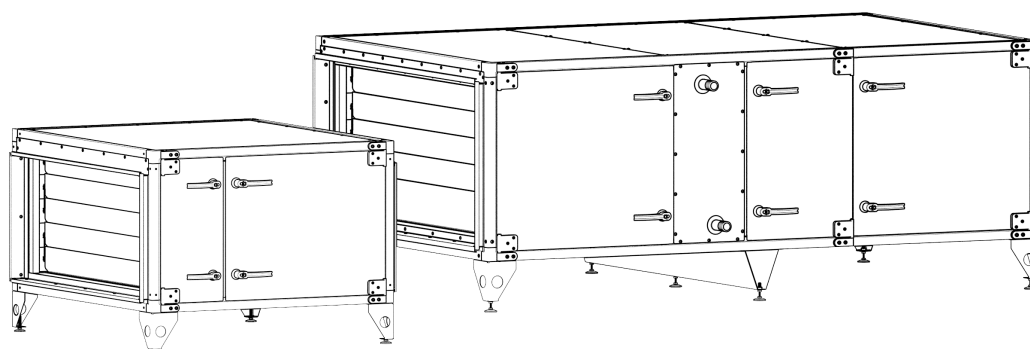


# DVCompact

## Supply/Extract Unit



### **GB** Installation instructions

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# 1 Declaration of Conformity

## Manufacturer



Systemair AB  
Industrivägen 3  
SE-739 30 Skinnskatteberg, SWEDEN  
Office: +46 222 440 00 Fax: +46 222 440 99  
www.systemair.com

## hereby confirms that the following products:

DVCompact Supply/Extract

(The declaration applies only to product in the condition it was delivered in and installed in the facility in accordance with the included installation instructions. The insurance does not cover components that are added or actions carried out subsequently on the product)

## Comply with all applicable requirements in the following directives

- Machinery Directive 2006/42/EC
- Low Voltage Directive 2006/95/EC
- EMC Directive 2004/108/EC

## The following harmonized standards are applied in applicable parts:

EN ISO 12100-1	Safety of machinery – Basic concepts, general principles for design – Part 1: Basic terminology, methodology
EN ISO 12100-2	Safety of machinery – Basic concepts, general principles for design – Part 2: Technical principles
EN ISO 14121-1:2007	Safety of machinery – Risk assessment – Part 1: Principles
EN 13857	Safety of machinery – Safety distances to prevent hazard zones being reached by upper or lower limbs
EN 60 335-1	Household and similar electrical appliances – Safety Part 1: General requirements
EN 60 335-2-40	Safety of household and similar electrical appliances - Part 2-40: Particular requirements for electrical heat pumps, air-conditioners and dehumidifiers
EN 50 106	Safety of household and similar appliances – Particular rules for routine tests referring to appliances under the scope of EN 60 335-1 and EN 60967
EN 60 529	Degrees of protection provided by enclosures (IP Code)
EN 61000-6-2	Electromagnetic compatibility (EMC) – Part 6-2: Generic standards – Immunity for industrial environments
EN 61000-6-3	Electromagnetic compatibility (EMC) – Part 6-3: Generic standards – Emission standards for residential, commercial and light-industrial environments

The complete technical documentation is available.

Skinnskatteberg, 14–05–2012



Mats Sándor  
Technical Director

## 2 Warnings

The use of the equipment in the air handling unit can lead to serious mechanical or electrical danger as well as danger in relation to noise and vibrations.

To reduce the risk of these dangers involved, it is absolutely necessary to follow all instructions concerning safety, installation, operation and maintenance.

The following admonitions will be presented in the different sections of the document.

### **Danger**

- Make sure that the Mains supply to the unit is disconnected before performing any maintenance or electrical work!
- All electrical connections must be carried out by an authorized installer and in accordance with local rules and regulations.

### **Warning**

- The door handles are lockable. Make sure that the handles are locked during operation of the unit.
- The unit must be duct connected or in some other way provided with protection so that it is not possible to come in contact with the fans through the duct connections.
- The unit is heavy. Be careful during transport and mounting. Risk of injury through pinching. Use protective clothing.
- Beware of sharp edges during mounting and maintenance. Make sure that a proper lifting device is used. Use protective clothing.
- Evaporators and condensers are pressure tested and sealed before leaving the factory. Such equipment must be installed by trained personnel, to avoid leakage.

### **Important**

- Duct connections/duct ends should be covered during storage and installation.
- Take care not to damage the water battery when connecting water pipes to connectors. Use a spanner to tighten the connection.
- Condensate to be led away needs to be connected properly to the drain.

