GOLD

Air Handling Unit

Installation instructions

GOLD RX version G, size 70+/80+

The document was originally written in Swedish.

Swegon

Content

1. Installation

1.1 General

All staff concerned must acquaint themselves with these instructions before beginning any work on the unit. Any damages to the unit or parts of it due to improper handling or misuse by the purchaser or the fitter cannot be considered subject to guarantee if these instructions have not been followed correctly.

The product identification plates are located on the inspection side of the air handling unit and inside the electric equipment cubicle of the unit. Refer to the particulars on the product identification plate when you contact Swegon.

The air handling unit is supplied in packaged condition.

Possible ordered accessories are supplied in separate packaging with the unit.

1.2 On-site transportation

Before removing the transport pallet/transport cradle, if used, determine whether a forklift truck or a pallet transporter will be used for further transporting the unit within the site to the spot where it will be installed.

1.3 Parts packed together with the unit

Individually packaged components such as the hand-held micro terminal, commissioning plates, bolts, supply air sensor and document pocket are inside the air handling unit when it is delivered.

1.3.1 Hand-held micro terminal

The hand-held micro terminal is equipped a 3 m long cable and a quick-fit connector. For particulars of the electrical connections, see 1.14. A holder for wall-mounting is supplied with the hand-held micro terminal. The holder can be secured to the outside of the air handling unit (does not apply to the outdoor units) or another appropriate place. An extension cable (8 metres long) is available as an accessory.

1.3.2 Supply air sensor

The sensor is equipped with a 10 m long cable and a quick-fit connector. For particulars regarding installation, see 1.11. For particulars of the electrical connections, see 1.14.

1.3.3 Document pocket

Secure the document pocket to the exterior of the air handling unit or another appropriate place.

1.4 Location

The air handling unit must be mounted horizontally on a flat and firm supporting surface and this surface must be constructed in a way enabling it to support the weight of the unit.

When installing the unit and connecting pipework and electric wiring, make sure that adequate free space is provided for opening the inspection doors and that internal functional parts, such as filter cassettes and fan assemblies can be removed at the required extent.

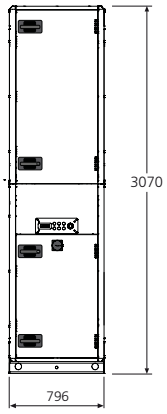
Required inspection space
1100 mm of free space should be left in front of fan/filter sections for opening inspection doors.

1.5 Delivery method

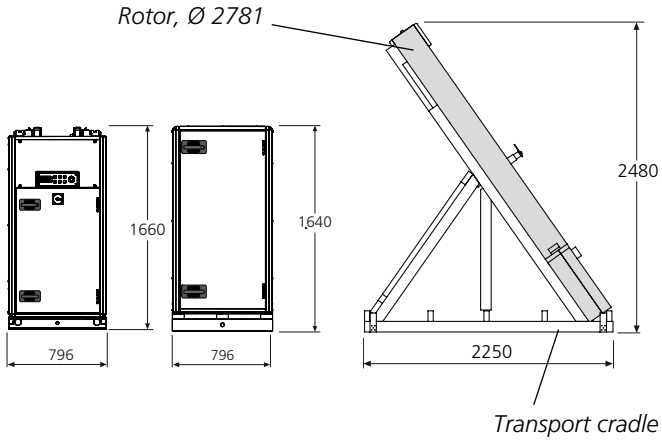
The GOLD RX 70+/80+ is normally supplied with an assembled heat exchanger section. This will be delivered in two separate sections: one fan/filter section and one fan/filter section + heat exchanger section. The heat exchanger section can also be supplied split. In that case the unit is supplied as two separate fan/filter sections and the heat exchanger section is supplied in two casing sections and rotor, where the rotor is supplied inclined in a transport cradle (transport height = 2480 mm, minimum transport width = 2250 mm). See Section 1.7 for installation particulars.

For other dimensions and weights, see Section 2.

