

**EBAC MODEL CD100E
INDUSTRIAL DEHUMIDIFIER
OWNER'S MANUAL**

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UNPACKING

Carefully remove the CD100 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, shelter 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 evaporator, a means for collecting and disposing of the condensed moisture and a cabinet to house these components.

The fan draws the moist room air through the cold evaporator coil which cools the air below its dew point. Moisture forms on the evaporator and is collected in the condensate tray then lead away to a permanent drain. The cooled air then passes through the hot condenser, where it is re-heated with the same energy removed during the cooling phase and the addition heat derived from the compressor. The air is therefore discharged into the room at a slightly higher temperature but at a lower relative humidity than that at which it entered the unit. Continuous circulation of room air through the dehumidifier gradually reduces the relative humidity of the room.

The CD100 dehumidifier is a rugged reliable drying unit designed to operate effectively over a broad range of temperature and humidity conditions. A powerful and reliable active hot gas defrost system, controlled by an electronic timer, guarantees positive de-icing, thereby optimizing at low temperatures.

The unit incorporates a welded steel chassis and is finished in vinyl coated steel covers for resilience to damage caused by rough handling.

SPECIFICATIONS

MODEL:	CD100E
HEIGHT:	400mm
WIDTH:	900mm
DEPTH:	500mm
WEIGHT:	50 Kg
AIRFLOW:	510 cu.m/hr
POWER	1.2Kw (max)
POWER SUPPLY:	220V/240V, 1p, 50Hz/60Hz.
FINISH:	Vinyl Coated Steel
MOBILITY:	Choice of Mobility Aids – Wheels of Skid Handle
REFRIGERANT TYPE/QTY:	R407c (0.540Kg)

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 cord of the dehumidifier to a suitable single phase, fused power supply. As follows:-

Brown	Live
Blue	Neutral
Green/Yellow	Earth (ground)

ALARM WIRING:

Plug L (Normally Open Contacts)
Plug N (Close on Humidity Rise)
Plug E (Earth)

DRAINAGE:

Connect a 15mm 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 unit. Ensure the draintube heater tape is inserted the full length of the drain tube.

OPTIONAL

The CD100 may also be fitted with a water pump capable of discharging the condensate a vertical height of 30ft. The water can, therefore, be discharged into a drain some distance away.

OPERATION

The operation of the dehumidifier is to remove moisture from the air by having it condense on the cool tubes of the evaporator coil. The air then passes over the hot condenser and returns to the conditioned space slightly warmer and at reduced moisture content. To concentrate drying all doors and windows should be kept closed.

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.

TEST FOR CORRECT OPERATION:

WARNING: Do not run the machine without the covers in place for any longer than necessary. Do not remove/replace the covers with the power switched on.

Remove the cover by releasing the retaining bolts and follow the test procedure laid out below.

1. Set the adjustment humidistat to maximum
2. Switch the machine to the on position, this will result in the compressor starting to run and the fan blade to starting to rotate.
3. When the compressor has been running for twenty minutes the coils located above the drain tray will be evenly coated in frost. (If the temperature is above 25°C the coils will be covered in water).
4. After the machine has been running for approximately fifty minutes the unit will automatically enter defrost. The defrost cycle lasts for approximately three minutes, this will result in the frost on the coils melting and dripping into the drainage tray.
5. After the defrost has finished the machine will return to normal operation.
6. Ensure the condensate drains away from the machine.

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.

SETTING THE ADJUSTABLE HUMIDISTAT:

The positioning of the humidistat depends on the application the CD100 is being used for and the conditions within the area to be dried. The following table can be used as a guide:

APPLICATION	HUMIDISTAT SETTING
FACTORIES	60%
WAREHOUSES	50%
BASEMENTS	50%
DEFLOODING	40%

INDICATOR PANEL

The CD100 is fitted with an indicator lamp to show when power is available and when the unit is switched on.

If the unit does not appear to be functioning correctly refer to the repairs section.

SPECIAL FEATURES

HEATED CONDENSATE DRAINAGE TUBE:

The CD100E dehumidifier is fitted with a heater tape which runs the length of the condensate tube. The effect of this heated condensate drainage tube will ensure that the drainage point for the dehumidifier is kept free from ice when operated in low ambients.

