

**EBAC MODEL CD30
DEHUMIDIFIER
(FULL PRODUCT RANGE)
OWNER'S MANUAL**

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UNPACKING

Carefully remove the CD30 dehumidifier unit from its transit box and visually check for signs of transit damage. If there is evidence of damage DO NOT attempt to operate the unit, call your supplier for advice. Do not discard the packing; it will be useful when transporting the dehumidifier unit in the future.

INTRODUCTION

Dehumidifiers remove moisture from the air that is circulating through the unit.

The resulting reduction of relative humidity helps prevent rust, rot, mould, mildew and condensation within the room, or other enclosed spaces where the dehumidifier is used.

A dehumidifier consists of a motor-compressor unit, a refrigerant condenser, an air circulating fan, a refrigerated surface, a means of collecting and disposing the condensed moisture and a cabinet to house these components.

The fan draws air through the refrigerated surface and cools it below its dew point, removing moisture which is collected and led away. The cool air then passes the hot condenser, where it is reheated. With the addition of other radiated heat the air is discharged into the room at a higher temperature but lower relative humidity than when the air entered the unit. Continuous circulation of the room air through the dehumidifier unit gradually reduces the relative humidity in the room.

The CD30 has been designed for the exacting conditions which can prevail in offices, shops, houses, restaurants, public houses etc. It combines lightness and compactness with high reliability and strength. The gas, which is used inside the hermetically sealed refrigeration circuit is R134a and contains no CFC's and has therefore a zero ozone depletion factor.

SPECIFICATIONS

| | |
|------------------------------|--------------------------------------|
| MODEL: | CD30 |
| HEIGHT: | 300mm |
| WIDTH: | 305mm OR 345mm |
| LENGTH: | 550mm |
| WEIGHT: | 25/27 Kg |
| AIRFLOW: | 6.5 M ³ /min |
| POWER SUPPLY: | 240V, 1 ph, 50Hz 115V, 1 ph, 60Hz |
| POWER | 350W (max) |
| FINISH: | grey epoxy coating |
| EFFECTIVE VOLUME: | 85M ³ |
| REFRIGERANT TYPE/QTY: | R134a (170g) |

INSTALLATION

POSITIONING:

Position the dehumidifier unit in the center of the room to be conditioned if at all possible. However if a damp patch is particularly apparent the outlet grille should be pointed towards it.

NOTE: Both inlet grille and outlet grille of the dehumidifier unit must have clear space around them and not be obstructed in anyway.

WIRING:

Connect the power mains cable to a 5 or 13 Amp power supply. As follows:-

230V supply

| | |
|--------------|----------------|
| Brown | Live |
| Blue | Neutral |
| Green/Yellow | Earth (ground) |

115V supply

| | |
|--------------|----------------|
| White | Live |
| Black | Neutral |
| Green/Yellow | Earth (ground) |

DRAINAGE:

Connect a 12.5mm inside diameter hose to the condensate outlet pipe (positioned centrally, beneath the air inlet grille). Secure the hose using a worm drive clip. The hose, should at no point be raised higher than the outlet pipe. Failure to observe this requirement will result in flooding of the dehumidifier.

OPERATION

The operation of the dehumidifier is to remove moisture from the air by having it condense on the cold tubes of the evaporator coil. The air then passes over the hot condenser coil and returns to the conditioned space slightly warmer and dryer than when it entered the dehumidifier unit.

AIR MOVING SYSTEM:

Air is drawn in through the inlet grille at the rear of the dehumidifier (below the handle) and over the two heat exchanges (evaporator/condenser coils) under the influence of the axial fan, which is driven by the motor. The operation of the fan motor is to run continuously whenever power is supplied to the dehumidifier. The fan motor used in the dehumidifier unit is induction protected i.e. the motor is able to take stalled current without burning out the motor windings.

