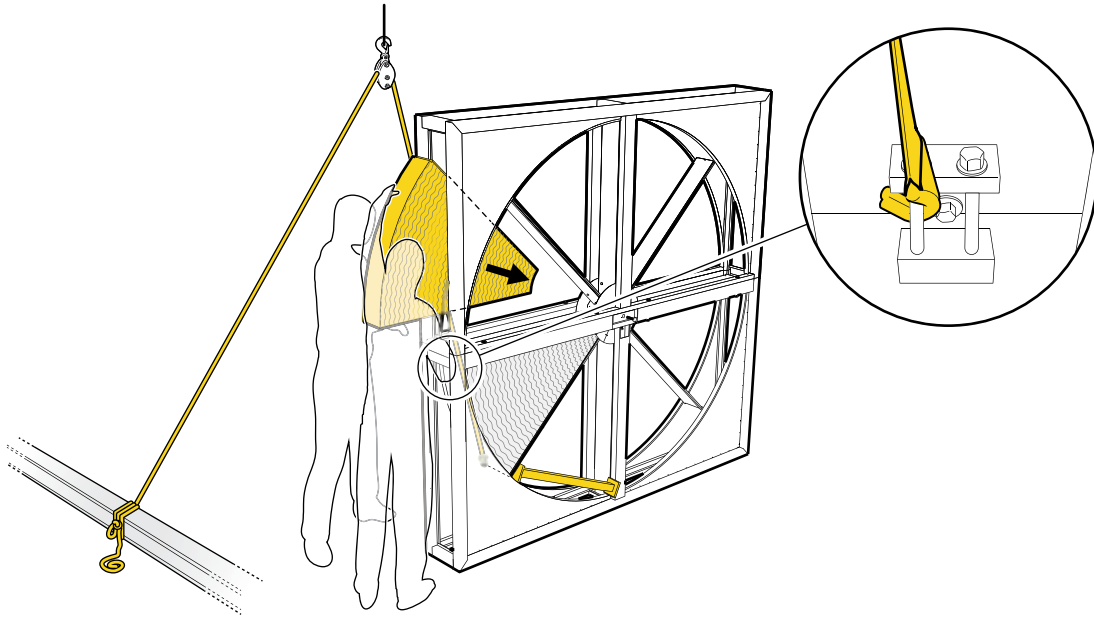
- Fasten the periphery plates together with a clamp bolt. Do not tighten.





### 3.7 INSTALLATION, REMAINING SEGMENTS

- Install the remaining segments and periphery plates as described in sections 3.3 - 3.6

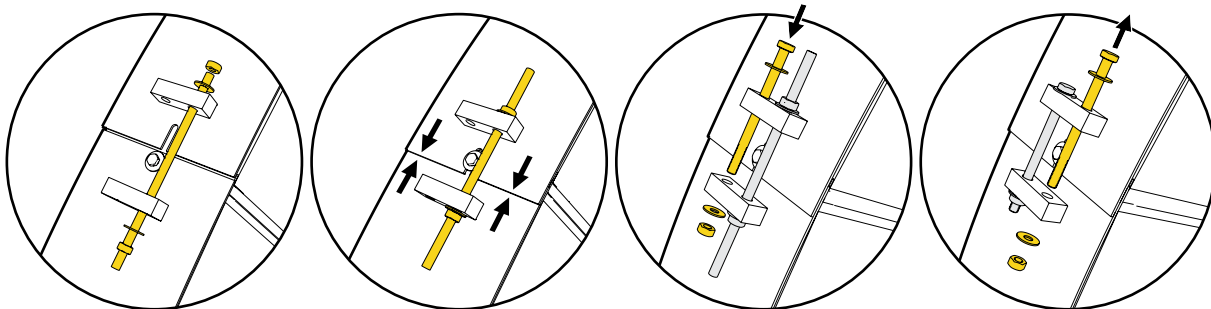
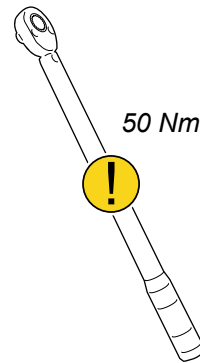


### 3.8 PREPARATION OF SEGMENTS AND PERIPHERY PLATES



*The periphery plates must be mounted together for preparation of segments and periphery plates. If a standard bolt is insufficient for bringing together the first and last periphery plates, a threaded rod can be used as described below.*

- Position the threaded rod and nut. Tighten until an overlap is achieved.
- Tighten the bolt in the overlap.
- Replace the threaded rod with clamp bolts:
- Tighten all bolts which secure the periphery plate in position. Use a torque wrench to tighten the bolts.



