

Swegon **CASA**[®] duct coils for heating the supply air

Instructions for installation, operation and maintenance
For design engineers, installation engineers and service personnel



Important information

Qualified personnel only

Only qualified personnel should carry out installation, configuration and commissioning.

Freeze protection

If there is a risk of freezing, the duct heater is equipped with freeze protection. The freeze protection switches off the ventilation unit's fans and closes an outside air damper if fitted and activates the alarm.

The duct coil can burst if the water freezes in the coil, which in turn causes the pipe system to drain and water damage can occur.

Important details to consider during installation

The coil must be installed in a space where there is a drain. The coil must not be installed directly next to the ventilation unit or

a bend in the duct, as the airflow that passes over the coil will then not remain even resulting in an impaired output.

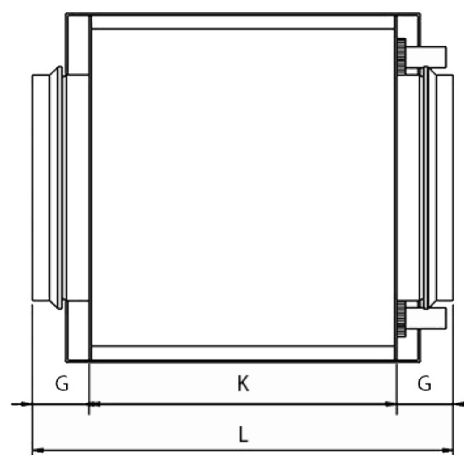
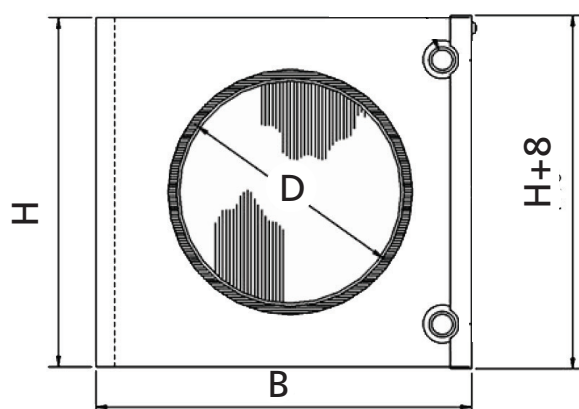
Commissioning

The duct connections on the duct coil must be capped during transport, when in storage and during installation.

Make sure that the duct coil and the ducts are clean and that there are no loose objects in them before you commission the ventilation system.

Ensure that the heating pipes are mounted and insulated and that the venting connections and shut-off valves are mounted.

Do not commission the duct coil until all carpentry work that produces large quantities of sanding dust or other impurities has been completed.



CWK 125
H 255
B 313
D 125

CWK 160
H 255
B 313
D 160

CWW 125
K 276
L 356

CWW 160
K 276
L 356

Leave at least 40 cm service space in front of the door.

NOTE! The manual's original language is Finnish.

1. General Description

A separate coil for installation in ducts, uses the water in the heating system. Can be used in the supply air duct for heating the room.

Control of heating can be completely transferred to the CASA Smart control technology.

2. Project planning

Remember when planning: find out the heating system's temperature and flows, as well as the coil's pressure loss in order to size the pump and pipe system. Swegon recommends its own heat pipe system for heating coils. Take into consideration the pressure loss caused by the coil when sizing the airflows and selection of the ventilation unit.

Remember the shut-off damper that is placed in the outdoor air duct! The damper control signal is taken from the circuit board on ventilation units equipped with Smart control system. 24 VDC, max. 2 W. (ON/OFF.)

3. Installation

3.1. Coil installation in the duct system

The duct coil can be mounted in supply air duct.

The duct is connected to the duct coil's Ø125 mm or Ø160 mm connection sleeves. The coil is suspended with the help of a shelf or another approved manner. The weight of the coil in an operating state is about 5.5 kg. The ducts are pushed into the sleeves and locked with pop rivets. Keep in mind that the ducts' insulation must run right up to the unit. After the duct coil, the supply air duct is thermal insulated using 10 mm thick mineral wool in cold air space (general instruction).