## 3 Product Introduction

### 3.1 General

This installation manual concerns air handling unit type DVCompact Supply/Extract manufactured by Systemair AB. DVCompact Supply/Extract include the following model options:

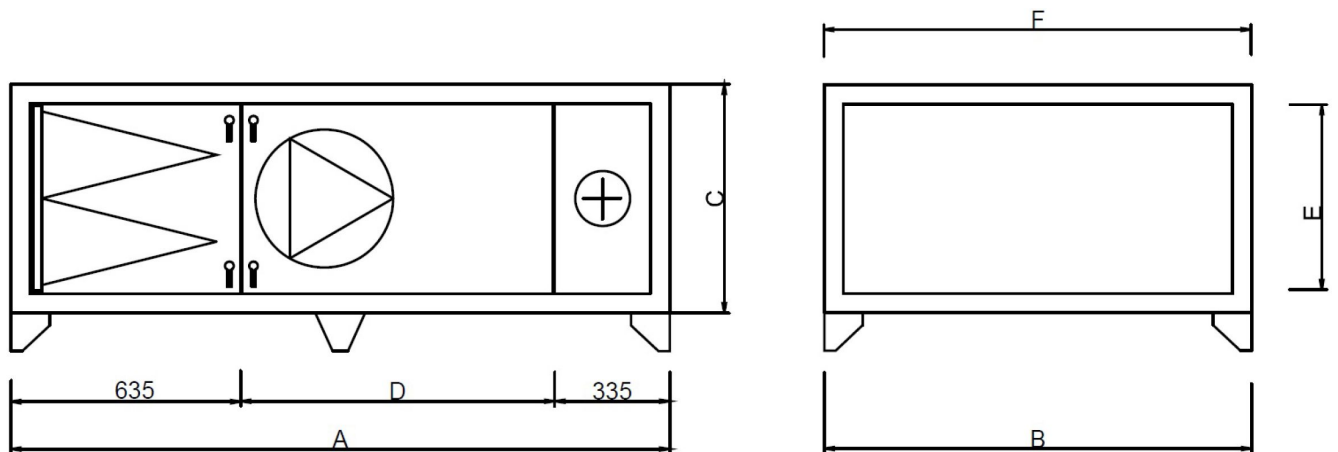
<b>Model</b>	<b>Description</b>
DVCompact Supply 10–100	Unit without built in control system. Sizes 10–100
DVCompact Supply-10-100-w/aut	Unit with built in control system. Sizes 10–100
DVCompact Extract-10–100	Unit without built in control system. Sizes 10–100

DVCompact Supply/Extract exist in the following sizes: 10, 15, 20, 25, 30, 40, 50, 60, 80, 100.

This manual consists of basic information and recommendations concerning the design, installation, start-up and operation, to ensure a proper fail-free operation of the unit.

The key to proper and safe operating of the unit is to read this manual thoroughly, use the unit according to given guidelines and follow all safety requirements.