Heat exchanger section supplied as a separate unit



Heat exchanger section, supplied split into two casing sections and rotor

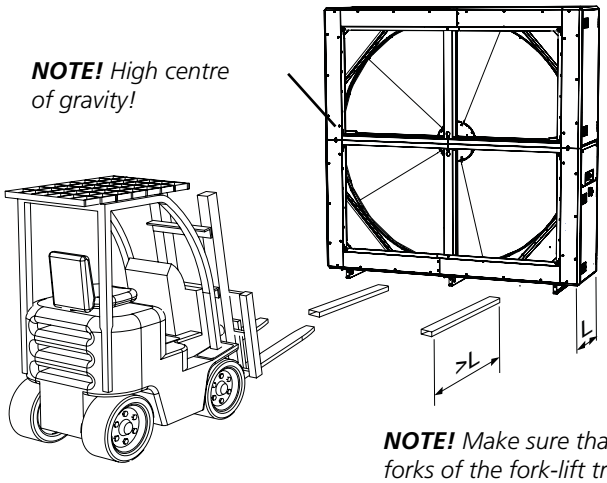


1.6 Lifting

1.6.1 With a fork-lift truck

Rotary heat exchanger

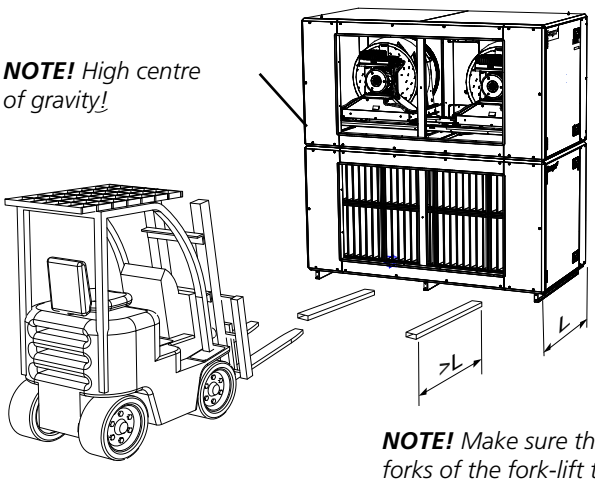
NOTE! *High centre of gravity!*



NOTE! *Make sure that forks of the fork-lift truck are sufficiently long!*

Other sections

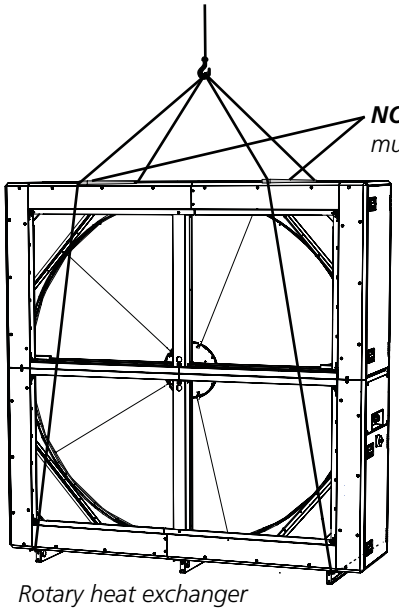
NOTE! *High centre of gravity!*



NOTE! *Make sure that forks of the fork-lift truck are sufficiently long!*

1.6.2 With a crane

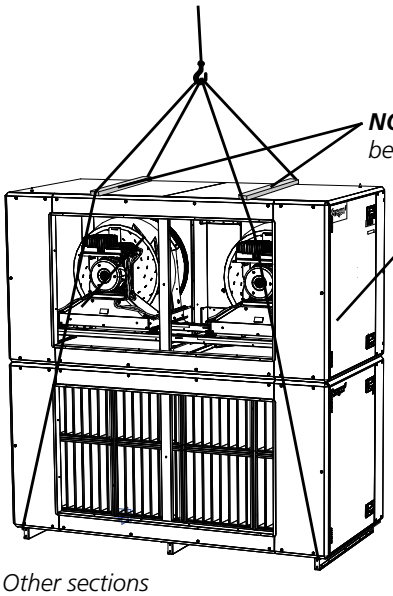
1.6.2.1 Complete units



NOTE! *A line spreader must be used!*

NOTE! *High centre of gravity!*

Rotary heat exchanger

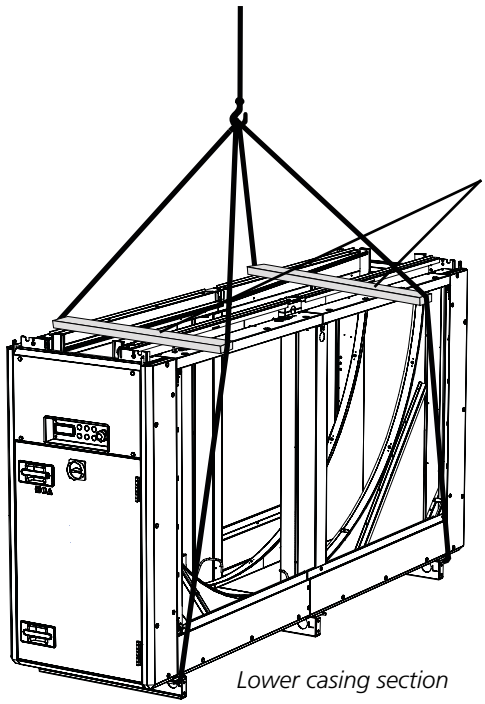


NOTE! *A line spreader must be used!*

NOTE! *High centre of gravity for fans in the upper level!*

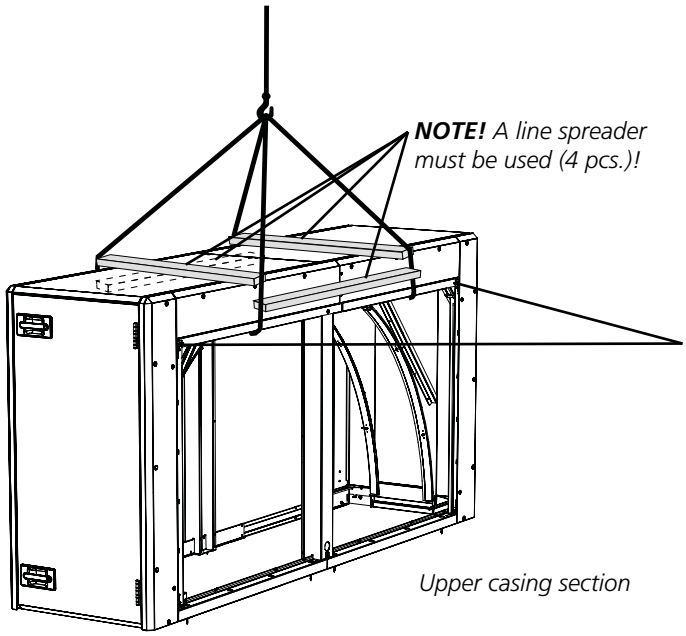
Other sections

1.6.2.2 Heat exchanger section, supplied split into two casing sections and rotor



NOTE! *A line spreader must be used!*

Lower casing section

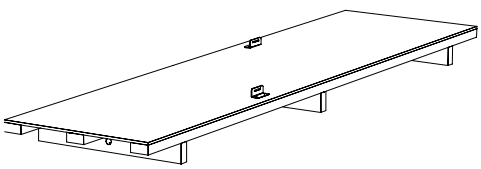


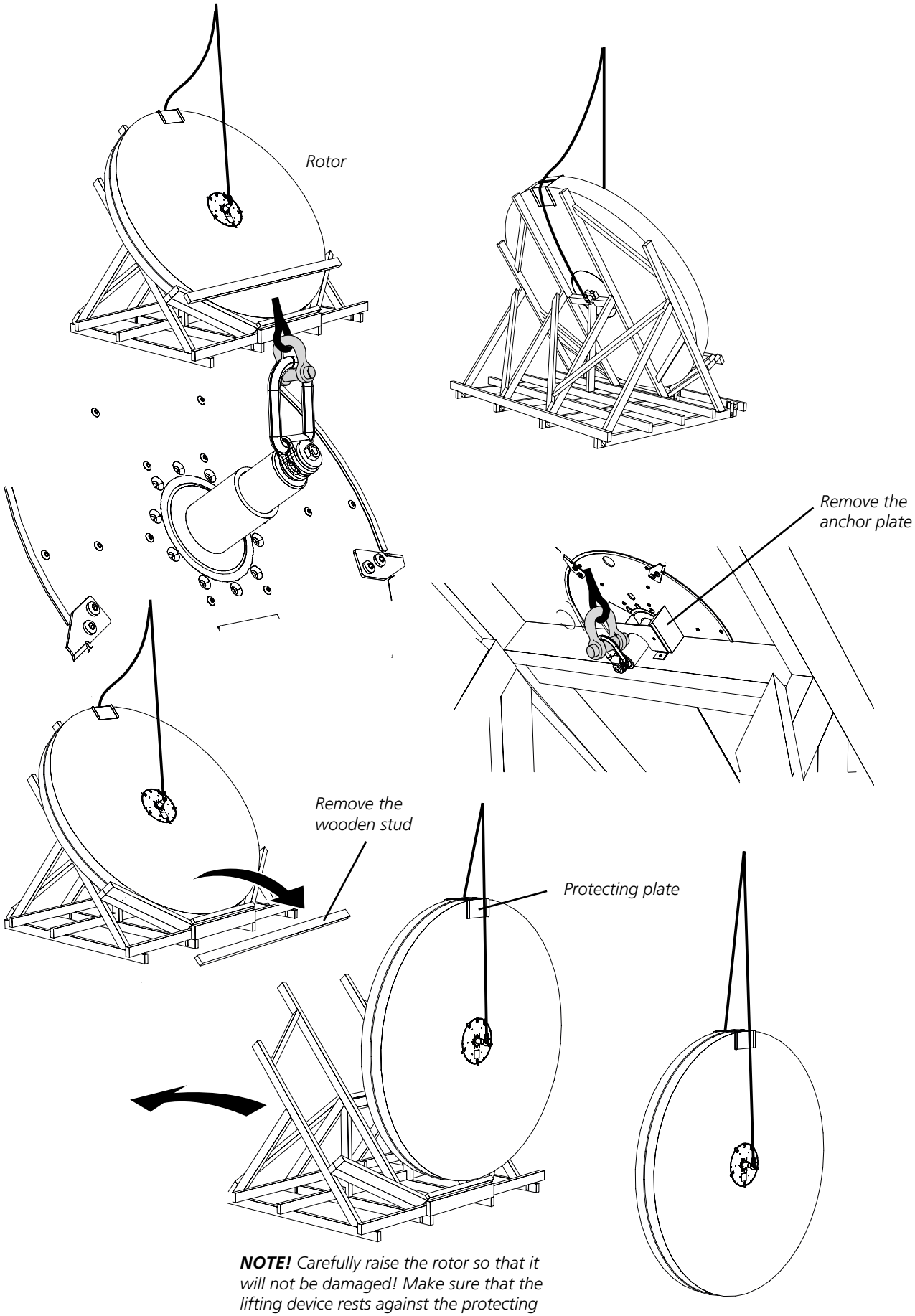
NOTE! *A line spreader must be used (4 pcs.)!*

As an alternative, lifting eyes can be used (4 pcs., M8).

NOTE! *A line spreader must be used (2 pcs.)!*

Upper casing section





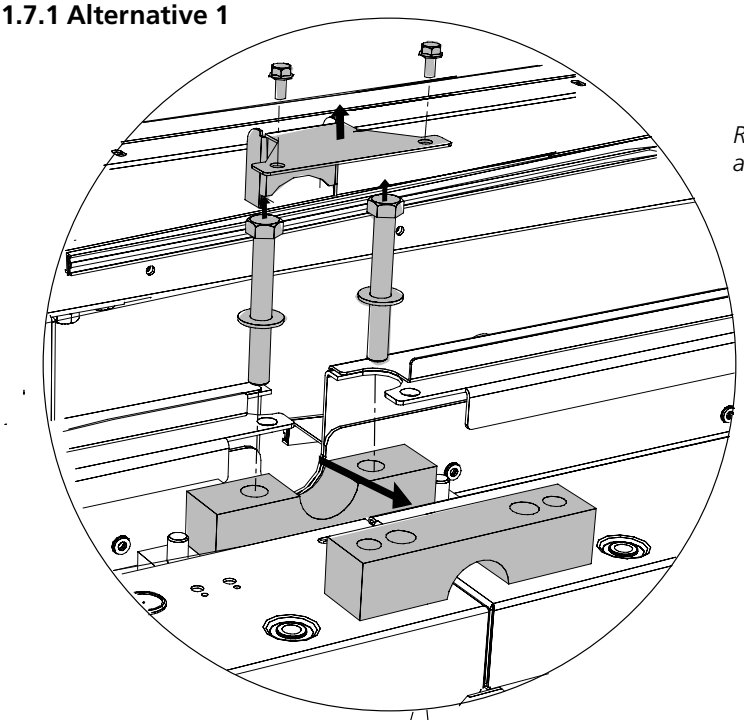
NOTE! *Carefully raise the rotor so that it will not be damaged! Make sure that the lifting device rests against the protecting plate at the top edge.*

1.7 Installation of heat exchangers (if applicable)

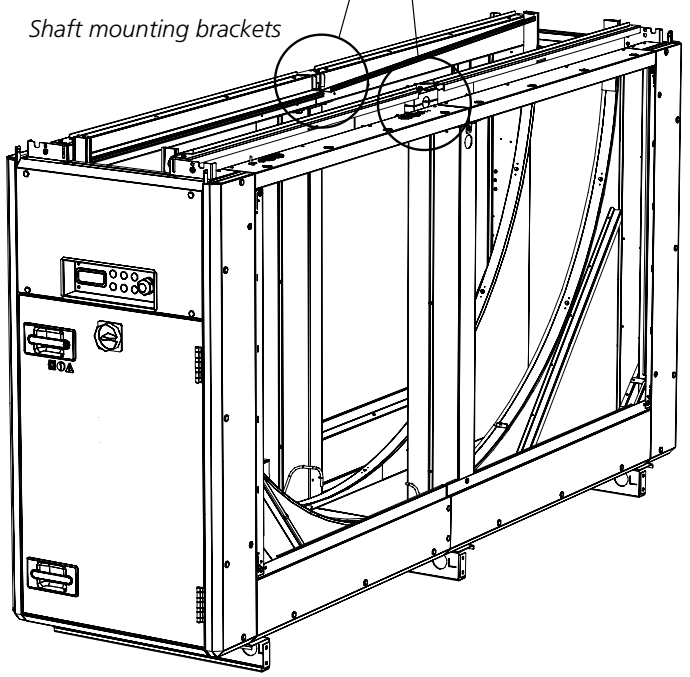
If the heat exchanger unit section is supplied in parts, they must be jointed together. This can be done in two ways: Alternative 1 is appropriate for use if there is sufficient free space upward since this alternative is simpler. If sufficient space is not available, Alternative 2 should be used.

If the heat exchanger unit section is supplied as one unit, go on to Section 1.8.

1.7.1 Alternative 1



Remove the upper shaft bracket and the sealing plate (2x)

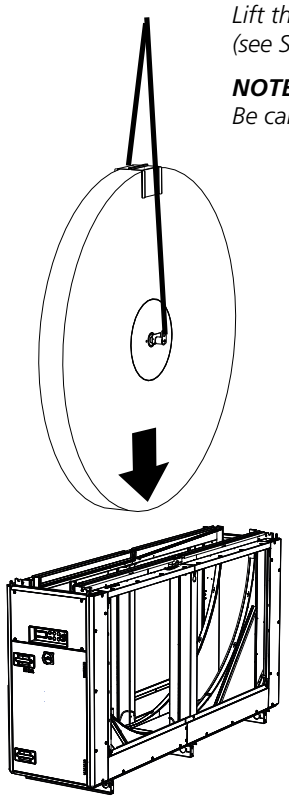


Shaft mounting brackets

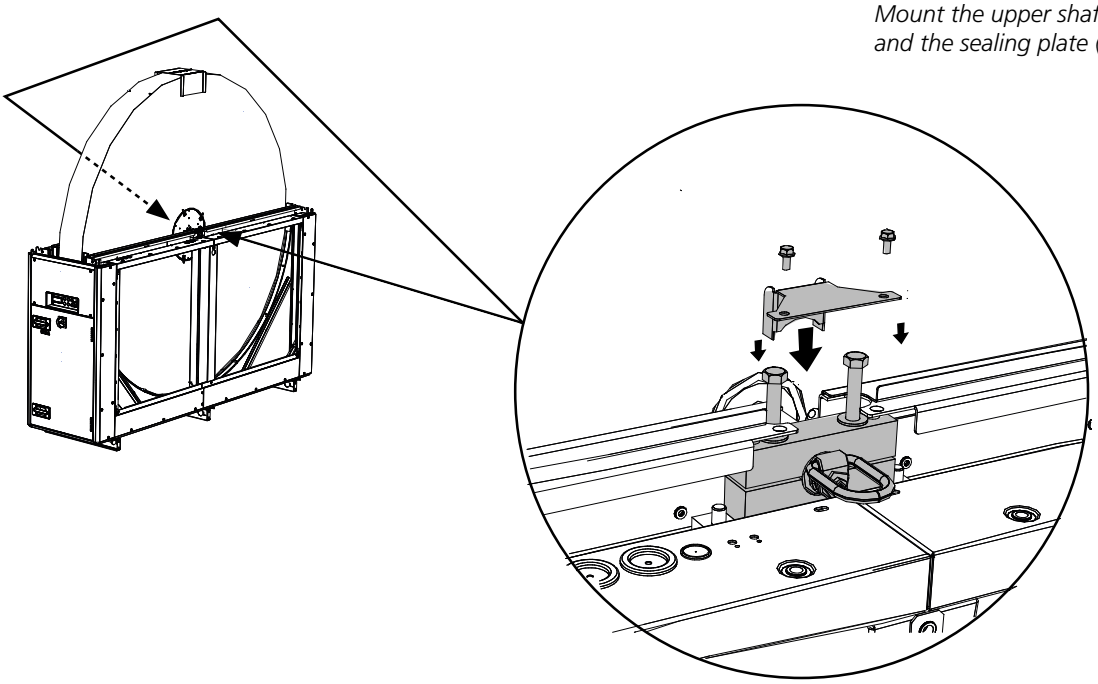
Lower casing section

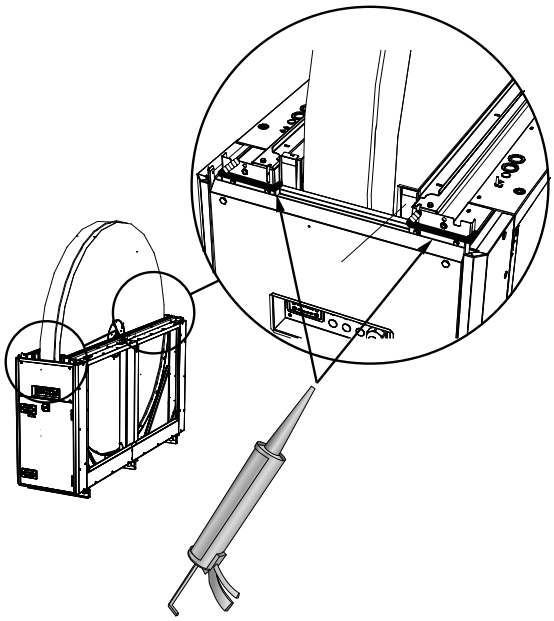
Lift the rotor into the lower casing section (see Section 1.6).

NOTE! IMPORTANT!
Be careful not to damage the rotor!

