

# CDF 35 / 45

Service manual

Rev. 2.3

en

**Dantherm**<sup>®</sup>  
CONTROL YOUR CLIMATE

# Introduction

## Overview

### WARNING

**It is the responsibility of the operator to read and understand this service manual and other information provided, and to use the correct operating procedures.**

Read the entire manual before the initial start-up of the dehumidifier. It is important to know the correct operating procedures for the unit and all safety precautions to prevent the possibility of property damage and/or personal injury.


### Table of contents

This service manual covers the following main topics:

Topic	See page
General information	14
Product- and functional description	15
Mounting and installation guide	18
Service guide	19
Fault finding guide	20
Technical data	21
Service agreement	22
Kølekredsløb/Cooling Circuit/Kältekreislauf/Circuit frigorifique/Circuito frigorifero	53
Eldiagram/Wiring diagram/Schaltplan/Schéma électrique/Schema elettrico, CDF 35/35T	54
Eldiagram/Wiring diagram/Schaltplan/Schéma électrique/Schema elettrico, CDF 45/45T	55
Ordforklaring/Legend/Legende/Légende/Legenda	56
Målskitser/Dimensional outlines/Maßskizzen/Croquis coté/Schema dimensionale	57
Reservedele/Spare parts/Ersatzteile/Pièces de rechange/Parti di ricambio	59

## General information

---

<b>Introduction</b>	This section gives the general information about this service manual and about the unit.
<b>Manual, part number</b>	Part number of this service manual is 975682.
<b>Target group</b>	The target group for this service manual is the technicians who install, maintain, and exchange parts on the unit.
<b>Copyright</b>	Copying of this service manual, or part of it, is forbidden without prior written permission from Dantherm A/S.
<b>Reservations</b>	Dantherm A/S reserves the right to make changes and improvements to the product and the service manual at any time without prior notice or obligation.
<b>EC-Declaration of Conformity</b> 	<p>Dantherm A/S, Marienlystvej 65, DK-7800 Skive hereby declare that the unit mentioned below:</p> <p style="text-align: center;">Dehumidifier, model CDF 35/45, product no. :</p> <p>covered by this declaration, is in conformity with the following directives:</p> <p>98/37/EEC    Directive on the Safety of Machines 73/23/EEC    Low Voltage Directive</p> <p>89/336/EEC    EMC Directive</p> <p>– and is manufactured in conformity with the following standards:</p> <p>EN 60 335-2-40    Standard for electric dehumidifiers</p> <p>EN 292    Machine safety</p> <p>EN 61 000    EMC</p> <p>Skive, 28.08.2003</p>
<b>Recycling</b>	<p>The unit is designed to last for many years. When the time comes for the unit to be recycled, the unit should be recycled according to national rules and procedures to protect the environment.</p> <p>The dehumidifier contain R407C refrigerant and compressor oil. The compressor must in connection with disposal be returned to authorities.</p>

---

## Product- and functional description

### Introduction

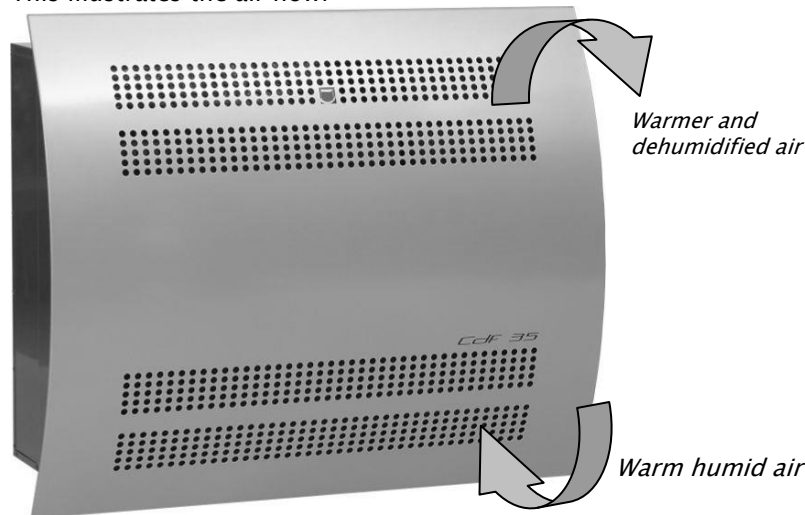
This section will give you a description of the CDF 35/45 and its functionality.

### Functional description

CDF 35/45 are working in accordance with the condensation principle. The humid air is drawn into the unit by a fan. When passing through the evaporator the air is cooled down to below dew point and water vapour is condensed into water, which is drained away. The now dry air is then passed over the condenser coil where the air is heated. As a result of the released evaporator heat and the working energy of the compressor being turned into heat energy, more heat is returned to the air than was previously extracted. This extra heat corresponds to an approximate increase in temperature of 5 °C. The repeated circulation of air through the unit reduces the relative humidity, giving very rapid but gentle drying.

### Air flow

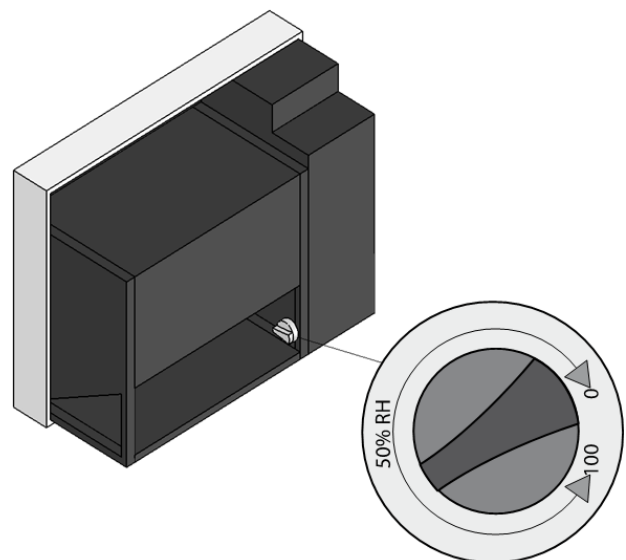
This illustrates the air flow:



### Built in hygrostat

The dehumidifier is controlled by a built-in hygrostat that is set to approx. 60 % RH. When the hygrostat registers a relative humidity of more than 60 %RH, the compressor and the fan automatically switch on and the dehumidifier starts to dehumidify.