# 4. Brush sealing

## 4.1 INSTALLATION / ADJUSTMENT OF BRUSH SEALING

**CSD 290/330 mm:**

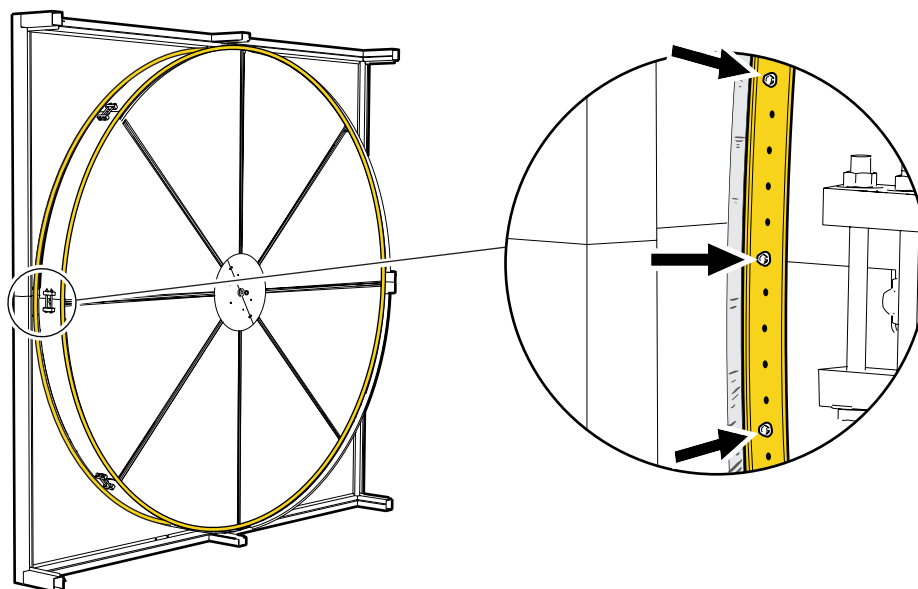
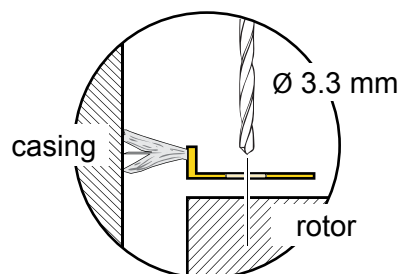
- Use a 3mm drill bit to drill through every fifth hole.
- Install the brush sealing using self-tapping screws.
- The outer thread is for protection and must be removed before installation.

**All casings:**

- Check that the brush sealing fits tightly. The brush sealing must be adjusted if there is any leakage.



*Make sure that the brush sealing is installed with the edge facing up.*



# 5. Installation of drive equipment

## 5.1 INSTALLATION OF DRIVE UNIT – VERTICAL INSTALLATION

---



*If the drive unit is already installed, continue to section 5.2*

*For installation of a horizontal drive unit, see section 6.4*

### **For a fixed motor bracket/round belt:**

- Contact Enventus. See section 8.