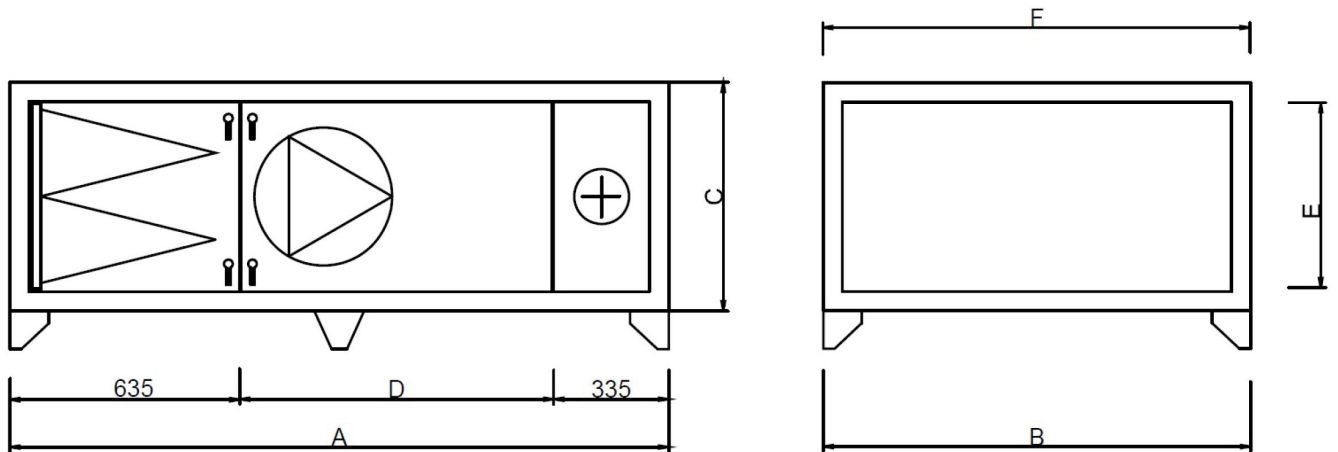
## 3.2 Technical Data



**Fig. 1 Dimensions of Supply unit without control system**

**Table 1: Dimensions and weights for Supply Unit without control system**

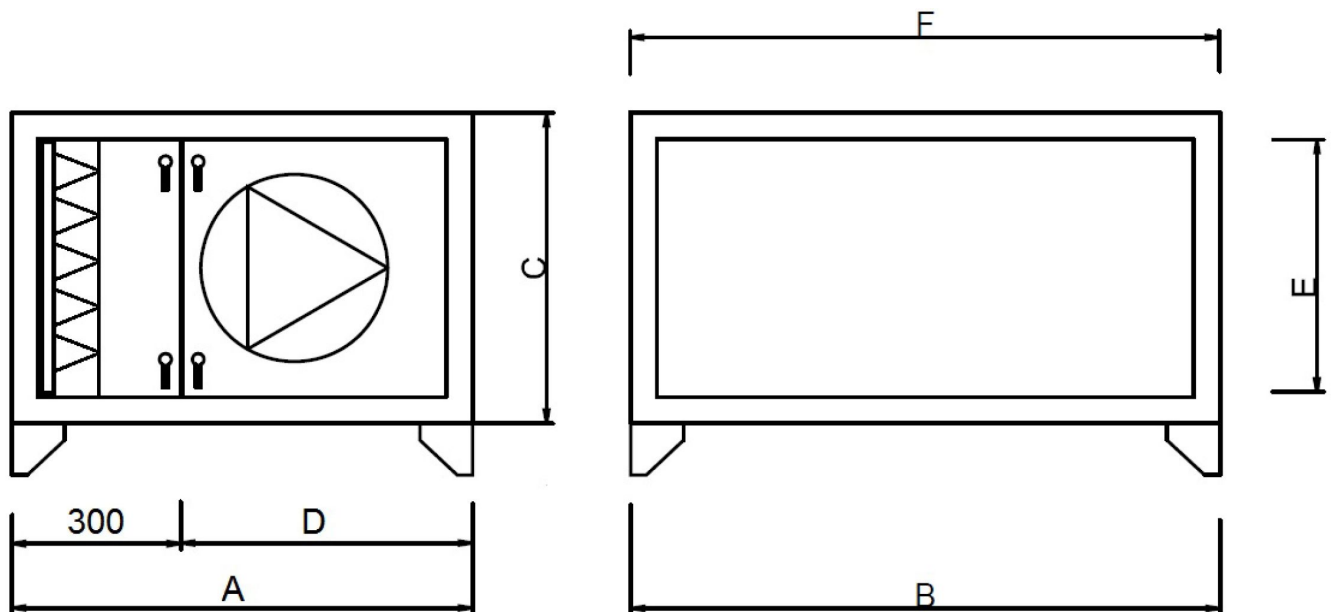
Model	Base casing			Doors		Duct connection		
	A	B	C	Filter	D	E	F	Weight (kg)
DVCompact 10	1720	970	520	635	750	850	350	165
DVCompact 15	1720	1120	595	635	750	1000	450	195
DVCompact 20	1720	1270	670	635	750	1150	500	230
DVCompact 25	1870	1420	745	635	900	1300	600	277
DVCompact 30	1870	1570	820	635	900	1450	650	328
DVCompact 40	2020	1720	895	635	750	1600	750	390
DVCompact 50	2170	2020	1045	635	750	1900	850	494
DVCompact 60	2170	2170	1120	635	750	2050	950	541
DVCompact 80	2320	2170	1270	635	750	2050	1150	744
DVCompact 100	2690	2370	1420	635	750	2250	1300	897



**Fig. 2 Dimensions of Supply unit with control system**

**Table 2: Dimensions and weights for Supply Unit with control system**

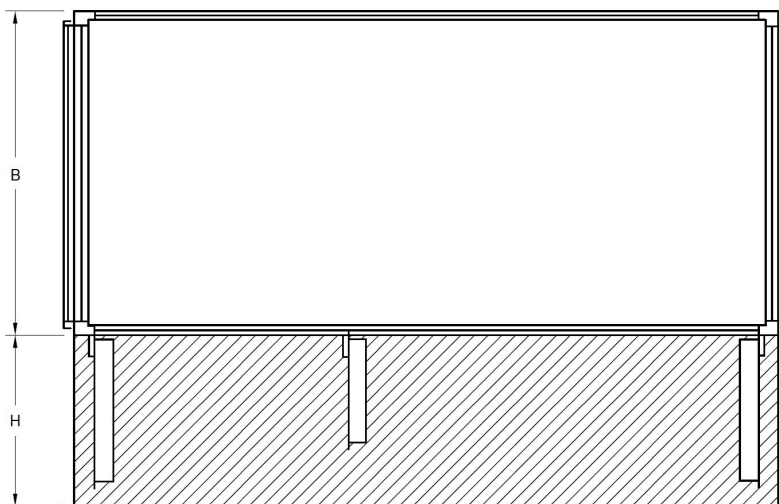
Model	Base casing			Doors			Duct connection		
	A	B	C	Filter	Conn. box.	D	E	F	Weight (kg)
DVCompact 10	2170	970	520	750	450	600	850	350	195
DVCompact 15	2170	1120	595	750	450	600	1000	450	225
DVCompact 20	2170	1270	670	750	450	600	1150	500	260
DVCompact 25	2320	1420	745	750	450	750	1300	600	307
DVCompact 30	2320	1570	820	750	450	750	1450	650	358
DVCompact 40	2470	1720	895	750	450	900	1600	750	420
DVCompact 50	2620	2020	1045	750	450	750	1900	850	524
DVCompact 60	2620	2170	1120	750	450	750	2050	950	571
DVCompact 80	2770	2170	1270	750	450	900	2050	1150	774
DVCompact 100	2770	2370	1420	750	450	750	2250	1300	927



