

COTES C80B-BOAT
BRUGS- OG SERVICE MAUAL / OPERATING AND SERVICE HANDBOOK

Cotes dehumidifier **CR80B - BOAT**
Voltage/Hz: 230V / 50-60Hz
Cotes number: 10100100-30
Manual number: 140722
Revision: B

COTES BÅDAFFUGTER

COTES BOAT



CR80B - BOAT

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Part 1 (DK): Brugermanual

Om denne manual




Denne manual omhandler Cotes affugter CR80B.

Hele manualen bør læses grundigt før installation og opstart af affugteren. For at undgå personskader og skader på materiale og installationer bør der sikres en korrekt forståelse af affugterens brug og betjening, samt sikkerhedsforskrifter.

Denne servicemanual er hovedsageligt tiltænkt teknikere, som installerer, servicerer og reparerer Cotes affugtere.

Bruger af affugteren, og personer med ansvar for overvågning vil ligeledes have gavn af at læse servicemanualen.

Symboler brugt i denne manual

	Når der skal udføres en bestemt handling
	Når der er risiko for personskade
	Når særlig opmærksomhed er påkrævet

	Note Det er brugerens ansvar at læse og forstå manualen, og sikre at affugteren betjenes og vedligeholdes korrekt.
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Manualens varenummer

Denne manuals varenummer 140722. Dette nummer kan bruges til bestilling af yderligere kopier.

Vilkår

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Cotes humidity management

Alt for ofte bruges opvarmning til regulering af luftens fugtighed. Dette er dyrt, og ineffektivt ift. energiforbruget (og har derfor uheldig virkning på miljøet). Derudover opnår man kun sjældent – og under meget specielle forhold - det ønskede resultat.

Brugen af Cotes affugtere er den mest omkostnings- og energieffektive måde at håndtere uønsket fugt i luften, og dermed forhindre skader og problemer som fugt kan forårsage i bygninger, materialer, installationer og processer. Vi kalder det "humidity management".

Cotes affugtere har flere fordele.

- Vores know-how og erfaring sikrer den rigtige løsning til den enkelte kundes konkrete behov
- De er meget nemme at vedligeholde og servicere
- De er usædvanligt pålidelige
- De bruger kun et minimum af energi
- De er designet til at opnå resultater.

Vi tilstræber at give vores kunder de mest teknisk effektive og energibesparende løsninger til den bedste pris. Dette sikrer maksimalt afkast af investeringerne, samt fred i sindet om at have truffet den bedste beslutning.

Cotes CR-B serie

Affugtere i Cotes CR-B-serien er normalt installeret for at fjerne uønskede fugt fra den omgivende luft ved normalt atmosfærisk tryk. Typisk bruges affugteren til brug for udtørring af både, campingvogne, bygningsudtørring eller til regulering af luftfugtigheden i uopvarmede lagerrum, i vandværker eller i produktionsfaciliteter, hvor der er hygroskopisk materiale til stede.

Disse affugtere kan også bruges som en del af et større luftbehandlingssystem, ofte installeret i en by-pass til hovedsystemet. I sådanne tilfælde vil trykket i hovedsystemet påvirke set-up og parametre for denne affugter. Du bør i dette tilfælde kontakte din Cotes forhandler for rådgivning, da dette kan påvirke kapaciteten på affugteren.

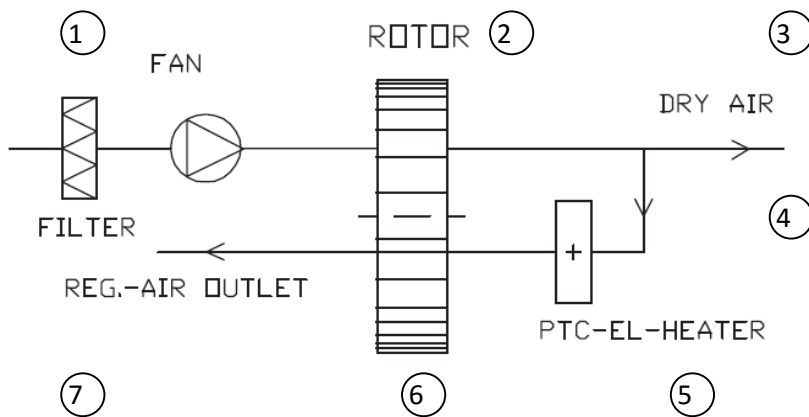
Sådan virker affugteren

En Cotes affugter kan kort fortalt fjerne vand fra en gennemstrømmende luftmængde. Hjertet i denne proces er en adsorberende rotor, som er placeret inde i affugteren. Rotoren er beklædt med et meget hygroskopisk materiale, silica gel, der er i stand til at opsuge vandmolekyler fra den luft som ønskes affugtet (procesluften). Når vandmolekylerne er opsugt i rotoren, forlader luften igen affugteren, denne gang som tør luft.

Rotoren roteres kontinuert til en regenereringszone, hvor den tørres med opvarmet luft. Resultatet heraf er dels en varm og fugtig regenereringsluft som føres ud af bygningen, og dels en tør rotor, som igen er klar til at opsuge vandmolekyler.

Affugtningen er således en kontinuert proces med 2 luftstrømme; procesluft og regenereringsluft.

Figure 1: Sådan virker en Cotes affugter CR80B (diagram)



Følgende beskriver luftens vej gennem affugteren (se Figure 1)

1. Ventilatoren suger luften gennem filteret ind i affugteren
2. Rotoren absorberer vandet fra den fugtige luft
3. Den tørre luft forlader affugteren
4. Luften til regenereringsprocessen tages fra to 30° sektioner på hver siden af regenereringszonen. Herved fortørres den, hvilket giver en mere energioptimal proces.
5. Regenereringsluften opvarmes til ca. 90°C (ved 20°C indgangsluft) med PTC-varmelegemer
6. Den opvarmede regenereringsluft absorberer vandet fra rotoren, hvorved den efterlades tør og parat til endnu en affugtning.
7. Den fugtige og varme regenereringsluft forlader affugteren

Figure 2 Illustration af en Cotes CR80 affugter



Her kan den bruges

Cotes CR-B serien af affugtere er beregnet til indendørs brug i stationære installationer. Affugteren må ikke placeres på steder, hvor de kan blive udsat for vand.



Note

Luften som ønskes tørret, må ikke være forurenset med partikler, kemiske stoffer, opløsningsmidler eller eksplosive dampe / gasser. Det samme gælder for regenereringsluften.

Affugteren må ikke installeres på steder, hvor eksplosive dampe / gasser, olie røg, udstødningsgas fra dieselmotorer, etc. kan forekomme.



Advarsel

Affugteren må ikke udsættes for vand. Dette vil kunne medføre kortslutning, og i sidste ende livsfare.

Grænseværdierne for luftstrømmen til affugteren er:

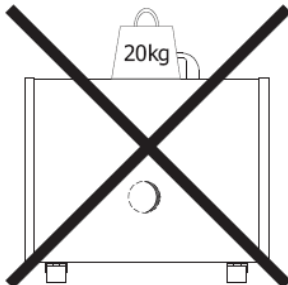
Maximum fugtighed 100% RH

Min/maks. temperatur..... -20°C - +40° C



Note

Udsæt ikke affugteren for belastning over 20 kg. Dette vil kunne skade affugteren.



Opbevaring

Når affugteren ikke er i brug, bør den opbevares ved mellem -20°C og +50°C, og maksimalt 60%RH.

Opstart og justering

Denne guide hjælper dig igennem opstart og justering af eb Cotes CR80B affugter.

Procedure

1. Kontrollér at alle rør og slager er korrekt tilsluttet, og fastspændt
2. Kontrollér at filter er monteret
3. Tilslut 230 V AC + PE (jord) + HFI (fejlstrømsafbryder)
4. Tilslut hygrostat
5. Sæt vippekontakter i rette position (se nedenfor)
6. I sjældne tilfælde bør luftmængden for regenerering justeres med et spjæld (ekstraudstyr)
7. Affugteren er nu klar til brug.



Advarsel

Affugteren skal tilsluttes både jord og HFI (fejlstrømsafbryder). I modsat fald vil evt. fejl kunne medføre strøm i kabinet, og risiko for elektrisk stød.