### **For a hanging motor bracket/V-belt:**

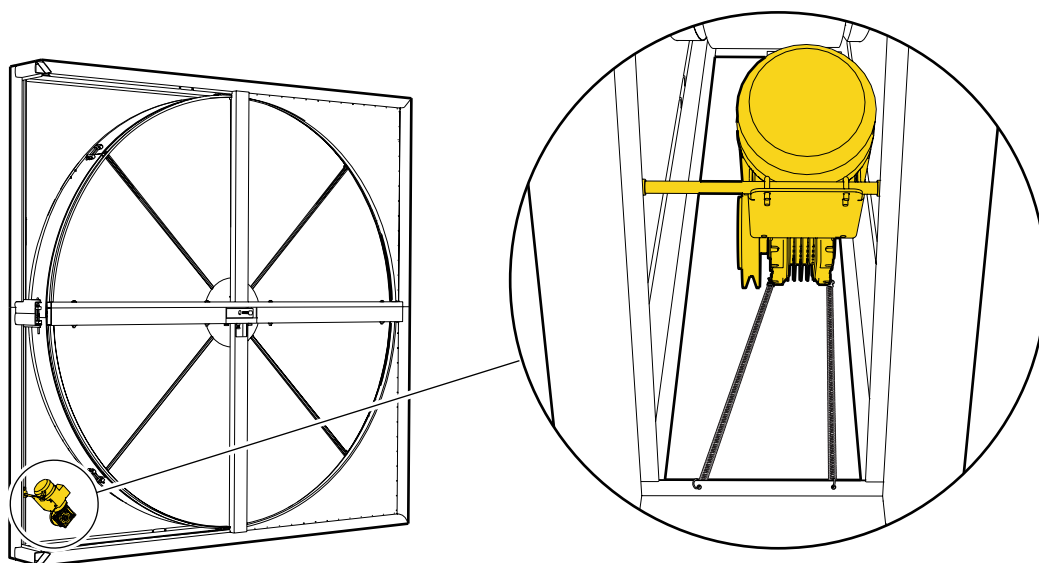
- Install shaft brackets with sliding bearings.
- Secure the motor bracket to the shaft and position in the shaft brackets.
- Secure springs between the casing and the motor bracket.
- Adjust the motor position horizontally so that the drive belt is pulled alongside the periphery plate blocks.



*Make sure that the motor and electrical connections are easy to access.*

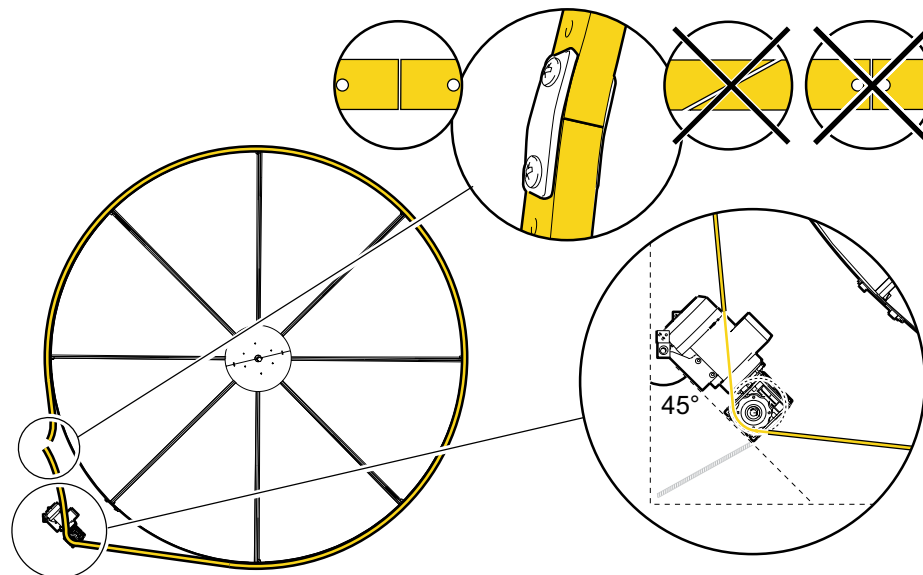
*The cable gland must be protected, and only authorised personnel are permitted to carry out wiring.*

*Cables to the drive equipment and/or control unit are not allowed to be shortened or moved.*



