INSTALLATION AND MAINTENANCE INSTRUCTIONS

Congratulations on having selected Compact Air!

To ensure that the time we spend together will be agreeable, it is important that you first read and understand these instructions thoroughly.

Contents **Page**

1. GENERAL

The Compact Air room unit is a complete air handling unit with supply air and exhaust air fans, supply air and exhaust air filters, rotary heat recovery unit, silencers and a built-in, low-momentum air diffuser. The control equipment is also built-in.

Compact Air is well-suited for use in classrooms, day nurseries, conference rooms, offices, working premises, shops, restaurants and other similar public premises.

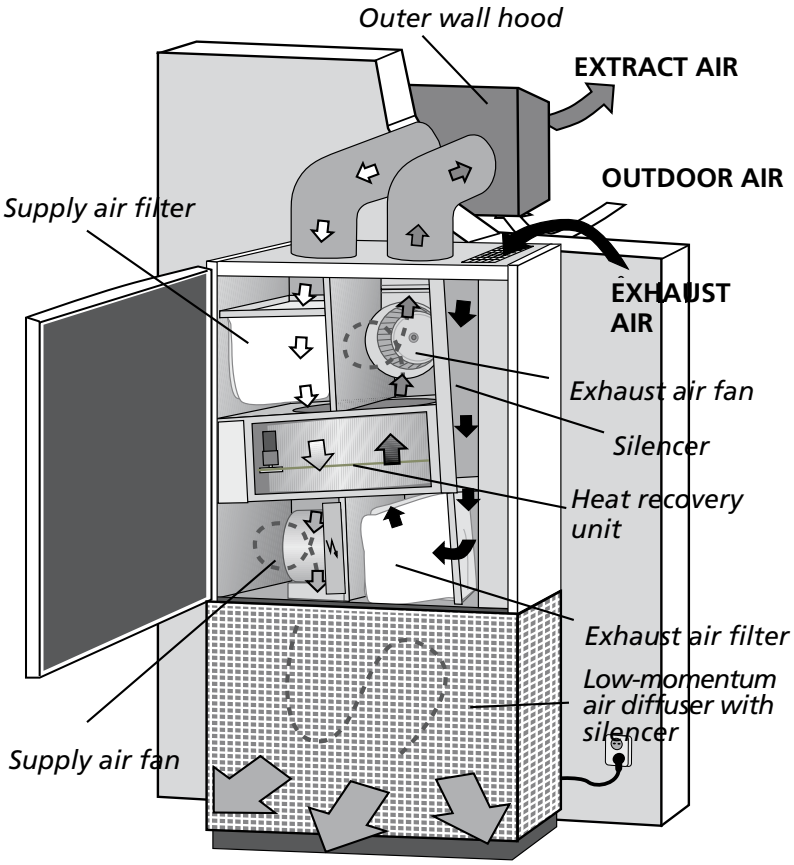
Compact Air is available in two sizes: 08 and 11.

The unit is designed for installation in the room to be ventilated and is connected to the mains by means of a plug to an earthed wall socket. The ducts for outdoor air and extract air can be connected to the top of the unit and can be run through openings in the wall.

The unit can be automatically controlled between the normal flow and low flow rates by means of a timer (switching clock) or presence detector (accessories). Operational checks and temporary alteration of the settings can be carried out in a control display located on the front panel of the unit.

1.2 Specification

Whenever you get in touch with Swegon, please refer to the production number found on the rating plate inside the unit and the relevant product code(s) according to the following:



Compact Air room unit **CACA-2-aa-bb**

Size 08, 11

Language variant in display

Swedish
Norwegian
Danish = 21
Finnish
English

Replacement filter

1 filter (class F85/EU7) **CACZ-1-04-7**

Extra accessories

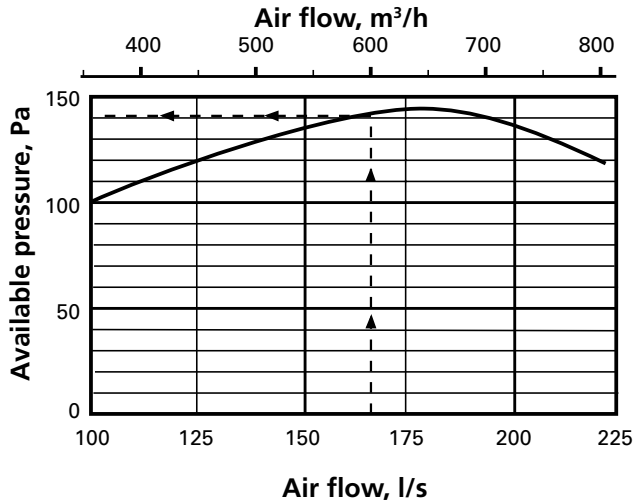
Presence detector	**CACZ-1-01**
Electric air heater, 1 kW	**CACZ-1-02**
Outer wall hood	**CACZ-1-03**
7-day timer	**CACZ-1-05**
Exhaust air connection	**CACZ-1-06**
Infill piece against ceiling	**CACZ-1-07**
Separate lower unit section	**CACZ-1-08**
Air distribution plate	**CACZ-1-10-a**
Variant 1, 2, 3, 4	

2. TECHNICAL DATA

2.1 Capacity, air flows

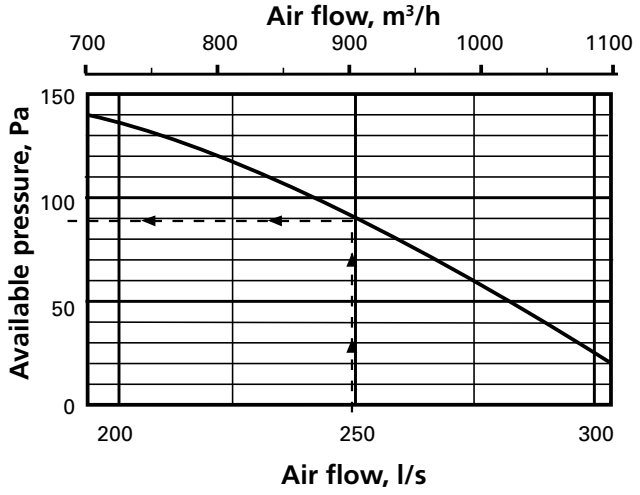
The chart shows the available pressure over and above that of the normal installation (short outdoor air and extract air ducts each with its own 90° bend and common outer wall hood).

Size 08



Example (broken line):
If an air flow of 167 l/s (600 m³/h) is required, the max. permissible pressure drop (in connected ducts and air devices, for instance) will be 140 Pa.

Size 11



Example (broken line):
If an air flow of 250 l/s (900 m³/h) is required, the max. permissible pressure drop (in connected ducts and air devices, for instance) will be 90 Pa.

2.2 Comfort boundary

The air flow, room temperature and supply air temperature have an influence on the comfort boundary of the unit (how near an air device one can spend time without feeling a draught).

The velocity of the air diffused by the Compact Air diffuser is very even and the normal comfort boundary from the surface of the diffuser is about 1 metre.

2.3 Sound

Sound pressure level values for different air flows and pressures are tabulated below.

A normal installation including short outdoor air and extract air ducts and an outer wall hood will generate a sound value tabulated in the 0–20 Pa. column. Columns containing a dash are irrelevant.