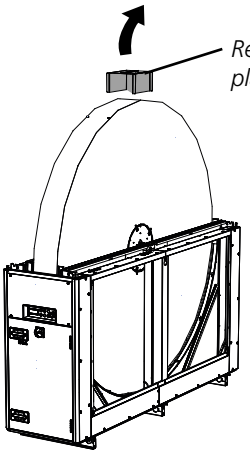


Mount the upper shaft bracket and the sealing plate (2x)

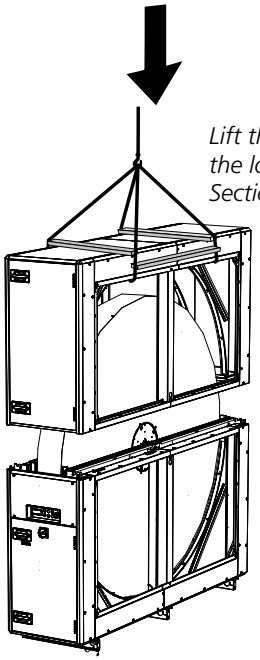




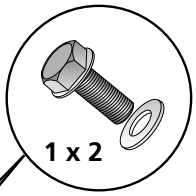
Seal around the edges of the plates with appropriate sealant/putty (4 pcs.)



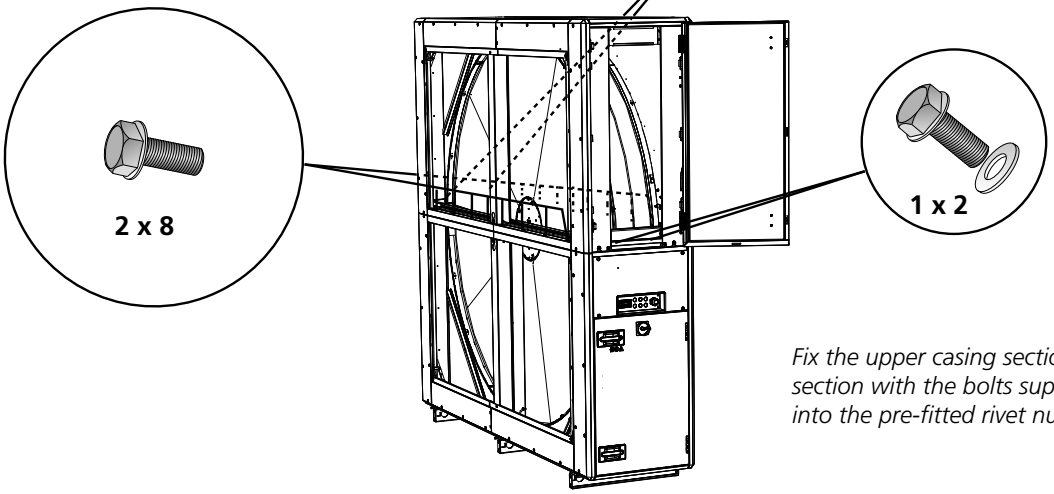
Remove the protecting plate of the rotor.



Lift the upper casing section onto the lower casing section (see Section 1.6).



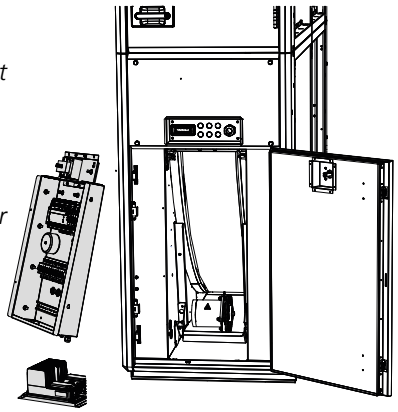
Screwed from inside.



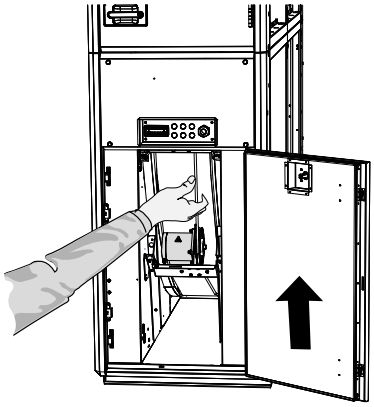
Fix the upper casing section to the lower casing section with the bolts supplied, screwing them into the pre-fitted rivet nuts (a total of 20 pcs.).

Drive motor 14 Nm

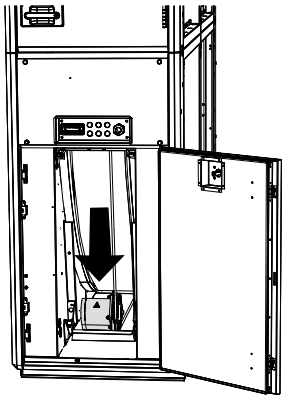
Disconnect and put the electrical equipment cubicle away. Disconnect the electrical quick-fit connectors from the fan motors and the heat exchanger drive motor. Loosen and put the rotor controller away.



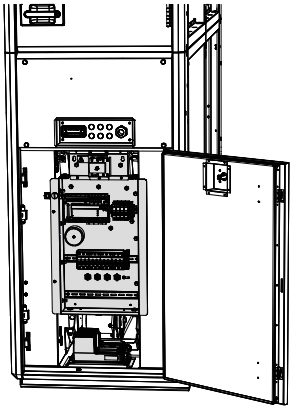
Dismantle the heat exchanger motor + mounting bracket (6 bolts). Move the motor + mounting bracket into position shown in the illustration and temporarily secure them with two screws. Place the rotor's drive belt around the motor's pulley.



Slacken off the two screws holding the motor + mounting bracket. Move the motor + mounting bracket back to their original positions. Secure the motor + mounting bracket with bolts (6 bolts).



Reconnect the electrical quick-fit connectors to the fan motors and the heat exchanger drive motor. Reassemble the rotor controller. Move the electrical equipment cubicle back into position and secure it with the appropriate bolts.



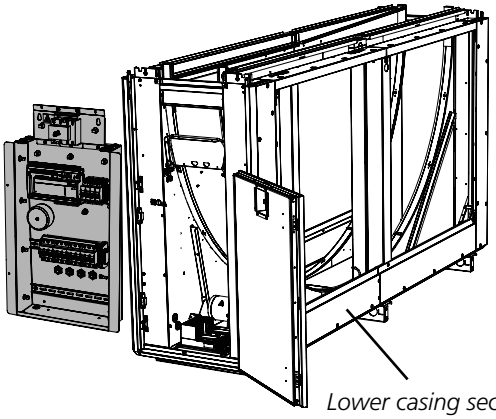
Drive motor 8 Nm

Place the rotor's drive belt around the drive motor's pulley.

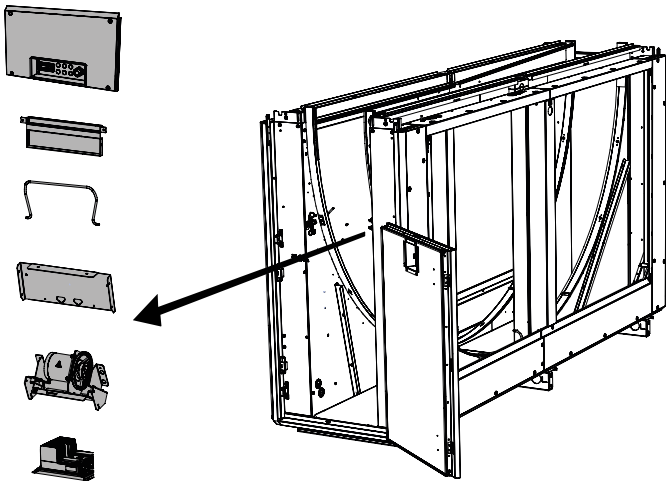
See also Section 1.7.3 Common for alternatives 1 and 2 2

1.7.2 Alternative 2

Disconnect and put the electrical equipment cubicle away. Disconnect the electrical quick-fit connectors from the fan motors and the heat exchanger drive motor.

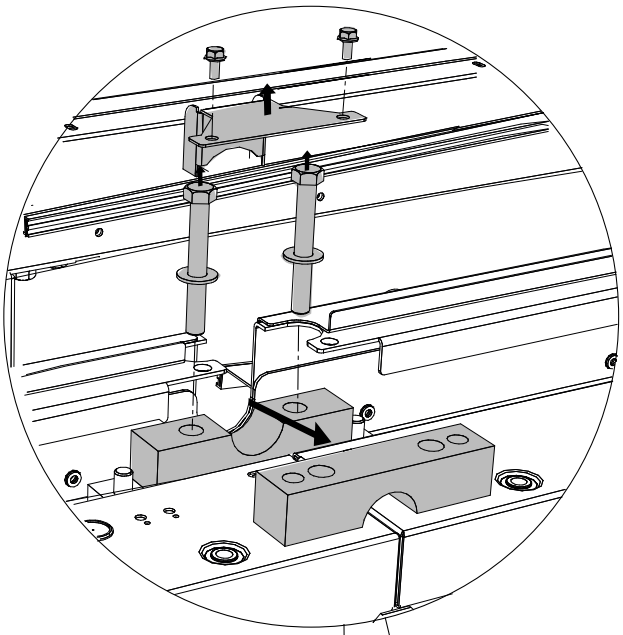


Lower casing section

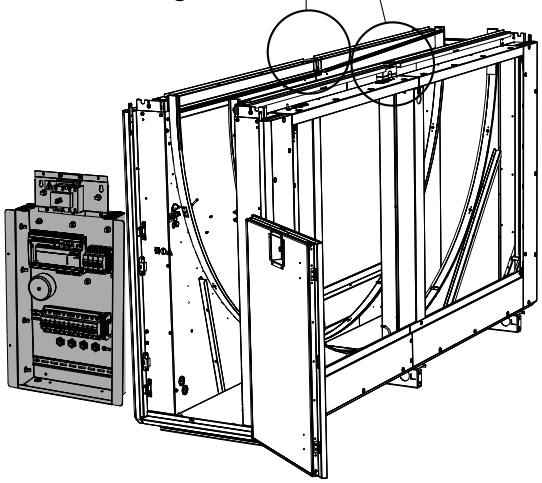


Dismantle the heat exchanger motor + mounting bracket (6 bolts). Dismantle rotor controller, sealing plate, panels and hose.