Note! If the air humidity is below 60 %RH, the unit will not start when the power is connected



*Continued overleaf*

## Product- and functional description, *continued*




**Built in hygostat, continued** If you want to set the hygostat lower than 60 %RH, turn the adjusting screw clockwise. We recommend installing an external hygostat if you want to change/adjust the setting of relative humidity very often.

**Connection of external hygostat** Connect an external hygostat by uncoupling the built-in hygostat from the terminals 21/22 and then connecting the external hygostat to these terminals. The hygostat cable is led out through the base of the unit and the hygostat is fixed to a wall in an appropriate place. The outlet for the external hygostat is 12 V.

**Fan control** When the dehumidifier is started by the hygostat, the fan is activated at the same time as the compressor. If continuous ventilation is required – i.e. independent of the dehumidification demand – a bridge must be made between the terminals 25 and 26.

**Compressor control** The number of compressor startings is limited by a 6 minutes timer, which starts when the compressor is switched on. The timer must have come to an end before the compressor can be switched on again.  
Each time the unit has been switched off on the main switch, by the built-in hygostat, or by an external hygostat, it will take 30 seconds before the unit can be switched on again. This is a safety function protecting the compressor against overloading caused by too high pressure in the cooling circuit at start up.



**Display indications** A display on the side of the unit clearly indicates the working modes.

	Part	Function
① 	Power is on	The LED lights up in green when power is connected to the unit. During continuous ventilation there are no display indications. In this operation mode the flash will light up constantly in green to show that power is on
② 	Cooling circuit failure – the dehumidifier is switched off	Pressure or temperature on the HP side of the cooling circuit is too high and therefore the unit was switched off automatically in order to protect the compressor. After 45 minutes the unit restarts automatically. After restart the triangle LED will flash on and off in red to indicate that the unit is working and that the condenser sensor has registered a failure on the unit. To turn off the triangle LED, disconnect and connect the power supply to the unit
③  3°C	Ambient temperature below 3 °C – the dehumidifier is switched off	The dehumidifier starts again automatically when the ambient temperature increases to more than 3 °C.

*Continued overleaf*

## Product- and functional description, *continued*

### Display indications, *continued*

		Part	Function
④		Defrosting mode - the evaporator is being defrosted	The LEDs 4 and 5 light up during defrosting of the evaporator. In defrosting mode the compressor is working and the fan is stopped. When the evaporator sensor has registered a temperature higher than 5 °C the LEDs 4 and 5 are turned off
⑤		Ice formation on the evaporator	The defrost function allows icing up for 30 minutes before defrosting of the evaporator coil is activated

### Defrosting

Active, demand-controlled defrosting is incorporated into the electronic control. The evaporator coil is defrosted by means of hot refrigerant bypassing the condenser and being fed through the evaporator.

If the temperature falls to below 20 °C the evaporator may start to ice up after a short time. When the evaporator sensor registers a temperature lower than 5 °C it will let the unit work in dehumidification mode for further 30 °minutes before switching over to defrosting mode.

### Safety circuit

If the temperature in the dehumidifier increases to a temperature of more than 55 °C (in case of fan failure or room air temperature higher than 30 °C), then the compressor stops automatically to avoid damaging it. After 45 °minutes the compressor starts again automatically.

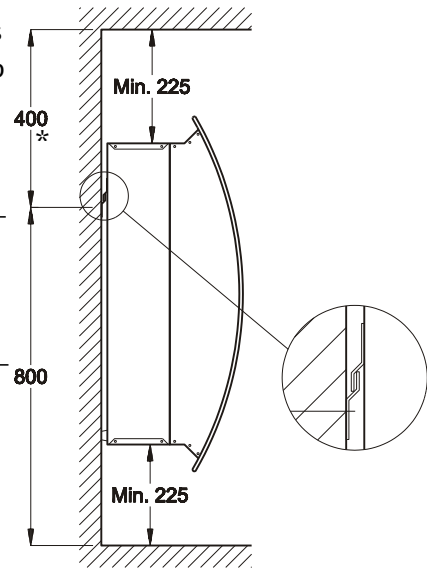
## Mounting and installation guide

### Suspension

The wall suspension bar supplied with the unit is fixed to the wall and the dehumidifier is hung up on it. It is important to mount the unit in a horizontal position to secure correct outflow of the condensate water.

To make sure that the room air passes unimpeded through the dehumidifier, air inlet and air outlet openings must be free.

It is important that the dehumidifier is not installed near a source of heat as for example a radiator, and doors and windows must be kept closed when the dehumidifier is in function



### NOTE

Dantherm Air Handling recommends a minimum distance between dehumidifier and ceiling and dehumidifier and floor of 225 mm.

\*) The dimensions indicate the placing of the wall suspension bar.

### Condensate outlet

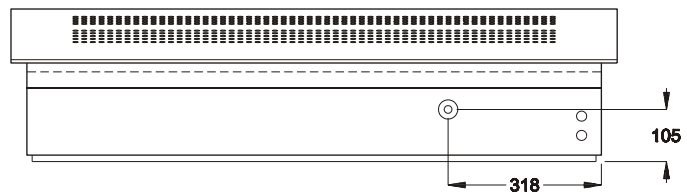
The condensate outlet is located at the bottom of the dehumidifier. The unit has a drain spigot intended for connection of a ½" flexible or fixed water connection. If water drain through the wall is chosen, a suitable hole is made in the wall and the condensate hose is led out through this hole, before suspending the dehumidifier on the wall suspension bar.