Size 08

Sound eur level in dB(A) 1)

Air flow l/s (m³/h)	Static pressure Pa			
	Normal installation 0-20	60	100	140
222 (800)	29	31	33	—
195 (700)	26	28	30	32
167 (600)	25	27	30	32
140 (500)	23	26	29	—

Size 11

Sound prur level in dB(A) 1)

Air flow l/s (m³/h)	Static pressure Pa			
	Normal installation 0-20	60	100	140
305 (1100)	34	—	—	—
250 (900)	30	32	34	—
195 (700)	26	28	30	32

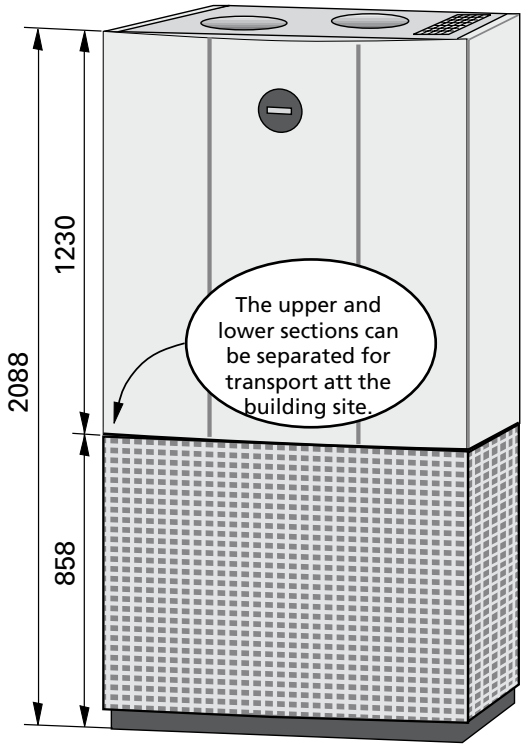
1) Indoors
The sound pressure levels tabulated above are applicable to a normal day room, the reverberant field. The difference between the sound power level and the sound pressure level ($L_w - L_p$) = 12 dB. If the exhaust air connection accessory is used, sound pressure levels other than those tabulated above may arise.
Outdoors
The sound pressure levels tabulated above are applicable to + 8 dB at a distance of 10 metres from the outer wall hood. The difference between the sound power level and the sound pressure level ($L_w - L_p$) = 25 dB.

2.4 Electrical data

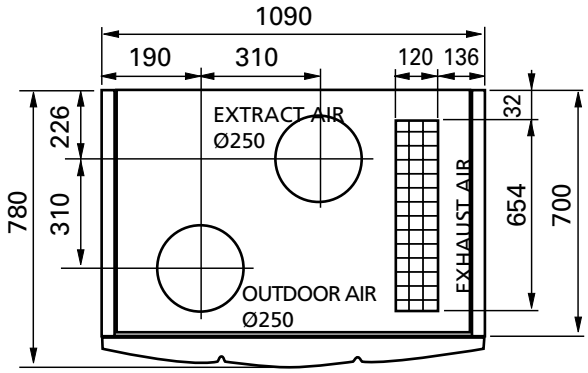
Power is supplied by means of a plug to an earthed wall socket for single-phase, 10 A, 230 V supply. The power demand at the max. air flow rate is:

Size	without air heater		with air heater	
	active power (W)	current (A)	active power (W)	current (A)
08	480	3,3	1480	7,7
11	710	3,4	1710	7,8

2.5 Dimensions and weights of the unit

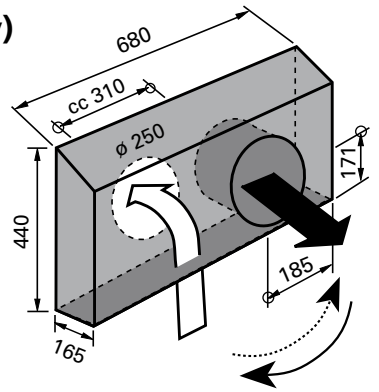


Total weight: 300 kg. Upper section: 185 kg, lower section: 115 kg. Min. free space required for opening the inspection door (left-hand hung) is 1100 mm.



Unit viewed from above.

2.6 Dimensions of the outer wall hood (accessory)



The connections can be reversed at the building site.

3. INSTALLATION

3.1 General

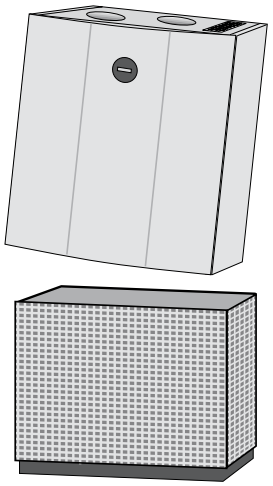
The unit is delivered packaged, upright on a wooden pallet. The kick-base is delivered as a kit, lying flat on the pallet below the unit.

Accessories, if ordered, are delivered in unmounted condition with the unit.

3.2 Transport at the building site

Compact Air is always supplied as one unit. If narrow passageways at the building site make transport difficult, the upper and lower unit sections can be separated as described below:

3.2.1 How to separate the unit into sections to facilitate transport at the building site



A: Open the inspection door by unscrewing the two Allen screws on the front using the Allen key supplied.

B: Disconnect the connection cable of the display, pull out the switch by the door, and loosen the door stop at one end.

C: Unscrew the two screws on the upper side of the hinge on the inspection door while someone else is holding the door.

D: The door can now be lifted off.

E: Withdraw the supply air and exhaust air filters.

F: Withdraw the partitions above and below the heat exchanger package.

G: Disconnect the connector of the heat exchanger drive motor above/below the heat exchanger package and then withdraw the heat exchanger.

H: Disengage the supply air sensor situated in the bottom of the upper section and pull it straight up.

I: Disconnect the connector of the lower fan and then unscrew the screw(s) on the front of the fan. The whole fan package can now be pulled forward and lifted out.

J: Place the unit on its backside on a level surface.

K: Unscrew the 5 screws in the bottom of the upper section. These hold the two sections together.

L: Now each section can be transported individually.

M: Reassembly can be carried out in the reverse order.

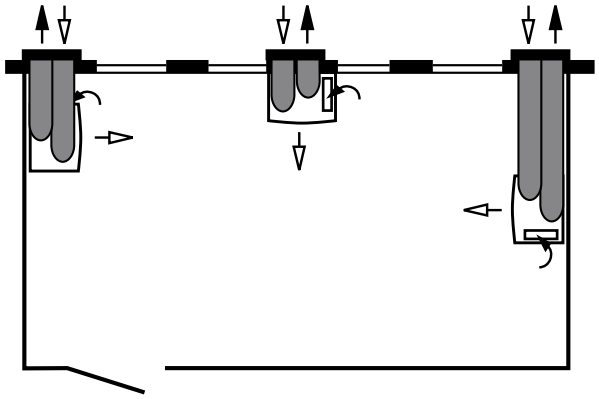
3.3 Location

To achieve the best possible operational economy, it is important that the ducting system be designed so that the pressure drop will be as low as possible. Strive to arrange runs of ducting that are as short as possible and do not to include more bends than are necessary. The arrangement of duct connections on the Compact Air unit is such that the ducts can be run in any direction without blocking one another.

The design of the hoods, grilles, etc. for outdoor air/extract air are also important. The specially designed outer wall hood of the Compact Air system is designed for minimising pressure losses.

The illustration below shows a few examples of alternative locations of Compact Air in a room.

From the standpoint of comfort, no working place should be arranged closer than about 1 metre from the unit. However, bear in mind that a minimum free space of 1100 mm is required for opening the inspection door.



Examples of alternative locations of Compact Air in a room. The ducting arrangement will be the simplest and shortest if the room unit is located against an external wall.