Remove the upper shaft bracket and the sealing plate (2x)

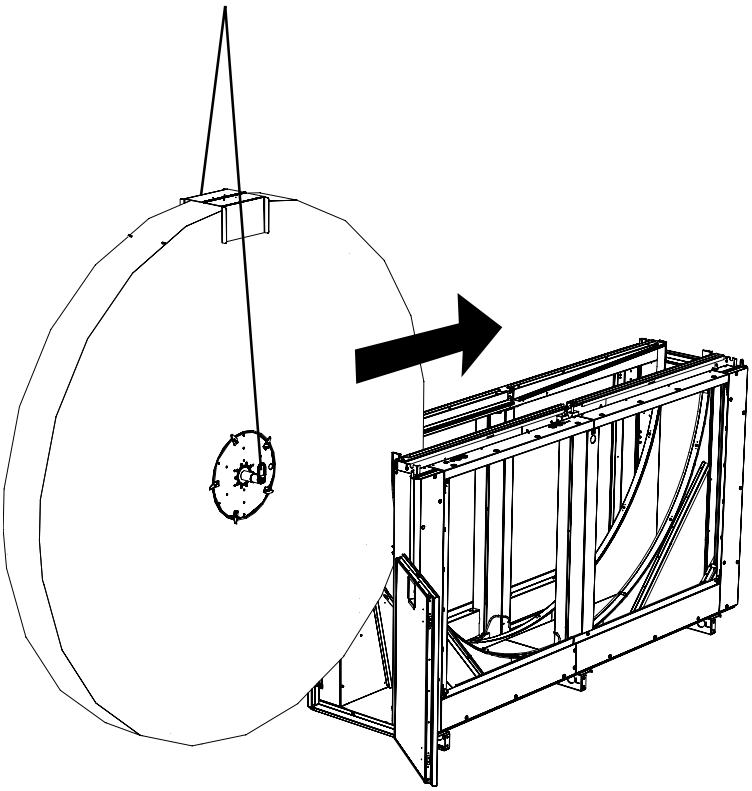


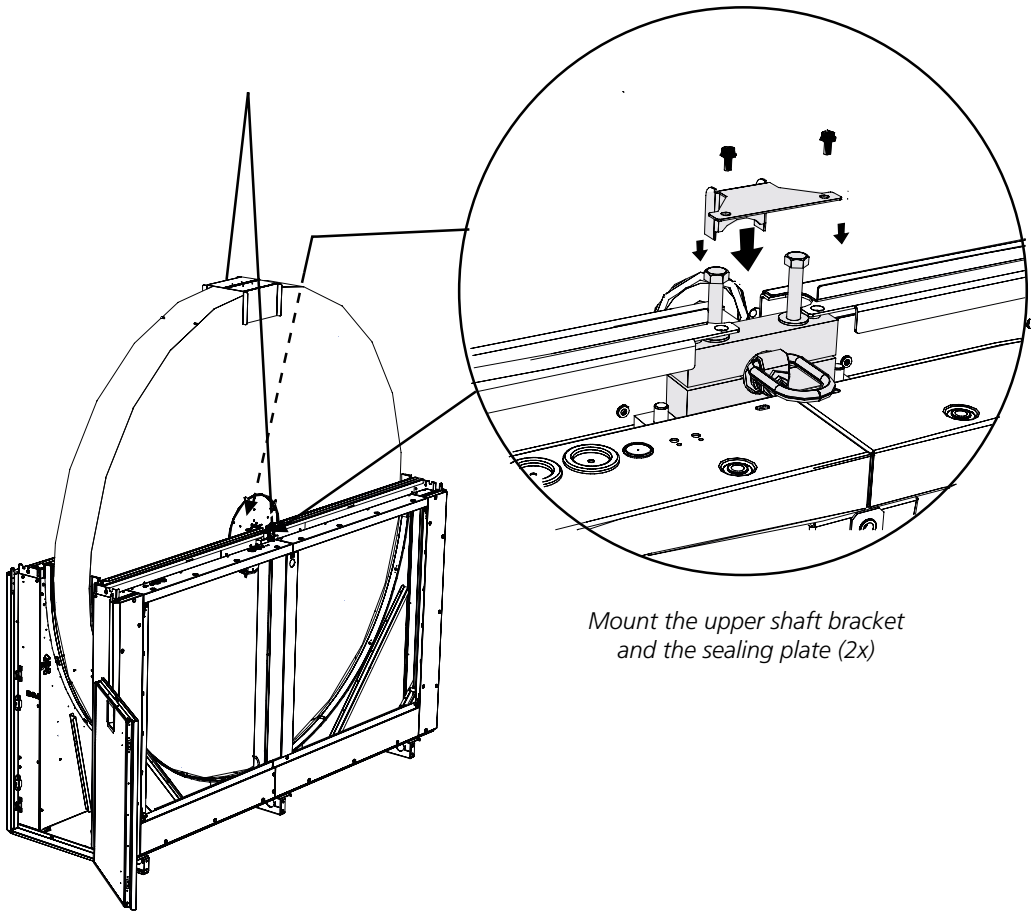
Shaft mounting brackets



Lift the rotor from the side into the lower casing section (see Section 1.6).

***NOTE! IMPORTANT!** Be careful not to damage the rotor!*

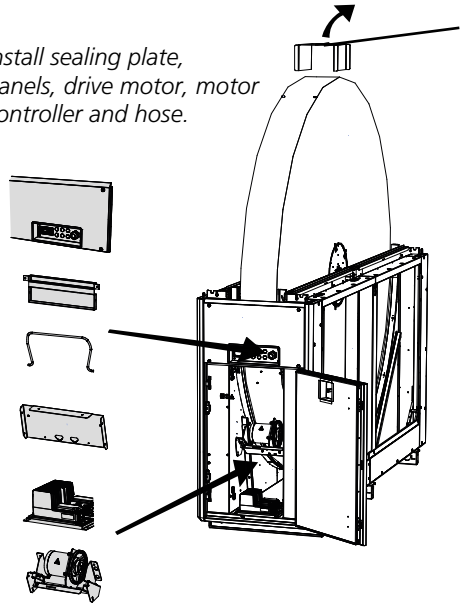




Mount the upper shaft bracket and the sealing plate (2x)

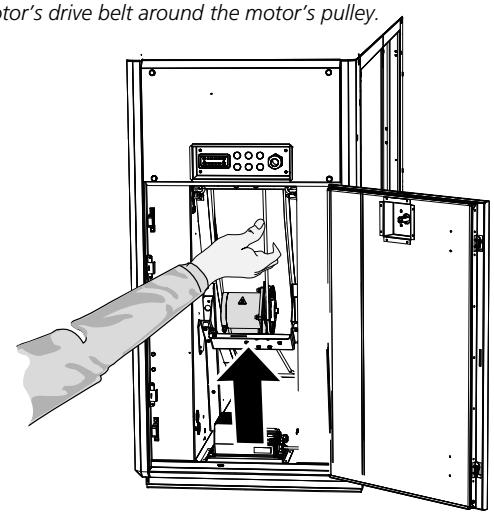
Remove the protecting plate of the rotor.

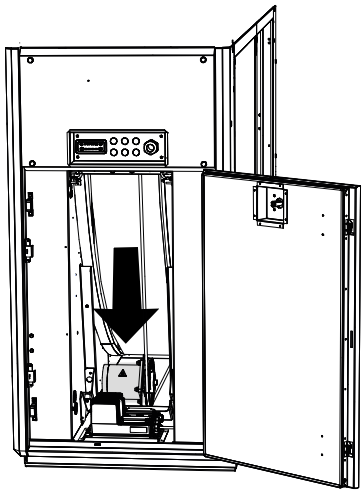
Install sealing plate, panels, drive motor, motor controller and hose.



Drive motor 14 Nm

Move the motor + mounting bracket into position shown in the illustration and temporarily secure them with two screws. Place the rotor's drive belt around the motor's pulley.

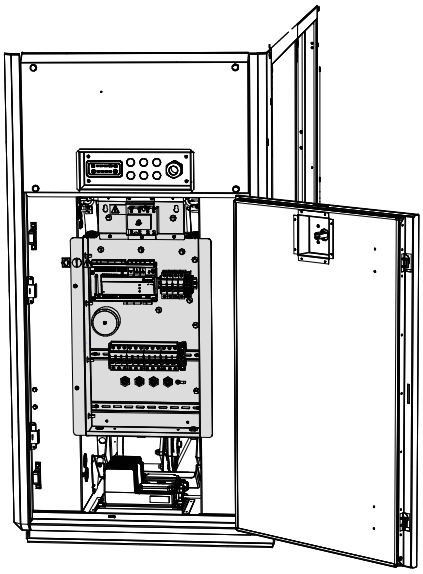




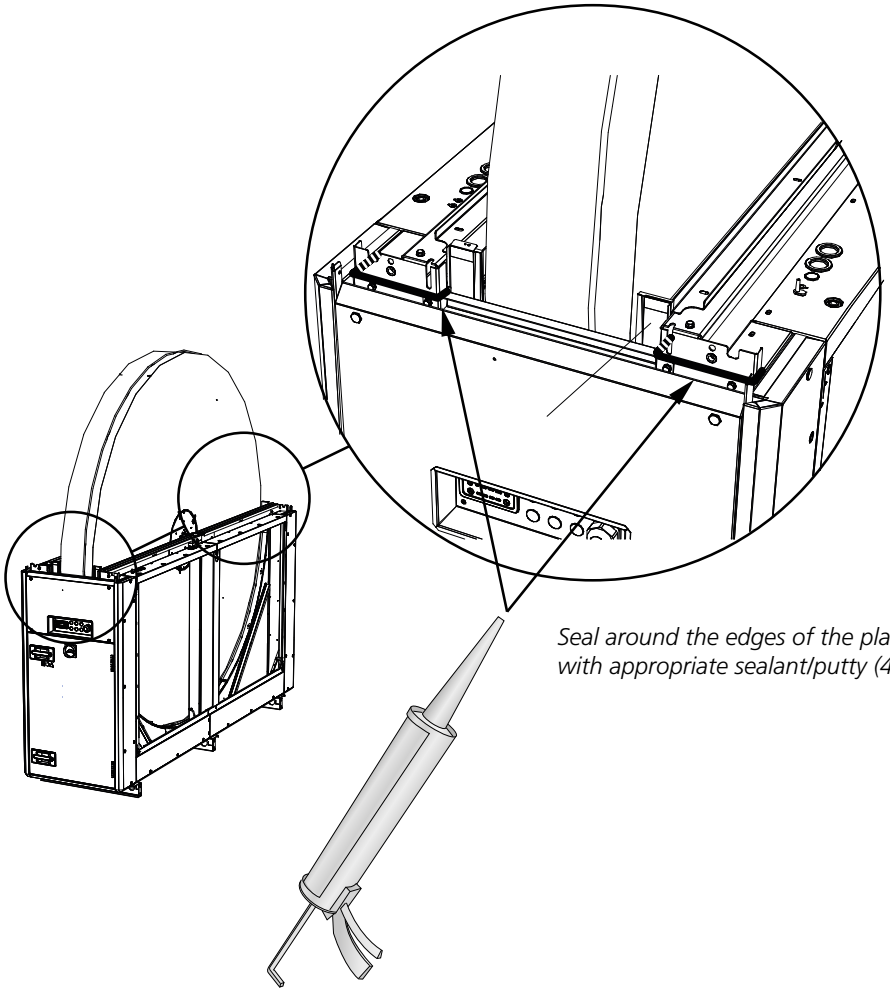
Slacken off the two screws holding the motor + mounting bracket. Move the motor + mounting bracket to the position shown in the illustration. Secure the motor + mounting bracket with bolts (6 bolts).

Drive motor 8 Nm

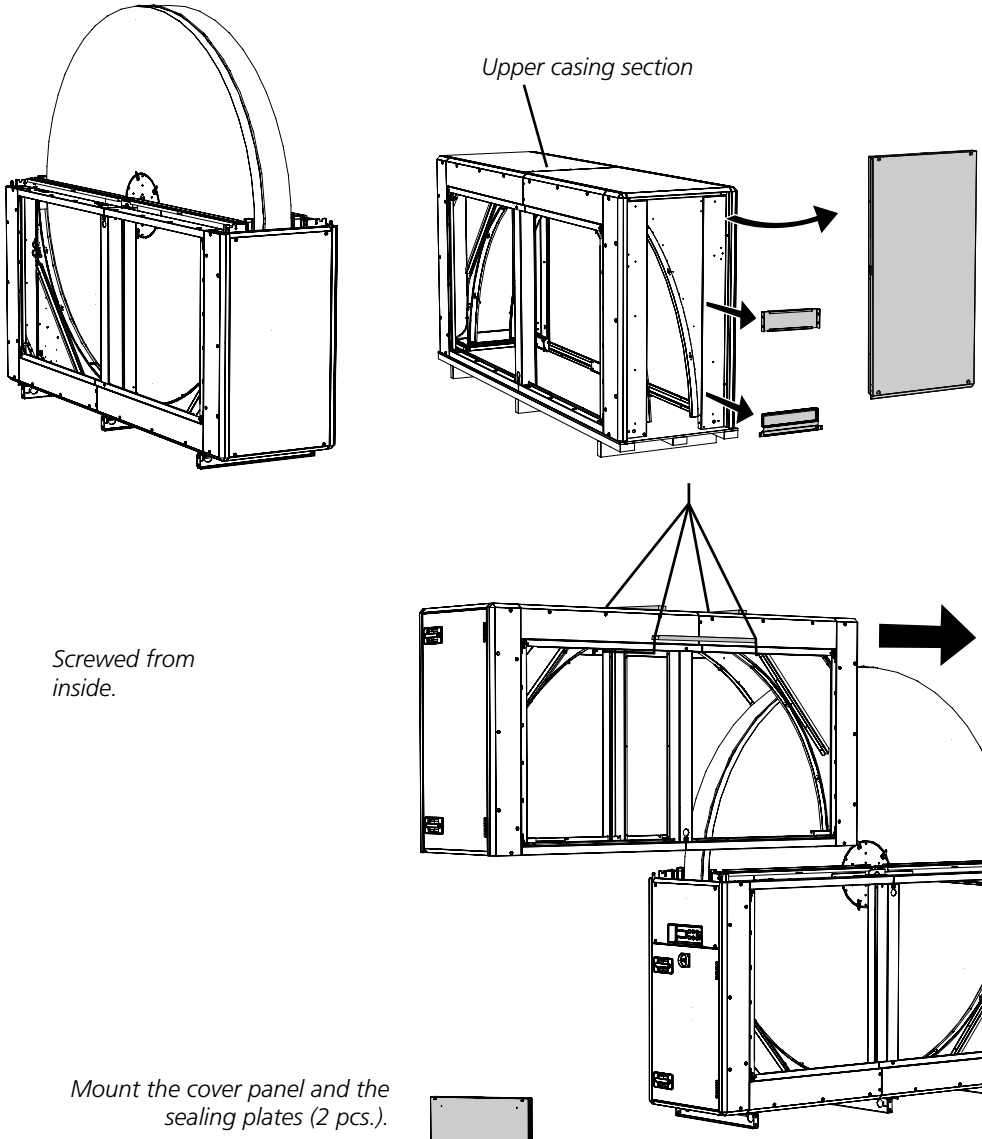
Place the rotor's drive belt around the motor's pulley.