DEFROST OPERATION:

Should the ambient temperature fall below 15°C ice will form on the evaporator coil as the air is passed over it, and in turn the efficiency of the unit will drop. To prevent the build up of ice on the evaporator coil a timer is incorporated to energise the hot-gas defrost valve every 55mins for a period of 4mins. Operating the hot-gas valve causes the evaporator coil to defrost and water to drain down to the condensate pan and into the drainage tube.

HIGH TEMPERATURE CUTOFF:

The CD30 dehumidifier has been designed to work in ambient temperatures between –5°C and +35°C. Should the temperature in the room become excessive a thermostat within the compressor casing will open and dehumidifying will stop, until the thermostat resets itself?

HUMIDISTAT CONTROL:

The CD30 is fitted with a control humidistat, which measures the relative humidity of the air within the room to be conditioned. The humidistat incorporates a pointer and scale, which can be adjusted, and set to a relative humidity level that is acceptable to maintain the required conditions within the room. The humidistat controls the on/off function of the dehumidifier, when the relative humidity of the air in the room falls below the set point of the humidistat the dehumidifier will switch off, but when the relative humidity of the air starts to rise again and passes the set point the unit will switch on. The humidistat is used for the on/off function as it is a cost effective method which ensures power is only used when needed.

WARNING:

- Due to the high pressures within the refrigeration circuit, under no circumstances must direct heat be applied to the evaporator coil in an attempt to remove the build up of ice.
- No attempt should be made to cut open any part of the refrigeration circuit due to high pressures and gas involved.
- If the unit is switched off at the mains power supply for any reason, the unit must be allowed to stand at rest for at least three minutes before restarting. Failure to do so may cause the unit to blow the fuses owing to the compressor due to there being a refrigerant imbalance.

SPECIAL FEATURES (Where Fitted)

Temperature Controlled Defrost

The CD30 Dehumidifier unit can be fitted with temperature sensitive devices which will operate in conjunction with the defrost control. In normal operation the defrost control will come into operation every 55minutes, this is to ensure that there will be no build up of ice at lower temperatures, but where year round conditions need to be maintained the dehumidifier will have to operate across a wider range of temperatures. To ensure that the dehumidifier operates most efficiently this temperature sensitive device will restrict the operation to the times when the evaporator coil is at -2°C .

Heated Condensate Drainage Tube

The CD30 dehumidifier unit can be fitted with a heater tape, which will run the length of the condensate drainage tube. The effect of this heated condensate drainage tube will ensure that when the drainage point for the unit is not in the same room, but is run outside the room and could fall below freezing point, the tube will be warm enough to still allow the condensate to flow.

Control and Warning Indicator Humidistat

The CD30 dehumidifier can be fitted with a control panel, fixed to the outside of the cabinet. The panel will incorporate two humidistats which both measure the relative humidity of the air. The first humidistat incorporates a pointer and scale (as previously mentioned) and is identified as “control”. The second humidistat is situated adjacent to the control humidistat and is identified as “alarm”. This is fitted with a coloured knob to the shaft of the humidistat for easy identification. Ebac will set this humidistat to the individual customers requirements upon request.

Control Humidistat

This humidistat operates in the same way as the normal humidistat to control the on/off function of the dehumidifier units, but is factory pre-set to maintain the relative humidity air at the set point.

Alarm Humidistat

This humidistat, which has been factory pre-set, allows for connection to a warning system. This warning indicating system will be monitored by the customer and will warn and indicate when the relative humidity of the air within the room has risen above a warning level due to a fault, either with the dehumidifier or due to some other circumstances and will require a service engineer.

NOTE RATING OF ALARM HUMIDISTAT IS 3.5A @ 240V

| | |
|--------------|---------------------------------|
| Alarm wiring | Plug L - Normally open contacts |
| | Plug N - Close on humidity rise |
| | Plug E - Earth |

ROUTINE MAINTENANCE

WARNING: ENSURE THAT THE POWER CORD TO THE MACHINE HAS BEEN DISCONNECTED BEFORE CARRYING OUT ROUTINE MAINTENANCE ON ITEMS 1, 2 AND 4

To ensure continued full efficiency of the dehumidifier, maintenance procedures should be performed as follows:

Removal of the cover is achieved by means of four screws at the sides of the unit at base level. With the cover removed all maintenance can be carried out.