It is important that the hose from the dehumidifier to the drainage has a fall of at least 2 % to make sure that the water runs away from the condensate tray.

As an alternative a condensate pump can be fitted at the water outlet to pump the water to a drain.

### Placing of the condensate outlet

The placing of the condensate outlet is shown on the drawing – the unit is seen from above.



### Connection of power supply

Power is connected to the unit in accordance with the nameplate. Please refer to the wiring diagrams from page 54.

Note! All electrical connections must be made in accordance with local power supply company regulations.

## Service guide

### Access to the control

CDF 35/45	CDF 35T/45T
Remove the front panel by screwing off two screws on top of the dehumidifier. Lift the front panel vertically upwards and then pull it horizontally away from the unit	Open the unit by removing the screws (4) on the front of the unit, i.e. opposite to the unit's duct openings. The screws may be removed by means of the enclosed Allen key with hexagon head
The control of the unit is located in a box on top of the compressor. To get access to the control you have to unscrew the screws on the front of the box lid. Push the lid backwards and then pull it away from the box.	

### Maintenance

The dehumidifier requires very little attention for trouble free running. All the necessary safety and control functions have been built in. The fan motor and the compressor have permanent lubrication and require no particular maintenance.

### Cleaning of the dehumidifier

CDF 35/45	CDF 35T/45T
The air inlet filter has to be checked once a month and cleaned, if necessary. Remove the front cover panel of the unit and take out the filter for cleaning. It can either be rinsed in tepid soapy water or, if not very dirty, vacuumed with a vacuum cleaner. The drip tray and the drain must be cleaned so that the water unhindered can drain out	The air inlet filter of the duct kit is to be cleaned once a month. The filter is placed in a stand behind the grill in the air inlet duct. Remove the grill from the duct and take out the filter. The filter is washed in tepid soapy water or vacuum cleaned. Put the filter back in the filter stand and fasten the grill to the duct
Once a year the front cover panel should be removed in order to ...	Once a year the front should be removed in order to ...
... check the inside of the dehumidifier. If the dehumidifier is dirty it should be vacuum cleaned. The condenser in particular should be thoroughly vacuumed. If the lamella evaporator is badly soiled, it may be washed in tepid soapy water	



## Fault finding guide

**Important!**

If the dehumidifier is not functioning correctly, shut it down immediately!

**Fault finding**

Use this table to localize and solve a possible problem or fault:

Fault	Possible cause	Solution
<ul style="list-style-type: none"> <li>The dehumidifier does not work</li> <li>No light in the LEDs on the display</li> </ul>	-	<ul style="list-style-type: none"> <li>Check the external fuses</li> <li>Check the power supply to the unit</li> </ul>
<ul style="list-style-type: none"> <li>The compressor does not work</li> <li>The triangle is constantly red</li> </ul>	The compressor has stopped automatically caused by a too high temperature on the condenser	<p>If the unit does not start again after 45 minutes, check the following:</p> <ul style="list-style-type: none"> <li>Check that the fan(s) is running</li> <li>Check if the filter (CDF-T: in the duct kit) is dirty</li> <li>Check if the evaporator and the condenser coil is dirty</li> <li>Check if the room temperature is higher than 30 °C. If the room temperature is higher than 30 °C, the unit must be stopped</li> <li>Check that the front cover panel (CDF)/duct openings (CDF-T) are not covered</li> </ul>
<ul style="list-style-type: none"> <li>The dehumidifier does not work</li> <li>The thermometer LED on the display is lit in red</li> </ul>	The room temperature is lower than 3 °C and the dehumidifier has been switched off automatically	Wait till the temperature has increased to more than 3 °C
<ul style="list-style-type: none"> <li>The dehumidifier does not work</li> <li>The lighting on the display is green</li> </ul>	-	<p>Check the built-in or the external hygrometer, if any, by setting it to a low relative humidity, e.g. 10 - 20 %RH.</p> <p>If the unit still does not start, check the built-in or external hygrometer for defects</p>

**More help**

If you cannot find the reason for the fault, switch off the unit immediately in order to prevent further damage.

Contact a service technician or a Dantherm representative.

## Technical data

### General data

The table shows the dehumidifier's general technical data:

		CDF 35/35T	CDF 45/45T
Working area, humidity	60 %RF	40-100	
Working area, temperature	°C	3-30	
Power supply	V/Hz	230/50	
Max. ampere consumption	A	3.0	5.3
Max. power consumption	kW	0.70	1.2
Air volume at max. external pressure	m <sup>3</sup> /h	250	500
Refrigerant	-	R407C	
Quantity of refrigerant	kg	0.6	0.950
GWP (Global Warming Potential)	-	1653	
Noise level <sup>*)</sup> (1 m away from unit)	dB(A)	47/44	49/46
Weight	kg	60/57	74/68
Dimensions - H x L x W	Mm	800×950×315/ 680×890×290	800×1260×315/ 680×1200×290

<sup>\*)</sup> Only CDF 35T/45T: Measured opposite to the duct openings

## Service agreement

---

### Introduction

The unit includes mechanical and electrical parts and the unit is often placed in a rough environment where the components are exposed to different climate conditions. Therefore the unit will need preventative maintenance on a regular basis.

---

### Hotline

The After Sales Support Department of Dantherm A/S is ready to help you in case of a problem.

To be able to offer quick and efficient help, please have the following information ready when contacting Dantherm A/S:

- Name
- Phone no.
- Site/location (unit)
- Company
- Email
- Serial no/order no.
- Country
- Type (unit)
- Description of the problem

Contact Dantherm A/S, ask for the After Sales Support department and help will be provided as soon as possible:

Phone: +45 96 14 37 00

Fax: +45 96 14 38 00

Email: [service@dantherm.com](mailto:service@dantherm.com)

---

### Preventive maintenance

Dantherm A/S offers to do the preventive maintenance on the units so that they at all times will operate according to factory standards.