Rød, afbryder:

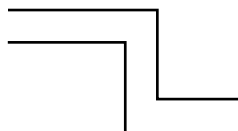
Pos. "0" = Affugteren er slukket

Pos. "I" = Affugteren er tændt

Sort, afbryder:

Pos. "0" = Reduceret drift (60 %)

Pos. "I" = Affugteren er fuldt tændt



Stik for hygrostat

Drift af affugteren

Affugteren styres af en hygrostat for at opnå en bestemt relativ luftfugtighed, afhængig af formålet med affugtningen. Cotes anbefaler nedenstående indstillinger. Affugteren har to indstillinger for drift, 60% og 100 % effekt. Den reducerede drift er tiltænkt anvendelser hvor der er begrænsninger på den maksimale effekt som eksempelvis bådbrøer og campingpladser. De 60 % refererer til et reduceret effektoptag på varmelegemerne og den faktiske evne til at affugte kan variere fra 60 %.

Tabel 1: Anbefalede indstillinger for hygrostat

Hvad er formålet	Setting
Beskyttelse mod elektriske fejl	50–55%
Beskyttelse mod korrosion	50–55%
Beskyttelse mod råd og svamp	60–65%

Part 1 (UK): Operating manual

About this manual

This is the operating and service manual for the Cotes CR80B dehumidifier.




It is important to be familiar with the correct operating procedures and all precautionary safety measures, in order to avoid any damage to materials or installations, and/or personal injury.


The operating manual is mainly intended for use by end user who will operate and adjust the dehumidifier.

The service manual is mainly intended for use by technicians who install this Cotes dehumidifier unit, who carry out preventive maintenance and who replace defective parts. As installer you should read the whole manual before installing and/or starting the dehumidifier unit for the first time.

Anyone using Cotes dehumidifier units, or whose responsibilities include supervising their operation, will also benefit from reading this manual and from consulting it as a practical help should the need arise.

Symbols used in this manual

	When you are instructed to perform a particular action
	When items in the dehumidifier can seriously damage health
	When special attention is required

	Note It is the responsibility of the operator to read and understand this service manual and other information and to employ the correct operating and maintenance procedures.
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Product number for this manual

The product number of this service manual is **Fejl! Henvisningskilde ikke fundet**. You should quote this number if you wish to order additional copies of this manual.

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Cotes humidity management

The traditional way to get rid of unwanted moisture in the air involves heating. This is often expensive and usually results in loss of energy that has an undesirable effect on the environment and only rarely – and under certain specific conditions – produces the desired result.

Cotes dehumidification solutions are the most cost-effective and energy-efficient way to deal with undesirable moisture in the air, and to prevent the widespread damage and disruption that excess humidity can cause in virtually all kinds of premises and structures.

Cotes dehumidification units provide exceptional advantages.

- Our know-how and experience ensure the equipment for each customer's practical needs
- They are very easy to maintain and service
- They are exceptionally reliable
- They only use a minimum of energy
- They are designed to get results.

We aim to provide our customers with the most technically effective and energy-efficient solution at the best price. This ensures maximum return on investment, as well as peace of mind of having made the best decision.

The Cotes CR-B range

Dehumidifiers in the Cotes CRB range are normally installed to remove undesirable moisture from ambient air at normal atmospheric pressure. Typically, these stand-alone installations are used for drying out boats, caravans, buildings, moisture control in unheated store rooms and in waterworks or in production facilities where there are hygroscopic materials present.

These dehumidifiers can also be used as a part of larger air treatment system, often installed in a by-pass to the main system. In such cases, the pressure in the main system will influence the set-up and parameters for this dehumidifier. You should contact the relevant Cotes supplier for advice, as this can influence the capacity of the dehumidifier.

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How it works

This dehumidifier removes water from a flow of air passing through the unit. The water thus removed is carried away from the dehumidifier in the regeneration air.

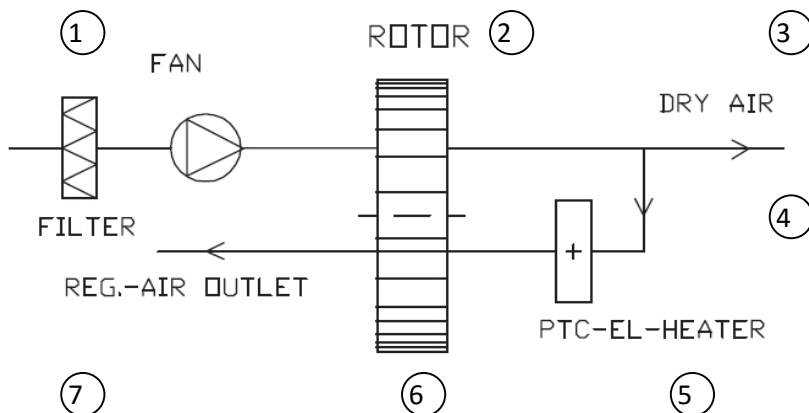
Water adsorption and extraction take place in a rotor that is divided into two parts:

- the drying part
- the regeneration part.

In the drying part, the main air flow is made to pass through a rotor covered with silica gel, a material with hygroscopic properties – i.e. it absorbs water from its surroundings. When some of the moisture in the air has been removed, the air leaves the rotor in a drier state than when it entered.

In the regeneration part, the heated air is used to make the adsorbed water evaporate. The water vapour now leaves the dehumidifier in the regeneration air through the regeneration air outlet. The two air flows are fixed and the rotor turns, providing an automatic process of simultaneous water adsorption and water extraction (see figure below).

Figure 3 How a Cotes CR80B dehumidifier works.(diagram)



The following describes the passage of the air through the dehumidifier (see Figure 3)

1. The fan draws in humid air through the filter in the dehumidifier
2. The rotor absorbs the moisture from the humid air
3. The dry air leaves the dehumidifier
4. The regeneration air is taken from the two 30-degree sections of the rotor located on each side of the regeneration section
5. The PTC heating element heats the regeneration air to approx. 110°C (at 20°C intake)
6. The heated regeneration air absorbs the moisture from the rotor leaving it dry and ready for dehumidification
7. The humid regeneration air leaves the dehumidifier.

The two air flows are fixed and the rotor turns. This ensures an automatic, continuous drying/regeneration process.

Figure 4 Illustration of the Cotes dehumidifier unit



Where it can be used

The Cotes CR-B range of dehumidifiers is for indoor use in stationary installation only, and should not be placed in locations where the cabinet can be exposed to water.



Note

The air to be dried must not be contaminated by solid particles, chemical substances, solvents or explosive fumes/gases. The same applies to the regeneration air.

The dehumidifier must not be installed in locations where explosive fumes/gases, oil fumes, exhaust fumes from diesel engines, etc. may occur.



Warning

The dehumidifier must not be exposed to water of any kind. This might cause electrical shock.

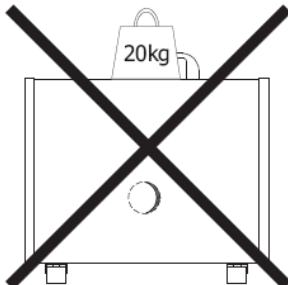
The limit values for the flow of air to the dehumidifier are:

Maximum humidity	100 %RH
Minimum/Maximum temperature	-20°C - +40 °C



Note

Do not place any weight in excess of 20 kg on top of the dehumidifier as this will damage the unit.



Storing the dehumidifier


When not in use, store the dehumidifier at -20°C to +50°C, maximum 60%RH.

Start-up and adjustment

This section guides you through the start-up and adjustment of a Cotes dehumidifier.

Procedure

1. Check that all ducts/pipes are correctly connected and the clips are tightened
2. Check that the filter is in place
3. Connect the plug to 230 V AC + PE (ground) + RCB (residual-current device)
4. Connect the hygrostat
5. Set the toggle switches (red and black) to the required position (see below)
6. The regeneration air flow should be adjusted using a damper (not included)
7. The dehumidifier is now ready for operation.



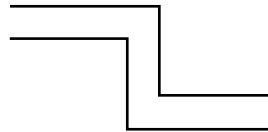
Warning
Risk of electrical shock if PE (ground) and RCB (Residual-current device) is not connected properly.

Red switch:

Pos. "0" = Dehumidifier switched off
 Pos. "I" = Dehumidifier switched on

Black switch

Pos. "0" = Reduced capacity (60 %)
 Pos. "I" = Full capacity



Connector for hygrostat

Operation of dehumidifier

The dehumidifier is controlled by a hygrostat in order to obtain a desired humidity. Cotes recommends the settings shown below for optimal humidity. The dehumidifier has two operation modes . I) Reduced capacity 60 % and II) full capacity 100. Reduced capacity is designed for placed with restriction on the maximum current/power e.g. boat bridges or camping areas. The 60 % reduced capacity is referring to the power consumption of the dehumidifier (heating element), the actual water removal capacity may vary from 60 %.

