CDF 35T/45T

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:

General information

Introduction

This section gives the general information about this service manual and about the unit.

Manual, part number

Part number of this service manual is 975683.

Target group

The target group for this service manual is the technicians who install, maintain, and exchange parts on the unit.

Copyright

Reservations

Dantherm Air Handling 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.

EC-Declaration of Conformity

CE

Dantherm Air Handling A/S, Marienlystvej 65, DK-7800 Skive hereby declare that the unit mentioned below:

Dehumidifier, model CDF 35T/45T, product no. :

covered by this declaration, is in conformity with the following directives:

98/37/EEC	Directive on the Safety of Machines
73/23/EEC	Low Voltage Directive
89/336/EEC	EMC Directive

- and is manufactured in conformity with the following standards:

EN 60 335-2-40	Standard for electric dehumidifiers
EN 292	Machine safety
EN 61 000	EMC

Skive, 28.08.2003

Managing director Per Albæk

Project manager

Recycling

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.

The dehumidifier contain R407C refrigerant and compressor oil. The compressor must in connection with disposal be returned to authorities.

Product- and functional description

Introduction

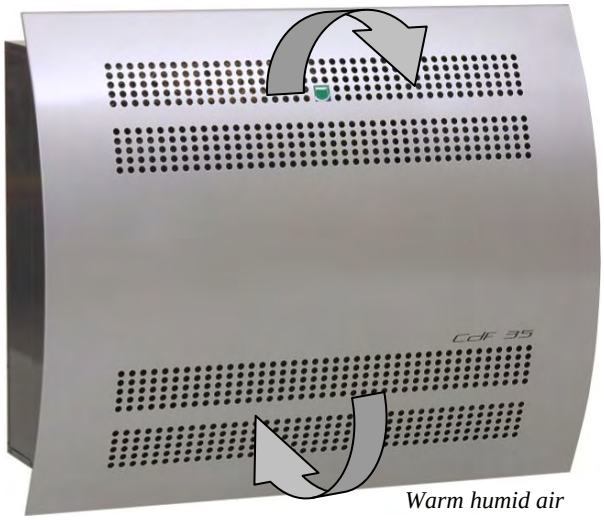
This section will give you a description of the CDF 35T/45T and its functionality.

Functional description

CDF 35T/45T 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:



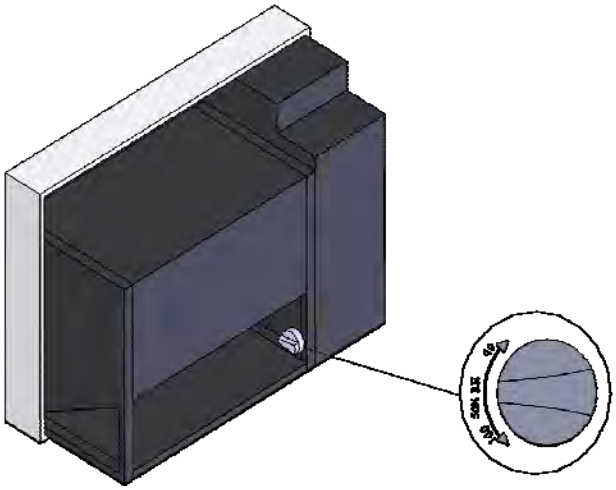
Warmer and dehumidified air

Warm humid air

Built in hygrostat

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

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



Continued overleaf

Product- and functional description, *continued*

Built in hygrostat, ***continued***

If you want to set the hygrostat lower than 60 %RH, turn the adjusting screw clockwise.

We recommend installing an external hygrostat if you want to change/adjust the setting of relative humidity very often.

Connection of external hygrostat

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

Fan control

When the dehumidifier is started by the hygrostat, 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 hygrostat, or by an external hygrostat, 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 	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

Measuring of ducts Cut out the stencil from the packaging and tape it onto the wall where you want the unit to hang. Use the stencil to mark off the position of the ducts and the suspension bar.

You may also use the dimensional outlines on page 62 to make the markings.

Having made the duct openings, measure the depth of the ducts. The ducts are now ready for adjustment and installation.

Note! The suggested minimum space between unit and ceiling and between unit and floor is 225 mm.