The duct heater can be installed horizontally or vertically in the duct with an optional direction of airflow.

3.2. Water connection

The following must be taken into account when connecting the heater/chiller to the pipe system:

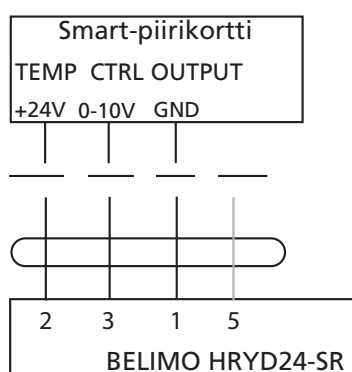
1. Push-on couplings must be used for the connection of the heating/cooling coil. Valve connection with threaded couplings: 2-way valve (½" int. g., kvs 0.4) Belimo R3015-P4-S1
2. The duct coil's connection pipes must not be subjected to distortion or bending movements when the connections are made. Counterhold with a tool when assembling the connections. The valve's actuator can be mounted horizontally or so that the actuator is above the pipe lines.
3. Make sure that the unit's expansion forces and the self-weight of the pipe system does not load the coil connections.
4. In order to facilitate venting of the coil, the water is usually led in via the lower tube. The venting valve is generally positioned on the coil or on the highest point of the unit. Heating pipes must be fitted with filters.
5. The heating/cooling coil must be connected so that the pipe system can be drained easily, for example, during repairs, extended periods of downtime or when there is a risk of freezing.
6. Immediately after filling the pipe system with water, you must check that the duct heater and its connections do not leak. A possible leak can cause water damage.

3.3 Electric and control cables

Temperature sensor T4 is mounted in the supply air duct after the coil in the direction of flow and sensor cable is routed to the unit's circuit board. The temperature sensor is connected to the circuit board's T4 outlet. (If there is already a sensor connected in the terminal T4, remove it.) The heating coil kit includes temperature sensor T4 (604930) with 3 m cable.

The cable for freeze protection sensor T6 (included in the heating coil kit) is routed to the coil's return pipe and the sensor is taped to the pipe surface. The temperature sensor (603048) is connected to the circuit board's T6 outlet.

The valve motor's control signal and power supply are connected to the circuit board outlet "TEMP CTRL OUTPUT", see the figure below.



The cable for the room temperature sensor T8 (accessory PRTG) is routed from the circuit board outlet T8 to a suitable location in the home, such as the entrance hall, where sunlight does not penetrate and where the temperature is uniform.

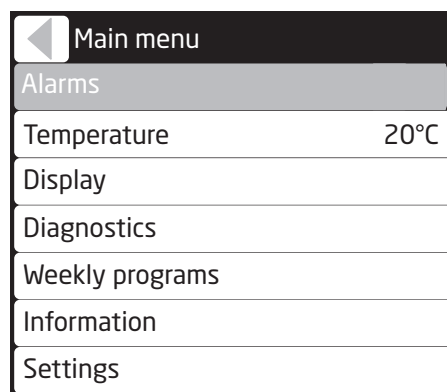
Important

Only a qualified electrician may make the electrical connections.

4. Use

Control of the unit from a Smart control panel.

The duct coil's settings can be changed in the menu (Main menu/Settings(1234)/Temperature Controller). The temperature setting changed in the Main menu (Temperature) with the reset button.

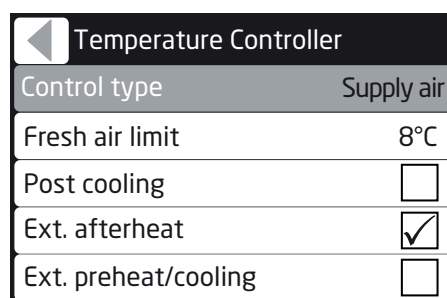


From the temperature menu on the Smart control panel you can select either:

A) Standard supply air temperature level

Supply air regulation mode: from the control panel, select "External reheating" and then select the setting value for the supply air temperature, that the coil strives to produce during the heating season, for example, 20 °C.