Table 2: Recommended settings for hygrostat

What the dehumidifier is being used for	Setting
Protection against electrical faults	50–55%

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Protection against corrosion	50–55%
Protection against mould	60–65%

Part 2: Installation and service manual

Unpacking and installation



Note

This dehumidifier can only be installed by trained and certified technicians.

This section covers the following topics:

- Packaging
- Handling
- Placing the dehumidifier
- Connecting the ducts
- Electrical installation
- Optimizing the dehumidification process

Packaging of the dehumidifier

The CR80B-BOAT is delivered packed in a cardboard box.

Handling

CR80B-BOAT dehumidifier units are built for a rough life. The construction is very robust, so there is no need for special handling. However the dehumidifier must not be exposed for water.

Placing the dehumidifier

The dehumidifier must be installed indoors, placed on a wall bracket or some other horizontal mounting. It should be placed on the four supports underneath the cabinet.

Connecting the ducts

Regeneration air outlet

The regeneration air outlet should be made to drain towards the outlet in order to make sure that any condensation can drain away freely. If this is not possible, drill an $\varnothing 4$ mm hole on the lowest part of the duct for drain. Be aware that water might leak from this hole. The duct for regeneration air must be as short as possible.

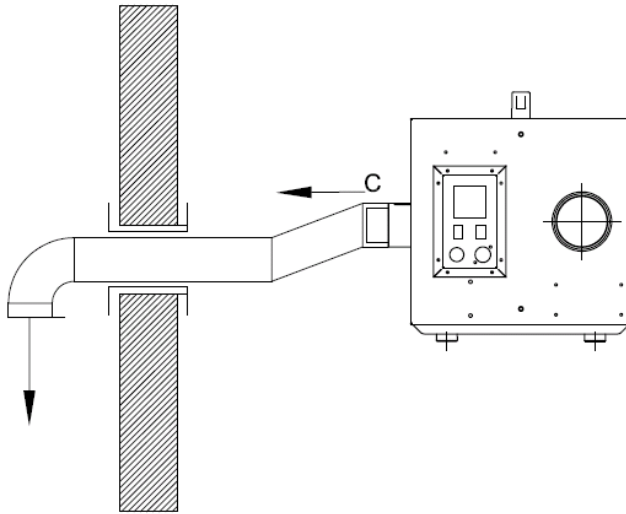


Note

If not possible to drain towards the outlet, drainage must be ensured e.g. with a drain hole (min. $\varnothing 4$ mm) at the lowest point.

Be aware that water might leak from the drilled hole.

Figure 5 Regeneration duct diagram



Dry air outlet

The dry air outlet can either run free, or be connected to ducts to control the distribution of dry air.

In general, ducts of the same size as those mounted on the dehumidifier should be used.

Air inlet

For the CR80B and CR80B-FC, the main air and the regeneration air are taken from the room through the air inlet filter. No special ducts are required.

Electrical installation

The dehumidifier is supplied with a connection cable fitted with a plug for 230V, 1N + PE.

The 3 wires in the cable must always be correct connected if plug is changed/replaced.

Requirements for installation:

Power supply:

- 230V AC 50/60 Hz
- PE (Ground)
- RCB (Residual-current device (30mA))
- External fuse 10A



Note

Risk of electrical shock if PE (ground) and RCB (Residual-current device) is not connected properly.

Power consumption:

The power consumption for CR80B-BOAT is ~450 W –700 W at start-up.

The electrical output of the heating element depends on the air passing through (the regeneration air flow). This is determined by the pressure conditions within the dehumidifier. These, in turn, are primarily determined by current process air flow (see more detailed description in the “Checking capacity” section on page 23).

The dehumidifier is prepared for 230V, 50Hz. However the dehumidifier can operate at 230V, 60Hz as well. This will increase rotors and fans rotations slightly, but without noticeable effect on the capacity of the dehumidifier. The effect will increase if free blowing. Furthermore, the timer will run a bit faster and therefore not be 100% correct.

Optimizing the dehumidification process

If deep drying are desired, meaning minimum %RH in dry air, the dehumidifier should be adjusted to nominal air flows, meaning a dry air flow of 80 m³/h, and a regeneration air flow of 25 m³/h. This can be adjusted by dampers on dry air duct and regeneration air duct.

However, if maximum capacity are desired, the dry air flow should be free blowing, with a minimum of pressure drop in the duct system. For a normal 6 m duct with no dampers the dry air flow will be 160m³/h and the regeneration air flow must be 25-30m³/h

If the air flow is too low (lower than 25 m³/h)

This is often caused by a pressure drop in the regeneration air duct (due to the length of the duct, many bends, etc.). The solution is either to shorten the duct or straighten the duct out, or to reduce the dry air flow using a damper in the dry air duct.

A limited flow of air may cause damage to the heating element and may result in a large amount of condensation in the regeneration air outlet.



Note

If the regeneration air flow is set too low, the heating element may be damaged and this will result in a large amount of condensation in the regeneration air outlet.



Note

The flow of regeneration air must always be checked. Make sure that the regeneration air duct permits unhindered passage of the regeneration air. Check that the regeneration air duct is installed to drain away from the dehumidifier.

Service guide

Parts are shown on page 30.



Warning

The main connector must always be disconnected before the dehumidifier is serviced.

If the dehumidifier has been running, the heating element should be left to cool for 15 minutes before the dehumidifier is dismantled.

This section covers the following topics:

- Service contract
- Preventive maintenance
- Lifetime of components, and replacement
- Checking capacity
- Warranty
- Additional equipment
- Troubleshooting
- Further help

Service contract

Cotes A/S offers service contracts that include preventive and/or corrective maintenance. – Please consult an authorised Cotes dealer for information.

Preventive maintenance

A Cotes dehumidifier has only a few moveable parts. The components are of high quality and are designed for a long service life.

Preventive maintenance in the form of cleaning and regular service should be carried out to ensure continued operation and to make sure that the dehumidifier and its components last as long as possible. It is important to note that the intervals between services may vary, depending on the particular environment in which the unit is installed.

Lifetime of components –and replacements

Some components of the dehumidifier have a limited lifetime as indicated below. It is important to replace these components in order to avoid breakdowns and failures.

<i>Part</i>	<i>Estimated lifetime</i>
Filter	Depending on environment
Capacitor for fan	25,000 hours
Gear for rotor	25,000 hours
Fan	40,000 hours
Motor for rotor	50,000 hours
PTC heater	50,000 hours
Rotor	50,000 hours

The procedure of replacing parts is described below.



Note

If replacement intervals are not followed, it might cause reduced or none dehumidification. Further it might cause damage to the dehumidifier.

Changing the filter

The filter should be replaced as required depending on the environment in which the unit is used.



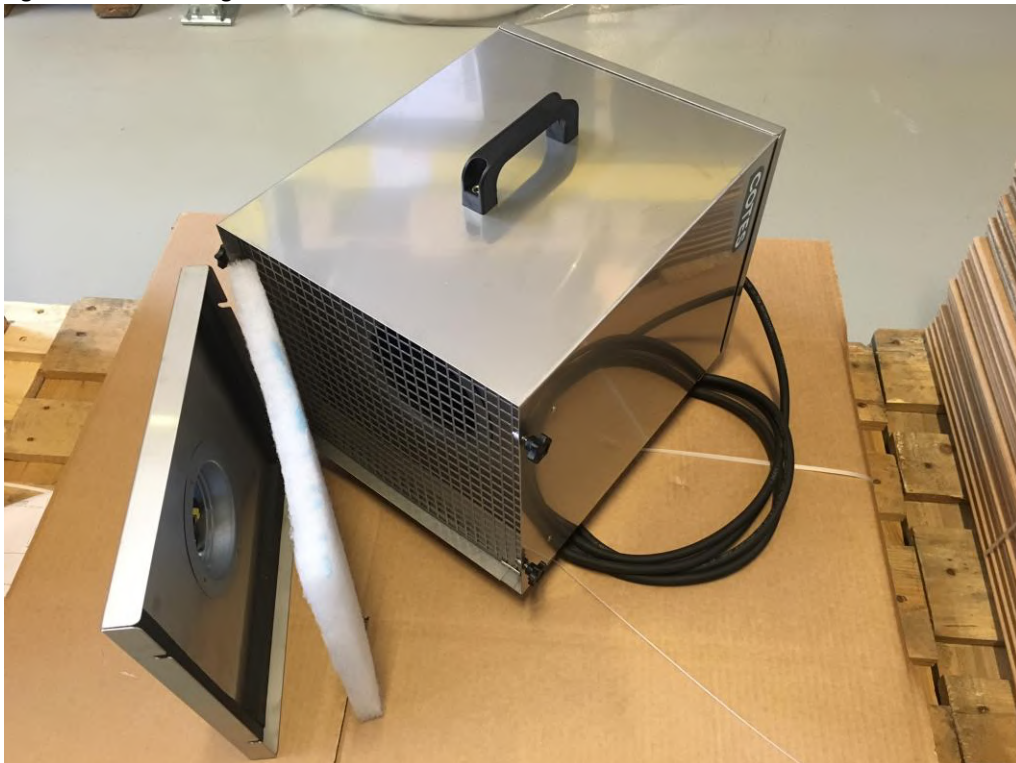
Note

Air filter should be replaced regularly when dirty.