Reconnect the electrical quick-fit connectors to the fan motors and the heat exchanger drive motor. Install and screw on the electrical equipment cubicle.



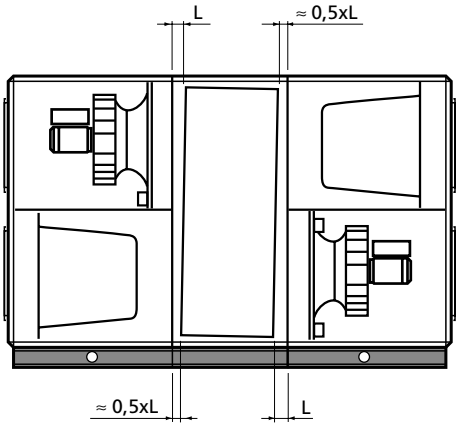
Seal around the edges of the plates with appropriate sealant/putty (4 pcs.)



See also Section 1.7.3 Common for alternatives 1 and 2

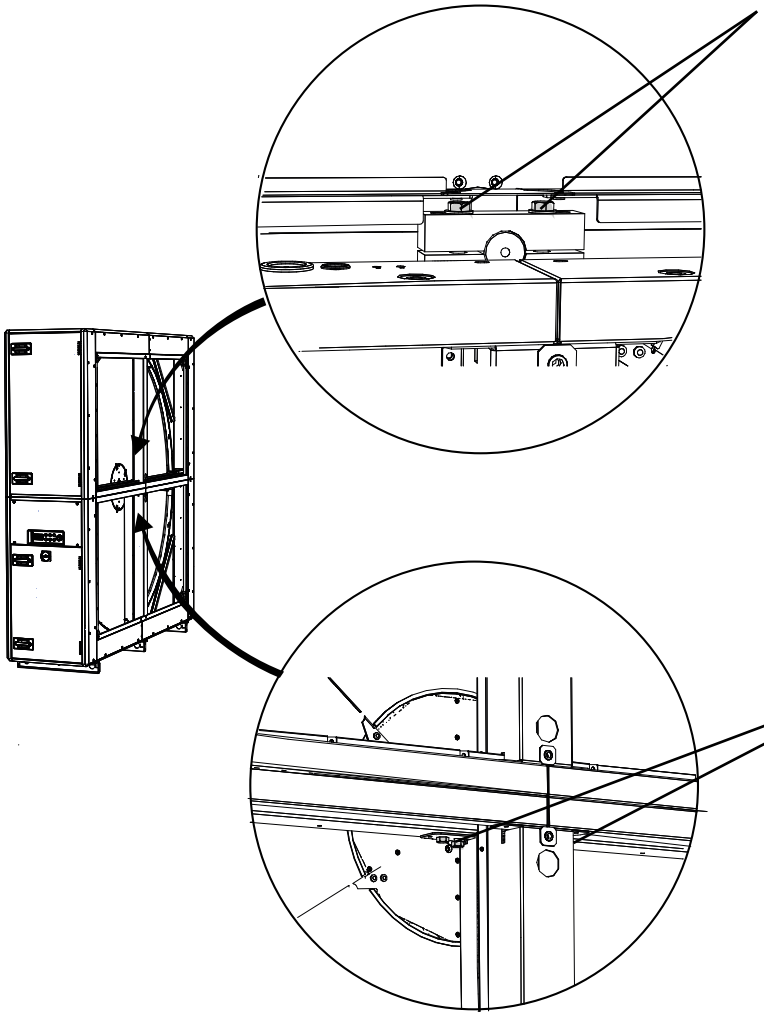
1.7.3 Common for alternatives 1 and 2

1.7.3.1 To adjust the rotor's inclination



The illustration shows an appropriate rotor inclination setting for Fan Arrangement 1. The inclination must always be toward the filter, which means that the inclination for Fan Arrangement 2 is in the other direction.

The rotor's inclination may need to be greater in applications that involve high airflows with associated high pressure.

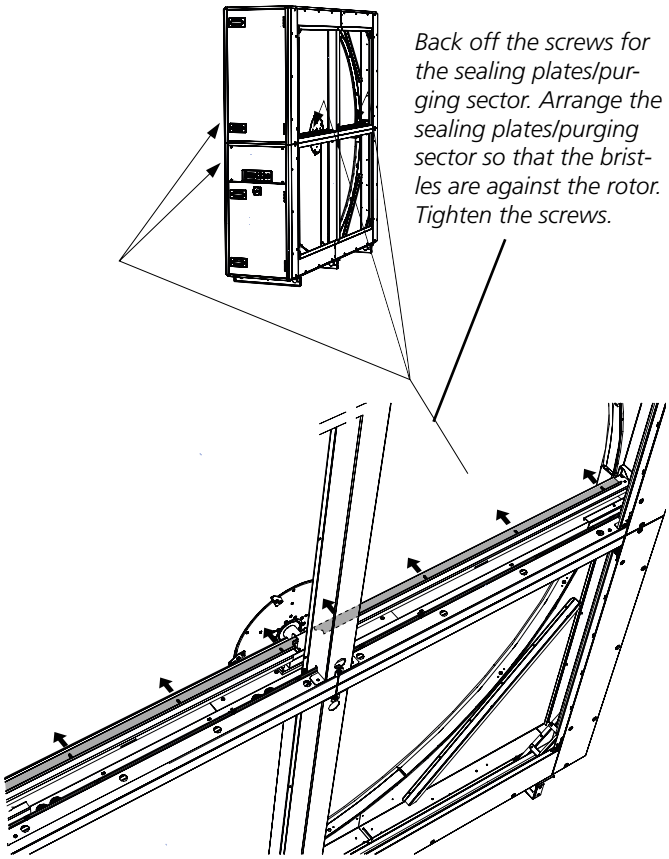


Slightly back off the locking bolts. Do not dismantle the shaft bracket.

Adjust the inclination of the rotor by means of the adjusting bolts. Tighten the adjusting bolts equally.

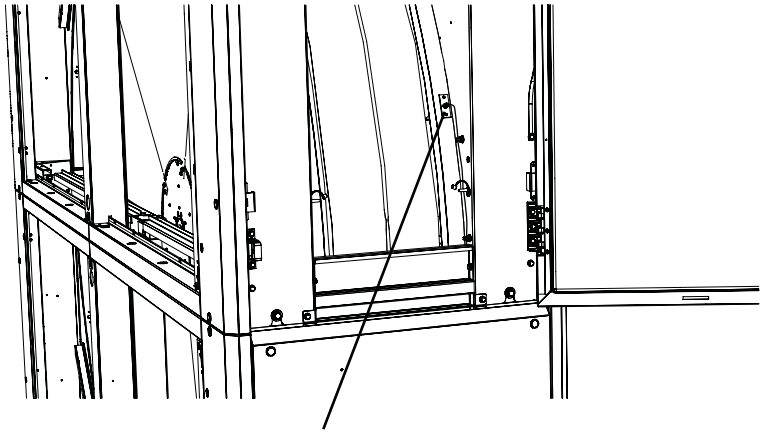
When you have adjusted the inclination, tighten the locking bolts.

1.7.3.2 Sealing plates/purging sector



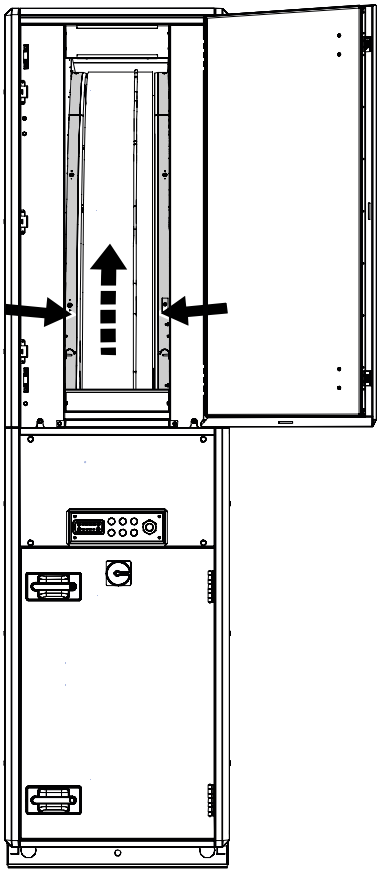
Back off the screws for the sealing plates/purging sector. Arrange the sealing plates/purging sector so that the bristles are against the rotor. Tighten the screws.