B) Room temperature control



The settings window in standard mode, control mode supply air

Room air control mode: this function strives to keep the room air at the set value during the heating season. You can set the upper and lower limits via the control panel for the air blown into the room (depending on the heating system temperature.)

The heating coil is controlled by the room temperature, according to the options:

1. By a temperature sensor UP1/UP2 included in a CASA Smart control panel. (Control panel 1 or 2)
2. By a separate room temperature sensor T8 (accessory).
3. By unit's internal extract air temperature sensor T3.



Temperature Controller	
Control type	Room air
Fresh air limit	8°C
Supply control min value	16°C
Supply controller max value	20°C
Room air	T3
Post cooling	<input type="checkbox"/>
Ext. afterheat	<input type="checkbox"/>
Ext. preheat/cooling	<input type="checkbox"/>

Room air regulation as the regulation mode

Temperature Controller	
Control type	Room air
Fresh air limit	8°C
Supply control min value	16°C
Supply controller max value	20°C
Room air	T3
Post cooling	<input type="checkbox"/>
Ext. afterheat	<input checked="" type="checkbox"/>
Ext. preheat/cooling	<input type="checkbox"/>

External reheating in operation

5. Service

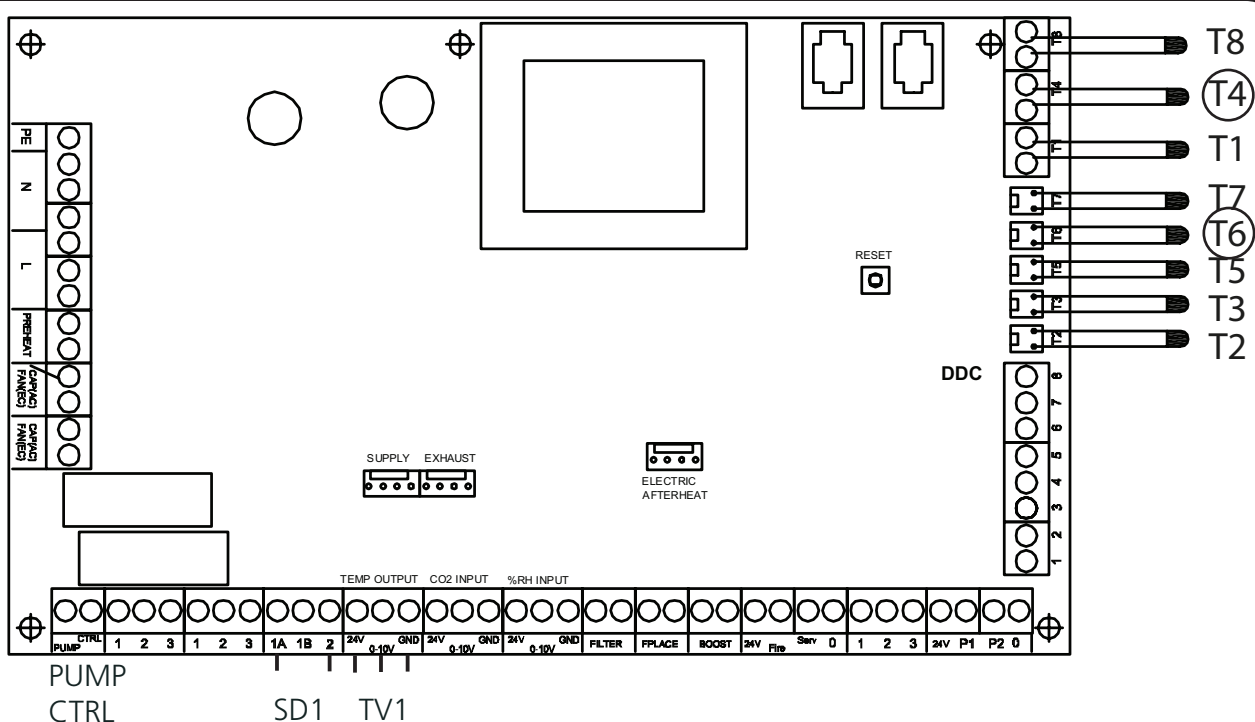
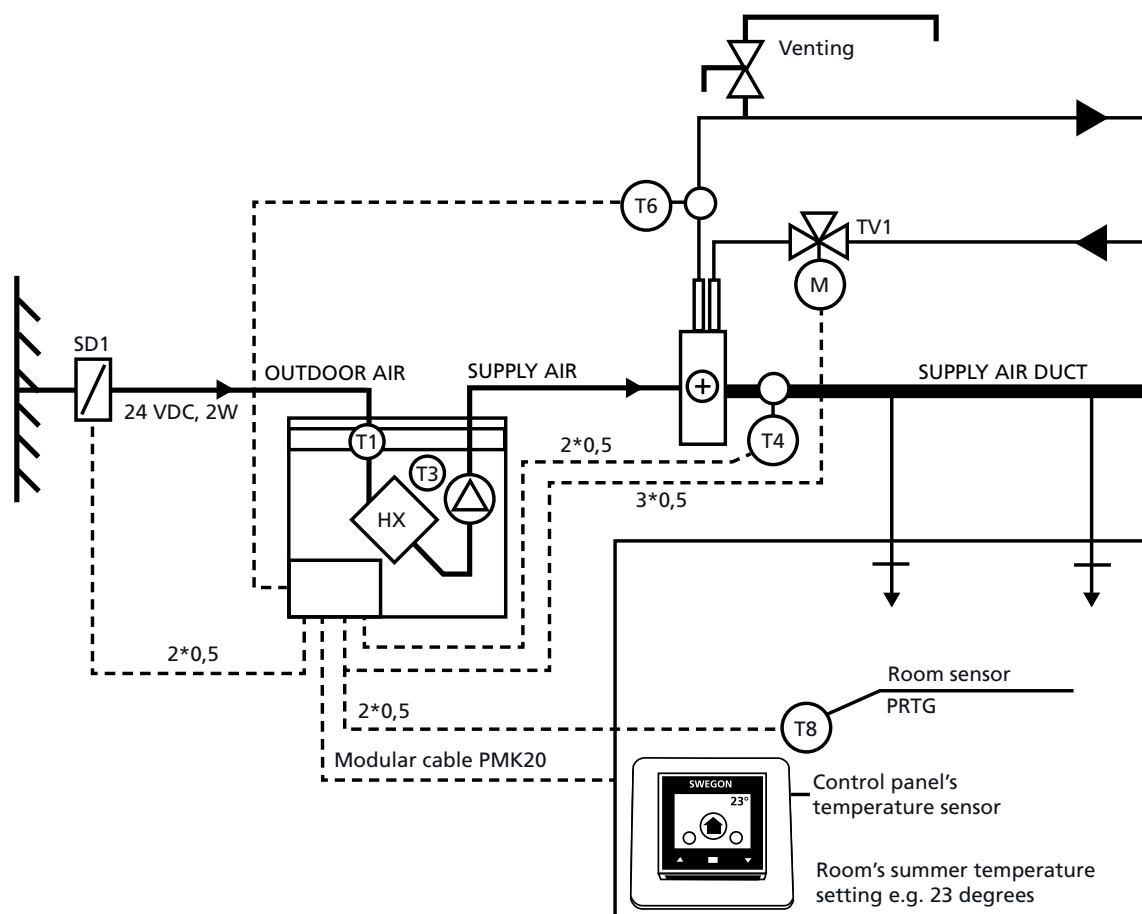

Important


Stop the ventilation before servicing.

The coil must be cleaned regularly to get full output from the heater/cooler. The length of the service interval is entirely dependent on the cleanliness of the air, and of how well the filters and unit are maintained in general.

The duct coil is easy to clean if you remove the heater/cooler cover. The inlet side of the coil is cleaned first with a brush, and then you can clean the entire coil with compressed air, water or steam. Blow or rinse dirt away from the outlet side toward the inlet side. Exercise care so that the thin edges of the fins are not damaged.