To replace the filter:

1. Make sure that power to the dehumidifier unit is disconnected
2. Remove the net on the air inlet on the back of the unit
3. Take out the filter and clean it with compressed air/vacuum cleaner, or replace it if this is necessary
4. Install the new filter
5. Mount the net on the air inlet and reconnect the power supply.

Figure 6: How to change filter



Service/cleaning

To service and clean the dehumidifier unit:

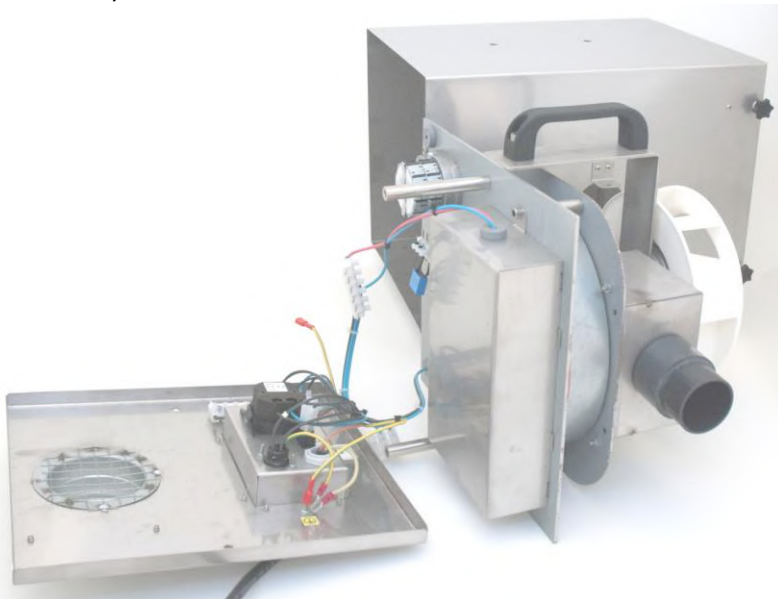
1. Make sure that power to the dehumidifier unit is disconnected
2. Remove handle on top of the cabinet (2x inbus screws)
3. Remove the grey wet air pipe on the side of the cabinet: 1x inbus screw, and pull it out of the cabinet
4. Pull the front cover out of the cabinet – and the total internal components will follow, fixed to the front cover
5. Now the cabinet and the internal parts are accessible for cleaning.



Warning

When assembling dehumidifier after service, handle must be assembled with a moment of 8Nm. This to ensure proper grounding of cabinet

Figure 7: CR80B, disassembled



To make the internal components more accessible:

1. Unscrew the front cover: 2x inbus screws
2. Pull out the PE plug from the upper left corner of the dividing plate
3. Separate the plug from the motor for gearbox, placed below the motor on the dividing plate
4. Separate the plug from the fan, placed below the fan
5. Separate the plug on the front cover, the part with the terminal numbers, N,N,N,6,7,8, pull it upwards

Replacing fan and capacitor:

The fan is placed on the internal bracket with 4x 8mm M4 inbus screws. Use Loctite or alike to prevent screws from loosening after service.

The capacitor is mounted with a nut.



Warning.

The length of screws for fan must never exceed 8 mm. Longer screws might damage the fan, and cause risk of electrical shock.

Gearbox/motor for rotor:

Motor and gearbox can be separated and replaced separately. To remove the motor from the gearbox:

- Using a screwdriver to remove the steel bracket fixing the motor.
- Remove the electrical cables.
- To remove the gearbox, firstly remove the pulley, 1x inbus screw

The gearbox is fixed with 2x M4 screws and washer

PTC heater:

This is placed under the big stainless steel cover on the dividing plate.

Remove the cover, 2x inbus screws, and replace the heater

The PTC type electric heater only operates when air flows through it. This is why there is no thermostat or thermostatic switch installed.



Warning.

Do not touch the electrical heater when it is switched on, as it is an uninsulated live wire.

Rotor:

Remove the front dividing plate and pull the rotor out of the shaft.



Note

The rotor has thin steel discs to give a distance from rotor hub to the dividing plates. Check that these existing discs also will give sufficient distance for the new rotor. When turning, the rotor material must not touch the dividing plates.

Washing the rotor

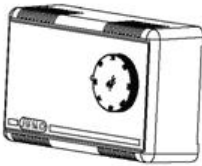
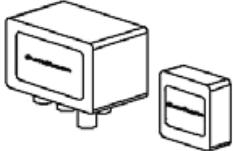
The rotor can be washed with water and a bit of detergent. However, washing the rotor is not part of the standard maintenance routine and should only be carried out if the rotor is particularly dirty.

Contact Cotes or the supplier for instructions about how to wash the rotor.

COTES C80B-BOAT
 BRUGS- OG SERVICE MAUAL / OPERATING AND SERVICE HANDBOOK

Additional equipment


The following additional equipment is available for installation with Cotes CR80B-BOAT dehumidifier units.

Additional equipment	Illustration	Brief description	Product number
Hygrostat DR10 (included)		<p>The Cotes dehumidifier is designed to be connected to an external hygrostat in cases when it is important to maintain a specific relative humidity value. This hygrostat can be set to ensure relative humidity between 30–100%. The cable from the hygrostat must be provided with a male connector that fits into the dehumidifier's hygrostat connector on the front of the cabinet.</p>	140510
DH 24 dew point control unit		<p>Combines an electronic hygrostat and a dew point control unit in one single product.</p> <p>The DH 24 dew point control unit consists of a connection box with humidity and temperature sensors and a separate control panel.</p>	140591-1

Troubleshooting

Below troubles can be located and remedied.

Problem	Cause	Action
The dehumidifier does not start	The main connector has not been connected or the group fuse has blown.	Check that the power supply to the dehumidifier is in order. Is the plug connected? If the plug is connected, check the group fuse. Check also that the selector switch on the dehumidifier is in the required position.
The dehumidifier is not working	If a hygrostat is installed as an optional extra, it may have disconnected the dehumidifier.	Check this by setting the hygrostat to e.g. 20% relative humidity. The dehumidifier will then start.
The dry air has same temperature as inlet air, and the regeneration air out is warmer than normal	The rotor is not running	Check rotor, engine and belt.
There are no flows of regeneration air and dry air	The fan is not working	Check the fan.
The regeneration air is cold	Error on heating element	Use an ammeter to check that it is possible to measure approx. 2-2.5 A.

	<p>Note If the dehumidifier is not functioning as it should, it must be disconnected immediately.</p>
---	--

Warranty conditions

The factory warranty is only valid if a documented programme of preventive maintenance has been carried out.

Maintenance must have been carried out at intervals of a minimum of six months. The documentation must be in the form of a written log/journal.

Original spare parts must have been bought from Cotes A/S or dealer.

COTES C80B-BOAT

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Further help

Contact Cotes or the local Cotes dealer for any additional help or guidance you may need.