1.7.3.3 Temperature sensor



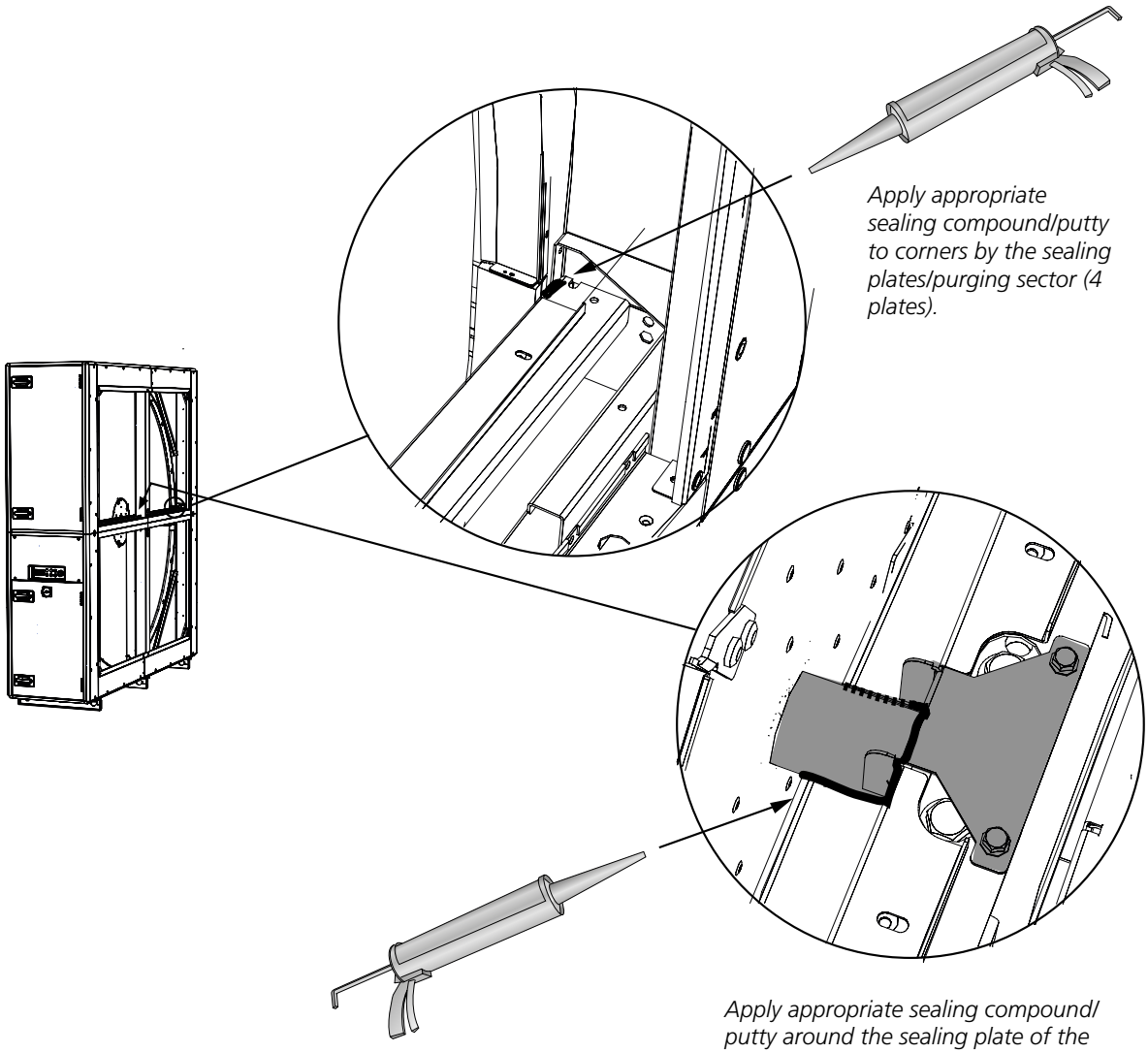
Temperature sensor is located in the bottom section of the rotor section. Pull the temperature sensor to the top of the rotor section and press into place in the bracket. Secure the cable to the cable holder.

1.7.3.4 Vinyl-coated fabric seal



Slip the vinyl-coated fabric seal of the rotor (blue) over the rim all the way around on both sides of the rotor.

1.7.3.5 Sealing



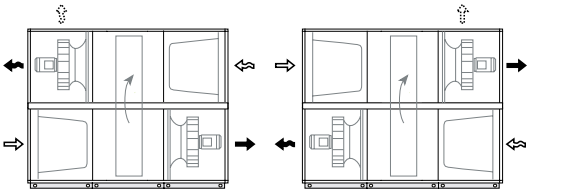
Apply appropriate sealing compound/putty to corners by the sealing plates/purging sector (4 plates).

Apply appropriate sealing compound/ putty around the sealing plate of the rotor shaft (2 plates).

1.8 Version and fan arrangement

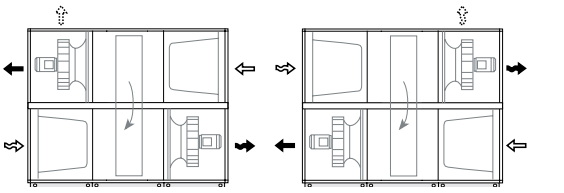
The GOLD RX 70+/80+ is delivered in a right-hand or left-hand version. The arrangement of the functional sections can be vertically reversed (specify when ordering), see the illustration below.

For particulars of the delivery configuration and installation of the relevant air handling unit, see the decal on the lower section of the heat exchanger.



Supply air fan, right, lower level *Supply air fan, right, upper level*

Right-hand version



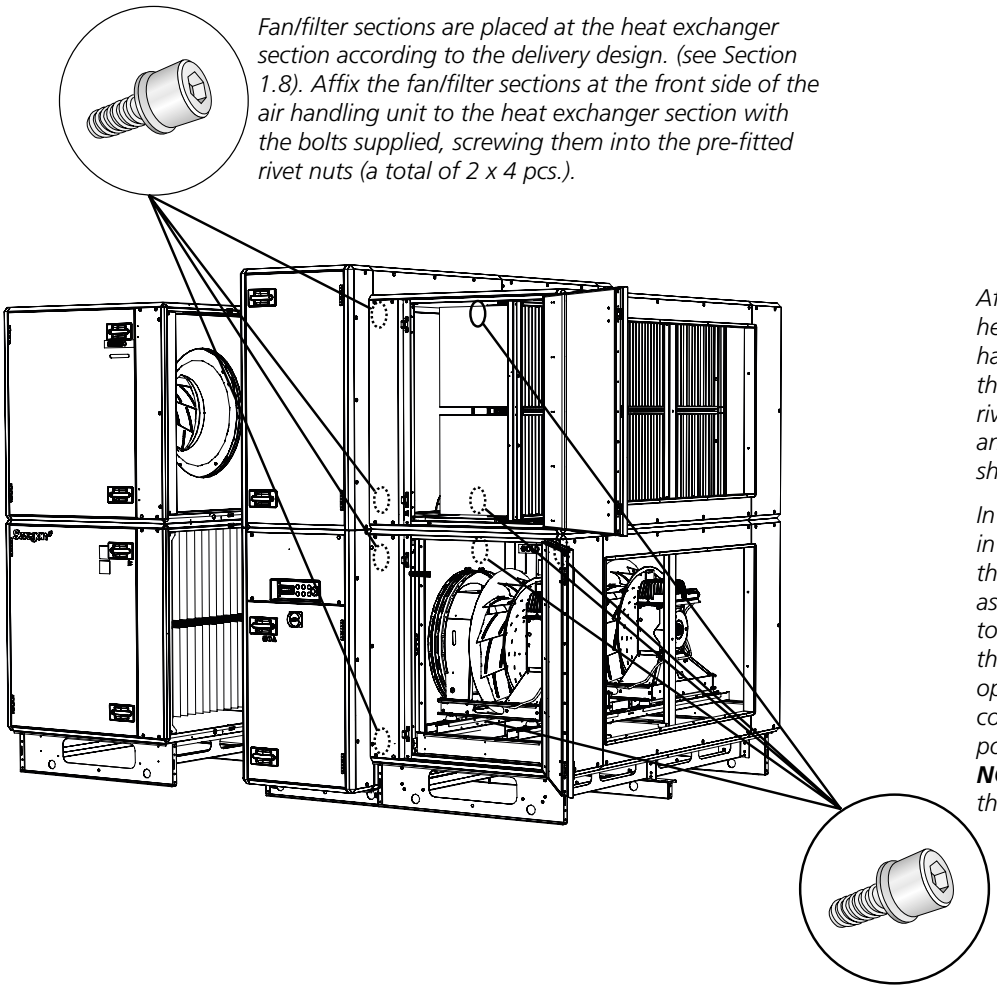
Supply air fan, left, upper level *Supply air fan, left, lower level*

Left-hand version

Outdoor air Supply air Extract air Exhaust air

1.9 Docking of unit sections

1.9.1 Fastening, front/middle section



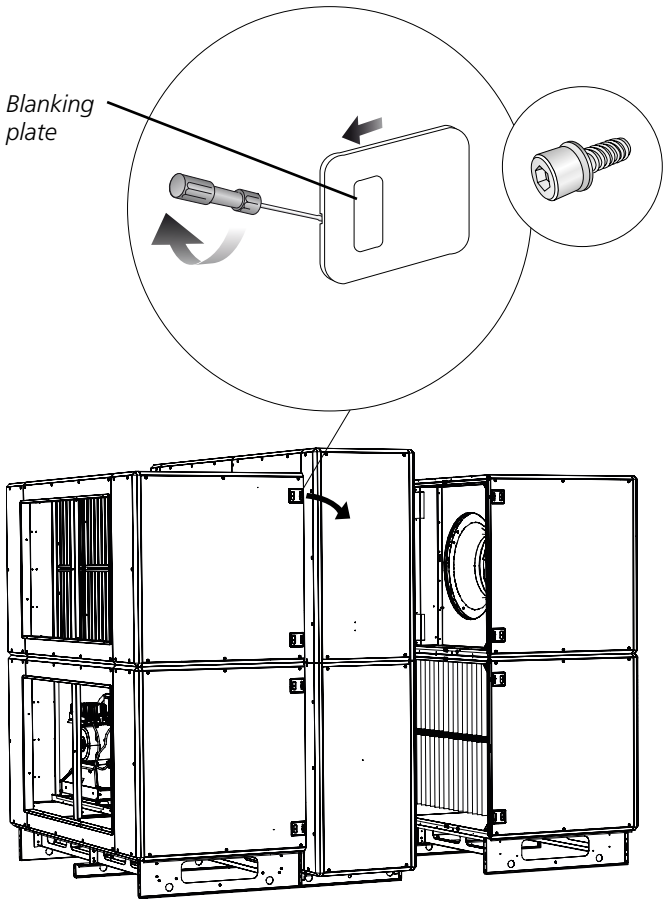
Fan/filter sections are placed at the heat exchanger section according to the delivery design. (see Section 1.8). Affix the fan/filter sections at the front side of the air handling unit to the heat exchanger section with the bolts supplied, screwing them into the pre-fitted rivet nuts (a total of 2 x 4 pcs.).

Affix the fan/filter sectionsto the heat exchanger section inside the air handling unit's middle section using the supplied screws in the pre-fitted rivet nuts (total 2 x 4 pcs.). The anchoring points inside the unit are shown in the illustration.

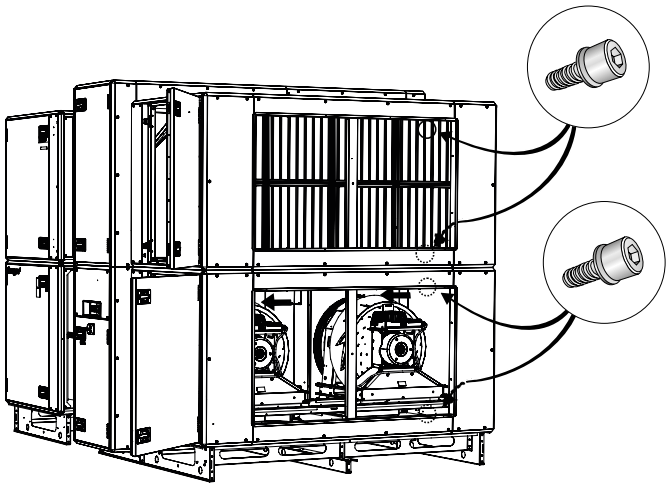
In order to access the anchor points in the fan section, you must unfasten the flexible connections and the fan assemblies and move them outward toward the inspection door. You can then tighten the screws from the opening of the duct connection. The cover plates in front of the mounting points are removed.
NOTE! *You do not need to remove the fan assemblies completely!*

1.9.2 Fastening, rear of unit

Securing with screws at the rear of the air handling unit can be done in two ways, internally or externally. External fastening (Alt. 1) is appropriate for use if there is sufficient free space behind the air handling unit, since this alternative is simpler. If sufficient space is not available, internal assembly (Alt. 2) can be used.