---

### Corrective and emergency repair

In case of malfunctions of the product Dantherm A/S offers to do emergency repair on the climate units. Agreements will be made with the customer on response time and price.

---

### Setup

Dantherm A/S has established a network of service partners to do the preventative maintenance. The partner is trained and certified on the actual climate units. The partner will also carry an adequate number of spare parts – so that any repairs can be made during the same visit.

The agreement will be made with Dantherm A/S – and the overall responsibility for the agreement will be Dantherm A/S's.

---

### Further information

For further information about a service agreement in your country or region, please contact:

Henrik Hersted

After Sales Support Manager

Dantherm A/S

Phone: +45 9614 4767

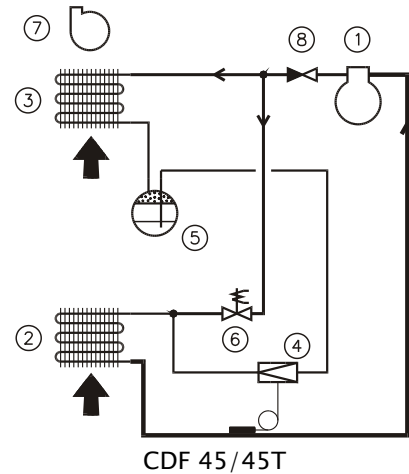
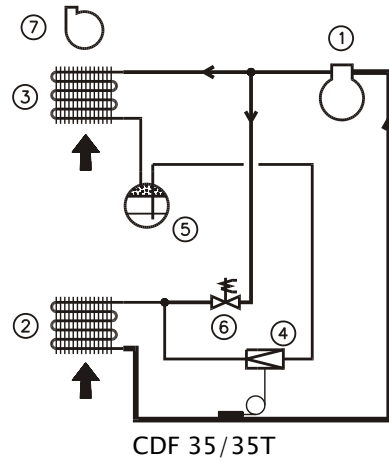
Mobile: +45 2399 4066

Email: [heh@dantherm.com](mailto:heh@dantherm.com)