Trademarks

Cotes A/S is the owner of the following logo



EU declaration of conformity

Cotes A/S

Ndr. Ringgade 70C

DK-4200 Slagelse

www.cotes.com

info@cotes.com

VAT no. 15 20 03 32



Declares at its own liability that the following models of Cotes adsorption dehumidifiers:

CR100, CR150, CR200, CR300, CR600, CR750, CR800T, CR900,

CR1200, CR1200S, CR1400T, CR1500, CR2000, CR2500,

CR80B, CR80B-FC, CR80B-FCS, CR80B-BOAT, CR110B, CR110BT, CR240B, CR240BT,

CR240BS, CR290B, CR290BT, CR300B, CR300BT, CR180B,

CR200B, CR200BT, CR400B, CR400BT, CR400BS, CR110LK,

CR160LK, CR300LK, CR600LK.

covered by this declaration comply with the following directives:

Machinery Directive 2006/42/EC

Ecodesign 327/2011 directive 2009/125/EF as regards the eco-design fans driven by motors with input power and 125W to 500kW.

RoHS 2011/65/EC.

EMC Directive 2004/108/EC

and are manufactured in compliance with the following harmonised standards:

EN12100:2010

Safety of machinery – general principles for design - Risk assessment and risk reduction

EN 60204-1:2006+A1:2009

Safety of machinery – electrical equipment

Part 1: General requirements

EN 61000-6-3:2007/A1:2011/AC:2012

Electromagnetic compatibility (EMC) -- Part 6-3: Generic standards - Emission standard for industrial environments commercial and light-industrial environments

EN 61000-6-2:2005

Electromagnetic compatibility (EMC) -- Part 6-2: Generic standards - Immunity for industrial environments

EN 61000-3-2:2006+A1:2009+A2:2009

Electromagnetic compatibility (EMC) -- Part 3-2: Limits – Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)

EN 61000-3-2:2013

Electromagnetic compatibility (EMC) — Part 3-2: Limits — Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)

Slagelse, Denmark October 19th. 2015



Thomas Rønnow Olesen
CEO

Disposal

This dehumidifier unit is designed to function effectively for many years. When it has reached the end of its service life, any disposal must be carried out in compliance with appropriate national legislation and procedures to safeguard the environment.

Specifications

Table 3 Technical data CR80B-BOAT

	Unit	CR80B-BOAT
Dry air, free blowing	m ³ /hour	170
Dry air, nominal	m ³ /hour	80
Regeneration air, free blowing	m ³ /hour	55
Regeneration air, nominal	m ³ /hour	30
External pressure, dry air (at 80 m ³ /hour)	Pa	150
External pressure, regeneration air (at 30 m ³ /hour)	Pa	70
Capacity at 20 °C, 60% RH, nominal	kg/h	0.275
Electric heater, max.	W	700
Power consumption, electric heater under nominal conditions	W	450
Fuse	A	10
Fan (230v/50Hz)	W	58
Motor for gear (230v/50Hz)	W	3.5
Nominal power consumption (230v/50Hz) / (230v/60Hz)	W	508 / 520*
Voltage	V	230
Frequency	Hz	50-60*
Ground		1N + PE
Sound level (EN292-2)	dB(A)	52 (1m from dehumidifier)

*) See page 19, electrical connection

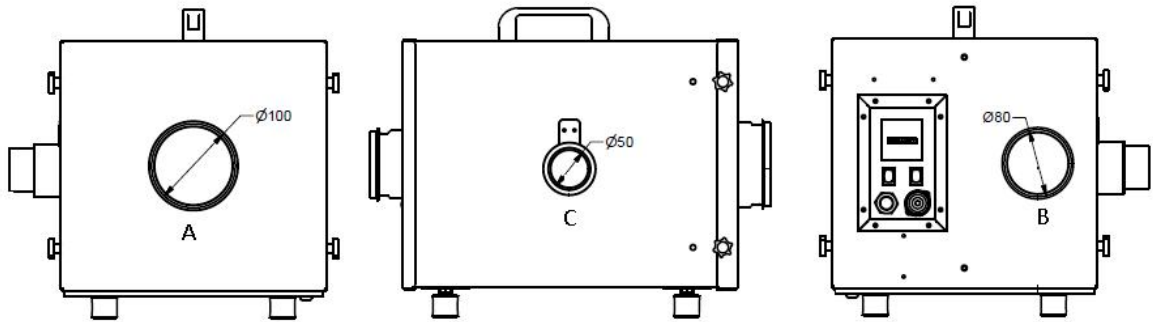
Table 4 Further specifications

Rotor (silica gel)	mm	ø220/50
Rotations of rotor	rph	16
Motor		Saia B30S
Drive belt	mm	ø6/665
Pulley	mm	R995

Table 5 Measurements

L x W x H cabinet	mm	395x313x293
L x W x H total	Mm	473x374x363
Weight	Kg	15
Regeneration air outlet	mm	ø50
Process air inlet	mm	ø100
Process air outlet	mm	ø80

Dimensions CR80-BOAT

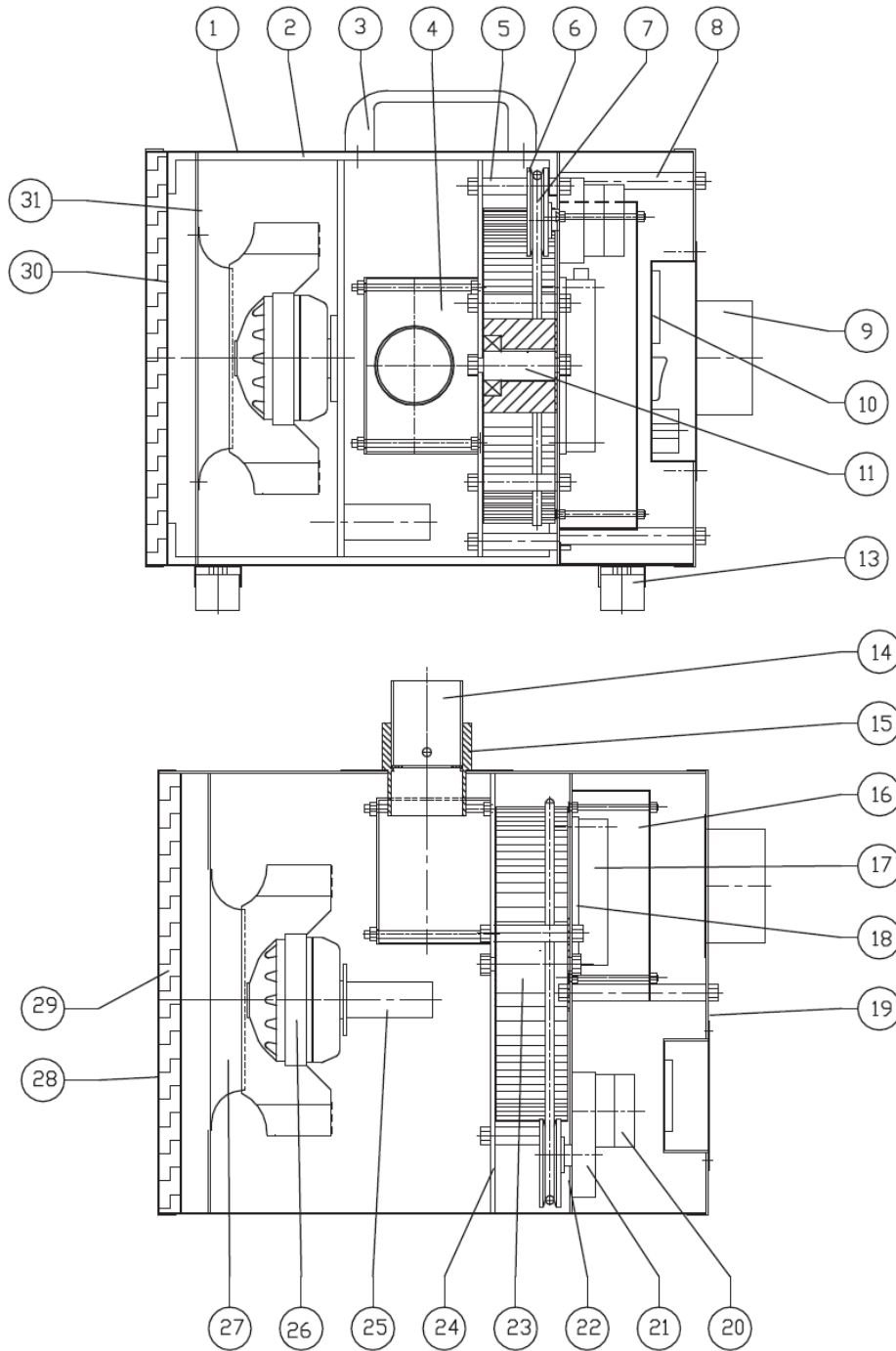


	DA	UK
A	Procesluft tilgang	Process air intake
B	Tørluft afgang	Dry air outlet
C	Regenereringsluft afgang	Regeneration air outlet

See appendix 2 for further details.