CONTROL AND ALARM HUMIDISTAT:

The CD100E has 2 Humidistats Fitted:

Adjustable Humidistat

This humidistat incorporates a knob / pointer and a graduated scale which gives the customer the facility to select the desired humidity level within the room being dried. The humidistat is positioned behind the front cover, this removes the Humidistat from normal view and therefore reduces the possibility of being mistakenly adjusted.

Factory Pre-Set Humidistat

The humidistat is factory pre-set at 70%. A Voltage free set of Normally Open contacts are available at the Alarm Plug situated on the control panel. This facility allows the customer to connect to an external Alarm Monitoring System. The contacts will close on High RH.

ROUTINE MAINTENANCE

WARNING: ENSURE THAT THE POWER CORD TO THE MACHINE HAS BEEN DISCONNECTED BEFORE CARRYING OUT ROUTINE MAINTENANCE ON ITEMS 1, 2, 4, 5, AND 6.

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

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. **The fan motor is sealed for life and therefore does not need oiling.**
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.
5. To check the operation of the defrost system, switch the machine on and leave it running for approximately 45 minutes. The machine will then enter "Hot Gas" defrost mode for approximately 4 minutes before returning to normal operation. If the unit will not defrost, the printed circuit timer board may be defective or the by-pass valve may be inoperable.

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>
Unit inoperative (no red light)	No power to unit	Check the power supply and fuse
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. Fuse blown 	<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
Little or no water extraction	<ol style="list-style-type: none"> 1. Insufficient air movement 2. Compressor fault 3. Loss of refrigerant gas 4. Blocked filter dryer 	<ol style="list-style-type: none"> 1. Check all of the above 2. Contact the Factory Service Center 3. Contact the Factory Service Center 4. 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
Unit vibrates excessively	<ol style="list-style-type: none"> 1. Loose compressor mounts damaged 2. Damaged Fan 	<ol style="list-style-type: none"> 1. Tighten the nuts on the compressor mounts 2. Remove obstruction

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CD100E SPARE PARTS LIST

<u>DESCRIPTION</u>	<u>PART NUMBERS</u>
	<u>1027300</u>
Pre Set Humidistat	2139511
Adjustable Humidistat	3031528
Compressor	3020128
Reversing Valve	3020810
Filter Dryer	3020904
Fan Motor	3030129
Solenoid Coil	3030402
Rotary Switch	3030555
Drain Tube Heater Tape	3031629
Indicator Lamp	3032203
Float Switch	3033021
Contacto	3034389
Panel Mounting Plug	3035997
Free Socket	3035998
Fan Blade	3040116
Knob	3090611
Knob Cap	3090612
Knob Pointer	3090613
CD100E Machine Label	2027311
Control Panel Label	2027309

CD100 / CD100E WALL MOUNTING BRACKET KIT

PART NUMBER 1027301

KIT CONTENTS:

Item	Qty	Description	Packed	Recieved
1	2	Frame Hook Rail		
2	1	Frame Location Angle		
3	1	Frame Top Angle		
4	2	Frame Bottom Angle		
5	2	'U' Channel With Foot		
6	2	Frame Support		
7	3	3/16" Dome Head Rivet		
8	10	M8 X 25mm Hex Head Screw		
9	10	M8 Spring Washer		
10	10	M8 Flat Washer		
11	10	M8 Spring Nut and Plate		
12	6	End Cap		
13	1	Mounting Fame Assembly 1027301		
14	1	Installation Drawing 5060117		
15	1	Installation Instructions 2027316		

Assembly Instructions:

With reference to the table above, unpack the Mounting Frame Kit and check for completeness.
 With reference to Drawing 1027301 Assemble the mounting frame as follows:-

1. Using Items 8, 9, 10, 11 assemble Items 4 and 5 ensuring the edge of the foot is flush with the end of Item 4.
2. Using Items 8, 9, 10, 11 assemble Items 5 and 3 ensuring the distance of 900mm +/- 2mm is maintained over Items 4.
3. Using Items 8, 9, 10, 11 assemble Items 1, 4 and 6 ensuring the front edges are flush.
4. Insert Item 12 into the front of the 'U' Channel.
5. Drill the appropriate fixing holes into Item 3 to secure bracket onto the wall.
6. Secure the bracket to the wall
7. With reference to Drawing 5060117 Position the CD100 / CD100E onto the Wall Mounted Bracket.
8. Using Item 6 assemble items 1 and 2 ensuring the fingers of Item 2 locate into the CD100 chassis.
9. Secure the CD100 / CD100E with the 2 Claw Clamps onto Item 1.