---

## Kølekredsløb/Cooling Circuit/Kältekreislauf/Circuit frigorifique/Circuito frigorifero

Illustration

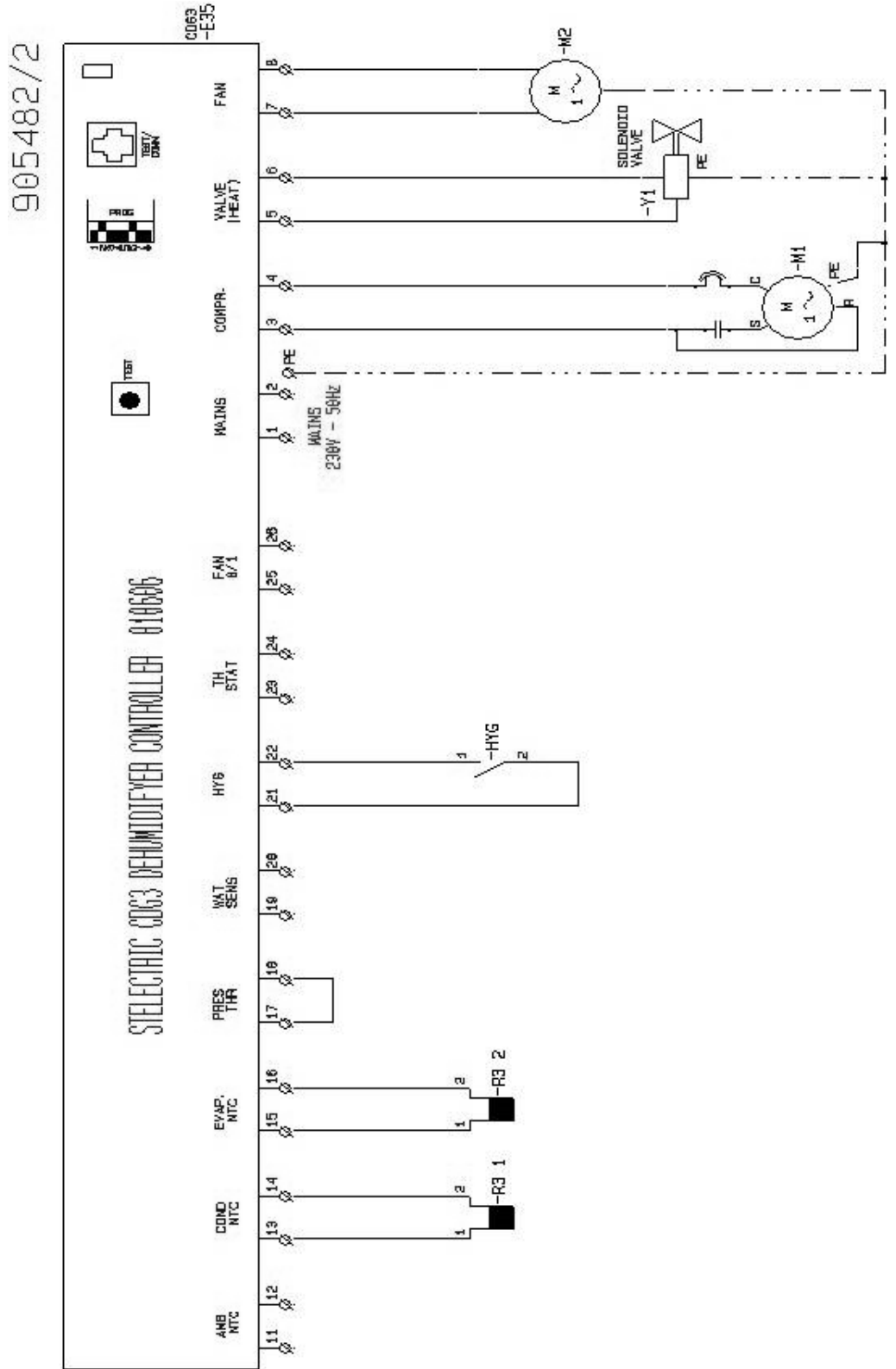


Nr./No.	DA	EN	DE
①	Kompressor	compressor	Kompressor
②	Fordamper	evaporator	Verdampfer
③	Luftkølet kondensator	air-cooled condenser	luftgekühlter Kondensator
④	Termo ekspansions-ventil	thermostatic expansion valve	thermostatisches Expansionsventil
⑤	Væskebeholder/-tørrefilter	receiver/liquid line drier	Receiver/Trockenfilter
⑥	Magnetventil til trykudligning	solenoid valve for pressure equalization	Magnetventil für Druckausgleich
⑦	Ventilator	fan	Ventilator
⑧	Kontra ventil	Non-return valve	Rückschlagventil

Nr./No.	FR	IT
①	compresseur	Compressore
②	évaporateur	Evaporatore
③	condenseur à air	Condensatore raffreddato ad aria
④	détendeur	Valvola ad espansione termostatica
⑤	collecteur/déshydrateur	Collettore con filtro anti-condensa
⑥	electro-vanne d'égalisation de pressions	Valvola solenoide per equalizzazione pressione
⑦	ventilateur	Ventilatore
⑧	Clapet anti-retour	Valvola di non-ritorno

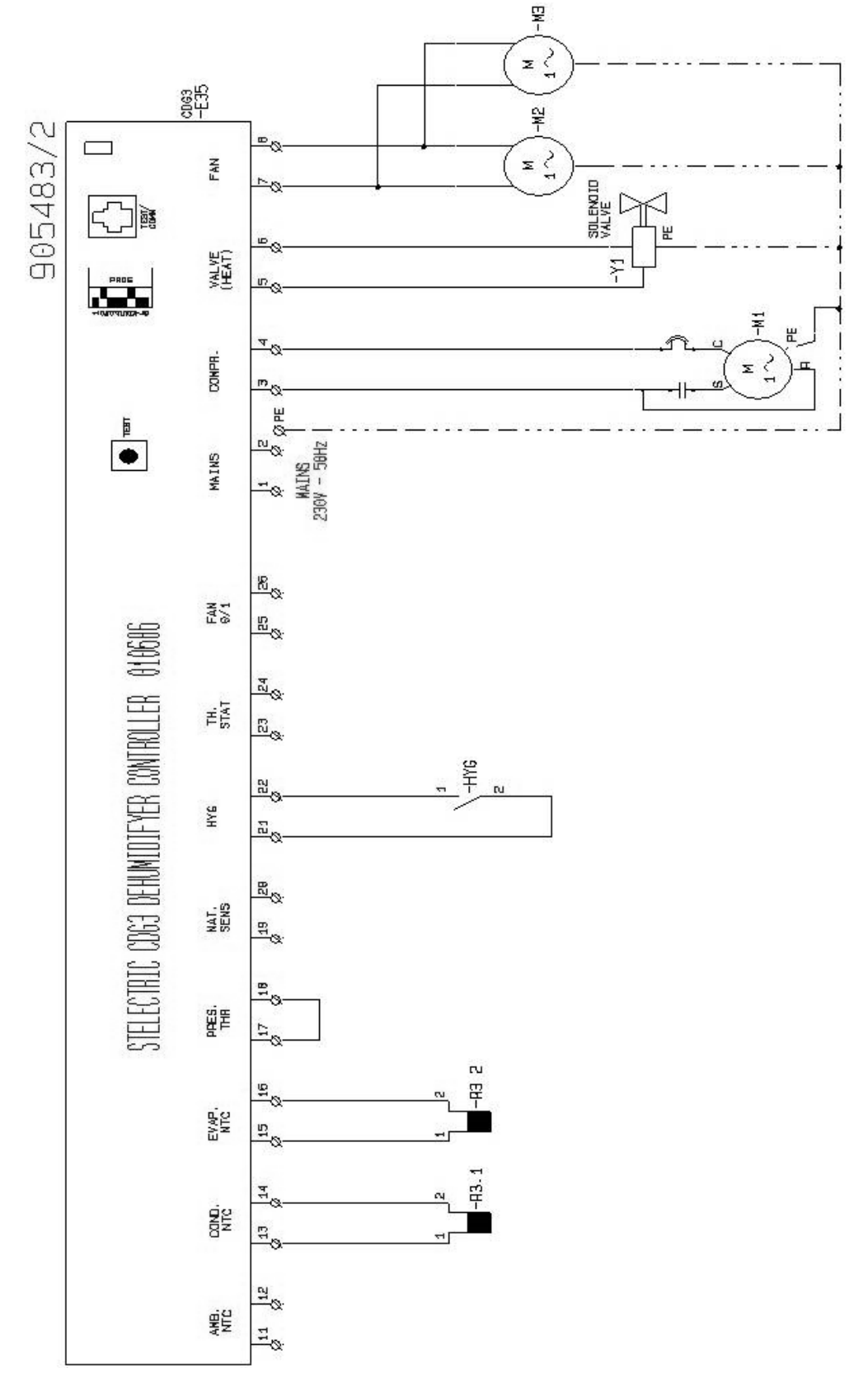
Eldiagram/Wiring diagram/Schaltplan/Schéma électrique/Schema elettrico, CDF 35/35T

Diagram,  
CDF 35/35T,  
1 x 230 V/50 Hz



Eldiagram/Wiring diagram/Schaltplan/Schéma électrique/Schema elettrico, CDF 45/45T