Spare parts CR80B-BOAT


Figure 8 CR80B-BOAT




COTES C80B-BOAT**BRUGS- OG SERVICE MANUAL / OPERATING AND SERVICE HANDBOOK****Table 6 Reservedele/Spare parts CR80B-BOAT**

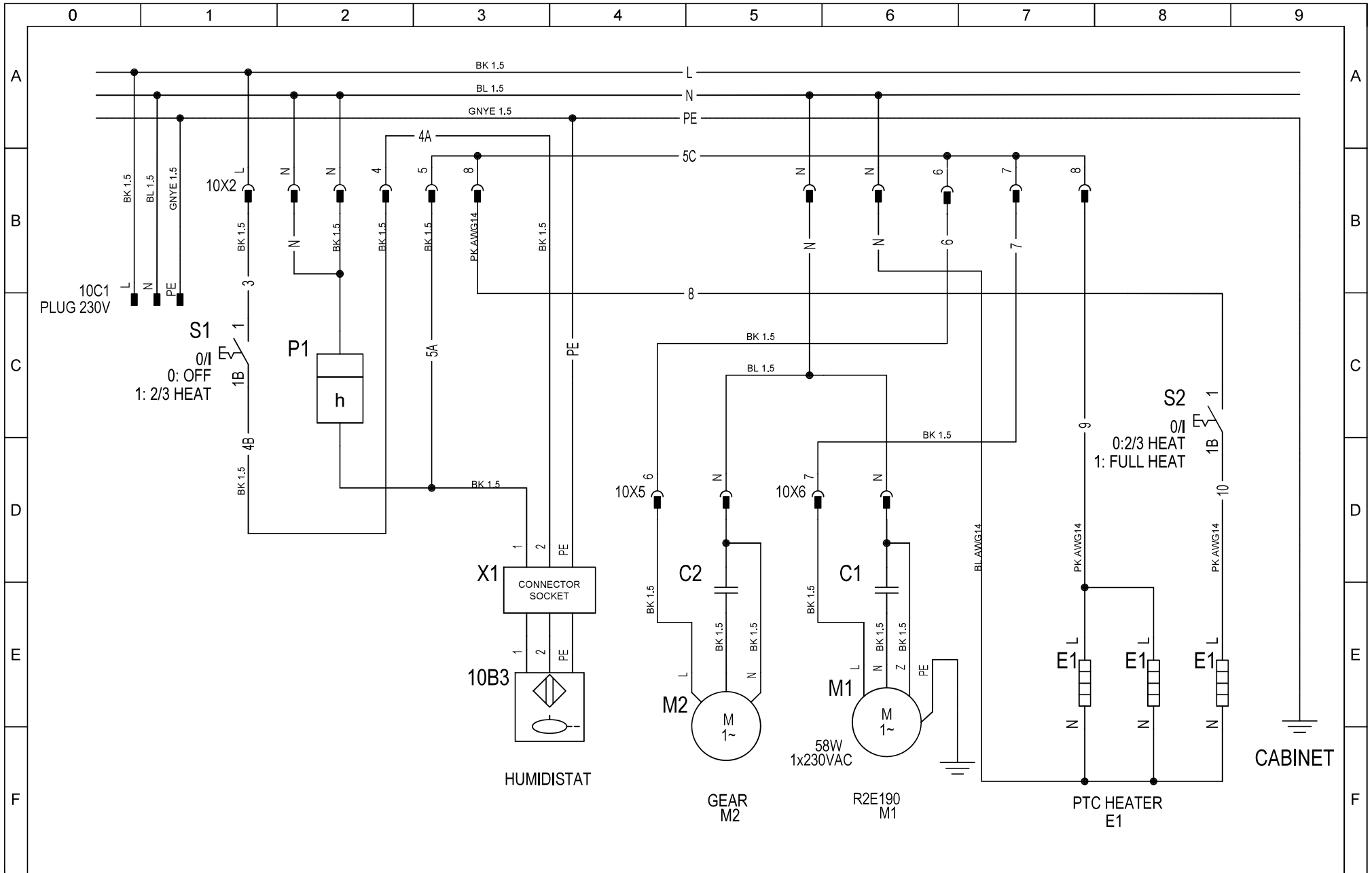
Pos	Pcs.	Part No.	Beskrivelse	Description
1	1	121900	Kabinet, svøb	Cabinet
2	1	121912	Indre konsol	Internal bracket
3	1	132158	Håndtag	Handles
4	1	121908	Reg. dåse afgang	Regeneration air connector, outlet
5	4	120283	Afstandsstykke for skilleplader	Distance bolt for dividing plates
6	1	120262	Remskive R995	Pulley R995
7	1	132100	Drivrem, ø6x770	Drive belt, ø6x770 mm
8	2	130284	Afstandsstykke for frontplade	Distance bolt for cabinet front cover
9	1	120711	Tørluftsafgang, ø80	Dry air outlet ø80 mm
10	1	112003	Timetæller	Hour counter
11	1	120282	Rotoraksel ø20	Rotor shaft ø20 mm
13	4	132007	Svingningsdæmper ø30x30, M8	Shock absorber ø30x30 mm, M6
14	1	121920	Reg. studs afgang, ø50	Regeneration air outlet connection ø50 mm
15	1	130285	Muffe for reg.studs	Muff for regeneration air outlet connection
16	1	121906	Varmedåse	Cover for electric heater
17	1	111518	PTC varmelegeme HR15 12/18 IS	PTC heater HR15 12/18 IS
18	1	131020	Teflonisolator for varmelegeme	Teflon insulator for PTC heater
19	1	121906	Frontplade m ø80 studs	Cabinet front cover
20/21	1	110406	Saia gear/motor UFR1ND4B25CNNZG23	Saia gear/motor UFR1ND4B25CNNZG23
22	1	121904	Forreste skilleplade	Dividing plate, front
23	1	124051	Rotor SG ø220/50	Rotor SG ø220/50 mm
24	1	121905	Bageste skilleplade	Dividing plate, rear
25	1	111632	Kondensator for ventilator	Capacitor for fan motor
26	1	111610	Ventilator	Fan
27	1	111611	Indløbsring for ventilator	Air intake ring for fan
28	1	614224	Kabinet, bagplade	Cabinet back cover
29	1	130258	Luftfilter	Filter for air intake
31	1	121910	Ventilatorplade	Plate for fan


	0	1	2	3	4	5	6	7	8	9	
A											A
B											B
C	CR80B										C
D	Model		E11800E-BOAT								D
E	Section:		Electrical box								E
F	Voltage:		230V AC 50Hz 1PH+N+PE								F
	System Ground		TT								
	Fuse		10A Max.								
	Ik max.		6 kA								