1. Clean the surface of the evaporator and condenser coils by blowing the dirt out from behind the fins with compressed air. Hold the nozzle of the air hose away from the coil (approx 6") to avoid damaging the fins. Alternatively, vacuum clean the coils.

WARNING: DO NOT STEAM CLEAN REFRIGERATION COILS.

2. Check that the fan is firmly secured to the motor shaft and that the fan rotates freely. Using mobile DD heavy medium oil, lubricate the motor bearing with 10 drops every 6 months.
3. To check the refrigerant charge, run the unit for 15 minutes and briefly remove the cover. The evaporator coil should be evenly frost coated across its surface. At temperatures above 25°C, the coil may be covered with droplets of water rather than frost. Partial frosting accompanied by frosting of the thin capillary tubes, indicates loss of refrigerant gas or low charge.
4. Check all wiring connections.

IF ANY OF THE PRECEDING PROBLEMS OCCUR, CONTACT THE EBAC SERVICE CENTER PRIOR TO CONTINUED OPERATION OF THE UNIT TO PREVENT PERMANENT DAMAGE.

REPAIRS

1. Should an electrical component fail, consult the Factory Service Center to obtain the proper replacement part.
2. If refrigerant gas is lost from the machine, it will be necessary to use a refrigeration technician to correct the fault. Contact the Factory Service Center prior to initiating this action.

Any competent refrigeration technician will be able to service the equipment. The following procedure must be used:

- a. The source of the leak must be determined and corrected.
- b. The machine should be thoroughly evacuated before recharging.
- c. The unit must be recharged with refrigerant measured accurately by weight.
- d. For evacuation and recharging of the machine, use the crimped and brazed charging stub attached to the side of the refrigerant compressor.

The charging stub should be crimped and rebrazed after servicing. **NEVER** allow permanent service valves to be fitted to any part of the circuit. Service valves may leak causing further loss of refrigerant gas.

3. The refrigerant compressor fitted to the dehumidifier is a durable unit that should give many years of service. Compressor failure can result from the machine losing its refrigerant gas. The compressor can be replaced by a competent refrigeration technician.

Failure of the compressor can be confirmed by the following procedure:

- a. Establish that power is present at the compressor terminals using a voltmeter.
- b. With the power disconnected, check the continuity of the internal winding by using meter across the compressor terminals. An open circuit indicates that the compressor should be replaced.
- c. Check that the compressor is not grounded by establishing that a circuit does not exist between the compressor terminals and the shell of the compressor.

TROUBLESHOOTING

| <u>SYMPTOM</u> | <u>CAUSE</u> | <u>REMEDY</u> |
|---|--|--|
| Little or no airflow | <ol style="list-style-type: none"> 1. Loose fan on shaft 2. Fan motor burnt out 3. Dirty refrigeration coils 4. Loose electrical wiring 5. Control humidistat either set too high or malfunctioning | <ol style="list-style-type: none"> 1. Tighten fan 2. Replace the fan motor 3. See <i>Routine Maintenance</i> Section 4. Check the wiring diagram to find fault and repair 5. Replace the fuse or reset the circuit breaker 6. Adjust humidistat as required or replace |
| Little or no water extraction | <ol style="list-style-type: none"> 1. Insufficient air flow 2. Compressor fault 3. Loss of refrigerant gas | <ol style="list-style-type: none"> 1. Check all of the above 2. Contact the Factory Service Center 3. Contact the Factory Service Center |
| Little or no defrost when required | <ol style="list-style-type: none"> 1. Faulty Timer 2. Faulty bypass timer | <ol style="list-style-type: none"> 1. Contact the Factory Service Center 2. Contact the Factory Service Center |