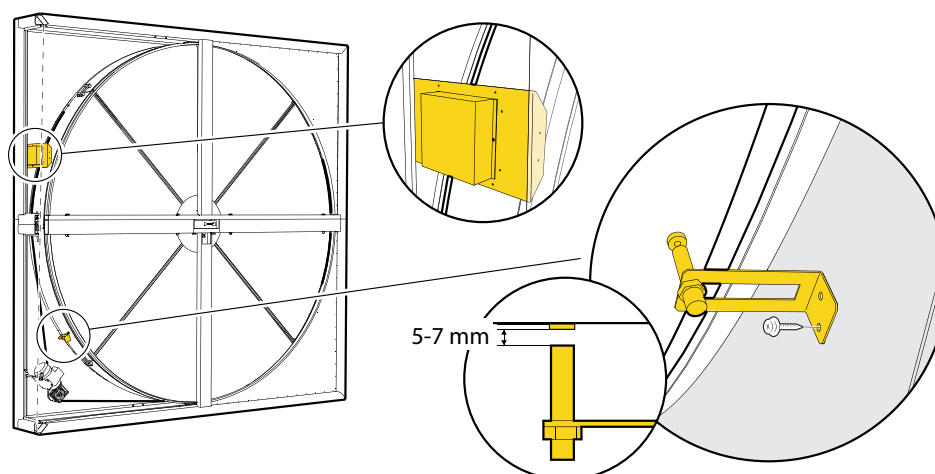
## 5.2 DRIVE BELT

- Install the drive belt. The drive belt should run around the rotor and belt pulley. Alongside the periphery plate blocks.
- Adjust the length of the drive belt so that the motor bracket is suspended at an angle of 45°.
- Grind down the ends of the screw tips on the belt lock.



## 5.3 ROTATION GUARD AND CONTROL UNIT

- Install the rotation guard as shown in the diagram.
- The magnet is placed directly in front of the rotation guard. The distance between the magnet and the rotation guard must be 5-7 mm. Screw the magnet onto the periphery plate.
- Install the control unit in an appropriate location.
- Rotate the rotor and make sure that it can turn freely.



*Note that the heat exchanger can only be started when all sections have been completed and a final inspection has been carried out. For details regarding final inspection, see section 7.1*

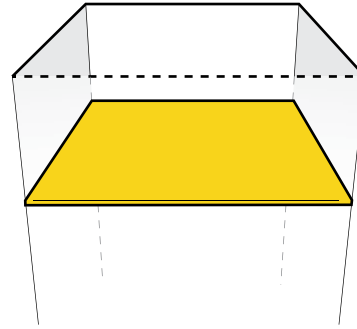
# 6. Installation of horizontal unit

## 6.1 SECURING



### WARNING FALLING OBJECTS

*The ventilation duct has to be secured in order to prevent accidents. It should be secured directly beneath the intended location for the heat exchanger.*

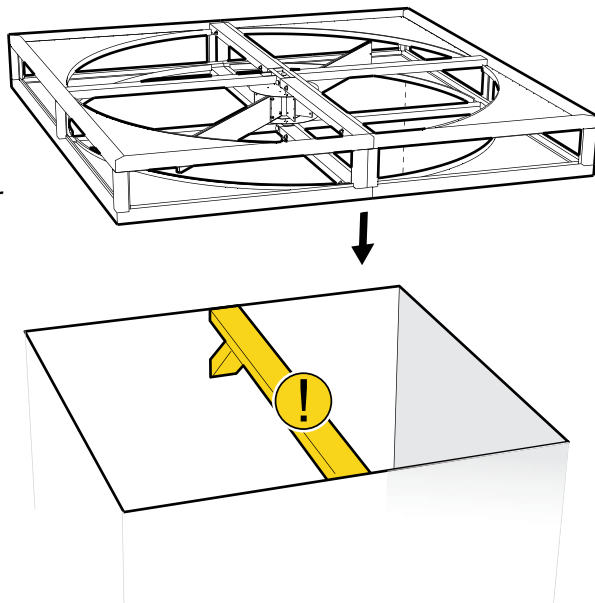


## 6.2 CENTRE SUPPORT BENEATH ROTOR

- Make sure that there is a centre support beneath the rotor.



*The centre support for the rotor is not supplied by Enventus.*



## 6.3 CONTINUED INSTALLATION



*Installation continues in the same way as for vertical installation and begins at any of the sections below.*

- **Section 2.1**  
*For installation of rotor segments with independent hub and radial walls.*
- **Section 2.6**  
*For partial installation of rotor segments with casing (hub and two radial walls pre-installed).*