3.4 To assemble the kick-base

Fasten 4 of the 6 screws supplied in the sheet metal pockets fitted with nuts at the bottom of the short sides of the unit. Screw in each screw halfway. Pull each screw first downwards and then outwards until the sheet metal pocket with nut is 90° from its original position.

Then fit the side kick-base plates (the 2 short plates). The "key holes" should point upwards and the nut should be against the front edge of the unit. Fit the plates so that the key holes engage in the screws and push the side plates as far as possible towards the back edge of the unit (so that the key hole bottoms) and tighten the screws using an Allen key through the pre-punched holes.

Then fit the last 2 screws in the front edge of the unit screwing them only 1 or 2 turns (i.e., the screws far out). Hang the front of the kick-base on the two screws. Then tighten the screws until the front kick-base plate is hard up against to the side panels.

CAUTION! If the unit is to be located with its right or left side directly against a wall, the side base plate towards this wall must be fitted before the unit is installed at its location.

3.5 Duct connection

250 mm dia. spiral ducts for outdoor air and extract air can be connected at the top of the unit.

The ducts should be run through openings in the external wall. If a Swegon outer wall hood is to be fitted, the duct ends should be flush with the facade.

Ducts can also be run through the ceiling. However, this will involve a more complicated modification of the building and, among other things, will place higher demands on weather sealing.

The ducts should be insulated with at least 30 mm thick insulation backed with external moisture-tight foil.

3.6 Outer wall hood

The CACZ-1-03 outer wall hood (accessory) is specially designed for low pressure drops and for preventing short-circuiting between the outdoor air and extract air. As standard, it is painted in a grey-black shade, NCS 8502-B.

Assembly procedure:

1. The outer wall hood consists of a wall hood and front piece. Begin by unscrewing the screws that secure the front piece to the hood and remove the front piece. The wall hood can now be used for checking the size of the openings and the position of the connections.

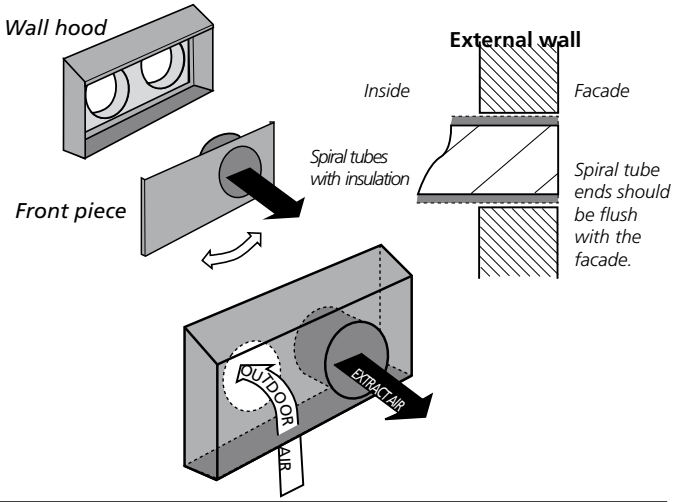
2. Make openings in the wall and run the 250 mm dia. extract air and outdoor air spiral ducts out through them. The duct ends should be flush with the facade of the building. See Section 2.6 for the dimensions and arrangement of the openings.

The ducts should be insulated as described in Section 3.5 along their entire length out to the facade. The gap between the wall opening and the duct should be carefully sealed.

3. The wall hood has spigots fitted with a rubber seal ring for connection to 250 mm dia. spiral ducts. Connect the wall hood to the outdoor air and extract air ducts. At this stage, it does not matter which duct is for outdoor air or extract air.

Secure the wall hood to the facade in a suitable manner. Seal the joints with sealing compound or the like to prevent water from seeping in.

4. Then secure the front piece by means of screws to the wall hood. Note that the front piece can be reversed so that the extract air outlet will be on the correct side. The extract air must always be discharged straight out (horizontally) and admission of the outdoor air must always be from below.



3.7 Existing ventilation

The existing supply and exhaust air ventilation of the room shall be blanked off or sealed. This is an important prerequisite for adequate ventilation and heat recovery.

3.8 Serving more than one room

Compact Air is designed for installation and connection in accordance with the instructions in Sections 3.3, 3.5, 3.6.

Swegon recommends this precedure.

Nevertheless, it is possible to completely or partially extract exhaust air from adjacent rooms or also to ventilate a space other than that in which the unit is standing.

Typical problems, that can arise and should be noted, are given below. A professional fitter should always be engaged to do the work.

3.8.1 Pressure drop

The air flows specified are applicable to an installation arranged against an external wall, i.e., with one 90° bend per duct and an outer wall hood.

If a different ducting arrangement is used, it is advisable to make sure that the pressure drop in the ducting will not be greater than the available pressure specified in the charts, under "Technical data" in Section 2.

3.8.2 Exhaust air intake

If the exhaust air is extracted completely or partially from adjoining rooms, the recommendations above should be noted taking into account the pressure drop in the ducting.

It should also be noted that the supply air temperature is controlled as a function of the exhaust air temperature. If the exhaust air comes from another room having a dif-ferent temperature, the temperature of the supply air may give rise to short-circuiting or draught problems. Carefully consider where the exhaust air sensor is situated.

3.8.3 Overflow air

Overflow air devices fitted between adjoining rooms have a strong influence on how the system operates.

Overflow air devices located near floor level will cause "unused" air to be transferred to adjoining rooms and this will impair the ventilation in the room in which the room unit is located.

Overflow air devices located near the ceiling entail the risk that "used" air will be transferred to adjoining rooms. However, the ventilation in the room in which the room unit is located, will not be impaired. NOTE! If doors are left standing open, adjoining rooms will also be ventilated due to the displacing action of the air supplied.

3.9 Electrical connection

3.9.1 Safety

The inspection door can only be opened with a special key. When the door is opened, the power supply to the fans, the heat recovery unit and the electric air heater will be automatically interrupted by a limit switch.

NOTE! When the inspection door is opened, the control equipment will still be energised!

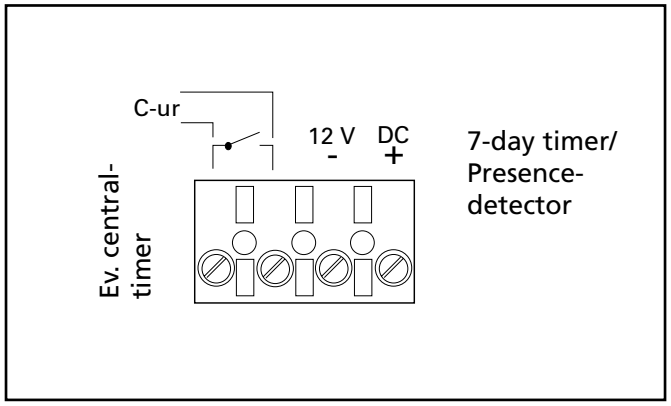
3.9.2 Power

The unit is connected to the mains by means of a plug to an earthed wall socket for a single-phase, 10 A, 230 V supply. The unit will start automatically when the plug is connected, provided that the inspection door is closed.

3.9.3 Control equipment

The connector of the 7-day timer or presence detector (accessories) can be connected to a socket at the top of the unit as shown in the figure below.

Instead of controlling by means of a presence detector or timer, this can be done by means of a central timer. The conductors from the central timer can be connected to the terminals shown in the figure below. When the circuit is closed, the fans will run at high speed.



3.9.4 Group alarm

A group alarm can be connected via the output terminals on the control card to an alarm distribution box (see the circuit diagram on page 8).

3.9.5 Electric air heater

If an electric air heater has been ordered as accessory, it has been delivered separately and should be fitted at the site according to the special instructions included.