Diagram,  
CDF 45/45T,  
1 x 230 V/50 Hz

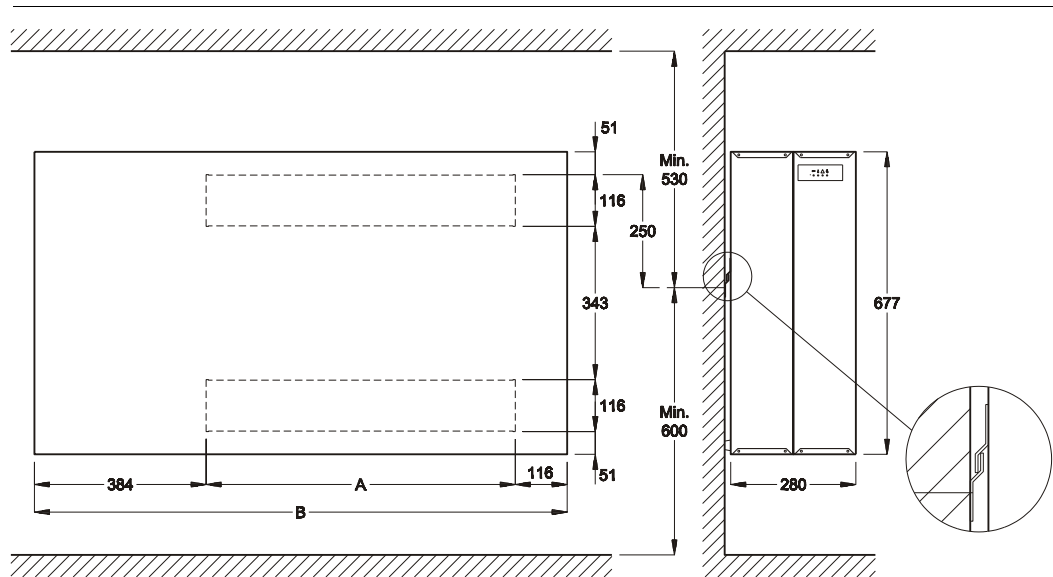


## Ordforklaring/Legend/Legende/Légende/Legenda

- (DA) Ordforklaring til el-diagram  
 (EN) Legend for wiring diagram  
 (DE) Legende für Schaltplan  
 (FR) Légende du schéma électrique  
 (IT) Legenda schema elettrico

Pos.	(DA) Beskrivelse	(EN) Designation	(DE) Beschreibung	(FR) Désignation	(IT) Descrizione
R3.1	Kondensatorføler	Condenser sensor	Kondensatorfühler	Sonde du condenseur	Sensore del condensatore
R3.2	Fordamperføler	Evaporator sensor	Verdampferfühler	Sonde d'évaporateur	Sensore dell'evaporatore
HYG	Indbygget hygroskop	Built-in hygroskop	Eingabauter Hygroskop	Hygroskop incorporé	Umidostato interno
M2	Ventilatormotor	Fan motor	Ventilatormotor	Moteur de ventilateur	Motore del ventilatore
M3	Ventilatormotor	Fan motor	Ventilatormotor	Moteur de ventilateur	Motore del ventilatore
Y1	Magnetventil	Solenoid valve	Magnetventil	Electro-vanne	Valvola solenoide
M1	Kompressor-motor	Compressor motor	Kompressor-motor	Moteur de compresseur	Motore del compressore

## Målskitser/Dimensional outlines/Maßskizzen/Croquis coté/Schema dimensionale



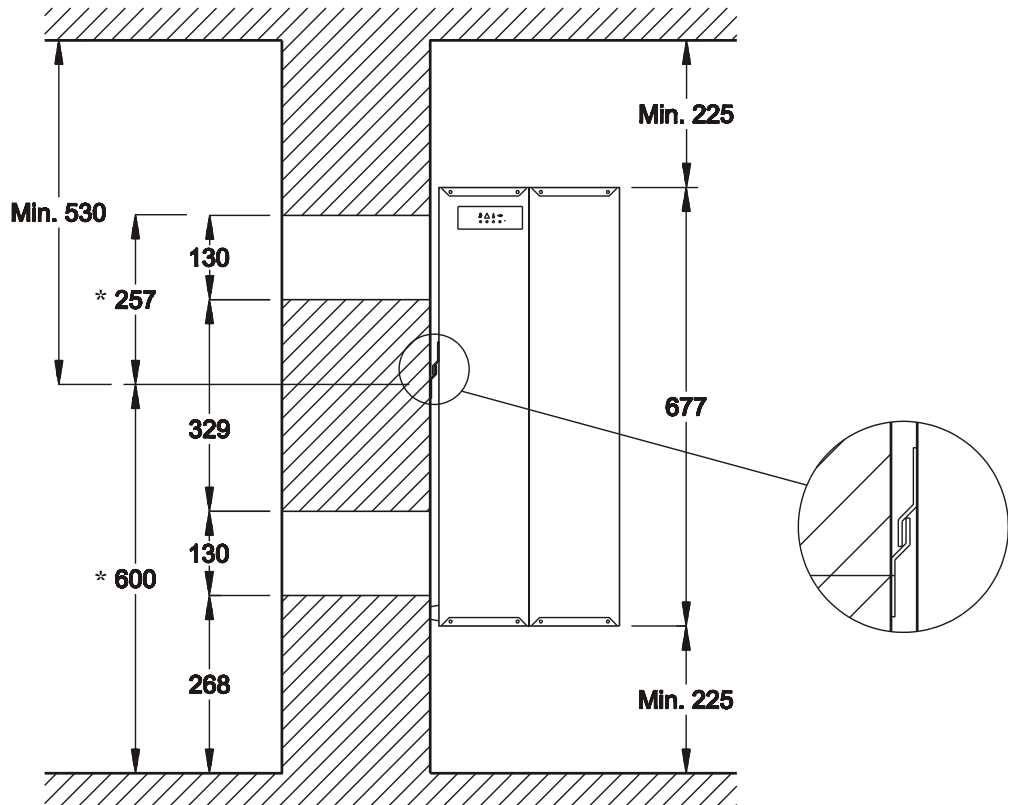
Model	A	B	*)
CDF 35T	387 mm	887 mm	130 x 410 mm
CDF 45T	692 mm	1192 mm	130 x 720 mm