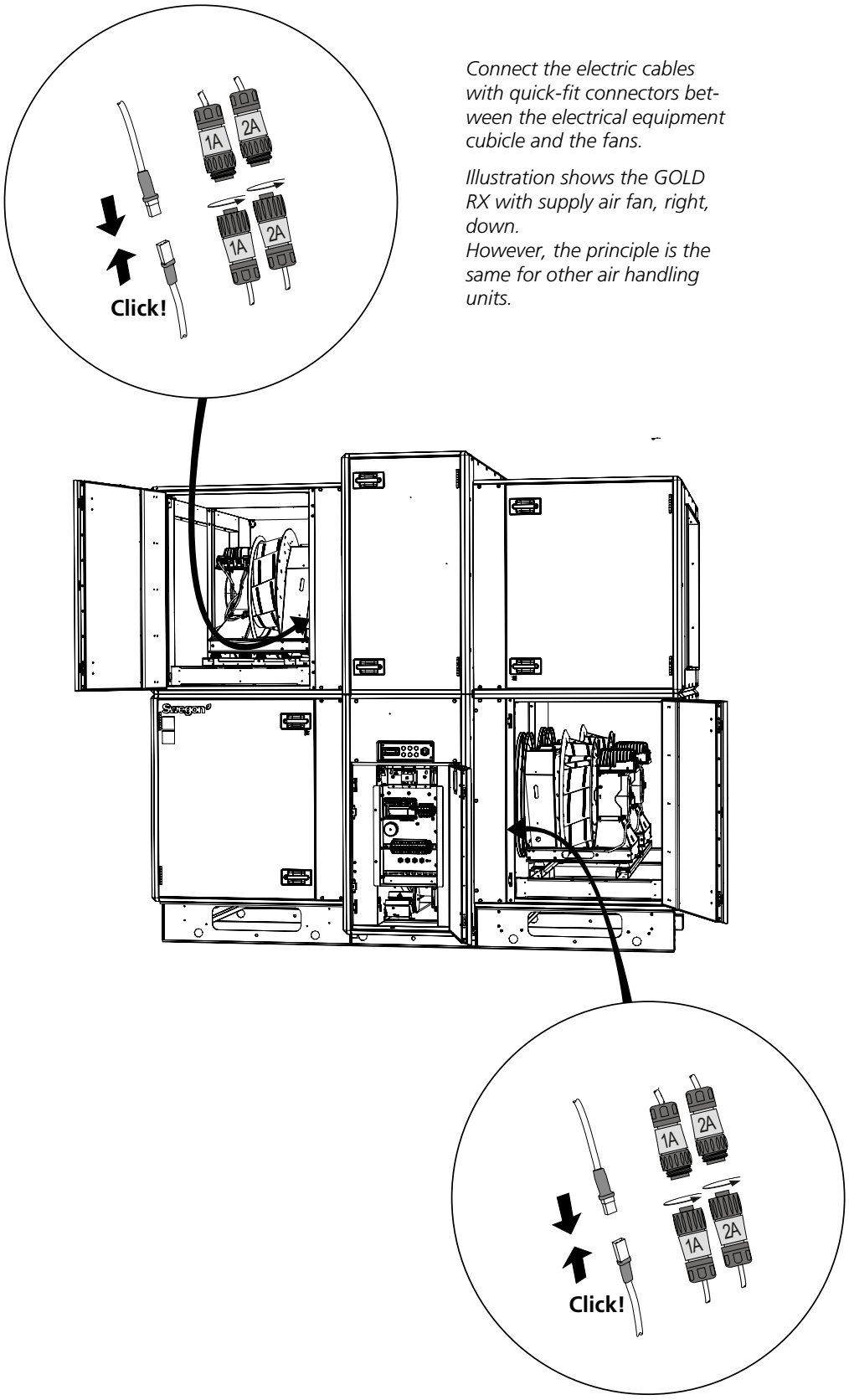
Alt. 1
External fastening.
Dismantle the blanking plate and insulation inside the cover on the rear side of the air handling unit. Fix the fan/filter sections to the heat exchanger section with the bolts supplied, screwing them into the pre-fitted rivet nuts (a total of 2 x 4 pcs.). Refit the blanking plate and the insulation.



Alt. 2
Internal installation.
Fix the fan/filter sections to the heat exchanger section with the bolts supplied, screwing them into the pre-fitted rivet nuts (a total of 2 x 4 pcs.). The anchoring points inside the unit are shown in the illustration.

In order to access the anchor points in the fan section, you must unfasten the flexible connections and the fan assemblies and move them outward toward the inspection door. You can then tighten the screws from the opening of the duct connection. The cover plates in front of the mounting points are removed.
NOTE! *You do not need to remove the fan assemblies completely!*

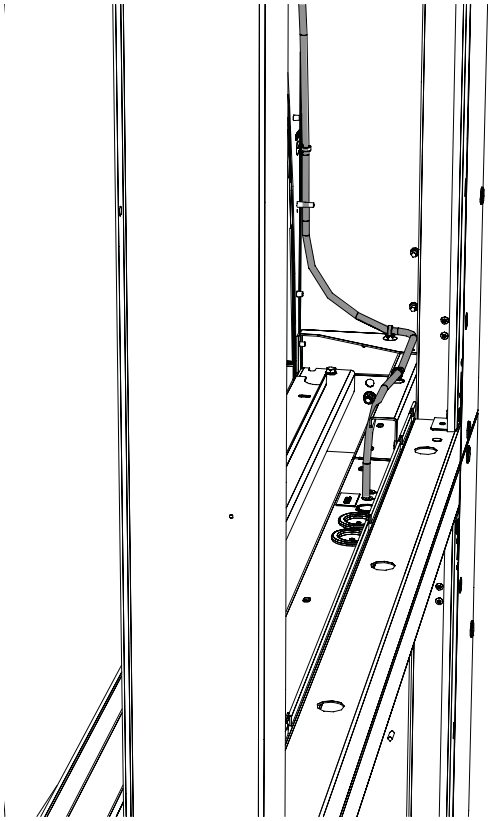
1.9.3 Electrical quick-fit connectors



Connect the electric cables with quick-fit connectors between the electrical equipment cubicle and the fans.

Illustration shows the GOLD RX with supply air fan, right, down.
However, the principle is the same for other air handling units.

1.9.4 To connect air tubes to filter pressure sensors



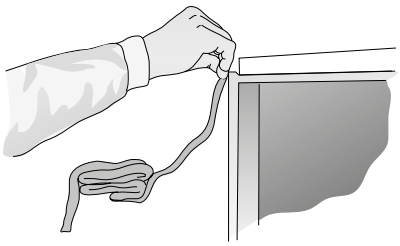
This step is only necessary for air handling units with an upper level supply air fan, where the $RECO_2$ function is to be used.

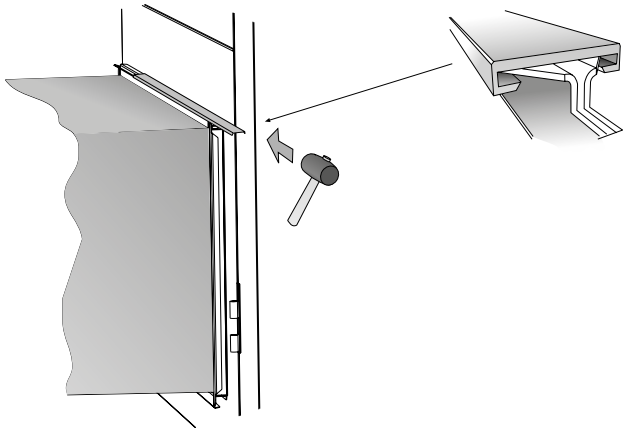
Connect the air hose for the sensor to the nipple. Hoses and nipples are marked with $RECO_2$.

1.10 Duct connection

The air handling unit's connection frames are rectangular and can be jointed to ducts with means of slip-clamps.

The ducts should be insulated according to local regulations and customary trade standards.





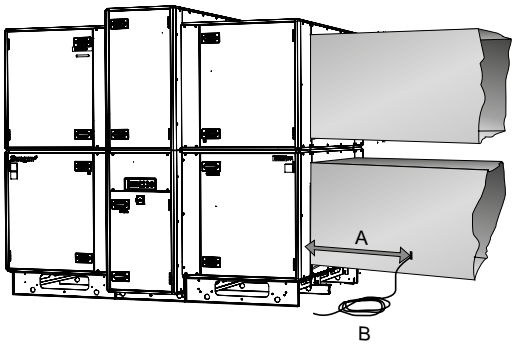
1.11 To install the supply air sensor

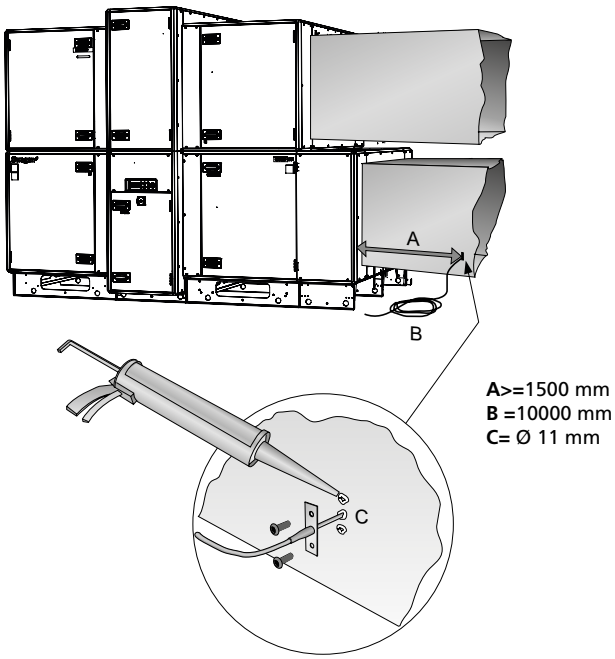
The supply air temperature sensor must be mounted inside the supply air duct.

The sensor must be positioned at a spot that is at least 1.5 metres from the air handling unit.

NOTE! If an air heater and/or air cooler, if required, is installed in the system, the sensor must be positioned 1.5 metres from the unit measured from this component.

1. Measure and mark where the sensor is to be placed.
2. Drill a 11 mm diameter hole in the supply air duct.
3. Apply sealing compound around the hole and secure the sensor by means of 2 self-tapping screws.
4. Connect the sensor's quick-fit connector to the appropriate socket on the control circuit board of the air handling unit.

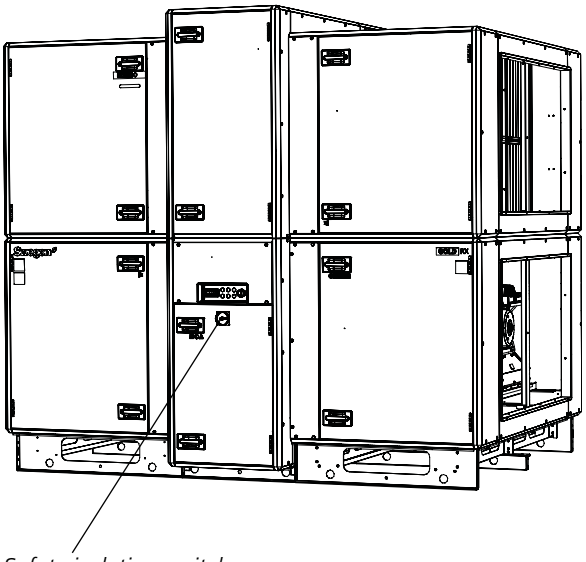




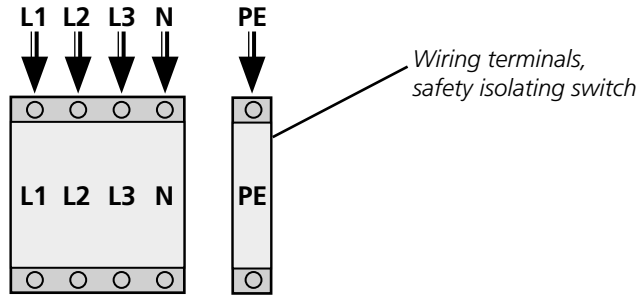
1.13 To connect the electric power supply

The electrical connections should be wired by a qualified electrician in accordance with local electrical safety regulations.

Wire the incoming power supply cable to the air handling unit's internal safety isolating switch. In order for the safety switch's terminals to be accessible, the inspection panel is opened.