**Fig. 3 Dimensions of Extract unit**

**Table 3: Dimensions and weights for Extract unit**

Model	Base casing			Doors		Duct connection		
	A	B	C	Filter	D	E	F	Weight (kg)
DVCompact 10	1120	970	520	300	750	850	350	128
DVCompact 15	1120	1120	595	300	750	1000	450	148
DVCompact 20	1120	1270	670	300	750	1150	500	183
DVCompact 25	1270	1420	745	300	750	1300	600	220
DVCompact 30	1270	1570	820	300	750	1450	650	283
DVCompact 40	1420	1720	895	300	750	1600	750	320
DVCompact 50	1570	2020	1045	300	750	1900	850	419
DVCompact 60	1570	2170	1120	300	750	2050	950	473
DVCompact 80	1720	2170	1270	300	750	2050	1150	541
DVCompact 100	2020	2370	1420	300	750	2250	1300	659



**Fig. 4 Space required for opening of inspection doors**

**Table 4: Heights**

Model	H (mm)
DVCompact 10	850
DVCompact 15	850
DVCompact 20	850
DVCompact 25	1050
DVCompact 30	1050
DVCompact 40	950
DVCompact 50	850
DVCompact 60	850
DVCompact 80	950
DVCompact 100	850

For service and inspection a free space corresponding to the dimension H (figure 4) is necessary on the inspection side of the unit.



When changing components a free space corresponding to the width of the component in question is necessary.

**Table 5: Power Consumption and Current**

Model	IE2 fan (kW tot.) 400 V 3N~	Current (A)	Fuse (main)
DVCompact 10	1,1/2,2	2,8/4,49	10/10
DVCompact 15	1,5/3,0	3,13/5,88	10/10
DVCompact 20	2,2/4,0	4,49/7,65	10/13
DVCompact 25	3,0/5,0	6,18/10,9	10/16
DVCompact 30	3,0/5,0	6,18/10,9	10/16
DVCompact 40	5,5/7,5	10,9/14,5	16/20
DVCompact 50	5,5/11,0	10,9/21,0	16/25
DVCompact 60	7,5/11,0	14,5/21,0	16/25
DVCompact 80	11,0/18,5	21,0/34,0	25/40
DVCompact 100	15,0/22,0	28,4/39,9	40/50

### 3.3 Transport and Storage

The DVCompact Supply/Extract should be stored and transported in such a way that it is protected against physical damage that can harm panels, handles etc. It should be covered so that dust, rain and snow cannot enter and damage the unit and its components. The appliance is delivered in sections with each section standing on feet or pallet for easy transportation. Each section is wrapped in plastic containing all necessary components.

#### **Warning**

The unit is heavy. Be careful during transport and mounting. Risk of injury through pinching. Use protective clothing.

When transporting the sections of the unit use a forklift or lifting truck.

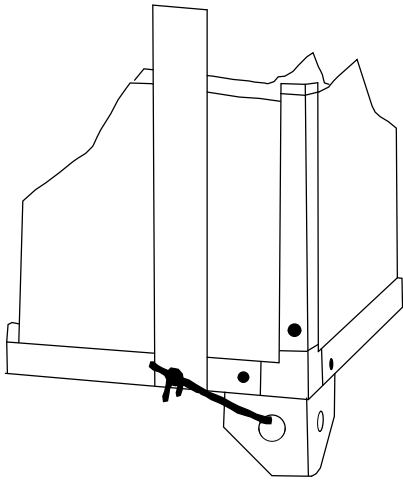
If a lifting truck is used make sure that the lifting forks are sufficiently long to avoid damaging the bottom of the unit section

#### **Note:**

- Units with built in control must not be stored outdoors
- The unit may only be lifted from below

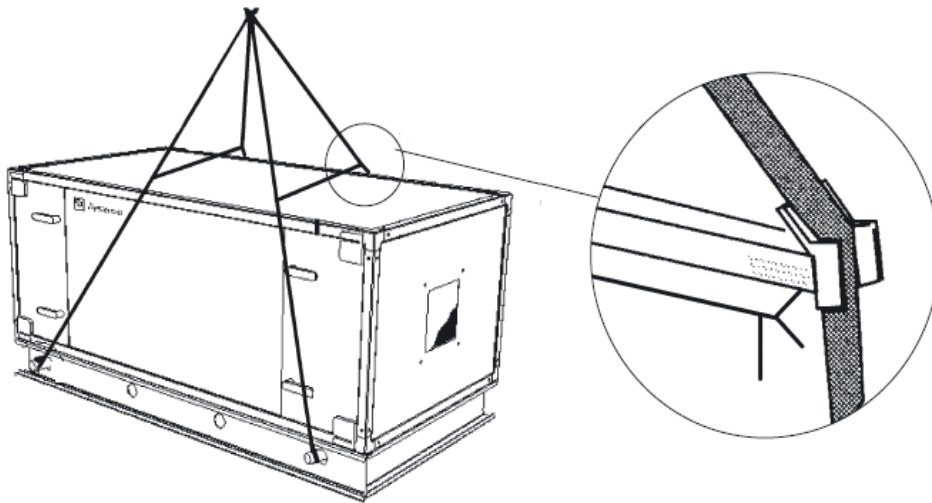
### 3.3.1 Unloading with Crane

Lifting straps must be secured in the leg brackets (figure 5).