\*) *Kanalåbning i muren · Duct opening in the wall · Kanalöffnung im Mauer ·  
Ouverture de gaine dans le mur · Apertura nel muro per passaggio canali*

*Fortsættes/continued overleaf/fortsetzt/Suite à la page suivante/continua alla pagina seguente*



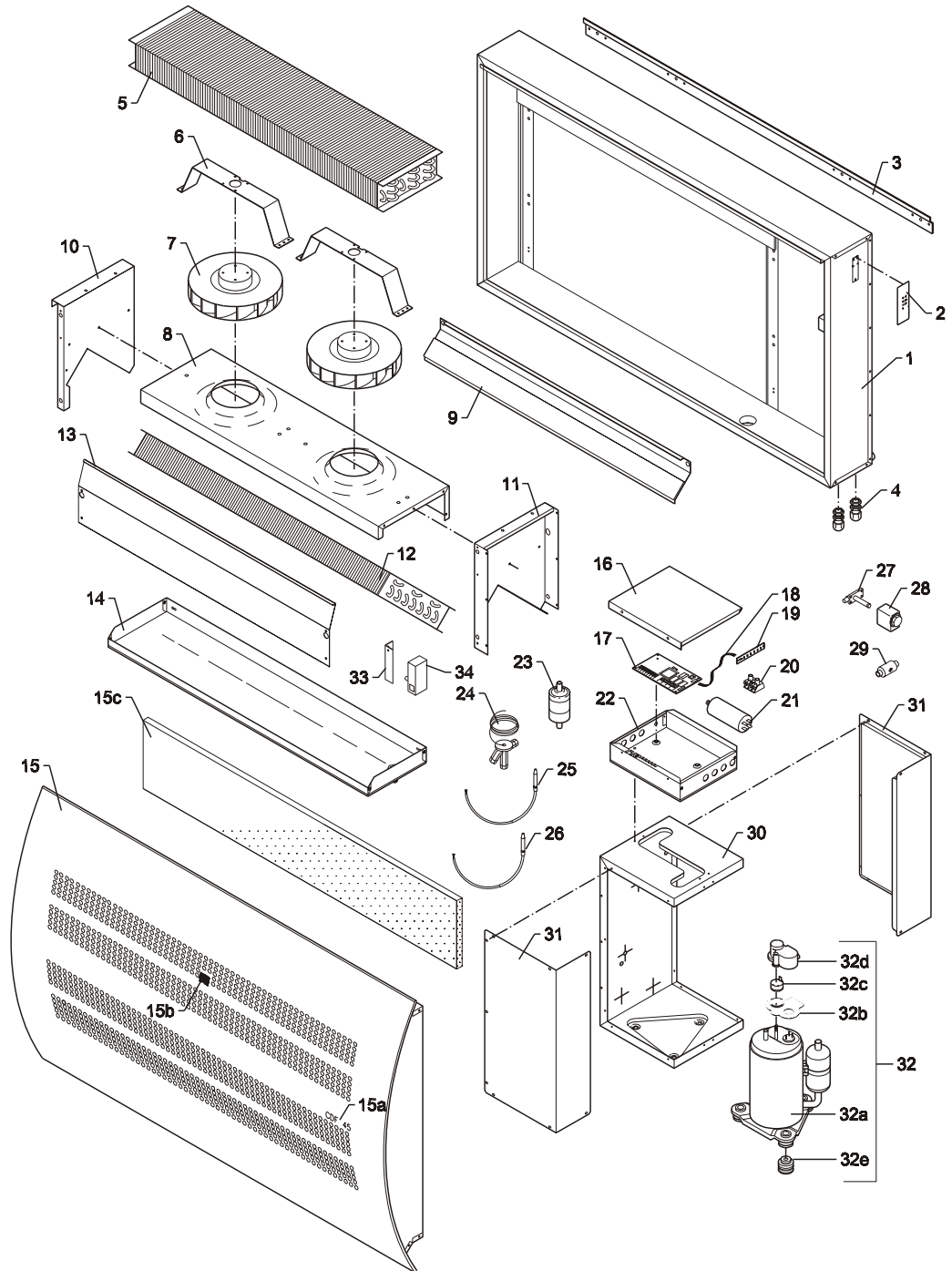
Målskitser/Dimensional outlines/Maßskizzen/Croquis coté/Schema dimensionale, *continued*



*	
(DA)	Målene angiver placeringen af vægbeslaget
(EN)	The dimensions indicate the placing of the suspension bar
(DE)	Die Dimensionen zeigen die Plazierung der Wandkonsole an
(FR)	Les dimensions indiquent la position de la barre d'ancrage
(IT)	Le misure indicano la posizione della staffa di ancoraggio

# Reservedele/Spare parts/Ersatzteile/Pièces de rechange/Parti di ricambio

Illustration  
CDF 35/45  
1 × 230 V/50 Hz



962464

*Fortsættes/continued overleaf/fortsetzt/Suite à la page suivante/continua alla pagina seguente*