The air heater has a factory-wired connector for connection to a socket in the unit.

CAUTION! A min. permissible airflow of 111 l/s (400m3/h) is applicable to ventilation systems in which an in-duct electric air heater is installed.

4. DESCRIPTION OF CONTROL SYSTEM

4.1 General

The settings that can be entered and the effect of various control functions of the Compact Air unit are described in this section. A diagrammatic presentation of the functional principle and a circuit diagram are also included.

The procedure for entering the various settings is described in section 5.

4.2 The air flows

When air flow settings are preset, these settings affect both the supply air flows and the exhaust air flows at the same time and automatically. Whenever a flow setting is altered, it will take about 1 minute for the fans to change over to the new speed.

The air flows can be preset as follows:

Size 8

Normal air flow, variable from 83–222 l/s (300–800 m3/h). Low air flow, switched off or variable from 83–222 l/s (300–800 m^3/h).

Size 11

Normal air flow setting, variable from 83–305 l/s (300–1100 m^3/h)

Low air flow setting, switched off or variable from 83–305 l/s (300–1100 m^3/h).

NOTE! Normal air flow can not be selected at a lower rate than low flow.

4.2.1 Normal flow

The air flow is preset taking into account the size of the room and the activity pursued. It should be noted that the cooling effect will be better, the higher the air flow rate is.

4.2.2 Low flow

Walls, furniture, carpeting etc. often also emit contaminants. Therefore, continuous ventilation is important, even if to a lesser extent when the premises is not being used. Swegon recommends pre-setting the low air flow rate so that it corresponds to at least 1 air change per hour.

The unit can be switched off during the period otherwise reserved for low flow, but this is not recommended.

Every time the 7-day timer or presence detector switches the unit from normal flow to low flow operation, a filter test will be automatically carried out. During this test, the unit will some-times run at an air flow rate other than the preset flow rate.

4.2.3 Airing

This function causes the unit to run at maximum air flow with reduced supply air temperature (set point: 10°C) for 15 minutes.

The airing function can be selected manually in the control display. If a presence detector is used to control the unit, the automatic airing function can be selected.
One condition for automatic airing is that the unit must have operated at normal air flow for at least 10 minutes (i.e. the detector must have registered the presence of one or more occupants) and after that, not registered any presence for 5 minutes.

4.3 Temperature control

4.3.1 Control sequence

When heating is required, first, the speed of the heat recovery rotor will increase. Then the electric air heater, if fitted, will begin to pulsate output. If no electric air heater is installed, or if the air heater output proves inadequate, the speed of the supply air fan will be slightly decreased so that the correct temperature will be obtained.

4.3.2 ERS control

Compact Air operates on the principle of ERS control (exhaust air temperature-related supply air temperature control). This means that the supply air temperature is controlled in relation to the exhaust air temperature.

This type of temperature control offers optimum operational economy and heat recovery, and eliminates the need of any reheater.

Compact Air offers two options for controlling the supply air temperature: Either according to Section 4.3.3 so that it follows the exhaust air temperature or according to Section 4.3.4 so that its operation maintains the desired room temperature if the temperature of the exhaust air is high.

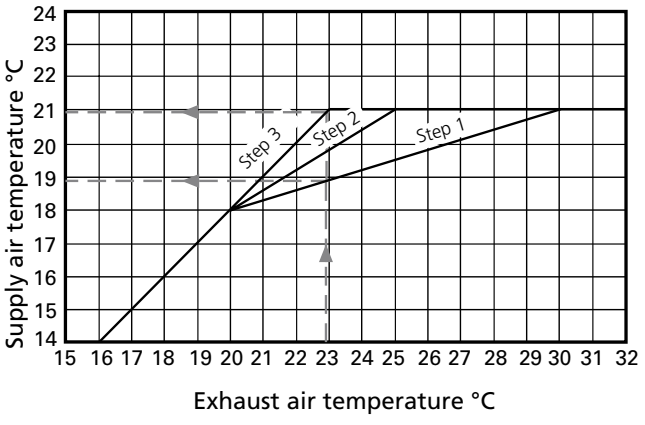
4.3.3 Supply air temperature

The supply air temperature is controlled in relation to the exhaust air temperature.

Control can be carried out according to one of three alternative steps.
Step 1 offers the best operational economy and cooling capacity in warm rooms, however steps 2 and 3 may be necessary in day nurseries, for instance, where children often spend time at floor level.

Provision is available for presetting the min. supply air temperature. If the supply air temperature is below the min. preset value for more than 5 minutes, the unit will be shut down for one hour.

The difference between the three steps is illustrated in the chart below.



The plotted broken lines show the difference between steps 1 and 3 at a given exhaust air temperature (23 °C).Step 1 gives a supply air temperature of 18.8 °C and step 3 gives 21 °C.

4.3.4 Room temperature

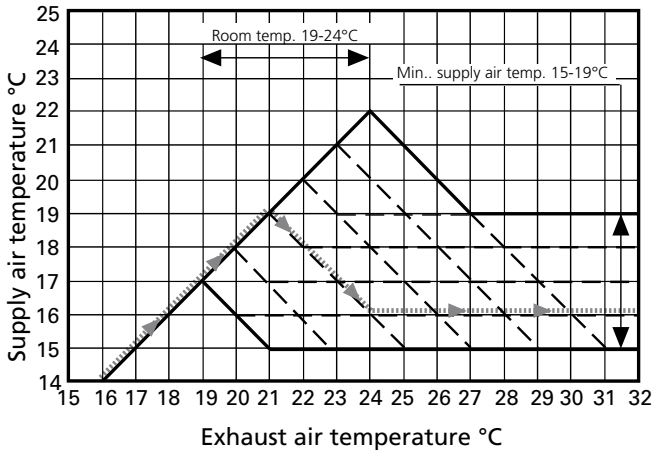
If control of the supply air temperature according to 4.3.3 does not produce adequate cooling effect, control of the room temperature may be selected as an alternative.

If this alternative is selected, the supply air temperature will instead be controlled in such a way that the unit will try to maintain the required room temperature with the following reservations:

1. The temperature of the air supplied by the Compact Air unit will never be higher than the temperature in the room.
2. The temperature of the air supplied by the Compact Air unit will never be lower than the temperature of the outdoor air.
3. The required room temperature can be programmed in increments of 1 °C within a 19–24 °C interval.

The lowest permissible supply air temperature can be programmed in increments of 1 °C within a 15–19 °C interval, however it must be at least 3° lower than the required room temperature. Setting the lowest permissible supply air temperature will only have effect if the room temperature is within the 19–24 °C interval.

Provision is available for presetting the min. supply air temperature. If the supply air temperature is below the min. preset value for more than 5 minutes, the unit will be shut down for one hour.



The plotted broken line shows how the supply air temperature varies, conditional to the exhaust air temperature if the room temperature is preset to 21 °C and the lowest supply air temperature to 16 °C.

Note that this type of control may get into conflict with the heating system of the room. This means that there should be adequate difference between the room temperature selected for the unit and the room temperature set point of the heating system.

4.3.5 Summer night cooling

4.3.5 Summer night cooling

The summer night cooling function is a simple method used for supplying cool outdoor air to the premises under summer conditions.
Within specific temperature limits, the Compact Air unit will automatically run at normal air flow and the supply air temperature set point will be set to the preset MIN SA TEMP.