Safety isolating switch



3-phase, 5-wire cable, 400V -10/+15 %, 50/60 Hz.

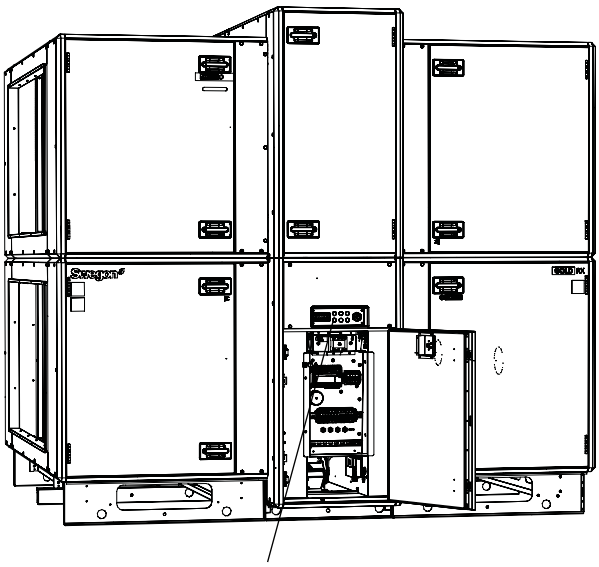
For the size of fuse protection, see the Operation & Maintenance Instructions

1.14 To connect external cables

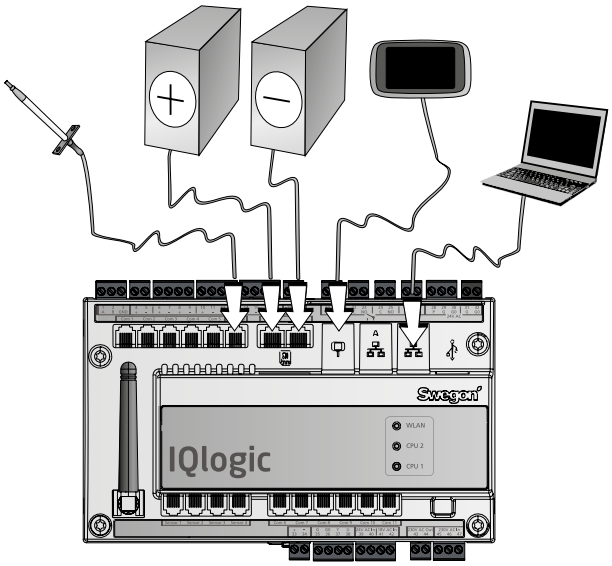
To make the control unit accessible, open the inspection door in front of the heat exchanger.

Run the cables further into the electrical equipment cubicle through the cable glands above the cubicle on the heat exchanger section.

NOTE! External communication cables outside the air handling unit should be positioned at a min. distance of 100 mm from energized cables.

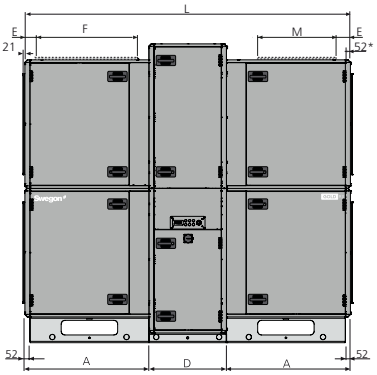


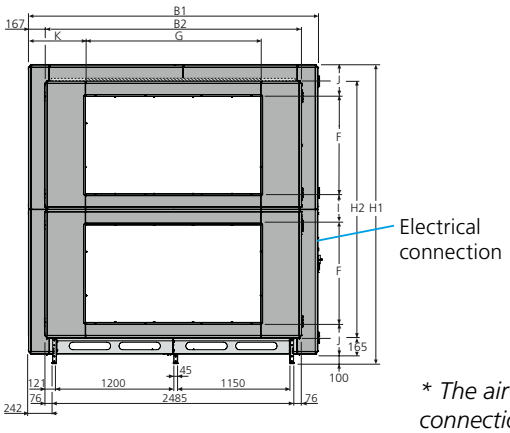
Cable glands



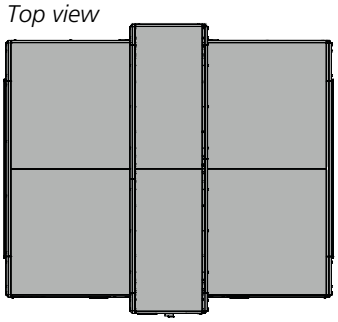
Control circuit board inside the electrical equipment cubicle

2. Dimensions





Top view



** The air handling unit is supplied without end connection panel if a duct accessory housed in an insulated casing will be connected. The AHU can also be supplied with full face end connection panel (accessory).*

Size	A	B1	B2	D	E	F	G	H1	H2	I	J	K	L	M	Weight, kg
070+/080+	1273.5	2970	2637	796	162	1000	1800	3070	2640	320	325	585	3343	750	2614-3335

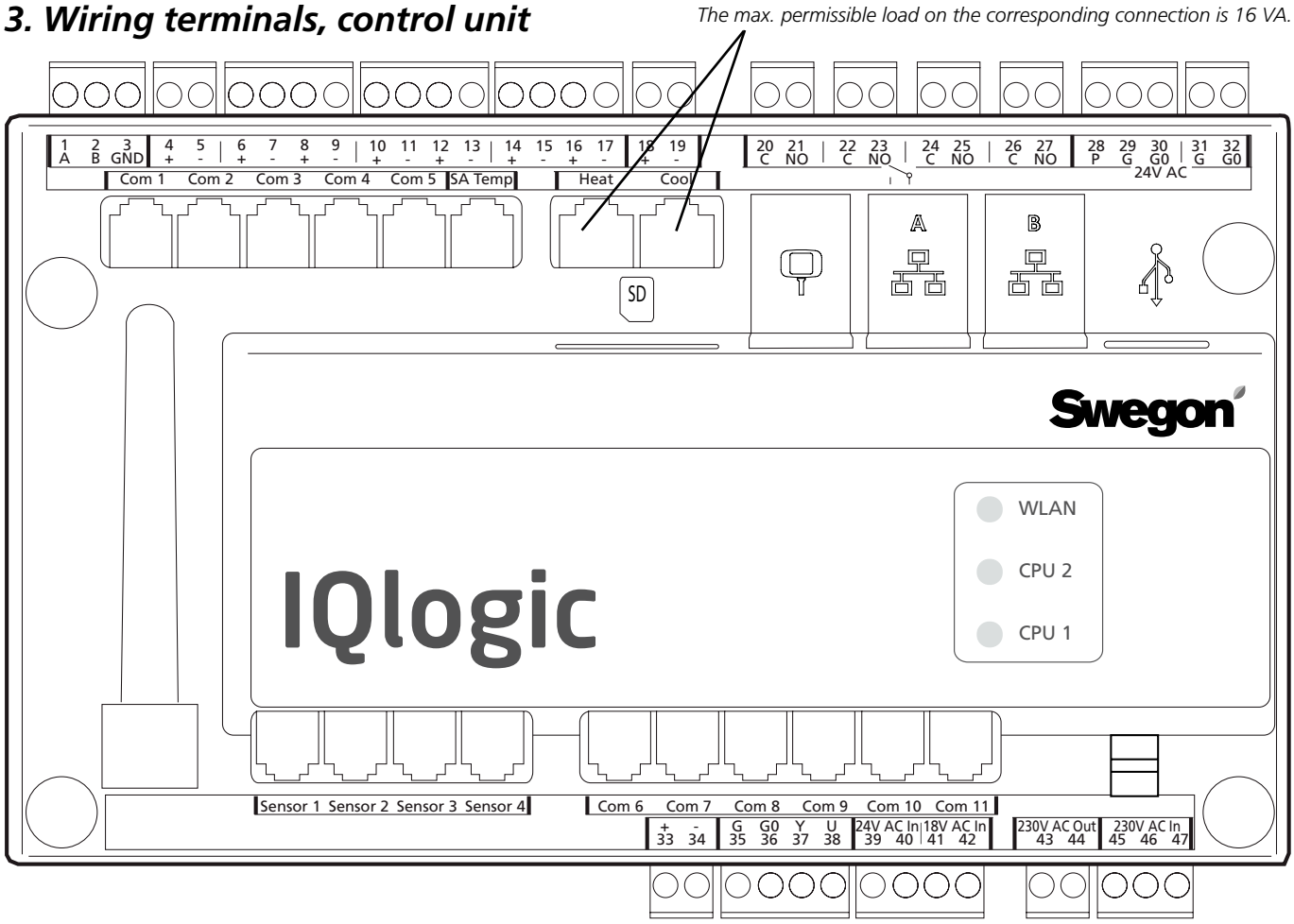
Individual weights

Filter/fan sections
807-1070 kg.

Heat exchanger section, mounted
1000-1195 kg

Heat exchanger section, supplied in two casing sections + rotor
Lower casing section = 420-470 kg
Upper casing section = 315-345 kg
Rotor = 305-425 kg
Transport cradle = 140 kg

3. Wiring terminals, control unit



Digital inputs, terminals 4-17, are of extra-low voltage type. Analogue inputs, terminals 18-19 have an input impedance of 66 kΩ.

Wiring terminal	Function	Remarks
1,2,3	Connections for EIA-485	1= Communication connection A/RT+, 2= Communication connection B/RT–, 3= GND/COM.
4,5	External stop	Stops the air handling unit by opening the circuit. On delivery, this function is fitted with a jumper. If the connection is interrupted, the air handling unit will stop.
6,7	External fire/smoke function 1	External fire and smoke function. On delivery, this function is fitted with a jumper. If the connection is interrupted, the function will trip and initiate an alarm.
8,9	External fire/smoke function 2	External fire and smoke function. On delivery, this function is fitted with a jumper. If the connection is interrupted, the function will trip and initiate an alarm.
10,11	External alarm 1	External contact function. Optional: Normally open/normally closed.
12,13	External alarm 2	External contact function. Optional: Normally open/normally closed.
14,15	External low speed	External contact function. Overrides the time switch from stop to low speed operation.
16,17	External high speed	External contact function. Overrides the time switch from stop or low speed to high speed operation.
18,19	Demand control	Input for 0-10 VDC. The input signal influences the supply air/extract airflow setpoint if the unit is operating in the demand control mode. For connection of a sensor, for example CO_2, CO and VOC
20,21	Circulation pump, heating circuit	Independent contact, max. 5 A/AC1, 2 A/AC3, 250 VAC. Closes on a heating load.
22,23	Circulation pump, cooling circuit or cooling on/off, 1-step operation	Independent contact, max. 5 A/AC1, 2 A/AC3, 250 VAC. Closes on a cooling load.
24,25	Cooling, on/off, 2-step operation	Independent contact, max. 5 A/AC1, 2 A/AC3, 250 VAC. Closes on a cooling load.
26,27	In-service indication	Independent contact, max. 5 A/AC1, 2 A/AC3, 250 VAC. Closes when the unit is operating.
28,29,30	Damper control	24 VAC. 28= Controlled 24 VAC (G), 29= 24 VAC (G), 30= 24 VAC (G0).
31,32	Control voltage [1)]	24 VAC control voltage. Terminals 31-32 are loaded with a total of 16 VA. Opened by means of the safety isolating switch.
33,34	Reference voltage	Output for constant 10 VDC. Max. permissible load: 8 mA.
35,36,37,38	Control, recirculation damper	The recirculation damper can be loaded with max. 2 mA at 10 VDC. 35= 24 V AC (G), 36= 24 V AC (G0), 37= 0-10 V DC control signal, 38= 0-10 VDC feedback signal.

The max permissible common load on terminals 31-32, outputs for Heat/Cool and damper output (terminals 28-30) is 50 VA.
[1)] GOLD 100/120: If more than 16 VA is required, use wiring terminals 201 (G) and 202 (G0). Terminals 201-202 can be loaded with a total of maximum 48 VA.