6. Wiring example



CASA heating coils for the supply air duct:

CASA heating coils

	ØD mm	B mm	H mm	Øo.d. mm	F	G mm	K mm	L mm	Pipe system's int. volume l	Weight, kg
CWW 125	125	313	255	10	175	40	276	356	0.20	5.5
CWW 160	160	313	255	10	175	40	276	356	0.42	5.4

CWW 125

Water temperature			In/out 80 °C/60 °C				In/out 60 °C/40 °C				In/out 55 °C/45 °C			
Air flow	Pressure loss air	Air in	Air out	Power	Water flow	Pressure loss air	Air out	Power	Water flow	Pressure loss air	Air out	Power	Water flow	Pressure loss air
l/s m³/h	Pa	°C	°C	kW	l/s	Pa	°C	kW	l/s	kPa	°C	kW	l/s	Pa
25 90	4	0	63.7	2.0	0.02	2.6	45.2	1.4	0.02	1.5	44.9	1.4	0.03	5.1
25 90	4	7.5	65.0	1.7	0.02	1.7	46.0	1.1	0.01	1.0	46.0	1.1	0.03	3.6
25 90	4	15	66.9	1.5	0.02	1.5	46.6	0.9	0.01	0.7	47.0	0.9	0.02	2.5
40 140	10	0	57.4	3.1	0.04	5.9	40.4	2.2	0.03	3.3	40.7	2.2	0.05	11.9
40 140	9	7.5	59.2	2.7	0.03	4.7	42.0	1.8	0.02	2.3	42.4	1.8	0.04	8.5
40 140	9	15	60.9	2.3	0.03	3.6	43.3	1.4	0.02	1.6	43.9	1.5	0.04	5.7
60 210	18	0	52.8	4.1	0.05	9.9	37.1	2.9	0.03	5.4	37.5	2.9	0.07	19.8
60 210	17	7.5	55.1	3.6	0.04	7.7	39.1	2.4	0.03	3.8	39.7	2.4	0.06	14.1
60 210	17	15	57.2	3.1	0.04	5.9	40.9	1.9	0.02	2.5	41.7	1.9	0.05	9.5

CWW 160

Water temperature			In/out 80 °C/60 °C				In/out 60 °C/40 °C				In/out 55 °C/45 °C			
Air flow	Pressure loss air	Air in	Air out	Power	Water flow	Pressure loss air	Air out	Power	Water flow	Pressure loss air	Air out	Power	Water flow	Pressure loss air
l/s m³/h	Pa	°C	°C	kW	l/s	kPa	°C	kW	l/s	kPa	°C	kW	l/s	Pa
40 90	9	0	57.8	3.0	0.04	5.7	40.7	2.1	0.03	3.1	40.9	2.1	0.05	11.3
40 90	9	7.5	59.6	2.6	0.03	4.4	42.3	1.8	0.02	2.2	42.6	1.8	0.04	8.1
40 90	9	15	61.2	2.3	0.03	3.4	43.5	1.4	0.02	1.5	44.1	1.4	0.03	5.5
70 250	23	0	50.8	4.6	0.06	12.2	35.6	3.2	0.04	6.6	36.1	3.3	0.08	24.4
70 250	22	7.5	53.2	4.0	0.05	9.5	37.8	2.7	0.03	4.7	38.5	2.7	0.07	17.4
70 250	22	15	55.6	3.4	0.04	7.2	39.8	2.1	0.03	3.1	40.7	2.2	0.05	11.7
100 360	41	0	45.8	5.9	0.07	19.3	32.0	4.1	0.05	10.3	32.7	4.2	0.10	39.0
100 360	40	7.5	48.8	5.1	0.06	15.0	34.7	3.4	0.04	7.3	35.5	3.5	0.08	27.7
100 360	39	15	51.6	4.4	0.05	11.4	37.3	2.7	0.03	4.8	35.1	2.4	0.06	24.0