**Fig. 5 Secured straps**

When lifting unit sections mounted on pallet or units mounted on a base frame, use metal tubes inserted through the holes in the frame and suspend the unit by soft cables (figure 6). Make sure that the upper part of the unit will not be damaged.



**Fig. 6 Lifting by metal tubes**

## 4 Installation

### 4.1 Unpacking

Verify that all ordered equipment are delivered before starting the installation. Any discrepancies from the ordered equipment must be reported to the supplier of Systemair products.

### 4.2 Where to Install the Unit

The unit without roof is meant for indoor installation. The electronic components should not be exposed to lower temperature than 0°C or higher than +50°C.

When mounting; make sure to leave enough space to access the service doors (figure 4).

---

**Note:**

If there is not sufficient space to open the inspection doors it is possible to unscrew the hinges to remove the doors completely for inspection and maintenance.

---

General maintenance includes replacing the filters and removing fan motor inside the unit for cleaning.

Avoid placing the unit against a wall, as low frequency noise can cause vibrations in the wall.

The outdoor air intake of the building should if possible be put in the northern or eastern side of the building and away from other exhaust outlets like kitchen fan outcasts or laundry room outlets. The extract air should ideally be led out via a roof cowl away from any outdoor air intakes, windows, balconies etc.

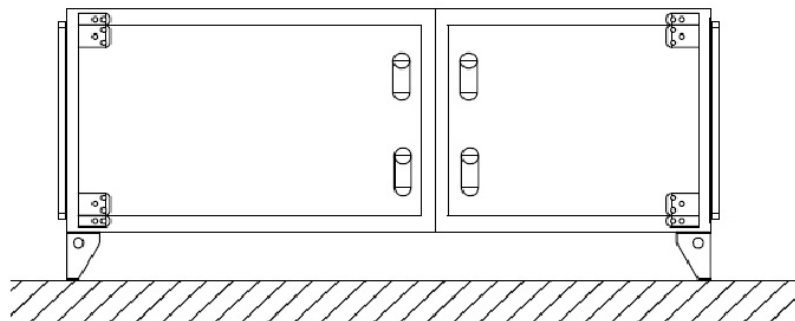
**Warning**

- The door handles are lockable. Make sure that the handles are locked during operation of the unit.
- The unit must be duct connected or in some other way provided with protection so that it is not possible to come in contact with the fans through the duct connections

## 4.3 Installing the Unit

The unit needs to be installed in the following position (figure 7).

From size 40 the feet are replaced by a base frame.



**Fig. 7 Installation position for units with feet**

### 4.3.1 Installation Procedure

#### Mounting the sections

**1**

Prepare the surface where the unit is to be mounted. Make sure that the surface is flat, levelled and that it supports the weight of the unit.

Perform the installation in accordance with local rules and regulations.

**2**

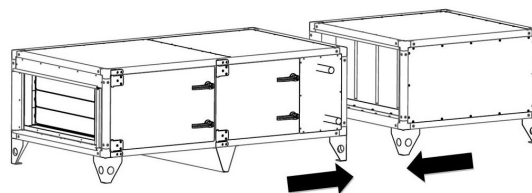
Make sure that the factory mounted rubber gaskets between the sections are undamaged.

**3**

Place the sections exactly in front of each other.

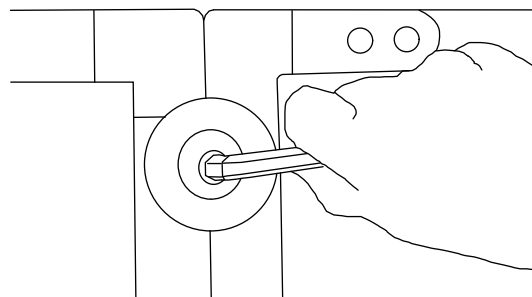
**4**

Push the sections together so that the gaskets fit together properly. Assure that the sections are completely adjoined. The Disc-lock system must not be used to pull the sections together.



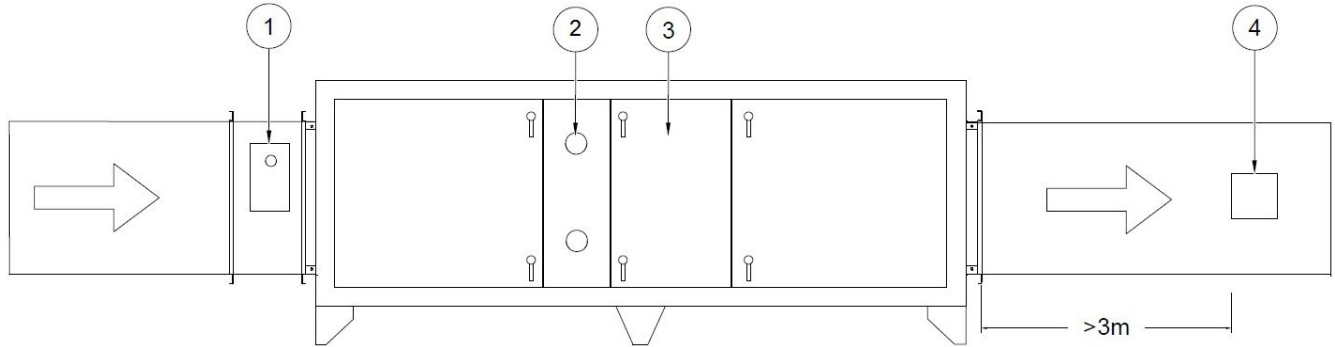
**5**

Lock the sections together with the Disc-lock system. One Disc-lock in every vertical part of the section corner is required. Place all 4 Disc-locks loosely over the 2 factory mounted pins before fitting them properly. Lock the sections tightly together with the help of the enclosed tool