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CD30 SPARE PARTS LIST

| DESCRIPTION | PART NUMBER | | | | | | |
|---------------------------|-------------|---------|---------|---------|---------|---------|---------|
| | 1139500 | 1139525 | 1013700 | 1135400 | 1138100 | 1138600 | 1133500 |
| Product Part Number | 1139500 | 1139525 | 1013700 | 1135400 | 1138100 | 1138600 | 1133500 |
| Compressor | 3022132 | 3022132 | 3022132 | 3022132 | 3022132 | 3022132 | 3022132 |
| Compressor OH Protector | 3021519 | 3021519 | 3021519 | 3021519 | 3021519 | 3021519 | 3021519 |
| Compressor Relay | 3021520 | 3021520 | 3021520 | 3021520 | 3021520 | 3021520 | 3021520 |
| By-Pass Valve | 3020811 | 3020811 | 3020811 | 3020811 | 3020811 | 3020811 | 3020811 |
| Condenser Coil | 3020740 | 3020740 | 3020740 | 3020740 | 3020740 | 3020740 | 3020740 |
| Evaporator Coil | 2013713 | 2013713 | 2013713 | 2013713 | 2013713 | 2013713 | 2013713 |
| Filter Dryer | 3020937 | 3020937 | 3020937 | 3020937 | 3020937 | 3020937 | 3020937 |
| Fan Motor | 3035752 | 3035752 | 3035752 | 3035752 | 3035752 | 3035752 | 3035752 |
| Fan Blade | 3040129 | 3040129 | 3040129 | 3040129 | 3040129 | 3040129 | 3040129 |
| Control Humidistat | 3035141 | 3035141 | 1132200 | 1132200 | 1132200 | 1132200 | 1132200 |
| Warning Humidistat | 3035141 | 3035141 | - | - | - | - | - |
| Frostat | 3031516 | - | - | 3031516 | - | - | - |
| Control Defrost Device | 3031516 | - | - | - | - | - | - |
| PCB Timer | 1613700 | 1016900 | 1601900 | 1613700 | 1601900 | 1601900 | 1600500 |
| Solenoid Coil | 3030422 | 3030422 | 3030422 | 3030422 | 3030422 | 3030422 | 3030421 |
| Humidistat Knob | 3090611 | 3090611 | - | - | - | - | - |
| Control Knob | - | - | 2019708 | 2019708 | 2019708 | 2019708 | 2019708 |
| Control Knob Cap (black) | 3090612 | 3090612 | - | - | - | - | - |
| Warning Knob Cap (orange) | 3090645 | 3090645 | - | - | - | - | - |
| Panel Mounting Plug | 3035997 | 3035997 | - | - | - | - | - |
| Free Socket | 3035998 | - | - | - | - | - | - |
| Feet | 3100758 | - | 3100758 | 3100758 | 3100758 | 3100758 | 3100758 |
| Mains Cable | 3031225 | 3031225 | 2133711 | 2133711 | 2131145 | 2131144 | 3033837 |
| Condensate Drain Tube | 3014338 | 3014338 | 3014338 | 3014338 | 3014338 | 3014338 | 3014338 |
| Worm Drive Clip | 3086101 | 3086101 | 3086101 | 3086101 | 3086101 | 3086101 | 3086101 |
| Cover fixing Clip Nut | 3080507 | 3080507 | 3080501 | 3080501 | 3080501 | 3080501 | 3080501 |

CD30I STAND & CD30I INDICATOR BOX SPARE PARTS LIST

| <u>DESCRIPTION</u> | <u>PART NUMBER</u> |
|-----------------------|--------------------|
| CD30I Stand | 1139535 |
| Adjustable Tilt Guide | 3050305 |

| | |
|----------------------------|---------|
| CD30I Indicator Box | 1139530 |
| Red Neon Lamp | 3032272 |
| M16 Gland Type | 3032512 |
| Resistor 180K Ohms | 3032883 |
| Female Insert Contact Type | 3033810 |
| Hood | 3033811 |
| Cable Seal | 3033813 |
| Female Contact | 3033815 |
| Green Neon Indicator Lamp | 3034584 |
| Sealing Washer | 3035423 |
| 6-way Terminal Block | 3036810 |