Conditions under which summer night cooling should be activated:

— The function has been selected (1) in the settings menu.
— The unit has been running at the low flow setting for one hour.
— The mean outdoor temperature should be above the preset OUTDOOR value (factory-preset to 10°C).
— The exhaust air temperature should be above the preset EA value (factory-preset to 24°C) .
— No heating demand should have been called for during the most recent period when the fan was running at high speed.
— The temperature differential between the exhaust air and the outdoor air should be at least 3°C.

If all the conditions other than that of the temperature differential between the exhaust air and the outdoor air are satisfied, an attempt at restarting the unit will be made at one hour intervals.

If any of the other conditions have not been satisfied when a test is carried out, the function will be interrupted and it will not be possible to start it until after the next normal air flow period.

In those cases in which the unit is set to LOW FLOW = 0, the fans will run at the normal air flow rate during the preset period displayed under TIME (factory-preset to 3 min.). The reason for this is to enable the temperature sensors to register measurements under the right conditions.

Conditions under which the function should be deactivated:

— The exhaust air temperature falls below the preset OUTDOOR value (factory-preset to 10°C).
— The exhaust air temperature is lower than the preset EA STOP value (factory-preset to 18°C).
— The timer or presence detector is activating normal flow.
— The display is being manually controlled.

4.4 External control

4.4.1 7-day timer (switch clock)

The 7-day timer controls the unit, switching between normal flow and low flow operation. The required times for switching between low flow and normal flow can be individually preset for the different days of the week.

Swegon recommends low flow when the premises is not being used, for example at night-time and on weekends.

NOTE! The unit will run at low flow when the 7-day timer indicates OFF, and at normal flow when the timer indicates ON.

4.4.2 Central timer

As an alternative to using a 7-day timer, the unit can be controlled by means of a central timer.

4.4.3 Presence sensor

The presence detector is a type of motion detector which reacts to infrared light.

The unit will run at low air flow as long as the detector does not register the presence of any occupants in the room. As soon as presence is registered, the unit will be controlled to normal flow.

When the room is vacant again, the unit will return to low flow operation, but not immediately. It will continue running at the normal flow rate:

— for 5 minutes if the unit has run at normal flow for less than 10 minutes,
— for 20 minutes if the unit has run at normal flow for more than 10 minutes.

The automatic airing function may be preset in conjunction with the use of a presence detector.

4.5 Duct pressure drop calibration

Calibration of the pressure drop in the ducting should be carried out in conjunction with commissioning the unit after installation.

The calibration stores information about initial operating conditions when clean filters are fitted and the duct system is connected. The control equipment saves this basic information and later compares it with the current operating conditions. As the filter becomes fouled, the pressure drop across them will increase. By comparing the initial conditions with current conditions, the control equipment can indicate when it is time to change the filters.

When the duct pressure drop calibration function is activated, the unit will let the fans run for about 30 minutes in order to warm up the motor windings, etc. The calibration will then be carried out and information about the current operating conditions will be stored in the memory. After that, the unit will resume normal operation.

In the event of a power failure after completed calibration, the control equipment will retain the calibration data stored in its memory.

4.6 Rotation detector test

A rotation detector test will be carried out when the unit has been switched from normal flow (HF) to low flow operation and the heat exchanger has been controlled to run at 100% efficiency. While the rotation detector test is in progress, a message to this effect will appear in the display.

The rotation detector test is carried out for testing the efficiency of the heat exchanger. The rotational speed of the rotor is decelerated until the rotor stops and the temperature readings from the supply air sensor are analysed. If the temperature falls as the readings are registered, the rotor is operating properly.

4.7 Filter test

The filter test will be carried out when the unit has been switched from normal flow (HF) to low flow operation. The test will then be carried out only once during a 12 hour interval. If no switch-over from normal flow to low flow is called for, the filter test will be carried out once every 24-hour period. While the filter test is in progress, a message to this effect will appear in the display.
As the filters become fouled the pressure drop across them will increase. By comparing the initial conditions with current conditions, the control equipment is able indicate when it is time to change the filters. Whenever the alarm limit for the pressure drop across the filter has been exceeded, an alarm indication will appear in the control display.

4.8 Automatic fan adjustment

Compact Air employs self-adjustment of the speed of the fans for maintaining the preset air flow rate.

A pressure rise in the system, due to clogged filters, for instance, will always be compensated automatically so that the preset air flow will always be obtained.

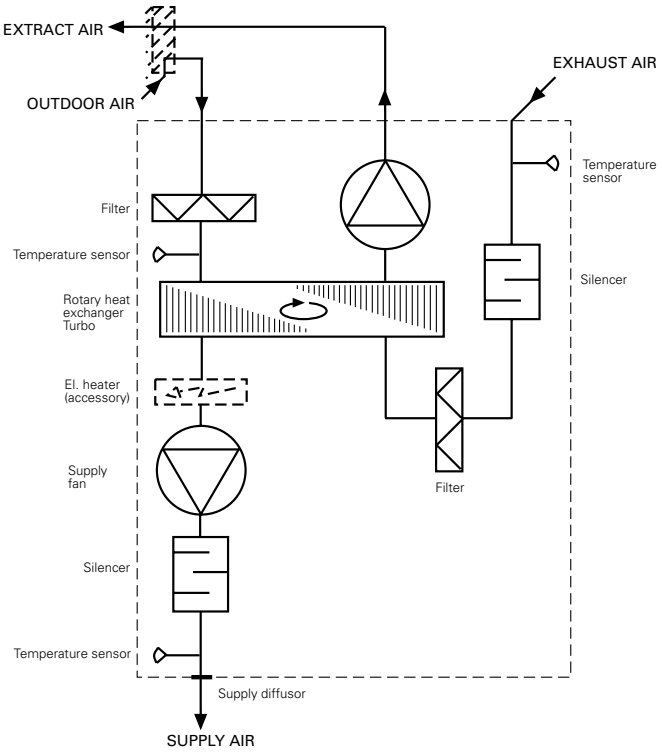
4.9 Alarms

Besides the alarm for necessary filter change, alarms are also initiated for any functional faults.

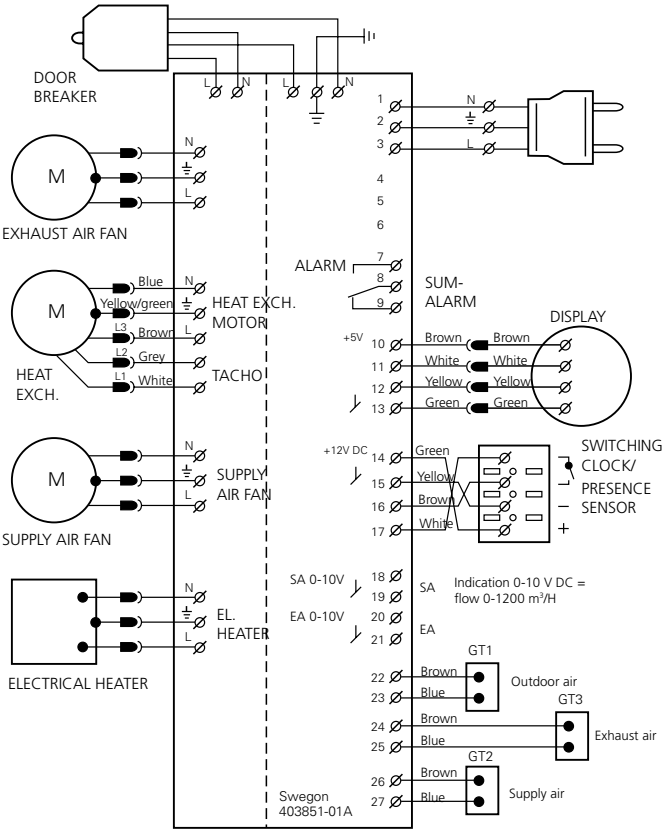
The alarms are indicated by a flashing red lamp and a message in plain text in the control display.