## 4.4 Supply air sensor

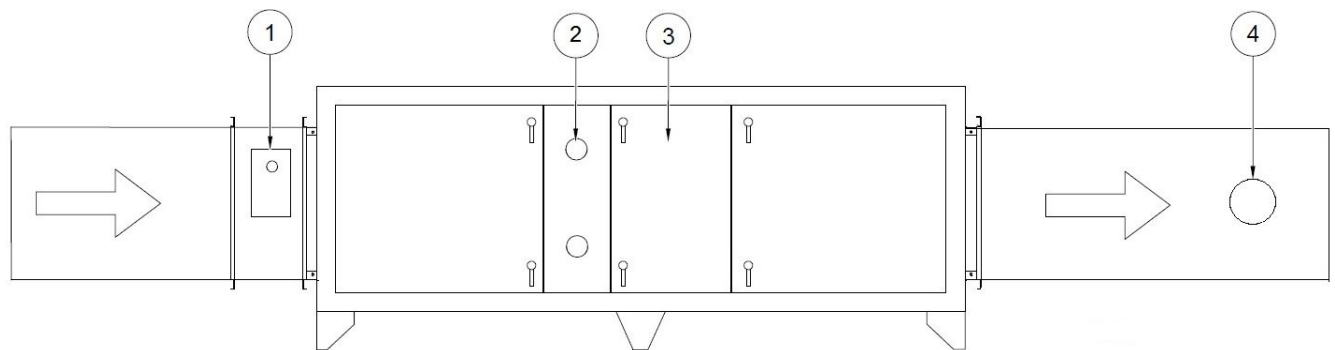
The supply air sensor is wired from factory to terminals in the electrical connection box. The sensor is placed in a box inside the unit on delivery. Install the sensor in the supply air duct ca. 3 m after the unit (figure 8). See below tables (table 6 and table 7) to which terminals the sensor is connected in the electrical connection box. Other temperature sensors are built in to the unit from factory.



**Fig. 8 Installed supply air sensor**

## 4.5 Installation of VAV models

If the unit is delivered as a VAV (Variable Air Volume) unit, the pressure transmitters controlling the fan speeds are delivered loosely with the unit. The pressure transmitters need to be mounted in the supply air ducts (figure 9) and connected to terminal 40 in the electrical connection box.



**Fig. 9 VAV installation**

## 4.6 Connections

### 4.6.1 Electrical connections

DVCompact Supply-10-100-w/aut are delivered with enclosed control. Internal and external wiring is connected to terminals in the enclosed electrical connection box placed on the front of the unit.

DVCompact Supply 10–100 and DVCompact Extract-10–100 are delivered without any enclosed control or wiring. Control and wiring is provided by the installer.

The unit must not be put into operation before all the electrical safety precautions have been read and understood. See the enclosed wiring diagram for internal and external wiring.

All external connections to possible accessories are made to terminals inside the electrical connection box (table 6).

#### **Danger**

- All electrical connections must be carried out in accordance with local rules and regulations.
- Make sure that the Mains supply to the unit is disconnected before performing any maintenance or electrical work!

### 4.6.2 External connections

All external connections to possible accessories are made to terminals inside the electrical connection box.

**Table 6: Electrical connections**

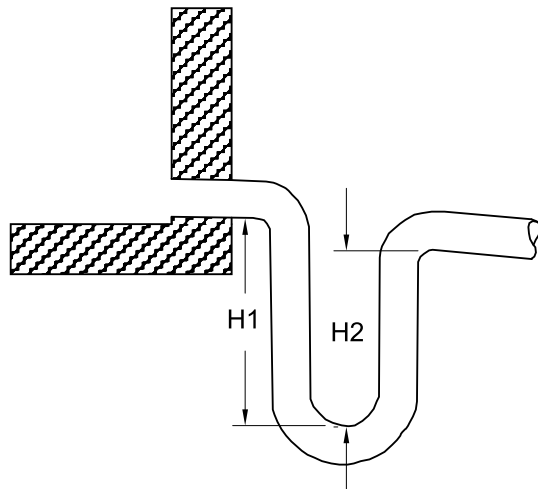
Terminal block	Corrigo designation	Description	Remark
1	GND	Water heater battery pump/Electric heater activate	
2	N		
3	L		~220V
4	11	SAF frequency converter start	
5	14		
6	13 DO3	Outdoor air damper	
7	GDO		Digital signal gnd
8	G0		24V AC
9	14 DO4	Cooling start (optional)	
10	15 DO5	Exhaust air damper (optional)	
11	GDO		Digital signal gnd
12	G0		24V AC
13	16 DO6	Mixing damper (optional)	
14	17 DO7		
15	GDO		Digital signal gnd
16	G0		24V AC
17	72 DI2	Electric heater overheat (optional)	
18	C+		24V DC
19	73 DI3	Extended run normal (optional)	
20	74 DI4	Extended run reduced (optional)	