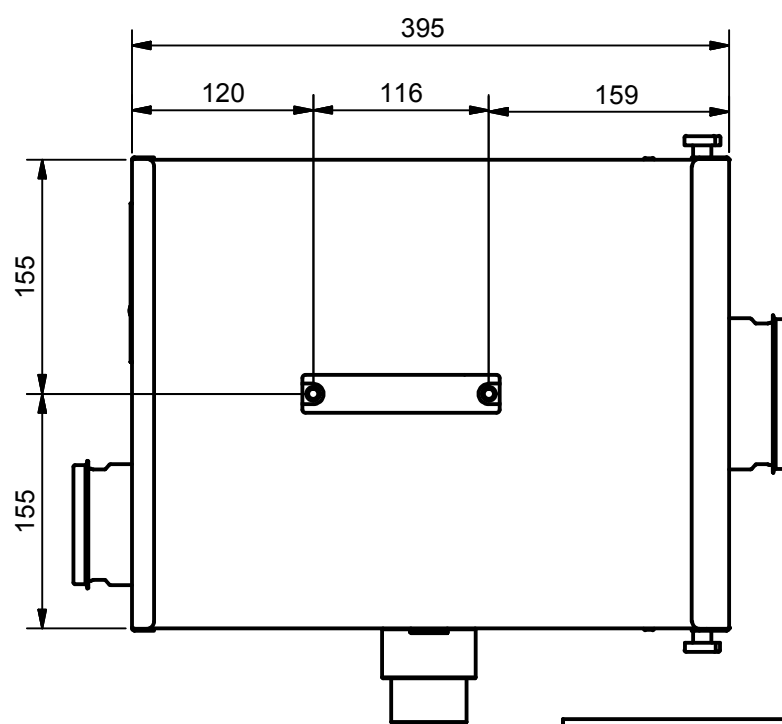
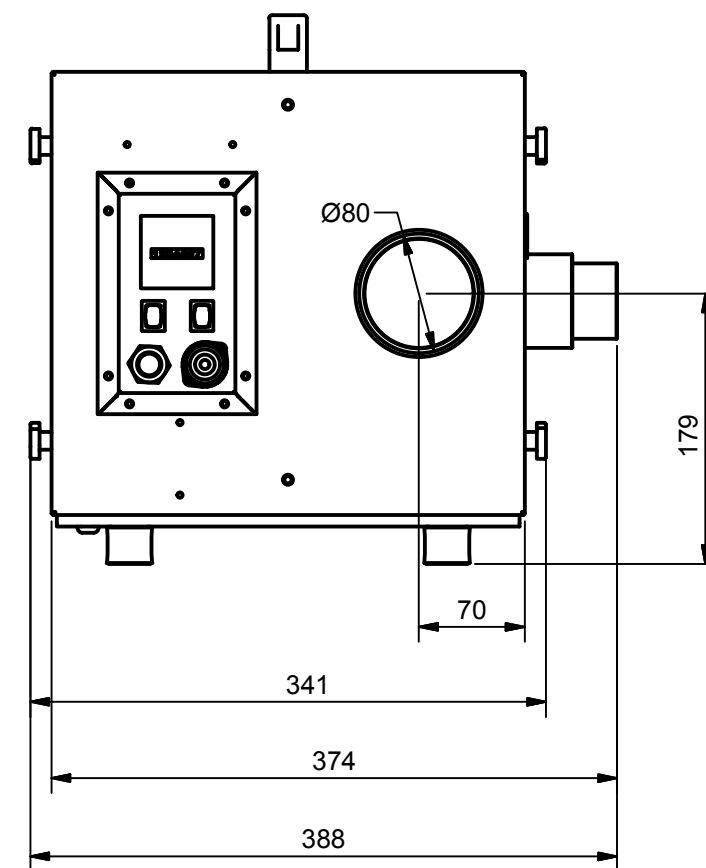
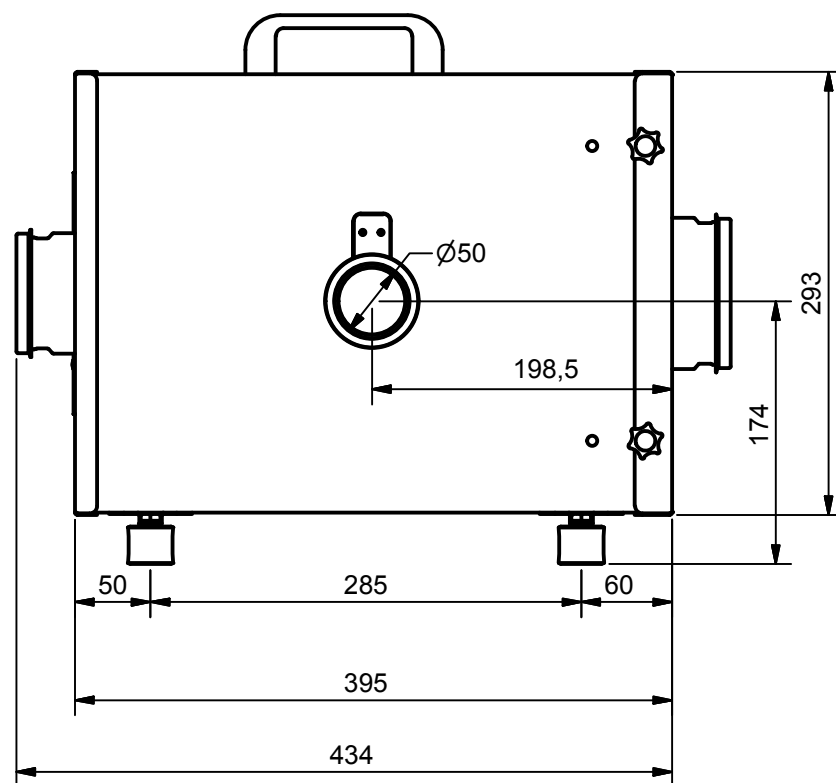
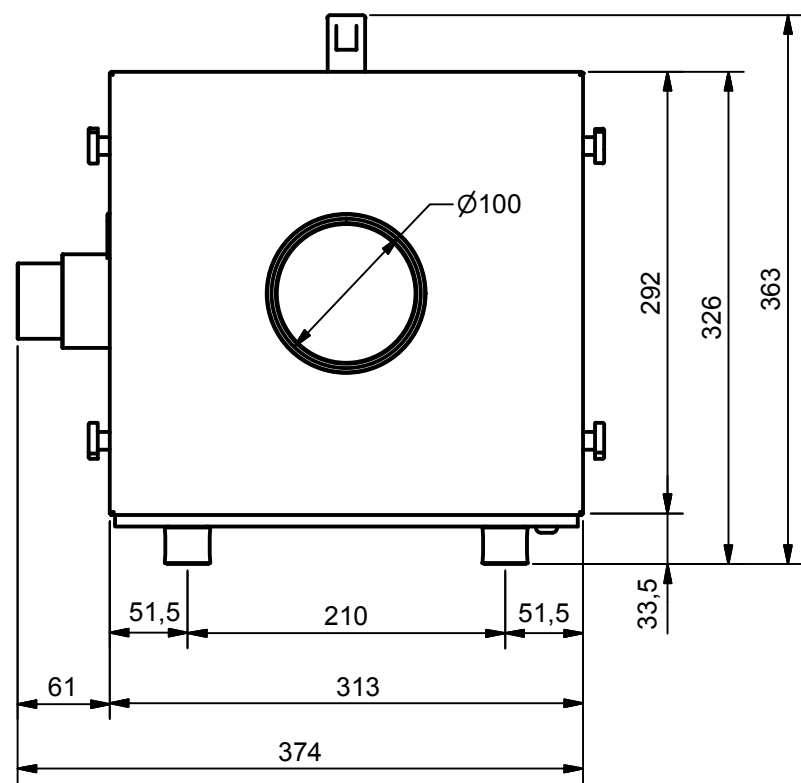
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		Circuit name: Title page	Date: 24/08/2015	Update date: 22/01/2019	Revision: B	Draw no: 1

	0	1	2	3	4	5	6	7	8	9	
A	<p>22/01/2019</p> <p>- Page 10: S2:1b reconnected to E1:L. 10X2:9 removed. S2:1 reconnected to 10X2:8.</p>										A
B											B
C											C
D											D
E											E
F											F

	Cotes A/S Ndr. Ringgade 70C DK - 4200 Slagelse	Project:	Drawn by:	Updated by:	Checked by:	Page:
		E11800E-BOAT CR80B 230V 1PH+N+PE Circuit name: List of changes	SD/TM	MMI	KMA	2 of 4
			Date:	Update date:	Revision:	Draw no:
			24/08/2015	22/01/2019	B	2