A group alarm can be connected to terminals in the alarm distribution box.

4.10 Functional principle



4.11 Circuit diagram

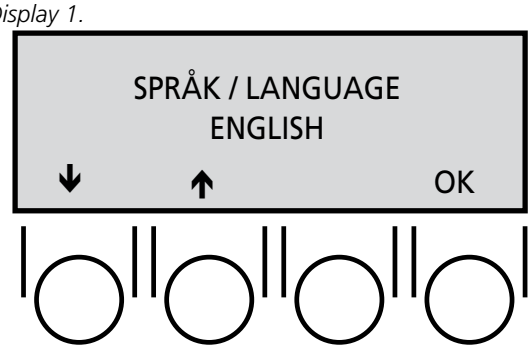


5. COMMISSIONING

5.1 General

Insert the plug in the wall socket. The following message will appear in the display:

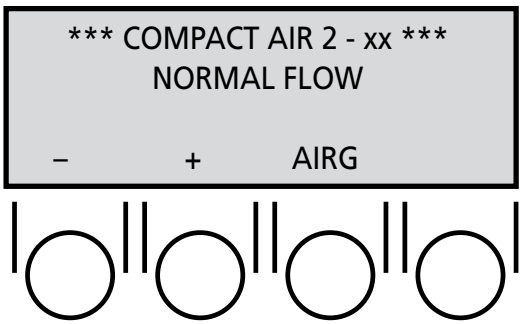
Display 1.



If the language desired has already been preset, press OK. If another language is desired, see under section 5.2 "Entering settings".

If the inspection door of the unit is closed and no faults have arisen, the message below will appear.

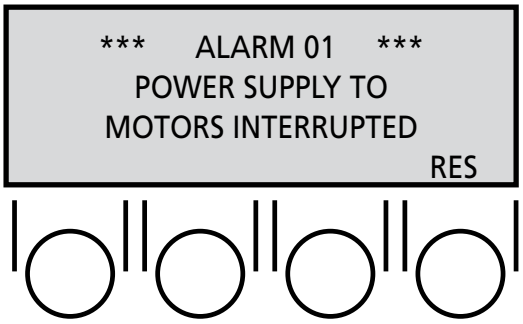
Display 2.



Depending on the settings entered, NORMAL FLOW may appear in the display instead of LOW FLOW.

If the door is open the following message will appear:

Display 3.



When the message above is displayed, you may go on through the menus and enter settings. See Section 5.2.

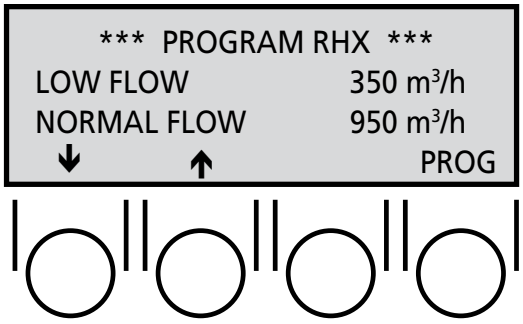
5.2 To enter settings

To gain access to the settings menus, open the inspection door. When the alarm text shown in Display 3 appears, press the RES (reset) button.

Display 4 will then appear. From this display, it will be possible to enter settings and go on to other menus.

A technical description of settings and functions are given in Section 4.

Display 4.



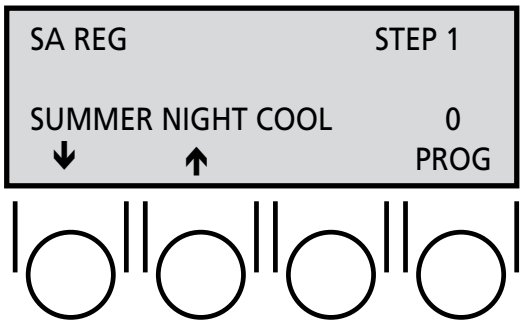
If low flow or norm flow need not be altered, press ↓ and the next display will appear.

If low flow or norm flow is to be altered, press PROG.

When the PROG button is depressed, the PROG text will change to SET and LOW FLOW will start to flash. Select higher or lower flow values by pressing ↑ or ↓ until the required flow is displayed. Then press SET to enter the setting. NORM FLOW will now start to flash. This setting can be altered in the same way as that of LOW FLOW. When the correct flow is indicated, press SET. Then press ↓ to continue to the next display.

The type of control and whether summer night cooling function is desired can be selected in the display below.

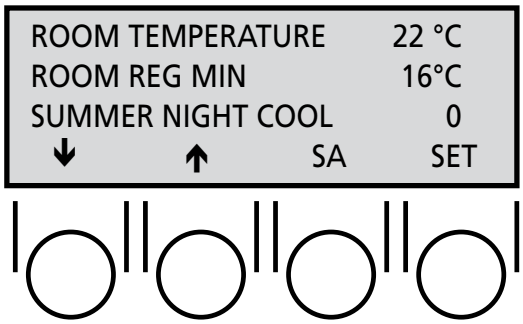
Display 4.



If required, the supply air regulation STEP number can be altered by pressing the PROG button. SA REG will then start to flash. Select the step number by pressing ↑ or ↓ until the required step number is displayed. Then press SET. Summer night cooling will start to flash after the control setting has been altered. Select "on" (1) or "off" (0) by pressing ↑ or ↓ . Then press SET.

If it is desirable to change from supply air control to room air control, press PROG and then ROOM. The following display will appear:

Display 6.

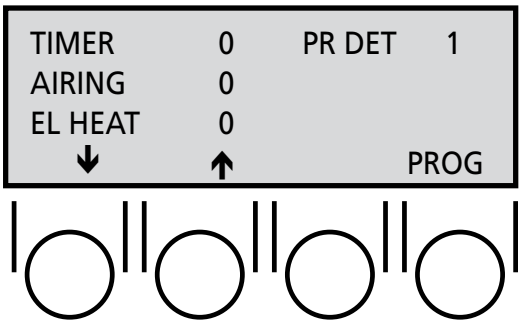


Select the required room temperature by pressing ↑ or ↓ and press SET. ROOM REG MIN will then flash. Select the temperature by pressing ↑ or ↓ and then press SET. Summer night cooling will then start to flash. Select "on" (1) or "off" (0) by pressing ↑ or ↓ . Then press SET.

If, on the other hand, supply air regulation is required, press SA and the foregoing display will appear.

Then press ↓ to go on to the next display.

Display 7.



The type of accessories connected and the automatic airing option appear in this display. Press PROG to alter the settings. The flashing text can be altered by pressing ↑ or ↓ . When all the settings have been entered, press SET.

1 = yes, 0 = no, apply to all the settings in this display.

TIMER = 7-day timer

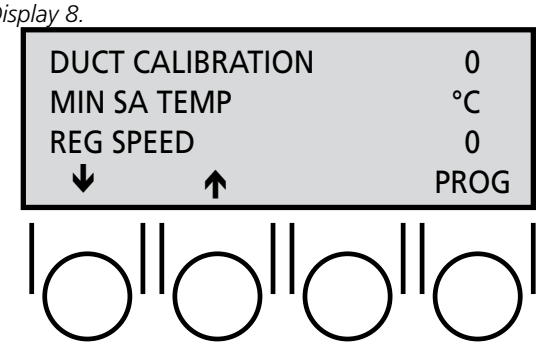
PR DET = Presence detector

AIRING = Automatic airing

EL HEAT = Electric air heater.