**Electrical connections cont'd**

Terminal block	Corrigo designation	Description	Remark
21	C+		24V DC
22	75 DI5	External stop swich (optional)	
23	76 DI6	Fire alarm (optional)	
24	C+		24V DC
25	77 DI7		
26	78 DI8		
27	C+		24V DC
28	31 AI1	Supply air temp. sensor	
29	Agnd		Analog signal gnd
30	G		24V AC
31	32 AI2	Outdoor air temp. sensor	
32	35 AI4	Frost protection temp. sensor	
33	Agnd		Analog signal gnd
34	G		24V AC
35	41 UI1	Extract air temp. sensor (optional)	
36	42 UI2	Room temp. sensor (optional)	
37	Agnd		Analog signal gnd
38	G		24V AC
39	44 UI3	CO2 sensor (optional)	
40	46 UI4	Supply air pressure VAV (optional)	
41	Agnd		Analog signal gnd
42	G		24V AC
43	91 AO1	SAF control signal (Frequency converter)	
44	92 AO2	Water heater battery value control signal	
45	Agnd		Analog signal gnd
46	G		24V AC
47	93 AO3	Cooling battery valve control signal (optional)	
48	94 AO4	Electric heater control signal (optional)	
49	Agnd		Analog signal gnd
50	G		24V AC
51	95 AO5		

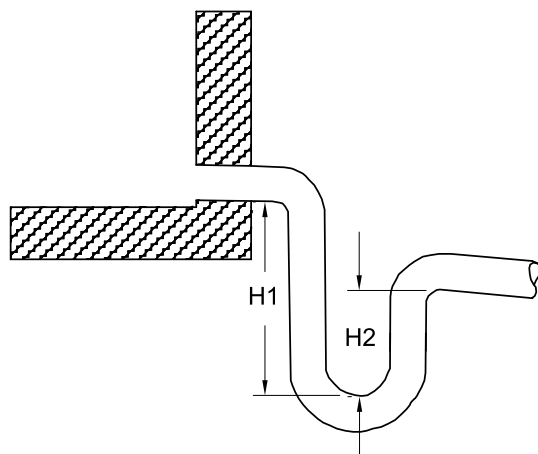
### 4.6.3 Connections to condensation drainage

Sections in which condensation from components may occur are fitted with drain pan and condensate drain. Condensate drains should always be provided with properly designed trap with sufficient height difference. Each condensate drain must be equipped with traps with same diameter as the drain pipe.



**Fig. 10 Drain trap Positive pressure**

Positive pressure (Pa)	H1 Min. (mm)	H2 (mm)
500	90	65
750	120	90
1000	150	120



**Fig. 11 Drain trap Negative pressure**

Negative pressure (Pa)	H1 Min. (mm)	H2 (mm)
500	100	40
750	150	55
1000	190	70



## 4.6.4 BMS Connection

Exo-line, Modbus and optional LON connections are to be connected to the following terminals:

- RS485(Modbus): 50-51-52
- RS485(Exo-line): 50-51-52-53
- LON: 57-58-59

RS-485 contact and Exo-line via TCP/IP (WEB) are included as standard (figure 12).

### Note:

RS-485 port and TCP/IP port can not be used simultaneously! I.e. possible communications are Modbus or Exo-line via RS-485 or Exo-line (WEB) via TCP/IP.