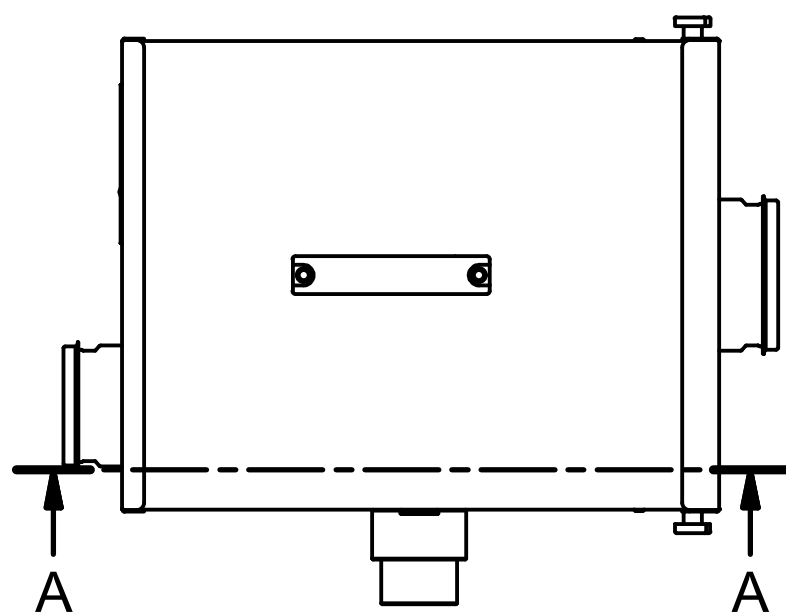
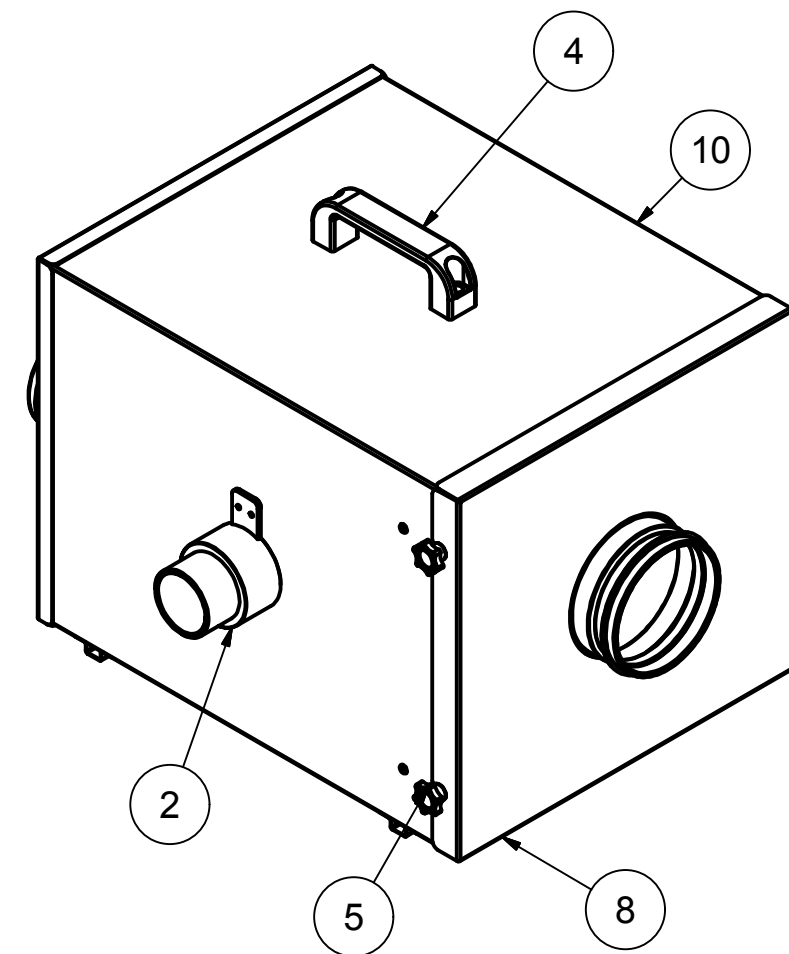
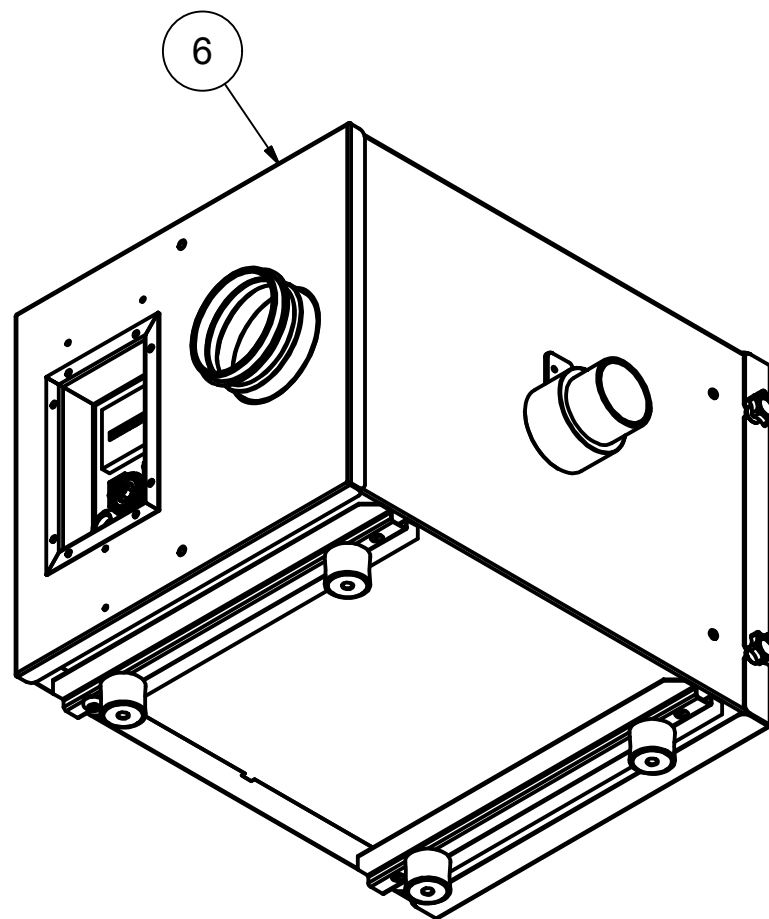
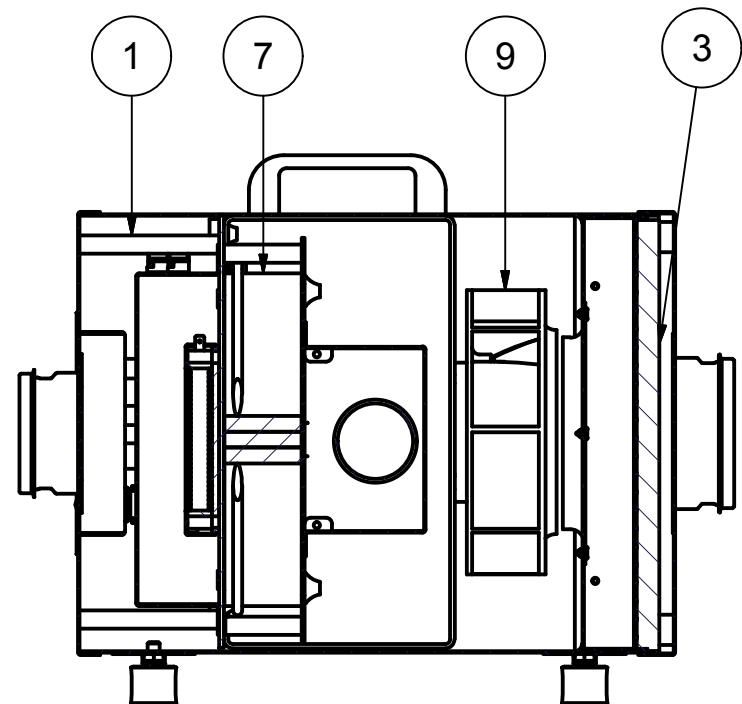


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	Circuit name: Wiring	Date: 24/08/2015	Update date: 22/01/2019	Revision: B	Draw no: 10	



COTES A/S Industrivej 31A DK-4230 Skælskør +4558196322 info@cotes.dk	COTES CR80Boat	Designed by: KBo Checked by: BNi	Date: 24-08-2015 Date: 24-08-2015	Mass: N/A	Scale: 1:5	Format: A3
		Material No.: 1 mm		Drawing No.: 10100100-30		Sheet: 1-2 Rev.

A-A (1:5)



10	1	619947	CR80B Svøb	5,3 kg
9	1	616709	CR80B ventilator samlet	1,2 kg
8	1	614224	Bag plate assembled	1,1 kg
7	1	614223	Rotor section CR80Boat	6,3 kg
6	1	614221	Front samlet	1,1 kg
5	4	132192	Fingerskrue M5X16mm RF	0 kg
4	1	132158	Håndtag plast sort A=116 mm C	0,1 kg
3	1	130258	Filter CM360 Procesluft	1,4 kg
2	1	121935	Reg afgang CR80 Plast	0,6 kg
1	2	120284	Afstandsstykke frontplade	0,1 kg
Item	Qty.	Part number	Description	Mass

COTES A/S

Industrivej 31A
DK-4230 Skælskør
+4558196322 info@cotes.dk

COTES

Designed by: KBo
Checked by: BNi
Date: 24-08-2015
Date: 24-08-2015
CR80Boat

Mass: N/A
Scale: 1:5
Format: A3

Material No.: 1 mm
Sheet: 2-2

Drawing No.: 10100100-30
Rev.