Press ↓ to go on to the next display.

Display 8.



When the unit has been connected to the ducting for the first time, a DUCT CALIBRATION must always be carried out.

Select duct calibration by pressing PROG and alter the 0 to 1 by pressing ↑ or ↓ . Then press SET.

The duct calibration will be carried out automatically by the unit as soon as the inspection door has been closed. The unit makes a check to determine that the fans have been running for at least 30 minutes before the calibration starts. The calibration takes about 3 minutes. During this period, the unit must be left untouched. FILTER TEST/DUCT CALIBRATION will flash in the display while calibration is in progress.

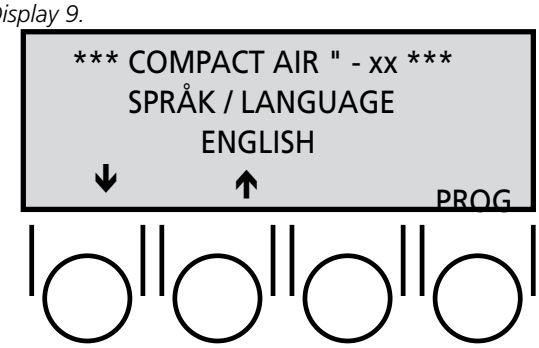
The MIN SA TEMP function is entered as a lower limit for the supply air temperature set point.

If the supply air temperature falls, the supply air set point will drop to the preset MIN SA TEMP at the most. If the supply air temperature drops below the preset MIN SA TEMP for more than 5 minutes, the unit will shut down. An attempt to restart the unit will take place once every hour until the operating conditions have been satisfied.

Select MIN SA TEMP by pressing ↓ . Press PROG. Select values by pressing ↑ or ↓ . Press SET.

Continue by pressing ↓ .

Display 9.



To change language, press PROG. Select the language desired from the five options in the display by pressing ↑ or ↓ . When the appropriate language appears in the display, press SET.

The procedure for entering settings is now completed.

Should the need arise for entering additional settings afterwards, the user need only open the inspection door and enter the installation menu by pressing RES.

5.3 Operation

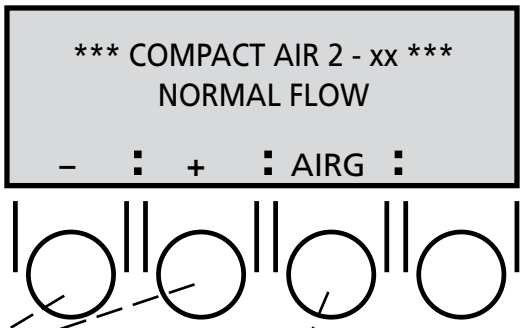
5.3.1 Normal operation

After the settings have been entered as described in Section 5.2, the Compact Air unit will operate auto-matically. However, if special needeeds arise, the air flow can be altered temporarily, for example if the premises is to be used one evening and the timer has controlled the unit to operate at low flow.

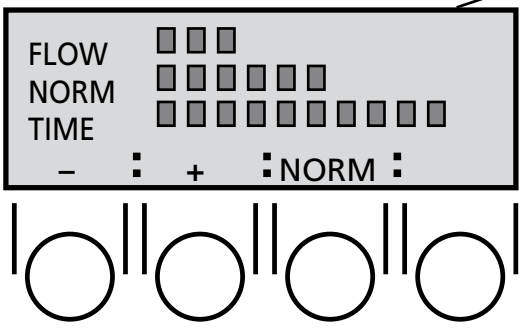
All temporary alterations made will automatically change back to the previous settings after a given period.

The text shown in Display 10 indicates the current type of operation — for instance NORMAL FLOW, LOW FLOW, LOW FLOW = STOP, SUMMER NIGHT COOLING, etc.

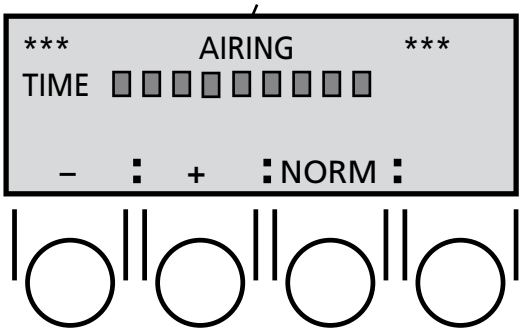
Display 10 — Normal operation



Display 11 — Temporarily altered setting



Display 12 — Airing



5.3.2 To temporarily alter the air flow setting

To temporarily alter the air flow setting (1 hour) press – or + when the text shown in Display 10 appears. The display will then change as shown in Display 11.

FLOW: Press – to lower and + to temporarily increase the relevant flow. Each square represents approx. 28 l/s (100 m^3/h).

NORM: Shows normal operation, i.e.,the flow at which the unit ran on transition from Display 10 to Display 11. Each square represents approx. 28 l/s (100 m^3/h).

TIME: Indicates the time that remains before the temporarily altered flow setting will change back to normal operation. Each square represents approx. 6 minutes.

When the last square after TIME disappears — or when NORM is pressed — the unit will change back to normal operation and Display 10 will reappear in the display.

5.3.3 Airing

To set manual airing (max. flow for 15 minutes) press AIRG when the text in Display 10 appears. The display will then change to that shown in Display 12.

TIME. shows the time remaining for airing at max. flow before return to normal operation. Each square represents approx. 1 minute.

When the last square at TIME disappears, or if NORM is pressed, the unit will return to normal operation and Display 10 will reappear in the display.

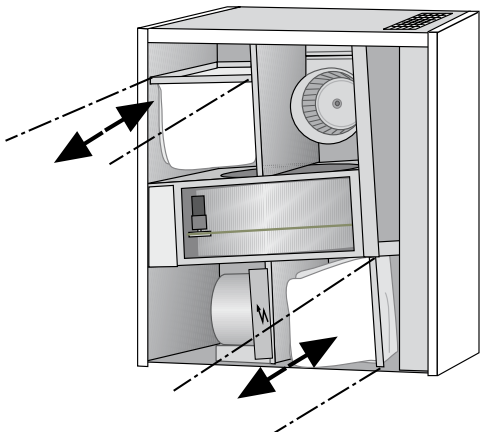
6. MAINTENANCE AND SERVICING

6.1 Filter change

Every time the unit is switched from normal flow to low flow, an automatic filter test will be carried out. While this test is carried out, the fans in the unit will sometimes run at a speed generating a flow other than the preset flow.

When the filters need to be changed, an alarm indication will appear in plain text in the control display. Open the inspection door and withdraw the filters straight out. The filters are disposable and must be replaced by new ones.

Duct calibration shall always be carried out when replacing filter.



Replacement filters can be ordered from Swegon Service and should be specified as follows:

1 filter (class F85/EU7)	**CACZ-1-04-7**

6.2 Cleaning

6.2.1 General

The interior surfaces of the unit should be cleaned, if needed. An inspection should be carried out in conjunction with changing the filter or at least twice a year.

6.2.2 Heat recovery unit

The heat exchanger can be removed from the unit by disconnecting the electrical connector and withdrawing the whole rotor package. If the rotary heat exchanger is vacuum cleaned, a soft nozzle should be used to prevent damage to the air passages of the rotor. If the rotor is severely fouled, compressed air may be used to blow the passages clean. Water, a degreasing agent or solvent may also be used for cleaning, after which the rotor should be blown clean with compressed air.

Make sure that the type of solvent used does not have a corrosive effect on aluminium!

Swegon detergent is recommended and is sold by Swegon Service.