## Reservedele/Spare parts/Ersatzteile/Pièces de rechange/Parti di ricambio

DA / EN  
CDF 35/45

Pos.	Dantherm nr./no.	DA	EN
		Beskrivelse	Designation
1	293661	Kabinet, kpl., CDF 35	Housing complete, CDF 35
	293665	Kabinet, kpl., CDF 45	Housing complete, CDF 45
2	517598	Label for styrepanel, CDF 35	Label for operating panel, CDF 35
	517589	Label for styrepanel, CDF 45	Label for operating panel, CDF 45
3	069985-046	Vægbeslag, CDF 35	Wall suspension rail, CDF 35
	069956-046	Vægbeslag, CDF 45	Wall suspension rail, CDF 45
4	526920	Kabelforskruning	Cable entry
5	600978	Kondensatorflade, CDF 35	Condenser, CDF 35
	600972	Kondensatorflade, CDF 45	Condenser, CDF 45
6	069931	-	-
7	293736	Ventilator, 1600mm ledning	Fan with 1600 mm cable
8	069938	CDF 35	CDF 35
	069930	CDF 45	CDF 45
9	293631	CDF 35	CDF 35
	293629	CDF 45	CDF 45
10	069928	-	-
11	069929	-	-
12	600072	Fordamperflade, CDF 35	Evaporator, CDF 35
	600974	Fordamperflade, CDF 45	Evaporator, CDF 45
13	293632	-	-
	293664	-	-
14	293626	Drypbakke, CDF 35	Condensate tray, CDF 35
	293618	Drypbakke, CDF 45	Condensate tray, CDF 45
15	293662	Front, kpl., CDF 35	Front cover panel cpl., CDF 35
	293666	Front, kpl., CDF 45	Front cover panel cpl., CDF 45
15a	033917	Skilt, CDF 35	Label, CDF 35
	033920	Skilt, CDF 45	Label, CDF 45
15b	033233	Skilt -Dantherm logo	Label - Dantherm logo
15c	069998	Filter, CDF 35	Filter, CDF 35
	069897	Filter, CDF 45	Filter, CDF 45

*Fortsættes/continued overleaf/fortsetzt/Suite à la page suivante/continua alla pagina seguente*

## Reservedele/Spare parts/Ersatzteile/Pièces de rechange/Parti di ricambio

DA / EN  
 CDF 35/45

Pos.	Dantherm nr./no.	<span style="border: 1px solid black; border-radius: 50%; padding: 2px;">DA</span> Beskrivelse	<span style="border: 1px solid black; border-radius: 50%; padding: 2px;">EN</span> Designation
16	069950	-	-
17	517593	Printkort	PCB
18	517596	Fladkabel for diodeprint	Flat cable for diode print
19	517594	Diodeprint	Diode print
20	524593	2 polet klemme	Bipolar terminal
21	602444	Driftkondensator	Capacitor
22	293635	-	-
23	607232	Receiver/tørre-filter	Receiver/liquid line drier
24	603969	Termoventil, CDF 35	Thermostatic valve, CDF 35
	046171	Termoventil, CDF 45	Thermostatic valve, CDF 45
25/26	032675	Føler, 2600mm	Sensor, 2600 mm
27	605470	Magnetventil	Solenoid valve
28	605440	Spole for magnetventil	Coil for solenoid valve
29	-	-	-
	604880	Kontraventil, CDF 45	Non-return valve, CDF 45
30	293627	-	-
	293620	-	-
31	293621	-	-
32	602447	Kompressor, kpl., CDF 35	Compressor cpl., CDF 35
	602446	Kompressor, kpl., CDF 45	Compressor cpl., CDF 45
32a	602448	Kompressor, CDF 35	Compressor, CDF 35
	602449	Kompressor, CDF 45	Compressor, CDF 45
32b	602456	Pakning for dæksel	Seal
32c	602451	Sikring, CDF 35	Fuse, CDF 35
	602452	Sikring, CDF 45	Fuse, CDF 45
32d	602455	Dæksel	Cap
32e	602450	Svingningsdæmper	Vibration damper
33	069967	Holder for hygrostat	Retainer for hygrostat
34	516350	Hygrostat	Hygrostat

# Contact Dantherm

Dantherm Air Handling A/S  
Marienlystvej 65  
7800 Skive  
Denmark

Phone +45 96 14 37 00  
Fax +45 96 14 38 00

infodk@dantherm.com  
www.dantherm.com

Dantherm Air Handling AS  
Postboks 4  
3101 Tønsberg  
Norway  
Besøksadresse: Skallestad, Nøtterøy

Phone +47 33 35 16 00  
Fax +47 33 38 51 91

dantherm.no@dantherm.com  
www.dantherm.no

Dantherm Air Handling AB  
Virkesgatan 5  
614 31 Söderköping  
Sweden

Phone +(0) 121 130 40  
Fax +(0) 121 133 70

infose@dantherm.com  
www.dantherm.se

Dantherm Air Handling (Suzhou) Ltd.  
Bldg#9, No.855 Zhu Jiang Rd.,  
Suzhou New District, Jiangsu  
215219 Suzhou  
China

Phone +86 512 6667 8500  
Fax +86 512 6667 8500

dantherm.cn@dantherm.com  
www.dantherm-air-handling.com.cn

Dantherm Limited  
12 Windmill Business Park  
Windmill Road, Clevedon  
North Somerset, BS21 6SR  
England

Phone +44 (0)1275 87 68 51  
Fax +44 (0)1275 34 30 86

infouk@dantherm.com  
www.dantherm.co.uk

Dantherm Air Handling Inc.  
110 Corporate Drive, Suite K  
Spartanburg, SC 29303  
USA

Phone +1 (864) 595 9800  
Fax +1 (864) 595 9810

infous@dantherm.com  
www.dantherm.com



**Dantherm Air Handling A/S**

Marienlystvej 65

7800 Skive

Denmark

[www.dantherm.com](http://www.dantherm.com)

[service@dantherm.com](mailto:service@dantherm.com)

**Dantherm®**  
CONTROL YOUR CLIMATE