See the dimensional outlines page 62

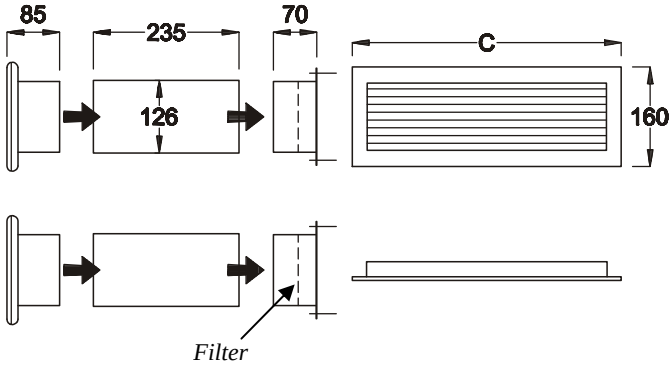
Duct kit

The duct kit is suitable for wall thicknesses from 70 to 350 mm

Duct kit

The duct kit includes the parts shown below:

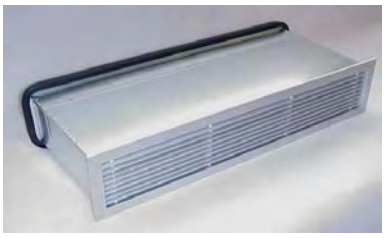
Product	C
CDF 35T	434 mm
CDF 45T	743 mm



The duct piece with the filter is placed in the lower duct opening where the humid air from the room is taken into the unit.

If the wall is between 130 and 350 mm thick, the center piece of the duct kit is shortened to the required length before assembly.

The center piece of the duct kit – 235 mm



Duct kit - 350 mm

When the duct kit has been installed in the duct openings, the unit is hung up on the rail.

Continued overleaf

Mounting and installation, *continued*

Condensate outlet

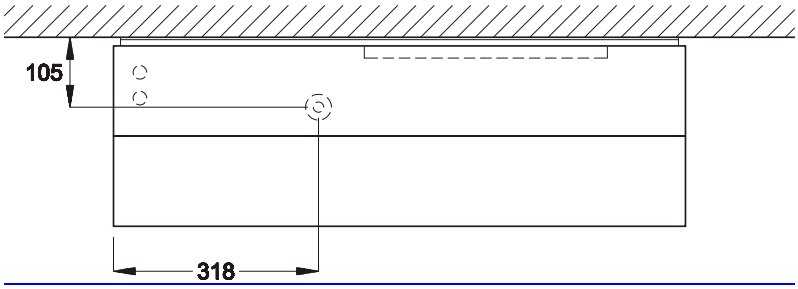
The condensate outlet is located at the base of the dehumidifier. The unit has a drain spigot intended for connection of a ½'' flexible or fixed water hose.

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

The placing of the condensate outlet is shown on the drawing below – 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 on the pages 59.

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

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
• The dehumidifier does not work • No light in the LEDs on the display	-	• Check the external fuses • Check the power supply to the unit
• The compressor does not work • The triangle is constantly red	The compressor has stopped automatically caused by a too high temperature on the condenser	If the unit does not start again after 45 minutes, check the following: • Check that the fan(s) is running • Check if the filter (CDF-T: in the duct kit) is dirty • Check if the evaporator and the condenser coil is dirty • Check if the room temperature is higher than 30 °C. If the room temperature is higher than 30 °C, the unit must be stopped • Check that the front cover panel (CDF)/duct openings (CDF-T) are not covered
• The dehumidifier does not work • The thermometer LED on the display is lit in red	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
• The dehumidifier does not work • The lighting on the display is green	-	Check the built-in or the external hygrostat, if any, by setting it to a low relative humidity, e.g. 10 – 20 %RH. If the unit still does not start, check the built-in or external hygrostat for defects

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 Air Handling representative.

Technical data

General data

The table shows the dehumidifier's general technical data:

		CDF 35/35T	CDF 45/45T
Working area, humidity	%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^3/h	250	500
Refrigerant	-	R407C	
Quantity of refrigerant	kg	0.6	0.950
Noise level*) (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

*) 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 Air Handling 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 Air Handling A/S:

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

Contact Dantherm Air Handling 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

Preventive maintenance

Dantherm Air Handling 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 Air Handling 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 Air Handling 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 Air Handling A/S – and the overall responsibility for the agreement will be Dantherm Air Handling A/S's.

Further information

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

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