After cleaning, check that the drive belt of the heat exchanger runs faultlessly on the motor pulley and around the heat exchanger rotor.

6.2.3 Fans

The fans are secured by means of screws. These must be removed before dismantling. When the connectors have been disconnected, the fans can be withdrawn from the unit.

The fans can be cleaned by vacuum cleaning. Remove any deposits from the impeller blades. Check the fan impellers to make sure that they are not out of balance.

The fan motor should be vacuum cleaned or brushed off. It can also be cleaned by carefully wiping it using a moist cloth dipped in water and dish-washing detergent.

6.2.4 Silencer and supply air diffuser

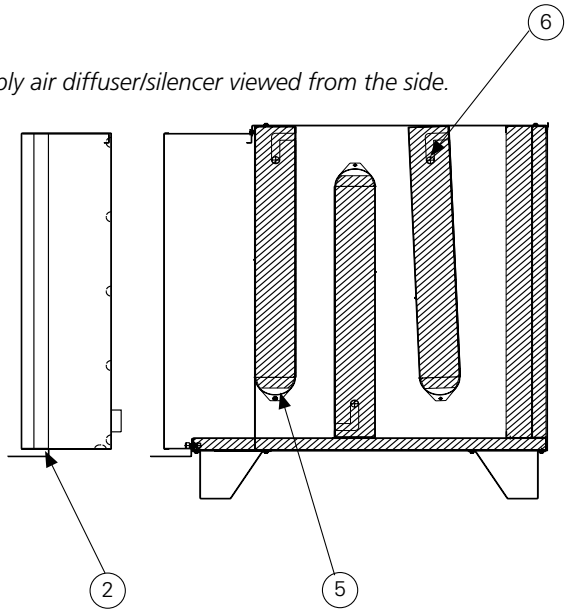
If the filter changes are carried out at normal service intervals, fouling of the lower unit section with silencer and air diffuser will be minimal. Should the lower unit section nevertheless require cleaning despite regular filter changes, this can be carried out as follows:

1. Remove the perforated front panel by unscrewing the four screws located inside the perforations at each corner.
2. Remove the two screws located at the lower edge of the diffuser panel as shown in the sketch below.
3. Press the diffuser panel downwards so that its upper edge disengages from the screws in the "key holes".
4. Withdraw the diffuser panel pulling it forward.
5. The silencer baffle elements can be loosened by unscrewing the locking screws in the sides at the rounded edge as shown in the sketch below.
6. Note that each baffle element has a guide slot on each side and must be slipped off the retaining pins that hold them in place, as shown in the sketch below.

Reassembly can be carried out in the reverse order.

The most suitable way of removing dust is by vacuum cleaning.

Supply air diffuser/silencer viewed from the side.



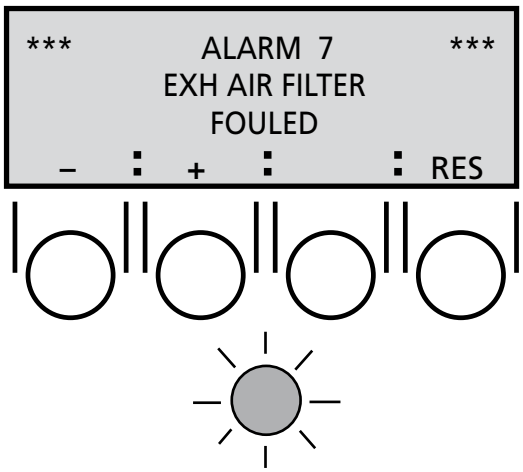
7. ALARMS AND FAULT TRACING

7.1 General

When an alarm is initiated, a red lamp will flash and the fault will appear in plain text in the display.

Should an alarm indication appear, act as follows:

1. Read the alarm number and text in display.
2. Seek out the alarm number and text in the list below, and read the probable cause of the alarm and how the fault should be remedied.
3. Correct the fault.
4. Reset the alarm by pressing "RES" and the unit will resume normal operation if no fault remains.



Typical alarm

7.2 Alarm list

Alarm no 1.
POWER SUPPLY TO THE MOTORS INTERRUPTED

Cause: The power supply to the motors has been interrupted. This occurs when the door switch is not pressed in or if the control card is faulty.

Action: Close the door properly or adjust its retaining screw so that it will close the switch when the door is closed. If this does not help, get in touch with service personal.

Alarm no 2.
COMMUNICATION WITH SENSORS BROKEN

Cause: Faulty control card.

Action: Get in touch with a service technician or qualified electrician to check the card and replace any faulty component.

Alarm no 3.
SUPPLY AIR SENSOR FAULTY

Cause: The signal level from the supply air sensor to the control card is outside the reasonable temperature range.

Action: Get in touch with a service technician or qualified electrician for measurements and to check the sensor.

Alarm no 4.
EXHAUST AIR SENSOR FAULTY

Cause: The signal level from the exhaust air sensor to the control card is outside the reasonable temperature range.

Action: Get in touch with a service technician or qualified electrician for measurements and to check the sensor.

Alarm no 5.
OUTDOOR TEMPERATURE SENSOR FAULTY

Cause: The signal level from the outdoor temperature sensor to the control card is outside the reasonable temperature range.

Action: Get in touch with a service technician or qualified electrician for measurements and to check the sensor.

Alarm no 6.
SUPPLY AIR FILTER FOULED

Cause: Alarm limit for filter pressure drop has been exceeded.

Action: Change the filter.

Alarm no 7.
EXHAUST AIR FILTER FOULED

Cause: Alarm limit for filter pressure drop has been exceeded.

Action: Change the filter.

Alarm no 8.
SUPPLY AIR TEMP. BELOW THE SET POINT

Cause. The supply air temperature has been more than 5°C below the set point for more than 20 minutes.

Action: Check that the drive belt of the heat exchanger is tensioned and does not slip on the drive pulley.

Alarm no 9.
SUPPLY AIR TEMP. BELOW THE ALARM LIMIT

Cause: The supply air temperature has been below the min. limit (factory-preset to 6°C) for more than 20 minu- tes.

Action: Check the heating system in the room in which the unit is standing so that the room temperature will not be too low.

Alarm no 10.
SUPPLY AIR FAN MOTOR FAULTY
Cause: The power supply to the motor has been interrupted.
Action: Check that the connector of the motor is connected. The internal temp. protection may have tripped. Get in touch with a service technician or qualified electrician to check the motor.

Alarm no 11.
EXHAUST AIR FAN MOTOR FAULTY
Cause: The power supply to the motor has been interrupted.
Action: Check that the connector of the motor is connected. The internal temp. protection may have tripped. Get in touch with a service technician or qualified electrician to check the motor.

Alarm no 12.
HEAT EXCH. MOTOR FAULTY
Cause: The power supply to the motor has been interrupted.
Action: Check that the connector of the motor is connected. Get in touch with a service technician or qualified electrician to check the motor.

Alarm no 13.
ELECTRIC AIR HEATER FAULTY
Cause: The power is not being supplied to the electric air heater.
Action: Check that the connector of the electric air heater. Reset the overheating protection by pressing the reset button on the air heater. An alarm will also be initiated if an electric air heater is not installed but nevertheless has been selected in the installation menu. If this is the case, omit the electric air heater option from the menu.

Alarm no 14.
HEAT EXCH. SPEED MONITOR TRIPPED
Cause: The heat exchanger rotor fails to rotate.
Action: Check that the connector of the motor is connected, that the drive belt is intact and that the rotor rotates freely. Get in touch with a service technician or qualified electrician to check the motor.