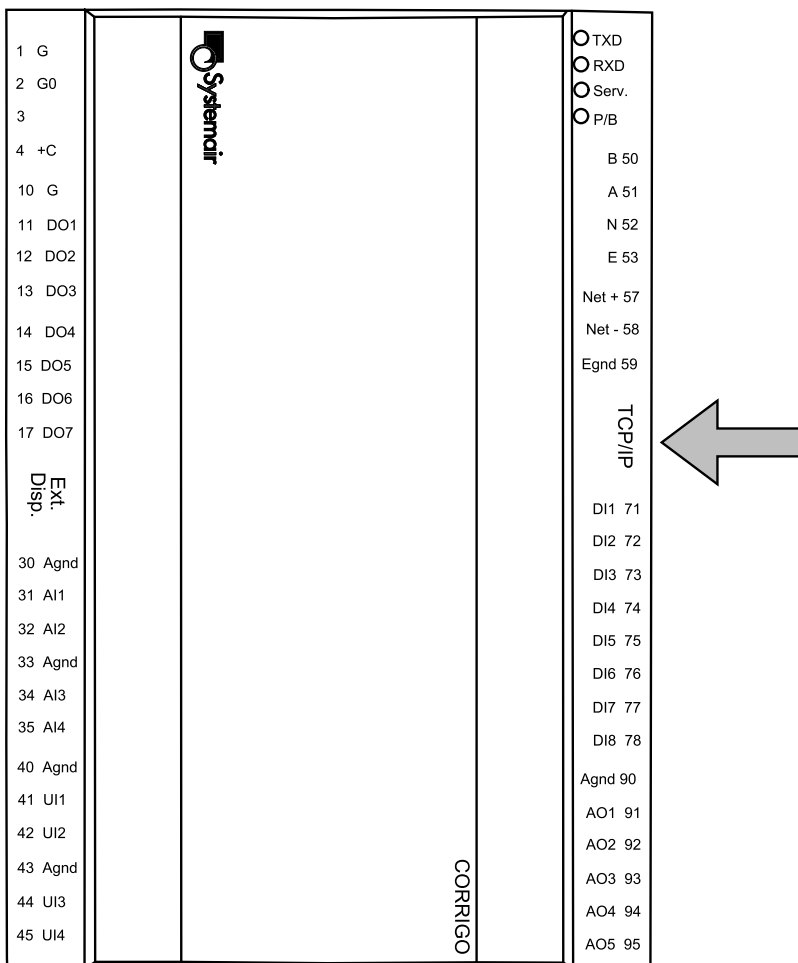
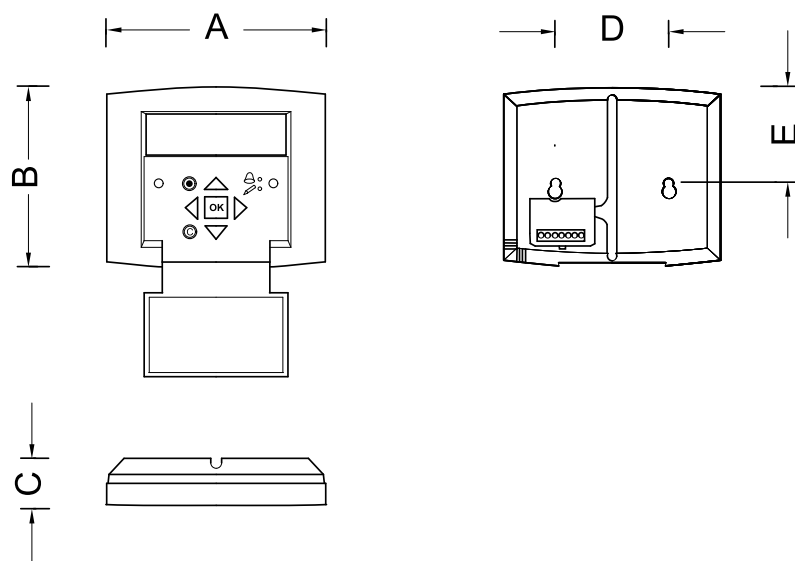


Fig. 12 BMS connection on Corrigo

## 4.7 Installing the Control Panel

### 4.7.1 Dimensions



**Fig. 13 Control panel dimensions**

Position	Dimensions (mm)
A	115.0
B	94.0
C	26.0
D	c/c 60.0
E	50.5

### 4.7.2 General information

The control panel is delivered connected to the Corrigo control unit situated in the electrical connection box. Cable length is 10m. In case the control panel needs to be detached from the signal cable it is possible to loosen the wires on the back of the control panel (figure 14).

A set of self-adhesive magnet strips are mounted on the back of the control panel to facilitate installation on a metal surface.

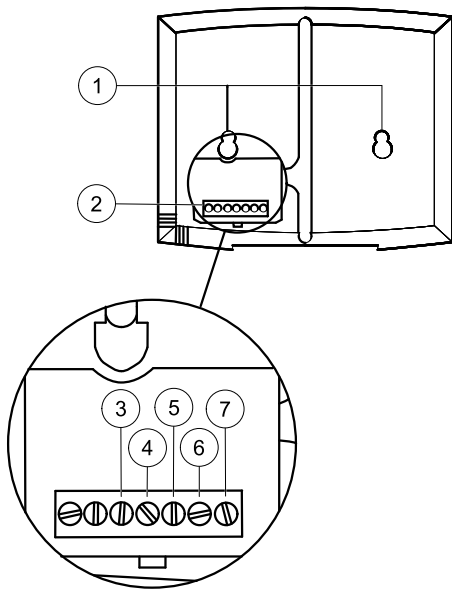
## 4.7.3 Installation

1

Find an appropriate place to install the control panel. Maximum length between control panel and unit is 10 m as standard.

2

If needed, drill two holes in the wall to hang the control panel (center to center: 60 mm) (pos.1 figure 14).



**Fig. 14 Control panel wire connections**

Position	Description
1	Mounting holes
2	Connection block
3	Connection to yellow cable
4	Connection to orange cable
5	Connection to red cable
6	Connection to brown cable
7	Connection to black cable

## 4.8 Additional Equipment

For information concerning additional external equipment such as valve actuators, motorized dampers, E-tool, roof units, wall grilles etc. see technical catalogue and their enclosed instructions.

For electrical connections of external components see enclosed wiring chart.

Systemair AB reserves the right to make changes and improvements to the contents of this manual without prior notice.



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