## 6.4 INSTALLATION OF DRIVE UNIT – HORIZONTAL INSTALLATION

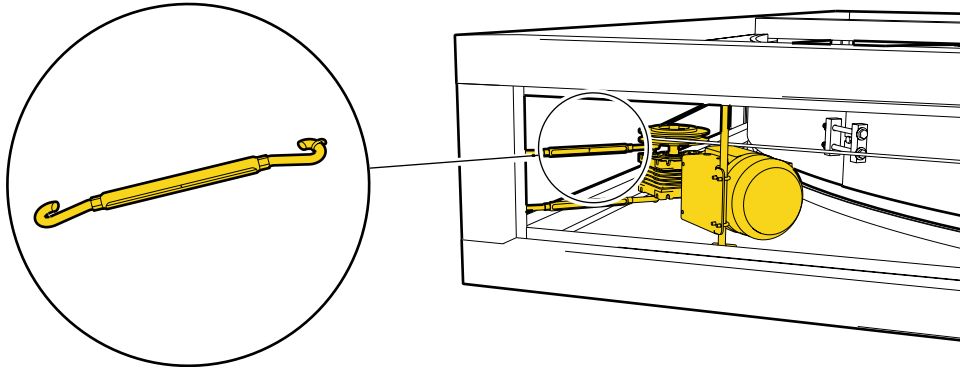


*Shaft brackets, sliding bearings, shaft and motor bracket are installed as described in section 5.1, but rigging screws are used instead of springs.*

- Install rigging screws between the casing and the motor bracket.
- Adjust the rigging screws until the belt is tensioned properly.



*Make sure that the belt pulley faces up during installation.*

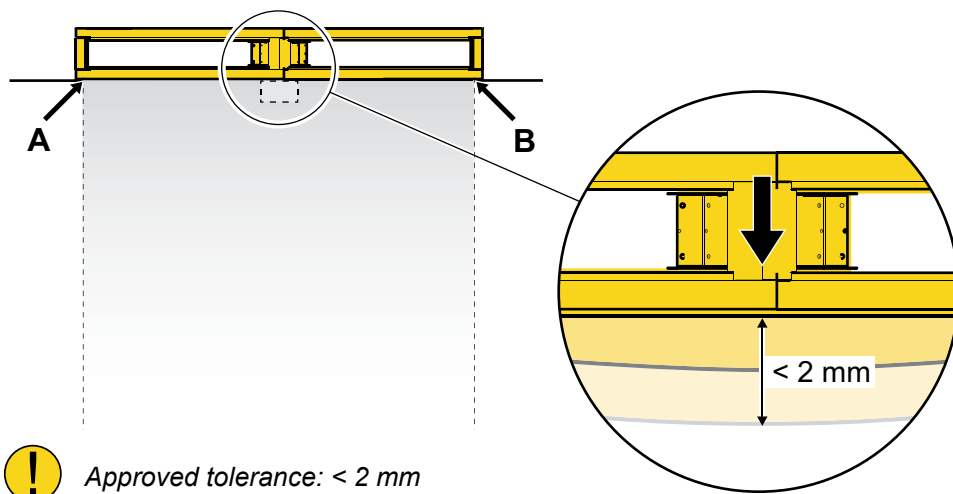


*For installation of the drive belt, see section 5.2*

*For installation of the rotation guard and control unit, see section 5.3*

## 6.5 CHECKING THE WEIGHTING

- Check the weighting of the casing between points **A** and **B**.
- Make sure that any weighting is within approved tolerances.



*Approved tolerance: < 2 mm*

# 7. Final inspection

## 7.1 BEFORE STARTING THE UNIT

---

- Test-run the unit for 30 minutes.
- Further cleaning may be necessary as a certain amount of chips may be released during installation.

## 7.2 AFTER STARTING THE UNIT

---

- Check that the rotor rotates in the correct direction.
- Check the rotation speed (rpm). Carry out subsequent inspection and adjustment of sealing and drive belt when the system has been operational for about 2-3 weeks.

After 2-3- weeks of operation:

- Tighten the periphery plate bolts (50Nm) acc. to section 3.8.
- Check, and adjust if needed, sealing and drivebelt.

# 8. Contact

## Head office / Production / Sales Scandinavia:

Enventus AB  
Hedenstorpsvägen 4 - SE-555 93 Jönköping, Sweden  
Phone +46 (0)36 37 56 60  
Fax +46 (0)36 37 56 68  
info@enventus.com - www.enventus.com

